

CHINO BASIN WATERMASTER



NOTICE OF MEETING

Thursday, June 25, 2026

11:00 a.m. – Watermaster Board Meeting

**CHINO BASIN WATERMASTER
WATERMASTER BOARD MEETING**

11:00 a.m. – June 25, 2026

Mr. Marty Zvirbulis, Chair

Mr. Jeff Pierson, Vice-Chair

Mr. Bob Bowcock, Secretary/Treasurer

At The Offices Of

Chino Basin Watermaster

9641 San Bernardino Road

Rancho Cucamonga, CA 91730

AGENDA

CALL TO ORDER

FLAG SALUTE

ROLL CALL

PUBLIC COMMENTS

This is an opportunity for members of the public to address the Board on any short non-agenda items that are within the subject matter jurisdiction of the Chino Basin Watermaster. No discussion or action can be taken on matters not listed on the agenda, per the Brown Act. Each member of the public who wishes to comment shall be allotted three minutes, and no more than three individuals shall address the same subject.

AGENDA – ADDITIONS/REORDER

SAFETY MINUTE

I. CONSENT CALENDAR

All matters listed under the Consent Calendar are considered to be routine and non-controversial and will be acted upon by one motion in the form listed below. There will be no separate discussion on these items prior to voting unless any members, staff, or the public requests specific items be discussed and/or removed from the Consent Calendar for separate action.

A. MINUTES

Approve as presented:

Minutes of the Watermaster Board Meeting held on May 28, 2026 *(Page 1)*

B. FINANCIAL REPORTS

Receive and file as presented:

Monthly Financial Report for the Period Ended April 30, 2026 *(Page 7)*

C. ANNUAL REPORT OF THE PRADO BASIN HABITAT SUSTAINABILITY PROGRAM WATER YEAR 2025

Receive and file the Water Year 2025 Annual Report. *(Page 24)*

D. APPLICATION: WATER TRANSACTION – 802.36 AF FROM SAN ANTONIO WATER COMPANY TO MONTE VISTA WATER DISTRICT

Approve the proposed transaction. *(Page 246)*

E. APPLICATION: RECHARGE – SAN ANTONIO WATER COMPANY

Approve San Antonio Water Company's Application for Recharge and direct Watermaster staff to account for any recharge into the Chino Basin in the appropriate storage account. *(Page 253)*

F. PROFESSIONAL SERVICES AGREEMENT BETWEEN APPLIED COMPUTER TECHNOLOGIES AND CHINO BASIN WATERMASTER *(Page 264)*

Approve and authorize the General Manager to execute the contract on behalf of Watermaster.

G. PROFESSIONAL SERVICES AGREEMENT BETWEEN RAUCH COMMUNICATION CONSULTANTS, INC. AND CHINO BASIN WATERMASTER *(Page 287)*

Approve and authorize the General Manager to execute the contract on behalf of Watermaster.

H. LETTER OF SUPPORT FOR GRANT APPLICATION IN SUPPORT OF TVMWD MIRAMAR PUMPBACK PROJECT

Approve letter of support for signature as presented. *(Page 311)*

I. ENGINEERING SERVICES (WEST YOST) CONTRACT RATE SCHEDULE FOR FY 2026/27 (INFORMATION ONLY) *(Page 314)*

II. BUSINESS ITEMS

A. FINAL 2025 SAFE YIELD REEVALUATION REPORT

The staff report and attachments will be distributed separately.

B. ECONOMIC ANALYSIS OF PEACE II AGREEMENT TERMS - PHASE II (ORAL REPORT ONLY)

C. FISCAL YEAR 2026/27 PROPOSED PAY SCHEDULE EFFECTIVE JULY 1, 2026 *(Page 318)*

Approve the Fiscal Year 2026/27 Pay Schedule as presented.

D. FISCAL YEAR 2025/26 ASSESSMENT PACKAGE

The staff report and attachments will be distributed separately.

E. RESOLUTION 2026-02 TO LEVY REMAINING REPLENISHMENT AND ADMINISTRATIVE ASSESSMENTS FOR FISCAL YEAR 2025/26, BASED ON PRODUCTION YEAR 2024/25

The staff report and attachments will be distributed separately.

III. REPORTS/UPDATES

A. WATERMASTER LEGAL COUNSEL

1. June 12, 2026 Court Hearing (Watermaster Motion for Approval of Corrected and Amended Assessment Packages; Request for Approval of Intervention of San Gabriel Band of Mission Indians)
2. August 14, 2026 (Watermaster Motion for Approval of Corrected and Amended Assessment Packages)
3. Inland Empire Utilities Agency, et al. v. LS-Fontana LLC (C.D. Cal Cases Nos.: 5:25-cv-00809, 5:25 cv01159)
4. Court of Appeal Case No. E088249 (City of Ontario appeal re: January 30, 2026 Attorney Fees Ruling)
5. Petition to Santa Ana Regional Water Quality Control Board to Require Stormwater Permits for Commercial, Industrial, and Institutional Facilities in re Chino Creek

B. ENGINEER

1. 2025 Annual Report of the Prado Basin Habitat Sustainability Program

C. GENERAL MANAGER

1. Notice of Budget Transfer
2. July Meeting Schedule
3. New Employee Introductions
4. Other

IV. INFORMATION

A. RECHARGE INVESTIGATION AND PROJECTS COMMITTEE (PROJECT 23a STATUS) (Page 323)

B. CHINO BASIN DAY WITH THE REGIONAL BOARD (Page 324)

V. BOARD MEMBER COMMENTS

VI. OTHER BUSINESS

VII. CONFIDENTIAL SESSION - POSSIBLE ACTION

Pursuant to Article II, Section 2.6, of the Watermaster Rules & Regulations, a Confidential Session may be held during the Watermaster Board meeting for the purpose of discussion and possible action.

1. CONFERENCE WITH LEGAL COUNSEL – PENDING LITIGATION: a) Chino Basin Municipal Water District v. City of Ontario et al., 4th District Court of Appeal Case No. E080457 and E082127

VIII. FUTURE MEETINGS AT WATERMASTER

06/25/26	Thu	9:30 a.m.	Watermaster Orientation (in person only)
06/25/26	Thu	11:00 a.m.	Watermaster Board
07/09/26	Thu	9:00 a.m.	Appropriative Pool Committee
07/09/26	Thu	11:00 a.m.	Non-Agricultural Pool Committee
07/09/26	Thu	1:30 p.m.	Agricultural Pool Committee
07/09/26	Thu	3:30 p.m.	Rules & Regulations Ad Hoc Committee (Tentative)
07/16/26	Thu	9:00 a.m.	Advisory Committee
07/16/26	Thu	10:00 a.m.	Recharge Investigations and Projects Committee (RIPComm)
07/23/26	Thu	9:30 a.m.	Watermaster Orientation (in person only)
07/23/26	Thu	11:00 a.m.	Watermaster Board

ADJOURNMENT

DRAFT MINUTES
CHINO BASIN WATERMASTER
WATERMASTER BOARD MEETING

May 28, 2026

The Watermaster Board meeting was held at the offices of the Chino Basin Watermaster located at 9641 San Bernardino Road, Rancho Cucamonga, CA, and via Zoom (conference call and web meeting) on May 28, 2026.

WATERMASTER BOARD MEMBERS PRESENT AT WATERMASTER

Marty Zvirbulis, Chair	Fontana Water Company
Jeff Pierson, Vice-Chair	Agricultural Pool – Crops
Bob Bowcock, Secretary/Treasurer	Non-Agricultural Pool – CalMat Co
Steve Elie	Inland Empire Utilities Agency
Bob Kuhn	Three Valleys Municipal Water District
Jimmy Medrano	Agricultural Pool – State of CA
Kati Parker for Bill Velto	City of Upland

WATERMASTER BOARD MEMBERS ON ZOOM

Mike Gardner	Western Municipal Water District
--------------	----------------------------------

WATERMASTER BOARD MEMBERS ABSENT

Curt Burton	City of Chino
Bill Velto	City of Upland

WATERMASTER STAFF PRESENT

Edgar Tellez Foster	Water Resources Mgmt. & Planning Director
Anna Nelson	Director of Administration
Frank Yoo	Data Services and Judgment Reporting Manager
Daniela Uriarte	Senior Accountant
Ruby Favela Quintero	Executive Assistant
Alonso Jurado	Water Resources Senior Associate
Kirk Richard Dolar	Administrative Analyst
Jordan Garcia	Water Resources Associate
Noemi Medrano	Administrative Assistant

WATERMASTER CONSULTANTS PRESENT AT WATERMASTER

Scott Slater	Brownstein Hyatt Farber Schreck, LLP
Andy Malone	West Yost

WATERMASTER CONSULTANTS PRESENT ON ZOOM

Brad Herrema	Brownstein Hyatt Farber Schreck, LLP
--------------	--------------------------------------

OTHERS PRESENT AT WATERMASTER

Bob Feenstra	Agricultural Pool – Dairy
Lewis Callahan	Agricultural Pool – State of CA
Tariq Awan	Agricultural Pool – State of CA
Chris Diggs	City of Pomona
Amanda Coker	Cucamonga Valley Water District
Jiwon Seung	Cucamonga Valley Water District
Shawn Harkness	CV Strategies
Cris Fealy	Fontana Water Company
Eric Tarango	Fontana Water Company
Frank Gomez	Fontana Water Company
Josh Swift	Fontana Union Water Company

Justin Castruita
Bryan Smith
Eddie Lin
John Russ
Aimee Zhao
Michelle Licea
Laura Roughton

Fontana Union Water Company
Jurupa Community Services District
Inland Empire Utilities Agency
Inland Empire Utilities Agency
Inland Empire Utilities Agency
Monte Vista Water District
Western Municipal Water District

OTHERS PRESENT ON ZOOM

Christen Miller
Gino Filippi
Michael Maeda
Ben Orosco
Hye Jin Lee
Ron Craig
Chad Nishida
Courtney Jones
Nicole deMoet
Mark Gibboney
Tracy Egoscue
Toby Moore
Chris Berch
Andrew Gagen
Manny Martinez
Stephanie Reimer
David De Jesus
Richard Rees

Agricultural Pool – County of San Bernardino
Agricultural Pool – Crops
Agricultural Pool – State of CA
City of Chino
City of Chino
City of Chino Hills
City of Ontario
City of Ontario
City of Upland
Cucamonga Valley Water District
Egoscue Law Group, Inc.
Golden State Water Company
Jurupa Community Services District
Monte Vista Irrigation Company
Monte Vista Water District
Monte Vista Water District
Three Valleys Municipal Water District
WSP USA

CALL TO ORDER

Chair Zvirbulis chaired and called the Watermaster Board meeting to order at 11:00 a.m.

FLAG SALUTE

(00:00:12) Chair Zvirbulis led the Board in the flag salute.

(00:00:45) General Counsel Slater informed the Board that, in order to allow Board Member Gardner to participate virtually and consistent with Brown Act requirements, a 2/3 vote of the Board was required to allow and add the remote participation item to the agenda pursuant to the Just Cause provisions of government code section 54953.8.3.

(00:01:27)

Motion by Vice-Chair Jeff Pierson, seconded by Mr. Jimmy Medrano, there being no dissent, the item passed unanimously by roll call vote as attached to these minutes.

Moved to approve allowing Mr. Mike Gardner, to participate in the Board meeting virtually pursuant to the four findings consistent with CA Government Code Section 54953.8.3 as follows:

- 1. Mr. Mike Gardner disclosed that there was not anyone over 18 years old present at the remote location at which he would be participating in the Board meeting.***
- 2. More than a quorum of the Board of the other Board Members was present at Watermaster's Boardroom.***
- 3. Mr. Mike Gardner was participating remotely because he was providing care to his spouse (Gov. Code Section 54953.8.3(c) and had not exceeded the annual limit for remote participation under CA Government Code Section 54953.8.3.***
- 4. The Board was providing, via Zoom, a two-way audiovisual platform so the public could remotely hear and visually observe the meeting.***

ROLL CALL

(00:03:32) Ms. Nelson conducted the roll call and announced that a quorum was present.

PUBLIC COMMENTS

This is an opportunity for members of the public to address the Board on any short non-agenda items that are within the subject matter jurisdiction of the Chino Basin Watermaster. No discussion or action can be taken on matters not listed on the agenda, per the Brown Act. Each member of the public who wishes to comment shall be allotted three minutes, and no more than three individuals shall address the same subject.

None

AGENDA – ADDITIONS/REORDER

None

SAFETY MINUTE

None

I. CONSENT CALENDAR

All matters listed under the Consent Calendar are considered to be routine and non-controversial and will be acted upon by one motion in the form listed below. There will be no separate discussion on these items prior to voting unless any members, staff, or the public requests specific items be discussed and/or removed from the Consent Calendar for separate action.

A. MINUTES

Approve as presented:
Minutes of the Watermaster Board Meeting held April 23, 2026

B. FINANCIAL REPORTS

Receive and file as presented:
Monthly Financial Reports for the Periods Ended February 28, 2026, and March 31, 2026

(00:05:19)

Motion by Mr. Bob Bowcock, seconded by Mr. Steve Elie, there being no dissent, the item passed unanimously by voice vote among those present.

Moved to approve the Consent Calendar as presented.

II. BUSINESS ITEMS

A. WATERMASTER FISCAL YEAR 2026/27 BUDGET

Adopt the Watermaster Fiscal Year 2026/27 Budget as presented.

(00:05:54) Mr. Tellez Foster prefaced the item and asked Ms. Uriarte to give a presentation. A discussion ensued.

(00:13:21)

Motion by Mr. Steve Elie, seconded by Vice-Chair Jeff Pierson, there being no dissent, the item passed unanimously by roll call vote as attached to these minutes.

Moved to approve Business Item II.A. as presented.

III. REPORTS/UPDATES

A. WATERMASTER LEGAL COUNSEL

1. June 12, 2026, Court Hearing (Watermaster Motion for Approval of Corrected and Amended Assessment Packages; Request for Approval of Intervention of San Gabriel Band of Mission Indians)
2. Inland Empire Utilities Agency, et al. v. LS-Fontana LLC (C.D. Cal Cases Nos.: 5:25-cv-00809, 5:25 cv01159)
3. Court of Appeal Case No. E088249 (City of Ontario appeal re: January 30, 2026 Attorney Fees Ruling)

(00:15:02) Mr. Slater gave a report.

B. ENGINEER

1. Final Draft 2025 Safe Yield Reevaluation Report and Workshop
2. Annual Report for the Prado Basin Habitat Sustainability Program
3. Data Collection and Evaluation Report

(00:17:01) Mr. Malone gave a report. A discussion ensued.

C. GENERAL MANAGER

1. Other

(00:32:31) Mr. Tellez Foster notified the Board, that staff is proceeding with filling the Field Operations Specialist positions and that the new employees will be introduced next month.

IV. INFORMATION

A. RECHARGE INVESTIGATION AND PROJECTS COMMITTEE (PROJECT 23a STATUS)

Informational item only; no oral update was given.

V. BOARD MEMBER COMMENTS

(00:33:28) Mr. Gardner thanked the Board for allowing his remote participation. Ms. Kati Parker expressed appreciation for an efficient meeting.

VI. OTHER BUSINESS

None

VII. CONFIDENTIAL SESSION - POSSIBLE ACTION

Pursuant to Article II, Section 2.6, of the Watermaster Rules & Regulations, a Confidential Session may be held during the Watermaster Board meeting for the purpose of discussion and possible action.

None

ADJOURNMENT

Chair Zvirbulis adjourned the Watermaster Board meeting at 11:34 a.m.

Secretary: _____

Approved: _____

Attachments:

1. 20260625 Roll Call Vote Outcome for Board Member Gardner’s Remote Participation
2. 20260525 Roll Call Vote Outcome for Business Item II.A.

ATTACHMENT 1

May 28, 2026 Watermaster Board Roll Call Vote Outcome

Member	Alternate	Add Item to Agenda for Remote Participation
Bowcock, Bob		Yes
Burton, Curt**		Yes
Elie, Steve		Yes
Gardner, Mike*		
Kuhn, Bob		Yes
Medrano, Jimmy		Yes
Pierson, Jeff, Vice-Chair		Yes
Velto, Bill**	Parker, Kati	Yes
Zvirbulis, Marty, Chair		Yes
	OUTCOME:	Passed Unanimously

*Participated via Zoom

**Absent

ATTACHMENT 2

May 28, 2026 Watermaster Board Roll Call Vote Outcome

Member	Alternate	Business Item II.A.
Elie, Steve		Yes
Gardner, Mike*		Yes
Kuhn, Bob		Yes
Medrano, Jimmy		Yes
Pierson, Jeff, Vice-Chair		Yes
Velto, Bill**	Parker, Kati	Yes
Bowcock, Bob		Yes
Burton, Curt**		Yes
Zvirbulis, Marty, Chair		Yes
	OUTCOME:	Passed Unanimously

*Participated via Zoom

**Absent



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 2026
TO: Watermaster Committees & Board
SUBJECT: Monthly Financial Reports (For the Reporting Period Ended April 30, 2026)
(Consent Calendar Item I.B.)

Issue: Record of Monthly Financial Reports for the reporting period ended April 30, 2026 [Normal Course of Business]

Recommendation: Receive and file Monthly Financial Reports for the reporting period ended April 30, 2026 as presented.

Financial Impact: Unless otherwise noted, all expenditures were included in the Fiscal Year 2025/26 budget as approved by the Advisory Committee and adopted by the Watermaster Board in May 2025, and subsequently amended in July 2025, and in January 2026.

ACTIONS:

Appropriative Pool – June 11, 2026 [Final]: Received and filed.
Non-Agricultural Pool – June 11, 2026 [Final]: Received and filed without approval.
Agricultural Pool – June 11, 2026 [Final]: Received and filed.
Advisory Committee – June 18, 2026 [Final]: Received and filed.
Watermaster Board – June 25, 2026 [Recommended]: Receive and file.

BACKGROUND

A monthly financial reporting packet is provided to keep all members apprised of Watermaster revenues, expenditures, and other financial activities. Monthly reports include the following:

1. Cash Disbursements – Summarized report of all payments made during the reporting month.
2. Credit Card Expense Detail – Detail report of all credit card activity during the reporting month.
3. Combining Schedule of Revenues, Expenses & Changes in Net Assets – Detail report of all revenue and expense activity for the fiscal year to date (YTD), summarized by pool category.
4. Treasurer’s Report – Summary of Watermaster investment holdings and anticipated earnings as of month end.
5. Budget to Actual Report – Detail report of actual revenue and expense activity, shown for reporting month and YTD, comparatively to the amended budget and carryover budget.
6. Monthly Variance Report & Supplemental Schedules – Supporting schedule providing explanation for major budget variances, additional tables detailing pool fund balances, salaries expense, legal expense, engineering expense, and carryover budget.

DISCUSSION

Detailed explanations of major variances and other additional information can be found on the “Monthly Variance Report & Supplemental Schedules.”

Watermaster staff is available to provide additional explanations or respond to any questions on these reports during the monthly meetings as requested.

ATTACHMENT

1. Monthly Financial Reports (Period Ended April 30, 2026)



**Chino Basin Watermaster
Cash Disbursements
April 2026**

Date	Number	Vendor Name	Description	Amount
04/02/2026	25983	BOWCOCK, ROBERT		\$ (1,125.00)
04/02/2026	25984	BURRTEC WASTE INDUSTRIES, INC.	Utilities: Waste	(168.79)
04/02/2026	25985	CONCENTRA	Pre-employment screening	(219.00)
04/02/2026	25986	CUCAMONGA VALLEY WATER DISTRICT - UTILITY	Utilities: Water	(439.50)
04/02/2026	25987	EMPOWER LAB	CVI assessments	(100.00)
04/02/2026	25988	FRONTIER COMMUNICATIONS	Office alarm lines, teams phones, and DIA - April 2026	(1,189.47)
04/02/2026	25989	GREAT AMERICA LEASING CORP.	Copy machine lease - March 2026	(1,234.66)
04/02/2026	25990	HUITSING, JOHN		(625.00)
04/02/2026	25991	IN-SITU, INC.	Quarterly pressure transducer downloads and replacements	(10,827.20)
04/02/2026	25992	KUHN, BOB		(500.00)
04/02/2026	25993	MIKE THE PRINTER, INC.	47th Annual Report printing	(1,603.17)
04/02/2026	25994	PITNEY BOWES GLOBAL FINANCIAL SVCS.	Quarterly postage meter lease	(454.87)
04/02/2026	25995	RUBEN LLAMAS		(125.00)
04/02/2026	25996	SOCALGAS	Utilities: Gas	(205.62)
04/02/2026	25997	SOUTHERN CALIFORNIA EDISON	Utilities: Electric - Annex	(176.93)
04/02/2026	25998	VC3, INC.	IT services - March 2026	(1,969.21)
04/02/2026	25999	VISION SERVICE PLAN	Vision insurance premium - April 2026	(110.18)
04/02/2026	26000	WESTERN MUNICIPAL WATER DISTRICT		(375.00)
04/06/2026	ACH 4.6.26	JOHN J. SCHATZ	AP legal services - March 2026	(550.00)
04/08/2026	ACH 4.8.26	CALPERS	Medical Insurance Premiums - April 2026	(17,430.96)
04/09/2026	26001	ACP PUBLICATIONS & MARKETING	Name plates for administrative staff	(229.51)
04/09/2026	26002	ACWA JOINT POWERS INSURANCE AUTHORITY	Life insurance - May 2026	(282.48)
04/09/2026	26003	APPLIED COMPUTER TECHNOLOGIES	Remote support for database services	(656.25)
04/09/2026	26004	BAY ALARM COMPANY	Quarterly monitoring services and burglar/fire alarm systems - April 2026	(481.51)
04/09/2026	26005	BROWNSTEIN HYATT FARBER SCHRECK	Legal services - February 2026	(139,873.03)
04/09/2026	26006	CUCAMONGA VALLEY WATER DISTRICT	Building lease - May 2026	(12,319.51)
04/09/2026	26007	GARCIA, JORDAN	Reimbursement: Field operations work pants	(140.06)
04/09/2026	26008	PIERSON, JEFFREY		(5,125.00)
04/09/2026	26009	S.S. PAPADOPULOS & ASSOCIATES, INC.	Safe yield reevaluation peer review - March 2026	(941.50)
04/09/2026	26010	STANDARD INSURANCE CO.	Disability coverage - April 2026	(847.74)
04/09/2026	26011	STATE COMPENSATION INSURANCE FUND	FY 26 worker's compensation insurance	(2,265.50)
04/09/2026	26012	UNION 76	Fuel purchases - March 2026	(175.76)
04/09/2026	26014	VANGUARD CLEANING SYSTEMS	April janitorial services and March electrostatic spraying	(1,220.00)
04/09/2026	26015	WEST YOST	Engineering services - February 2026	(232,587.54)
04/14/2026	ACH 4.14.26	JOHN J. SCHATZ	AP legal services - February 2026	(935.00)
04/15/2026	26016	SUNRISE FORD	Maintenance and repair - 2023 Ford F150 Lightning	(208.05)
04/16/2026	26017	CALIFORNIA BANK & TRUST	Account ending 6198 - See detail attached	(3,368.17)
04/17/2026	ACH 4.17.26	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Annual Unfunded Accrued Liability-Plan 3299 - April 2026	(14,363.08)
04/17/2026	ACH 4.17.26	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Annual Unfunded Accrued Liability-Plan 27239 - April 2026	(379.08)
04/23/2026	26018	BOWCOCK, ROBERT		(625.00)
04/23/2026	26019	BURTON, CURTIS		(500.00)
04/23/2026	26020	CHINO, CITY OF - FINANCE DEPT		(125.00)
04/23/2026	26021	CORELOGIC INFORMATION SOLUTIONS	Geographic package services - March 2026	(125.00)
04/23/2026	26022	DE BOOM, NATHAN		(125.00)
04/23/2026	26023	EGOSCUE LAW GROUP, INC.	OAP legal services - March 2026	(27,562.50)
04/23/2026	26024	ELIE, STEVEN		(250.00)
04/23/2026	26025	FAVELA QUINTERO, RUBY	Reimbursement: Meeting supplies	(140.06)
04/23/2026	26026	FEENSTRA, BOB		(1,000.00)
04/23/2026	26027	FILIPPI, GINO		(375.00)
04/23/2026	26028	GEYE, BRIAN		(500.00)
04/23/2026	26029	INLAND EMPIRE UTILITIES AGENCY	FY 25/26 Groundwater recharge O&M 3rd quarter cost reimbursement	(44,711.33)
04/23/2026	26030	KUHN, BOB		(875.00)
04/23/2026	26031	LEGAL SHIELD	Employee paid legal insurance - April 2026	(103.60)
04/23/2026	26032	PIERSON, JEFFREY		(4,500.00)
04/23/2026	26033	SOUTHERN CA EDISON	Utilities: Electric - Main building	(1,621.66)
04/23/2026	26034	UNITED HEALTHCARE	Dental insurance coverage - May 2026	(1,250.26)
04/23/2026	26035	VC3, INC.	Adobe license annual renewal	(2,878.80)
04/23/2026	26036	VELTO, BILL		(875.00)
04/23/2026	26037	VERIZON WIRELESS	Internet services for field ops tablets and extensometer site - April 2026	(277.17)
04/23/2026	26038	VIDES, ERIK	Reimbursement: Field operations work pants	(132.58)
04/23/2026	26039	WEST YOST	Engineering services - March 2026	(249,820.32)
04/23/2026	26040	ZVIRBULIS, MARTIN		(625.00)
04/23/2026	ACH 4.23.26	JOHN J. SCHATZ	AP legal services - March 2026 second invoice	(1,980.00)
04/29/2026	26041	CHEF DAVE'S CATERING & EVENT SERVICES	Board meeting catering services - March and April 2026	(1,179.06)
04/29/2026	26042	CUCAMONGA VALLEY WATER DISTRICT - UTILITY	Utilities: Water	(457.34)
04/29/2026	26043	ROI SAFETY SERVICES, LLC	Office OSHA safety training deposit - Spring 2026	(500.00)



Chino Basin Watermaster

Cash Disbursements

April 2026

Date	Number	Vendor Name	Description	Amount
04/29/2026	26044	SOCALGAS	Utilities: Gas	(64.15)
04/29/2026	26045	SOUTHERN CALIFORNIA EDISON	Utilities: Electric - Annex	(194.45)
04/29/2026	26046	STANDARD INSURANCE CO.	Disability coverage - May 2026	(847.74)
04/29/2026	26047	VISION SERVICE PLAN	Vision insurance premiums - May 2026	(110.18)
04/29/2026	ACH 4.29.26	PITNEY BOWES GLOBAL FINANCIAL SERVICES	Postage meter refill - March 2026	(559.30)
04/30/2026	26048	USAFACT, INC.	Pre-employment screening	(65.54)
Total for Month \$				(800,784.37)



Chino Basin Watermaster Credit Card Expense Detail April 2026

Date	Number	Description	Expense Account	Amount
04/16/2026	26017	CALIFORNIA BANK & TRUST		
		The Toll Roads - West Yost meeting - 03/04/26 - E. Tellez-Foster	6173 Airfare/Mileage	(15.02)
		Panera Bread - Ops meeting - E. Tellez-Foster, A. Jurado, J. Garcia, E. Vides	6141.1 Meeting Supplies	(56.56)
		The Toll Roads - West Yost meeting - 03/08/26 - E. Tellez-Foster	6173 Airfare/Mileage	(3.50)
		IHop - Breakfast meeting - E. Tellez-Foster, CBWCD	6141.1 Meeting Supplies	(52.74)
		The Toll Roads - West Yost meeting - 03/11/26 - E. Tellez-Foster	6173 Airfare/Mileage	(15.20)
		Southwest Airlines - Flight to Sacramento for ACWA Conference - E. Tellez-Foster	6173 Airfare/Mileage	(201.40)
		Microsoft Software - Mapping and visualization software subscription	6054 Computer Software	(15.00)
		REV Subscription - Speech to text transcription services	6112 Subscriptions/Publications	(29.99)
		The Home Depot - Key copies - N. Medrano	6031.7 General Office Supplies	(37.55)
		CVCC - Chino State of the City - Registration - E. Tellez-Foster	6191 Conferences - General	(45.00)
		The Deli - Lunch meeting - E. Tellez-Foster, B. Smith & C. Burton	6141.1 Meeting Supplies	(87.49)
		Ace Parking - Landsea deposition - T. Corbin	6173 Airfare/Mileage	(15.00)
		RC Mongolian BBQ - Employee Appreciation lunch	6141.1 Meeting Supplies	(74.68)
		The Pozole Place - Lunch meeting - T. Corbin, C. Diggs & C. Burton	6141.1 Meeting Supplies	(78.42)
		IAAP - Professional Annual Renewal 2026 - A. Nelson	6111 Membership Dues	(200.00)
		Amazon - Office supplies	6031.7 General Office Supplies	(352.25)
		Amazon - First aid kit supplies	6031.7 General Office Supplies	(31.73)
		Costco - Copy paper	6031.1 Copy Paper	(79.98)
		Costco - Meeting snacks and drinks	6312 Board Meeting Expenses	(183.98)
		BambooHR - HR and payroll system - March 2026	6061.2 HRIS System	(296.44)
		BlueHost - Monthly software renewal - Standard VPN server with cPanel	6056 Website Services	(94.99)
		Amazon - Asurion office equipment protection plan	6031.7 General Office Supplies	(24.99)
		RC Mongolian BBQ - Admin meeting	6141.1 Meeting Supplies	(121.30)
		Amazon - New employee supplies	6031.7 General Office Supplies	(228.53)
		Amazon - IT supplies	6031.7 General Office Supplies	(173.62)
		Sea of Sweets - Dessert for staff meeting	6141.1 Meeting Supplies	(74.99)
		FedEx - March 2026 Board meeting package - J. Pierson, S. Elie	6042 Postage - General	(30.50)
		Amazon - Amazon Web Services - February 2026	6052.5 IT Data Backup/Storage	(747.32)
Total for Month				\$ (3,368.17)



Chino Basin Watermaster

Combining Schedule of Revenues, Expenses & Changes in Net Assets

For the Period of July 1, 2025 through April 30, 2026

(Unaudited)

	JUDGMENT ADMIN.	OPTIMUM BASIN MGMT.	TOTAL JUDGMENT ADMIN & OBMP	POOL ADMINISTRATION & SPECIAL PROJECTS			GROUND WATER REPLENISH.	GRAND TOTALS	ADOPTED BUDGET 2025-2026 WITH CARRYOVER
				AP POOL	OAP POOL	ONAP POOL			
Administrative Revenues:									
Administrative Assessments	\$ 6,578,699	\$ -	\$ 6,578,699	\$ 112,641	\$ -	\$ 31,000	\$ -	\$ 6,722,340	\$ 11,453,849
Interest Revenue	-	250,191	250,191	13,976	42,026	2,549	1,366	310,108	368,030
Groundwater Replenishment	-	-	-	-	-	-	105,187	105,187	-
Mutual Agency Project Revenue	195,850	-	195,850	-	-	-	-	195,850	195,850
Miscellaneous Income	-	-	-	-	-	-	-	-	-
Total Administrative Revenues	6,774,548	250,191	7,024,740	126,617	42,026	33,549	106,553	7,333,484	12,017,729
Administrative & Project Expenditures:									
Watermaster Administration	2,454,839	-	2,454,839	-	-	-	-	2,454,839	2,789,042
Watermaster Board-Advisory Committee	356,516	-	356,516	-	-	-	-	356,516	442,947
Optimum Basin Mgmt Administration	-	871,490	871,490	-	-	-	-	871,490	1,236,522
OBMP Project Costs	-	3,655,823	3,655,823	-	-	-	-	3,655,823	4,699,276
Pool Legal Services	-	-	-	26,138	167,888	935	-	194,961	-
Pool Meeting Compensation	-	-	-	-	35,500	5,875	-	41,375	-
Pool Special Projects	-	-	-	-	-	-	-	-	-
Pool Administration	-	-	-	-	-	-	-	-	411,149
Debt Service	-	565,507	565,507	-	-	-	-	565,507	2,438,793
Agricultural Expense Transfer ¹	-	-	-	203,388	(203,388)	-	-	-	-
Replenishment Water Assessments	-	-	-	-	-	-	62,834	62,834	-
Total Administrative Expenses	2,811,355	5,092,820	7,904,175	229,526	-	6,810	62,834	8,203,345	12,017,729
Net Ordinary Income	3,963,193	(4,842,629)	(879,436)	(102,908)	42,026	26,739	43,718	(869,861)	-
Other Income/(Expense)									
Refund-Recharge Debt Service	-	-	-	-	-	-	-	-	-
Carryover Budget	-	-	-	-	-	-	-	-	553,870
Net Other Income/(Expense)	-	-	-	-	-	-	-	-	553,870
Net Transfers To/(From) Reserves	\$ 3,963,193	\$ (4,842,629)	\$ (879,436)	\$ (102,908)	\$ 42,026	\$ 26,739	\$ 43,718	\$ (869,861)	\$ 553,870
Net Assets, July 1, 2025			9,139,181	586,974	1,468,387	79,752	42,777	11,317,071	
Refund-Excess Operating Reserves			-	-	-	-	-	-	
Net Assets, End of Period			8,259,745	484,066	1,510,413	106,491	86,495	10,447,210	
Pool Assessments Outstanding				(4,422)	(586,852)	(632)			
Pool Fund Balance				\$ 479,644	\$ 923,561	\$ 105,859			

¹ Fund balance transfer pursuant to Peace Agreement § 5.4(a)



Chino Basin Watermaster

Treasurer's Report

April 2026

	Type	Monthly Yield	Cost	Market	% Total
Cash & Investments					
Local Agency Investment Fund (LAIF) *	Investment	3.81%	\$ 694,414	\$ 694,401	6.3%
CA CLASS Prime Fund **	Investment	3.74%	7,824,604	7,825,884	71.5%
CA CLASS Pool Restricted Funds **	Investment	3.74%	1,509,063	1,509,310	13.8%
Bank of America	Checking		916,376	916,376	8.4%
Bank of America	Payroll		-	-	0.0%
Total Cash & Investments			\$ 10,944,457	\$ 10,945,972	100.0%

* The LAIF Market Value factor is updated quarterly in September, December, March, and June.

** The CLASS Prime Fund Net Asset Value factor is updated monthly.

Certification

I certify that (1) all investment actions executed since the last report have been made in full compliance with Chino Basin Watermaster's Investment Policy, and (2) Funds on hand are sufficient to meet all foreseen and planned administrative and project expenditures for the next six months.

Anna Nelson, Director of Administration

Prepared By:

Daniela Uriarte, Senior Accountant



Chino Basin Watermaster

Budget to Actual

For the Period July 1, 2025 to April 30, 2026

(Unaudited)

	April 2026	YTD Actual	FY 25 Carryover Budget	FY 26 Adopted Budget	\$ Over / (Under) Budget	% of Budget
1 Administration Revenue						
2 Local Agency Subsidies	\$ -	\$ 195,850	\$ -	\$ 195,850	\$ -	100%
3 Admin Assessments-Appropriative Pool	-	6,426,042	-	11,131,622	(4,705,580)	58%
4 Admin Assessments-Non-Ag Pool	-	152,657	-	322,227	(169,570)	47%
5 Total Administration Revenue	-	6,774,548	-	11,649,699	(4,875,151)	58%
6 Other Revenue						
7 Appropriative Pool-Replenishment	-	81,011	-	-	81,011	N/A
8 Non-Ag Pool-Replenishment	-	24,176	-	-	24,176	N/A
9 Interest Income	29,957	250,191	-	368,030	(117,839)	68%
10 Miscellaneous Income	-	-	-	-	-	N/A
11 Total Other Revenue	29,957	355,378	-	368,030	(12,652)	97%
12 Total Revenue	29,957	7,129,927	-	12,017,729	(4,887,802)	59%
13 Judgment Administration Expense						
14 Judgment Administration	67,710	577,875	14,344	910,511	(346,980)	62%
15 Admin. Salary/Benefit Costs	103,307	921,507	-	1,127,840	(206,333)	82%
16 Office Building Expense	18,220	195,651	-	228,535	(32,884)	86%
17 Office Supplies & Equip.	3,370	25,850	10,038	35,750	(19,937)	56%
18 Postage & Printing Costs	1,148	14,859	-	27,190	(12,331)	55%
19 Information Services	14,797	76,485	-	224,400	(147,915)	34%
20 Contract Services	841	52,278	-	103,950	(51,672)	50%
21 Watermaster Legal Services	-	603,386	-	346,011	257,375	174%
22 Insurance	-	65,894	-	55,000	10,894	120%
23 Dues and Subscriptions	230	38,897	-	40,900	(2,003)	95%
24 Watermaster Administrative Expenses	570	7,743	-	9,630	(1,887)	80%
25 Field Supplies	722	2,832	-	3,900	(1,068)	73%
26 Travel & Transportation	3,918	20,943	-	35,600	(14,657)	59%
27 Training, Conferences, Seminars	364	18,306	-	43,500	(25,194)	42%
28 Advisory Committee Expenses	9,078	87,528	-	111,785	(24,257)	78%
29 Watermaster Board Expenses	20,461	268,988	-	331,162	(62,174)	81%
30 ONAP - WM & Administration	3,414	51,678	-	123,585	(71,907)	42%
31 OAP - WM & Administration	659	61,864	-	140,528	(78,664)	44%
32 Appropriative Pool- WM & Administration	9,549	117,473	-	147,036	(29,563)	80%
33 Allocated G&A Expenditures	(51,292)	(398,683)	-	(403,675)	4,992	99%
34 Total Judgment Administration Expense	207,065	2,811,355	24,382	3,643,138	(856,165)	77%
35 Optimum Basin Management Plan (OBMP)						
36 Optimum Basin Management Plan	31,616	871,490	59,443	1,236,522	(424,475)	67%
37 Groundwater Quality Monitoring	-	1,636	-	4,500	(2,864)	36%
38 Groundwater Level Monitoring	44,605	447,269	15,800	500,880	(69,411)	87%
39 Program Element (PE)2- Comp Recharge	72,176	1,130,774	55,000	1,968,267	(892,493)	56%
40 PE3&5-Water Supply/Desalte	49,671	164,570	9,100	173,320	(17,850)	90%
41 PE4- Management Plan	101,603	443,961	124,788	604,076	(284,903)	61%
42 PE6&7-CoopEfforts/SaltMgmt	44,953	403,776	96,394	772,078	(464,696)	46%
43 PE8&9-StorageMgmt/Conj Use	78,456	665,154	168,963	272,480	223,711	151%
44 Recharge Improvements	-	565,507	-	2,438,793	(1,873,286)	23%
45 Administration Expenses Allocated-OBMP	9,021	111,422	-	139,094	(27,672)	80%
46 Administration Expenses Allocated-PE 1-9	42,270	287,261	-	264,581	22,680	109%
47 Total OBMP Expense	474,372	5,092,820	529,488	8,374,591	(3,811,259)	57%
48 Other Expense						
49 Groundwater Replenishment	-	62,834	-	42,777	20,058	147%
50 Other Expenses	-	-	-	-	-	N/A
51 Total Other Expense	-	62,834	-	42,777	20,058	147%
52 Total Expenses	681,437	7,967,010	553,870	12,060,506	(4,647,366)	63%
53 Increase / (Decrease) to Reserves	\$ (651,480)	\$ (837,083)	\$ -	\$ (42,777)	\$ (794,306)	



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026

(Unaudited)

Budget to Actual

The Budget to Actual report summarizes the operating and non-operating revenues and expenses of Chino Basin Watermaster for the fiscal year-to-date (YTD). Columns are included for current monthly and YTD activity shown comparatively to the FY 26 amended budget and FY 25 carryover budget. The final two columns indicate the amount over or under budget, and the YTD percentage of total budget used. As of April 30th, the target budget percentage is generally 83%.

Revenues

Lines 1-5 Administration Revenue – Includes local agency subsidies and administrative assessment for the Appropriative, Agricultural and Non-Agricultural Pools.

- Line 2 Local Agency Subsidies includes the annual Dry Year Yield (DYY) administrative fee received. This account is at 100% of budget due to the timing of payment.

Lines 6-12 Other Revenue – Includes Pool replenishment assessments, interest income, miscellaneous income, and carryover budget from prior years.

Expenses

Lines 13-34 Judgment Administration Expense – Includes Watermaster general administrative expenses, contract services, insurance, office and other administrative expenses. Below is a summary of notable account variances at month end:

- Line 21 Watermaster Legal Services includes outside legal counsel expenses. The account is over budget due to increased administration matters and court coordination not originally anticipated in the budget.
- Line 22 Insurance includes general liability insurance, directors' and officers' liability, umbrella coverage, environmental pollution liability and other various insurance policies. The account is over budget due to an unanticipated increase in the cost of Municipalities Umbrella coverage, as well as the implementation of a Cyber insurance policy that was not included in the original budget.
- Line 23 Dues and Subscriptions include annual dues for ACWA, CA Groundwater Coalition, SHRM, and other miscellaneous subscriptions. The account is at 95% of budget due to the timing of subscription renewals.

Lines 35-47 Optimum Basin Management Plan (OBMP) Expense – Includes legal, engineering, groundwater level monitoring, allocated administrative expenses, and other expenses.

Lines 48-51 Other Expense – Includes groundwater replenishment, settlement expenses, and various refunds as appropriate.



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026

(Unaudited)

Pool Services Fund Accounting

Each Pool has a fund account created to pay their own legal service invoices. The legal services invoices are funded and paid using the fund accounts (8467 for the Overlying Agricultural Pool (OAP), 8567 for the Overlying Non-Agricultural Pool (ONAP), and 8367 for the Appropriate Pool (AP)). Along with the legal services fund account for the OAP (8467), the OAP also has two other fund accounts for Ag Pool Meeting Attendance expenses (8470), and Special Projects expenses (8471). The ONAP also has a meeting compensation fund account (8511). Additionally, the OAP has a reserve fund that is held by Watermaster and spent at the direction of the OAP. The AP also has account 8368 relating to the Thomas Harder & Company contract. These fund accounts are replenished at the direction of each Pool, and the legal service invoices are approved by the Pool leadership and when paid by Watermaster, are deducted from the existing fund account balances. If the fund account for any pool reaches zero, no further payments can be paid from the fund, and a replenishment action must be initiated by the Pool.

The following tables detail the fund balance accounts as of April 30, 2026 (continued next page):

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Fund Balance For Non-Agricultural Pool</th> </tr> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Account 8567 - Legal Services</th> </tr> </thead> <tbody> <tr> <td>Beginning Balance July 1, 2025:</td> <td style="text-align: right;">\$ 77,376.71</td> </tr> <tr> <td>Additions:</td> <td></td> </tr> <tr> <td> Interest Earnings</td> <td style="text-align: right;">2,548.96</td> </tr> <tr> <td> Payments received on ONAP Assessment invoices issued 11/25/25</td> <td style="text-align: right; border-bottom: 1px solid black;">24,490.40</td> </tr> <tr> <td>Subtotal Additions:</td> <td style="text-align: right; border-bottom: 3px double black;">27,039.36</td> </tr> <tr> <td>Reductions:</td> <td></td> </tr> <tr> <td> Invoices paid July 2025 - April 2026</td> <td style="text-align: right; border-bottom: 1px solid black;">(935.00)</td> </tr> <tr> <td>Subtotal Reductions:</td> <td style="text-align: right; border-bottom: 1px solid black;">(935.00)</td> </tr> <tr> <td>Available Fund Balance as of April 30, 2026</td> <td style="text-align: right; border-bottom: 3px double black;">\$ 103,481.07</td> </tr> </tbody> </table>	Fund Balance For Non-Agricultural Pool		Account 8567 - Legal Services		Beginning Balance July 1, 2025:	\$ 77,376.71	Additions:		Interest Earnings	2,548.96	Payments received on ONAP Assessment invoices issued 11/25/25	24,490.40	Subtotal Additions:	27,039.36	Reductions:		Invoices paid July 2025 - April 2026	(935.00)	Subtotal Reductions:	(935.00)	Available Fund Balance as of April 30, 2026	\$ 103,481.07	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Fund Balance For Appropriative Pool</th> </tr> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Account 8367 - Legal Services</th> </tr> </thead> <tbody> <tr> <td>Beginning Balance July 1, 2025:</td> <td style="text-align: right;">\$ 224,225.46</td> </tr> <tr> <td>Additions:</td> <td></td> </tr> <tr> <td> Interest Earnings</td> <td style="text-align: right;">13,976.28</td> </tr> <tr> <td> Payments received on AP Assessment invoices issued 11/17/22</td> <td style="text-align: right;">81,892.83</td> </tr> <tr> <td> Payments received on appellant share of Post-TOA legal fees</td> <td style="text-align: right; border-bottom: 1px solid black;">112,640.87</td> </tr> <tr> <td>Subtotal Additions:</td> <td style="text-align: right; border-bottom: 3px double black;">208,509.98</td> </tr> <tr> <td>Reductions:</td> <td></td> </tr> <tr> <td> Invoices paid July 2025 - April 2026</td> <td style="text-align: right;">(26,138.00)</td> </tr> <tr> <td> Budget Transfer</td> <td style="text-align: right; border-bottom: 1px solid black;">(25,000.00) *</td> </tr> <tr> <td>Subtotal Reductions:</td> <td style="text-align: right; border-bottom: 1px solid black;">(51,138.00)</td> </tr> <tr> <td>Available Fund Balance as of April 30, 2026</td> <td style="text-align: right; border-bottom: 3px double black;">\$ 381,597.44</td> </tr> </tbody> </table> <p style="font-size: small; margin-top: 5px;"><i>*Transfer of funds issued to OAP meeting stipends per AP Chair direction.</i></p>	Fund Balance For Appropriative Pool		Account 8367 - Legal Services		Beginning Balance July 1, 2025:	\$ 224,225.46	Additions:		Interest Earnings	13,976.28	Payments received on AP Assessment invoices issued 11/17/22	81,892.83	Payments received on appellant share of Post-TOA legal fees	112,640.87	Subtotal Additions:	208,509.98	Reductions:		Invoices paid July 2025 - April 2026	(26,138.00)	Budget Transfer	(25,000.00) *	Subtotal Reductions:	(51,138.00)	Available Fund Balance as of April 30, 2026	\$ 381,597.44
Fund Balance For Non-Agricultural Pool																																																	
Account 8567 - Legal Services																																																	
Beginning Balance July 1, 2025:	\$ 77,376.71																																																
Additions:																																																	
Interest Earnings	2,548.96																																																
Payments received on ONAP Assessment invoices issued 11/25/25	24,490.40																																																
Subtotal Additions:	27,039.36																																																
Reductions:																																																	
Invoices paid July 2025 - April 2026	(935.00)																																																
Subtotal Reductions:	(935.00)																																																
Available Fund Balance as of April 30, 2026	\$ 103,481.07																																																
Fund Balance For Appropriative Pool																																																	
Account 8367 - Legal Services																																																	
Beginning Balance July 1, 2025:	\$ 224,225.46																																																
Additions:																																																	
Interest Earnings	13,976.28																																																
Payments received on AP Assessment invoices issued 11/17/22	81,892.83																																																
Payments received on appellant share of Post-TOA legal fees	112,640.87																																																
Subtotal Additions:	208,509.98																																																
Reductions:																																																	
Invoices paid July 2025 - April 2026	(26,138.00)																																																
Budget Transfer	(25,000.00) *																																																
Subtotal Reductions:	(51,138.00)																																																
Available Fund Balance as of April 30, 2026	\$ 381,597.44																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Fund Balance For Non-Agricultural Pool</th> </tr> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Account 8511 - Meeting Compensation</th> </tr> </thead> <tbody> <tr> <td>Beginning Balance July 1, 2025:</td> <td style="text-align: right;">\$ 2,375.00</td> </tr> <tr> <td>Additions:</td> <td></td> </tr> <tr> <td> Payments received on ONAP Assessment invoices issued 11/25/25</td> <td style="text-align: right; border-bottom: 1px solid black;">5,877.70</td> </tr> <tr> <td>Subtotal Additions:</td> <td style="text-align: right; border-bottom: 3px double black;">5,877.70</td> </tr> <tr> <td>Reductions:</td> <td></td> </tr> <tr> <td> Compensation paid July 2025 - April 2026</td> <td style="text-align: right; border-bottom: 1px solid black;">(5,875.00)</td> </tr> <tr> <td>Subtotal Reductions:</td> <td style="text-align: right; border-bottom: 1px solid black;">(5,875.00)</td> </tr> <tr> <td>Available Fund Balance as of April 30, 2026</td> <td style="text-align: right; border-bottom: 3px double black;">\$ 2,377.70</td> </tr> </tbody> </table>	Fund Balance For Non-Agricultural Pool		Account 8511 - Meeting Compensation		Beginning Balance July 1, 2025:	\$ 2,375.00	Additions:		Payments received on ONAP Assessment invoices issued 11/25/25	5,877.70	Subtotal Additions:	5,877.70	Reductions:		Compensation paid July 2025 - April 2026	(5,875.00)	Subtotal Reductions:	(5,875.00)	Available Fund Balance as of April 30, 2026	\$ 2,377.70	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Fund Balance For Appropriative Pool</th> </tr> <tr> <th colspan="2" style="text-align: left; border-bottom: 1px solid black;">Account 8368 - Tom Harder Contract</th> </tr> </thead> <tbody> <tr> <td>Beginning Balance July 1, 2025:</td> <td style="text-align: right;">\$ 20,577.61</td> </tr> <tr> <td>Additions:</td> <td></td> </tr> <tr> <td>Subtotal Additions:</td> <td style="text-align: right; border-bottom: 1px solid black;">-</td> </tr> <tr> <td>Reductions:</td> <td></td> </tr> <tr> <td> Invoices paid July 2025 - April 2026</td> <td style="text-align: right; border-bottom: 1px solid black;">-</td> </tr> <tr> <td>Subtotal Reductions:</td> <td style="text-align: right; border-bottom: 1px solid black;">-</td> </tr> <tr> <td>Available Fund Balance as of April 30, 2026</td> <td style="text-align: right; border-bottom: 3px double black;">\$ 20,577.61</td> </tr> </tbody> </table>	Fund Balance For Appropriative Pool		Account 8368 - Tom Harder Contract		Beginning Balance July 1, 2025:	\$ 20,577.61	Additions:		Subtotal Additions:	-	Reductions:		Invoices paid July 2025 - April 2026	-	Subtotal Reductions:	-	Available Fund Balance as of April 30, 2026	\$ 20,577.61										
Fund Balance For Non-Agricultural Pool																																																	
Account 8511 - Meeting Compensation																																																	
Beginning Balance July 1, 2025:	\$ 2,375.00																																																
Additions:																																																	
Payments received on ONAP Assessment invoices issued 11/25/25	5,877.70																																																
Subtotal Additions:	5,877.70																																																
Reductions:																																																	
Compensation paid July 2025 - April 2026	(5,875.00)																																																
Subtotal Reductions:	(5,875.00)																																																
Available Fund Balance as of April 30, 2026	\$ 2,377.70																																																
Fund Balance For Appropriative Pool																																																	
Account 8368 - Tom Harder Contract																																																	
Beginning Balance July 1, 2025:	\$ 20,577.61																																																
Additions:																																																	
Subtotal Additions:	-																																																
Reductions:																																																	
Invoices paid July 2025 - April 2026	-																																																
Subtotal Reductions:	-																																																
Available Fund Balance as of April 30, 2026	\$ 20,577.61																																																



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026

(Unaudited)

Pool Services Fund Accounting – Cont.

**Fund Balance for Agricultural Pool
Account 8467 - Legal Services (Held by AP)**

Beginning Balance July 1, 2025:	\$ 225,597.51
Reductions:	
Invoices paid July 2025 - April 2026	<u>(167,887.50)</u>
Subtotal Reductions:	<u>(167,887.50)</u>
Available Fund Balance as of April 30, 2026	<u>\$ 57,710.01</u>

**Agricultural Pool Reserve Funds
As shown on the Combining Schedules**

Beginning Balance July 1, 2025:	\$ 881,534.98
Additions:	
YTD Interest earned on Ag Pool Funds FY 26	42,025.77
Transfer of Funds from AP to Special Fund for Legal Service Invoices	<u>167,887.50</u>
Total Additions:	<u>209,913.27</u>
Reductions:	
Legal service invoices paid July 2025 - April 2026	<u>(167,887.50)</u>
Subtotal Reductions:	<u>(167,887.50)</u>
Agricultural Pool Reserve Funds Balance as of April 30, 2026:	<u>\$ 923,560.75</u>

**Fund Balance For Agricultural Pool
Account 8470 - Meeting Compensation (Held by AP)**

Beginning Balance July 1, 2025:	\$ 18,069.65
Additions:	
Budget Transfer	<u>25,000.00</u> *
Subtotal Additions:	<u>25,000.00</u>
Reductions:	
Compensation paid July 2025 - April 2026	<u>(35,500.00)</u>
Subtotal Reductions:	<u>(35,500.00)</u>
Available Fund Balance as of April 30, 2026	<u>\$ 7,569.65</u>

*Transfer of funds issued from AP legal services per AP Chair direction.

**Fund Balance For Agricultural Pool
Account 8471 - Special Projects (Held by AP)**

Beginning Balance July 1, 2025:	\$ 12,189.00
Reductions:	
Invoices paid July 2025 - April 2026	<u>-</u>
Subtotal Reductions:	<u>-</u>
Available Fund Balance as of April 30, 2026	<u>\$ 12,189.00</u>



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026

(Unaudited)

Watermaster Salary Expenses

The following table details the Year-To-Date (YTD) Actual Watermaster burdened salary costs compared to the FY 26 adopted budget. The “\$ Over Budget” and the “% of Budget” columns are a comparison of the YTD actual to the annual budget. As of April 30th, the target budget percentage is generally 83%.

	Year to Date Actual	FY 25-26 Budget	\$ Over / (Under) Budget	% of Budget
WM Salary Expense				
5901.1 · Judgment Admin - Doc. Review	94,656	74,466	20,190	127.1%
5901.3 · Judgment Admin - Field Work	594	14,357	(13,763)	4.1%
5901.5 · Judgment Admin - General	5,857	55,535	(49,678)	10.5%
5901.7 · Judgment Admin - Meeting	47,289	45,648	1,641	103.6%
5901.9 · Judgment Admin - Reporting	3,843	21,742	(17,899)	17.7%
5910 · Judgment Admin - Court Coord./Attendance	9,608	28,837	(19,229)	33.3%
5911 · Judgment Admin - Exhibit G	876	6,396	(5,520)	13.7%
5921 · Judgment Admin - Production Monitoring	-	9,471	(9,471)	0.0%
5931 · Judgment Admin - Recharge Applications	2,743	33,092	(30,349)	8.3%
5941 · Judgment Admin - Reporting	1,155	44,602	(43,447)	2.6%
5951 · Judgment Admin - Rules & Regs	2,721	11,350	(8,629)	24.0%
5961 · Judgment Admin - Safe Yield	72,423	106,006	(33,583)	68.3%
5971 · Judgment Admin - Storage Agreements	4,819	20,671	(15,852)	23.3%
5981 · Judgment Admin - Water Accounting/Database	120,505	112,036	8,469	107.6%
5991 · Judgment Admin - Water Transactions	8,935	13,062	(4,127)	68.4%
6011.11 · WM Staff - Overtime	6,055	18,000	(11,945)	33.6%
6011.10 · Admin - Accounting	238,292	280,410	(42,118)	85.0%
6011.15 · Admin - Building Admin	14,081	31,040	(16,959)	45.4%
6011.20 · Admin - Conference/Seminars	35,238	50,660	(15,422)	69.6%
6011.25 · Admin - Document Review	91,046	54,110	36,936	168.3%
6011.50 · Admin - General	239,020	278,870	(39,850)	85.7%
6011.60 · Admin - HR	53,754	100,980	(47,226)	53.2%
6011.70 · Admin - IT	57,022	72,830	(15,808)	78.3%
6011.80 · Admin - Meeting	121,352	93,640	27,712	129.6%
6011.90 · Admin - Team Building	15,359	33,490	(18,131)	45.9%
6011.95 · Admin - Training (Give/Receive)	42,488	79,580	(37,092)	53.4%
6017 · Temporary Services	-	28,250	(28,250)	0.0%
6201 · Advisory Committee	44,269	61,397	(17,128)	72.1%
6301 · Watermaster Board	93,811	101,669	(7,858)	92.3%
8301 · Appropriative Pool	79,033	89,707	(10,674)	88.1%
8401 · Agricultural Pool	31,544	83,199	(51,655)	37.9%
8501 · Non-Agricultural Pool	23,622	66,256	(42,634)	35.7%
6901.1 · OBMP - Document Review	44,189	50,364	(6,175)	87.7%
6901.3 · OBMP - Field Work	2,418	9,471	(7,053)	25.5%
6901.5 · OBMP - General	44,243	52,005	(7,762)	85.1%
6901.7 · OBMP - Meeting	49,542	33,487	16,055	147.9%
6901.9 · OBMP - Reporting	4,987	39,176	(34,189)	12.7%
7104.1 · PE1 - Monitoring Program	211,356	166,708	44,648	126.8%
7201 · PE2 - Comprehensive Recharge	88,280	49,649	38,631	177.8%
7301 · PE3&5 - Water Supply/Desalter	-	19,189	(19,189)	0.0%
7301.1 · PE5 - Reg. Supply Water Prgm.	1,170	16,759	(15,589)	7.0%
7401 · PE4 - MZ1 Subsidence Mgmt. Plan	865	25,595	(24,730)	3.4%
7501 · PE6 - Coop. Programs/Salt Mgmt.	15,842	22,984	(7,142)	68.9%
7501.1 · PE 7 - Salt Nutrient Mgmt. Plan	594	16,786	(16,192)	3.5%
7601 · PE8&9 - Storage Mgmt./Recovery	56,635	33,288	23,347	170.1%
Subtotal WM Staff Costs	2,083,038	2,656,820	(573,782)	78%
60184.1 · Administrative Leave	5,997	-	5,997	100.0%
60185 · Vacation	97,627	110,082	(12,455)	88.7%
60185.1 · Comp Time	8,240	-	8,240	100.0%
60186 · Sick Leave	56,543	81,688	(25,145)	69.2%
60187 · Holidays	75,684	102,102	(26,418)	74.1%
Subtotal WM Paid Leaves	244,091	293,872	(49,781)	83%
Total WM Salary Costs	2,327,129	2,950,692	(623,563)	78.9%



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026

(Unaudited)

Engineering

The following table details the Year-To-Date (YTD) Actual Engineering costs compared to the FY 26 adopted budget. The “\$ Over Budget” and the “% of Budget” columns are a comparison of the YTD actual to the annual budget. As of April 30th, the target budget percentage is generally 83%.

	Year to Date Actual	FY 25-26 Budget	\$ Over / (Under) Budget	% of Budget
Engineering Services Costs				
5901.8 · Judgment Admin - Meetings-Engineering Services	\$ -	\$ 38,909	\$ (38,909)	0.0%
5906.71 · Judgment Admin - Data Requests-CBWM Staff	76,892	109,124	(32,232)	70.5%
5906.72 · Judgment Admin - Data Requests-Non-CBWM Staff	55,831	56,483	(652)	98.8%
5925 · Judgment Admin - Ag Production & Estimation	33,162	31,992	1,170	103.7%
5935 · Judgment Admin - Mat'l Physical Injury Requests	3,802	41,668	(37,866)	9.1%
5945 · Judgment Admin - WM Annual Report Preparation	12,260	17,762	(5,502)	69.0%
5965 · Judgment Admin - Support Data Collection & Mgmt Process	19,903	17,302	2,601	115.0%
6206 · Advisory Committee Meetings-WY Staff	16,841	22,624	(5,783)	74.4%
6306 · Watermaster Board Meetings-WY Staff	25,347	22,624	2,723	112.0%
8306 · Appropriative Pool Meetings-WY Staff	22,242	22,624	(382)	98.3%
8406 · Agricultural Pool Meetings-WY Staff	14,782	22,624	(7,842)	65.3%
8506 · Non-Agricultural Pool Meetings-WY Staff	11,858	22,624	(10,766)	52.4%
6901.8 · OBMP - Meetings-WY Staff	74,454	38,909	35,545	191.4%
6901.95 · OBMP - Reporting-WY Staff	66,058	66,832	(774)	98.8%
6906 · OBMP Engineering Services - Other	58,754	65,810	(7,056)	89.3%
6906.1 · OBMP Watermaster Model Update	43,731	8,176	35,555	534.9%
7104.3 · Grdwtr Level-Engineering	213,122	274,794	(61,672)	77.6%
7104.8 · Grdwtr Level-Contracted Services	6,246	29,128	(22,882)	21.4%
7104.9 · Grdwtr Level-Capital Equipment	5,063	19,000	(13,937)	26.6%
7202 · PE2-Comp Recharge-Engineering Services	15,256	23,350	(8,095)	65.3%
7202.2 · PE2-Comp Recharge-Engineering Services	120,984	181,496	(60,512)	66.7%
7302 · PE3&5-PBHSP Monitoring Program	126,706	77,792	48,914	162.9%
7303 · PE3&5-Engineering - Other	8,425	21,080	(12,655)	40.0%
7306 · PE3&5-Engineering - Outside Professionals	24,703	31,500	(6,797)	78.4%
7402 · PE4-Engineering	158,892	301,531	(142,639)	52.7%
7402.10 · PE4-Northwest MZ1 Area Project	203,423	169,378	34,045	120.1%
7403 · PE4-Eng. Services-Contracted Services-InSar	23,277	28,600	(5,324)	81.4%
7406 · PE4-Engineering Services-Outside Professionals	46,069	55,155	(9,086)	83.5%
7408 · PE4-Engineering Services-Network Equipment	8,748	19,107	(10,359)	45.8%
7502 · PE6&7-Engineering	257,152	365,564	(108,412)	70.3%
7502.2 · PE7-Groundwtr Quality Model	1,579	70,216	(68,638)	2.2%
7505 · PE6&7-Laboratory Services	38,941	41,300	(2,359)	94.3%
7510 · PE6&7-IEUA Salinity Mgmt. Plan	27,433	9,522	17,911	288.1%
7511 · PE6&7-SAWBMP Task Force-50% IEUA	26,272	28,022	(1,750)	93.8%
7517 · Surface Water Monitoring Plan-Chino Creek - 50% IEUA	35,964	28,434	7,530	126.5%
7520 · Preparation of Water Quality Mgmt. Plan	-	39,250	(39,250)	0.0%
7610 · PE8&9-Support 2020 Mgmt. Plan	-	21,720	(21,720)	0.0%
7614 · PE8&9-Support Imp. Safe Yield Court Order	608,519	79,656	528,863	763.9%
7615 · PE8&9-Develop 2025 Storage Plan	-	137,816	(137,816)	0.0%
Total Engineering Services Costs	\$ 2,492,691	\$ 2,659,500	\$ (166,807)	93.7%

* West Yost and Subcontractor Engineering Budget of \$2,659,500 plus Carryover Funds from FY 2024/25 of \$508,838



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026

(Unaudited)

Legal

The following table details the YTD Brownstein Hyatt Farber Schreck (BHFS) expenses and costs compared to the FY 26 adopted budget. The “\$ Over Budget” and the “% of Budget” columns are a comparison of the YTD actual to the annual budget. As of April 30th, the target budget percentage is generally 83%. Due to timing of billing, the figures below represent legal services provided through March 31, 2026, with a target budget percentage of 75%.

	Year to Date Actual	FY 25-26 Budget	\$ Over / (Under) Budget	% of Budget
6070 · Watermaster Legal Services				
6071 · BHFS Legal - Court Coordination	\$ 370,659	\$ 76,000	\$ 294,659	487.7%
6072 · BHFS Legal - Rules & Regulations	-	10,495	(10,495)	0.0%
6073 · BHFS Legal - Personnel Matters	40,140	28,150	11,990	142.6%
6074 · BHFS Legal - Interagency Issues	-	40,536	(40,536)	0.0%
6077 · BHFS Legal - Party Status Maintenance	-	13,590	(13,590)	0.0%
6078 · BHFS Legal - Miscellaneous (Note 1)	192,587	177,240	15,347	108.7%
Total 6070 · Watermaster Legal Services	603,386	346,011	257,375	174.4%
6275 · BHFS Legal - Advisory Committee	26,418	27,764	(1,346)	95.2%
6375 · BHFS Legal - Board Meeting	109,148	88,704	20,444	123.0%
6375.1 · BHFS Legal - Board Workshop(s)	-	29,215	(29,215)	0.0%
8375 · BHFS Legal - Appropriative Pool	16,198	34,705	(18,507)	46.7%
8475 · BHFS Legal - Agricultural Pool	15,538	34,705	(19,167)	44.8%
8575 · BHFS Legal - Non-Ag Pool	16,198	34,705	(18,507)	46.7%
Total BHFS Legal Services	183,500	249,798	(66,298)	73.5%
6907.3 · WM Legal Counsel				
6907.31 · Archibald South Plume	-	12,565	(12,565)	0.0%
6907.32 · Chino Airport Plume	-	12,565	(12,565)	0.0%
6907.33 · Desalter/Hydraulic Control	-	38,680	(38,680)	0.0%
6907.34 · Santa Ana River Water Rights	8,157	21,405	(13,248)	38.1%
6907.38 · Reg. Water Quality Cntrl Board	-	63,200	(63,200)	0.0%
6907.39 · Recharge Master Plan	8,948	14,270	(5,322)	62.7%
6907.41 · Prado Basin Habitat Sustainability	330	10,290	(9,960)	3.2%
6907.44 · SGMA Compliance	-	10,290	(10,290)	0.0%
6907.45 · OBMP Update	8,799	177,240	(168,441)	5.0%
6907.47 · 2020 Safe Yield Reset	28,353	151,180	(122,827)	18.8%
6907.50 · San Sevaine Basin Discharge - State Court	-	54,130	(54,130)	0.0%
6907.51 · San Sevaine Basin Discharge CWA Litigation	418,490	150,440	268,050	278.2%
6907.90 · WM Legal Counsel - Unanticipated	-	38,885	(38,885)	0.0%
Total 6907 · WM Legal Counsel	473,077	755,140	(282,063)	62.6%
Total Brownstein, Hyatt, Farber, Schreck Costs	\$ 1,259,963	\$ 1,350,949	\$ (90,986)	93.3%



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026
(Unaudited)

Optimum Basin Management Plan (OBMP)

The following table details the Year-To-Date (YTD) Actual OBMP costs compared to the FY 26 adopted budget. The “\$ Over Budget” and the “% of Budget” columns are a comparison of the YTD actual to the annual budget. As of April 30th, the target budget percentage is generally 83%.

	Year to Date Actual	FY 25-26 Budget	\$ Over / (Under) Budget	% of Budget
6900 · Optimum Basin Mgmt Plan				
6901.1 · OBMP - Document Review-WM Staff	\$ 44,189	\$ 50,364	\$ (6,175)	87.7%
6901.3 · OBMP - Field Work-WM Staff	2,418	9,471	(7,053)	25.5%
6901.5 · OBMP - General-WM Staff	44,243	52,005	(7,762)	85.1%
6901.7 · OBMP - Meeting-WM Staff	49,542	33,487	16,055	147.9%
6901.8 · OBMP - Meeting-West Yost	74,454	38,909	35,545	191.4%
6901.9 · OBMP - Reporting-WM Staff	4,987	39,176	(34,189)	12.7%
6901.95 · OBMP - Reporting-West Yost	66,058	66,832	(774)	98.8%
Total 6901 · OBMP WM and West Yost Staff	285,889	290,244	(4,355)	98.5%
6903 · OBMP - SAWPA				
6903 · OBMP - SAWPA Group	7,608	18,952	(11,344)	40.1%
Total 6903 · OBMP - SAWPA	7,608	18,952	(11,344)	40.1%
6906 · OBMP Engineering Services				
6906.1 · OBMP - Watermaster Model Update	43,731	8,176	35,555	534.9%
6906.21 · State of the Basin Report	-	-	-	0.0%
6906 · OBMP Engineering Services - Other	58,754	65,810	(7,056)	89.3%
Total 6906 · OBMP Engineering Services	102,485	73,986	28,499	138.5%
6907 · OBMP Legal Fees				
6907.31 · Archibald South Plume	-	12,565	(12,565)	0.0%
6907.32 · Chino Airport Plume	-	12,565	(12,565)	0.0%
6907.33 · Desalter/Hydraulic Control	-	38,680	(38,680)	0.0%
6907.34 · Santa Ana River Water Rights	8,157	21,405	(13,248)	38.1%
6907.36 · Santa Ana River Habitat	-	-	-	0.0%
6907.38 · Reg. Water Quality Cntrl Board	-	63,200	(63,200)	0.0%
6907.39 · Recharge Master Plan	8,948	14,270	(5,322)	62.7%
6907.41 · Prado Basin Habitat Sustainability	198	10,290	(10,092)	1.9%
6907.44 · SGMA Compliance	132	10,290	(10,158)	1.3%
6907.45 · OBMP Update	8,799	177,240	(168,441)	5.0%
6907.47 · 2020 Safe Yield Reset	28,353	151,180	(122,827)	18.8%
6907.50 · San Sevaine Basin Discharge - State	-	54,130	(54,130)	0.0%
6907.51 · San Sevaine Basin Discharge CWA	418,490	150,440	268,050	278.2%
6907.90 · WM Legal Counsel - Unanticipated	-	38,885	(38,885)	0.0%
Total 6907 · OBMP Legal Fees	473,077	755,140	(282,063)	62.6%
6909 · OBMP Other Expenses				
6909.6 · OBMP Expenses - Miscellaneous	-	96,000	(96,000)	0.0%
Total 6909 · OBMP Other Expenses	-	98,200	(98,200)	0.0%
Total 6900 · Optimum Basin Mgmt Plan	\$ 869,059	\$ 1,236,522	\$ (367,463)	70.3%



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026
(Unaudited)

Judgment Administration

The following table details the Year-To-Date (YTD) Actual Judgment Administration costs compared to the FY 26 adopted budget. The “\$ Over Budget” and the “% of Budget” columns are a comparison of the YTD actual to the annual budget. As of April 30th, the target budget percentage is generally 83%.

	Year to Date Actual	FY 25-26 Budget	\$ Over / (Under) Budget	% of Budget
5901 · Admin-WM Staff				
5901.1 · Admin-Doc. Review-WM Staff	\$ 94,656	\$ 74,466	\$ 20,190	127.1%
5901.3 · Admin-Field Work-WM Staff	594	14,357	(13,763)	4.1%
5901.5 · Admin-General-WM Staff	5,857	55,535	(49,678)	10.5%
5901.7 · Admin-Meeting-WM Staff	47,289	45,648	1,641	103.6%
5901.8 · Admin-Meeting - West Yost	-	38,909	(38,909)	0.0%
5901.9 · Admin-Reporting-WM Staff	3,843	21,742	(17,899)	17.7%
Total 5901 · Admin-WM Staff	152,240	250,657	(98,417)	60.7%
5900 · Judgment Admin Other Expenses				
5906.71 · Admin-Data Req-CBWM Staff	76,892	109,124	(32,232)	70.5%
5906.72 · Admin-Data Req-Non CBWM Staff	55,831	56,483	(652)	98.8%
5910 · Court Coordination/Attend-WM	9,608	28,837	(19,229)	33.3%
5911 · Exhibit G-WM Staff	876	6,396	(5,520)	13.7%
5921 · Production Monitoring-WM Staff	-	9,471	(9,471)	0.0%
5925 · Ag Prod & Estimation-West Yost	33,162	31,992	1,170	103.7%
5931 · Recharge Applications-WM Staff	2,743	33,092	(30,349)	8.3%
5935 · Admin-Mat'l Phy Inj Requests	3,802	41,668	(37,866)	9.1%
5941 · Reporting-WM Staff	1,155	44,602	(43,447)	2.6%
5945 · WM Annual Report Prep-West Yost	12,260	17,762	(5,502)	69.0%
5951 · Rules & Regs-WM Staff	2,721	11,350	(8,629)	24.0%
5961 · Safe Yield-WM Staff	72,423	106,006	(33,583)	68.3%
5965 · Support Data Collect-West Yost	19,903	17,302	2,601	115.0%
5971 · Storage Agreements-WM Staff	4,819	20,671	(15,852)	23.3%
5981 · Water Acct/Database-WM Staff	120,505	112,036	8,469	107.6%
5991 · Water Transactions-WM Staff	8,935	13,062	(4,127)	68.4%
Total 5900 · Judgment Admin Other Expenses	425,636	659,854	(234,218)	64.5%
Total 5900 · Judgment Administration	\$ 577,875	\$ 910,511	\$ (332,636)	63.5%



Chino Basin Watermaster

Monthly Variance Report & Supplemental Schedules

For the period July 1, 2025 to April 30, 2026

(Unaudited)

“Carry Over” Funding:

The “Carry Over” funding was calculated at the start of FY 26. The Total “Carry Over” funding amount of \$553,870 has been posted to the general ledger accounts. The total amount consisted of \$508,838 from Engineering Services, \$34,994 from OBMP Activities, and \$10,038 from Administration Services. More detailed information is provided on the table below.

Carry Over Budget Detail FY 2025/26

Account	Description	Amount	Fiscal Year	Type
6038	Other Office Equipment - Boardroom Upgrades	\$ 10,038	FY 2020/21	ADMIN
7545	Meter Installation - New Meter Installation, Calibration and Testing	34,994	FY 2018/19	OBMP
5925	Agriculture Production and Estimation	4,344	FY 2024/25	ENG
5965	Support for Implementation of Improved Data Collection and Management Process	10,000	FY 2024/25	ENG
6906.1	Watermaster Model Application and Required Demonstrations	59,443	FY 2024/25	ENG
7104.3	Groundwater Level Monitoring Program	15,800	FY 2024/25	ENG
7202.2	Comprehensive Recharge Program	55,000	FY 2024/25	ENG
7302	PBHSP Monitoring Program- 50% IEUA Cost Share	9,100	FY 2024/25	ENG
7402.1	PE4/MZ-1: Subsidence Management Plan for Northwest MZ-1	124,788	FY 2024/25	ENG
7502	Groundwater Quality Monitoring and Reporting Program and as-needed Consulting	41,400	FY 2024/25	ENG
7517	Implementation of Chino Creek Monitoring Program - IEUA Cost Share	20,000	FY 2024/25	ENG
7614	Support Implementation of the Safe Yield Court Order	168,963	FY 2024/25	ENG
Total Carryover Budget		\$ 553,870		



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026
TO: Board Members
SUBJECT: Annual Report of the Prado Basin Habitat Sustainability Program Water Year 2025
(Consent Calendar Item I.C.)

Issue: Pursuant to the monitoring and mitigation requirements of the Peace II Subsequent Environmental Impact Report, the Prado Basin Habitat Sustainability Committee must prepare an Annual Report. The Committee presents its 10th Annual Report for Water Year 2025. [Discretionary Function]

Recommendation: Receive and file the Water Year 2025 Annual Report.

Financial Impact: None.

ACTIONS:

Appropriative Pool – June 11, 2026 [Final]: Provided advice and assistance.
Non-Agricultural Pool – June 11, 2026 [Final]: Provided advice and assistance.
Agricultural Pool – June 11, 2026 [Final]: Provided advice and assistance.
Advisory Committee – June 18, 2026 [Final]: Provided advice and assistance.
Watermaster Board – June 25, 2026 [Recommended]: Receive and file.

BACKGROUND

The Prado Flood Control Basin (Prado Basin) is located in the southernmost, downgradient portion of the Chino Groundwater Basin (Chino Basin). Surface-water flow within the middle Santa Ana River (SAR) and its tributaries discharge into and through the Prado Basin behind Prado Dam, the main flood-control facility on the middle SAR. The US Army Corps of Engineers, in coordination with the Orange County Water District (OCWD), regulates releases from Prado Dam for the purposes of flood control and groundwater recharge in Orange County. The SAR and its tributaries are unlined across the Prado Basin, which allows for groundwater/surface-water interaction. Depth to groundwater is relatively shallow in the Prado Basin, where groundwater losses can occur via evapotranspiration by riparian vegetation and rising-groundwater outflow to the SAR and its tributaries.

The surface-water impoundments behind Prado Dam and the shallow groundwater have created within Prado Basin the largest riparian forest in Southern California. The riparian forest provides critical habitat for various threatened and endangered species including the Least Bell's Vireo, Southwestern Willow Flycatcher, and the Santa Ana Sucker.

To further implement the goals and objectives of the Chino Basin Optimum Basin Management Program (OBMP), the Chino Basin Watermaster (Watermaster) executed the Peace II Agreement in 2007. The primary features of the Peace II Agreement are expansion of pumping at the Chino Basin Desalter wells and Basin Re-operation for the attainment of Hydraulic Control of the Chino Basin. Hydraulic Control is defined as the elimination of groundwater discharge from the Chino-North Groundwater Management Zone (GMZ) to the Prado Basin, or its reduction to *de minimis* quantities (i.e., less than 1,000 acre-feet per year [afy]). Hydraulic Control ensures that the water management activities in the Chino-North GMZ will not impair the beneficial uses designated for the SAR downstream of Prado Dam. Basin Re-operation means the increase in controlled overdraft of the Chino Basin, as defined in the Judgment, from 200,000 acre-ft (af) over the period of 1978 through 2017 to 600,000 af through 2030. Both Chino Basin Desalter expansion and Basin Re-operation are required to achieve Hydraulic Control. Hydraulic Control was achieved in 2016 and will be maintained through Chino Desalter well pumping of 40,000 afy, and the completion of Basin Re-operation.

At the time of its consideration, OCWD expressed concern that one of the potential impacts of the Peace II Agreement activities described above would be the lowering of groundwater levels (drawdown) in the Prado Basin, which might impact the riparian habitat that is dependent upon groundwater. To address the potential drawdown and its impact on the riparian habitat, the monitoring and mitigation requirements in the Peace II Subsequent Environmental Impact Report (SEIR) call for the development and implementation of an adaptive management program for the Prado Basin habitat:

Biological Resources/Land Use & Planning—Section 4.4-3 of the Peace II SEIR

The Chino Basin Stakeholders are committed to ensuring that the Peace II Agreement actions will not significantly adversely impact the Prado Basin riparian habitat. This includes the riparian portions of Chino and Mill Creek's between the terminus of hard lined channels and Prado Basin proper.

The available modeling data in the SEIR indicates that Peace II Agreement implementation will not cause significant adverse effects on the Prado Basin riparian habitat. However, the following contingency measure will be implemented to ensure that the Prado Basin riparian habitat will not incur unforeseeable significant adverse effects, due to implementation of Peace II. IEUA, Watermaster, OCWD and individual stakeholders, that choose to participate, will jointly fund and develop an adaptive management program that will include, but not be limited to:

- *monitoring riparian habitat quality and extent;*
- *investigating and identifying essential factors to long-term sustainability of Prado Basin riparian habitat*
- *identification of specific parameters that can be monitored to measure potential effects of Peace II Agreement implementation effects on Prado Basin; and*
- *identification of water management options to minimize the Peace II Agreement effects on Prado Basin*

This adaptive management program will be prepared as a contingency to define available management actions by Prado Basin stakeholders to address unforeseeable significant adverse impacts, as well as to contribute to the long-term sustainability of the Prado Basin riparian habitat.

The above effort will be implemented under the supervision of a newly formed Prado Basin Habitat Sustainability Committee. This Committee will include representatives from all interested parties and will be convened by the Watermaster and IEUA. Annual reports will be prepared and will include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured loss or prospective loss of riparian habitat that may be attributable to the Peace II Agreement. As determined by Watermaster and IEUA, significant adverse impacts to riparian habitat that are attributable to the Peace II Agreement will be mitigated.

Pursuant to the monitoring and mitigation requirements of the Peace II SEIR, the Inland Empire Utilities Agency (IEUA) and the Watermaster convened the Prado Basin Habitat Sustainability Committee (PBHSC) to develop the Prado Basin Habitat Sustainability Program (PBHSP). The PBHSP is an adaptive management program to ensure that the riparian habitat in the Prado Basin will not incur unforeseeable significant adverse effects due to implementation of the Peace II Agreement. Annual reports are prepared to document monitoring and modeling activities, the analysis and interpretation of the monitoring and modeling results, and any recommendations for changes to the PBHSP, including implementation of mitigation measures if deemed necessary.

DISCUSSION

The Annual Report of the PBHSP (Annual Report) for Water Year (WY) 2025 is the tenth annual report prepared by the Watermaster and IEUA for the PBHSP. It documents the collection, analysis, and interpretations of the data and information generated by the PBHSP through October 31, 2025, and is organized into the following sections:

Section 1 – Background and Objectives This section describes the background and objectives of the PBHSP and the Annual Report.

Section 2 – Monitoring, Data Collection, and Methods This section describes the collection of recent monitoring data and the groundwater-modeling activities performed during WY 2025 for the PBHSP.

Section 3 – Results and Interpretations This section describes the results and interpretations that were derived from the information, data, and groundwater-modeling.

Section 4 – Conclusions and Recommendations This section summarizes the main conclusions derived from the PBHSC through WY 2025 and describes the recommended activities for the subsequent fiscal year as a proposed scope-of-work, schedule, and budget.

Section 5 – References This section lists the publications cited in the report.

The draft Annual Report for WY 2025 was published and distributed on April 30, 2026. Watermaster and IEUA presented the draft report to members of the PBHSC at a meeting on May 6, 2026. A four-week comment period was provided in which no comments were received.

The main interpretations and findings of the Annual Report for WY 2025 are:

- Based on the NDVI time series analysis, NDVI spatial change maps, and aerial photos, the quality (greenness) of the riparian habitat vegetation remained stable or increased across most of the Prado Basin from 2024 to 2025, with the exception of two areas where NDVI decreased. These decreases were minor and within the range of historical one-year variability. These changes occurred during a time of stable groundwater levels and during a slightly warmer, drier year following two consecutive wet years.
- There were three notable areas of decreases and increases in greenness observed in the Prado Basin between 2024 and 2025: (i) increases and decreases along the lower reach of Chino Creek; (ii) increases along the SAR; and (iii) decreases below the OCWD wetlands. Increases were likely caused by growth of perennial vegetation in a dryer year following two consecutive wet years during which scouring occurred along the channels and areas behind the dam were inundated with water from the conservation pool. The potential causes of the observed decreases varied by area and included a 2025 wildfire, ongoing management of the invasive plant species *Arundo (Arundo donax)*, and/or reduced perennial vegetation growth associated with a dry year. None of the reductions in greenness were related to declining groundwater levels resulting from the implementation of the Peace II Agreement.
- From 2024-2025, groundwater levels at the PBHSP monitoring wells in the Prado Basin along Chino Creek, Mill Creek, and the SAR remained stable and less than one foot of change was noted at most wells.
- From 2016-2025, groundwater levels throughout most of the riparian vegetation extent in reaches of Chino Creek, Mill Creek and the SAR changed less than 5 feet; however, there were some notable areas of change:
 - The northern portion of Mill Creek just south of monitoring well PB-2 saw groundwater levels decline by about eight feet from 2016-2022, likely due to increased pumping at the Chino Desalter wells to the north. From 2023 to 2025, groundwater levels increased and have since leveled out in this area, for a net change in groundwater levels of minus four feet since 2016. Analysis of NDVI, air photos, and the 2025 vegetation surveys suggest that there have been no notable declines in the greenness of the riparian vegetation in the northern area of Mill Creek where groundwater levels have declined.
 - In the northern reach of Chino Creek, groundwater levels increased by about ten feet from 2016 to 2025, likely due to decreased groundwater pumping in the area.
- The depth to groundwater in the northernmost reach of Mill Creek where groundwater levels have declined the most (near PB-2) was estimated at 10-15 feet below ground surface in WY 2025. Future declines in groundwater levels in this reach could result in adverse impacts to the riparian habitat.
- Vegetation surveys conducted in WY 2025 supported the findings of the NDVI and air photo analysis, concluding that the monitoring sites appeared healthy and that the riparian system is functioning properly. Any changes noted since the previous vegetation surveys in 2022 were observed to have been driven by climatic variability and were within the normal range of variability, and it is unlikely that any observable declines in the riparian system are related to groundwater pumping.

PBHSP monitoring and reporting should continue to monitor the extent and quality of the riparian habitat and the factors that can influence it as it has been conducted through WY 2025, including the additional monitoring in the northernmost reach of Mill Creek set up in 2022. The high-frequency monitoring for groundwater elevation, temperature and EC at each pair of PBHSP monitoring wells and nearby surface water field measurements, initiated in 2023 should also be continued to better characterize groundwater/surface water interactions. While the overall threat to riparian vegetation health has decreased following an increase in groundwater levels from 2023 to 2025 and reduced production at the CDA wells, it remains important to monitor any potential impacts to the extent and quality of the riparian habitat that could be caused by past or future lowering of groundwater levels in this area. The triennial vegetation surveys conducted in 2025 by a biological consultant were tailored to focus on the northern portion of Mill Creek and reduced to key locations along Chino Creek and the SAR for continued representative monitoring. Based on the results of the surveys, the biological consultant recommended to continue conducting the surveys on a triennial basis. Based on this recommendation, the next vegetation surveys would be conducted in 2028.

- Because the Annual Report for WY 2025 documented no trend in the degradation of the extent or quality of riparian habitat along Chino Creek, Mill Creek, or the SAR that is contemporaneous with

decreasing groundwater levels from implementation of the Peace II Agreement, the report stated that no mitigation measures or adjustments to the AMP are recommended at this time.

At the June 11th Pool Committee meetings, all Pool Committees considered the item and unanimously recommended the Advisory Committee to recommend the Board to receive and file. At the June 18th Advisory Committee meeting, the Advisory Committee unanimously recommended that the Board receive and file the Water Year 2025 Annual Report.

ATTACHMENTS

1. Annual Report of the Prado Basin Habitat Sustainability Program Water Year 2025 (Draft)

Annual Report of the Prado Basin Habitat Sustainability Program Water Year 2025

PREPARED FOR

Chino Basin Watermaster and
Inland Empire Utilities Agency

DRAFT



PREPARED BY



Annual Report of the Prado Basin Habitat Sustainability Program Water Year 2025

Prepared for

Chino Basin Watermaster and Inland Empire Utilities Agency

Project No. 941-80-25-15

Project Manager: Lucy Hedley

Date

Project Manager: Veva Weamer

Date

QA/QC Review: Andy Malone

Date

Table of Contents

1.0 Background and Objectives.....	1
1.1 Prado Basin.....	1
1.2 Chino Basin Judgment, OBMP, and Peace Agreement.....	4
1.3 The Peace II Agreement and its Subsequent EIR.....	5
1.4 AMP for the PBHSP.....	7
1.5 Annual Report Organization.....	8
2.0 Monitoring, Data Collection, and Methods.....	9
2.1 Riparian Habitat Monitoring.....	9
2.1.1 Regional Monitoring of Riparian Habitat.....	11
2.1.1.1 Multi-Spectral Remote Sensing Data.....	11
2.1.1.2 Collection and Analysis of Air Photos.....	12
2.1.2 Site-Specific Monitoring of Riparian Habitat.....	12
2.2 Factors that Potentially Affect the Riparian Habitat.....	13
2.2.1 Groundwater Monitoring Program.....	13
2.2.1.1 Groundwater Production.....	13
2.2.1.2 Groundwater Level.....	14
2.2.1.3 Groundwater Quality.....	16
2.2.2 Surface-Water Monitoring Program.....	16
2.2.3 Climatic Monitoring Program.....	17
2.2.4 Other Factors That Can Affect Riparian Habitat.....	17
2.2.4.1 Wildfires.....	18
2.2.4.2 Polyphagous Shot-Hole Borer (PSHB).....	18
2.2.4.3 Arundo Removal.....	19
2.3 Prospective Loss of Riparian Habitat.....	21
3.0 Results and Interpretations.....	22
3.1 Trends in Riparian Habitat Extent and Quality.....	22
3.1.1 Extent of the Riparian Habitat.....	22
3.1.2 Quality of the Riparian Habitat.....	24
3.1.2.1 Spatial Analysis of NDVI.....	24
3.1.2.2 Temporal Analysis of NDVI.....	29
3.1.2.3 Temporal Analysis of NDVI in Prado Basin.....	31
3.1.2.4 Temporal Analysis of NDVI within Large Areas along Chino Creek and Mill Creek.....	32
3.1.2.5 Temporal Analysis of NDVI within Small Areas along Chino Creek, Mill Creek, and the Santa Ana River.....	38
3.1.3 Analysis of Vegetation Surveys.....	53
3.1.3.1 Overstory Canopy Cover.....	53
3.1.3.2 Overstory Tree Condition.....	54
3.1.3.3 Understory Monitoring.....	54
3.1.3.4 Presence of the Polyphagous Shot Hole Borer (PSHB).....	54
3.1.3.5 Presence of Non-native and Nuisance Plant Species.....	55

Table of Contents

3.1.4 Summary	57
3.2 Groundwater and Its Relationship to Riparian Habitat	58
3.2.1 Groundwater Pumping	58
3.2.2 Groundwater Levels	62
3.2.3 Groundwater Levels Compared to NDVI.....	67
3.2.4 Summary	73
3.3 Analysis of Groundwater/Surface-Water Interactions.....	73
3.3.1 Past Monitoring of Groundwater/Surface-Water Interactions:	74
3.3.2 Current Monitoring for Groundwater/Surface-Water Interactions	75
3.4 Climate and Its Relationship to the Riparian Habitat	86
3.4.1 Precipitation.....	86
3.4.2 Temperature	86
3.4.3 Climate Compared to NDVI.....	90
3.5 Stream Discharge and Its Relationship to the Riparian Habitat.....	94
3.5.1 Stream Discharge	94
3.5.2 Stream Discharge Compared to NDVI.....	96
3.6 Other Factors and Their Relationships to Riparian Habitat.....	102
3.6.1 Wildfire	102
3.6.2 Polyphagous Shot Hole Borer	103
3.6.3 Arundo Removal and Maintenance	104
3.6.4 Non-native and Nuisance Plant Species.....	105
3.6.5 Miscellaneous Factors.....	106
3.7 Analysis of Prospective Loss of Riparian Habitat.....	115
4.0 Conclusions and Recommendations	119
4.1 Main Conclusions and Recommendations	119
4.1.1 Conclusions	119
4.1.2 Recommendations	120
4.2 Recommended Mitigation Measures and/or Adjustments to the AMP	120
4.3 Recommended PBHSP for Fiscal Year 2026/27	120
5.0 References	126

LIST OF TABLES

Table 3-1. Mann-Kendall Test Results of the Average Growing-Season NDVI Trends for Defined Areas in the Prado Basin	30
Table 3-2. Characterization of Variability in the Average-Growing Season NDVI for Defined Areas in the Prado Basin.....	31
Table 3-3. Summary of Vegetation Surveys in 2007, 2013, 2016, 2019, 2022, and 2025 in the Prado Basin - Canopy Cover, Tree Condition, and Occurrence of Polyphagous Shot-Hole Borer	56

Table of Contents

Table 3-4. Annual Groundwater Pumping in the Groundwater Monitoring Program Study Area	59
Table 3-5 Analysis of Groundwater/Surface-Water Interactions in the Prado Basin.....	85
Table 4-1. Work Breakdown Structure and Cost Estimate - Prado Basin Habitat Sustainability Program: FY 2026/27	125

LIST OF FIGURES

Figure 1-1. Prado Basin Area	2
Figure 1-2. Critical Habitat for Endangered or Threatened Species in the Prado Basin Area	3
Figure 1-3. Projected Change in Groundwater Levels – FY 2005 to 2030 – Peace II Alternative	6
Figure 2-1. Riparian Habitat Monitoring Program.....	10
Figure 2-2. Groundwater Monitoring Program	15
Figure 2-3. Surface-Water and Climate Monitoring Programs	20
Figure 3-1a. Air Photos and Extent of the Riparian Vegetation – 2024 and 2025	23
Figure 3-1b. Air Photo and Spatial NDVI for the Prado Basin – 2025.....	26
Figure 3-2. Spatial NDVI for the Prado Basin – 2024 and 2025	27
Figure 3-3. Spatial Change in NDVI for the Prado Basin – 2024 to 2025.....	28
Figure 3-4. Areas for Analysis of NDVI Time Series	33
Figure 3-5. Time Series of NDVI for the Riparian Vegetation Extent – 1984 to 2025	34
Figure 3-6. Time Series of NDVI and Air Photos along Chino Creek Area for 1984 to 2025	35
Figure 3-7a. Time Series of NDVI and Air Photos along Mill Creek Area for 1984 to 2025..	36
Figure 3-7b. Time Series of NDVI and Air Photos along Upper Mill Creek Area for 1984 to 2025	37
Figure 3-8a. Time Series of NDVI and Air Photos – CC-1 Area for 1984 to 2025.....	40
Figure 3-8b. Time Series of NDVI and Air Photos – CC-2 Area for 1984 to 2025.....	41
Figure 3-8c. Time Series of NDVI and Air Photos – CC-3 Area for 1984 to 2025	42
Figure 3-8d. Time Series of NDVI and Air Photos – CC-4 Area for 1984 to 2025.....	43
Figure 3-8e. Time Series of NDVI and Air Photos – MC-1 Area for 1984 to 2025	44
Figure 3-8f. Time Series of NDVI and Air Photos – MC-2 Area for 1984 to 2025	45
Figure 3-8g. Time Series of NDVI and Air Photos – MC-3 Area for 1984 to 2025	46
Figure 3-8h. Time Series of NDVI and Air Photos – MC-4 Area for 1984 to 2025	47
Figure 3-8i. Time Series of NDVI and Air Photos – MC-5 Area for 1984 to 2025	48
Figure 3-8j. Time Series of NDVI and Air Photos – MC-6 Area for 1984 to 2025	49
Figure 3-8k. Time Series of NDVI and Air Photos – SAR-2 Area for 1984 to 2025.....	50

Table of Contents

Figure 3-8l. Time Series of NDVI and Air Photos – SAR-3 Area for 1984 to 2025.....	51
Figure 3-8m. Time Series of NDVI and Air Photos – SAR-4 Area for 1984 to 2025	52
Figure 3-9. Groundwater Pumping – Water Year 2025.....	61
Figure 3-10a. Map of Groundwater Elevation – September 2016 – Shallow Aquifer System	63
Figure 3-10b. Map of Groundwater Elevation – September 2025 – Shallow Aquifer System	64
Figure 3-11. Change in Groundwater Elevation – September 2016 to September 2025	65
Figure 3-12. Depth to Groundwater – September 2025.....	66
Figure 3-13a. Groundwater Levels and Production versus NDVI – Chino Creek Area for 1984-2025.....	70
Figure 3-13b. Groundwater Levels and Production versus NDVI – Mill Creek Area for 1984-2025.....	71
Figure 3-13c. Groundwater Levels and Production versus NDVI – Santa Ana River Area for 1984-2025.....	72
Figure 3-14a. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-9 Near Chino Creek	76
Figure 3-14b. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-8 and RP2-MW3 Near Chino Creek	77
Figure 3-14c. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-7 Near Chino Creek	78
Figure 3-14d. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-6 Near Chino Creek	79
Figure 3-14e. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-2 and HCMP-5/1 Near Mill Creek.....	80
Figure 3-14f. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-1 Near Mill Creek.....	81
Figure 3-14g. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-5 Near Mill Creek.....	82
Figure 3-14h. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-4 Near Santa Ana River.....	83
Figure 3-14i. Monitoring to Characterize Groundwater and Surface Water Interactions – PB-3 Near Santa Ana River.....	84
Figure 3-15. Annual Precipitation in the Chino Basin – Water Year 1986-2025	88
Figure 3-16. Maximum and Minimum Temperature in the Prado Basin – 1895-2025	89
Figure 3-17a. Climate versus NDVI – Chino Creek Area for 1984 to 2025	91
Figure 3-17b. Climate versus NDVI – Mill Creek Area for 1984 to 2025	92
Figure 3-17c. Climate versus NDVI – Santa Ana River for 1984 to 2025	93

Table of Contents

Figure 3-18. Discharge Tributary to Prado Dam Water Year 1960 – 2025.....	95
Figure 3-19a. Surface-Water Discharge versus NDVI – <i>Chino Creek Area for 1984 to 2025</i> 99	
Figure 3-19b. Surface-Water Discharge versus NDVI – <i>Mill Creek Area for 1984 to 2025</i> .100	
Figure 3-19c. Surface-Water Discharge versus NDVI – <i>Santa Ana River Area for 1984 to 2025</i>	101
Figure 3-20a. Location Map of Other Factors That Can Affect Riparian Habitat - Wildfire	108
Figure 3-20b. Spatial NDVI Change 2021-2024 and 2024 Air Photo with Prado Basin Wildfires in 2015, 2018, and 2020.....	109
Figure 3-21a. Other Factors That Can Affect Riparian Habitat versus NDVI – Chino Creek Area for 1984-2024.....	110
Figure 3-21b. Other Factors That Can Affect Riparian Habitat versus NDVI – Mill Creek Area for 1984-2024	111
Figure 3-21c. Other Factors That Can Affect Riparian Habitat versus NDVI– Santa Ana River and Lower Prado Area for 1984-2024	112
Figure 3-22a. Location Map of Other Factors That Can Affect Riparian Habitat versus NDVI – Arundo and PHSB.....	113
Figure 3-22b. Spatial NDVI Change 2023-2024 and 2024 Air Photo with Prado Basin Arundo Removal and Management in 2019-2024	114
Figure 3-23 Predicted Change in Groundwater Levels – 2018 to 2030 – Scenario 2020 SRY1	117
Figure 3-24. Predicted Groundwater Pumping and Groundwater Levels – 2018 to 2030 – Scenario 2020 SRY1	118

LIST OF APPENDICES

Appendix A. NDVI

Appendix B. Mann-Kendall Analysis of NDVI

Appendix C. Draft 2025 Prado Basin Vegetation Survey Report

Table of Contents

LIST OF ACRONYMS AND ABBREVIATIONS

ACOE	Army Corps of Engineers	1
af	Acre-Feet	5
afy	Acre-Feet Per Year	5
AMP	Adaptive Management Plan	1
Annual Report	Annual Report of The Prado Basin Habitat Sustainability Committee	1
CAL FIRE	California Department of Forestry and Fire Protection	21
CBMWD	Chino Basin Municipal Water District	2
CBWM	Chino Basin Watermaster	1
CCWF	Chino Creek Well Field	5
CDA	Chino Basin Desalter Authority	2
CDFM	cumulative departure from the mean	72
CDFW	California Department of Fish and Wildlife	91
CEQA	California Environmental Quality Act	2
Chino Basin	Chino Groundwater Basin	1
DBH	Diameter at Breast Height	110
EC	Electrical Conductivity	16
EIR	Environmental Impact Report	1
EROS	Earth Resources Observation and Science	11
ESPA	Center Science Processing Architecture	11
FD	Fusarium Dieback	21
ft-amsl	Feet Above Mean Sea Level	1
ft-bgs	Feet Below Ground Surface	59
FRAP	Fire And Resource Assessment Program	21
GIS	Geographic Information System	110
GMP	Groundwater Monitoring Program	12
GMZ	Groundwater Management Zone	1
HCMP	Hydraulic Control Monitoring Program	64
IEUA	Inland Empire Utilities Agency	1
in/yr	Inches Per Year	87
LEDAPS	Landsat Ecosystem Disturbance Adaptive Processing System	129
mi ²	Square Miles	23
MWD	Metropolitan Water District of Southern California	
NDVI	Normalized Difference Vegetation Index	11
NASA	National Aeronautics and Space Administration	
NEXRAD	Next Generation Radar	18
OBMP	Optimum Basin Management Program	1
OC-59	The OCWD's Imported Water Turnout Tributary to Prado Basin	1
OCWD	Orange County Water District	1
Parties	Parties to The Chino Basin Judgment	4
PBHSC	Prado Basin Habitat Sustainability Committee	1
PBHSP	Prado Basin Habitat Sustainability Program	1

Table of Contents

PBMZ	Prado Basin Management Zone	1
POTWs	Publicly Owned Treatment Works	18
ppm	Parts Per Million	73
Prado Basin	Prado Basin Management Zone	1
PSHB	Polyphagous Shot Hole Borer - <i>Euwallacea Forficates</i>	21
QA/QC	Quality Assurance and Quality Control	13
RHMP	Riparian Habitat Monitoring Program	8
SAWA	Santa Ana Watershed Association	22
SAR	Santa Ana River	1
SARWM	Santa Ana River Watermaster	
SEIR	Subsequent Environmental Impact Report	1
SWMP	Surface-Water Monitoring Program	18
TDS	total dissolved solids	2
USBR	United States Bureau of Reclamation	12
USGS	United States Geological Survey	11
USDA	United State Department of Agriculture	21
USFWS	United States Fish and Wildlife Service	1
VOCs	Volatile Organic Compounds	4
Watermaster	Chino Basin Watermaster	4
WEI	Wildermuth Environmental Inc.	
WRCRWA	Western Riverside County Regional Wastewater Authority	84
WY	Water Year	8

2025 Annual Report of the Prado Basin Habitat Sustainability Program

1.0 BACKGROUND AND OBJECTIVES

This *Annual Report of the Prado Basin Habitat Sustainability Program for Water Year 2025* (Annual Report) was prepared on behalf of the Prado Basin Habitat Sustainability Committee (PBHSC), convened by the Inland Empire Utilities Agency (IEUA) and the Chino Basin Watermaster (Watermaster) pursuant to the mitigation monitoring and reporting requirements of the Peace II Subsequent Environmental Impact Report (SEIR) (Tom Dodson, 2010).

This introductory section provides background on the general hydrologic setting of the Prado Basin Management Zone (Prado Basin); the Chino Basin Judgment; the Optimum Basin Management Program (OBMP), its Programmatic Environmental Impact Report (EIR) and the Peace Agreement; the Peace II Agreement and its SEIR; and the formation of the PBHSC and the development of the adaptive management plan (AMP) for the Prado Basin Habitat Sustainability Program (PBHSP).

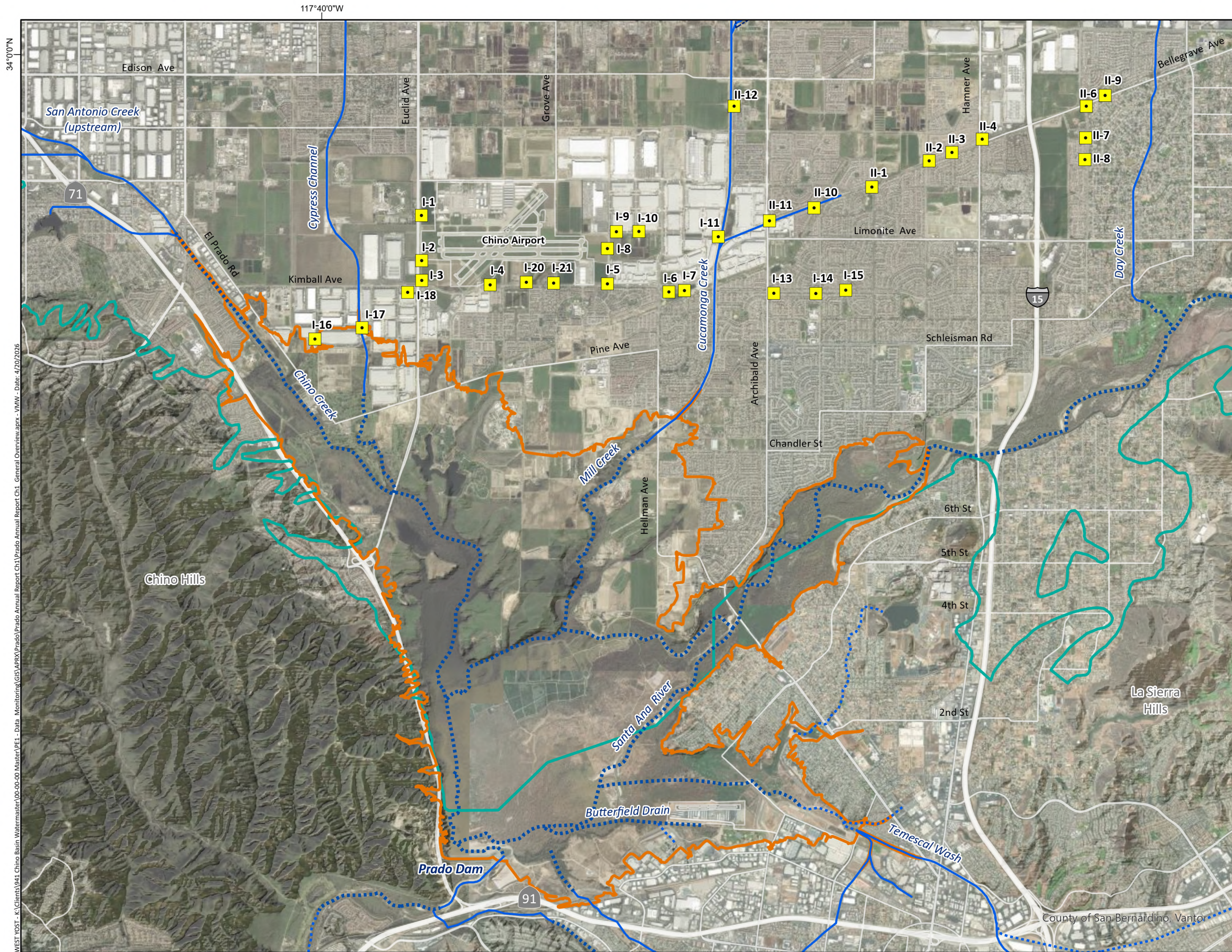
1.1 Prado Basin






The Prado Basin is the flood control area behind Prado Dam, which was constructed in 1941 as the major flood-control facility within the Santa Ana River (SAR) Watershed. The U.S. Army Corps of Engineers (ACOE) regulates releases of water from Prado Dam for both purposes of flood control and groundwater recharge in Orange County Groundwater Management Zone (GMZ). Releases of water temporarily held in storage in the Prado Basin for groundwater recharge in Orange County is coordinated with the Orange County Water District (OCWD). Figure 1-1 shows the location of the Prado Basin in the southern portion of the Chino Groundwater Basin (Chino Basin). The Prado Basin boundary shown on Figure 1-1 is the Prado Basin Management Zone (PBMZ) boundary as defined in the Water Quality Control Plan for the SAR Basin ([Basin Plan] Santa Ana Regional Water Quality Control Board [Santa Ana Water Board], 2016), which approximately follows the 566 feet above mean sea level (ft-amsl) elevation contour behind Prado Dam.

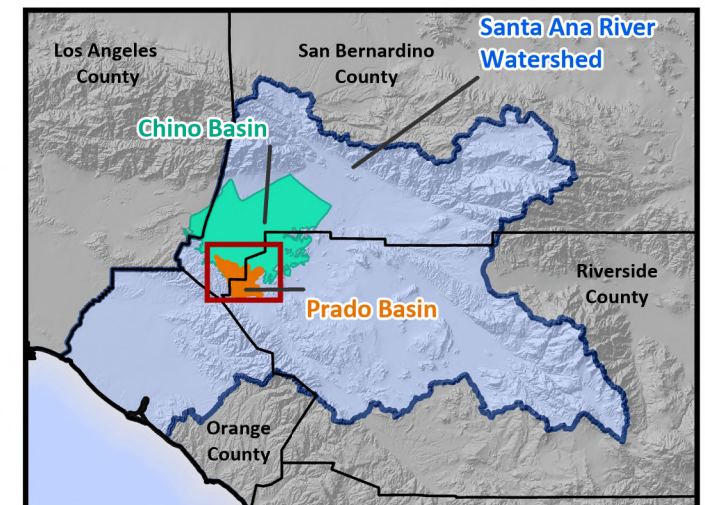
Approximately 4,300 acres of riparian habitat have developed within the Prado Basin, creating the largest riparian habitat in Southern California. Portions of the riparian habitat have been designated as critical habitat to several endangered or threatened species. Figure 1-2 shows the locations of the critical habitat, as defined by the U.S. Fish and Wildlife Service (USFWS). Most of the riparian habitat in Prado Basin is designated as critical habitat for one or multiple species, including the Santa Ana Sucker, the Southwestern Willow Flycatcher, and the Least Bell's Vireo.

The SAR flows through the Prado Basin from east to west. The tributaries of the SAR that flow into the Prado Basin include San Antonio/Chino Creeks, Cucamonga/Mill Creeks, and Temescal Creek. The major components of flow within the SAR and its tributaries are runoff from precipitation, discharge of tertiary-treated effluent from wastewater treatment plants, rising groundwater, and dry-weather runoff.¹

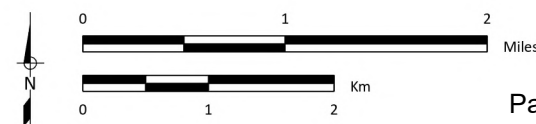
¹ Dry-weather runoff consists of excess irrigation runoff, purging of wells, dewatering discharges, etc.



-  Prado Basin - The Prado Basin Management Zone (PBMZ) defined in the Santa Ana Region Basin Plan (Santa Ana Water Board, 2016), which approximately follows the 566 feet above mean sea level elevation contour in the flood control area behind Prado Dam.
-  Hydrologic Boundary of the Chino Groundwater Basin (Chino Basin)
-  Concrete-Lined Channels
-  Unlined Rivers and Streams
-  Chino Basin Desalter Well



Prepared by:



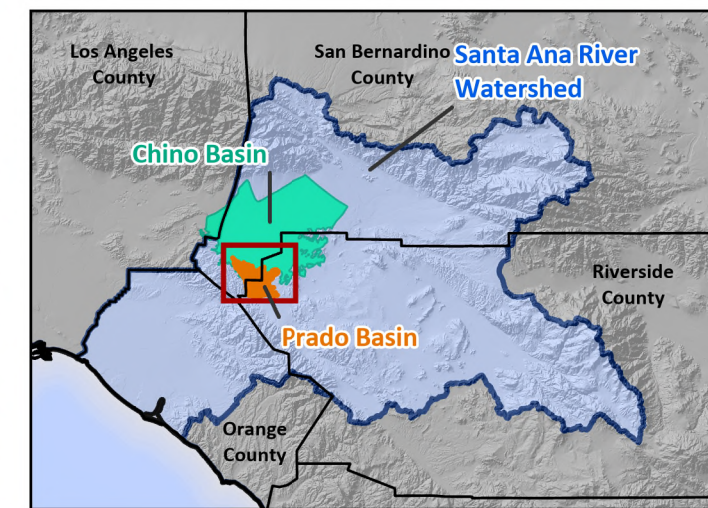
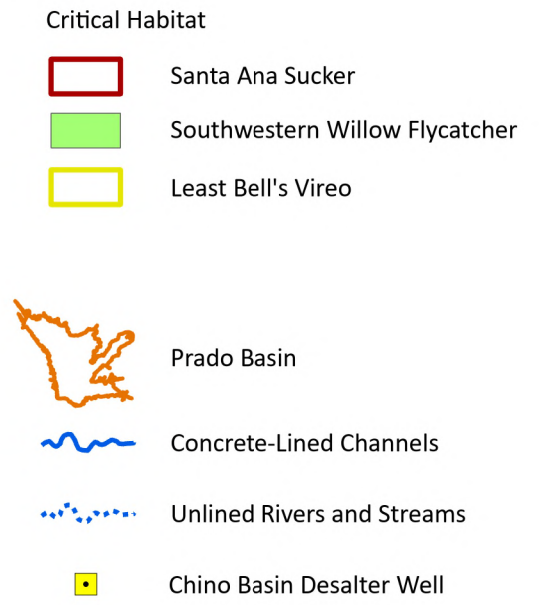
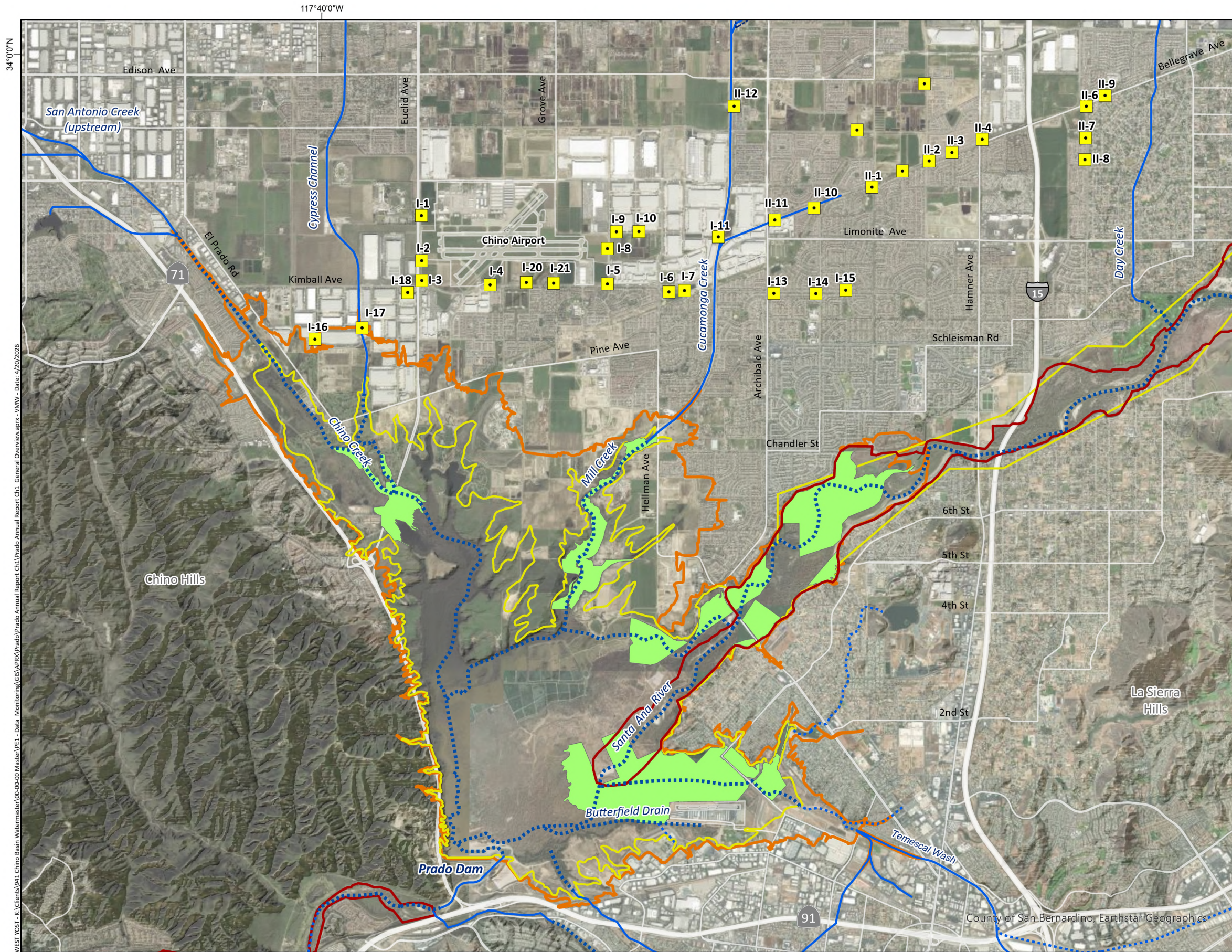
Prepared for:

Prado Basin Habitat Sustainability Committee
2025 Annual Report



Prado Basin Area

Figure 1-1



The Prado Basin is a hydrologically complex region of the lower Chino Basin. Groundwater in the Chino Basin generally flows from the forebay regions in the north towards the Prado Basin in the south. Depth to groundwater is relatively shallow in the Prado Basin area, and the SAR and its tributaries are unlined across the Prado Basin, which allows for groundwater/surface-water interaction. Groundwater outflows in the Prado Basin occur via evapotranspiration by riparian vegetation, groundwater pumping, and rising-groundwater discharge to the SAR and its tributaries.

To the north of the Prado Basin, the Chino Basin Desalter Authority (CDA) owns and operates the Chino Basin Desalters that consist of 28 wells that pump groundwater with high concentrations of total dissolved solids (TDS) and nitrate and treats at two regional facilities using reverse osmosis, ion exchange, and blending to produce a potable water supply for the region. Figure 1-1 shows the locations of Chino Basin Desalter wells. CDA operations are fundamental to achieving many of the management goals outlined in the OBMP and both Peace Agreements, which are discussed below. The Chino Basin Desalters facilities were expanded in 2021 and 2023 with additional treatment processes of air stripping and granulated activated carbon to treat for volatile organic compounds (VOCs) associated with the South Archibald plume and Chino Airport plume, respectively.

1.2 Chino Basin Judgment, OBMP, and Peace Agreement

A 1978 Judgment entered in the Superior Court of the State of California for the County of San Bernardino (Chino Basin Municipal Water District vs. City of Chino et al.) established pumping and storage rights in the Chino Basin. The Judgment established Watermaster to oversee the implementation of the Judgment and provided Watermaster with the discretionary authority to develop an OBMP to maximize the beneficial use of the Chino Basin. The OBMP was developed by Watermaster and the parties to the Judgment (Parties) in the late 1990s (Wildermuth Environmental Inc. [WEI], 1999). The OBMP maps a strategy to enhance the yield of the Chino Basin and provide reliable high-quality water supplies for the development expected to occur in the region. The goals of the OBMP are to enhance Basin water supplies, to protect and enhance water quality, to enhance the management of the Basin, and to equitably finance the OBMP.

In 2000, the Parties executed the Peace Agreement (Watermaster, 2000), which documented their intent to implement the OBMP. The Peace Agreement included an OBMP Implementation Plan which outlined the time frame for implementing tasks and projects in accordance with the Peace Agreement and the OBMP. The OBMP Implementation Plan is a comprehensive, long-range water-management plan for the Chino Basin and includes: the use of recycled water for direct reuse and artificial recharge, the capture of increased quantities of high-quality storm-water runoff, the recharge of imported water when TDS concentrations are low, the desalting of poor-quality groundwater in impaired areas of the Basin via the Chino Basin Desalters, the support of regulatory efforts to improve water quality in the Basin, subsidence management, storage management, and the implementation of management activities to reduce the discharge of high-TDS/high-nitrate groundwater to the SAR, thus ensuring the protection of downstream beneficial uses in the Orange County GMZ.

The Chino Basin Municipal Water District (CBMWD) was the plaintiff in the legal action that resulted in the Judgment. CBMWD was formed in 1950 to supply supplemental, imported water purchased from the Metropolitan Water District of Southern California (MWD) to the Chino Basin. On July 1, 1998, CBMWD changed its name to the IEUA and expanded its role to become the regional supplier of recycled water for most of the Chino Basin. For OBMP implementation, the IEUA has served as the lead agency for compliance with the California Environmental Quality Act (CEQA). A Programmatic EIR for the OBMP (SCH#2000041047) was certified by the IEUA in July 2000 (Tom Dodson, 2000).

1.3 The Peace II Agreement and its Subsequent EIR

To further implement the goals and objectives of the OBMP, the Parties executed the Peace II Agreement in 2007, which modified the OBMP Implementation Plan (Watermaster, 2007). The two main activities of the Peace II Agreement are: (i) increasing the controlled overdraft of the Chino Basin, as defined in the Judgment,² by 400,000 acre-feet (af) through 2030 (re-operation), and (ii) refining the planned expansion of the Chino Basin Desalters facilities to increase groundwater pumping from about 30,000 to 40,000 acre-feet per year (afy). Re-operation is allocated specifically to offset the production of the Chino Basin Desalters. Both re-operation and desalter expansion contribute to the attainment of “hydraulic control” of groundwater outflow from the Chino Basin to the SAR. The attainment and maintenance of hydraulic control is a requirement of Watermaster and the IEUA, as defined in the Basin Plan (Santa Ana Water Board, 2016). Hydraulic control ensures that the water management activities in the Chino Basin will not impair the beneficial uses designated for SAR water quality downstream of Prado Dam.

The expansion of the Chino Basin Desalters, described in the Peace II Agreement, was accomplished, in part, by the construction and operation of the Chino Creek Well Field (CCWF) in the southwest portion of Chino Basin (see Figure 1-3). During Peace II Agreement planning, the estimated capacity of the CCWF was about 5,000 to 7,700 afy (WEI, 2007). The CCWF wells were constructed in 2011-2012, and their actual capacity is about 1,500 afy.

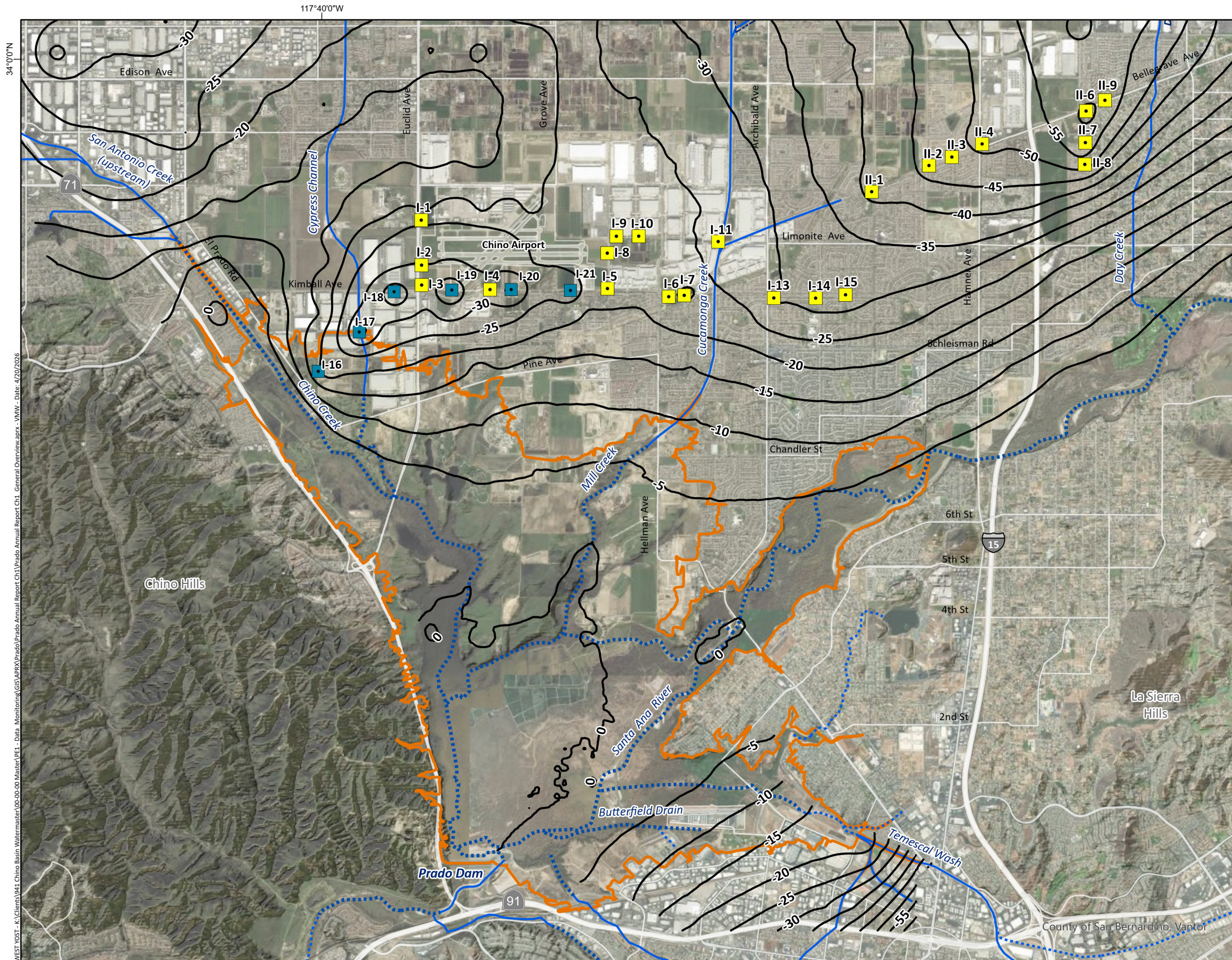
In 2010, the IEUA certified the Peace II SEIR (Tom Dodson, 2010) to evaluate the environmental impacts that could result from implementing the Peace II Agreement. One of the potential impacts evaluated was the possible lowering of groundwater levels (drawdown) in the Prado Basin area, which could impact riparian vegetation that is dependent upon shallow groundwater. In order to assess this potential impact, Watermaster used its 2007 groundwater model to predict the extent and magnitude of the drawdown associated with the implementation of the Peace II Agreement, using the planned capacity of 7,700 afy³ of the CCWF (WEI, 2007). Figure 1-3 (modified from Figure 4.4-10 from the Peace II SEIR) shows the 2007 model-predicted drawdown in the Prado Basin area for the period of 2005 to 2030. The 2007 model predictions showed drawdown of less than five feet by 2030 throughout the riparian habitat areas and less than 10 feet along the northern portion of Prado Basin near the northern reaches of Chino Creek, Mill Creek, and the SAR.⁴

Although this modeling work indicated that implementing the Peace II Agreement would not cause significant adverse effects on Prado Basin riparian habitat, a contingency measure to address the potential for drawdown of groundwater levels and its impact on riparian vegetation was included in the Peace II SEIR as Mitigation Measure 4.4-3 (Biological Resources/Land Use & Planning section of the Mitigation Monitoring and Reporting Program).

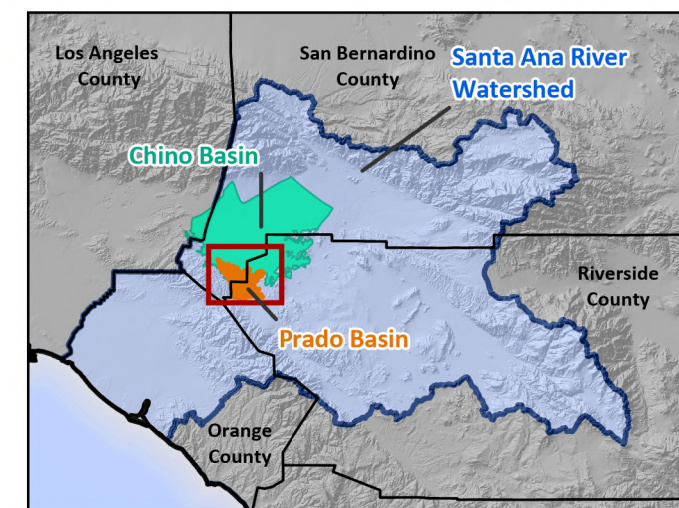
² The Judgment established 200,000 af of controlled overdraft over the period of 1978 to 2017. Re-operation increases the controlled overdraft to 600,000 af through 2030.

³ The CCWF wells were constructed in 2011-2012 and their actual capacity is about 1,500 afy, not the 7,700 afy used as the planning assumption for this modeling work in 2007 for the Peace II SEIR. The PBHSP includes the use of Watermaster’s most recent groundwater model update and planning data (including actual capacity of the CCWF) to evaluate potential impacts to groundwater levels from the implementation of the Peace II Agreement and identify areas of prospective loss of riparian habitat. This updated modeling work is described in Section 3.7.

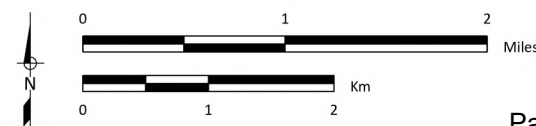
⁴ The primary area that would be influenced by the Peace II Agreement implementation is the upper portion of Prado Basin. The Temescal Wash area is outside of the Chino Basin hydrologic boundary and is not an area of influence of potential impacts of groundwater levels from pumping at the Chino Desalter well field and implementation of the Peace II Agreement.



- 10- Projected Change in Groundwater Levels FY 2005 to FY 2030, feet
- Chino Basin Desalter Well - Location of Existing wells in 2007 modeled for the Peace II SEIR
- Chino Desalter Well - Planned Location of the Chino Creek Well Field (CCWF) in 2007 as modeled for the Peace II SEIR with a Planned Capacity of 7,700 afy. Actual Location of the CCWF Constructed in 2011-2012 Shown in Figure 1-1 with an Actual Capacity 1,500 afy
- Prado Basin
- Concrete-Lined Channels
- Unlined Rivers and Streams



Prepared by:



Prepared for:

Prado Basin Habitat Sustainability Committee
2025 Annual Report



Projected Change in Groundwater Levels
FY 2005 to 2030 - Peace II Alternative

Figure 1-3

Mitigation Measure 4.4-3 was developed to ensure that the riparian habitat would not incur unforeseeable significant adverse effects from the Peace II implementation and to contribute to the long-term sustainability of the riparian habitat. Mitigation Measure 4.4-3 calls for:

- Watermaster, the IEUA, the OCWD, and other stakeholders that choose to participate to jointly fund the development of an adaptive management program to monitor the extent and quality of the Prado Basin riparian habitat and investigate and identify essential factors to its long-term sustainability.
- Watermaster and the IEUA to convene the PBHSC, comprised of representatives from all interested parties to implement the adaptive management program.
- The PBHSC to prepare annual reports pursuant to the adaptive management program. Annual reports are to include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured or prospective loss of riparian habitat resulting from Peace II activities.

1.4 AMP for the PBHSP

Pursuant to Mitigation Measure 4.4-3 in the SEIR, Watermaster and the IEUA convened four meetings of the PBHSC, starting in late-2012, to develop the AMP for the PBHSP and facilitate its implementation. Watermaster and the IEUA adopted the final 2016 Adaptive Management Plan for the Prado Basin Habitat Sustainability Program (AMP) in August 2016 (WEI, 2016). The AMP was designed to answer the following questions to satisfy the monitoring and mitigation requirements of the Peace II SEIR:

1. What are the factors that can potentially affect the extent and quality of the riparian habitat?
2. What is a consistent, quantifiable definition of “riparian habitat quality”, including metrics and measurement criteria?
3. What has been the historical extent and quality of the riparian habitat in the Prado Basin?
4. How has the extent and quality of the riparian habitat changed during implementation of Peace II?
5. How have groundwater levels and quality, surface-water discharge, weather, and climate changed over time? What were the causes of the changes? And, did those changes result in an adverse impact to riparian habitat in the Prado Basin?
6. Are there other factors besides groundwater levels, surface-water discharge, weather, and climate that affect riparian habitat in the Prado Basin? What are those factors? And, did they (or do they) result in an adverse impact to riparian habitat in the Prado Basin?
7. Are the factors that result in an adverse impact to riparian habitat in the Prado Basin related to Peace II implementation?
8. Are there areas of prospective loss of riparian habitat that may be attributable to the Peace II Agreement?
9. What are the potential mitigation actions that can be implemented if Peace II implementation results in an adverse impact to the riparian habitat?

The AMP outlines a process for monitoring, modeling, and annual reporting to answer and address the questions listed above. Appendix A to the AMP is the initial monitoring program: *2016 Monitoring Program for the Prado Basin Habitat Sustainability Program*. Annual reports are intended to document monitoring and modeling activities, the analysis and interpretation of the monitoring and modeling results, and recommendations for changes to the PBHSP, which may include monitoring, modeling, and/or mitigation, if deemed necessary. Any future mitigation measures that are deemed necessary will be developed jointly by Watermaster and the IEUA.

1.5 Annual Report Organization

This Annual Report for water year (WY) 2025 is the tenth annual report of the PBHSC; it documents the collection, analysis, and interpretations of the data and information generated by the PBHSP through October 31, 2025⁵. The remainder of this report is organized as follows:

- **Section 2.0 – Monitoring, Data Collection, and Methods.** This section describes the collection of historical information and recent monitoring data and describes the groundwater-modeling activities performed during WY 2024 for the PBHSP.
- **Section 3.0 – Results and Interpretations.** This section describes the results and interpretations that were derived from the information, data, and groundwater-modeling.
- **Section 4.0 – Conclusions and Recommendations.** This section summarizes the main conclusions derived from the PBHSP through 2024 and describes the recommended activities for the subsequent fiscal year as a proposed scope-of-work, schedule, and budget.
- **Section 5.0 – References.** This section lists the publications cited in the report.

⁵ Includes the WY 2025 Period of October 1, 2024 to September 30, 2025 and the month of October 2025 cover the entire growing season period.

2.0 MONITORING, DATA COLLECTION, AND METHODS

The PBHSP was designed, in part, to answer Question 1 from the AMP:

- What are the factors that can potentially affect the extent and quality of the riparian habitat?

The main hydrologic factors that can potentially affect the extent and quality of the riparian habitat in the Prado Basin include, but are not limited to, groundwater levels, surface-water discharge, weather events, and long-term climate. As such, the PBHSP includes integrated monitoring and analysis programs for riparian habitat, groundwater, surface-water, climate, and other potential factors (e.g., wildfire, pests, etc.).

During the implementation of the AMP in WY 2016, data collection efforts include the compilation of historical data through the present. The period of data available for each data type varies, but all span both pre- and post-Peace II Agreement implementation. Data collection efforts for all historical data were described in the first two annual reports for WY 2016 and WY 2017. Data collection efforts for subsequent water years have focused on recent water year monitoring data. All data collected and compiled for this effort were uploaded to Watermaster's centralized relational database, HydroDaVESM, and used in the analyses.

This section describes the collection of recent monitoring data during WY 2025 and the groundwater-modeling activities performed for the PBHSP.

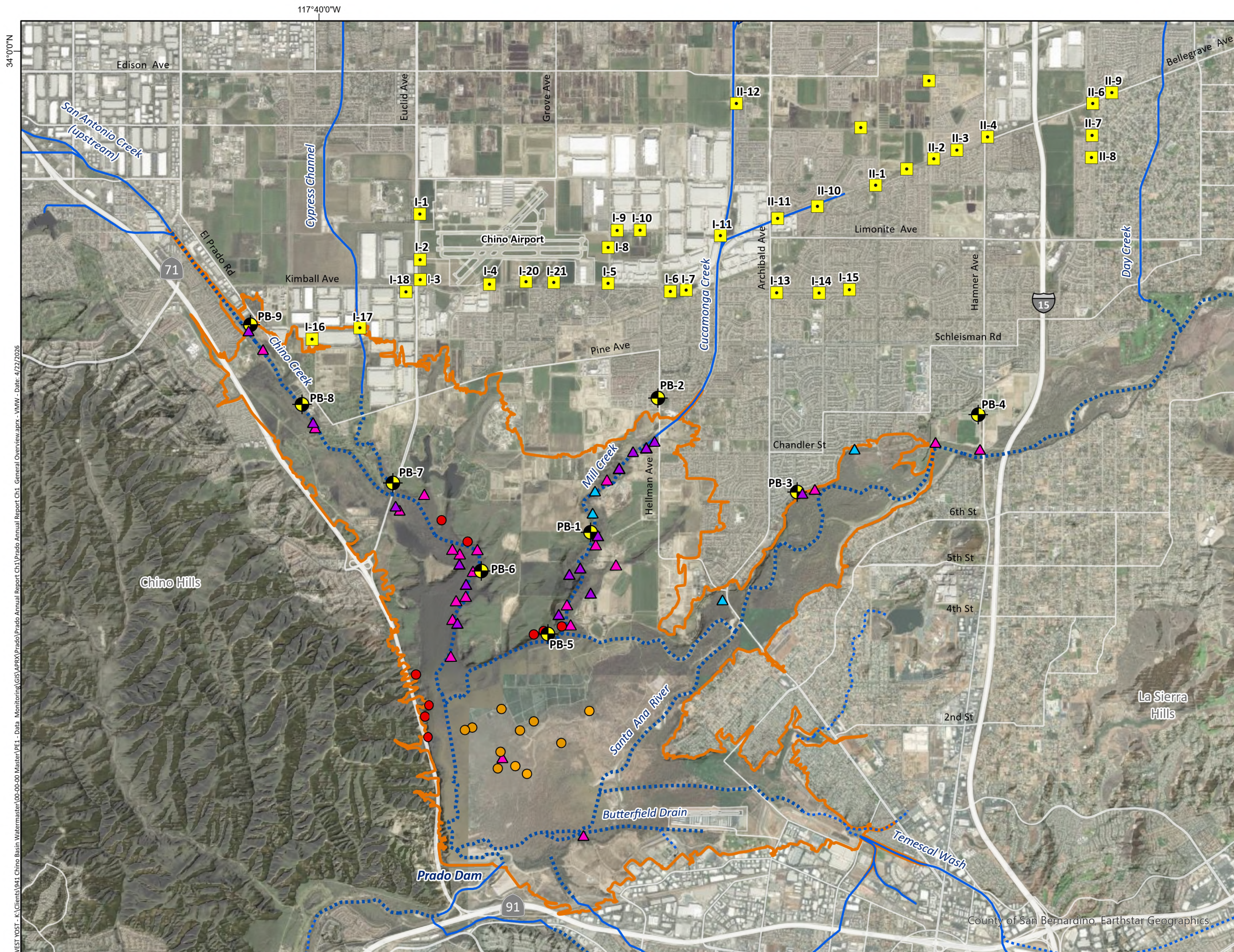
2.1 Riparian Habitat Monitoring

The objective of the Riparian Habitat Monitoring Program (RHMP) is to collect data to help answer questions 2, 3, and 4 from the AMP:

- What is a consistent quantifiable definition of "riparian habitat quality", including metrics and measurement criteria?
- What has been the historical extent and quality of the riparian habitat in the Prado Basin?
- How has the extent and quality of the riparian habitat changed during the implementation of Peace II?

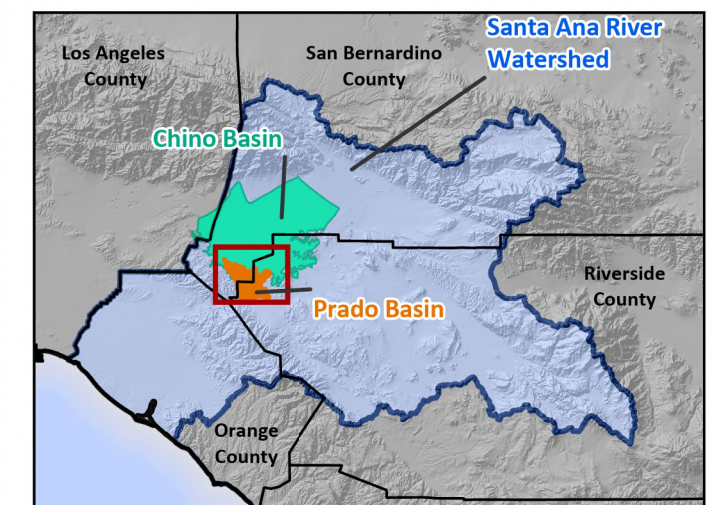
To answer these questions, the RHMP includes time series data and information on the extent and quality of riparian habitat in the Prado Basin over a historical period, including both pre- and post-Peace II implementation.

Figure 2-1 displays the features of the RHMP. Two types of monitoring and assessment are performed: regional and site-specific. Regional monitoring and assessment are appropriate because the main potential stress to the riparian habitat associated with Peace II activities is the regional drawdown of groundwater levels. The intent of site-specific monitoring and assessment is to verify and complement the results of regional monitoring.



Riparian Habitat Monitoring Program - Site Specific Monitoring

- Vegetation Survey Site**
- ▲ Site surveyed in Prior Monitoring Events
 - ▲ Site surveyed in 2025
 - ▲ Site surveyed added in 2025
- OCWD Site-Specific Monitoring**
- Understory Photo Stations
 - Canopy Photo Stations
 - ⊗ PBHSP Monitoring Well
- Prado Basin**
- Prado Basin
 - Concrete-Lined Channels
 - - - Unlined Rivers and Streams
 - Chino Basin Desalter Well



2.1.1 Regional Monitoring of Riparian Habitat

Regional monitoring and assessment of the riparian habitat is performed by mapping the extent and quality of riparian habitat over time using: 1) multi-spectral remote-sensing data and 2) air photos.

2.1.1.1 Multi-Spectral Remote Sensing Data

The Normalized Difference Vegetation Index (NDVI), derived from remote sensing measurements by Landsat Program satellites, is used to assess the extent and quality of the riparian vegetation in the Prado Basin over a long-term historical period. NDVI is a commonly used numerical indicator of vegetation health that can be calculated from satellite remote-sensing measurements (Ke et al., 2015; Xue, J. and Su, B., 2017). NDVI is calculated from visible and near-infrared radiation reflected by vegetation and is an index of greenness correlated with photosynthesis that can be used to assess spatial and temporal changes in the distribution and productivity of vegetation (Pettorelli, 2013). Areas where the NDVI is higher have greener vegetation than areas where NDVI is lower— indicating areas where the overall vegetation is healthy.

NDVI provides a “first indicator” of regional changes in the extent and quality (health) of vegetation. Because NDVI represents a composite view of plant species diversity, form, structure, density, and vigor, changes in NDVI can reflect a range of shifts within the riparian habitat (Markon et al., 1995; Markon and Peterson, 2002). These changes can then be ground-truthed using other types of monitoring. Appendix A provides background information on NDVI, further explains why NDVI was chosen as an analytical tool for the PBHSP, discusses additional advantages and limitations of NDVI, and describes how NDVI estimates were used for the PBHSP.

NDVI data are available for the entire extent of the Prado Basin dating from the early 1980s to present from the United States Geological Survey (USGS), and provide a historical characterization of the spatial extent and quality of the riparian vegetation prior to and after the implementation of Peace II activities (2007).

For the current reporting period, NDVI estimates were collected from the USGS using the Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface⁶ (USGS, 2017b) for the period of November 2024 through October 2025, to span the entire growing-season period (March-October 2025). To obtain complete spatial coverage of the Prado Basin area, NDVI estimates were requested for all Landsat scenes for Path 040, Rows 036 and 037 from the Landsat 8 and Landsat 9 satellites. The NDVI were processed and uploaded to Watermaster’s centralized relational database, HydroDaVESM, which includes tools to manage, review, and extract NDVI estimates. The frequency of NDVI estimates from the Landsat 8 and 9 satellites is once every eight days. However, not all NDVI estimates are useable due to disturbances that can be caused by cloud cover, unfavorable atmospheric conditions, or satellite equipment malfunction. NDVI estimates were reviewed for these disturbances and excluded from analysis if they were determined erroneous due to these disturbances. Appendix A describes how the NDVI estimates were collected, reviewed, and assembled for the PBHSP, including an explanation of the decision to calculate the Average Growing-Season NDVI data for WY 2025 from April through October, instead of March through October, as was previously done in prior reports.

⁶ [ESPA USGS](#)

2.1.1.2 Collection and Analysis of Air Photos

Georeferenced air photos are used to visually characterize the spatial extent and quality of the riparian habitat in the Prado Basin. The air photos also serve as an independent check on interpretations of NDVI, which involves visual comparison of the extent and density of the riparian habitat (as shown in the air photos) to the NDVI maps. For ongoing monitoring, a high-resolution (3-inch pixel) image of the visible spectrum for the entire Prado Basin is acquired during the middle of the growing season, typically in late June or early July.

For the current reporting period, the acquisition of the 2025 air photo included a custom flight that was performed by Tetra Tech on June 26, 2025. The cost to acquire the 2025 air photo was shared with the OCWD. This was the ninth annual high-resolution air photo acquired for the PBHSP and cost-shared with the OCWD.

2.1.2 Site-Specific Monitoring of Riparian Habitat

The objective of the site-specific monitoring of riparian habitat is to collect data that can be used to ground-truth the interpretations derived from the regional monitoring and assessment of the riparian habitat (Pettorelli, 2013). The site-specific monitoring for the PBHSP includes vegetation surveys at established sites in the Prado Basin that have evolved over time. The United States Bureau of Reclamation (USBR) conducted this site-specific monitoring both prior to and after the implementation of the AMP, during 2007, 2013, 2016, 2019, and 2022 (USBR, 2008; 2016; 2017; 2020; 2023) — and ECORP conducted in 2025 over this reporting period (ECORP, 2026). The following summarizes the vegetation surveys conducted since AMP implementation:

- **2016 and 2019 USBR vegetation surveys.** Consists of 37 sites— 23 previously established sites surveyed in 2007 and 2013, and 14 new sites located near the PBHSP monitoring wells.
- **2022 USBR vegetation surveys.** Consists of 39 sites— 37 previously established sites surveyed in 2016 and 2019, and two additional sites in the upper portion of Mill Creek to increase monitoring in an area where there has been some observed drawdown of groundwater levels.
- **2025 ECORP vegetation surveys.** Consists of 20 sites— 16 previously established sites surveyed by the USBR in 2022 and four new sites in representative areas. The number of sites was reduced to 20 to focus on key representative areas where: field data are important for verifying regional assessment monitoring; the Peace II implementation has potential to impact riparian vegetation; and/or groundwater level declines or changes in vegetation health have been observed. The four new sites include two along Mill Creek and two along the SAR. The two Mill Creek sites are in areas where a browning of the vegetation was observed in the 2024 air photo, and NDVI decreased slightly. The two SAR sites were added to better align with the defined areas where NDVI data is analyzed over time (SAR-3 and SAR-4), as described in Section 3.1.2.5.

The OCWD also performs site-specific monitoring in the southern portion of Prado Basin to monitor for effects of the operation of Prado Dam on riparian habitat. OCWD site-specific monitoring includes seasonal monitoring at nine canopy photo stations located along the edge of Prado Basin. OCWD also implements a vegetation monitoring program in which ground vegetation surveys are conducted to support basin-wide and focus-area vegetation mapping and assess the extent and health of Mulefat in the focus area. The most recent annual report prepared by OCWD on the results of this monitoring is the *Prado Basin Water Conservation and Habitat Assessment 2024-2025* report (OCWD, 2026).

Figure 2-1 shows the locations of historic USBR vegetation survey sites, sites surveyed by ECORP during the most recent field survey in 2025, and the OCWD photo monitoring sites.

2.2 Factors that Potentially Affect the Riparian Habitat

The main factors that can potentially affect riparian habitat in Prado Basin include but are not limited to groundwater levels, surface-water discharge, weather/climate, wildfires, and invasive species and pests. This section describes the methods employed to collect and analyze information on these factors to help answer questions 5, 6, and 7 from the AMP:

- How have groundwater levels and quality, surface-water discharge, weather, and climate changed over time? What were the causes of the changes? And did those changes result in an adverse impact to riparian habitat in the Prado Basin?
- Are there other factors besides groundwater levels, surface-water discharge, weather, and climate that affect riparian habitat in the Prado Basin? What are those factors? And did they (or do they) result in an adverse impact to riparian habitat in the Prado Basin?
- Are the factors that result in an adverse impact to riparian habitat in the Prado Basin related to Peace II implementation?

2.2.1 Groundwater Monitoring Program

A primary result of implementation of the Peace II Agreement is the lowering of groundwater levels (drawdown) in the southern portion of Chino Basin. Hence, drawdown is a factor that is potentially related to Peace II implementation and could adversely impact riparian habitat that relies on shallow groundwater.

The Groundwater Monitoring Program (GMP) includes the collection of three types of data: groundwater production, groundwater level, and groundwater quality. Watermaster has been implementing a GMP across the entire Chino Basin to support various Basin management initiatives and activities, and all data within Watermaster’s centralized relational database are available to the GMP.

In 2015, Watermaster’s groundwater monitoring network was expanded specifically for the PBHSP, with the construction of 16 new monitoring wells at nine sites located along the fringes of the riparian habitat and between the riparian habitat and the CDA well field. These wells, along with two existing monitoring wells, HCMP-5/1 and RP2-MW3, are specifically monitored for the PBHSP and are referred to as the “PBHSP monitoring wells” in the remainder of the report.

Figure 2-2 shows the extent of the study area for which the GMP data are compiled and used for the PBHSP. The area covers the Prado Basin and the upgradient areas to the north that encompass the Chino Basin Desalter well field. Figure 2-2 also shows the wells in the study area where groundwater data were available in WY 2025.

2.2.1.1 Groundwater Production

Groundwater production influences groundwater levels and groundwater-flow patterns. Groundwater-production data are analyzed together with groundwater-level data to characterize the influence of groundwater production on groundwater levels. Groundwater-production data are also used as an input to the Chino Basin groundwater-flow model to evaluate past and future conditions in the Chino Basin, which, for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3).

Watermaster collects quarterly groundwater-production data for all active production wells within the Chino Basin. The data are checked for quality assurance and quality control (QA/QC) and uploaded to Watermaster’s centralized relational database. The active production wells within the study area include CDA wells and privately owned wells used for agricultural, dairy, or domestic purposes.

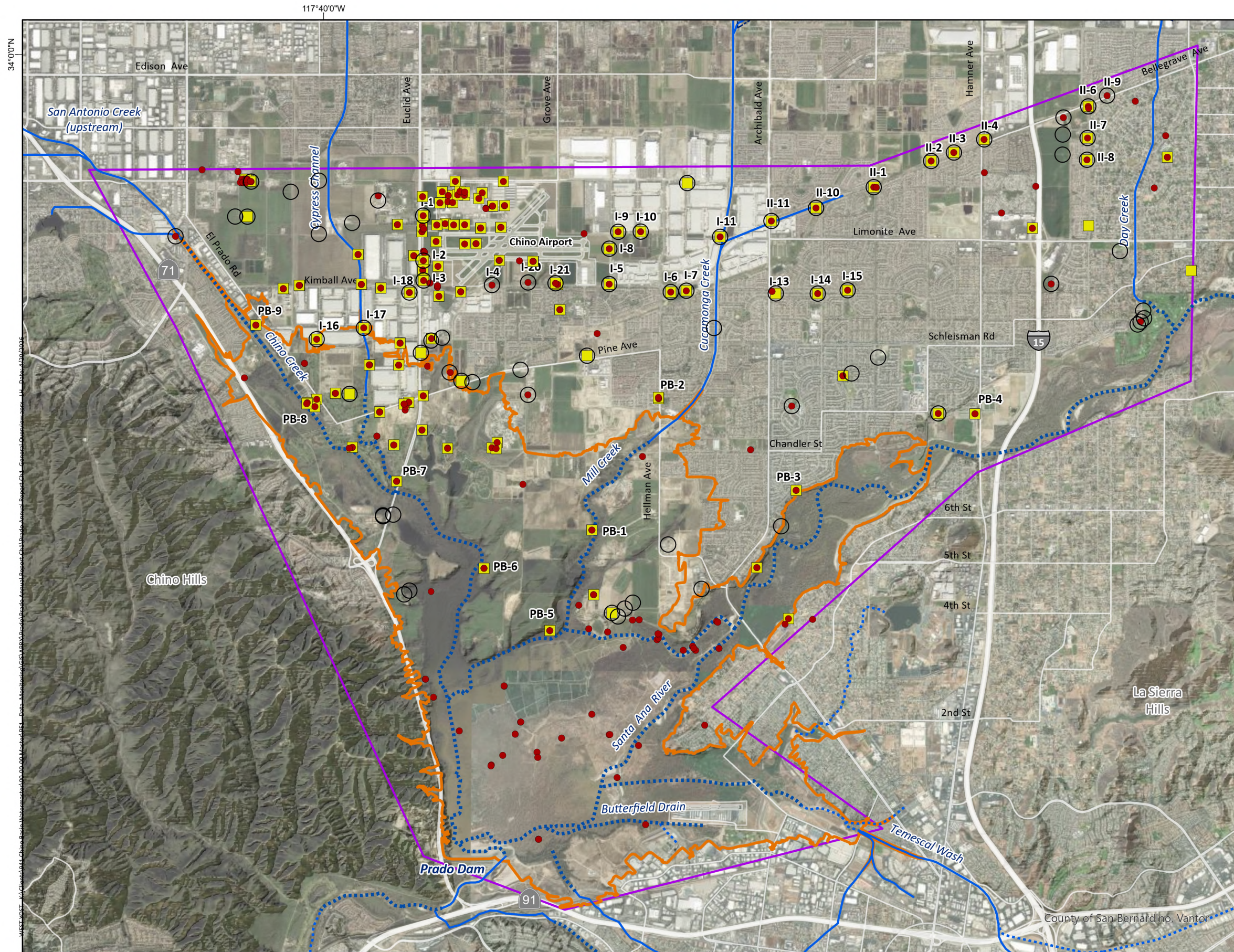
During WY 2025, Watermaster collected groundwater-production data at 75 wells in the GMP study area.

2.2.1.2 Groundwater Level

Monitoring groundwater levels in the Prado Basin is a key component of the PBHSP, as the potential for declining groundwater levels related to Peace II implementation could be a factor that adversely impacts riparian habitat. Groundwater-level data are analyzed together with production data to characterize how groundwater levels have changed over time in the GMP study area and to explore the relationship(s) to any observed changes that occurred in the extent and quality of the riparian habitat. Groundwater-level and production data are also used as input to the Chino Basin groundwater-flow model to evaluate past and future conditions in the Chino Basin, which, for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3). Groundwater level data are also used with other data to evaluate groundwater/surface-water interactions (see Section 3.3).

Watermaster collects groundwater-level data at various frequencies at wells in the GMP study area to support various groundwater-management initiatives. The data are checked for QA/QC and uploaded to Watermaster’s centralized relational database.

During WY 2025, Watermaster collected groundwater-level data from 278 wells in the study area (see Figure 2-2). Approximately 100 wells are CDA wells, dedicated monitoring wells, or private wells that are monitored by Watermaster using manual methods once per month or with pressure transducers that record water levels once every 15 minutes. This includes the PBHSP monitoring wells where water levels are measured with pressure transducers. At the remaining 178 wells, water levels were measured by well owners at varying frequencies and provided to Watermaster.



Wells with Groundwater Data - Water Year 2025

- Well with Production Data
- Well with Water Level Data
- Well with Water Quality Data

Wells Labeled on the Map

Chino Basin Desalter Well - Labeled with "I-" or "II-"

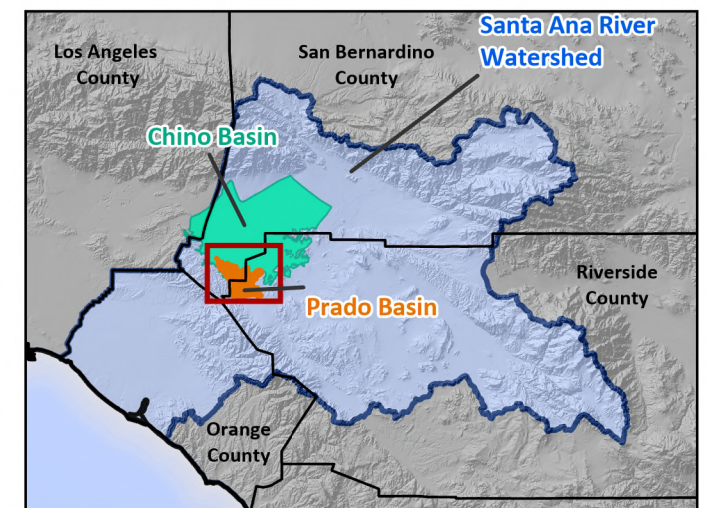
PBHSP Monitoring Well - Labeled with "PB-"

Groundwater Monitoring Program (GMP) Study Area

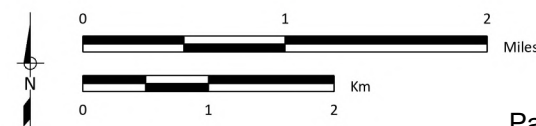
Prado Basin

Concrete-Lined Channels

Unlined Rivers and Streams



Prepared by:



Prepared for:

Prado Basin Habitat Sustainability Committee
2025 Annual Report



Groundwater Monitoring Program

Figure 2-2

2.2.1.3 Groundwater Quality

Water-quality data can be used to understand the various potential sources of shallow groundwater in the Prado Basin. Groundwater-quality data are compared to surface-water-quality data to characterize groundwater/surface-water interactions in the Prado Basin and assess the importance of those interactions to the extent and quality of the riparian habitat.

Watermaster collects groundwater-quality data from wells in the GMP study area to support various groundwater-management initiatives. These data are checked for QA/QC and uploaded to Watermaster's centralized relational database. During WY 2025, groundwater-quality data were collected from 177 wells in the study area (see Figure 2-2). Of these wells, 78 are dedicated monitoring wells or private wells sampled by Watermaster quarterly, annually, or triennially (every three years); and/or using transducers that record high-frequency (15-minute) temperature and specific conductance (EC) readings. The remaining 99 were sampled by the well owners at varying frequencies.

Watermaster has performed groundwater-quality sampling at the PBHSP monitoring wells since they were constructed in 2015. The groundwater-quality monitoring has been tailored to discern the groundwater/surface-water interactions important to the sustainability of the riparian habitat. Currently Watermaster conducts triennial water-quality sampling at the 18 PBHSP monitoring wells as part of their Basin-wide water-quality monitoring to support various groundwater-management initiatives. The most recent water-quality sampling event occurred during September 2024 and the next triennial monitoring event will occur in summer of 2027.

In 2023, Watermaster began collecting the high-frequency (15 minute) temperature and EC readings from the transducers at the PBHSP monitoring wells. This was a recommendation from the WY 2022 Annual Report to replace a pilot monitoring program to study groundwater/surface-water interactions (see section 4.1 of 2022 Annual Report, West Yost, 2023). At the time, only four PBHSP monitoring wells were equipped with transducers that were able to measure the high-frequency EC data in addition to temperature and water level. As transducers have been replaced, they have been upgraded to models that measure and record high-frequency EC data along with temperature and groundwater levels. As of WY 2025, 17 PBHSP monitoring wells are equipped with upgraded transducers that measure EC.

During WY 2025, the high-frequency temperature and EC data at the PBHSP monitoring sites were downloaded, processed, checked for QA/QC, and uploaded to Watermaster's relational database on a quarterly basis.

2.2.2 Surface-Water Monitoring Program

Surface-water discharge in the Prado Basin is another factor that can influence the extent and quality of riparian habitat and can influence groundwater levels. Surface-water discharge data are evaluated for the PBHSP to characterize historical and current trends in the discharge of the SAR and its tributaries in the Prado Basin, and to explore the relationship(s) to any observed changes that occur in the extent and quality of the riparian habitat. Surface-water quality data is compared to groundwater-quality data to characterize groundwater/surface-water interactions in the Prado Basin and the importance of those interactions to the extent and quality of the riparian habitat. Figure 2-3 shows the location of the surface-water monitoring sites used in the PBHSP. Surface-water discharge data are also used as input to the Chino Basin groundwater-flow model to evaluate past and future conditions in the Chino Basin, which for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3).

The surface-water monitoring program for the PBHSP involves collecting existing, publicly available surface-water discharge and quality data from sites within or tributary to the Prado Basin. These sites

include discharge locations for publicly owned treatment works (POTWs), USGS stream gaging stations, Watermaster and the IEUA Maximum-Benefit Monitoring Program surface-water-quality monitoring sites, and ACOE's storage levels and inflow to Prado Dam. All surface-water discharge and quality data were collected for WY 2025, checked for QA/QC, and uploaded to Watermaster's relational database.

In WY 2023, Watermaster also began collecting surface-water field measurements of temperature and EC at four sites located near PBHSP monitoring wells along Chino Creek and Mill Creek. This monitoring was a recommendation from the WY 2022 Annual Report based on a pilot program to study groundwater/surface-water interactions (see section 4.1 of 2022 Annual Report, West Yost, 2023) and is done in coordination with high-frequency groundwater measurements of temperature and EC described above in the Groundwater Quality Section. In WY 2025, Watermaster collected quarterly surface-water field measurements at the four sites. Data were checked for QA/QC and uploaded to Watermaster's relational database.

2.2.3 Climatic Monitoring Program

Climate is another factor that can influence the extent and quality of riparian habitat and can influence groundwater levels. Climatic data are evaluated for the PBHSP to characterize how the climate has changed over time in the study area and to explore the relationship(s) to any observed changes that occurred in the extent and quality of the riparian habitat. Climatic data are also used for the Chino Basin groundwater-flow model to evaluate past and future conditions in the Chino Basin, which for the PBHSP, supports the analysis of prospective losses of riparian habitat (see Section 2.3).

The climatic monitoring program for the PBHSP involves collecting existing, publicly available spatially gridded climate datasets for precipitation and temperature in the vicinity of the Prado Basin. These climate datasets include Next-Generation Radar (NEXRAD)⁷ and the PRISM Climate Group⁸. Figure 2-3 shows the location of the areas where the gridded climate data is extracted from PRISM and NEXRAD to estimate a spatial average for precipitation and temperature for the PBHSP. The Chino Basin boundary is used to extract the spatially gridded data for precipitation, and the Prado Basin boundary is used to extract the spatially gridded data for maximum and minimum temperature. Climatic data are collected annually and uploaded to Watermaster's relational database.

2.2.4 Other Factors That Can Affect Riparian Habitat

The AMP recognizes that there are potential factors other than groundwater, surface-water, and climate that can affect riparian habitat in the Prado Basin. These factors include, but are not limited to, wildfire, disease, pests, and/or invasive species. To the extent necessary and possible, data and information on these factors are collected and analyzed to explore relationships to changes in the extent and quality of the riparian habitat.

⁷ Cooperative Distributed Interactive Atmospheric Catalog System/Earth Observing Laboratory/National Center for Atmospheric Research/University Corporation for Atmospheric Research, and Climate Prediction Center/National Centers for Environmental Prediction/National Weather Service/NOAA/U.S. Department of Commerce. 2000, updated quarterly. NCEP/CPC Four Kilometer Precipitation Set, Gauge and Radar. NSF National Center for Atmospheric Research. <https://doi.org/10.5065/D69Z93M3>. Accessed November 25, 2025.

⁸ PRISM Climate Group. (2025). PRISM Gridded Climate Data (PRISM monthly mean daily maximum temperature data (800 m resolution), PRISM monthly mean daily minimum temperature (800 m resolution), PRISM daily precipitation data (800 m resolution), 2024). Oregon State University. <https://prism.oregonstate.edu>

In WY 2016, during the analysis for the first Annual Report, two specific factors were identified as potential impacts to the riparian habitat in the Prado Basin: wildfires and an invasive pest known as the Polyphagous Shot-Hole Borer (*Euwallacea fornicates*; PSHB hereafter). In WY 2018, the removal of the non-native invasive weed *Arundo donax* (*Arundo*) was identified as another factor that could potentially impact the riparian vegetation in the Prado Basin. The following describes the information that was collected for these three factors and how they are used to explore relationships to changes that have occurred in the extent and quality of riparian habitat.

2.2.4.1 Wildfires

Wildfires occur periodically in the Prado Basin and can reduce the extent and quality of riparian habitat. For the PBHSP, the occurrence and locations of wildfires are used to help understand and explain the trends observed in the extent and quality of the riparian vegetation.

To map the extent of any wildfires that have occurred in the study area, fire-perimeter data were collected from the Fire and Resource Assessment Program (FRAP) of the California Department of Forestry and Fire Protection (CAL FIRE).⁹

For the current reporting period, wildfire data were obtained from the FRAP database for the Prado Basin region for calendar year 2024.¹⁰

2.2.4.2 Polyphagous Shot-Hole Borer (PSHB)

The PSHB is a beetle that burrows into trees, introducing a fungus (*Fusarium euwallacea*) into the tree bark that spreads the disease Fusarium Dieback (FD).^{11,12} FD destroys the food and water conducting systems of the tree, eventually causing stress and tree mortality. The PSHB was first discovered in Southern California in 2003 and has been recorded to have caused branch die-back and tree mortality for various tree specimens throughout the Southern California region (USDA, 2013). Since 2016, the PSHB has been an identified pest within the Prado Basin that has the potential to negatively impact riparian habitat vegetation health (USBR, 2016; Palenscar, K., personal communication, 2016; McPherson, D., personal communication, 2016).

Information on the PSHB occurrence in the Prado Basin has been obtained during the USBR and ECORP vegetation surveys of riparian habitat in the Prado Basin for the PBHSP during 2016, 2019, 2022, and 2025; from the University of California, United States Department of Agriculture (USDA) and Natural Resources' online PSHB/FD Distribution Map¹³; and from the OCWD's PSHB trap deployment and monitoring. For the PBHSP, the occurrences of the PSHB in the Prado Basin are used to help understand and explain the trends observed in the extent and quality of the riparian vegetation.

For the current reporting period, data were collected on the PSHB occurrence in Prado Basin during the ECORP vegetation surveys conducted in October 2025.

⁹ Frap.fire.ca.gov

¹⁰ There are no 2025 data available yet. Data for the previous year is available each year in April.

¹¹ UCANR.edu

¹² Cisr.Ucr.Edu

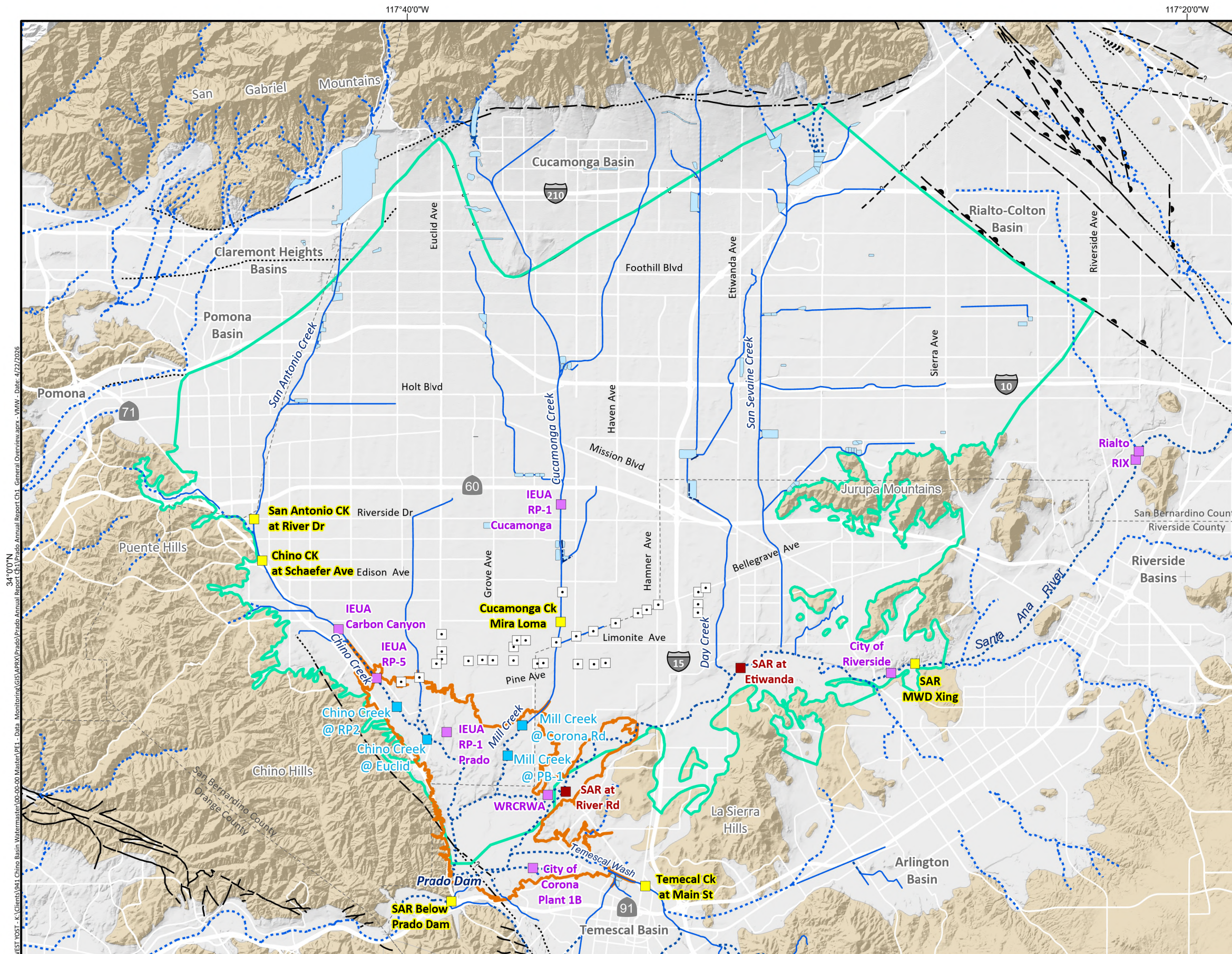
¹³ Ucanr.edu

2.2.4.3 Arundo Removal

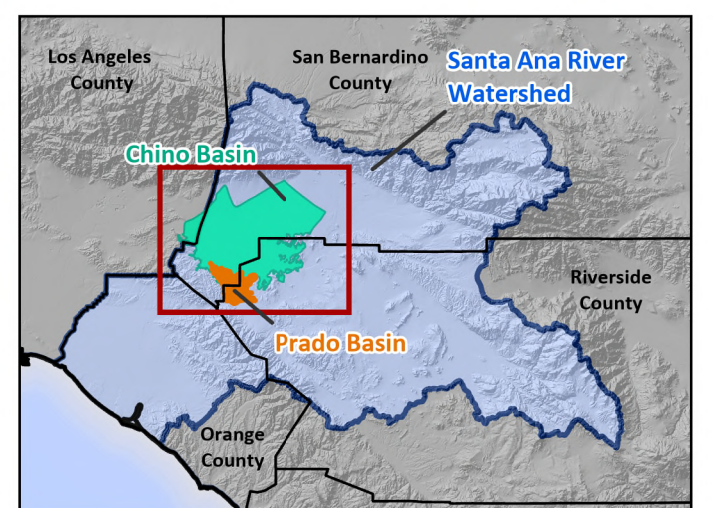
Non-native Arundo is prominent throughout riparian habitat in the Prado Basin. Arundo consumes significantly more water than native plants, can out-compete native vegetation, and is flammable in nature increasing the risk of wildfire. Several stakeholders in the SAR watershed are actively removing Arundo from the riparian habitat to restore native habitat and support the recovery of the threatened and endangered species, such as the Least Bell's Vireo and Santa Ana Sucker. For the PBHSP, tracking the occurrence and locations of these habitat restoration activities that include the removal of Arundo can help understand and explain trends in the extent and quality of the riparian habitat. The OCWD, Santa Ana Watershed Association (SAWA), and Santa Ana Watershed Project Authority (SAWPA), in coordination with others, are the main entities in the watershed that implement habitat restoration programs that include removing Arundo.

In WY 2025, information on recent Arundo removal and management activities in the Prado Basin were collected to track these programs and explore potential connections between these activities and any observed trends in the extent and quality of riparian habitat. This effort involved coordinating with the OCWD and SAWA to obtain information on the location and timing of these programs.

DRAFT



- Surface-Water Monitoring Program**
- POTW Discharge Outfall
 - USGS Stream Gage Station
 - Maximum-Benefit Monitoring Program Site
 - PBHSP Site
- Climate Monitoring Program**
- Chino Basin - Area to Extract Gridded Data from PRISM and NEXRAD Data Sets (Precipitation)
 - Prado Basin - Area to Extract Gridded Data from PRISM and NEXRAD Data Sets (Temperature)
 - Chino Basin Desalter Well
 - ~ Concrete-Lined Channels
 - - - Unlined Rivers and Streams
 - Flood Control & Conservation Basins
- Surface Geology**
- Water-Bearing Sediments*
- Quaternary Alluvium
- Consolidated Bedrock*
- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks
- Faults**
- Location Certain
 - - - Location Approximate
 - - - - - Location Concealed
 - - - ? - - Location Uncertain
 - - - - - Approximate Location of Groundwater Barrier



2.3 Prospective Loss of Riparian Habitat

Monitoring and mitigation requirement 4.4-3 in the Peace II SEIR calls for annual reporting for the PBHSP, that will include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured loss or **prospective loss** of riparian habitat that may be attributable to the Peace II Agreement (emphasis added). The meaning of “prospective loss” in this context is “future potential losses” of riparian habitat. Predictive modeling of groundwater levels can be used to answer Question 8 from the AMP:

- Are there areas of prospective loss of riparian habitat that may be attributable to the Peace II Agreement?

Watermaster’s most recent groundwater-modeling results are used to evaluate forecasted groundwater-level changes within the Prado Basin under current and projected conditions in the Basin, including, but not limited to, plans for pumping, storm-water recharge, and supplemental water recharge. To perform this evaluation, the predictive model results of groundwater levels are mapped and analyzed to identify areas (if any) where groundwater levels are projected to decline to depths that may negatively impact riparian habitat in the Prado Basin.

Watermaster’s most recent groundwater model projections are from the simulation of planning scenario “2020 SYR1” for the 2020 recalculation of Safe Yield using the updated Chino Basin groundwater-flow model (WEI, 2020). Section 3.7 of this Annual Report uses this most recent projection to characterize future groundwater-level conditions in the GMP study area and analyze prospective loss. The Chino Basin groundwater-flow model is currently being updated and used to project conditions for the 2025 Safe Yield Reset, and new model projections will be included in the WY 2026 Annual Report.

3.0 RESULTS AND INTERPRETATIONS

This section describes the analysis and interpretation of the monitoring data and groundwater-modeling results for the PBHSP. Analyzed data span various historical periods, based on data availability, and include both pre- and post-Peace II Agreement implementation (2007).

More specifically, this section describes the trends in the extent and quality of the riparian habitat, describes the trends in factors that can impact the riparian habitat, and evaluates potential cause-and-effect relationships—particularly any cause-and-effect relationships that may be associated with Peace II implementation. The factors that can potentially impact the extent and quality of the riparian habitat include changes in groundwater levels, surface-water discharge, climate, and other factors. Declining groundwater levels is the primary factor that is potentially related to Peace II implementation and could adversely impact the riparian habitat.

This section also includes a review of Watermaster’s most recent predictive Chino Basin groundwater modeling results to identify areas of potential future declines in groundwater levels that could impact the riparian habitat.

3.1 Trends in Riparian Habitat Extent and Quality

This section analyzes the extent and quality of the riparian habitat in the Prado Basin using air photos, NDVI, and vegetation surveys.

3.1.1 Extent of the Riparian Habitat

The annual reports for the first four years of the PBHSP included an analysis of the riparian vegetation using historical air photos to map vegetation density and extent in Prado Basin over time (WEI, 2017; 2018; 2019; 2020). In general, these analyses concluded that from 1960 to 1999 the mapped extent of the riparian habitat increased from about 1.8 to 6.7 square miles (mi²) and its vegetated density increased. The 1999 mapped extent is considered the maximum extent of the riparian habitat in the Prado Basin and has since remained relatively constant in the Prado Basin along the Chino Creek, Mill Creek, and SAR reaches in the Prado Basin.¹⁴ The maximum extent of the riparian vegetation in Prado Basin is shown on Figure 3-1a which compares the air photos that were acquired for the PBHSP in July 2024 and June 2025. Both air photos are high-resolution (3-inch pixels) which allow for a side-by-side visual comparison of riparian vegetation extent and quality in 2024 and 2025. There are no significant differences in these photos that show a change to the extent of the riparian habitat in the Prado Basin along the Chino Creek, Mill Creek, and SAR reaches of the Prado Basin. The maximum extent of the riparian habitat in the Prado Basin is the area used to evaluate the NDVI spatially and temporally in Sections 3.1.2.1 and 3.1.2.2.

¹⁴ Since 1999 there has been a decrease to the extent and density of the riparian vegetation along the Temescal Wash in the southeastern portion of Prado Basin. This area is outside the Chino Basin hydrologic boundary and is not an area of influence of potential impacts of Peace II implementation on groundwater levels.

2024 Air Photo
(July 1, 2024)



Maximum Riparian Vegetation Extent

2025 Air Photo
(June 26, 2025)



Maximum Riparian Vegetation Extent

Figure 3-1b compares the 2025 air photo and the mapped extent of the riparian habitat to the NDVI estimates for the Prado Basin area on a date that corresponds to the maximum spatial average of NDVI during the growing season for 2025.¹⁵ Generally, the following ranges in NDVI during the growing season correspond to these land cover types:

- < 0: Water
- 0 - 0.29: Non-vegetated surfaces, such as urbanized land cover and barren land
- 0.3 - 1.0: Vegetated land cover— higher NDVI values indicate greener vegetation, and therefore greater photosynthetic activity

Three main observations and interpretations are derived from this figure:

- The majority of the Prado Basin riparian vegetation areas have NDVI estimates of about 0.3 to 0.9 during the growing season. Active agricultural lands in the Prado Basin region can also have NDVI values of a similar range during the growing season.
- The NDVI estimates support the delineation of the extent of the riparian habitat as drawn from the air photos.
- The consistency of NDVI values to land cover observed in the air photo indicates that the processing of NDVI estimates for this study were performed accurately, which supports subsequent analyses and interpretations.

3.1.2 Quality of the Riparian Habitat

As discussed, and referenced in Section 2.0, NDVI is an indicator of the photosynthetic activity of vegetation and therefore can be used to interpret the health or “quality” of the riparian vegetation. In this section, NDVI is spatially and temporally analyzed in maps and time-series charts for defined areas throughout Prado Basin to characterize changes in the quality of riparian habitat over the period 1984 to 2025.

3.1.2.1 Spatial Analysis of NDVI

Figure 3-2 compares maps of NDVI across the entire Prado Basin area for 2024 and 2025 on the dates that correspond to the maximum growing-season NDVI for the year as a spatial average across the entire extent of the riparian vegetation. Figure 3-3 is a map of change in NDVI from 2024 to 2025 that was prepared by subtracting the 2024 NDVI map from the 2025 NDVI map in Figure 3-2. These figures identify areas that may have experienced a change in the quality of riparian habitat from 2024 to 2025:

- Throughout the majority of the riparian vegetation extent in Prado Basin, NDVI showed no change from 2024 to 2025.
- NDVI both increased and decreased in scattered patches throughout the riparian vegetation in the Prado Basin.
 - The notable patches of NDVI increase are along the SAR, and along and adjacent to the lower reach of Chino Creek.

¹⁵ The growing season for the Prado Basin riparian vegetation is from March through October (Merkel, 2007; USBR, 2008). The maximum NDVI for the 2025 growing season occurred on September 20, 2025.

- The notable patches of NDVI decrease are located in the lower portion of Prado Basin, below the OCWD wetlands and the lower reach of Chino Creek.¹⁶

These spatial changes in NDVI will be analyzed along with the factors that can impact riparian habitat in Sections 3.2 through 3.6 of this report.

DRAFT

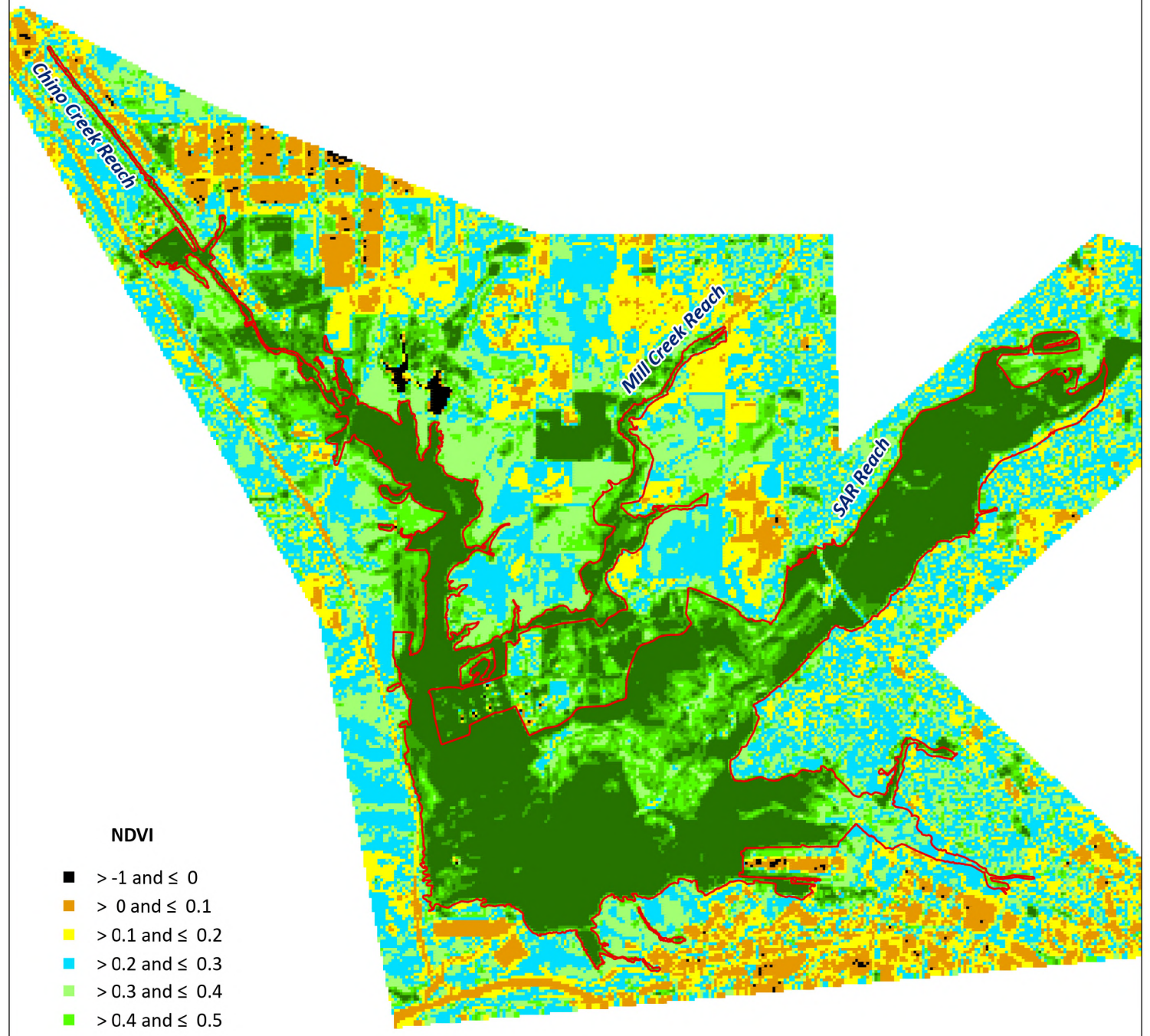
¹⁶ There has continued to be decreasing NDVI within the riparian vegetation along the Temescal Wash in the southeastern portion of Prado Basin. This area is outside the Chino Basin hydrologic boundary and is not an area of influence of potential impacts of Peace II implementation on groundwater levels and is excluded from further analyses in this report.

2025 Air Photo
(June 26, 2025)



Maximum Riparian Vegetation Extent

2025 NDVI
(September 20, 2025)*



- NDVI**
- > -1 and ≤ 0
 - > 0 and ≤ 0.1
 - > 0.1 and ≤ 0.2
 - > 0.2 and ≤ 0.3
 - > 0.3 and ≤ 0.4
 - > 0.4 and ≤ 0.5
 - > 0.5 and ≤ 0.6
 - > 0.6 and ≤ 0.7
 - > 0.7 and ≤ 1

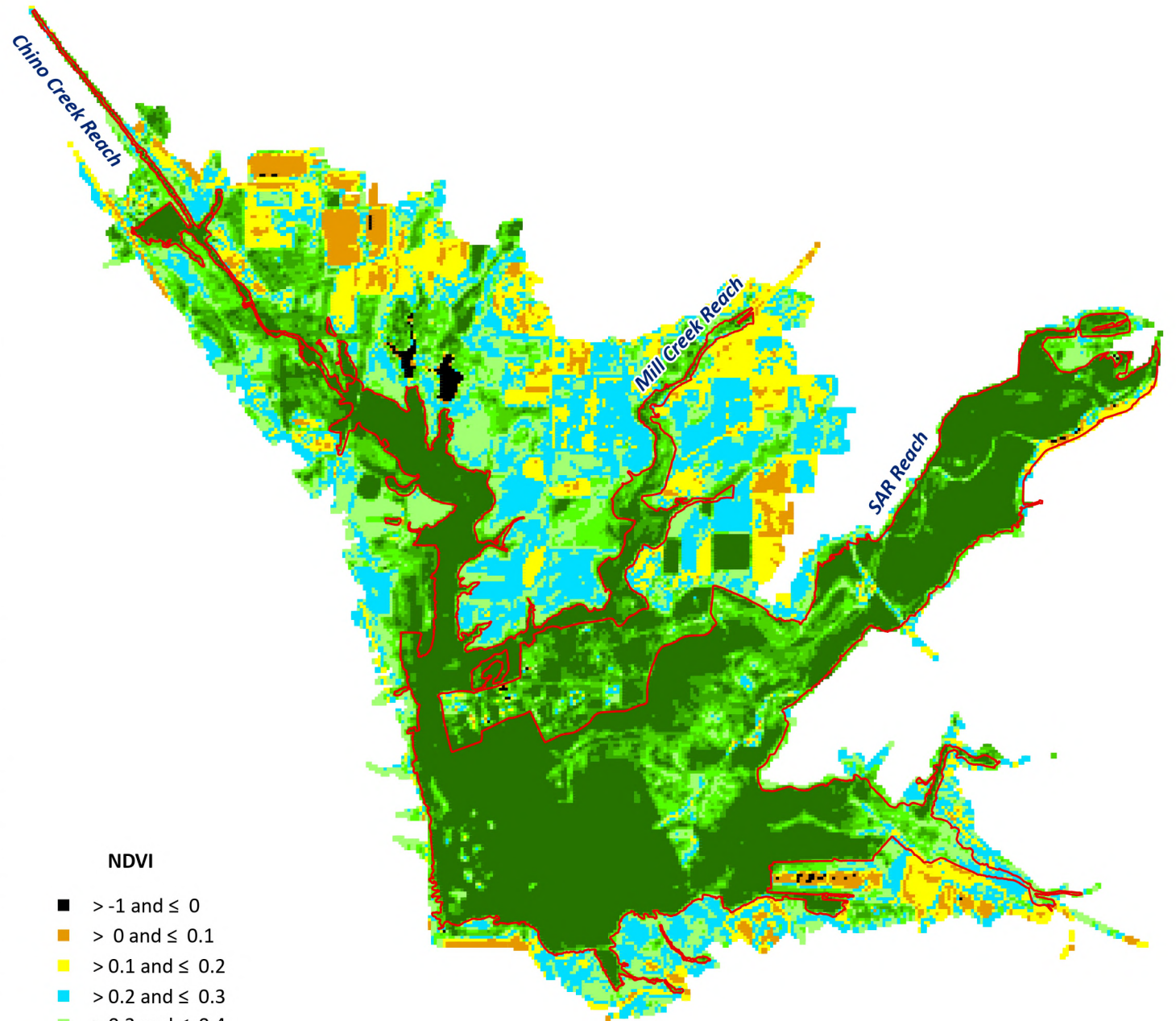
*Maximum growing-season NDVI for 2025

Maximum Riparian Vegetation Extent

WEST YOST - K:\Clients\9411 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\APRX\Prado\Prado Annual Report Ch2\MASTER Prado Annual Report Ch2_NDVI_Air Photos.aprx - LH - Date: 4/21/2026

WEST-YOST - K:\Clients\911-Chino-Basin-Watermaster\00-00-00-Master\01 - Data_Monitoring\GIS\APR\Prado\Annual-Report-Ch3\MASTER_Prado-Annual-Report-Ch3.aprx - LH - Date: 12/27/2025

2024 NDVI
(July 31, 2024)*

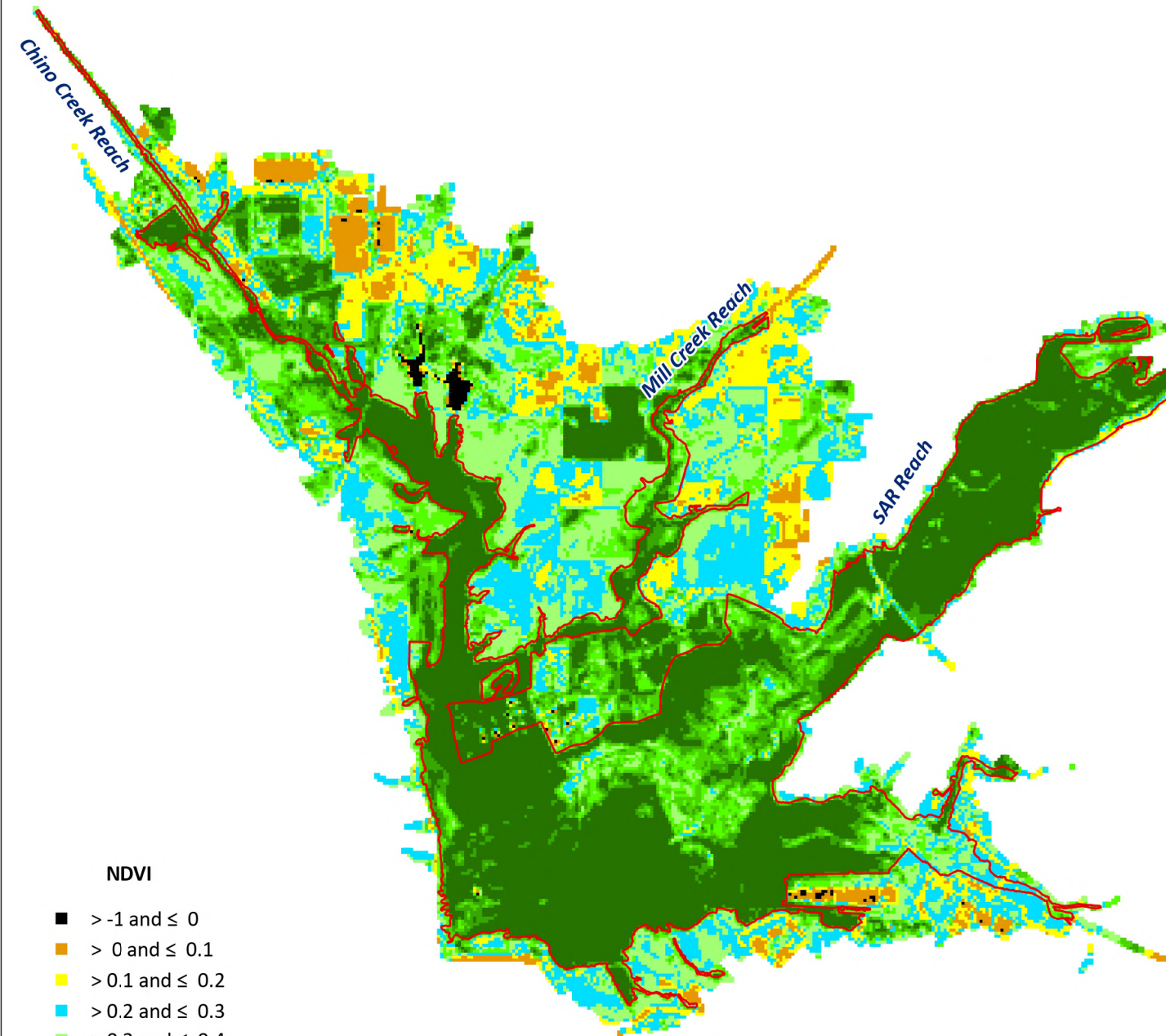


- NDVI**
- > -1 and ≤ 0
 - > 0 and ≤ 0.1
 - > 0.1 and ≤ 0.2
 - > 0.2 and ≤ 0.3
 - > 0.3 and ≤ 0.4
 - > 0.4 and ≤ 0.5
 - > 0.5 and ≤ 0.6
 - > 0.6 and ≤ 0.7
 - > 0.7 and ≤ 1

*Maximum growing-season NDVI for 2024

Maximum Riparian Vegetation Extent

2025 NDVI
(September 20, 2025)*

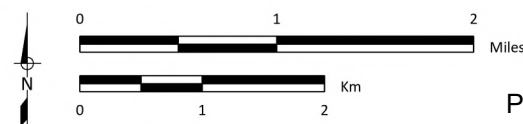


- NDVI**
- > -1 and ≤ 0
 - > 0 and ≤ 0.1
 - > 0.1 and ≤ 0.2
 - > 0.2 and ≤ 0.3
 - > 0.3 and ≤ 0.4
 - > 0.4 and ≤ 0.5
 - > 0.5 and ≤ 0.6
 - > 0.6 and ≤ 0.7
 - > 0.7 and ≤ 1

*Maximum growing-season NDVI for 2025

Maximum Riparian Vegetation Extent

Prepared by:



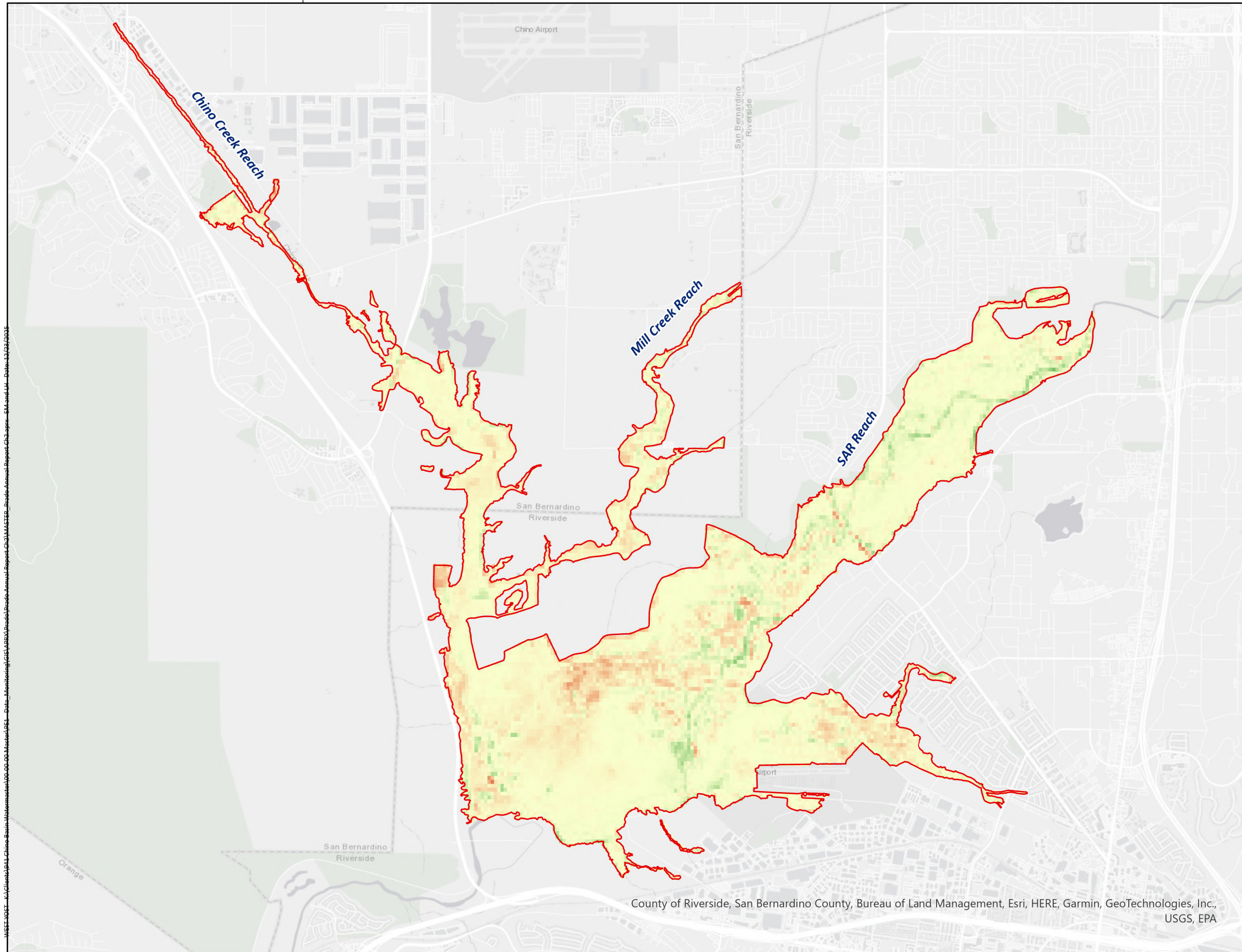
Prepared for:

Prado Basin Sustainability Committee
2025 Annual Report

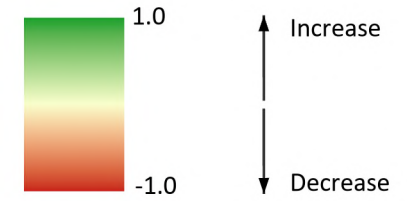



Spatial NDVI for the Prado Basin
2024 and 2025

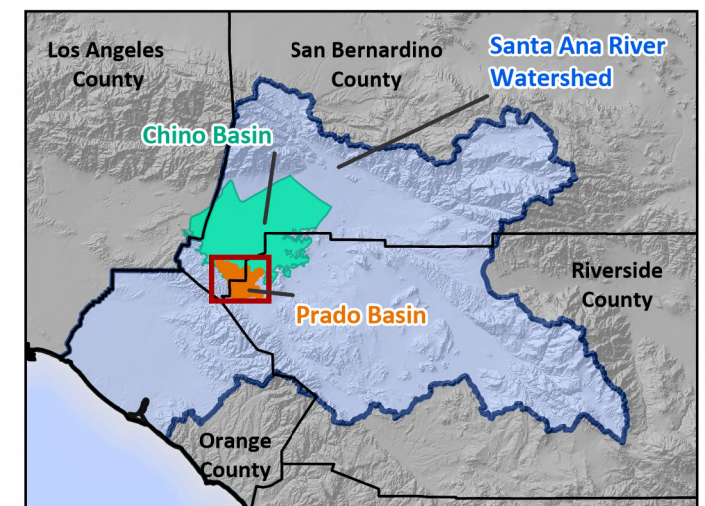
Figure 3-2



Change in Maximum Growing-Season NDVI Values
2024 to 2025

Maximum Riparian Vegetation Extent
in Prado Basin



Prepared by:



Prepared for:

Prado Basin Sustainability Committee
2025 Annual Report



Spatial Change in NDVI for the Prado Basin
2024 to 2025

Figure 3-3

3.1.2.2 Temporal Analysis of NDVI

NDVI pixels¹⁷ within defined areas throughout the Prado Basin were spatially averaged and temporally analyzed in time-series charts. The defined areas include four large and 13 small areas within Prado Basin and are shown in Figure 3-4. The large areas include: i) the extent of the riparian habitat in the entire Prado Basin (6.8 mi² – which is 19,520 NDVI pixels); ii) the upper portion of Chino Creek (0.74 mi² – which is 2,134 NDVI pixels); iii) the entire Mill Creek reach (0.26 mi² – which is 759 NDVI pixels); and iv) the upper portion of the Mill Creek reach (0.03 mi² – which is 92 NDVI pixels). The small areas are located along the northern reaches of the Prado Basin riparian habitat near the PBHSP monitoring wells and a vegetation survey site (10-meter radius plot). All the small areas are one NDVI pixel (30 x 30 meters).¹⁸

Figures 3-5, 3-6, 3-7a, 3-7b, and 3-8a through 3-8m are time-series charts of the NDVI for each defined area, illustrating changes in the riparian habitat quality over time. These figures characterize long- and short-term changes in NDVI in specific areas, providing context for interpreting trends and changes during Peace II implementation. Each figure shows two datasets that illustrate trends in the NDVI estimates:

- **Spatial Average NDVI (green dots).** Spatial Average NDVI is the spatial average of the NDVI pixels within the defined area. These data characterize the seasonal and long-term trends in NDVI for each defined area. The NDVI exhibits an oscillatory pattern caused by seasonal changes in the riparian habitat. This pattern is typical for a deciduous forest, where NDVI values are higher in the growing season from around March through October and lower in the dormant season from around November through February when plants and trees shed their leaves.
- **Average Growing-Season NDVI (black dots and black curve).** The Average Growing-Season NDVI is the annual average of the Spatial Average NDVI for April through October during the growing season.¹⁹ This curve shows the annual changes and long-term trends in the NDVI for the growing season. This metric is used to analyze year-to-year changes and long-term trends in NDVI.

NDVI maps or air photos are included on the time-series charts for spatial reference and as a visual check on the interpretations derived from the time-series charts. The air photos are for 2022, 2023, 2024, and 2025, showing the last four years using the high-resolution air photos collected for the PBHSP.

To statistically characterize long-term trends in NDVI, the Mann-Kendall statistical trend test (Mann-Kendall test) was performed on the Average Growing-Season NDVI for all defined areas over the following three periods:

- 1984 to 2025: the entire period of record
- 1984 to 2006: period prior to Peace II Agreement implementation
- 2007 to 2025: period subsequent to Peace II Agreement implementation

¹⁷ Each NDVI pixel is approximately 30 x 30 meters.

¹⁸ In early annual reports, these small areas were four NDVI pixels in this same general area. During WY 2020, these areas were modified to one NDVI pixel that aligned with the USBR vegetation survey so that the field vegetation survey data better correlates with the NDVI time-series data.

¹⁹ In previous reports, the Average Growing Season NDVI was the average for March through October. During WY 2025, this metric was revised to April through October to exclude the early to mid-March period where vegetation is still dormant and then beginning to transition to active growth.



The Mann-Kendall test utilizes a ranking formula to statistically analyze if there is an increasing trend, decreasing trend, or no trend in the NDVI. Appendix B describes the Mann-Kendall test methods and results. The final Mann-Kendall test results for the Average Growing-Season NDVI are shown on each time-series chart and are summarized in Table 3-1 below.

Defined Area	Figure Number	Mann-Kendall Test Result ^(a)		
		Period of Record 1984-2025	Prior to Peace II 1984-2006	Post-Peace II 2007-2025
Riparian Vegetation Extent	3-5	No Trend	No Trend	No Trend
Chino Creek	3-6	Increasing	Increasing	Increasing
Mill Creek	3-7a	No Trend	Decreasing	Increasing
Upper Mill Creek	3-7b	Increasing	No Trend	Increasing
CC-1	3-8a	Increasing	Increasing	Increasing
CC-2	3-8b	Increasing	Increasing	Increasing
CC-3	3-8c	Increasing	Increasing	Increasing
CC-4	3-8d	Increasing	No Trend	Increasing
MC-1	3-8e	Increasing	Increasing	Increasing
MC-2	3-8f	No Trend	No Trend	Increasing
MC-3	3-8g	Increasing	No Trend	Increasing
MC-4	3-8h	Increasing	No Trend	No Trend
MC-5	3-8i	No Trend	No Trend	Increasing
MC-6	3-8j	Increasing	Decreasing	Increasing
SAR-2	3-8k	Increasing	Decreasing	Increasing
SAR-3	3-8l	Increasing	No Trend	Increasing
SAR-4	3-8m	Increasing	No Trend	Increasing

(a) See Appendix B for a description of the Mann-Kendall statistical trend test and results.

To characterize the short-term trends in NDVI, Table 3-2 summarizes the one-year change in the Average Growing-Season NDVI from 2024 to 2025 at the 17 defined areas and compares it to the changes and variability in Average Growing-Season NDVI over the historical period of 1984 to 2024 at each area. From WY 2024 to WY 2025, NDVI at most of the defined areas increased or did not change— 12 areas increased, three areas showed no change, and two areas decreased. These one-year changes in the Average Growing-Season NDVI are all minor and within the range of long-term annual variability of the NDVI at each area.

Table 3-2. Characterization of Variability in the Average-Growing Season NDVI for Defined Areas in the Prado Basin

Defined Area	Figure Number	Historical NDVI Statistics 1984-2024		One-Year Change in NDVI from 2024-2025
		Average One-Year Change in NDVI (Absolute Value)	Maximum One-Year Change in NDVI (Absolute Value)	
Riparian Vegetation Extent	3-5	0.03	0.08	0.00
Chino Creek	3-6	0.02	0.07	0.01
Mill Creek	3-7a	0.03	0.10	0.00
Upper Mill Creek	3-7b	0.03	0.12	0.02
CC-1	3-8a	0.03	0.08	0.01
CC-2	3-8b	0.03	0.12	0.02
CC-3	3-8c	0.03	0.12	0.01
CC-4	3-8d	0.03	0.11	0.01
MC-1	3-8e	0.04	0.12	0.00
MC-2	3-8f	0.06	0.17	0.06
MC-3	3-8g	0.03	0.12	0.01
MC-4	3-8h	0.03	0.12	-0.01
MC-5	3-8i	0.04	0.11	-0.02
MC-6	3-8j	0.05	0.22	0.04
SAR-2	3-8k	0.04	0.13	0.02
SAR-3	3-8l	0.02	0.10	0.03
SAR-4	3-8m	0.05	0.15	0.02

3.1.2.3 Temporal Analysis of NDVI in Prado Basin

Figure 3-5 is a time-series chart from 1984 to 2025 of the spatial average of all 19,520 NDVI pixels within the maximum extent of the riparian habitat in the Prado Basin.²⁰ The intent of this time series is to characterize trends in NDVI for the Prado Basin as a whole, which is used as a basis of comparison to the trends in NDVI for each of the smaller defined areas shown in subsequent figures. Instead of air photos like the time series charts in Figures 3-6, 3-7a, 3-7b, and 3-8a through 3-8m, Figure 3-5 includes NDVI maps from 2022, 2023, 2024 and 2025, to visually compare to the NDVI time series.

Figure 3-5 and Tables 3-1 and 3-2 show that the Average Growing-Season NDVI for the entire Prado Basin varies from year-to-year by no more than 0.08 with no apparent long-term trends. The Mann-Kendall test result on the Average Growing-Season NDVI indicates “no trend” over the 1984 to 2025 period, the 1984 to 2006 period, and the 2007 to 2025 period.

From 2024 to 2025, the Average Growing-Season NDVI remained the same. This time-series analysis of NDVI suggests that the riparian habitat in Prado Basin, analyzed as a whole, has not experienced

²⁰ The maximum extent of the riparian habitat in the Prado Basin is based on 1999 conditions and has been relatively stable since in the Chino Creek, Mill Creek, and SAR reaches, and has been verified by inspection of the 2017 to 2025 high-resolution air photos.

statistically significant declines in NDVI in the recent water year, nor during the post-Peace II Agreement period from 2007 to 2025.

3.1.2.4 Temporal Analysis of NDVI within Large Areas along Chino Creek and Mill Creek

Figures 3-6, 3-7a, and 3-7b are time-series charts from 1984 to 2025 of the spatial average for NDVI pixels within large areas of riparian habitat located along the reaches of Chino Creek, Mill Creek, and Upper Mill Creek, respectively. These charts characterize trends and changes in NDVI for these northern reaches of the riparian habitat in the Prado Basin and provide a basis for comparison to the NDVI trends and changes for each of the smaller defined areas.

Chino Creek

Figure 3-6 is an NDVI time-series chart for 1984 to 2025 of the spatial average of all 2,134 NDVI pixels along the upper portion of Chino Creek in the Prado Basin. This reach of Chino Creek may be susceptible to impacts from declining groundwater levels associated with Peace II implementation.

Figure 3-6 and Tables 3-1 and 3-2 show that over the period of record, the Average Growing-Season NDVI varied from year-to-year by no more than 0.07 with a long-term increasing trend. The Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” over the 1984 to 2025 period, the 1984 to 2006 period, and the 2007 to 2025 period.

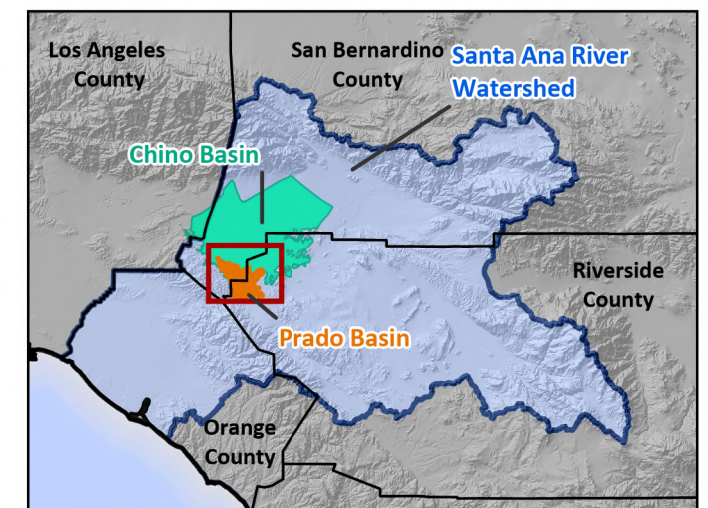
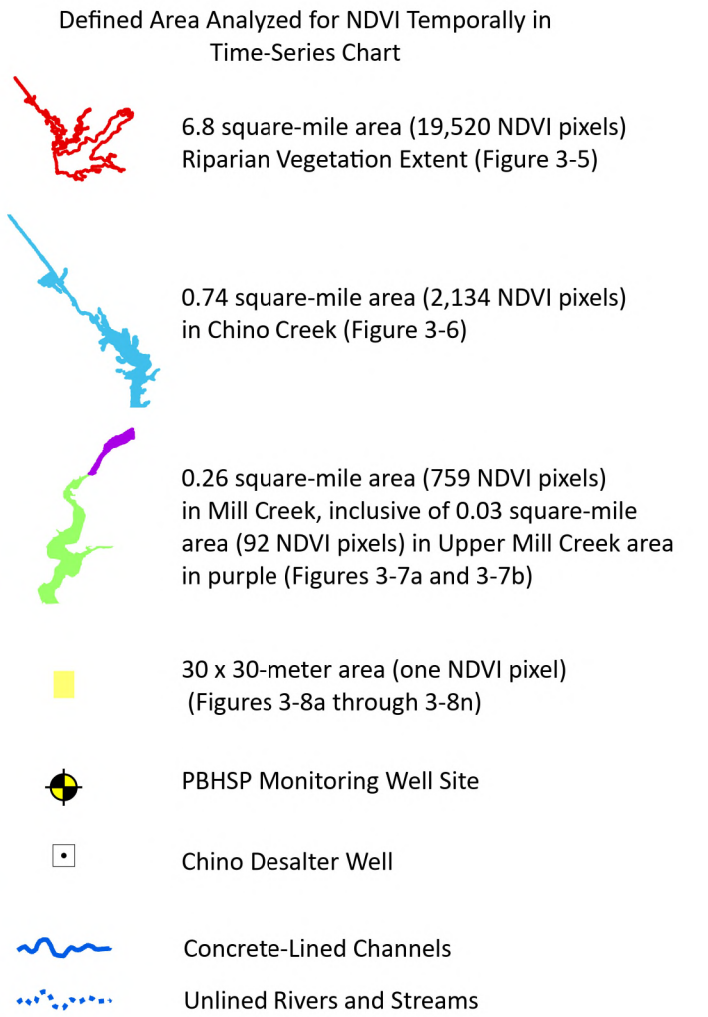
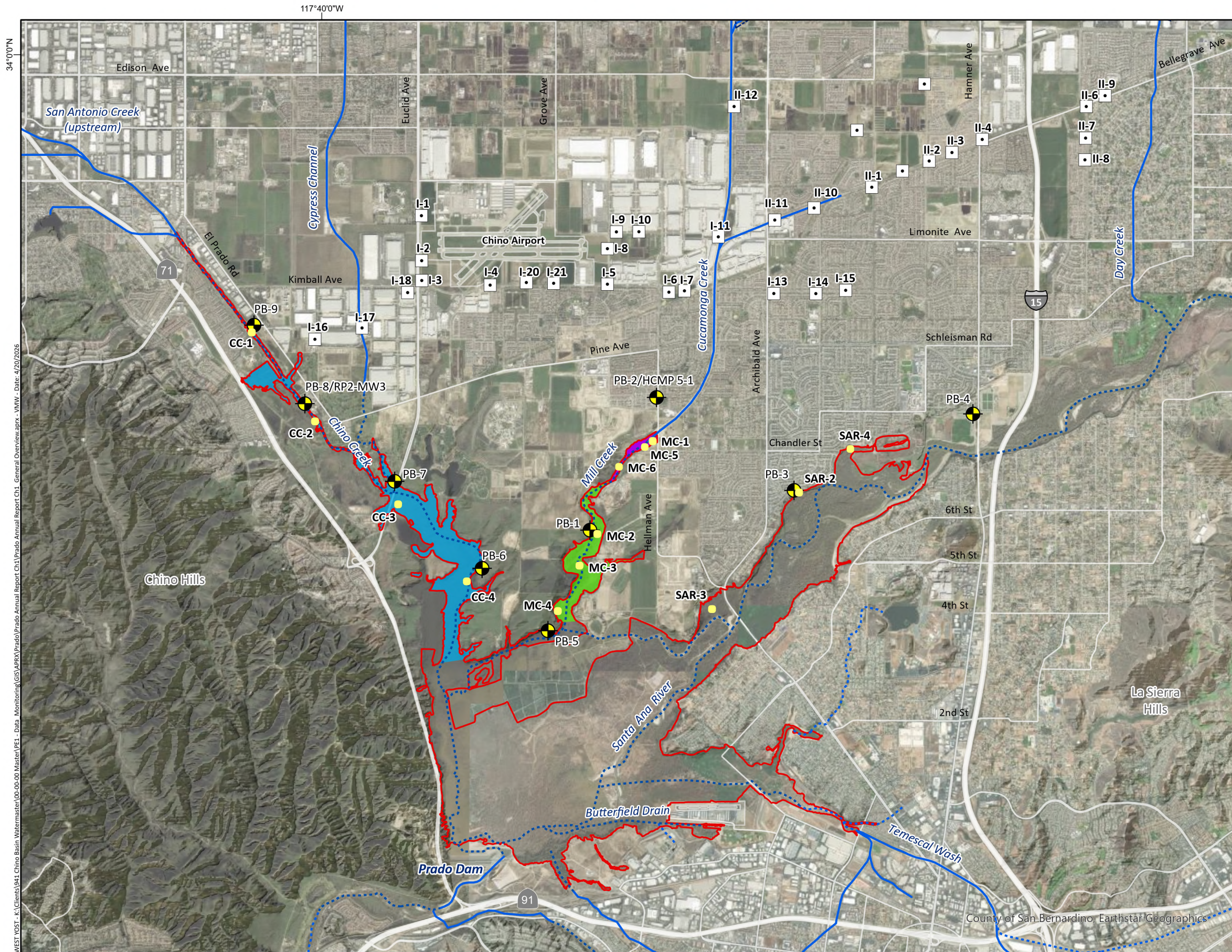
From 2024 to 2025, the Average Growing-Season NDVI increased by 0.01, which is minor and within the historical range of variability of the annual Average Growing-Season NDVI. Visual inspection of the 2024 and 2025 air photos do not show significant changes in the riparian vegetation along Chino Creek.

Mill Creek

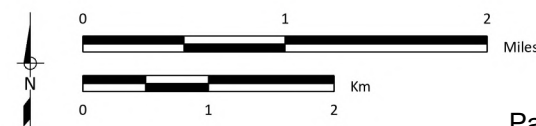
Figure 3-7a and Figure 3-7b are NDVI time-series charts for 1984-2025 of the spatial average for two areas of Mill Creek: the entire reach of Mill Creek (759 NDVI pixels) and the upper portion of Mill Creek (92 NDVI pixels). The Upper Mill Creek area is more susceptible to impacts from declining groundwater levels associated with Peace II implementation and was added for the analysis of NDVI time-series in the 2022 Annual Report.

Figure 3-7a and Tables 3-1 and 3-2 show that for the entire Mill Creek extent, the Average Growing-Season NDVI varied from year-to-year by no more than 0.10 over the period of record. The Mann-Kendall test result on the Average Growing-Season NDVI indicates “no trend” over the 1984 to 2025 period, “decreasing trend” over the 1984 to 2006 period, and “increasing” over the 2007 to 2025 period. From 2024 to 2025, the Average Growing-Season NDVI remained the same. Review of the 2024 and 2025 air photos show a slight increase in green vegetation throughout this area.

Figure 3-7b and Tables 3-1 and 3-2 show that for the Upper Mill Creek reach, the Average Growing-Season NDVI varied from year-to-year by no more than 0.12 over the period of record. The Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” over the 1984 to 2025 period, “no trend” over the 1984 to 2006 period, and an “increasing trend” over the 2007 to 2025 period. From 2024 to 2025, the Average Growing-Season NDVI increased by 0.02 which is within the historical range of the annual Average Growing-Season NDVI variability for the Upper Mill Creek area. Comparison of the 2024 and 2025 air photos show a slight increase in green vegetation throughout this area.



Prepared by:



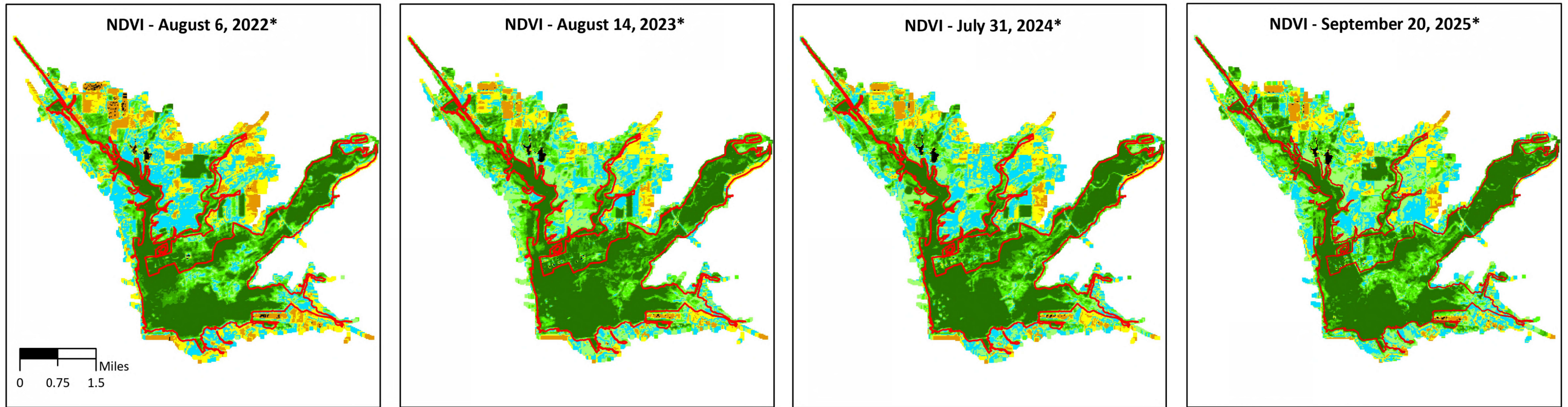
Prepared for:

Prado Basin Habitat Sustainability Committee
2025 Annual Report



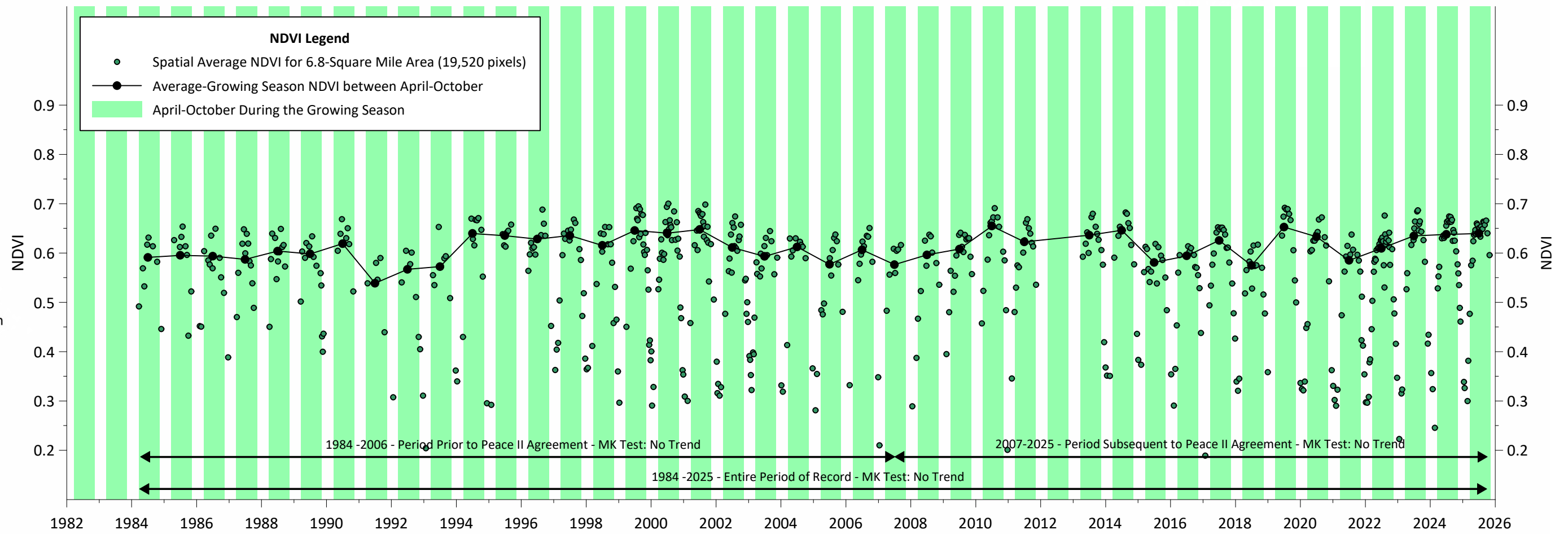
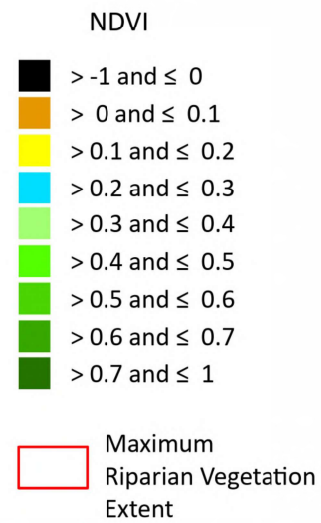
Areas for Analysis of NDVI Time Series

Figure 3-4



* Maximum Growing-Season NDVI

Map Legend:



Prepared by:



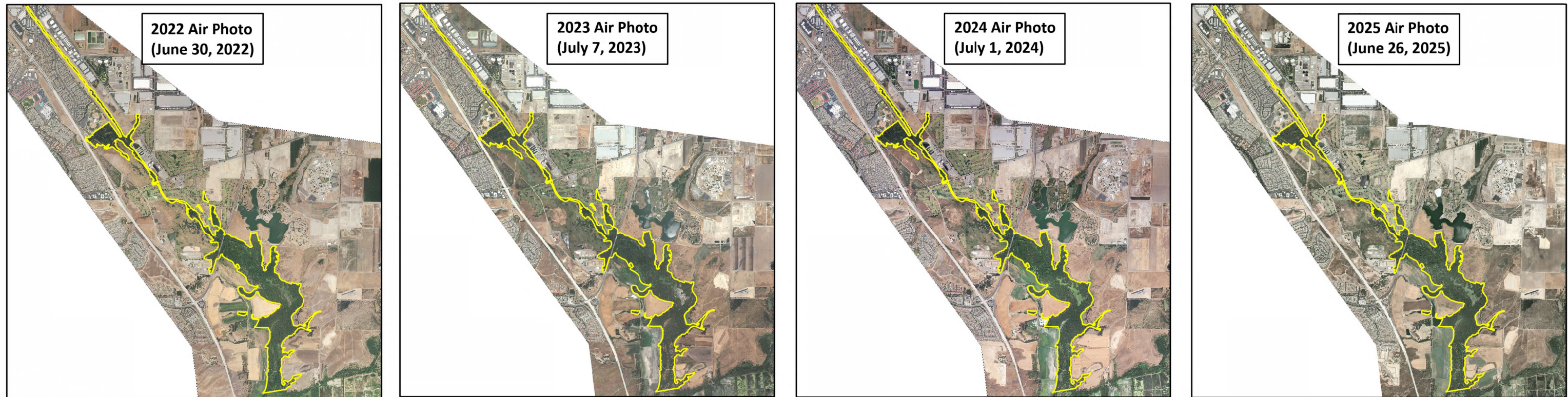
Prepared for:

Prado Basin Habitat Sustainability Committee
Page 71



**Time Series of NDVI for the
Riparian Vegetation Extent
1984 to 2025**

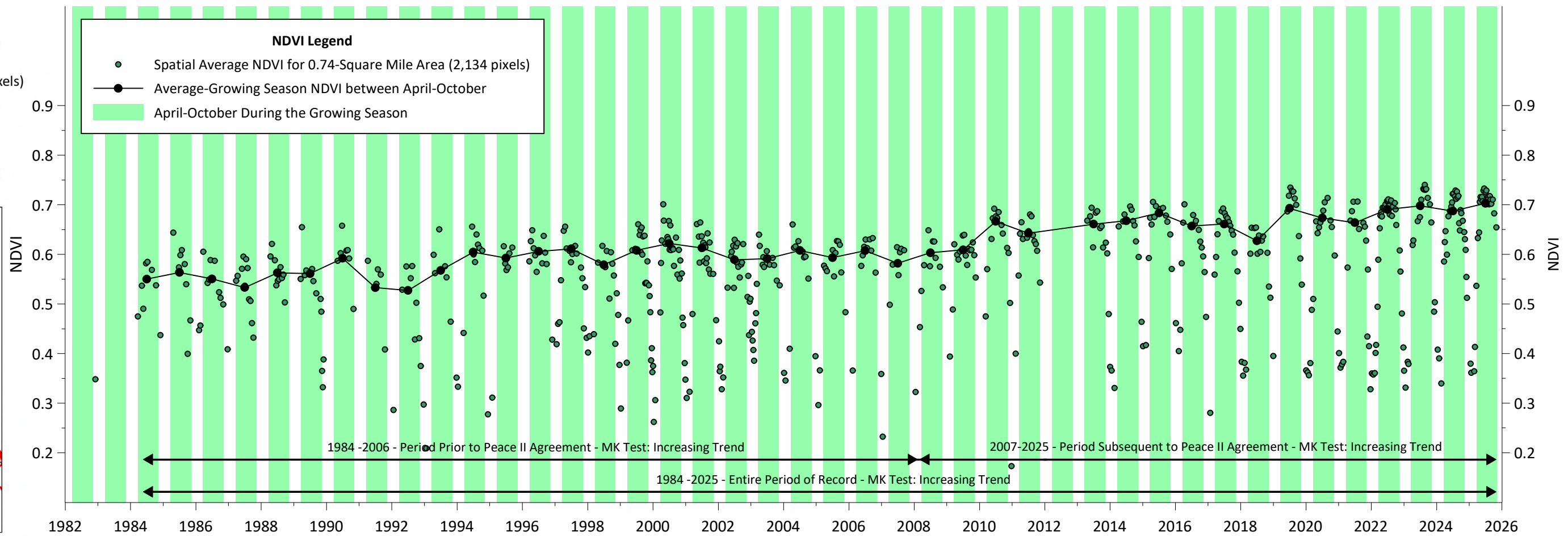
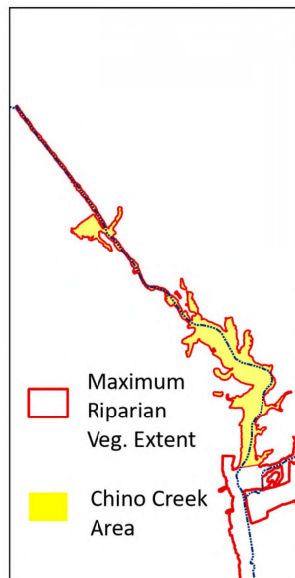
Figure 3-5



0 0.5 1 Miles

0.74 Square Mile Area (2,134 30 x 30-meter pixels)

Location of Chino Creek Area



Prepared by:



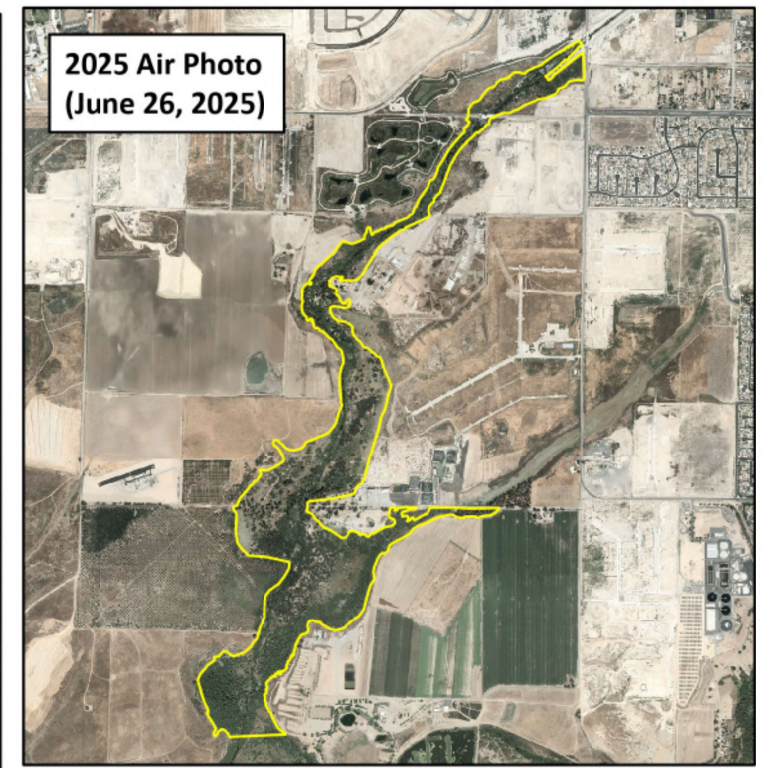
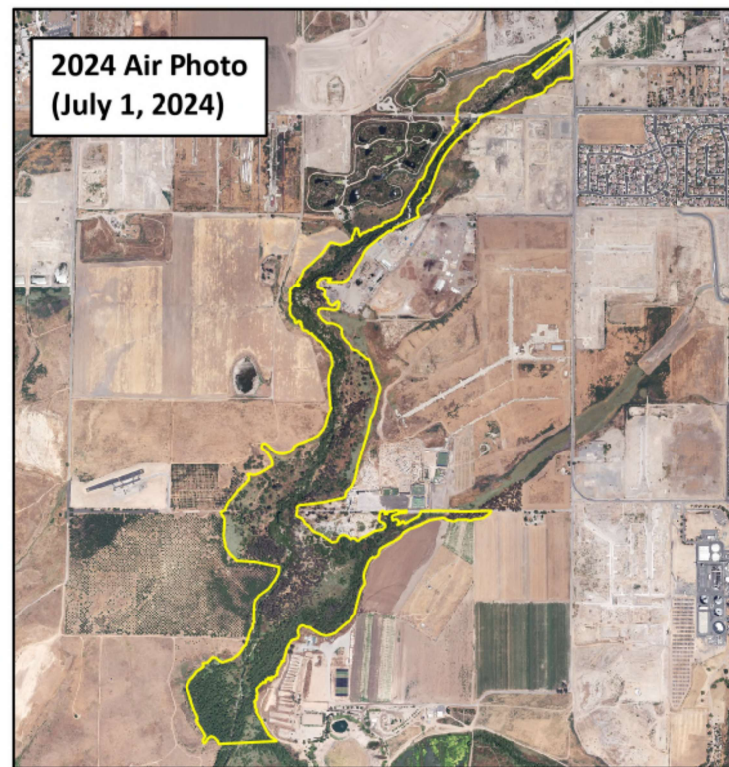
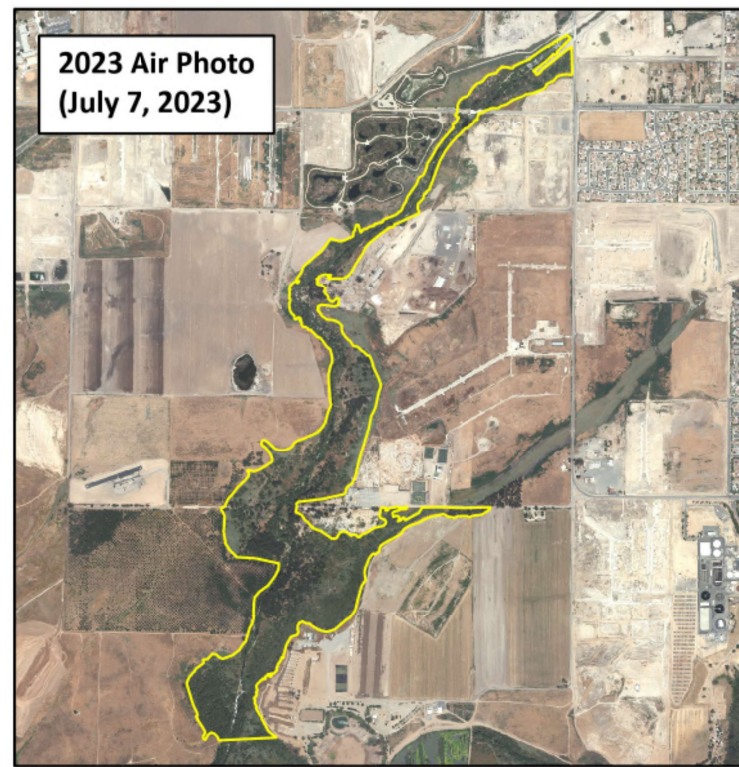
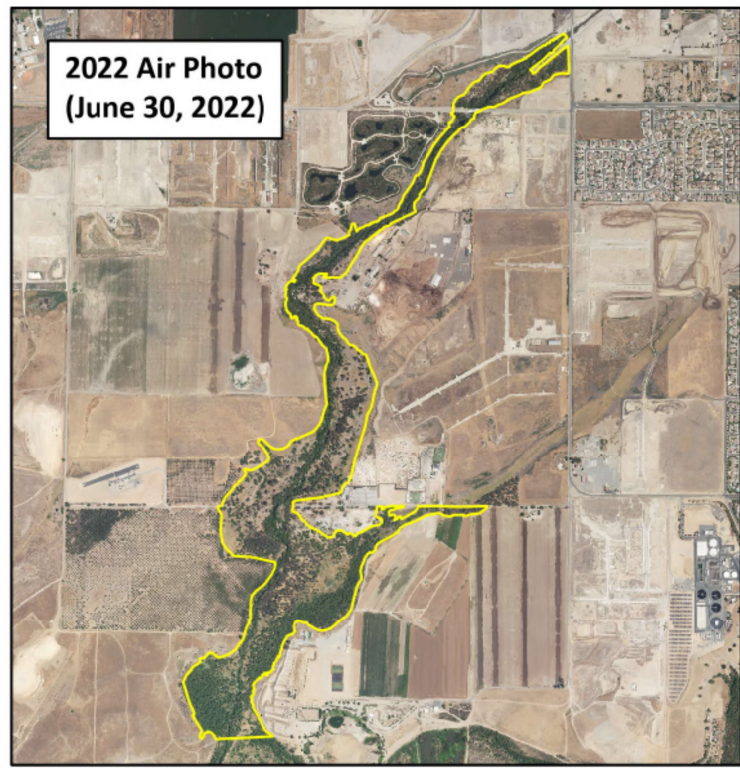
Prepared for:

Prado Basin Habitat Sustainability Committee
Page 72



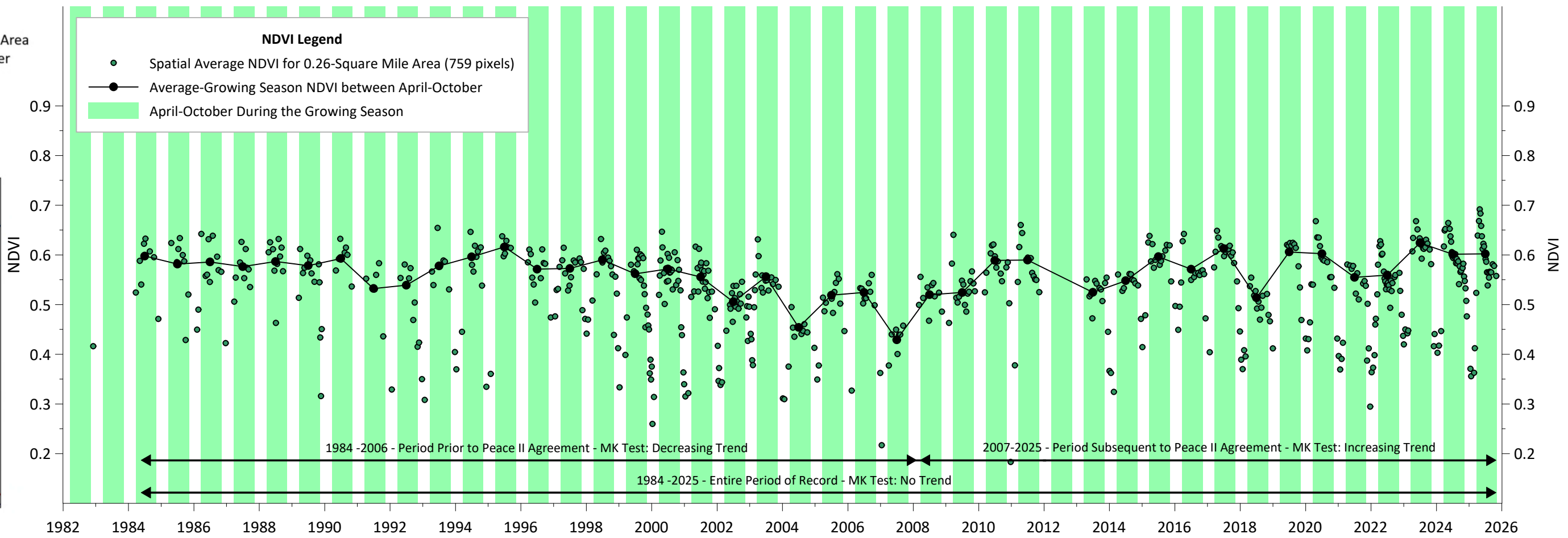
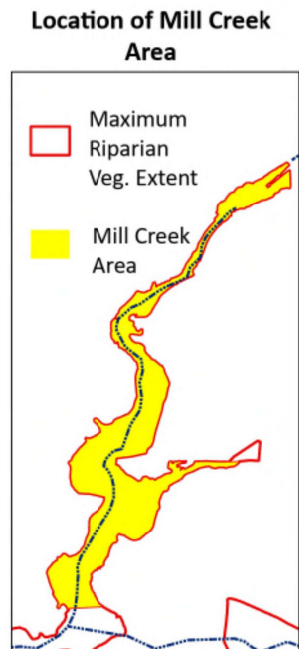
Time Series of NDVI and Air Photos
Along Chino Creek Area for 1984 to 2025

Figure 3-6



0 0.5 1 Miles

0.26 Square Mile Area (759 30 x 30-meter pixels)



Prepared by:



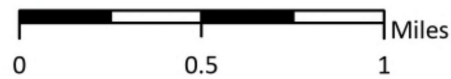
Prepared for:

Prado Basin Habitat Sustainability Committee
Page 73



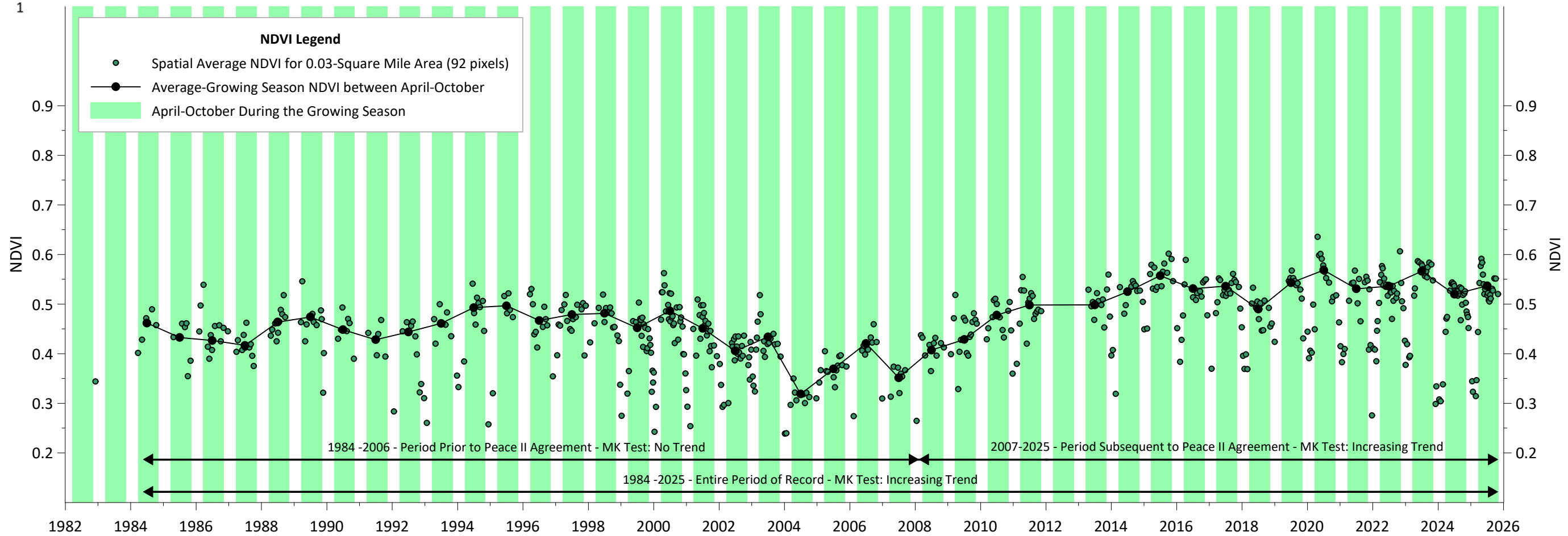
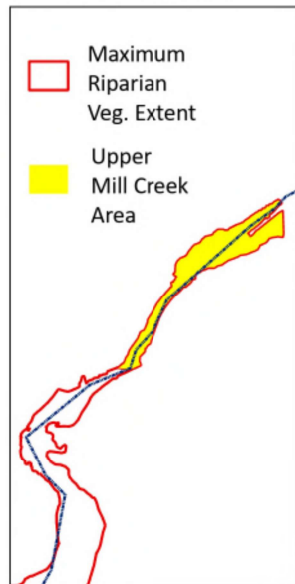
Time Series of NDVI and Air Photos
Along Mill Creek Area for 1984 to 2025

Figure 3-7a



0.03 Square Mile Area
(92 30 x 30-meter pixels)

Location of Upper Mill Creek Area



Prepared by:



Prepared for:



3.1.2.5 Temporal Analysis of NDVI within Small Areas along Chino Creek, Mill Creek, and the Santa Ana River

Figures 3-8a through 3-8m are time-series charts of the NDVI for one NDVI pixel for the small defined areas located along Chino Creek, Mill Creek, and the SAR near the PBHSP monitoring wells from 1984 to 2025. These areas are located near a PBHSP monitoring well site to facilitate the comparison of changes in groundwater levels versus changes in the riparian habitat. Additionally, these small areas align with a 10-meter radius plot where vegetation surveys are conducted every three years allowing comparison of the field measurements with the NDVI. The measurements of percent canopy cover from the periodic vegetation surveys are included on these time series, and discussed further in Section 3.1.3

The purpose of these charts is to characterize long-term trends and short-term changes in NDVI for smaller areas primarily located along the northern stream reaches of the Prado Basin riparian habitat—areas that are most susceptible to potential impacts from declining groundwater levels associated with Peace II implementation and provide a basis for comparison to the NDVI trends and changes for each of the larger defined areas.

Chino Creek (Figures 3-8a to 3-8d). Four vegetated areas were analyzed along Chino Creek: CC-1, CC-2, CC-3, and CC-4 (see Figure 3-4 for locations). These figures, and Tables 3-1 and 3-2, show that over the period of record the Average Growing-Season NDVI varied from year-to-year by up to 0.12 with no long-term declining trends. For all four areas, the Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” over the 1984 to 2025 period, “no trend” or “increasing trend” over the 1984 to 2006 period, and an “increasing trend” over the 2007 to 2025 period.

For these four areas along Chino Creek, the Average Growing-Season NDVI from 2024 to 2025 increased slightly at all areas. At all the areas, these one-year changes in the Average Growing-Season NDVI are relatively minor (0.01 or 0.02) and within the historical ranges of one-year NDVI variability (see Table 3-2). Visual inspection of the 2024 and 2025 air photos do not show notable changes in the riparian vegetation at these four areas.

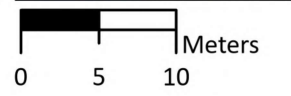
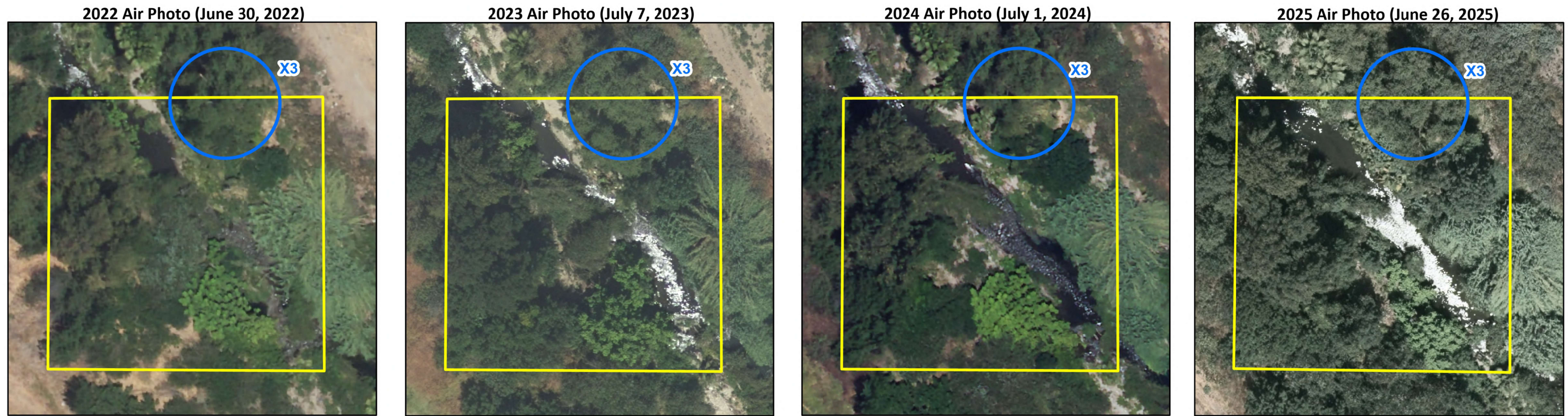
Mill Creek (Figures 3-8e to 3-8j). Six vegetated areas were analyzed along Mill Creek : MC-1, MC-2, MC-3, MC-4, MC-5, and MC-6 (see Figure 3-4 for locations). The MC-5 and MC-6 areas were incorporated starting with the 2022 Annual Report and correspond to 10-meter radius plots added during the 2022 field vegetation surveys. This addition aimed to enhance monitoring in a region where there has been observed drawdown of groundwater levels since the commencement of PBHSP monitoring. These figures, and Tables 3-1 and 3-2, show that over the period of record the Average Growing-Season NDVI varied year-to-year by up to 0.22 with no long-term declining trends. For all six areas, the Mann-Kendall test result on the Average Growing-Season NDVI indicates: an “increasing trend” or “no trend” for the 1984 to 2025 period; an “increasing trend”, “no trend”, or “decreasing trend” for the 1984 to 2006 period; and an “increasing trend” or “no trend” for the 2007 to 2025 period.

The Average Growing-Season NDVI from 2024 to 2025 decreased in two of the six areas (MC-4 and MC-5), remained unchanged for one area (MC-1), and increased in three areas (MC-2, MC-3, and MC-6). All the changes in NDVI were minor and remained within the historical ranges of one-year NDVI variability (see Table 3-2). Visual inspection of the 2024 and 2025 air photos show: for the MC-2 and MC-5 areas, there are notable changes in the riparian vegetation, including increases in vegetation coverage and reduction in brown vegetation; and at the other areas (MC-1, MC-3, MC-4, and MC-6) there are no notable changes.

Santa Ana River (Figures 3-8k to 3-8m). Three vegetated areas were analyzed along the floodplain of the SAR: SAR-2, SAR-3, and SAR-4 (see Figure 3-4 for locations). The SAR-4 area was incorporated starting with this 2025 Annual Report and corresponds to a new 10-meter radius plots added during the 2025 field vegetation surveys. These figures, and Tables 3-1 and 3-2, show that over the period of record the Average Growing-Season NDVI varied by up to 0.15 from year-to-year. For all three areas, the Mann-Kendall test result on the Average Growing-Season NDVI indicates an “increasing trend” for the 1984 to 2025 period, “no trend” or a “decreasing trend” for the 1984 to 2006 period, and an “increasing trend” for the 2007 to 2025 period.

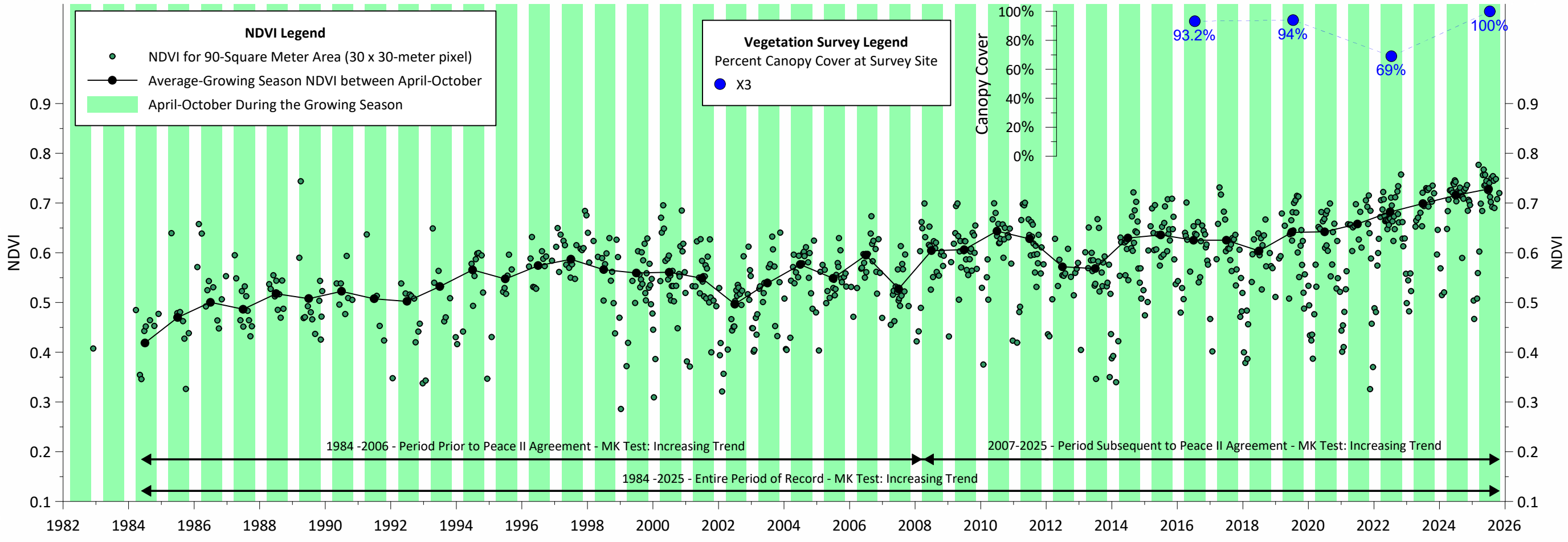
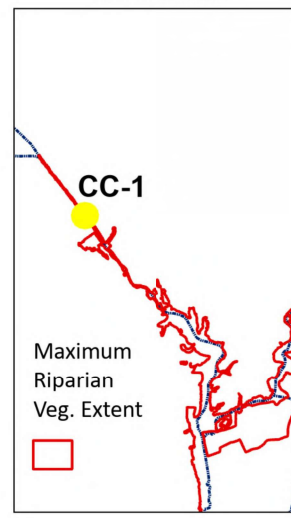
The Average Growing-Season NDVI from 2024 to 2025 increased at all three sites. These one-year changes in the Average Growing-Season NDVI are all relatively minor and within the historical ranges of one-year NDVI variability (see Table 3-2), except at SAR-3 the increase was slightly greater than the average one-year change in NDVI over the historical period. Visual inspection of the 2024 and 2025 air photos do not show notable changes in the riparian vegetation at these areas.

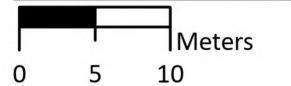
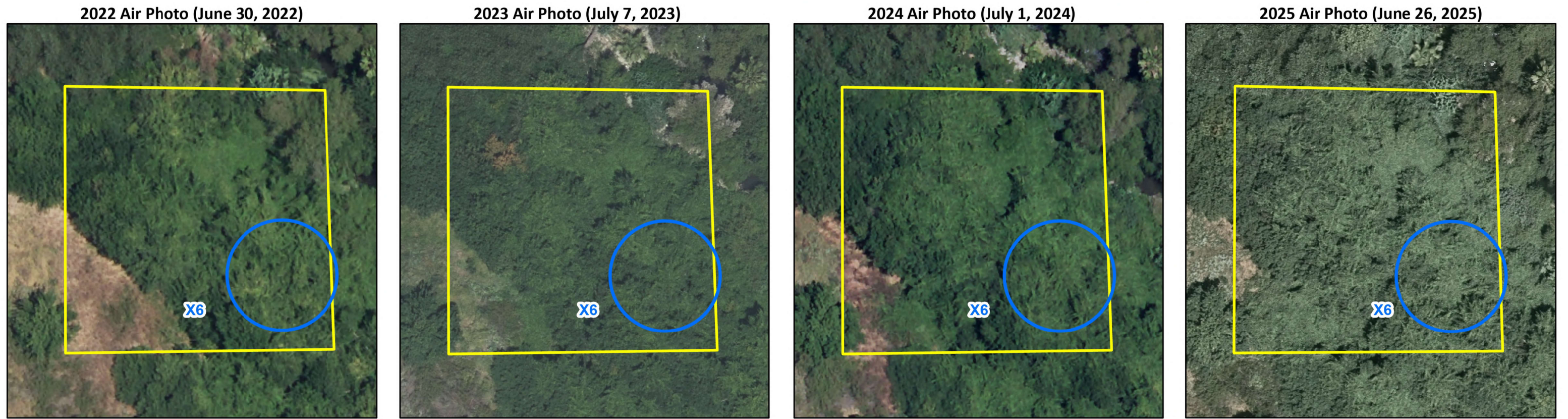
DRAFT



- CC-1 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

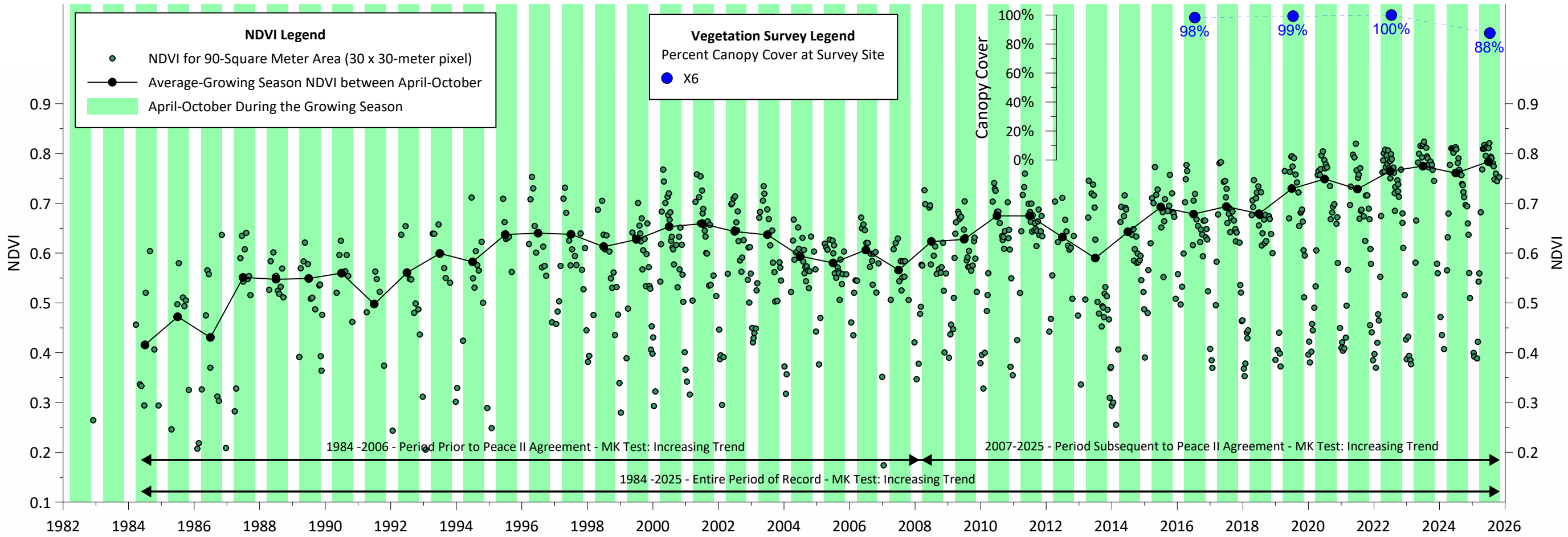
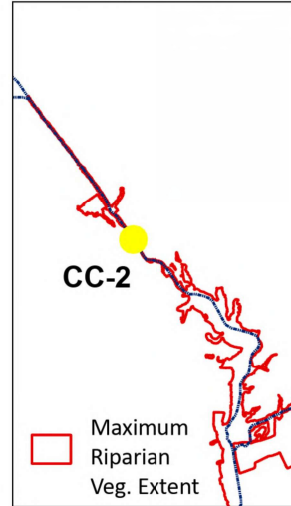
Location Along Chino Creek





- CC-2 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

Location Along Chino Creek

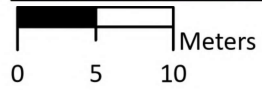


2022 Air Photo (June 30, 2022)

2023 Air Photo (July 7, 2023)

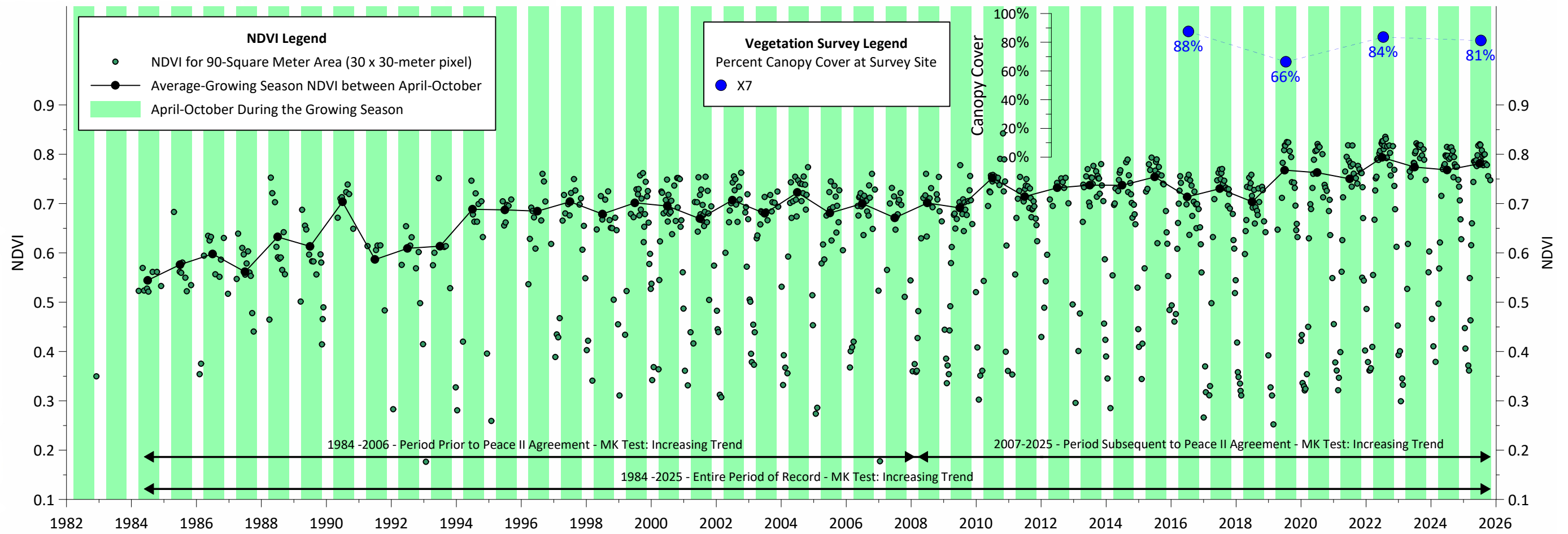
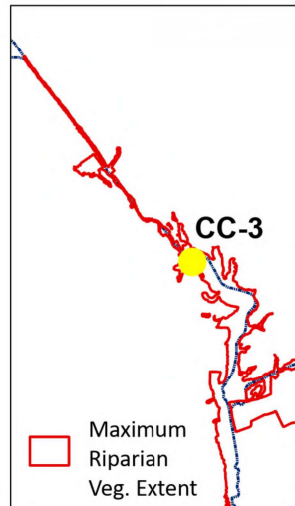
2024 Air Photo (July 1, 2024)

2025 Air Photo (June 26, 2025)



- CC-3 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

Location Along Chino Creek



Prepared by:



Prado Basin Habitat Sustainability Committee
2025 Annual Report

Prepared for:



Time Series of NDVI and Air Photos
CC-3 Area for 1984 to 2025

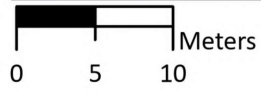
Figure 3-8c

2022 Air Photo (June 30, 2022)

2023 Air Photo (July 7, 2023)

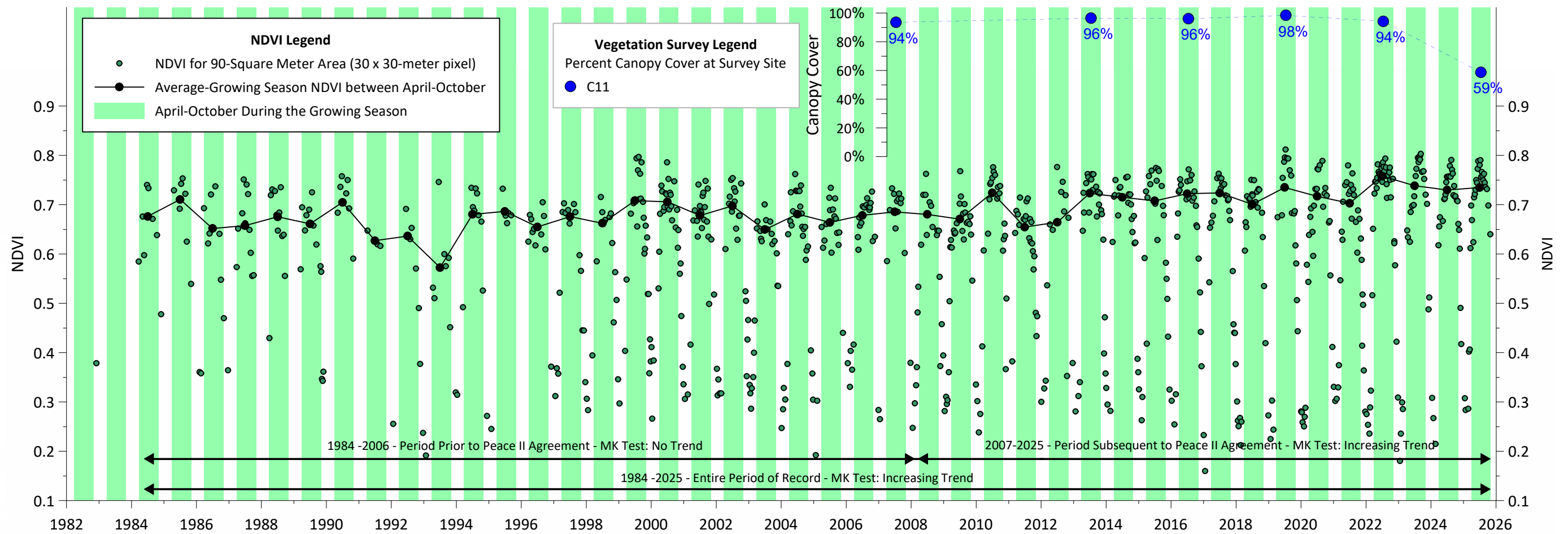
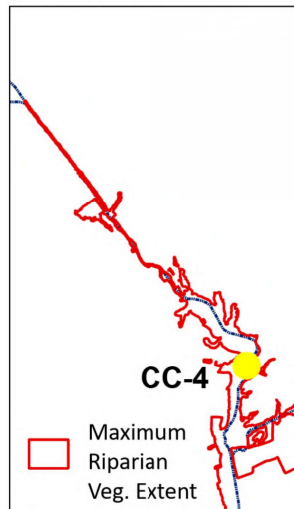
2024 Air Photo (July 1, 2024)

2025 Air Photo (June 26, 2025)



- CC-4 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

Location Along Chino Creek



Prepared by:



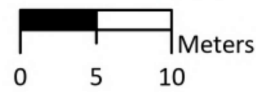
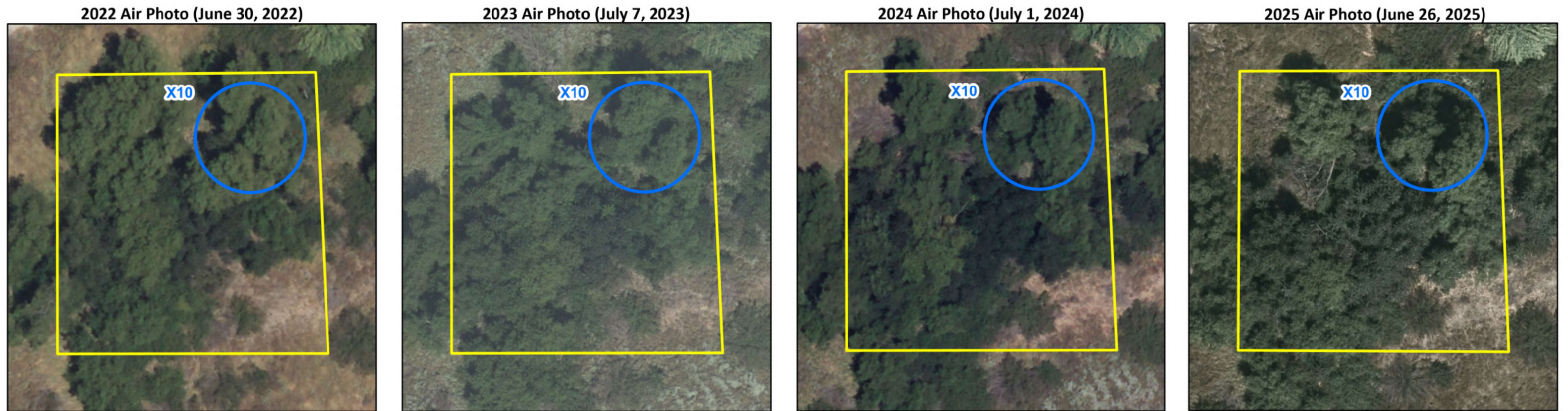
Prado Basin Habitat Sustainability Committee
2025 Annual Report

Prepared for:

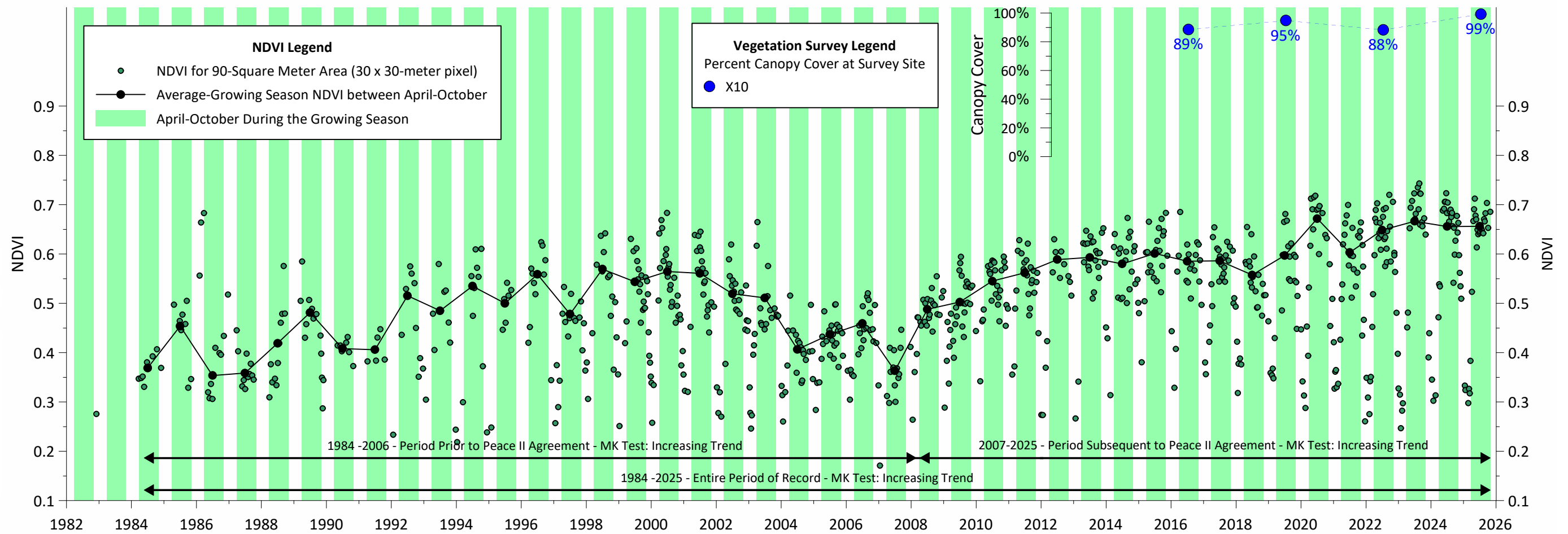
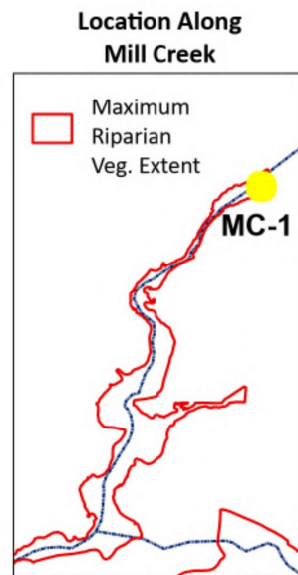


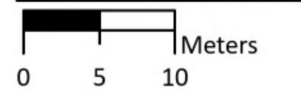
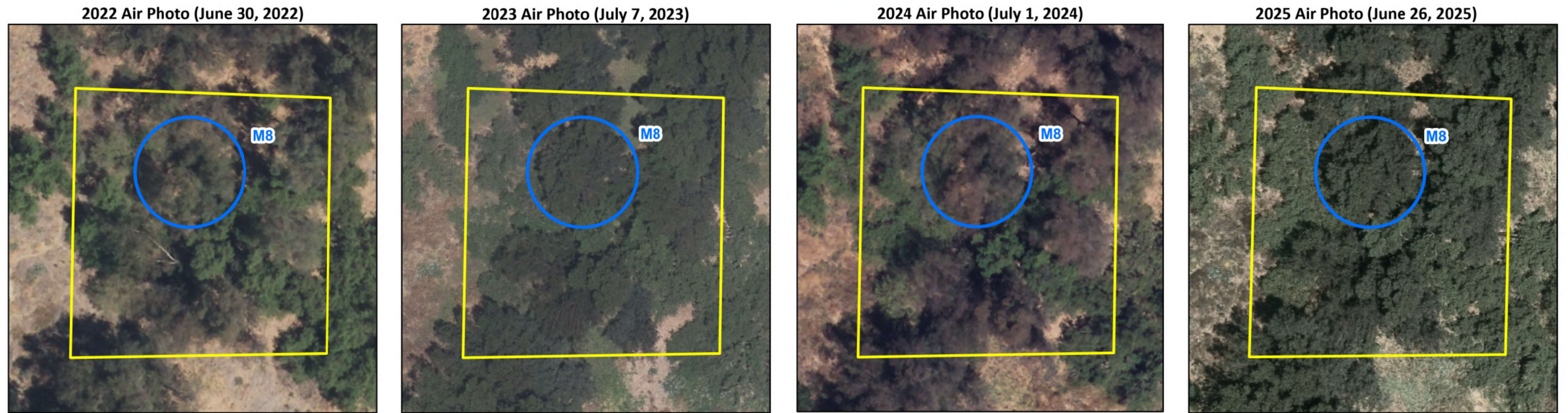
Time Series of NDVI and Air Photos
CC-4 Area for 1984 to 2025

Figure 3-8d

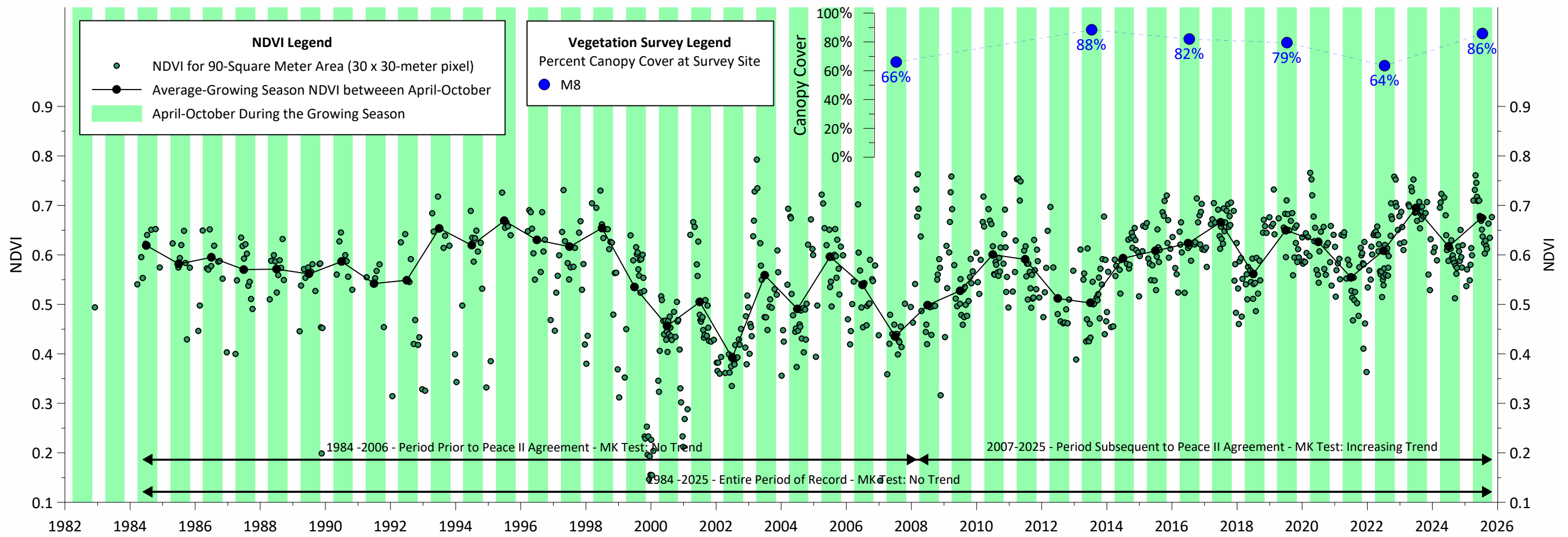
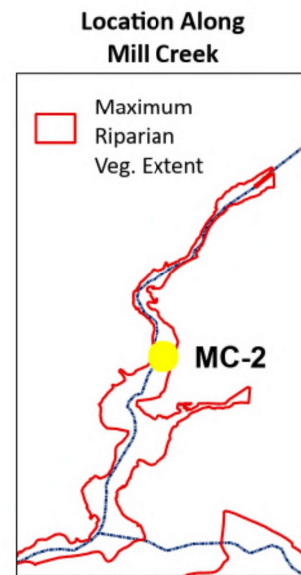


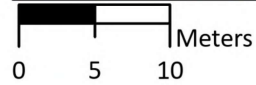
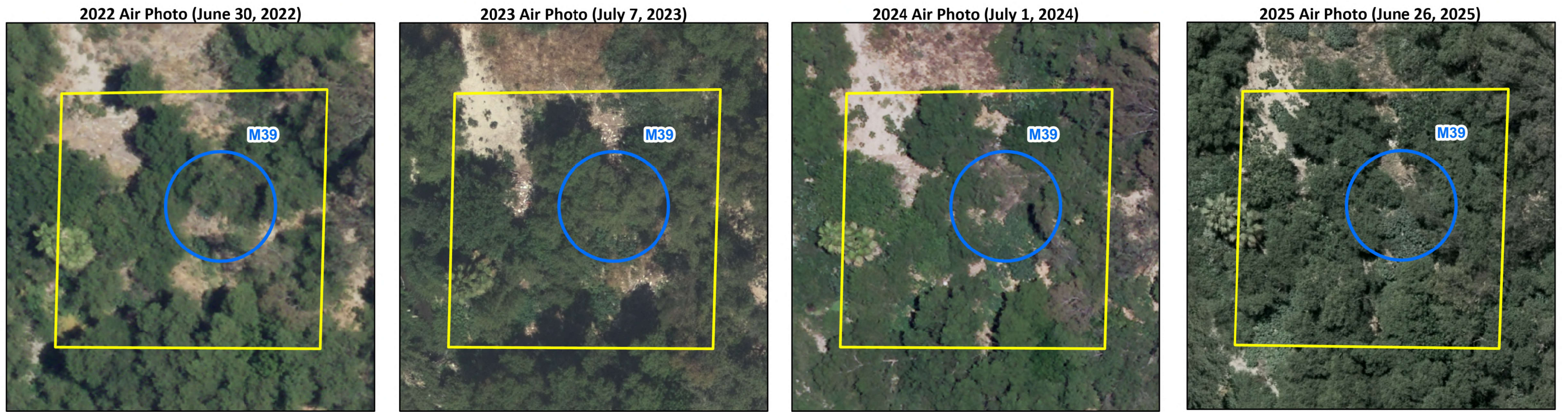
- MC-1 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius



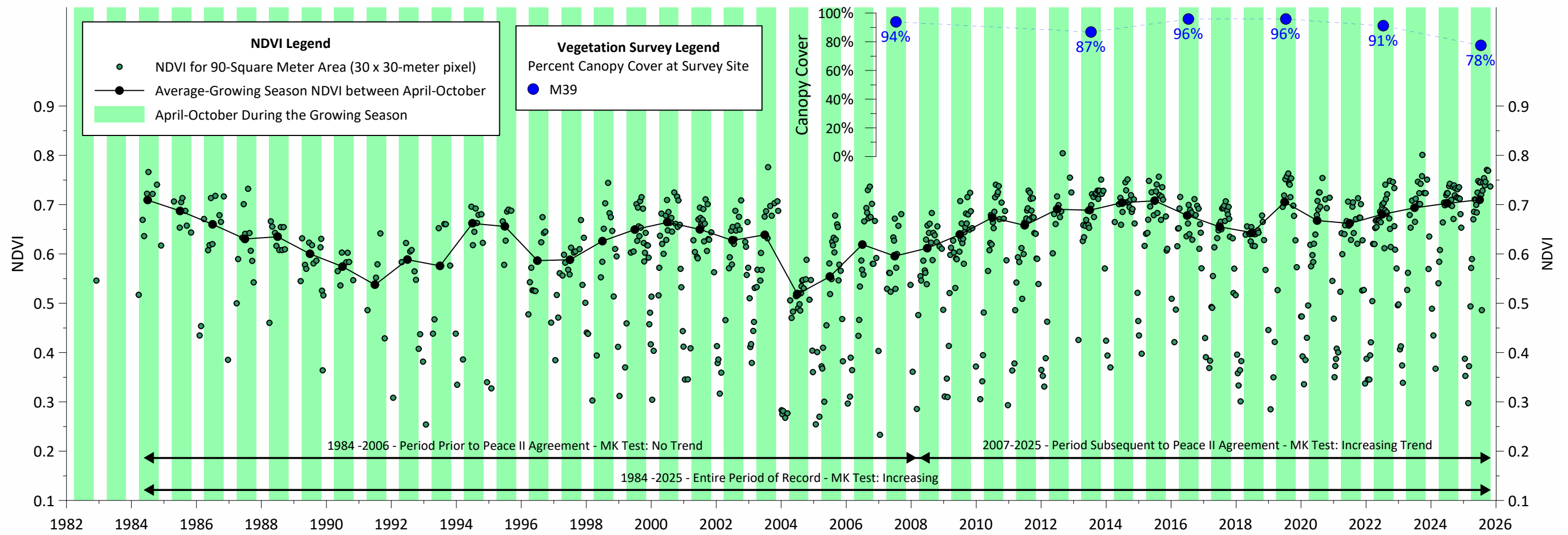
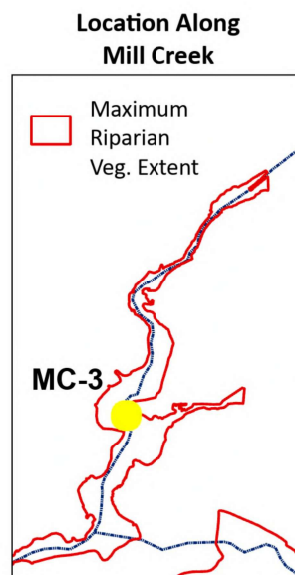


MC-2 Area for NDVI Analysis 30x30 meter pixel
 Vegetation Survey Plot Location 10-meter radius





MC-3 Area for NDVI Analysis 30x30 meter pixel
 Vegetation Survey Plot Location 10-meter radius



2022 Air Photo (June 30, 2022)



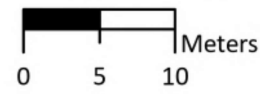
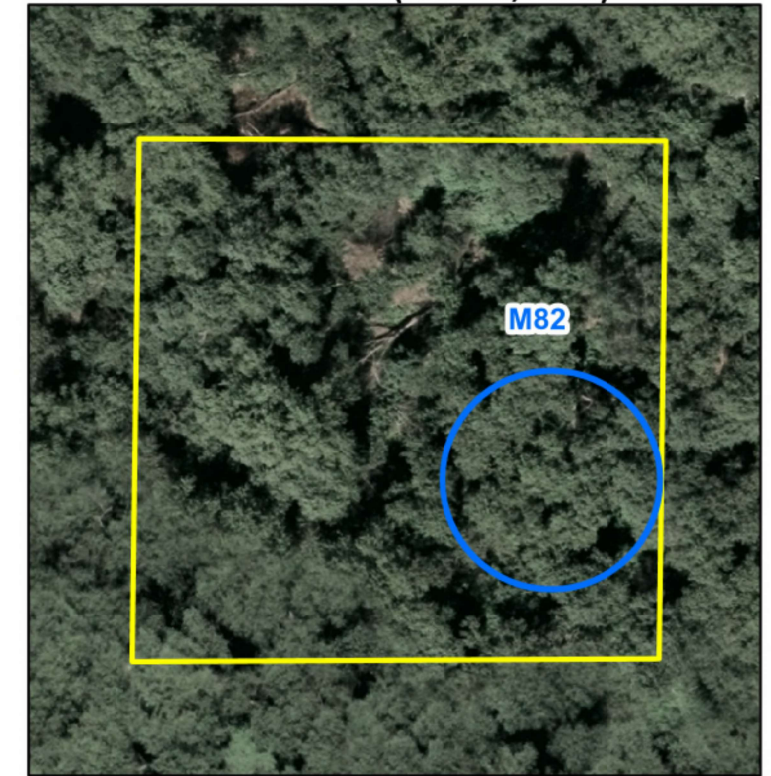
2023 Air Photo (July 7, 2023)



2024 Air Photo (July 1, 2024)



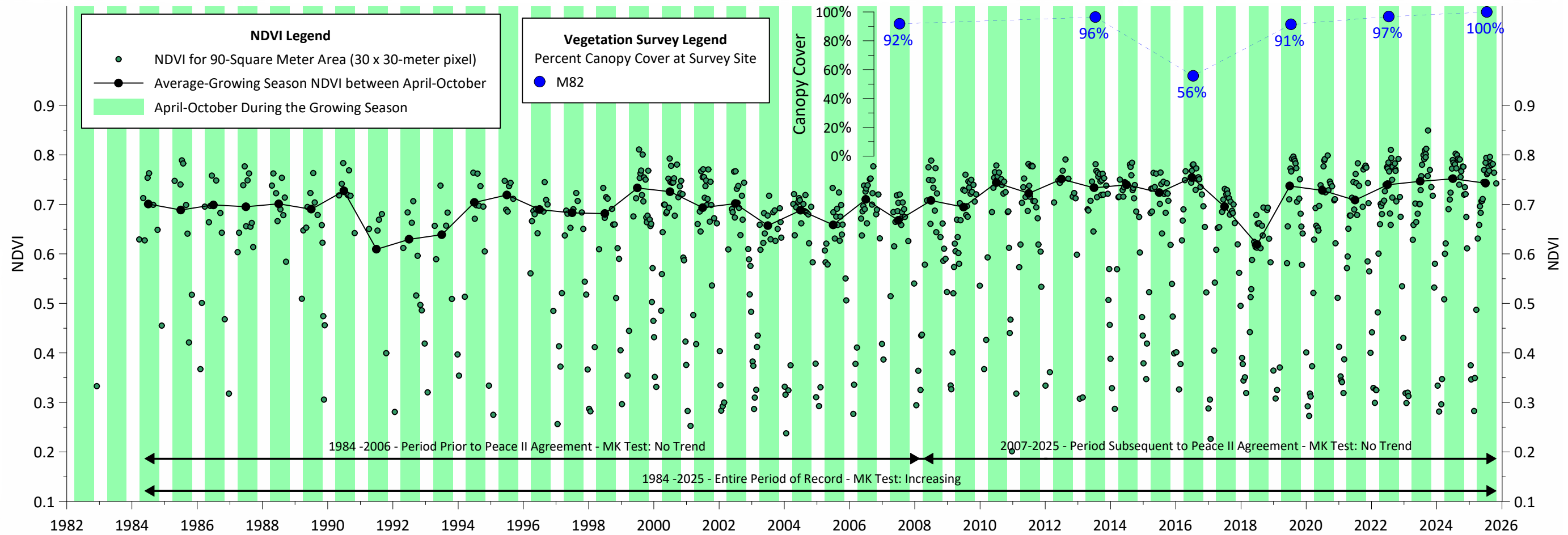
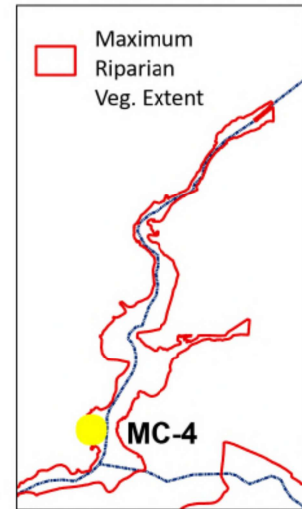
2025 Air Photo (June 26, 2025)



MC-4 Area for NDVI Analysis
30x30 meter pixel

Vegetation Survey Plot Location
10-meter radius

Location Along Mill Creek



Prepared by:



Prado Basin Habitat Sustainability Committee
2025 Annual Report

Prepared for:



Time Series of NDVI and Air Photos
MC-4 Area for 1984 to 2025

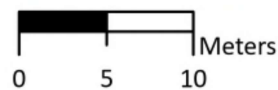
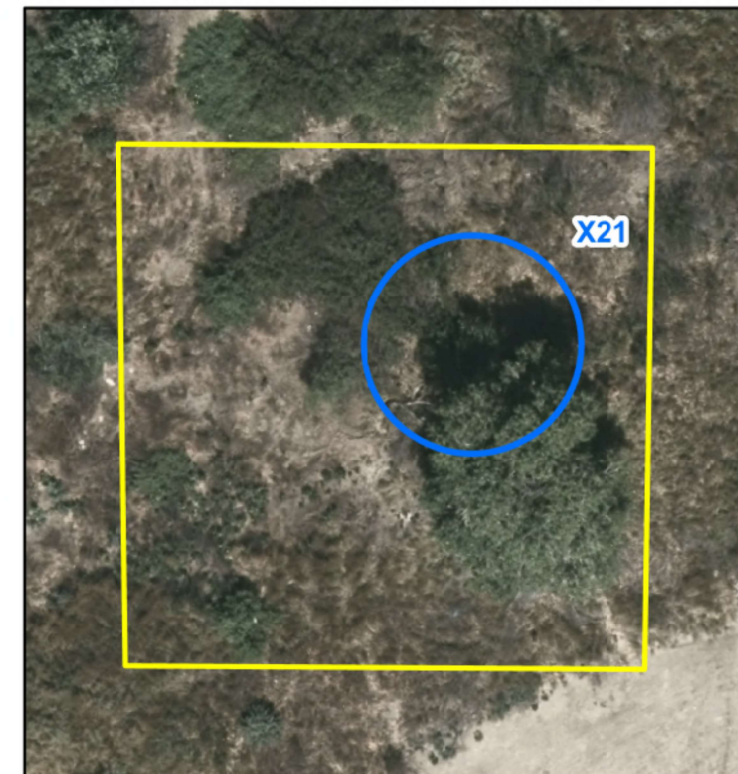
Figure 3-8h

2022 Air Photo (June 30, 2022)

2023 Air Photo (July 7, 2023)

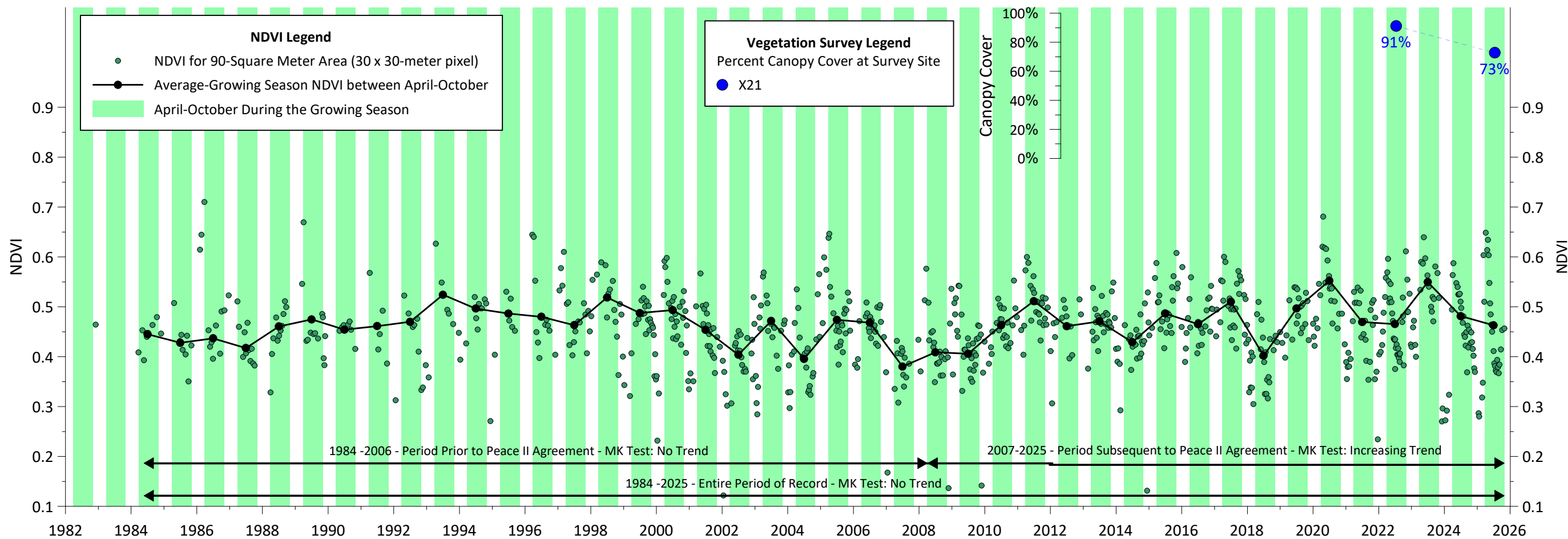
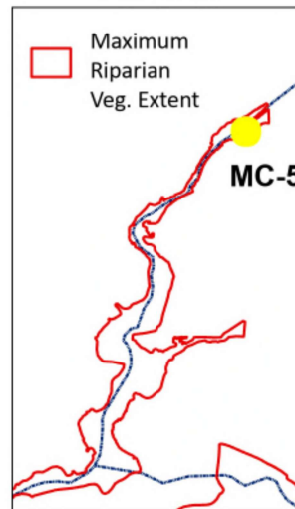
2024 Air Photo (July 1, 2024)

2025 Air Photo (June 26, 2025)



- MC-5 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius

Location Along Mill Creek



Prepared by:



Prepared for:



Prado Basin Habitat Sustainability Committee
2025 Annual Report

Time Series of NDVI and Air Photos
MC-5 Area for 1984 to 2025

2022 Air Photo (June 30, 2022)



2023 Air Photo (July 7, 2023)



2024 Air Photo (July 1, 2024)



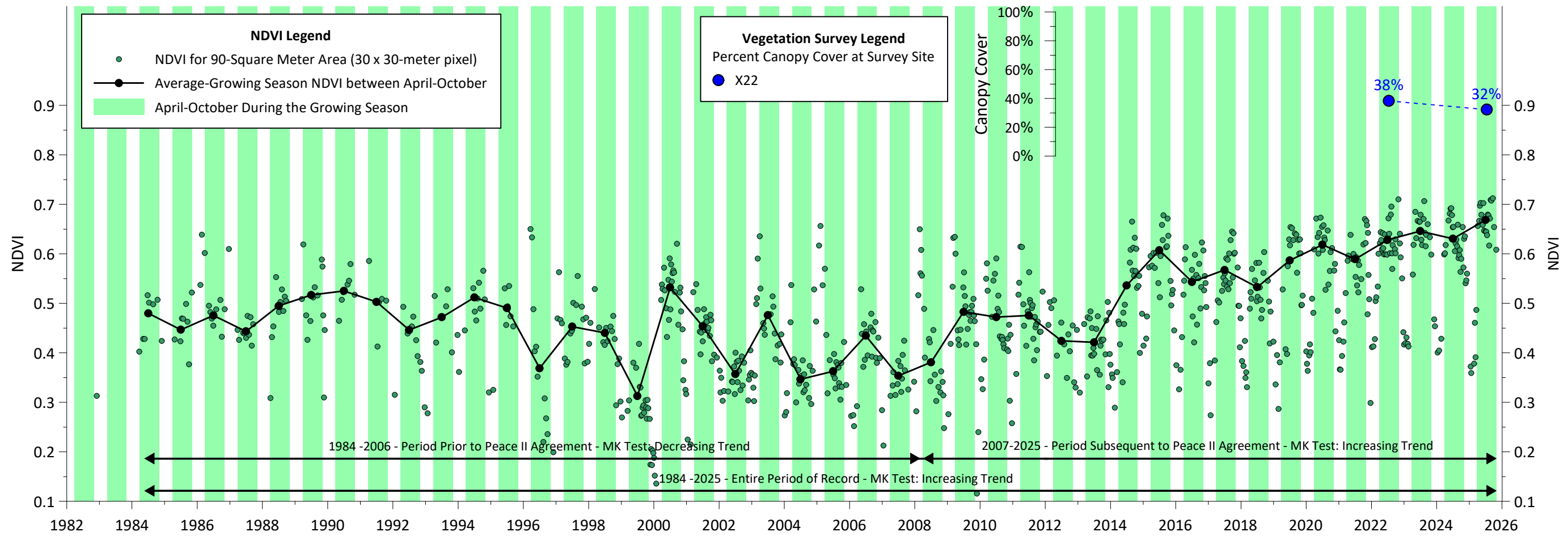
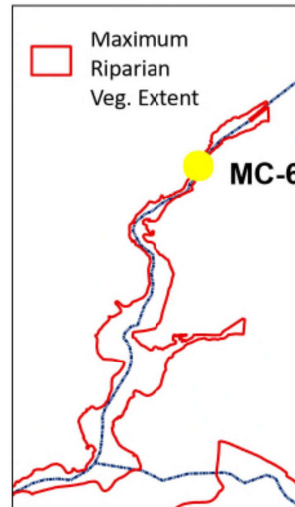
2025 Air Photo (June 26, 2025)



MC-6 Area for NDVI Analysis
30x30 meter pixel

Vegetation Survey Plot Location
10-meter radius

Location Along Mill Creek



Prepared by:



Prepared for:



Prado Basin Habitat Sustainability Committee
2025 Annual Report

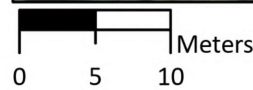
Time Series of NDVI and Air Photos
MC-6 Area for 1984 to 2025

2022 Air Photo (June 30, 2022)

2023 Air Photo (July 7, 2023)

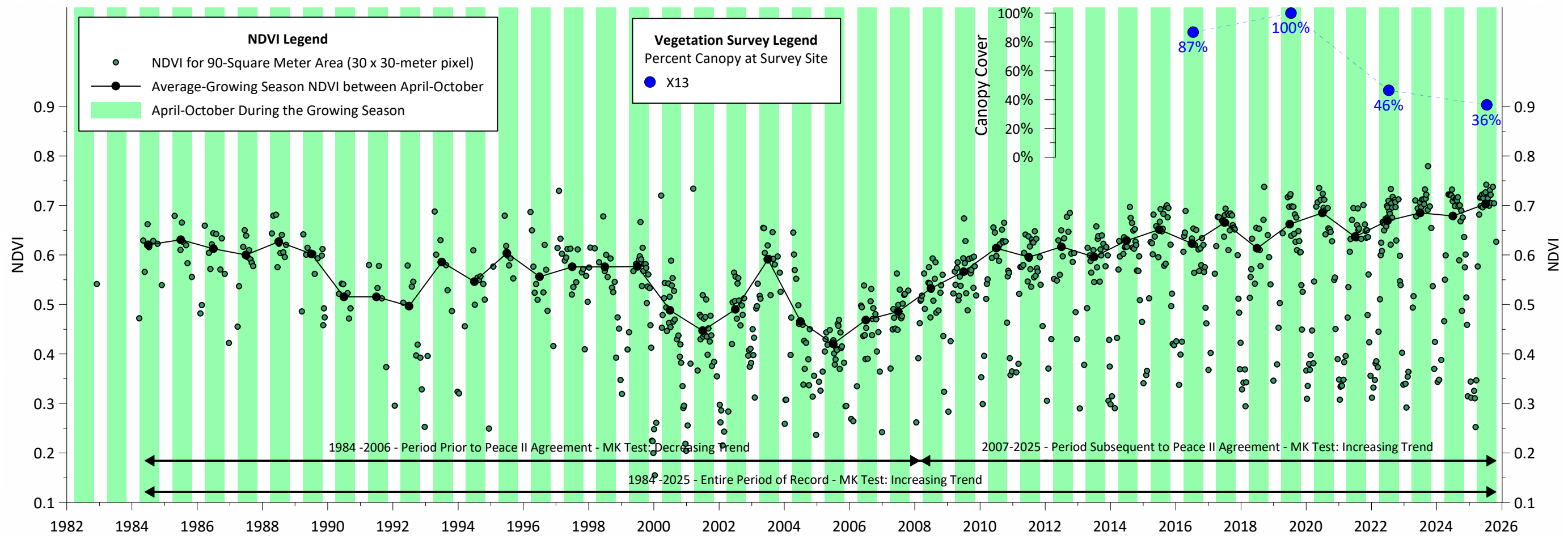
2024 Air Photo (July 1, 2024)

2025 Air Photo (June 26, 2025)



- SAR-2 Area for NDVI Analysis
30x30 meter pixel
- Vegetation Survey Plot Location
10-meter radius

Location Along Santa Ana River



Prepared by:



Prado Basin Habitat Sustainability Committee
2025 Annual Report

Prepared for:



Time Series of NDVI and Air Photos
SAR-2 Area for 1984 to 2025

Figure 3-8k

2022 Air Photo (June 30, 2022)

2023 Air Photo (July 7, 2023)

2024 Air Photo (July 1, 2024)

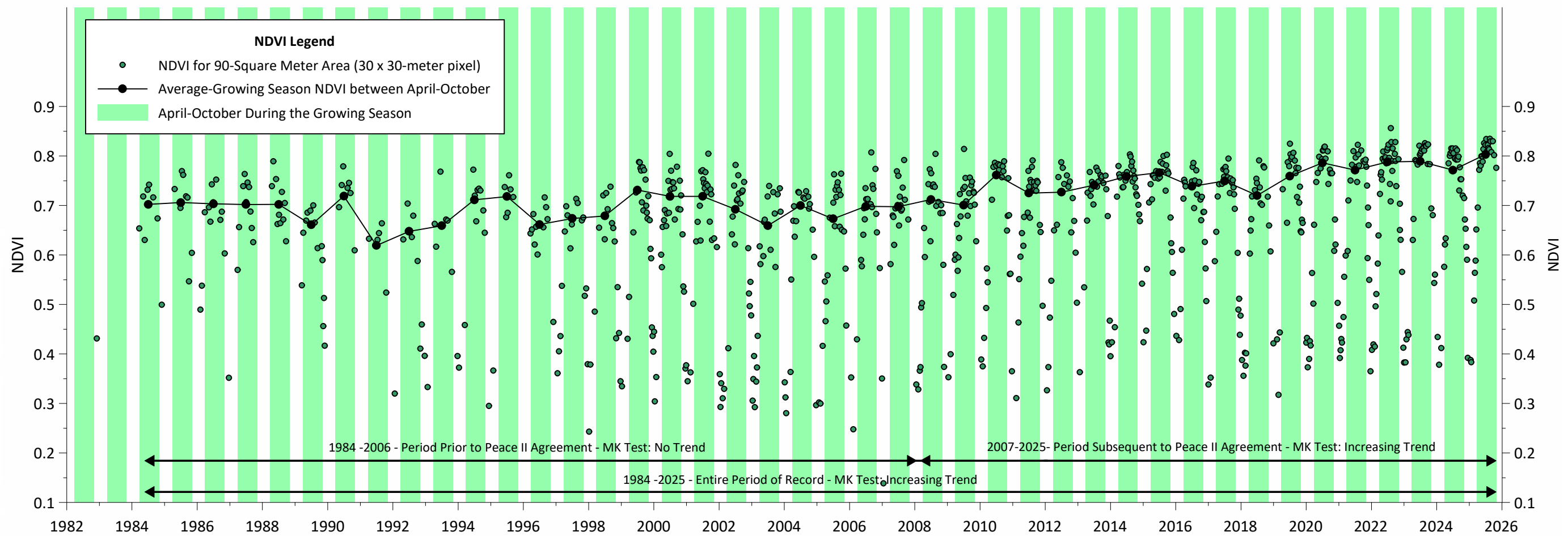
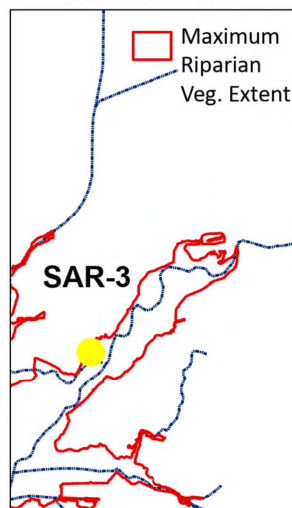
2025 Air Photo (June 26, 2025)



SAR-3 Area for NDVI Analysis
30x30 meter pixel

Vegetation Survey Plot Location
10-meter radius

Location Along Santa Ana River



Prepared by:



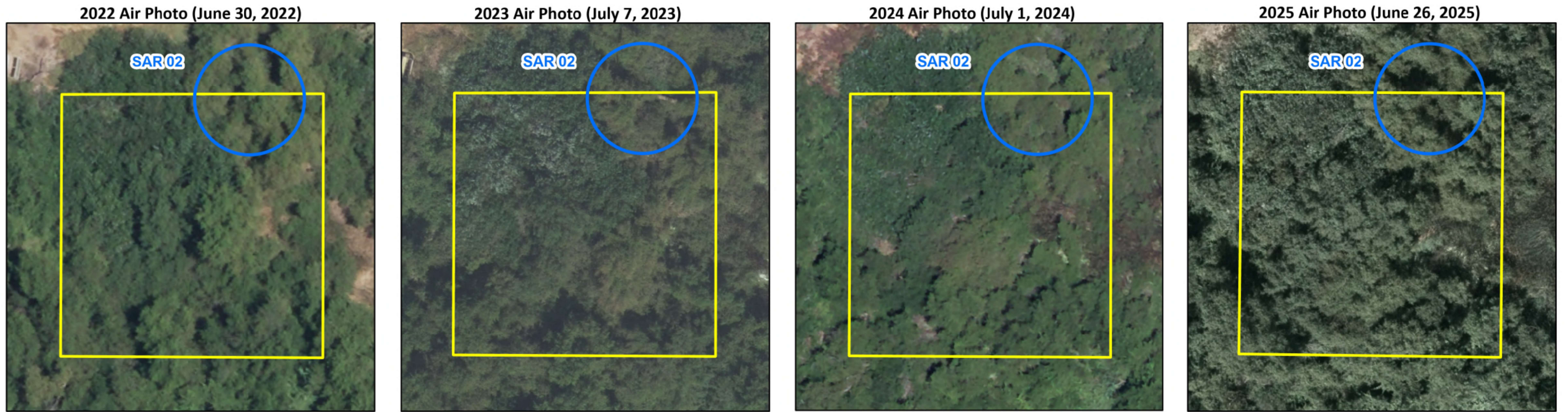
Prado Basin Habitat Sustainability Committee
2025 Annual Report

Prepared for:

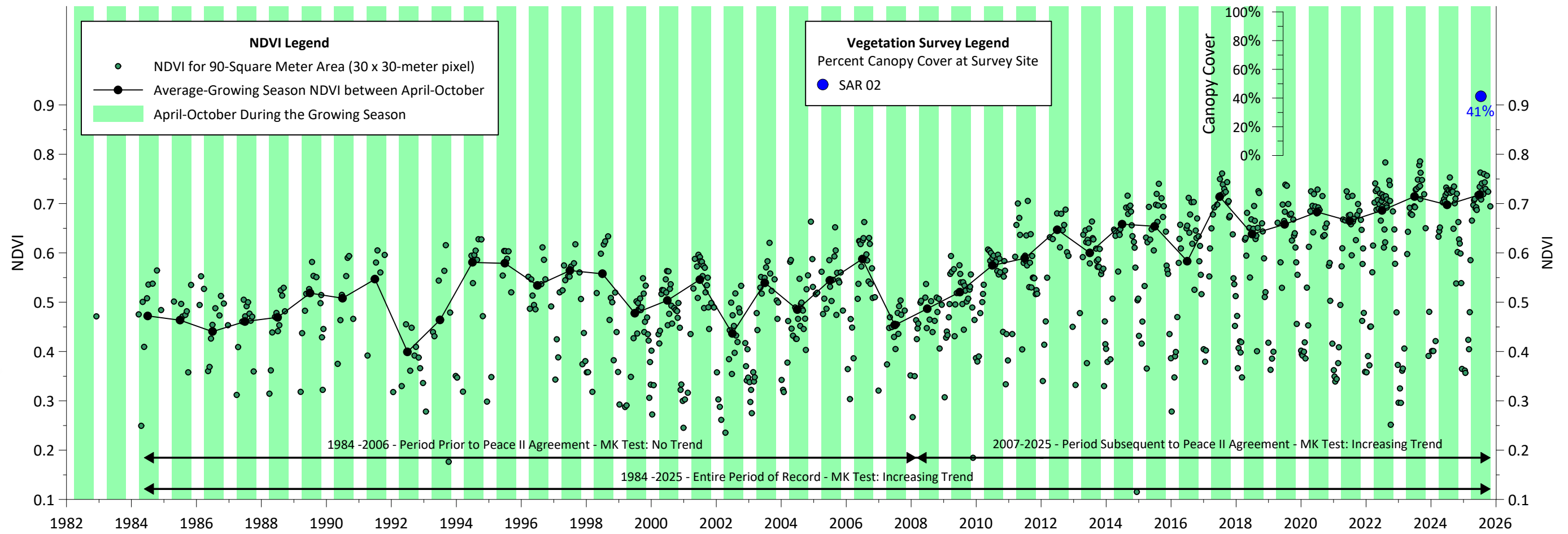


Time Series of NDVI and Air Photos
SAR-3 Area for 1984 to 2025

Figure 3-81



- SAR-4 Area for NDVI Analysis 30x30 meter pixel
- Vegetation Survey Plot Location 10-meter radius



Prepared by:



Prado Basin Habitat Sustainability Committee
2025 Annual Report

Prepared for:



Time Series of NDVI and Air Photos
SAR-4 Area for 1984 to 2025

Figure 3-8m

3.1.3 Analysis of Vegetation Surveys

Vegetation surveys are performed for the PBHSP once every three years. The most recent vegetation survey was performed in 2025 by ECORP and was a continuation of the surveys performed in 2007, 2013, 2016, and 2019 by the USBR. During the 2025 vegetation surveys, 20 sites were monitored, including 16 previously monitored sites, and four new sites— two sites in the central portion of Mill Creek and two sites along the SAR reach. Monitoring is conducted at 5 to 10-meter radius plots established at each site containing variable number of riparian trees (termed “monitoring site plot” or “sites”). Methods and preliminary results from the 2025 vegetation surveys were published in a draft 2025 Vegetation Survey Report in April 2026, which is included as Appendix C to this Annual Report.

Table 3-3 provides a summary of the monitoring results for the 20 sites surveyed in 2025, along with results from the previous surveys. Results for the following are shown for each site, and for each reach (Chino Creek, Mill Creek, and SAR): percent canopy cover; percent live, dead, and stressed trees; and the percent trees with evidence of the presence of the invasive pest PSHB. Observations of non-native and nuisance plant species documented at each site in 2025 are also included.

3.1.3.1 Overstory Canopy Cover

Percent canopy cover is a measurement of the percentage of the ground surface area that is directly covered by the vertical projections of tree crowns (USDA, 1999). The percent canopy cover at the monitoring site plots are shown in Table 3-3 for the 20 sites monitored in 2025:

- Overall, the percent canopy cover measurements at individual monitoring site plots show variability over the years with no clear increasing or decreasing trends.
- From 2022 to 2025 the percent canopy cover increased at seven of sites and decreased at nine.
- From 2022 to 2025 the average percent canopy cover for all sites along Chino Creek decreased from 82 to 80 percent.
- From 2022 to 2025, the average percent canopy cover for all sites along Mill Creek decreased from 76 to 69 percent.
- From 2022 to 2025, the average percent canopy cover for all sites along the SAR decreased from 73 to 52 percent.

Despite the overall decrease in average percent canopy cover, the 2025 Vegetation Survey Report concludes that the changes observed in mean canopy cover between survey years are likely attributed to natural and climatic changes and represent short-term changes that are within the normal fluctuation of canopy cover. Specifically, the report states that: “The drop in mean canopy cover could be a result of 1) lower-than-average precipitation levels during the 2025 rainy season, 2) scouring from heavy rainfall during the 2023 and 2024 rainy seasons, and/or 3) competition with non-native and invasive species such as perennial pepperweed, poison hemlock, golden crownbeard, and eucalyptus.”

The percent canopy cover measurements are charted with the NDVI time-series in Figures 3-8a through 3-8m for the monitoring site plots located within the small area of NDVI analysis (30x30-meter pixel) in Section 3.1.2.5. The names of the corresponding NDVI analysis area are included in Table 3-3. Although percent canopy cover is a metric of the areal density of the vegetation and therefore can be used for comparison with the NDVI analysis, the year-to-year variability in percent canopy cover at the plot level makes it hard to discern any notable overall trends with the NDVI data. However, there are a few monitoring site plots where notable changes in percent canopy cover may be correlated with changes in NDVI.

3.1.3.2 Overstory Tree Condition

Another measurement of overall riparian habitat health is the measurement of tree condition: alive, stressed, and dead. Table 3-3 shows the percent of alive, stressed, and dead trees in each of the monitoring sites:

- The proportion of alive, stressed, and dead trees in each site vary considerably over the years.
- From 2022 to 2025, the percentage of healthy trees increased at the sites along Chino Creek, Mill Creek, and the SAR by 11, 22, and 18 percent, respectively.
- From 2022 to 2025, the percentage of dead trees decreased at the sites along Chino Creek, Mill Creek, and the SAR by 14, 16, and 19 percent, respectively.
- From 2022 to 2025, the percentage of stressed trees decreased by 6 percent along Mill Creek, increased by 3 percent along Chino Creek, and increased by 1 percent along SAR. Despite these minor changes, the percentage of stressed trees in all three areas is less than 30 percent, which is indicative of overall sustained vegetation health.

3.1.3.3 Understory Monitoring

In 2025, riparian sapling species were observed at three of the 20 monitoring site plots, and were all alive. Based on the results presented in the monitoring report for the 2022 vegetation surveys and the data collected during the 2025 vegetation survey, sapling recruitment decreased. This decrease could be the result of lower-than-average precipitation levels and/or competition with non-native and invasive weeds discussed further in Section 3.1.3.5. Additionally, in 2025 only saplings for native riparian species were recorded, while sapling counts conducted in 2022 also included non-native species.

Despite a decline in sapling recruitment, in 2025 there was a notable increase in native shrubs, indicating that the riparian vegetation remains healthy overall. A total of 58 individual shrubs were observed and documented in 2025 at monitoring site plots along Mill Creek and SAR, which is a significant increase from five shrubs documented during 2022. Two primary shrub species were observed: mulefat (*Baccharis salicifolia*) and blue elderberry (*Sambucus mexicana*), both of which provide habitat for endangered species such as the Least Bell's Vireo. Furthermore, 68 percent of the shrubs in the Mill Creek monitoring site plots were alive and healthy and 70 percent of the shrubs in the SAR monitoring site plots were alive and healthy. Because riparian shrub species rely on shallow groundwater (<10 ft-bgs), the increase in the number of healthy shrubs observed suggests that groundwater levels are not negatively impacting riparian vegetation health.

3.1.3.4 Presence of the Polyphagous Shot Hole Borer (PSHB)

The vegetation surveys in 2016, 2019, 2022, and 2025, included documentation of evidence of the presence of the invasive pest—the PSHB. Table 3-3 shows the percent of trees with evidence of the PSHB:

- Overall, the number of sites with evidence of the PSHB noted in 2016 (30) decreased in 2019 (7) and then increased in 2022 (12).
- In 2025, evidence of the PSHB was noted at six of the 20 sites surveyed, including three sites that had previously had evidence of the PSHB, one site that previously had no evidence of the PSHB, and the two new sites along the SAR (SAR 01 and SAR 02).
- From 2022 to 2025, the percent of trees with evidence of the PSHB increased at sites along Chino Creek and SAR by 16 and 34 percent, respectively, and decreased at sites along Mill Creek by 2 percent.

Section 3.6.2 includes a more detailed discussion on the PSHB and the potential impact to riparian vegetation health.

3.1.3.5 Presence of Non-native and Nuisance Plant Species

During the 2025 vegetation surveys, non-native and nuisance plant species were documented at the monitoring site plot if they were present. Non-native and nuisance plant species are invasive and can be problematic for riparian habitat, often following periods of disturbance. These species can outcompete native shrub and tree species for water, sunlight, and nutrients causing significant stress and dieback. Table 3-3 lists the sites where non-native and nuisance plant species were documented in 2025, and the species.

Non-native and invasive tree species observed within and adjacent to the monitoring site plots included tree of heaven (*Ailanthus altissima*), eucalyptus (*Eucalyptus* spp.), Chinese flame (*Koeleruteria bipinnata*), Chinese elm (*Ulmus parvifolia*), and Mexican fan palm (*Washingtonia robusta*). Site X3 along Chino Creek is the only monitoring site plot observed to have significant growth of non-native and invasive tree species during the 2025 monitoring event. Non-native and invasive saplings were observed within this site, covering approximately 15 percent of the site.

Non-native and invasive shrub and herbaceous species observed within and adjacent to the monitoring site plots included: Italian thistle (*Carduus pycnocephalus*), poison hemlock (*Conium maculatum*), perennial pepperweed (*Lepidium latifolium*), hairy beggarticks (*Bidens pilosa*), and golden crownbeard (*Verbesina encelioides*). Perennial pepperweed is of particular concern as it has a California Invasive Plant Council (Cal-IPC) rating of “high” and can produce both asexually and through seed production. Perennial pepperweed was observed at sites 82, X9, X10, and X21 along Mill Creek, and SAR 01 and SAR 02 along SAR. The perennial pepperweed was observed to cover approximately 25 to 50 percent across the sites.

Two nuisance species were also observed within and adjacent to the monitoring site plots: Rough cocklebur (*Xanthium strumarium*) and wild grape (*Vitis* sp.). While both of these species are native, they can proliferate quickly in riparian habitat and compete with other species for resources. Additionally, wild grape can add significant weight to tree limbs which can lead to limb failure. Rough cocklebur was observed at site 21 along Chino Creek, and wild grape was observed at sites X13 and SAR 01 along SAR. The presence of wild grape was also observed at X13 during the 2022 vegetation surveys in correlation with a decrease in percent canopy cover from 100 percent in 2019 to 46 percent in 2022. In 2025, percent canopy cover was measured at 36 percent.

Section 3.6.4 includes a more detailed discussion on the potential impact of non-native and nuisance plant species on riparian vegetation health.

Table 3-3. Summary of Vegetation Surveys in the Prado Basin¹ - Canopy Cover, Tree Condition, Occurrence of Polyphagous Shot-Hole Borer, and Other Non-Native and Nuisance Species

Site	Number of Trees in 2025	Associated NDVI Area ²	Canopy Cover (%) ³							Tree Condition (% trees surveyed per plot) ⁴																	Presence of Polyphagous Shot-Hole Borer (% of Trees with Evidence) ⁵					Non-Native and Nuisance Species Observed in 2025				
			2007	2013	2016	2019	2022	2025	Change 2022-2025	Not Stressed (Alive)							Stressed							Dead							2016		2019	2022	2025	Change 2022-2025
										2007	2013	2016	2019	2022	2025	Change 2022-2025	2007	2013	2016	2019	2022	2025	Change 2022-2025	2007	2013	2016	2019	2022	2025	Change 2022-2025						
Chino Creek Sites																																				
Chino 11	5	CC-4	94%	96%	96%	98%	94%	59%	-36%	NM	100%	50%	69%	73%	63%	-10%	NM	0%	42%	0%	9%	38%	29%	NM	0%	8%	31%	18%	0%	-18%	0%	0%	0%	0%	0%	rough cocklebur various tree species
Chino 18	2	--	38%	87%	90%	77%	81%	100%	19%	NM	100%	7%	15%	100%	100%	0%	NM	0%	67%	69%	0%	0%	0%	NM	0%	27%	15%	0%	0%	0%	40%	0%	0%	0%	0%	
Chino 21	7	--	98%	94%	88%	17%	4%	55%	51%	NM	100%	0%	73%	75%	100%	25%	NM	0%	100%	0%	0%	0%	0%	NM	0%	0%	27%	25%	0%	-25%	17%	0%	0%	0%	0%	
Chino X3	3	CC-1	NM	NM	93%	94%	69%	100%	31%	NM	NM	25%	83%	100%	0%	-100%	NM	NM	75%	17%	0%	67%	67%	NM	NM	0%	0%	0%	33%	33%	0%	67%	67%	0%		
Chino X6	10	CC-2	NM	NM	98%	99%	100%	88%	-13%	NM	NM	87%	47%	50%	60%	10%	NM	NM	13%	47%	29%	40%	11%	NM	NM	0%	7%	21%	0%	-21%	13%	0%	0%	0%	0%	
Chino X7	6	CC-3	NM	NM	88%	66%	84%	81%	-2%	NM	NM	0%	43%	33%	100%	67%	NM	NM	70%	43%	67%	0%	-67%	NM	NM	30%	14%	0%	0%	0%	70%	0%	33%	75%	42%	
Average for Chino Creek⁶			75%	75%	92%	84%	82%	80%	-1%	--	100%	16%	42%	58%	69%	11%	--	0%	71%	42%	25%	28%	3%	--	0%	12%	15%	17%	3%	-14%	28%	3%	3%	19%	16%	
Mill Creek Sites																																				
Mill 8	11	MC-2	66%	88%	82%	79%	64%	86%	22%	NM	33%	33%	0%	0%	100%	100%	NM	67%	0%	50%	100%	0%	-100%	NM	0%	67%	50%	0%	0%	0%	33%	0%	0%	0%	0%	perennial pepperweed perennial pepperweed perennial pepperweed
Mill 22	7	--	89%	93%	96%	93%	94%	100%	6%	NM	86%	0%	43%	0%	86%	86%	NM	0%	79%	43%	67%	14%	-53%	NM	14%	21%	14%	33%	0%	-33%	64%	0%	50%	0%	-50%	
Mill 39	4	MC-3	94%	87%	96%	96%	91%	78%	-14%	NM	92%	0%	13%	33%	100%	67%	NM	0%	67%	63%	33%	0%	-33%	NM	8%	33%	25%	33%	0%	-22%	44%	38%	0%	0%	0%	
Mill 60	5	--	76%	90%	83%	51%	45%	11%	-34%	NM	86%	0%	0%	11%	20%	9%	NM	0%	93%	69%	67%	80%	13%	NM	14%	7%	31%	22%	0%	29%	0%	0%	0%	0%		
Mill 82	11	MC-4	92%	96%	56%	91%	97%	100%	3%	NM	100%	0%	69%	55%	73%	18%	NM	0%	75%	15%	27%	18%	-9%	NM	0%	25%	15%	18%	9%	-9%	25%	8%	0%	27%	27%	
Mill X9	4	--	NM	NM	94%	94%	58%	-37%	NM	NM	70%	42%	50%	0%	-50%	NM	NM	30%	58%	50%	100%	50%	50%	NM	NM	0%	0%	0%	0%	10%	0%	8%	0%	-8%		
Mill X10	1	MC-1	NM	NM	89%	95%	88%	99%	11%	NM	NM	0%	70%	73%	0%	-73%	NM	NM	50%	30%	18%	100%	82%	NM	NM	50%	0%	9%	0%	-9%	50%	0%	18%	100%	82%	
Mill X21	1	MC-5	NM	NM	NM	NM	91%	73%	-18%	NM	NM	NM	NM	80%	100%	20%	NM	NM	NM	NM	20%	0%	-20%	NM	NM	NM	NM	0%	0%	0%	NM	NM	0%	0%	0%	
Mill X22	5	MC-6	NM	NM	NM	NM	38%	32%	-6%	NM	NM	NM	NM	78%	60%	-18%	NM	NM	NM	NM	22%	20%	-2%	NM	NM	NM	NM	0%	20%	20%	NM	NM	0%	0%	0%	
Mill Creek 01	9	--	NM	NM	NM	NM	49%	--	--	NM	NM	NM	NM	67%	--	--	NM	NM	NM	NM	NM	33%	--	NM	NM	NM	NM	0%	--	NM	NM	NM	0%	--		
Mill Creek 02	11	--	NM	NM	NM	NM	80%	--	--	NM	NM	NM	NM	100%	--	--	NM	NM	NM	NM	NM	0%	--	NM	NM	NM	NM	0%	--	NM	NM	NM	0%	--		
Average for Mill Creek⁶			69%	73%	72%	76%	76%	69%	-7%	--	84%	8%	31%	48%	70%	22%	--	0%	71%	40%	33%	27%	-7%	--	8%	22%	30%	19%	3%	-16%	57%	9%	9%	7%	-2%	
Santa Ana River Sites																																				
SAR X13	3	SAR-2	NM	NM	87%	100%	46%	36%	-10%	NM	NM	0%	17%	20%	0%	-20%	NM	NM	67%	67%	0%	100%	100%	NM	NM	33%	17%	80%	0%	-80%	67%	0%	0%	0%	0%	wild grape perennial pepperweed; wild grape perennial pepperweed
New SAR 01	5	--	NM	NM	NM	NM	79%	--	--	NM	NM	NM	NM	NM	80%	--	NM	NM	NM	NM	NM	20%	--	NM	NM	NM	NM	NM	0%	--	NM	NM	NM	40%	--	
New SAR 02	6	SAR-4	NM	NM	NM	NM	41%	--	--	NM	NM	NM	NM	NM	83%	--	NM	NM	NM	NM	NM	0%	--	NM	NM	NM	NM	NM	17%	--	NM	NM	NM	50%	--	
Average for SAR⁶			--	--	85%	93%	73%	52%	-21%	--	--	34%	54%	46%	64%	18%	--	--	56%	31%	27%	29%	1%	--	--	11%	15%	27%	7%	-19%	44%	0%	2%	36%	34%	
Average for All Reaches⁷			75%	76%	86%	82%	78%	70%	-8%	--	91%	15%	43%	48%	65%	16%	--	5%	68%	37%	30%	32%	2%	--	4%	17%	19%	22%	4%	-18%	40%	5%	7%	18%	11%	

Notes:
 NM - Not Measured
 1 - Table only includes the 20 monitoring sites surveyed in 2025. In past years, the number and location of monitoring sites surveyed has varied.
 2 - This is the defined area with time-series data analyzed in Section 3.1.2.5, that aligns with the monitoring site plot. Shown in Figures 3-8a through 3-8m.
 3 - Canopy cover is a measurement of the percentage of a ground area directly covered by vertical projections of tree crowns. In the field, canopy cover is measured using a spherical densiometer standing five meters from the center of the plot in the four cardinal directions (north, south, east, west). Canopy Cover percent herein is the average of the four measurements.
 4 - Tree condition is a qualitative measurement of the health of the tree. Trees were assessed and classified as "alive," "stressed," or "dead". The percentage of each classification per plot is shown here.
 5 - From 2016 to 2025, trees were assessed for evidence of the polyphagous shot-hole borers (PSHB). If a tree showed signs of the beetle it was noted. The percent of trees in each plot that showed signs of beetle infestation was then calculated.
 6 - Average values for each year represent the average of all sites monitored that year some of which were not surveyed in 2025 and not included in this table. Calculated as the percent of the total number of trees at all monitoring sites.
 7 - The average for all reaches across the Prado Basin. Calculated as the average of all sites surveyed that year.



3.1.4 Summary

The extent of the riparian habitat in the Prado Basin has been delineated from air photos and maps of NDVI. The extent increased from about 1.85 mi² in 1960 to about 6.7 mi² by 1999 and has remained relatively constant through 2025 along the Chino Creek, Mill Creek, and SAR reaches.

The quality of riparian habitat has been characterized through the analysis of air photos, maps of NDVI, and time-series charts of NDVI for large and small areas located throughout the Prado Basin:

- The NDVI change map shows that spatial NDVI remained mostly unchanged from 2024 to 2025 across riparian vegetation in the Prado Basin, with localized patches of NDVI increases and decreases. Notable increases in the NDVI are observed in patches along the SAR, and along and adjacent to the lower reach of Chino Creek. Notable decreases in the NDVI are observed in patches in the lower portion of Prado Basin—below the OCWD wetlands and the lower reach of Chino Creek.
- The analyses of NDVI time series indicate that over the last year from 2024 to 2025: there was no change in the riparian vegetation greenness across the Prado Basin and Mill Creek reach when analyzed as a whole; and there was an increase in the riparian vegetation greenness along the Chino Creek reach and Upper Mill Creek reach when analyzed as a whole. These increases were minor and within the historical ranges of one-year NDVI variability for these areas.
- The NDVI time series at the 13 small defined areas indicate that over the last year from 2024 to 2025, most areas experienced an increase in vegetation greenness, with one area showing no change, and two areas showing slight decreases. At all areas, these one-year changes in the Average Growing-Season NDVI are within the historical ranges of one-year NDVI variability presented in Table 3-2. Additionally, all the changes were less than the average one-year change in NDVI, with the exception of one site along the SAR (SAR-3), which increased slightly more than the average one-year change in NDVI.
- The visual inspection of the 2024 and 2025 air photos reveals no significant changes in the riparian vegetation along Chino Creek, Mill Creek and the SAR reaches. Additionally, areas that showed reductions in coverage and browning in 2024, exhibited an overall increase in vegetation greenness in the 2025 air photo.
- The Mann-Kendall test result on the Average Growing-Season NDVI for the post-Peace II Agreement period from 2007 to 2025 indicates “no trend” for the Prado Basin riparian vegetation as a whole and either “no trend” or an “increasing trend” at all the other areas analyzed in the Prado Basin.

Site-specific monitoring of riparian habitat is performed approximately every three years to collect data that can be used to ground-truth the interpretations derived from the regional monitoring and assessment of riparian habitat quality. The most recent site-specific monitoring was performed at 20 monitoring site plots in the Mill Creek, Chino Creek and SAR reaches in October 2025. Results of the survey showed that overall, the riparian vegetation at the monitoring site plots appears to be healthy and that the riparian system is functioning properly. The primary driver of observed variability and year-to-year changes is climate, which also impacts the composition of vegetation species, including native and non-native species. All the changes observed in the riparian vegetation from 2022 to 2025 appear to be within the normal range of variability related to climatic changes and it is unlikely that any observable decline in the riparian system for the monitoring site plots could be linked to groundwater pumping.

The remainder of Section 3.0 describes the factors that can affect the riparian habitat, how these factors have changed over time, and how the changes in these factors may explain the changes that are being observed in the riparian habitat described above.

3.2 Groundwater and Its Relationship to Riparian Habitat

Peace II Agreement implementation was projected to change groundwater pumping patterns and reduce groundwater replenishment through 2030, both of which would change groundwater levels in the Chino Basin. These groundwater level changes caused by Peace II Agreement implementation and other unrelated water management activities²¹ have the potential to impact the extent and quality of Prado Basin riparian habitat.

This section characterizes the history of groundwater pumping and changes in groundwater levels in the GMP study area and compares this history to the trends in the extent and quality of the riparian habitat described in Section 3.1.

3.2.1 Groundwater Pumping

Table 3-4 lists the groundwater pumping estimates for the GMP study area for WY 1961 to 2025.²² Figure 3-9 is a map that illustrates the spatial distribution of groundwater pumping from wells within the GMP study area for WY 2025. This figure includes a bar chart of the annual groundwater pumping in the GMP study area (from Table 3-4 below). Figure 3-9 illustrates the following history of groundwater pumping within the GMP study area:

- From 1961 to 1990, groundwater pumping averaged about 45,900 afy. Pumping mainly occurred at private domestic and agricultural wells distributed throughout the area.
- From 1991 to 1999, groundwater pumping steadily declined, primarily due to conversions of agricultural land uses to urban. By WY 1999, groundwater pumping was estimated to be about 23,600 afy, about 49 percent less than average annual pumping from 1961 to 1990.
- From 2000 to 2025, CDA pumping commenced and increased to replace the declining agricultural groundwater pumping, as envisioned in the OBMP/Peace Agreement and Peace II Agreement. In WY 2025, total groundwater pumping in the GMP study area was about 40,100 afy—an increase of about 70 percent from 1999.
- In WY 2020 the CDA pumping reached its intended pumping rate of 40,000 afy to maintain hydraulic control of the Chino Basin, to replace agricultural pumping, and has maintained this pumping through this WY 2025.
- Total CDA pumping in WY 2025 was 40,425 afy, while CDA pumping within the GMP study area totaled 37,413 afy. The difference reflects CDA Well II-12, which began operating in August 2021 and is situated outside the GMP study area.

²¹ Other water management activities unrelated to Peace II Agreement implementation include changes in wastewater discharge to the SAR due to conservation, recycling, and drought response; increases in storm water diverted and recharged; increases in recycled water recharge; management of groundwater in storage; and the implementation of the Dry-Year Yield Program with MWD.

²² Production for years prior to WY 2001 were estimated in the calibration of the 2013 Chino Basin groundwater model (WEI, 2015). Production estimates for WY 2001 and thereafter are based on metered production data and water-duty estimates compiled by Watermaster.



- Since the PBHSP monitoring began in 2016, the highest annual pumping occurred in WY 2020, 2021, and 2022 in the GMP study area.

Table 3-4. Annual Groundwater Pumping in the Groundwater Monitoring Program Study Area

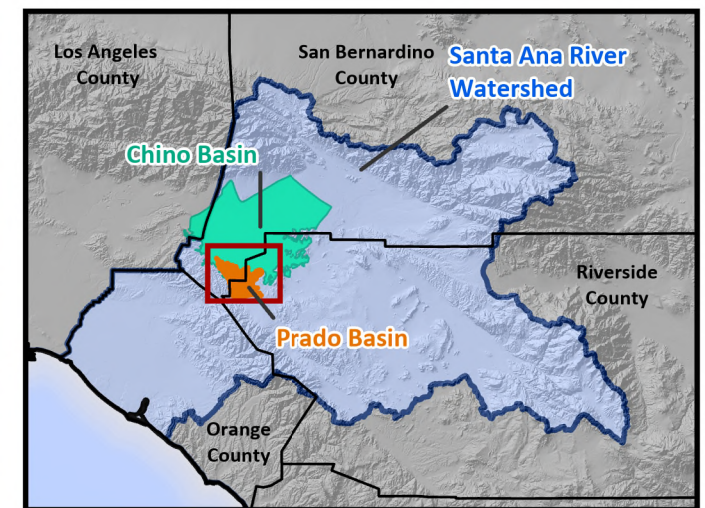
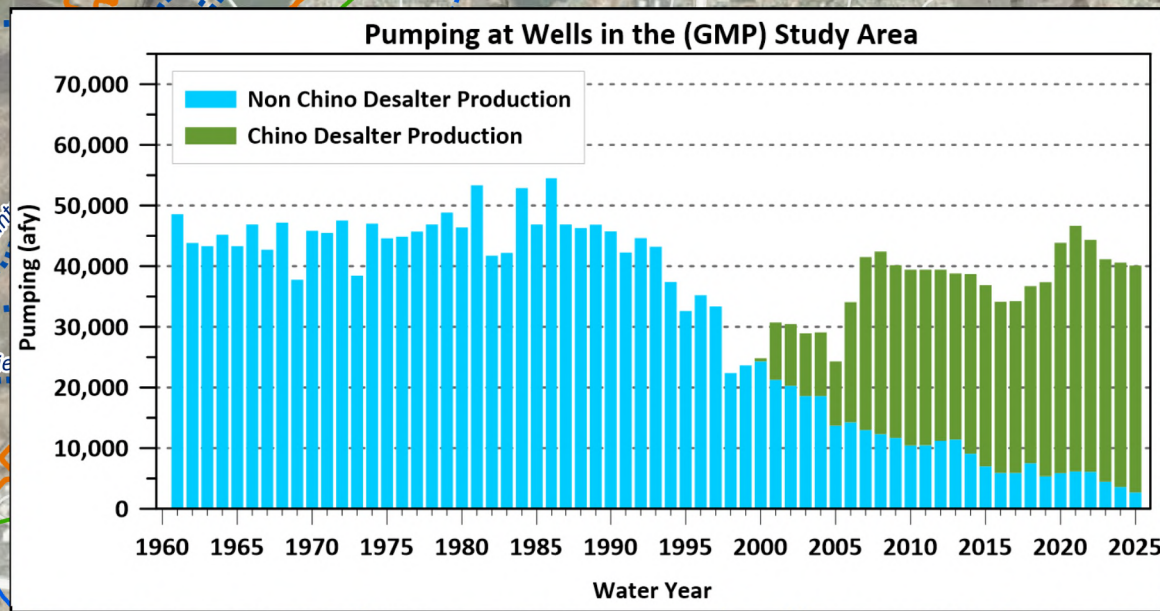
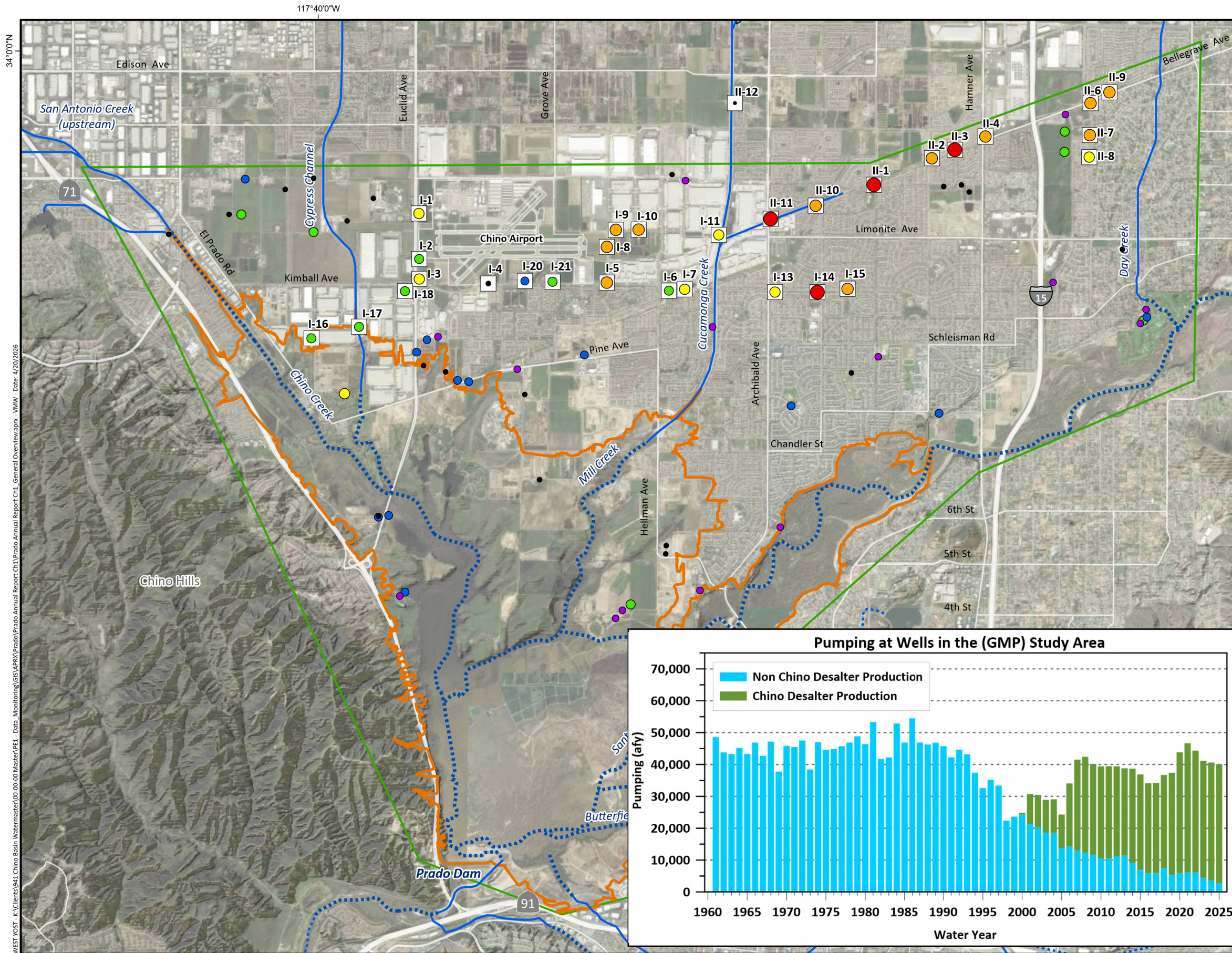
Water Year	Non-CDA Pumping, afy ^(a)	CDA Pumping, afy	Total Pumping, afy ^(a)
1961	48,577	0	48,577
1962	43,811	0	43,811
1963	43,293	0	43,293
1964	45,170	0	45,170
1965	43,294	0	43,294
1966	46,891	0	46,891
1967	42,709	0	42,709
1968	47,180	0	47,180
1969	37,754	0	37,754
1970	45,849	0	45,849
1971	45,492	0	45,492
1972	47,541	0	47,541
1973	38,427	0	38,427
1974	47,014	0	47,014
1975	44,606	0	44,606
1976	44,847	0	44,847
1977	45,710	0	45,710
1978	46,881	0	46,881
1979	48,829	0	48,829
1980	46,402	0	46,402
1981	53,326	0	53,326
1982	41,719	0	41,719
1983	42,200	0	42,200
1984	52,877	0	52,877
1985	46,876	0	46,876
1986	54,501	0	54,501
1987	46,875	0	46,875
1988	46,277	0	46,277
1989	46,835	0	46,835
1990	45,732	0	45,732
1991	42,266	0	42,266
1992	44,617	0	44,617
1993	43,186	0	43,186
1994	37,390	0	37,390
1995	32,604	0	32,604
1996	35,200	0	35,200



Table 3-4. Annual Groundwater Pumping in the Groundwater Monitoring Program Study Area

Water Year	Non-CDA Pumping, afy ^(a)	CDA Pumping, afy	Total Pumping, afy ^(a)
1997	33,340	0	33,340
1998	22,366	0	22,366
1999	23,632	0	23,632
2000	24,299	523	24,822
2001	21,249	9,470	30,719
2002	20,271	10,173	30,445
2003	18,600	10,322	28,922
2004	18,606	10,480	29,086
2005	13,695	10,595	24,290
2006	14,261	19,819	34,079
2007	12,988	28,529	41,517
2008	12,293	30,116	42,409
2009	11,694	28,456	40,150
2010	10,452	28,964	39,416
2011	10,460	28,941	39,401
2012	11,193	28,230	39,423
2013	11,433	27,380	38,813
2014	9,059	29,626	38,685
2015	6,985	29,877	36,862
2016	5,900	28,249	34,148
2017	5,899	28,351	34,250
2018	7,504	29,191	36,695
2019	5,348	32,004	37,352
2020	5,875	37,973	43,848
2021	6,155	40,501 ^(b)	46,656
2022	6,066	38,277 ^(c)	44,342
2023	4,462	36,687 ^(d)	41,149
2024	3,597	37,002 ^(e)	40,598
2025	2,697	37,413 ^(f)	40,110
Average: 1961-1990	45,917	0	45,917
Average: 1991-1999	34,956	0	34,956
Average: 2000-2025	10,809	26,044	36,853

- (a) Prior to WY 2001 production is estimated with the calibrated 2013 Chino Basin groundwater model (WEI, 2015).
- (b) Total CDA production in WY 2021 was 40,649 af; active CDA Well II-12 is outside of the GMP study area and not included in the total annual pumping for the GMP study area.
- (c) Total CDA production in WY 2022 was 40,684 af; active CDA Well II-12 is outside of the GMP study area and not included in the total annual pumping for the GMP study area.
- (d) Total CDA production in WY 2023 was 39,814 af; active CDA Well II-12 is outside of the GMP study area and not included in the total annual pumping for the GMP study area.
- (e) Total CDA production in WY 2024 was 40,396 af; active CDA Well II-12 is outside of the GMP study area and not included in the total annual pumping for the GMP study area.
- (f) Total CDA production in WY 2025 was 40,425 af; active CDA Well II-12 is outside of the GMP study area and not included in the total annual pumping for the GMP study area.



3.2.2 Groundwater Levels

Figures 3-10a and 3-10b are groundwater-elevation contour maps of the GMP study area for the shallow aquifer system in September 2016 (first Annual Report condition) and September 2025 (current condition). The contours were created from rasterized surfaces of groundwater elevations that were created from measured groundwater elevations at wells. The raster of groundwater elevation for September 2016 was subtracted from the raster of groundwater elevation for September 2025 to create a raster of change in groundwater elevation from 2016 to 2025 (Figure 3-11).

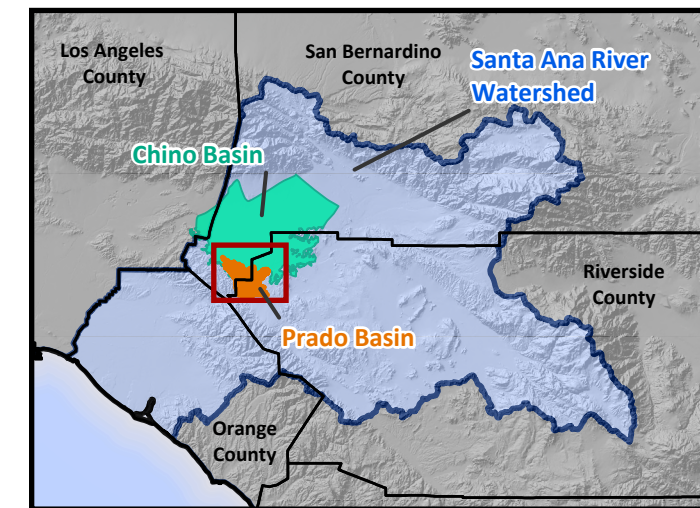
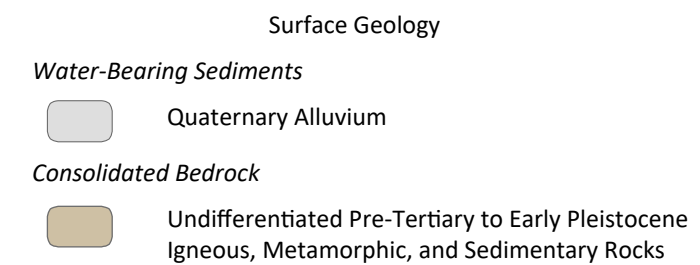
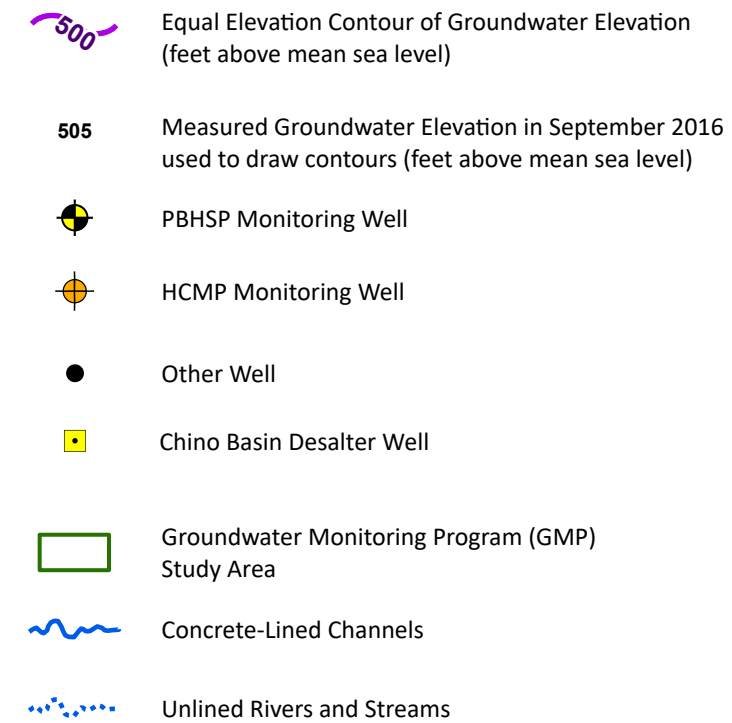
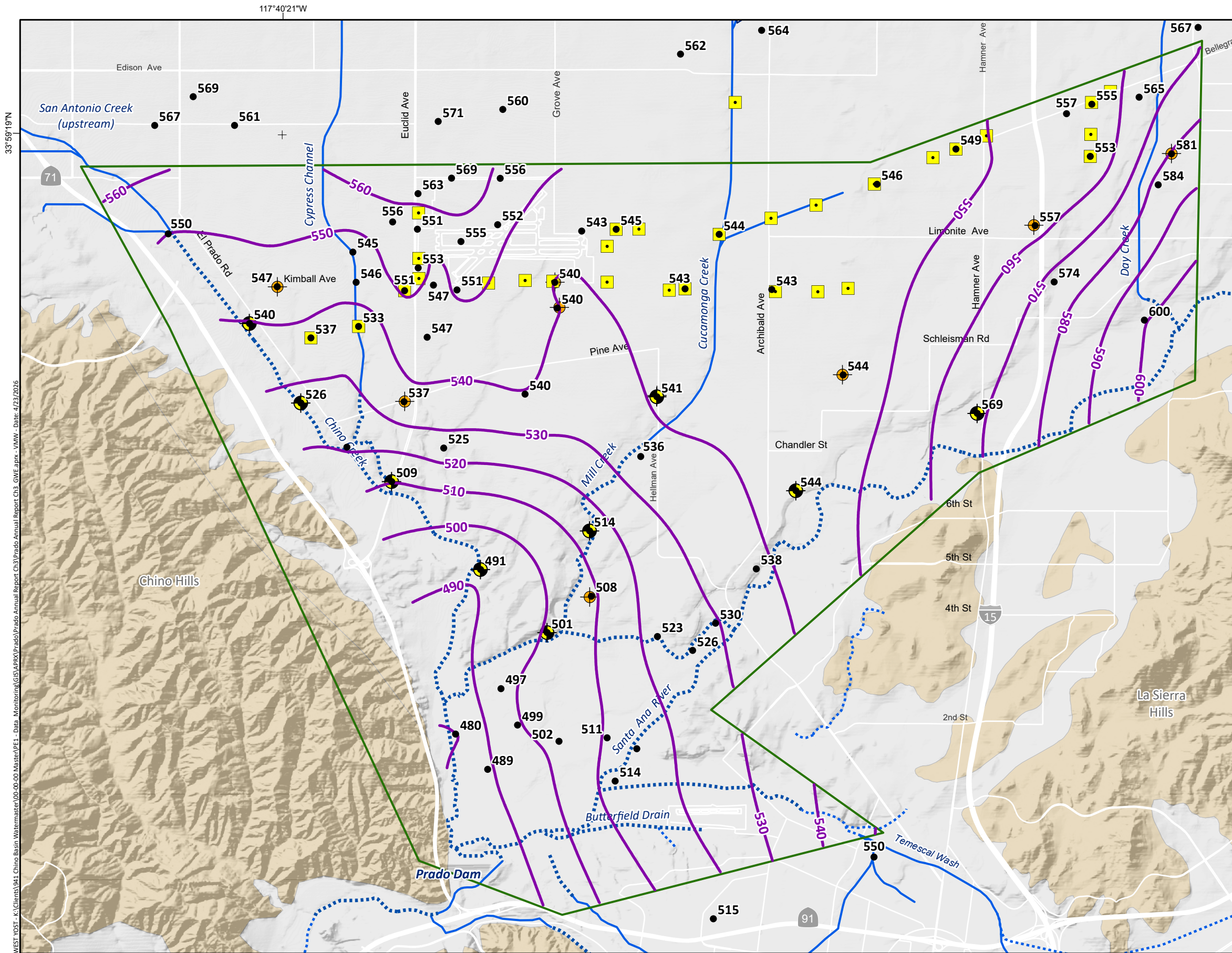
Figure 3-11 shows that with an exception to the northwest portion of the GMP study area, groundwater levels changed by about +/- 5 feet across most of the GMP study area from 2016 to 2025. The greatest areas of change occurred in the northern portion of the GMP study area near the Chino Basin Desalter well field. Groundwater levels increased up to 20 feet near to the northeast of Chino Creek, near Chino Basin Desalter wells I-16 and I-17.

Since the PBHSP began in 2016, the largest groundwater level declines within the riparian vegetation areas have occurred in the northern reach of Mill Creek (just south of PB-2). From 2016 to 2025 groundwater levels declined about three feet in this area, and at well PB-2 just to the north, groundwater levels declined by about five feet. This northern portion of Mill Creek has consistently shown the greatest groundwater level declines, and were the lowest in WY 2022, as documented in previous Annual Reports (West Yost 2022; 2023; 2024). This area is part of the regional pumping depression expanding around the Chino Basin Desalter well field to the north. Over this last year, groundwater levels decreased about 0.25 feet in this area.

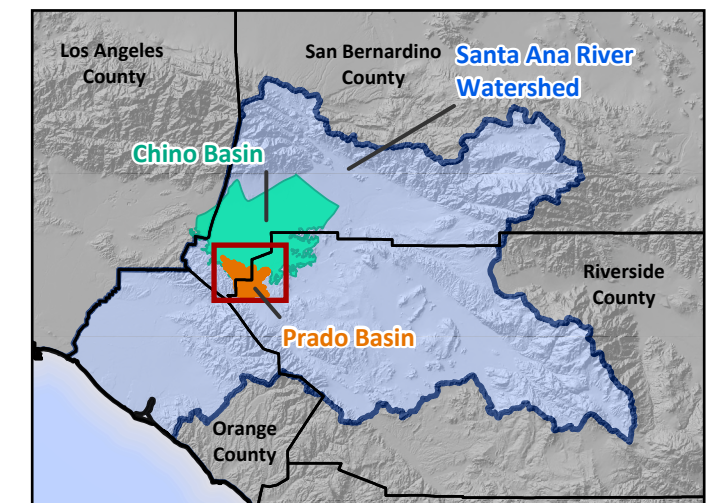
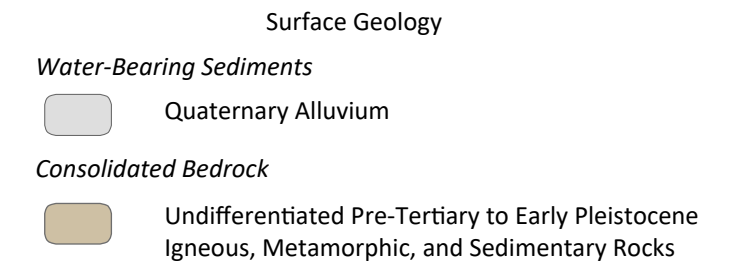
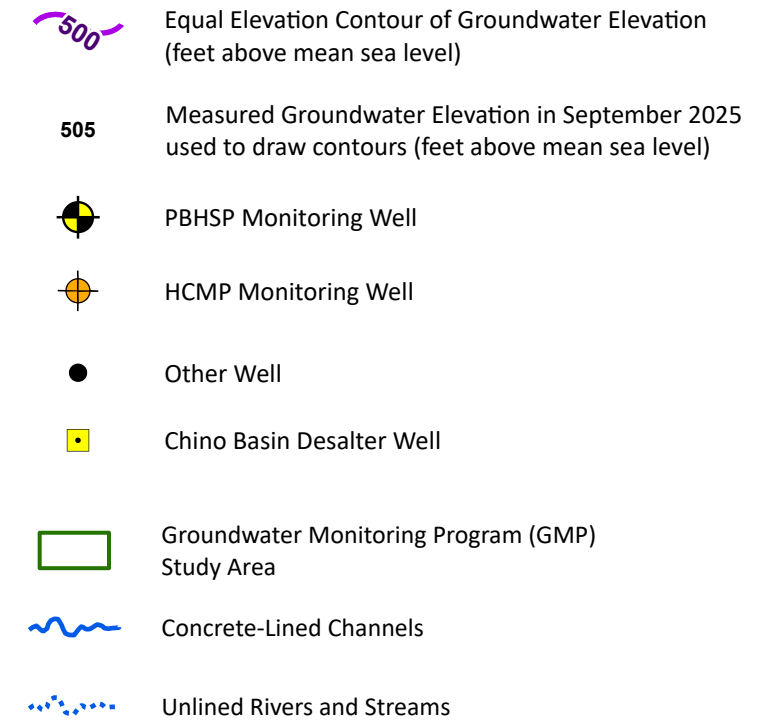
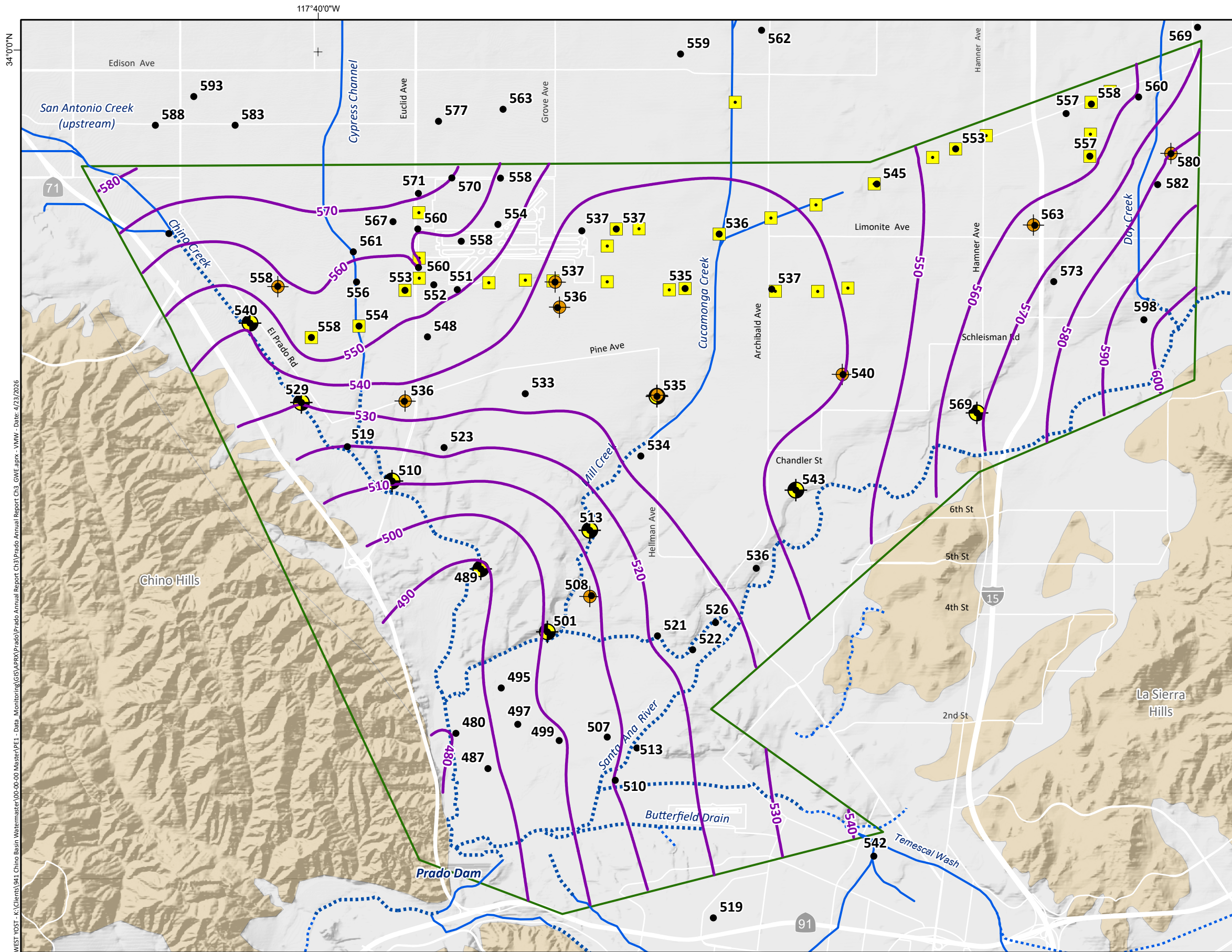
Since 2016, the largest groundwater level increases within the riparian vegetation extent occurred along northern Chino Creek. From 2016 to 2025, groundwater levels increased by up to 10 feet in this area. Section 3.2.3 describes a decrease in pumping in the area near Chino Creek.

Figure 3-12 is a map of depth-to-groundwater in September 2025. It was created by subtracting a one-meter horizontal resolution 2020 digital-elevation model (DEM)²³ of the ground surface from the raster of groundwater elevation for September 2025. An outline of the Prado Basin riparian habitat extent is superimposed on the depth-to-groundwater raster. With few exceptions, the riparian habitat generally overlies areas where the depth-to-groundwater is less than 15 feet below the ground surface (ft-bgs). The shallow groundwater could exit the Prado Basin via rising groundwater discharge to the SAR and its tributaries and/or evapotranspiration by the riparian vegetation.

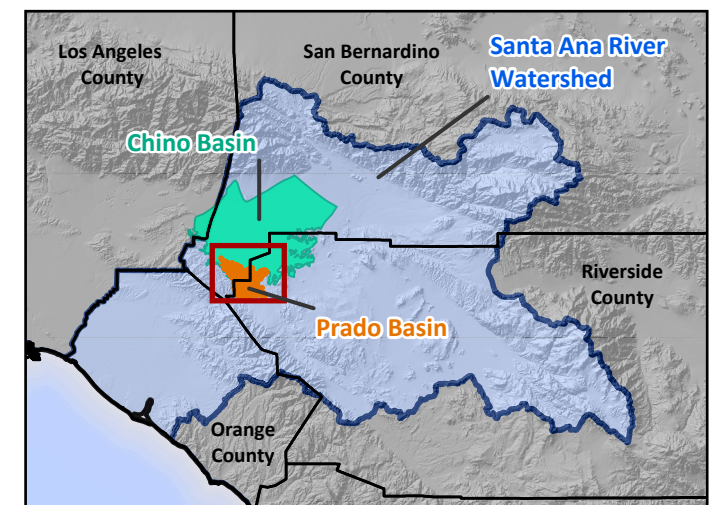
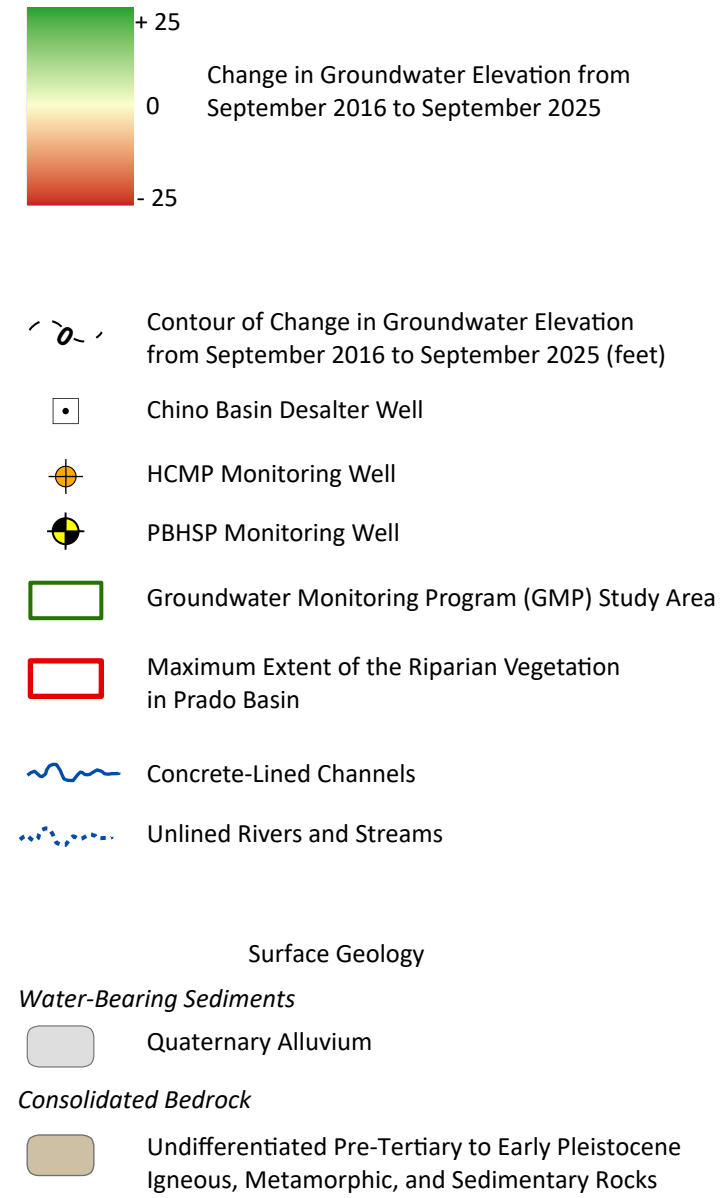
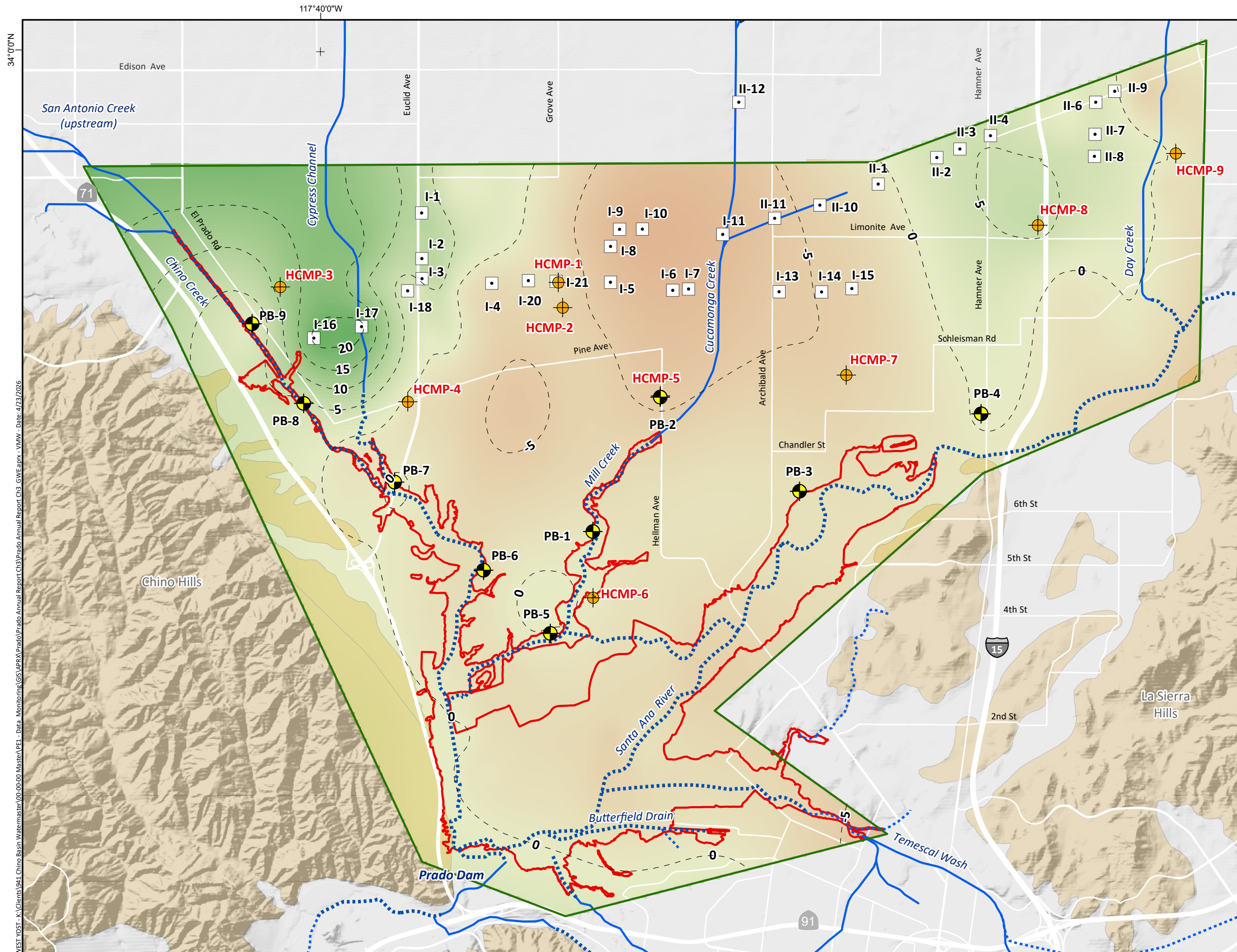
²³ The 2020 DEM is from LiDAR data collected of the Prado Basin and along the SAR during July 2020 when Watermaster, IEUA, OCWD, and San Bernadino Valley Water District collaborated and cost-shared the collection of the 2022 air photo of the Prado Basin.

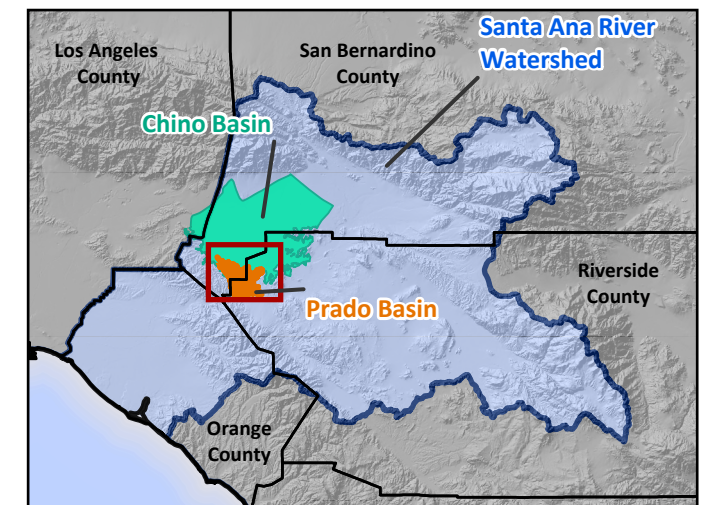
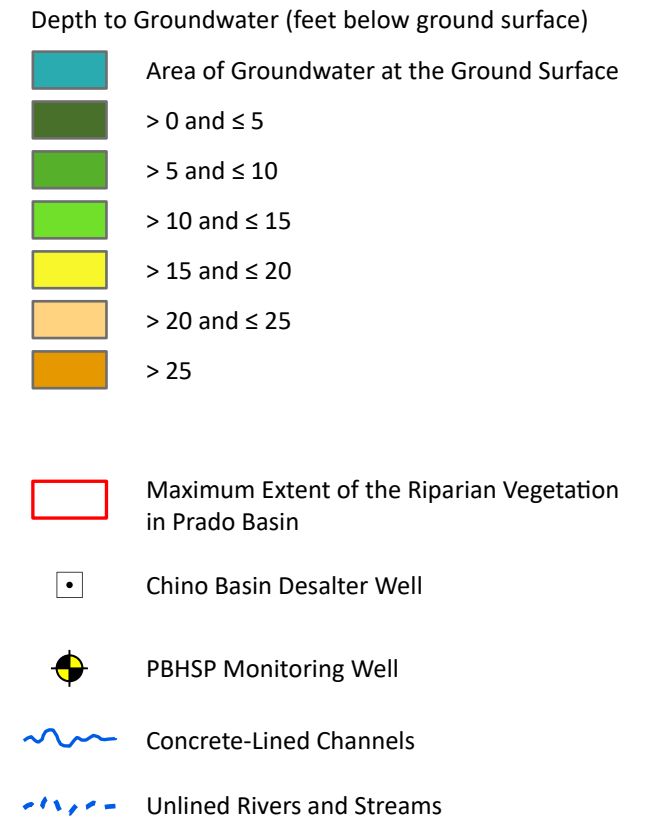
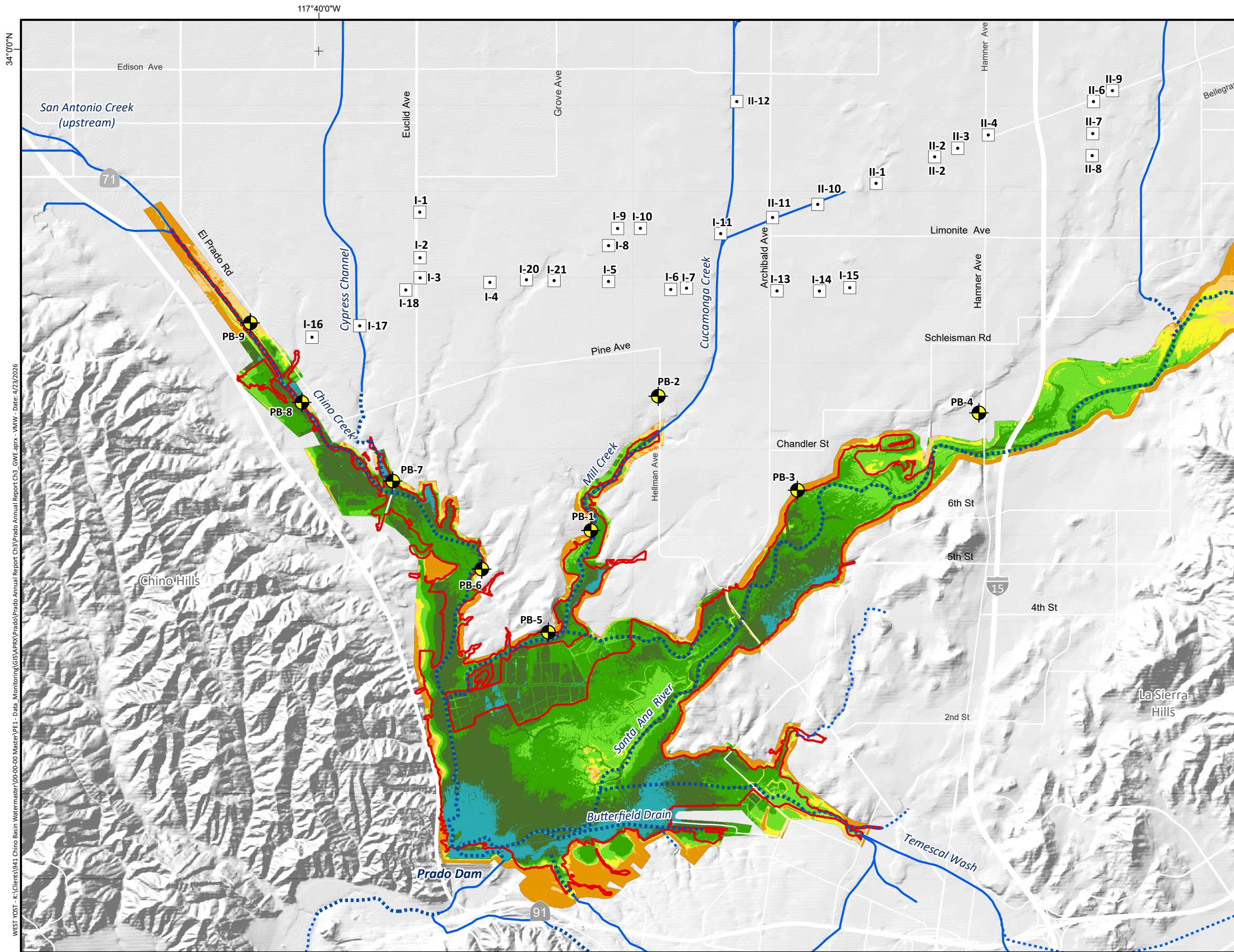


WEST YOST - K:\Clients\9411 Chino Basin Watermaster\00-00-00 Master\PE1 - Data - Monitoring\GIS\APRX\Prado\Prado Annual Report CH3 - GWE.aprx - VVVW - Date: 4/23/2016



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PEL - Data - Monitoring\GIS\APRA\Prado Annual Report CH3 - GWE.aprx - VMMW - Date: 4/23/2025





3.2.3 Groundwater Levels Compared to NDVI

Figures 3-13a through 3-13c are time-series charts that compare long-term trends in groundwater pumping and groundwater elevations to the trends in the quality of the riparian vegetation as indicated by the NDVI for three reaches in the Prado Basin: Chino Creek, Mill Creek, and the SAR. The period of analysis for these charts is 1984 to 2025—the period of NDVI availability. The upper chart in these figures compares changes in groundwater levels for each respective area to long-term trends in groundwater pumping within the respective regions of the GMP study area (Chino Creek, Mill Creek, and SAR). The annual groundwater pumping for wells within the respective regions is presented as a stacked bar chart, differentiating between Chino Basin Desalter wells and non-Chino Basin Desalter wells. Model-generated groundwater-elevation estimates for 1984 to 2018 were extracted from Watermaster’s 2020 calibration of its groundwater-flow model at the monitoring well locations (WEI, 2020). The more recent groundwater-elevation data shown on these charts were measured at monitoring wells constructed by Watermaster and the IEUA to support the Hydraulic Control Monitoring Program (HCMP) (beginning in 2005) and the PBHSP (beginning in 2015). Where the measured and model-estimated groundwater elevations overlap in time, the model-estimated elevations mimic the seasonal fluctuations and longer-term trends of the measured elevations, typically differing by no more than 10 feet. This alignment supports the use of these model-estimated groundwater elevations in this analysis to evaluate historic trends prior to the availability of actual water level measurements.

The lower chart in Figures 3-13a through 3-13c displays the time series of the Average Growing-Season NDVI for the defined areas (discussed in Section 3.1) along Chino Creek, Mill Creek, and the SAR. For reference, the Mann-Kendall test results for trends in the Average Growing-Season NDVI for 1984 to 2025, 1984 to 2006, and 2007 to 2025 are shown in the legend.

The NDVI observations and interpretations below focus on recent changes in Average Growing-Season NDVI (Section 3.1) and whether observed groundwater level trends may be contributing to recent NDVI changes.

Chino Creek (Figure 3-13a). During the late 1990s, groundwater levels in the riparian habitat along Chino Creek increased, particularly along the north reach of Chino Creek, where groundwater levels increased by over 30 feet. The increase in groundwater levels was most likely due to reduced pumping in the area. Since 2000, groundwater levels have remained relatively stable, even as Chino Basin Desalter pumping commenced and increased at CDA wells I-1, I-2, I-3, I-4, I-16, I-17, and I-18 to the north of Chino Creek (see inset map on Figure 3-13a). From 2017 to 2023, pumping at these Chino Basin Desalter wells was at historically low volumes, contributing to reduced pumping in this area. Since WY 2024, pumping returned to normal operational levels at the Chino Basin Desalter wells and, in 2025, reached a historic high. However, total WY 2025 pumping in this Chino Creek region did not exceed historical higher levels since pumping at the non-Chino Basin Desalter wells is reduced.

From 2015-2025, the measured groundwater levels at the PBHSP monitoring wells along Chino Creek in the riparian habitat show a stable trend along the very northern reach at well PB-9/1 and central reach at wells PB-7/1 and PB-6/1; and a decreasing trend along the north reach at well RP2-MW3. Groundwater levels fluctuate seasonally, in some cases by more than 15 feet, under the seasonal stresses of pumping and recharge. During the winter months of WY 2017, 2019, 2023, and 2024, groundwater levels at the PBHSP monitoring wells increased to their highest recorded levels, in response to the recharge of stormwater discharge in unlined creeks and the associated surface-water reservoir that ponds behind Prado Dam. Over the last year (fall 2024 to fall 2025) groundwater levels stayed about the same along the upper northern reach of Chino Creek (PB-9/1), decreased by about 1 foot along the lower northern reach (RP2-MW3), stayed about the same (PB-7/1) or decreased by about 1 foot (PB-6/1) along the central reach of Chino Creek.

The Average Growing-Season NDVI and the air photo analyses along Chino Creek show that changes in the vegetation were relatively minor during 2024 to 2025 (discussed in Section 3.1), and the NDVI slightly increased at all areas (CC-1, CC-2, CC-3, CC-4). Hence, the main observations and conclusions for the period of 2024 to 2025 for the Chino Creek reach are that overall, groundwater levels remained stable or slightly decreased, and the riparian vegetation did not change significantly.

Mill Creek. (Figure 3-13b). During the 1990s, groundwater levels along Mill Creek in the riparian habitat increased, particularly along the north reach of Mill Creek where groundwater levels increased by about 10 feet, most likely due to reduced agricultural pumping in the area. Since 2000, groundwater levels along the north reach of Mill Creek have declined by up to 13 feet. The decline in groundwater levels was most likely due to the onset and progressive increase in Chino Basin Desalter pumping at CDA wells I-5, I-6, I-7, I-8, I-9, I-10, I-11, I-13, I-14, I-20, I-21, and II-11 to the north of Mill Creek (see inset map on Figure 3-13b). Since 2017, total pumping at these Chino Basin Desalter wells has progressively increased, reaching a historically high volume in 2021 and slightly declining after, contributing to the overall increase in the total pumping in this region.

From 2015 to 2025, the measured groundwater levels at the PBHSP monitoring wells along Mill Creek show an overall declining trend in the northern and central portion of Mill Creek (PB-2, HCMP-5/1, and PB-1/2). Groundwater levels decreased from 2015 to 2022 by about eight feet at the wells in the northern portion (PB-2 and HCMP-5/1), and 1.5 feet at wells in the central portion (PB-1/2), then increased and leveled out from 2022 to 2025. These changes in groundwater levels follow the same trends as groundwater pumping observed in this area. From 2015 to 2025, the measured groundwater levels in the southern reach of Mill Creek show a slight decreasing trend of about 1 foot (HCMP-6/1 and PB-5/1).

Groundwater levels fluctuate seasonally, in some cases up to 10 feet, under the seasonal stresses of pumping and recharge. During the winter months in WY 2017, WY 2019, WY 2023, and WY 2024, groundwater levels at most of the PBHSP monitoring wells increased to their highest recorded levels, in response to the recharge of stormwater discharge in unlined creeks. Over this past year from fall 2024 to fall 2025, groundwater levels decreased about one foot in the northern portion of Mill Creek (PB-2 and HCMP-5/1), decreased about one foot in the central portion (PB-1/2) and decreased about one foot or remained stable at the southern portion (HCMP-6/1 and PB-5/1).

The Average Growing-Season NDVI and air photo analyses along Mill Creek show that changes in the vegetation were relatively minor during 2024 to 2025 (discussed in Section 3.1), with NDVI increasing or showing no change at four of the areas (MC-1, MC-2, MC-3, and MC-6), and slightly declining at two sites (MC-4 and MC-5). Hence, the main observations and conclusions for the period of 2024 to 2025 for the Mill Creek reach are that groundwater levels slightly decreased, and riparian vegetation did not change significantly.

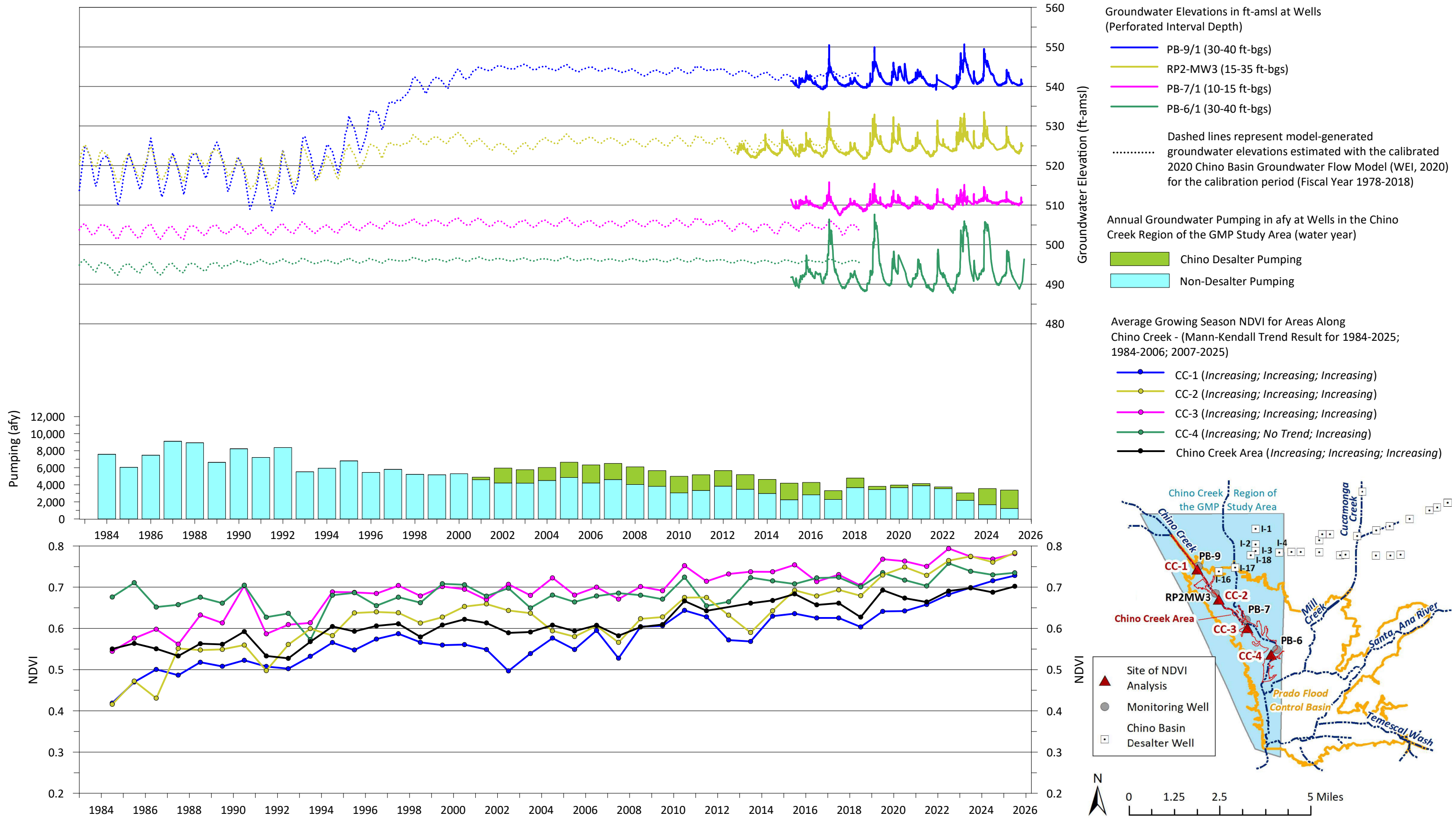
Santa Ana River (Figure 3-13c). During the 1990s, the groundwater levels along SAR increased in response to a decline in pumping from 1990 to 2000. These responses were greatest along the eastern portion of SAR where they increased up to five feet. Since 2000, groundwater levels have declined by a similar magnitude along the eastern portion of the SAR due to the onset and progressive increase in Chino Basin Desalter pumping at CDA wells I-13, I-14, I-15, and II-1 through II-11 to the north of the SAR (see inset map on Figure 3-13c), while groundwater levels slightly increased along the western portion of the SAR near the Archibald well. Since 2018, total pumping at these Chino Basin Desalter wells progressively increased to a historically high volume in 2021, declining slightly since, contributing to the increase in the total pumping observed in this area.



From 2015 to 2025, the measured groundwater levels at the PBHSP monitoring wells in the riparian habitat show a slight decreasing trend through 2022 along the northeastern portion near PB-4/1 and the northern portion near PB-3/1, and then increasing and stable trend between 2023 and 2025. These decreases in groundwater levels are likely due to the pumping in this area. The increase between 2023 and 2025 is likely due to a combination of reduced pumping and increased stormwater recharge. Along the southwestern portion near the Archibald 1 groundwater levels show a stable and slight increasing trend through 2023, and then a declining trend from 2023 through 2025. Groundwater levels fluctuate seasonally, in some cases by up to seven feet under the seasonal stresses of pumping and recharge. Over the last year, from fall 2024 to fall 2025, groundwater levels at the monitoring wells along the SAR remained stable along the northeastern and northern portions (PB-4/1 and PB-3/1) and decreased by about 1 foot along the western portion (Archibald 1).

The Average Growing-Season NDVI and air photo analyses along the SAR show that changes in the vegetation were relatively minor from 2024 to 2025 (discussed in Section 3.1) and the NDVI increased at all SAR areas (SAR-2, SAR-3, and SAR-4). Hence, the main observations and conclusions for the period of 2024 to 2025 for the SAR reach, are that groundwater levels remained stable or slightly decreased, and the riparian vegetation did not change significantly.

DRAFT

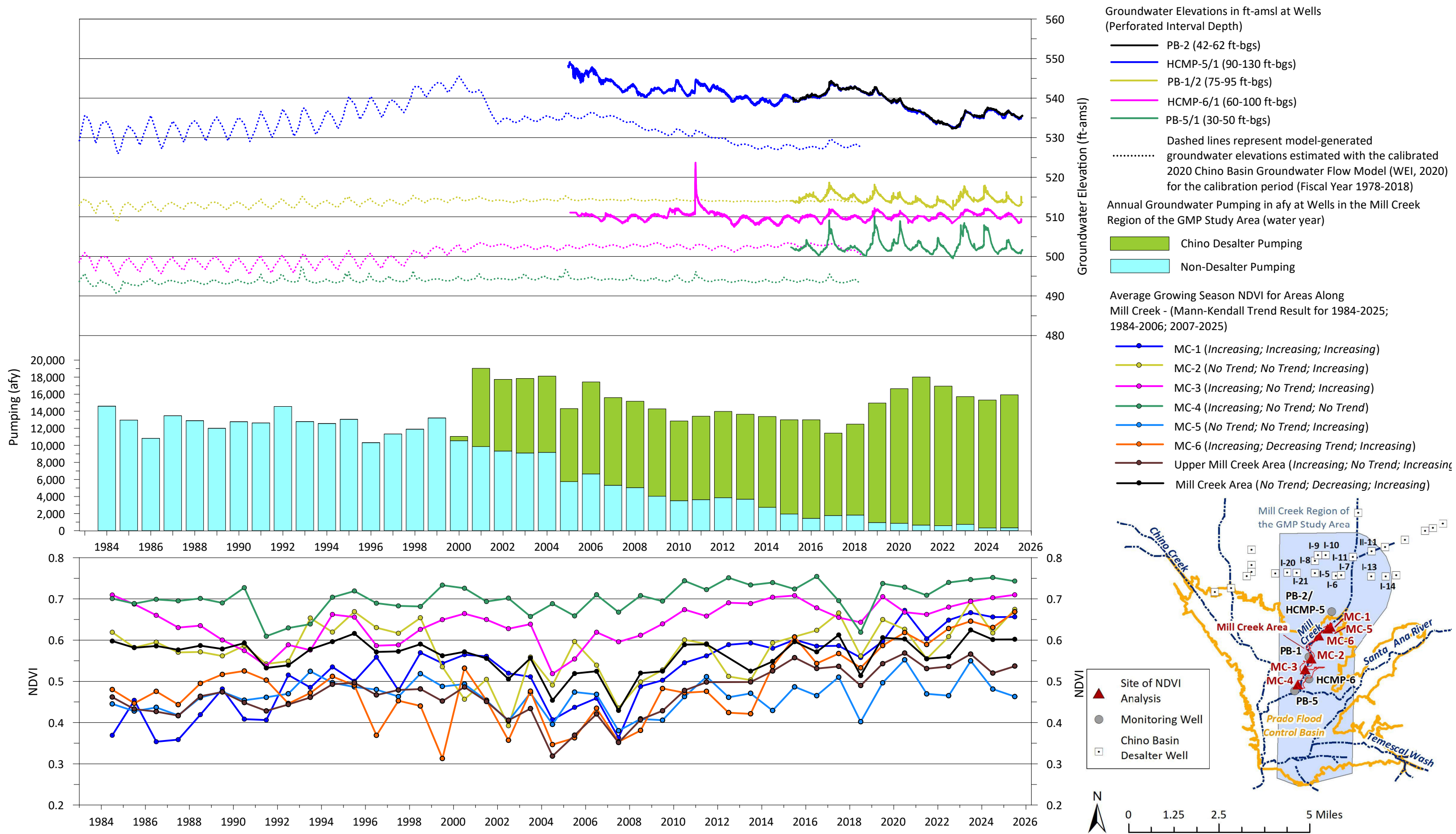


Prepared by:



Prepared for:



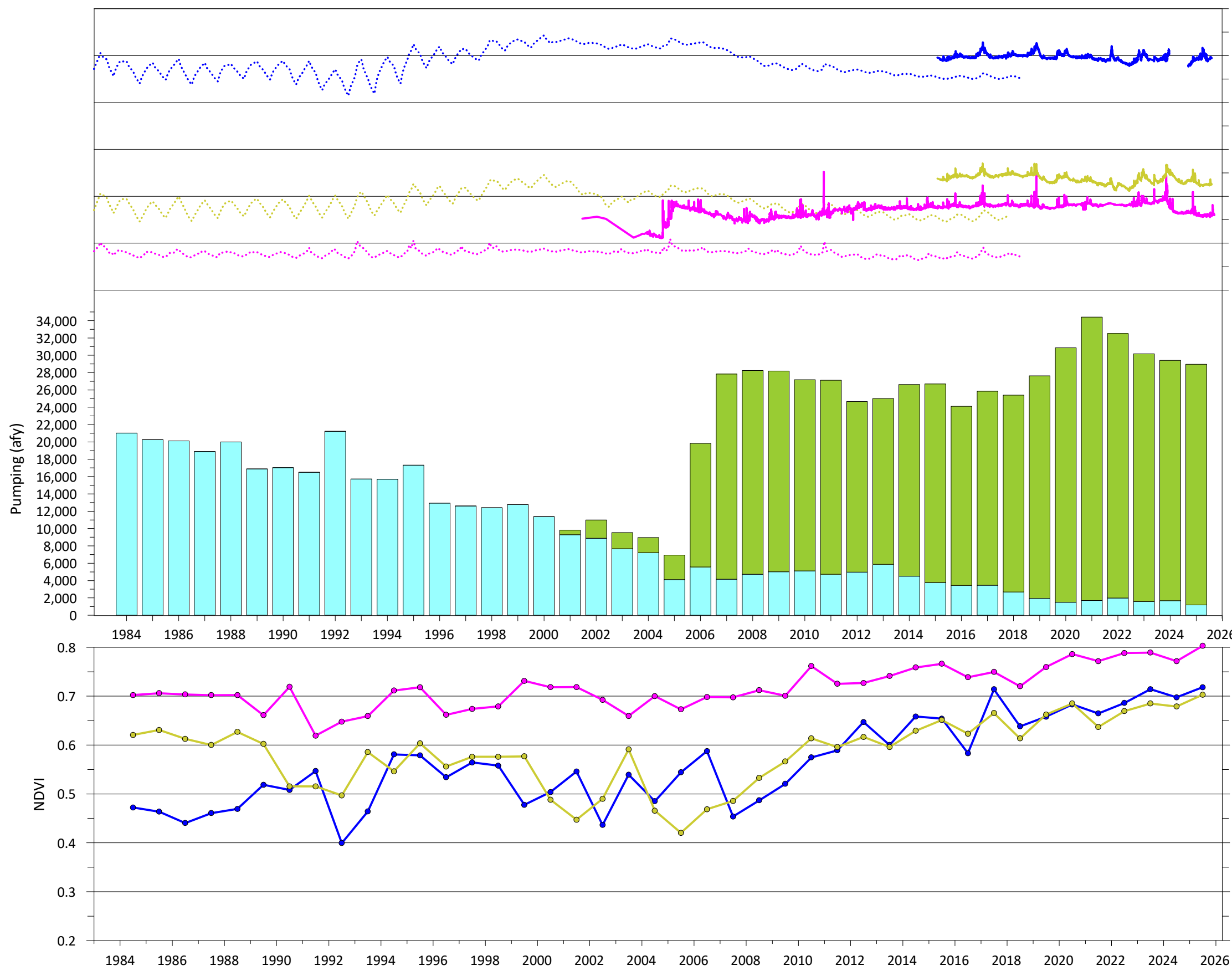


Prepared by:



Prepared for:





Groundwater Elevations in ft-amsl at Wells (Perforated Interval Depth)

- PB-4/1 (15-25 ft-bgs)
- PB-3/1 (44.5-54.5 ft-bgs)
- Archibald (75-85 ft-bgs)

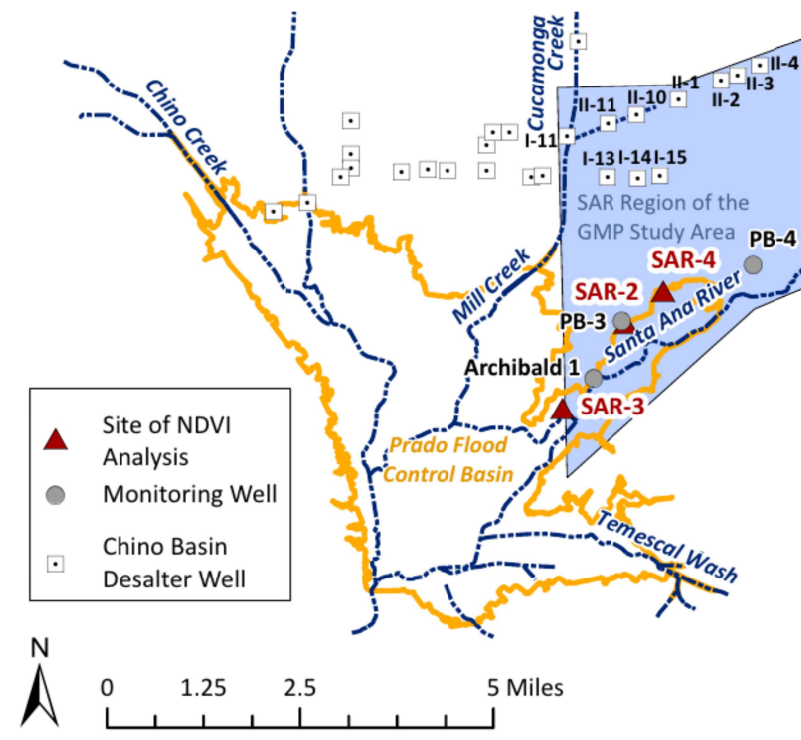
Dashed lines represent model-generated groundwater elevations estimated with the calibrated 2020 Chino Basin Groundwater Flow Model (WEI, 2020) for the calibration period (Fiscal Year 1978-2018)

Annual Groundwater Pumping in afy at Wells in the Santa Ana River Region of the GMP Study Area (water year)

- Chino Desalter Pumping
- Non-Desalter Pumping

Average Growing Season NDVI for Areas Along Santa Ana River - (Mann-Kendall Trend Result for 1984-2025; 1984-2006; 2007-2025)

- SAR-2 (Increasing; Decreasing; Increasing)
- SAR-3 (Increasing; No Trend; Increasing)
- SAR-4 (Increasing; No trend; Increasing)



3.2.4 Summary

The following observations and interpretations were derived from the analysis of groundwater pumping, groundwater levels, and NDVI:

- From 1961 to 1990, groundwater pumping from private domestic and agricultural wells in the study area averaged about 45,900 afy. From 1991 to 1999, groundwater pumping steadily declined to about 23,600 afy primarily due to conversions from agricultural to urban land uses. In 2000, Chino Basin Desalter pumping commenced to replace the lost agricultural pumping, and by 2018, pumping in the study area was about 37,000 afy. In WY 2020, the CDA reached its intended pumping rate of 40,000 afy at the Chino Basin Desalters. In WY 2025, there was 40,110 af of total groundwater pumping in the GMP study area; 37,413 af of this was CDA pumping. This is just slightly less pumping than the previous year (40, 598 af).
- Since groundwater-level measurements commenced at the PBHSP monitoring wells in 2015, there have been some increasing and decreasing trends in groundwater levels observed in the riparian vegetation area along the reaches of Chino Creek, Mill Creek, and SAR. From September 2016 to September 2025, groundwater levels have changed less than +/-5 feet throughout most of the extent. Historically, groundwater levels in the riparian vegetation have declined the most along the northern portion of Mill Creek, just south of the PB-2 monitoring well, where levels decreased by eight feet between 2015 to 2022, likely due to increased pumping at the Chino Desalter wells to the north. By 2024 groundwater levels had increased in this area by about four feet, and in 2025, groundwater levels slightly declined by about one foot. From 2015 to 2025, groundwater levels increased the most in the northern reach of Chino Creek where groundwater levels have increased about 10 feet due to decreased pumping.
- Over the past year from 2024 to 2025 groundwater levels generally remained stable with groundwater levels changing up to +/- one foot at most of the PBHSP wells near the riparian vegetation along the reaches of Chino Creek, Mill Creek, and SAR. In Section 3.1, the analysis of air photos and NDVI for the riparian habitat indicates that the riparian vegetation did not change significantly in any of the areas, and there was a slight increase in NDVI at most of the areas as groundwater levels remained stable or slightly decreased.

3.3 Analysis of Groundwater/Surface-Water Interactions

One of the objectives of the PBHSP is to identify factors that contribute to the long-term sustainability of Prado Basin riparian habitat. The depth to groundwater analysis in Figure 3-12 indicates the riparian vegetation exists in areas of shallow groundwater, typically 15 ft-bgs or less, and is dependent, at least in part, upon the shallow groundwater. There have been multiple studies for the PBHSP on the groundwater/surface-water interactions in the Prado Basin to determine the source of shallow groundwater that is available for consumptive use by the riparian vegetation, and that may be important to the long-term sustainability of the riparian habitat.

3.3.1 Past Monitoring of Groundwater/Surface-Water Interactions:

Historical monitoring of groundwater/surface-water interactions for the PBHSP include:

- From FY 2015 to FY 2018 quarterly groundwater samples were collected from the 18 PBHSP monitoring wells and analyzed at a minimum for general minerals. The general mineral chemistry was to be analyzed along with other data to help characterize groundwater/surface-water interactions in the Prado Basin and determine the source of the shallow groundwater, as described in the following bullet.
- The Annual Reports for WY 2017 and WY 2018 (Section 3.3) included a comprehensive analysis to understand the sources of the shallow groundwater in the Prado Basin (WEI, 2018; 2019). The analysis used the groundwater-quality data, along with surface-water discharge, surface water quality, groundwater levels, and groundwater modeling, as multiple lines of evidence to analyze the groundwater/surface-water interactions at the nine PBHSP well locations—along the fringes of the riparian habitat. In general, the analysis concluded that the SAR and northern portion of Mill Creek are losing reaches, characterized by streambed recharge. Most other areas along Chino and Mill Creeks are gaining reaches, characterized by groundwater discharge. That said, at most locations in the Prado Basin, there appear to be multiple and transient sources that feed the shallow groundwater, and the groundwater/surface-water interactions are complex. Additional monitoring was recommended to better characterize the sources of shallow groundwater and groundwater/surface-water interactions.
- From FY 2018 to FY 2023 a pilot monitoring program was conducted to evaluate whether high-frequency data could improve the interpretation of groundwater/surface-water interactions previously studied for the PBHSP. The pilot monitoring program included the use of transducers that record EC, temperature, and water levels at 15-minute intervals at two locations in Chino Creek and the same high-frequency monitoring at four nearby monitoring wells (PB-7 and PB-8 clusters). Additionally, during the first two years of the pilot monitoring program, surface-water and groundwater-quality samples were collected to support the high-frequency data.
- The Annual Report for WY 2022 included an analysis of data from the pilot monitoring program (West Yost, 2023). The analysis concluded that the high-frequency monitoring of EC and temperature at shallow monitoring wells can reveal the source waters that recharge shallow groundwater. Additionally, the high-frequency monitoring of groundwater-level elevations, surface-water stage, and thalweg elevations can help identify the source waters that recharge shallow groundwater. We also learned from the pilot monitoring program that it is difficult to collect high-frequency data in the surface-water because the transducers consistently become clogged with mud compromising the accuracy of the data and can be lost during large storm events. The WY 2022 report included recommendations to discontinue the pilot monitoring program and replace it with high-frequency monitoring of EC, temperature, and water levels for each pair of PBHSP monitoring wells, most of which was already being collected, along with quarterly surface-water field measurements for EC and temperature in the adjacent streams.

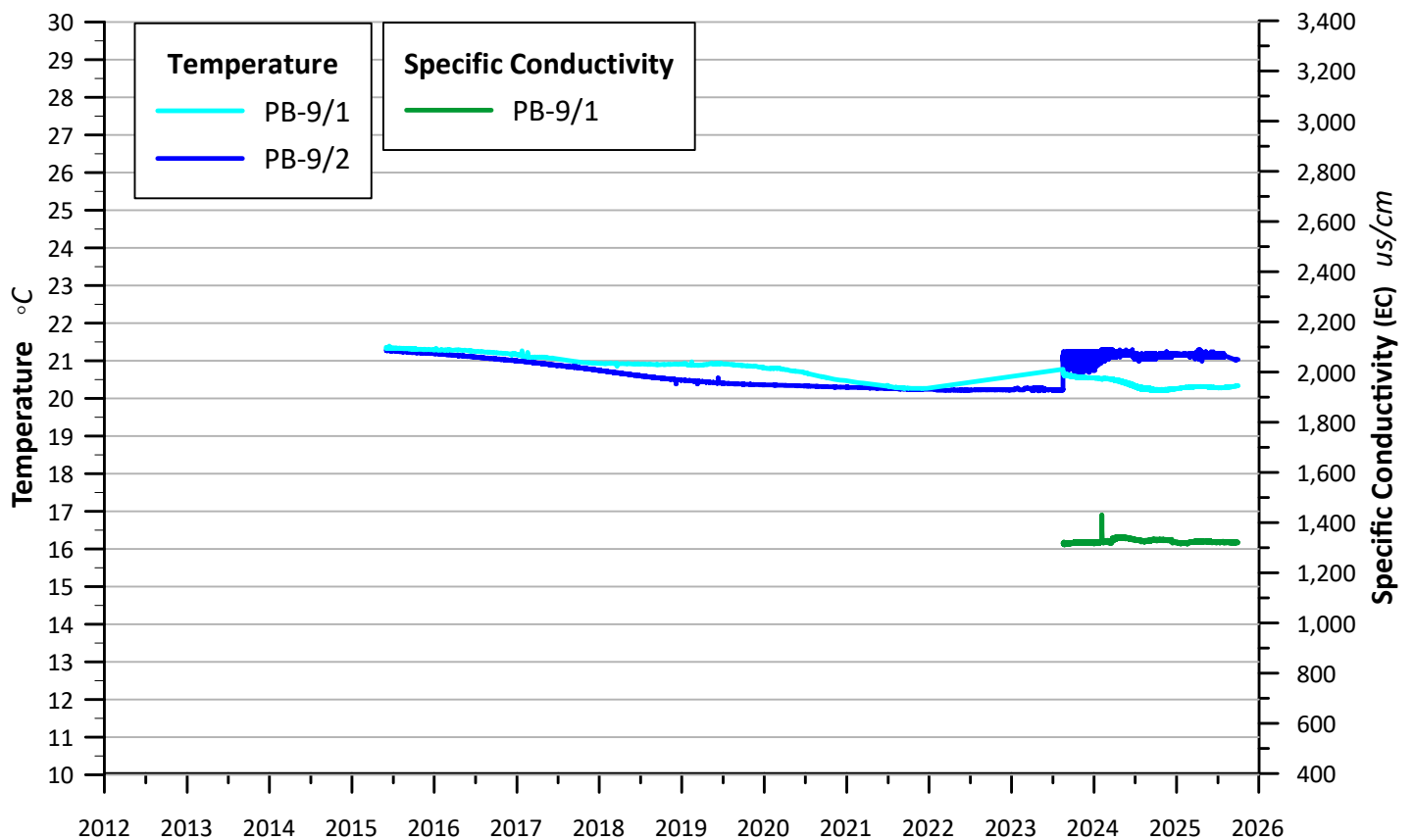
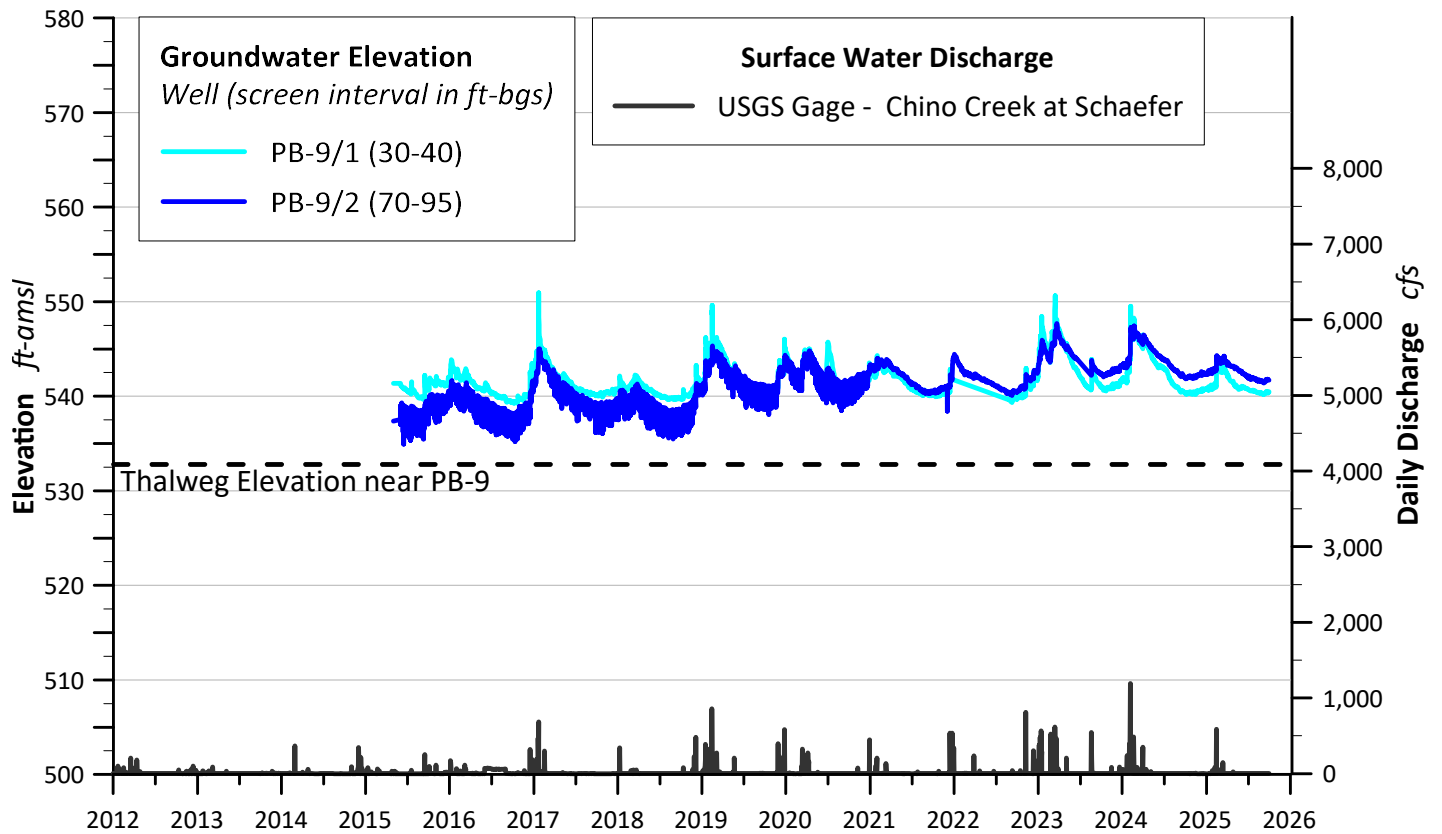
3.3.2 Current Monitoring for Groundwater/Surface-Water Interactions

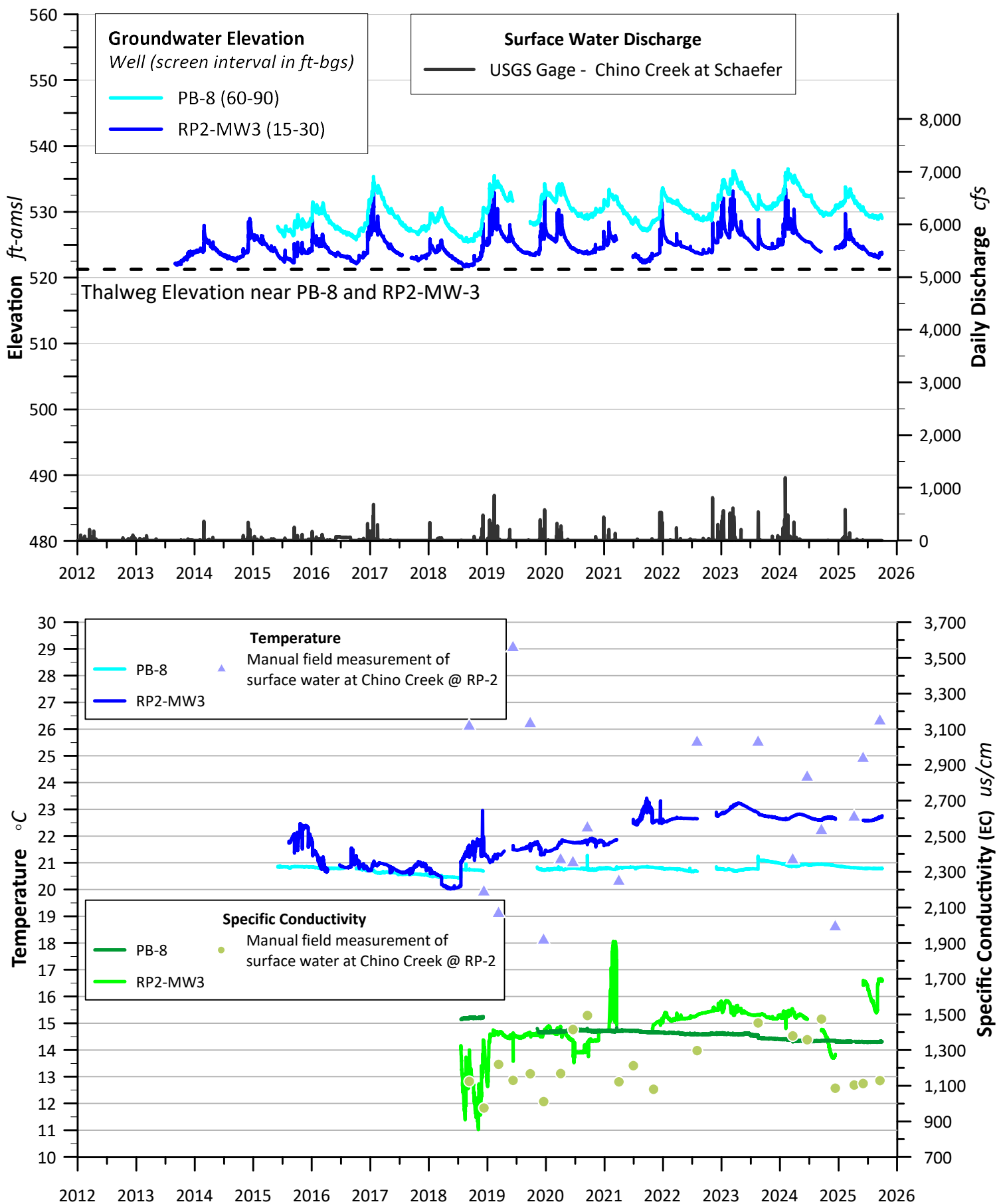
In 2023, monitoring of groundwater/surface-water interactions was initiated based on recommendations in the WY 2022 Annual Report following the analysis of the pilot monitoring program. This monitoring included: (i) compiling, processing, and uploading to the database, the high-frequency temperature data which was already being collected at the PBSHP monitoring wells since 2015; (ii) establishing the locations of surface-water sites near the PBHSP monitoring wells to collect field measurements of EC and temperature, and initiating quarterly measurements; and (iii) replacing transducers at the PBHSP monitoring wells as needed with transducers that measure EC in addition to temperature and level readings (now 17 wells have transducers that measure EC). As described in Section 3.2, this monitoring continued through 2025.

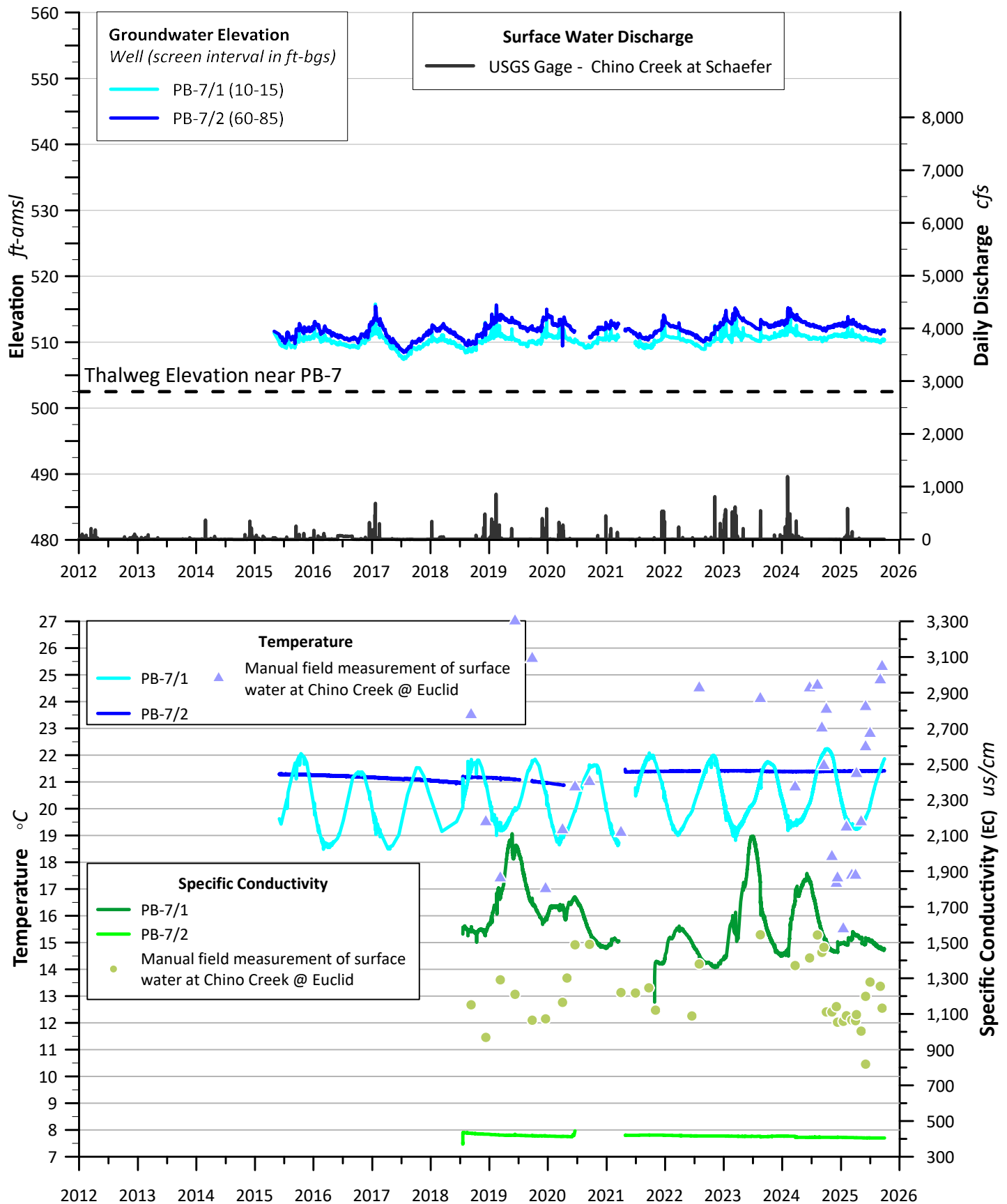
In June 2024, professional elevation surveys were conducted of the thalweg elevations of the adjacent water bodies to all PBHSP monitoring wells. The thalweg elevation can be compared to the groundwater elevations in PBHSP monitoring wells to help characterize groundwater/surface-water interactions within the GMP study area and determine if the shallow groundwater supporting the riparian vegetation is supported primarily by the groundwater and/or the surface-water. Figures 3-14a through 3-14i are time series charts that display the high-frequency monitoring data at each PBHSP monitoring well location in the riparian habitat along Chino Creek, Mill Creek, and the SAR. Each figure contains the following:

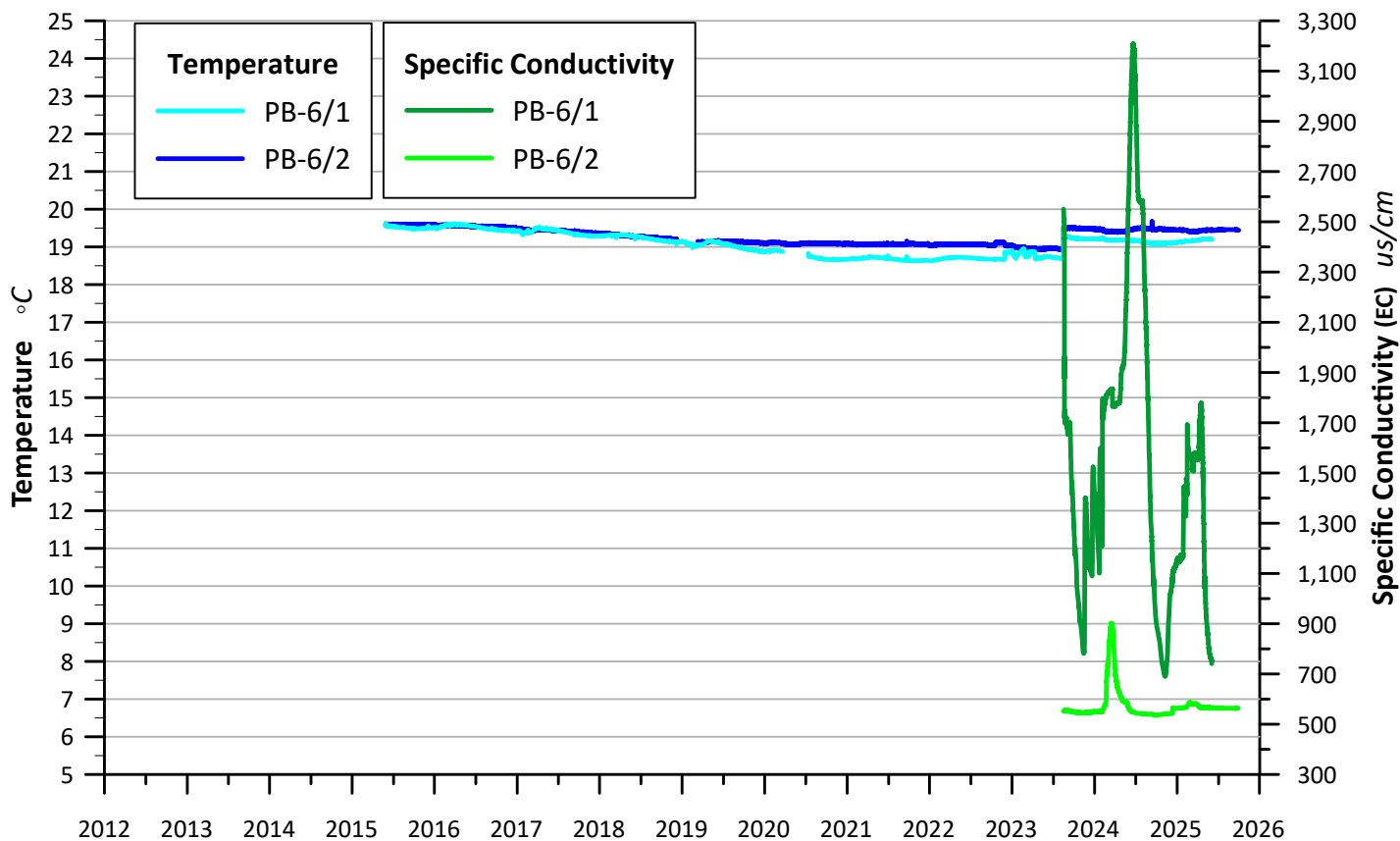
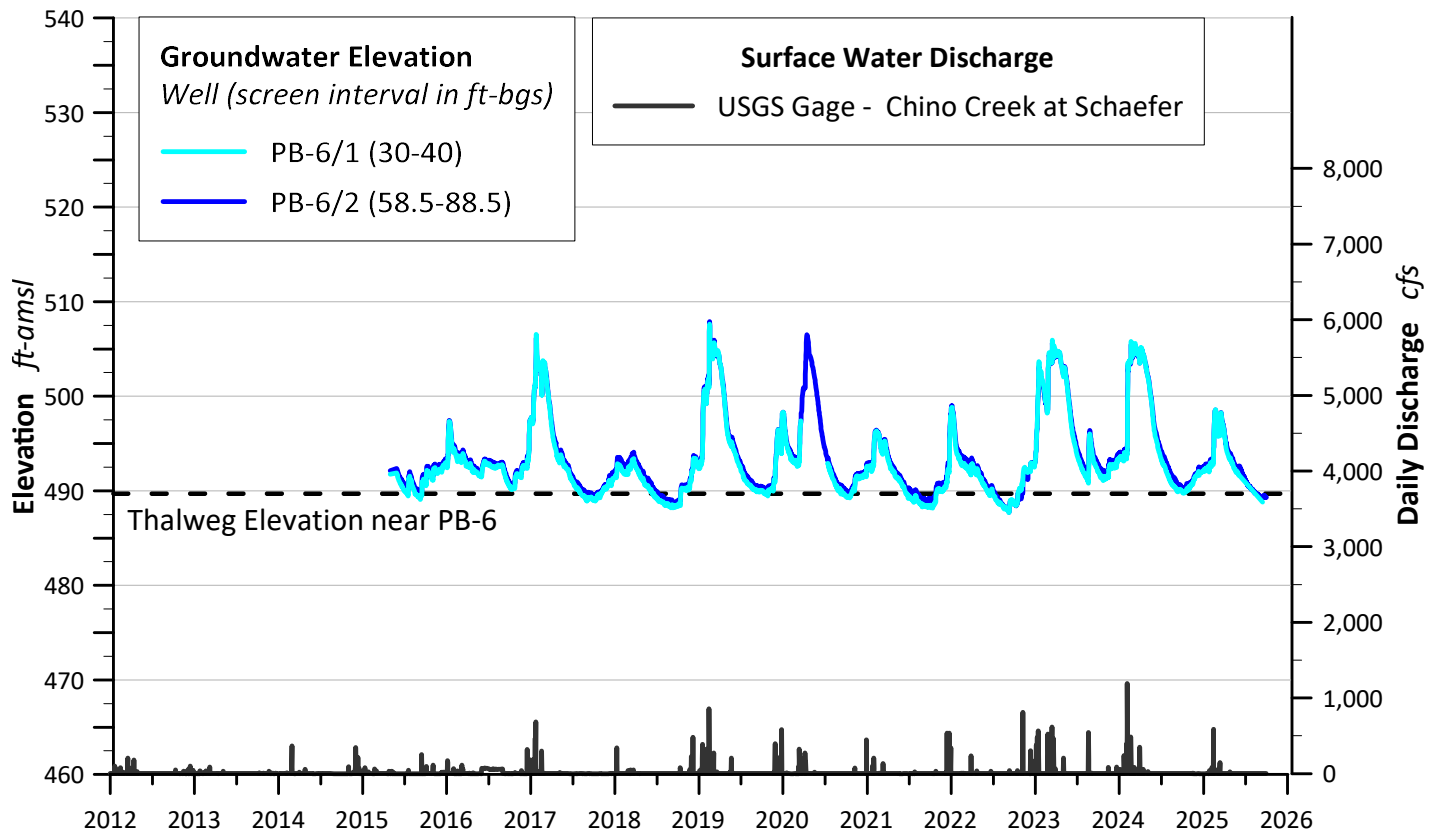
- The upper chart is a time series of the high-frequency groundwater elevations at the shallow and deeper PBHSP monitoring well at each location and the surface-water discharge in the adjacent stream to the monitoring wells. The groundwater-elevation time series are charted with the surveyed thalweg elevation of the adjacent creek or river. Thalweg elevations are compared to the groundwater elevations to determine the potential for groundwater discharge or streambed recharge along the specific stream reaches, and daily surface-water discharge data are charted and compared with groundwater elevations to characterize the relationship between surface-water discharge and groundwater levels.
- The lower chart is a time series of high-frequency temperature and EC at the shallow and deeper PBHSP monitoring wells at each location, with the surface-water field measurements of EC and temperature if available.

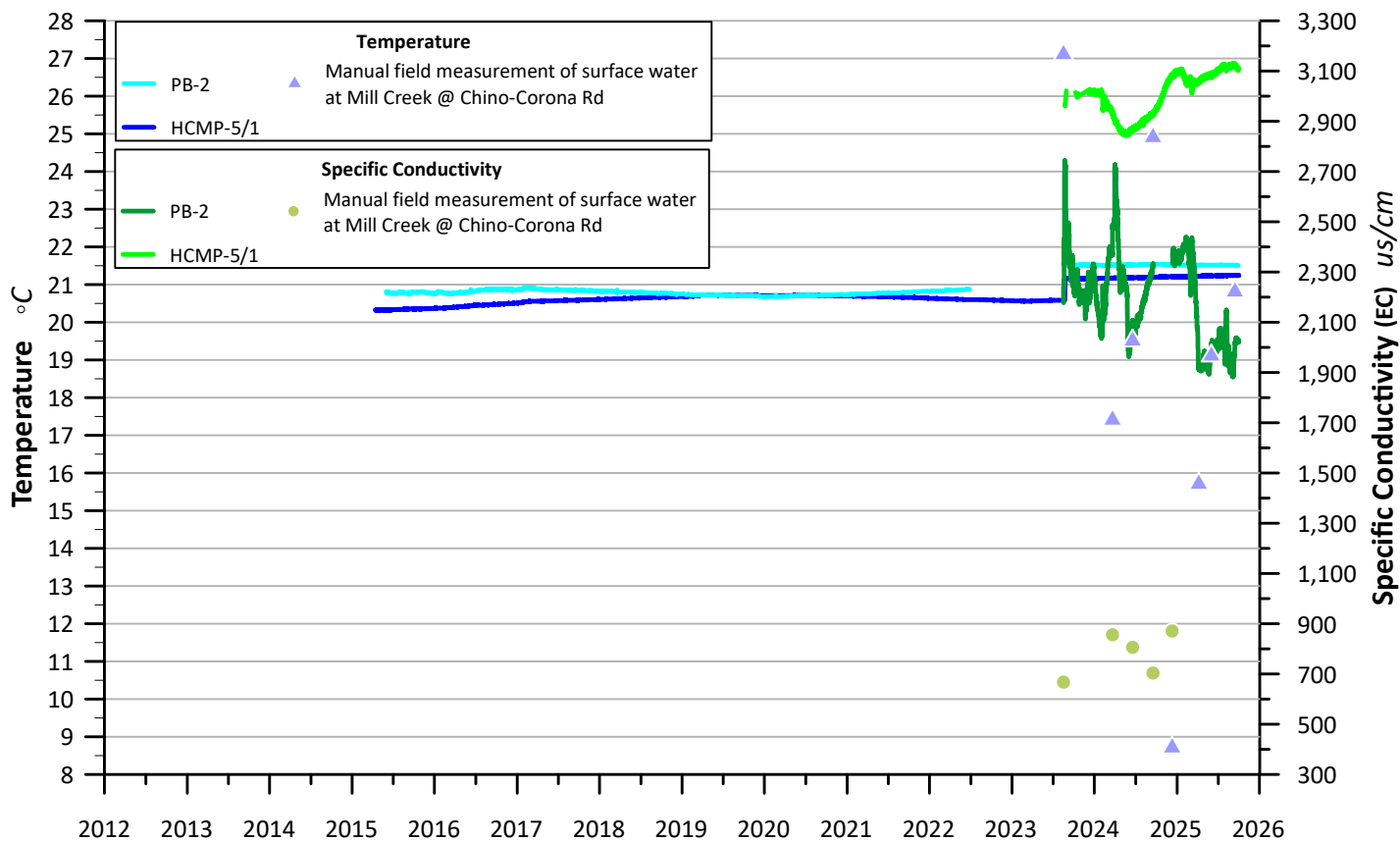
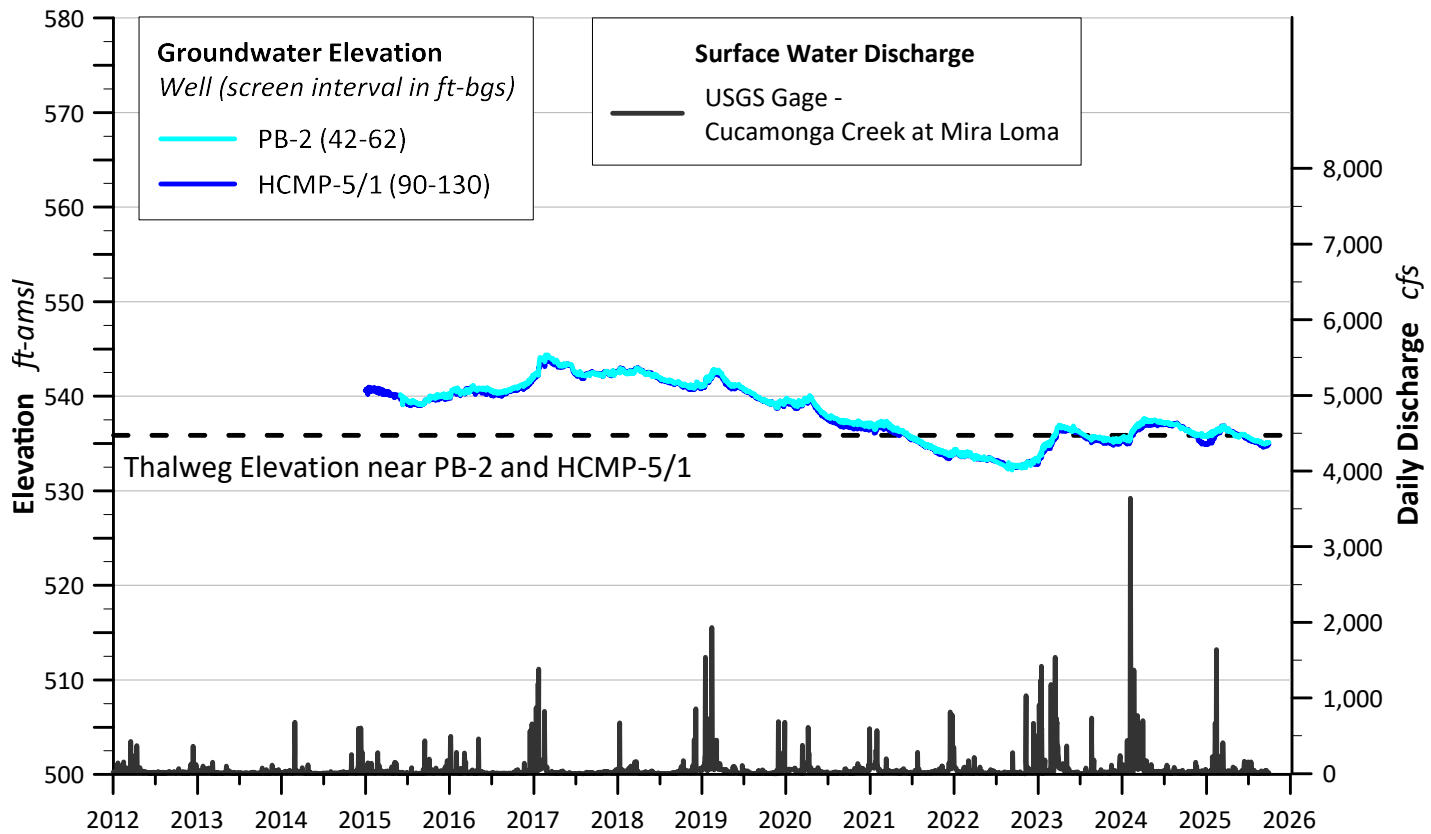
The high-frequency monitoring data and the surveyed thalweg elevations in Figures 3-14a through 3-14i was intended to better reveal the interpretation of groundwater/surface-water interactions previously studied for the PBHSP that used the general mineral chemistry data collected at the PBHSP wells. Table 3-5 summarizes the analysis of groundwater/surface-water interactions based on this data presented in Figures 3-14a through 3-14i. Table 3-5 also includes the interpretation from the original groundwater/surface-water interactions analysis presented in the Annual Reports for WY 2017 and WY 2018 (Section 3.3) that used multiple lines of evidence, including the general mineral chemistry data to analyze the groundwater/surface-water interactions at the PBHSP well locations (WEI, 2018; 2019). In general, the analysis of the high-frequency data concludes a similar analysis from the 2017 to 2018 Annual Reports that the SAR from PB-4 to PB-3 and Mill Creek near PB-2 are losing reaches, characterized by streambed recharge. And most other areas along Chino Creek and Mill Creek are overall gaining reaches, characterized by groundwater discharge, and some locations additionally influenced by surface water recharge.

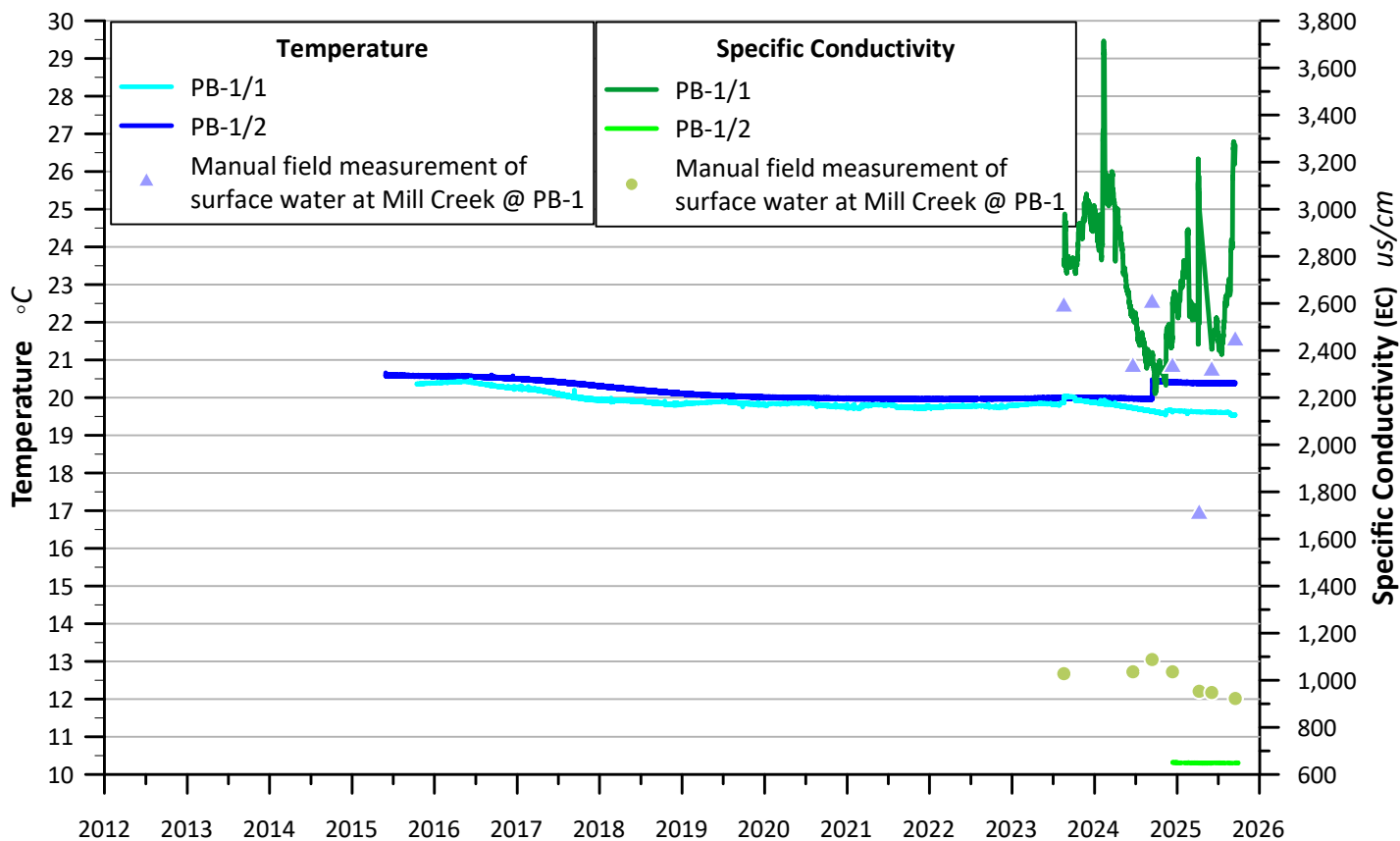
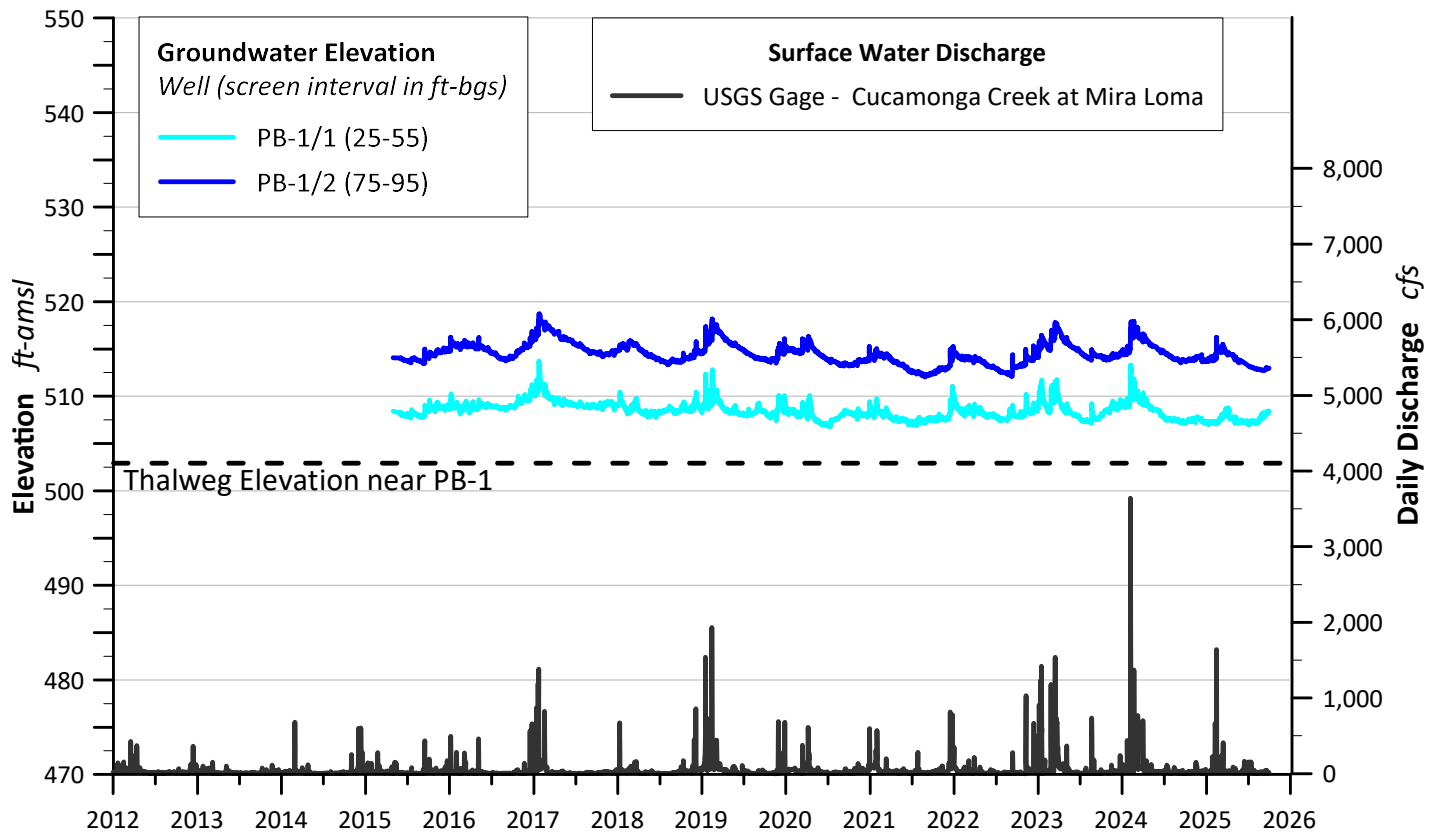


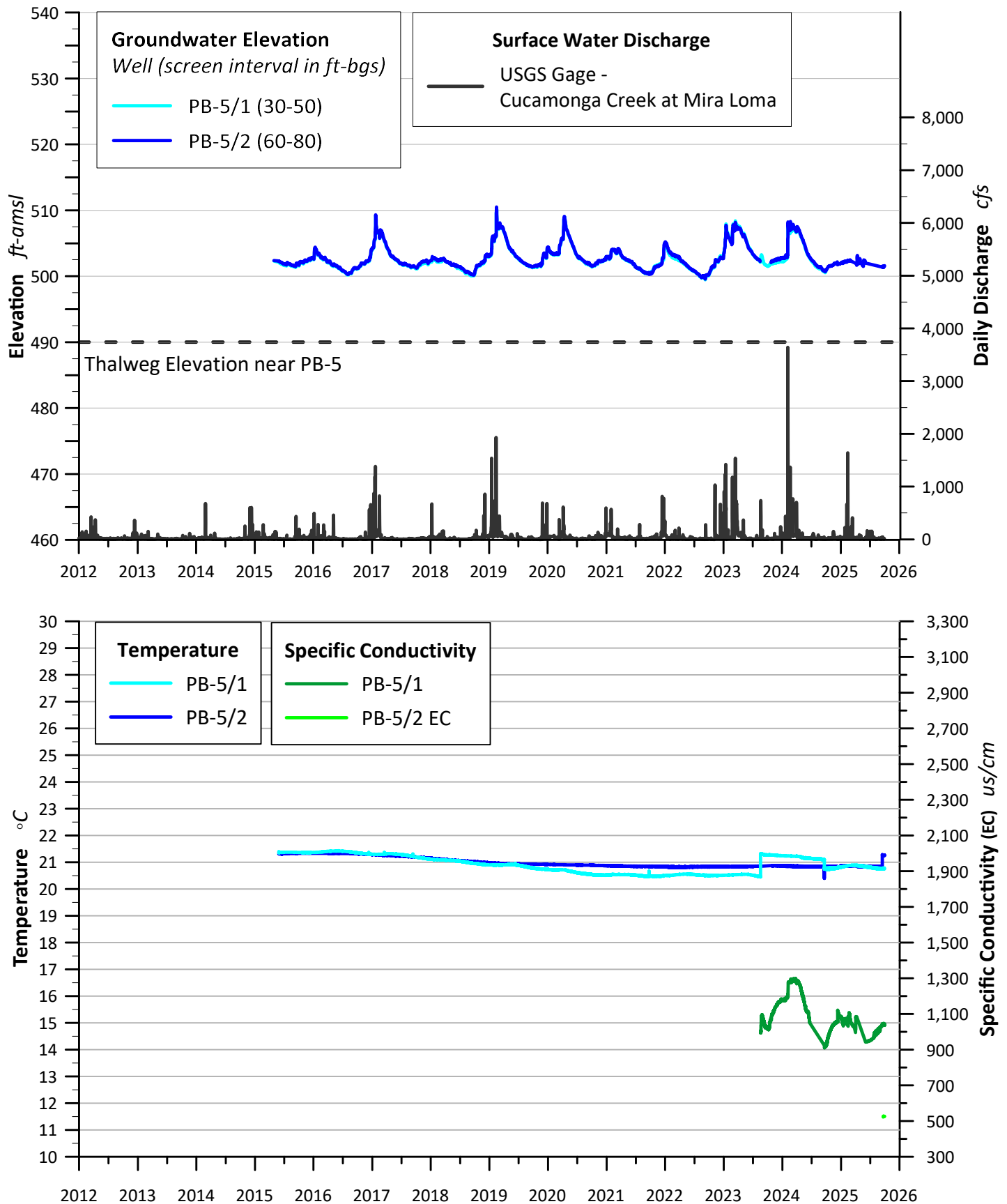


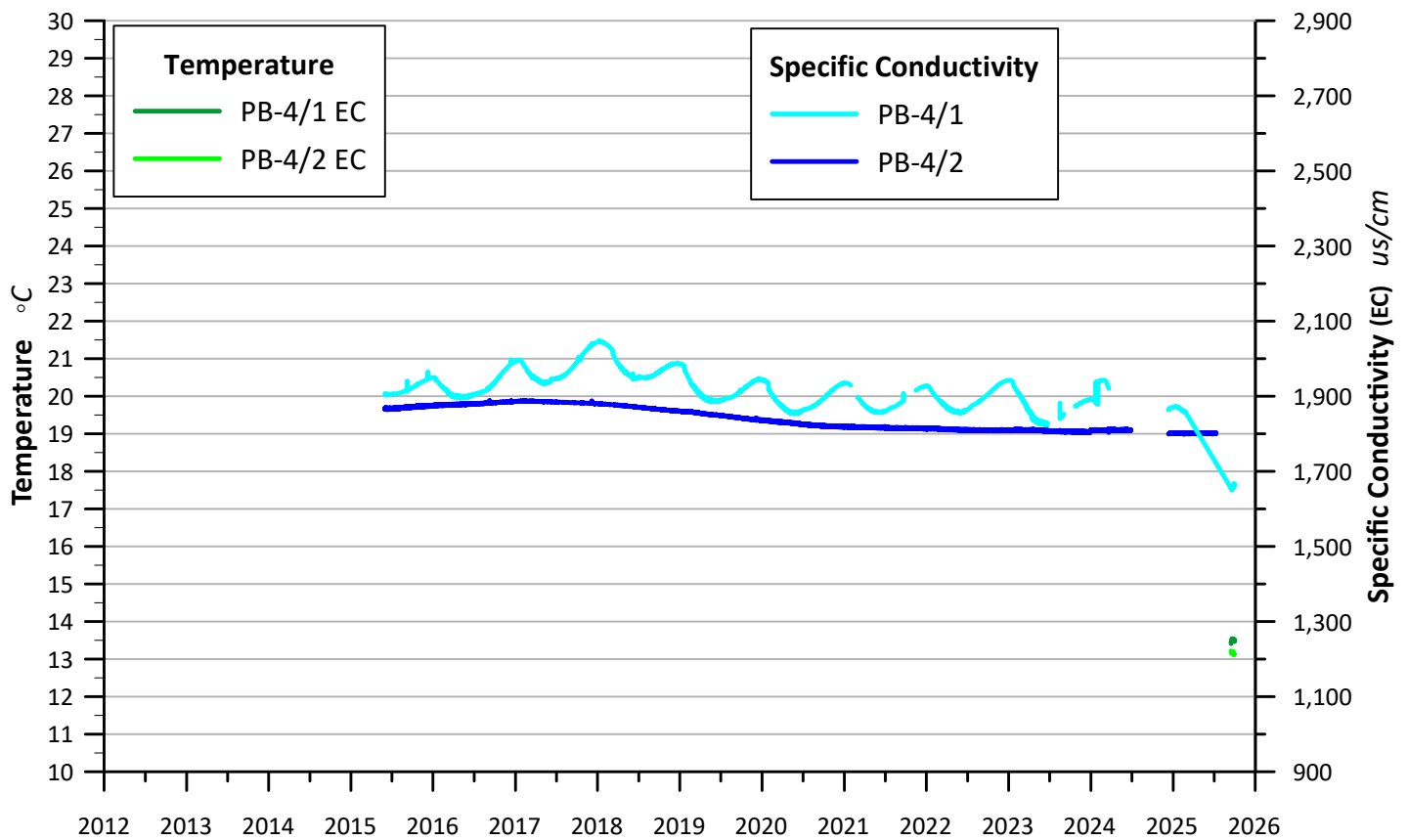
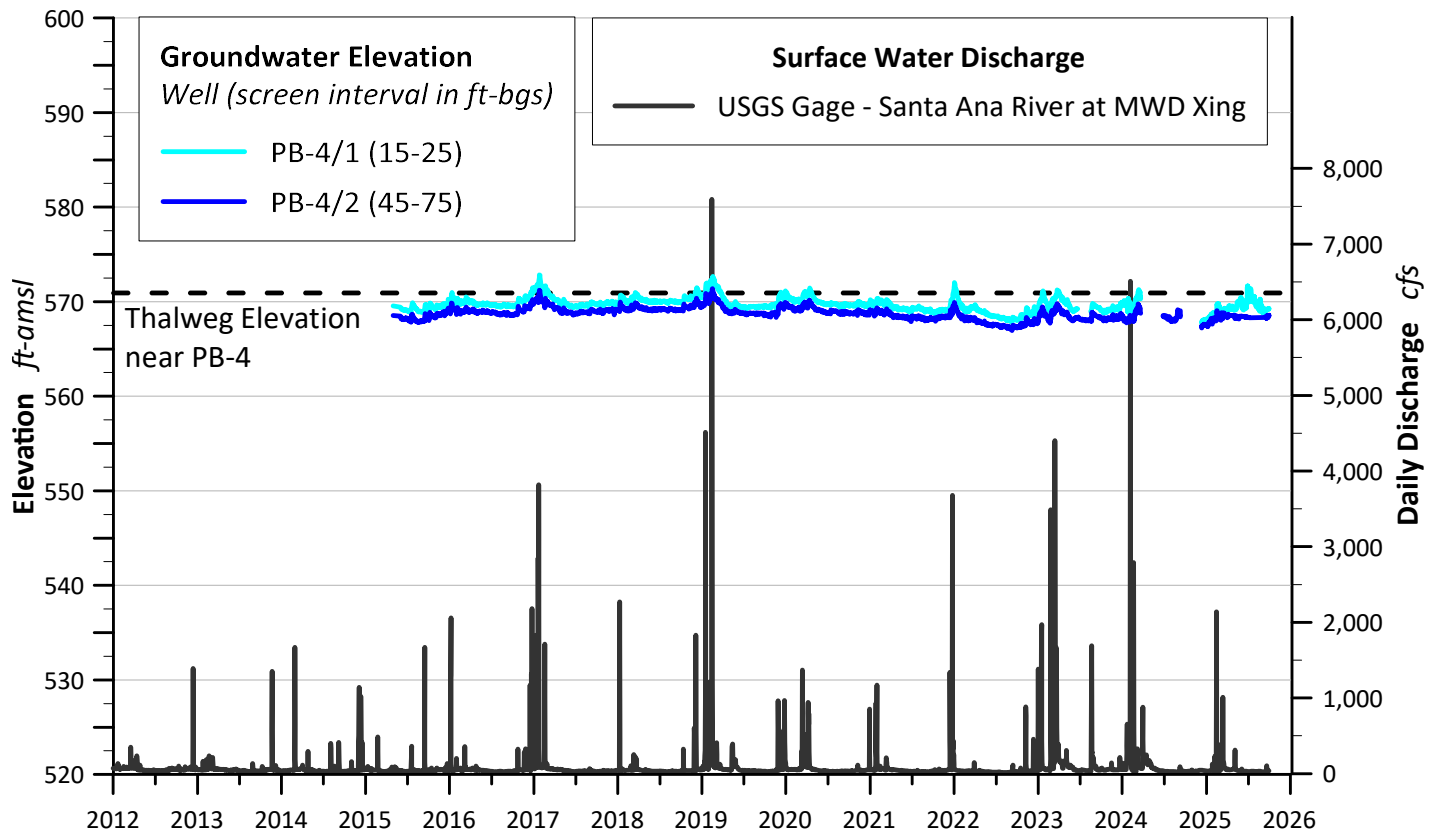












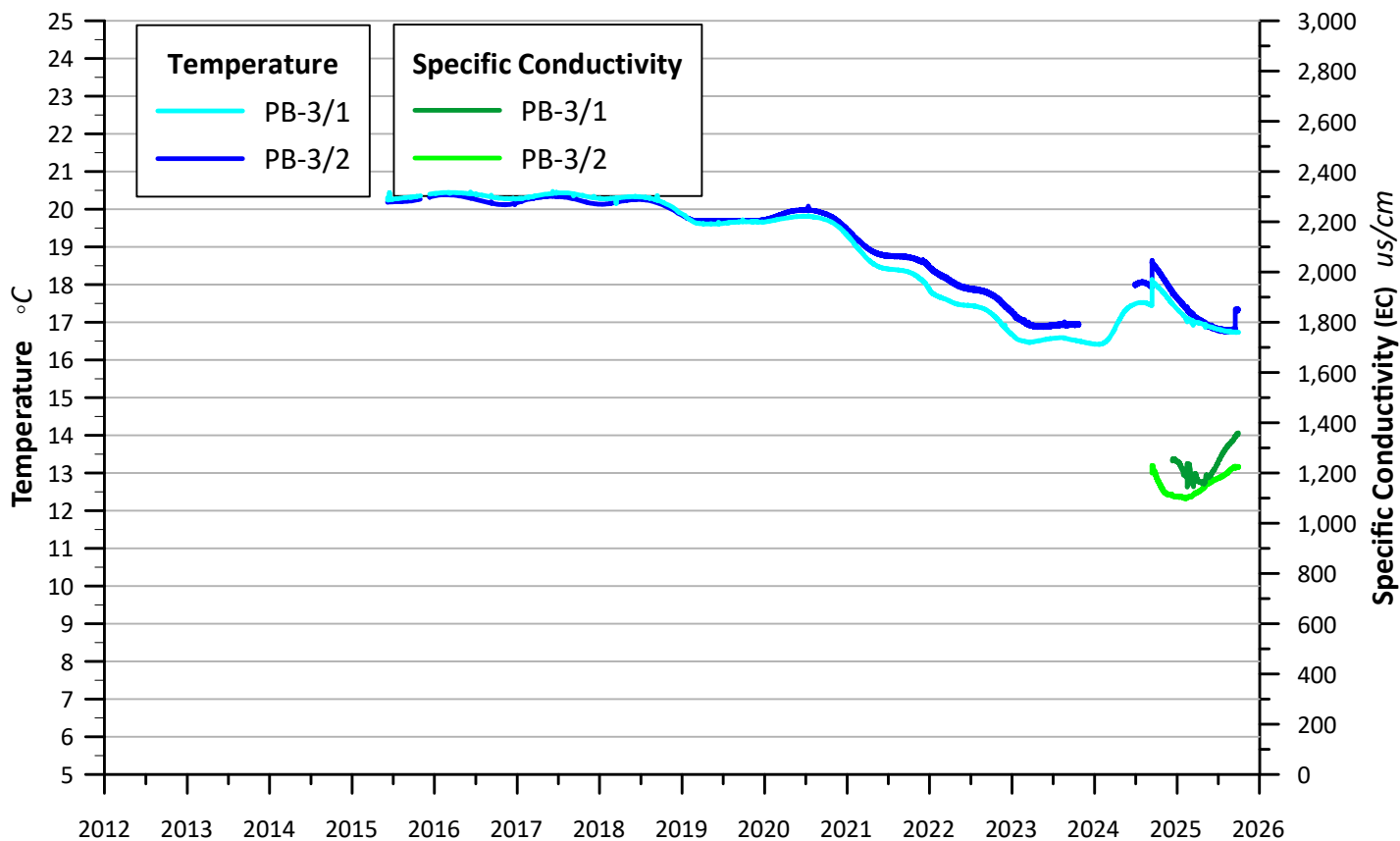
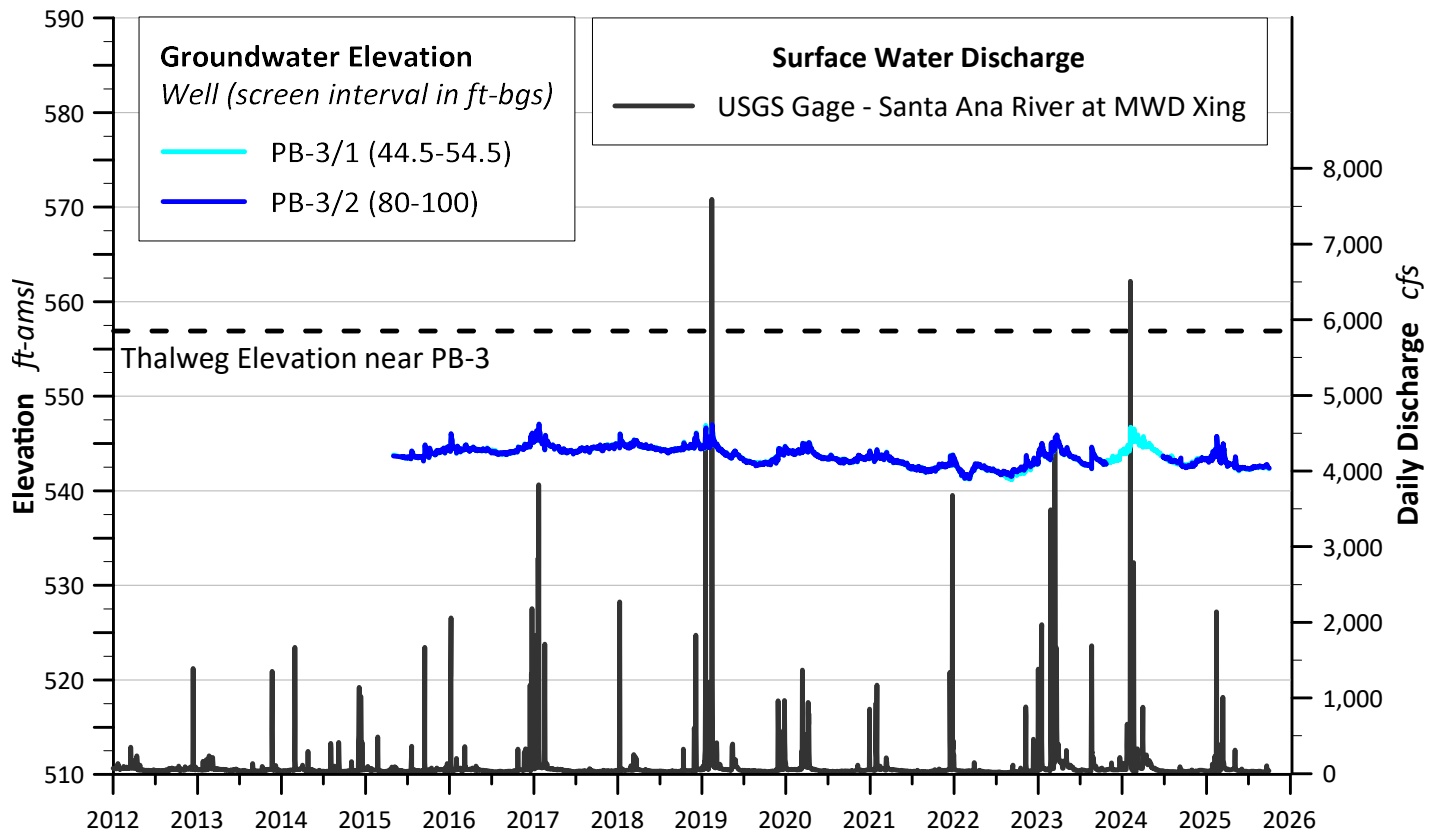


Table 3-5. Analysis of Groundwater/Surface-Water Interactions in the Prado Basin

Location Figure No.	Overall Interpretation	Interpretation from the 2017 and 2018 Annual Reports	Lines of Evidence in Figures 3-14a through 3-14i			
			Groundwater Levels vs. Thalweg Elevations	Groundwater Levels vs. Surface Water Discharge	High-Frequency Temperature Data	High-Frequency EC Data
PB-9 @ Chino Creek Figure 3-14a	Rising Groundwater (Gaining Reach)	Chino Creek at PB-9 appears to be an area of groundwater discharge with instances of streambed recharge when groundwater levels decline below the thalweg. The likely primary sources of shallow groundwater in this area are a perched aquifer, the shallow regional aquifer system, and local return flows from precipitation and applied water. There are indications that streambed recharge contributes to shallow groundwater, especially during stormwater discharge events and when groundwater levels rise up to ten feet.	From 2015–2021 groundwater elevations at the deeper screened well PB-9/2 are higher than then the groundwater elevation of the shallow screened well (PB-9/1), indicating an upward hydraulic gradient. This reverses after 2021 when what appears to be nearby pumping that impacts PB-9/2 appears to stop. The groundwater elevations at both wells always remain above thalweg elevation. Both of these conditions indicate that this is an area of rising groundwater.	Water levels in both monitoring wells increase during and immediately after periods of stormwater discharge in Chino Creek, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	Both monitoring wells show a long-term, slight gradual decline in temperature of about 1 degree c, but with slightly different patterns. The shallow well (PB-9/1) exhibits an overall decreasing trend with bi-annual variability, while the deeper well (PB-9/2) shows a slight decline through 2023 followed by an abrupt slight increase and relative stabilization since, aside from daily fluctuations. The abrupt increase coincides with the installation of a new transducer. These changes are minor and likely indicative of the regional groundwater as the primary source of water at this location.	EC data has only been collected in the shallow well (PB-9/1) since mid-2023. The EC data in the shallow well shows a stable trend, indicating that regional groundwater is the primary source of water at this location.
PB-8 @ Chino Creek Figure 3-14b	Rising Groundwater (Gaining Reach)	Chino Creek at PB-8 appears to be an area of groundwater discharge. The likely primary sources of the shallow groundwater in this area are the shallow regional aquifer system and local return flows from precipitation and applied water. There are some indications that streambed recharge contributes to the shallow groundwater, especially during stormwater discharge events.	Groundwater elevations at the deeper screened well PB-8 are higher than the groundwater elevation of the shallow screened well (RP2-MW3), indicating an upward hydraulic gradient, and the groundwater elevations at both wells always remain above thalweg elevation—both of these conditions indicate that this is an area of rising groundwater.	Water levels in both monitoring wells increase during and immediately after periods of stormwater discharge in Chino Creek, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	The shallow monitoring well (RP2-MW3) exhibits temperature data with gradual declining trend then upward trend, with irregular fluctuations. This may indicate that the groundwater is likely being recharged by some surface water in addition to shallow groundwater. The deeper well (PB-8) exhibits a relatively constant time series of temperature data, indicating that regional groundwater is the primary source of water at this location.	EC data at the shallow monitoring well (RP2-MW3) and deeper well (PB-8) exhibit similar trends as the temperature data, also indicating that the shallow well is likely being recharged by some surface water in addition to shallow groundwater; and the deeper well is primarily regional groundwater influenced.
PB-7 @ Chino Creek Figure 3-14c	Rising Groundwater (Gaining Reach)	Chino Creek at PB-7 appears to be an area of groundwater discharge. The likely primary source of the shallow groundwater in this area is the shallow regional aquifer system. However, the groundwater/surface-water interactions in this area appear to be complex with multiple and transient sources of water that are tributary to the PB-7 wells.	Groundwater elevations at the deeper screened well (PB-7/2) are slightly higher than the groundwater elevation of the shallow screened well (PB-7/1), indicating an upward hydraulic gradient, and the groundwater elevations at both wells always remain above thalweg elevation—both of which indicate that this is an area of rising groundwater.	Water levels in both monitoring wells increase during and immediately after periods of stormwater discharge in Chino Creek and the formation of a reservoir behind Prado Dam, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	The temperature data for the shallow well (PB-7/1) shows a seasonal sinusoidal pattern between 18 and 22 degrees C, which indicates that the shallow well is under the influence of surface water recharge. The temperature at the deeper well (PB-7/2) remains relatively constant, which indicates that it is not under the influence of surface water recharge.	The EC at the shallow well (PB-7/1) and deeper well (PB-7/2) exhibit similar trends as the temperature data, also indicating that the shallow well is under the influence of surface water recharge, and the deeper well is not.
PB-6 @ Chino Creek Figure 3-14d	Rising Groundwater (Gaining Reach)	Chino Creek at PB-6 appears to be an area of both groundwater discharge and streambed recharge. The likely sources of the shallow groundwater in this area are the shallow regional aquifer system and streambed recharge. However, the groundwater/surface-water interactions in this area appear to be complex with multiple and transient sources of water that are tributary to the PB-6 wells.	Groundwater elevations at the both PB-6 wells are similar. The groundwater elevations are typically above the thalweg elevation, indicating this is an area of rising groundwater. However, in some years there are brief periods in late summer to early fall when levels fall below the thalweg. This indicates that there are short periods where the surface water is likely recharging the shallow groundwater.	Water levels in both monitoring wells increase during and immediately after periods of stormwater discharge in Chino Creek and the formation of a reservoir behind Prado Dam, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	Both monitoring wells exhibit a relatively constant time series of temperature data with a slow declining trend of about 1 degree c through 2023, followed by an abrupt slight increase and stabilization since. The abrupt increase coincides with the installation of a new transducer. This indicates that likely the groundwater is the primary source of water at this location.	Since monitoring for EC began in 2023, the EC data at both wells show a different pattern than temperature. EC in the shallow well (PB-6/1) greatly fluctuates by up to 2,500 µs/cm whereas in the deeper well (PB-6/2) EC shows a brief rise of about 400 µs/cm in 2024 followed by stable conditions. These patterns suggest that the shallow well is affected by water sources distinct from those influencing the deeper well. At this time, it cannot be determined whether surface-water recharge is among those sources, and further analysis is required.
PB-2 @ Mill Creek Figure 3-14e	Streambed Infiltration (Losing Reach)	Mill Creek to the south of PB-2 appears to be an area of streambed recharge. However, the primary source of the shallow groundwater near PB-2 appears to be return flows from precipitation and applied water.	Groundwater elevations at the shallow screened well (PB-2) and deeper screened well (HCMP-5/1) are the same. From 2015 to 2021 the groundwater elevations at the wells are above the thalweg elevation, indicating this is an area of rising groundwater. After 2021, groundwater levels declined and fluctuated around the thalweg, indicating a transitional reach where conditions shifted between surface water recharge and rising groundwater.	Water levels in both monitoring wells increase during and immediately after periods of stormwater discharge in Mill Creek, suggesting that stormwater discharge in Mill Creek is a source of recharge to shallow groundwater.	Both monitoring wells exhibit a relatively constant time series of temperature data followed with an abrupt slight increase in 2023 and stabilization since. The abrupt increase coincides with the installation of a new transducer. This indicates that likely the groundwater is the primary source of water at this location.	Since monitoring for EC began in 2023, the EC data at both wells show a different pattern than temperature. In the shallow well (PB-2), EC fluctuates by roughly 800 µs/cm and is higher than EC in the deeper well (HCMP-5/1), where EC also varies but does so more steadily, with a total range of about 200 µs/cm. These patterns suggest that the shallow well is affected by water sources distinct from those influencing the deeper well. At this time, it cannot be determined whether surface-water recharge is among those sources, and further analysis is required.
PB-1 @ Mill Creek Figure 3-14f	Rising Groundwater (Gaining Reach)	Mill Creek at PB-1 appears to be an area of groundwater discharge. The primary source of the shallow groundwater at PB-1 appears to be a complex mixture of the shallow regional aquifer system that is fed, in part, by streambed recharge in upstream areas of Mill Creek. The groundwater/surface-water interactions in this area appear to be complex with multiple sources of water that are tributary to the PB-1 wells.	Groundwater elevations at the deeper screened well (PB-1/2) are higher than the groundwater elevation of the shallow screened well (PB-1/1), indicating an upward hydraulic gradient, and the groundwater elevations at both wells always remain above thalweg elevation—both of which indicate that this is an area of rising groundwater.	Water levels in both monitoring wells increase during and immediately after periods of stormwater discharge in Mill Creek, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	Both monitoring wells exhibit a relatively constant time series of temperature data with a slow declining trend. This indicates that likely the groundwater is the primary source of water at this location. The same slight abrupt increase in 2023 as seen in other wells, coincides with the installation of a new transducer.	Since monitoring for EC began in 2023 at the shallow well (PB-1/1), the EC data show a different pattern than temperature. EC fluctuates by roughly 1,200 µs/cm and is much higher than EC in the deeper well (PB-1/2). EC data recently began to be collected in the deeper well in December 2025 and thus far shows a stable flat trend. These patterns suggest that the shallow well is affected by water sources distinct from those influencing the deeper well. At this time, it cannot be determined whether surface-water recharge is among those sources, and further analysis is required.
PB-5 @ Mill Creek Figure 3-14g	Rising Groundwater (Gaining Reach)	Mill Creek at PB-5 appears to be an area of groundwater discharge. The likely source of shallow groundwater at PB-5 is a complex mixture of: (i) streambed recharge of effluent discharge in upstream areas of Mill Creek, the SAR, and the diversion channel that conveys WRCRWA effluent to the OCWD Wetlands, and (ii) rising groundwater discharge.	Groundwater elevations at the shallow screened well (PB-5/1) and deeper screened well (PB-5/2) are the same. The groundwater elevations at the wells are typically above the thalweg elevation, indicating this is an area of rising groundwater.	Water levels in both monitoring wells increase during and immediately after periods of stormwater discharge in Mill Creek, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	Both monitoring wells exhibit a relatively constant time series of temperature data with a slow declining trend. This indicates that likely the groundwater is the primary source of water at this location. The same slight abrupt increase in 2023 occurs in PB-5/1 as that seen in other wells, and coincides with the installation of a new transducer.	Since monitoring for EC began in 2023 at the shallow well (PB-5/1), the EC data show a different pattern than temperature. EC fluctuates by roughly 400 µs/cm, and is higher than EC in the deeper well (PB-1/2). EC data recently began to be collected in the deeper well in December 2025 and will be evaluated at another time. The EC data will be evaluated at another time.
PB-4 @ SAR Figure 3-14h	Streambed Infiltration (Losing Reach)	The SAR at PB-4 is primarily an area of streambed recharge. The primary source of shallow groundwater at PB-4 is streambed recharge of the SAR, and at times, there appears to be some influence of the shallow regional aquifer system and/or local return flows of precipitation and applied water.	Groundwater elevations at the deeper screened well (PB-4/2) are slightly lower than the groundwater elevation of the shallow screened well (PB-4/1). Groundwater elevations at both PB-4 wells are mostly below the thalweg elevation, which indicates that this is an area of streambed recharge.	Water levels in both monitoring wells increase slightly during and immediately after periods of stormwater discharge in the SAR, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	The temperature data for the shallow well (PB-4/1) shows a seasonal sinusoidal pattern between 19 and 22 degrees C, which indicates that the shallow well is under the influence of surface water recharge. The temperature at the deeper well (PB-4/2) remains relatively constant with a slow declining trend of about 1 degree C, which indicates that it is not under the influence of surface water recharge, and groundwater is likely being recharged by the regional groundwater.	EC monitoring at the shallow (PB-4/1) and deep (PB-4/2) wells commenced in September 2025. The EC data will be evaluated at another time.
PB-3 @ SAR Figure 3-14i	Streambed Infiltration (Losing Reach)	The SAR at PB-3 is an area of streambed recharge. The primary source of shallow groundwater at PB-3 is SAR streambed recharge.	Groundwater elevations at the both PB-3 wells are always below the thalweg elevation, indicating that this is an area of streambed recharge.	Water levels in both monitoring wells increase slightly during and immediately after periods of stormwater discharge in the SAR, suggesting that stormwater discharge is a source of recharge to shallow groundwater.	The temperature data for both wells shows a seasonal sinusoidal pattern with a long term declining trend between 2021 to 2024, which indicates that the shallow well is under the influence of surface water recharge and some other changing condition after 2021.	Since EC monitoring began in mid-2024, both wells show similar EC patterns characterized by an initial decrease followed by an increase. This pattern may indicate that both wells are influenced by surface-water recharge.

3.4 Climate and Its Relationship to the Riparian Habitat

Precipitation and temperature are climatic factors that can affect the extent and quality of riparian habitat. Precipitation can provide a source of water for consumptive use by the riparian vegetation via the direct infiltration of precipitation and runoff, which increases soil moisture that can be directly used by the vegetation, or by maintaining groundwater levels underlying the vegetation for its subsequent use. Temperatures affect the rate of plant growth and productivity. Both factors are unrelated to the implementation of the Peace II Agreement. This section characterizes the time series of precipitation and temperature in the Prado Basin area and compares them to time series trends in the quality of the riparian habitat, as indicated by NDVI, to help determine if these factors have influenced the riparian habitat in the Prado Basin.

3.4.1 Precipitation

Figure 3-15 is a time-series chart that shows annual precipitation estimates within the Chino Basin for WY 1896 to 2025. These estimates were computed as a spatial average across the Chino Basin using rasterized data from the PRISM Climatic Group (an 800-meter by 800-meter grid). The long-term average annual precipitation in the Chino Basin is 16.3 inches per year (in/yr). The chart includes a cumulative departure from mean (CDFM) precipitation curve, which characterizes the occurrence and magnitude of wet and dry periods: positive sloping segments (trending upward to the right) indicate wet periods, and negative sloping segments (trending downward to the right) indicate dry periods.

Review of the CDFM precipitation curve indicates that the Chino Basin experienced several prolonged wet and dry periods from WY 1896 to 2025. Typically, the dry periods are longer in duration than the wet periods. The longest dry period occurred between 1946 through 1977 (32 years). The current dry period is a 27-year period, starting in WY 1999, and includes the Peace/Peace II Agreement period (2001 through 2025). Over the 130-year record, about 41 percent of the years had precipitation greater than the average, and 59 percent had below-average precipitation. In the 25-year period since the Peace Agreement was implemented, about 32 percent of the years had precipitation greater than the average, and 68 percent had below-average precipitation. Precipitation in WY 2025 was 7.91 inches, which is:

- 8.35 inches below the long-term average
- About 42 percent less than the previous WY 2024 (19.01 inches)
- The 10th driest year over the 130-year record

3.4.2 Temperature

Maximum and minimum temperatures during the growing season are the temperature metrics used in this analysis because plant growth and development are dependent upon the temperatures surrounding the plant (Hatfield and Prueger, 2015). Maximum temperatures during the growing season directly influence photosynthesis, evapotranspiration, and breaking of the dormancy of vegetation (Pettorelli, 2015). Minimum temperatures affect nighttime plant respiration rates and can potentially have an effect on plant growth that occurs during the day (Hatfield et al., 2011). Hence, both temperature metrics can influence NDVI. All species of plants have a range of maximum and minimum temperatures necessary for growth (Hatfield and Prueger, 2015). Climate change is more likely to increase minimum temperatures while maximum temperatures are affected more by local conditions (Knowles et al., 2006; Alfaro et al., 2006).

Figure 3-16 is a time-series chart that shows the average maximum and minimum Prado Basin temperatures for the growing-season months of March through October from 1896 to 2025 (growing-season maximum and minimum temperatures). These temperature estimates were computed as a spatial average across the

Prado Basin using rasterized data from the PRISM Climatic Group (an 800-meter by 800-meter grid) of monthly maximum and minimum temperature estimates through 2024 and from data extrapolated through October 2025 using daily minimum and maximum temperature data from the U.C. Riverside CIMIS station²⁴. This chart also shows the five-year moving average of the growing-season maximum and minimum temperatures for the Prado Basin. The five-year moving average is a smoothing technique used to reveal trends over time.

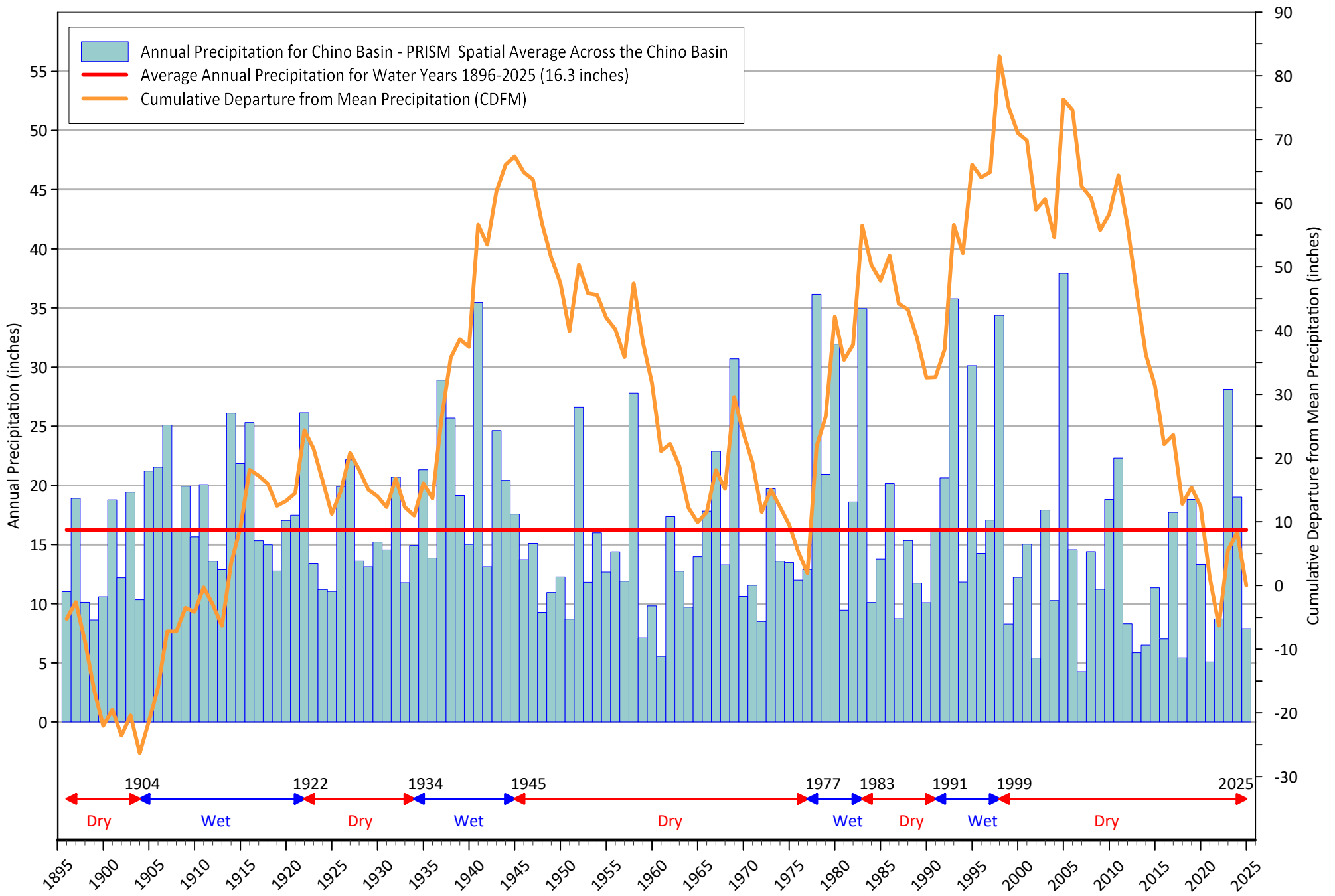
This chart also shows a complete record of atmospheric carbon dioxide (CO₂) concentrations assembled from multiple sources:

- Values prior to 1959 were estimated from an analysis of the Law Dome DE08 and DE08-2 ice cores in Antarctica. (Acquired from the Carbon Dioxide Information Analysis Center, <http://cdiac.ornl.gov/trends/co2/lawdome.html>. Accessed on June 6, 2017).
- Values after 1959 are from measured CO₂ concentration data at the Mauna Loa Observatory in Hawaii. (Acquired from the National Oceanic and Atmospheric Association's Earth Systems Research Laboratory, <https://www.esrl.noaa.gov/gmd/ccgg/trends/full.html>. Accessed on January 9, 2026).

The time history of atmospheric CO₂ concentrations shows a slight increasing trend from about 290 parts per million (ppm) in the late 1890s to about 310 ppm in 1950. After 1950, the CO₂ concentration shows an amplified consistent increasing trend and exceeds 400 ppm by 2015.

From 1896 to 2025, the growing-season maximum temperature fluctuates between 80 degrees Fahrenheit (°F) to 87°F and has a slight increasing trend. From 1896 to 2025, the growing-season minimum temperature fluctuates between 49°F to 59°F and has a prominent increasing trend starting in 1950 of about 5°F through 2025. This increasing trend in the growing-season minimum temperature beginning in 1950 appears to correlate with the increase in atmospheric CO₂ concentrations. The five-year moving averages of both the growing-season minimum and maximum temperatures display a decreasing trend over the last seven-year period since 2018 when it had the highest values over the entire period of record. In 2025, the growing-season minimum and maximum temperatures increased from the previous year and the five-year moving averages all decreased. The Average Growing-Season minimum temperature was 56°F and the Average Growing-Season maximum temperature was 84°F.

²⁴ California Department of Water Resources (DWR). (2025). *California Irrigation Management Information System (CIMIS) minimum and maximum temperature data* [Station 044, U.C. Riverside; 1985-2025]. <https://cimis.water.ca.gov/>



Prepared by:



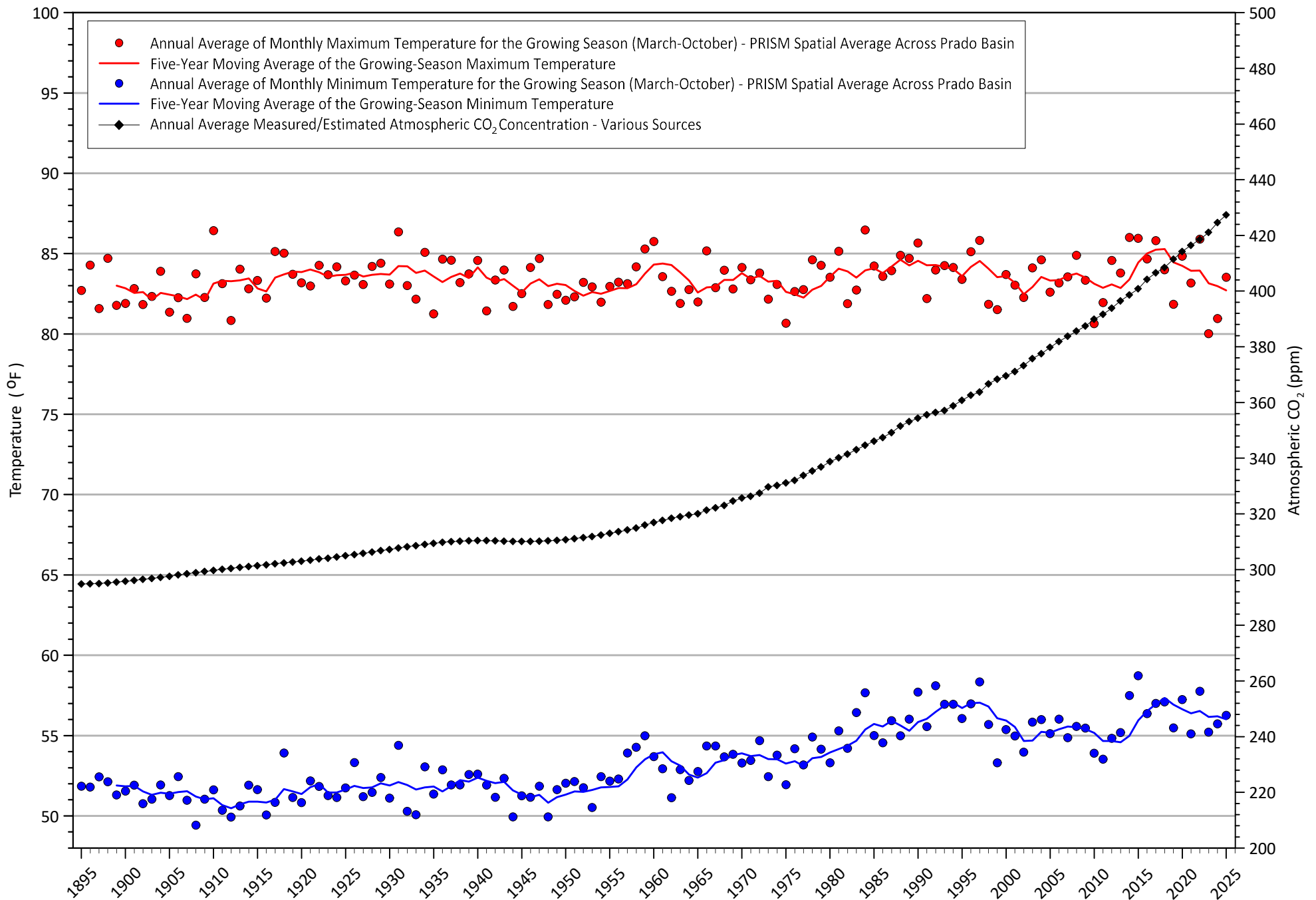
Prepared for:

Prado Basin Habitat Sustainability Committee
2025 Annual Report
Page 125



Annual Precipitation in the Chino Basin
Water Year 1886 - 2025

Figure 3-15



Prepared by:



Prepared for:

Prado Basin Habitat Sustainability Committee
2025 Annual Report
Page 126



Maximum and Minimum Temperature in
Prado Basin
1895-2025

Figure 3-16

3.4.3 Climate Compared to NDVI

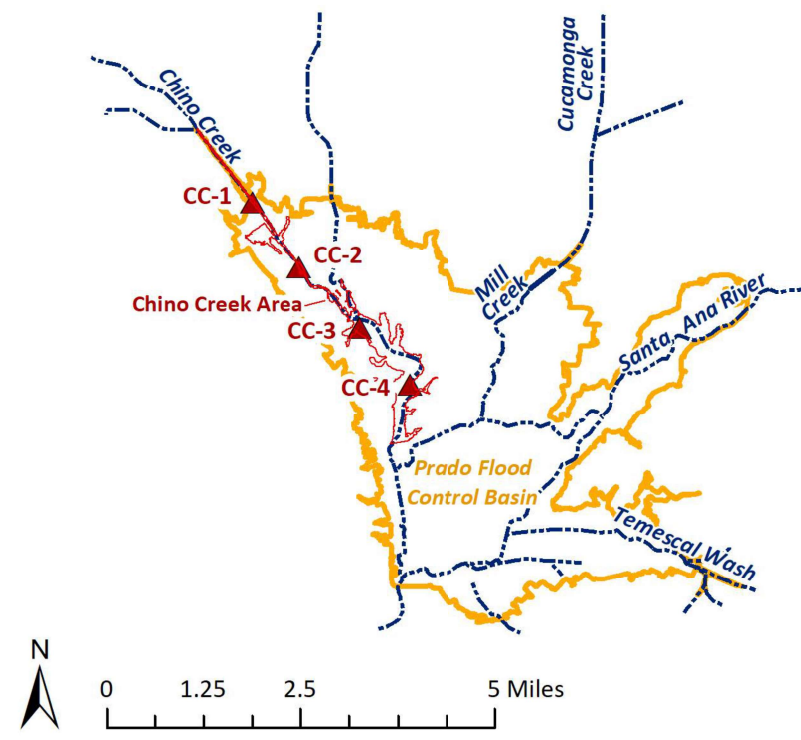
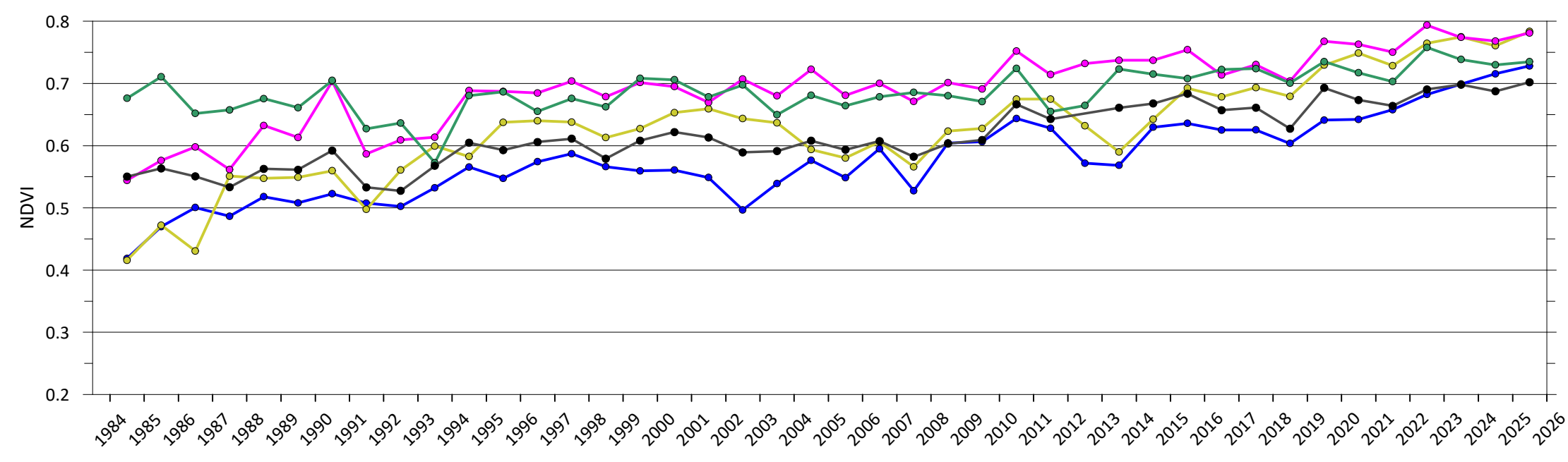
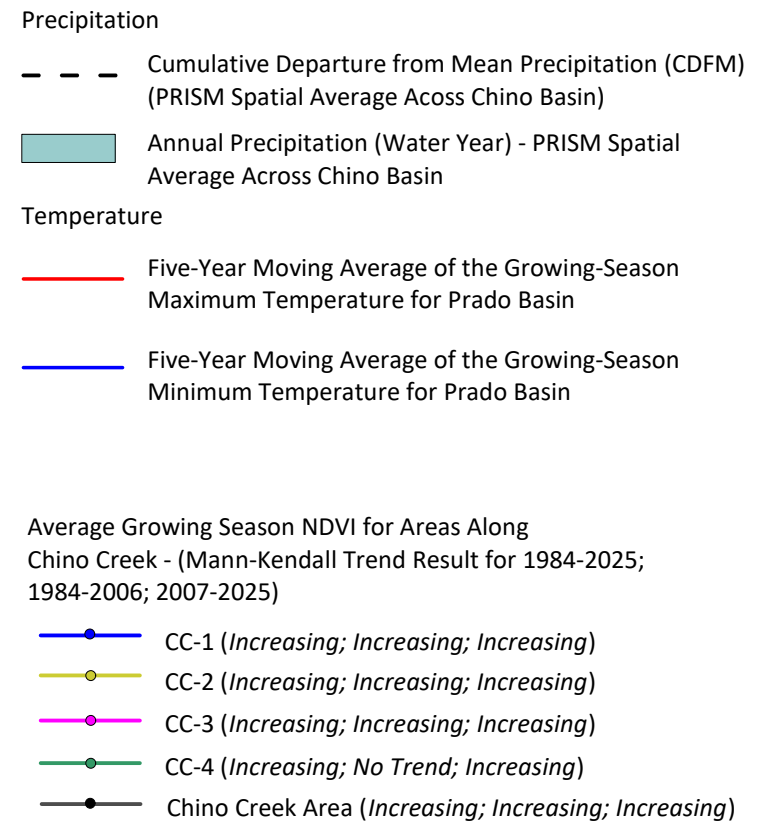
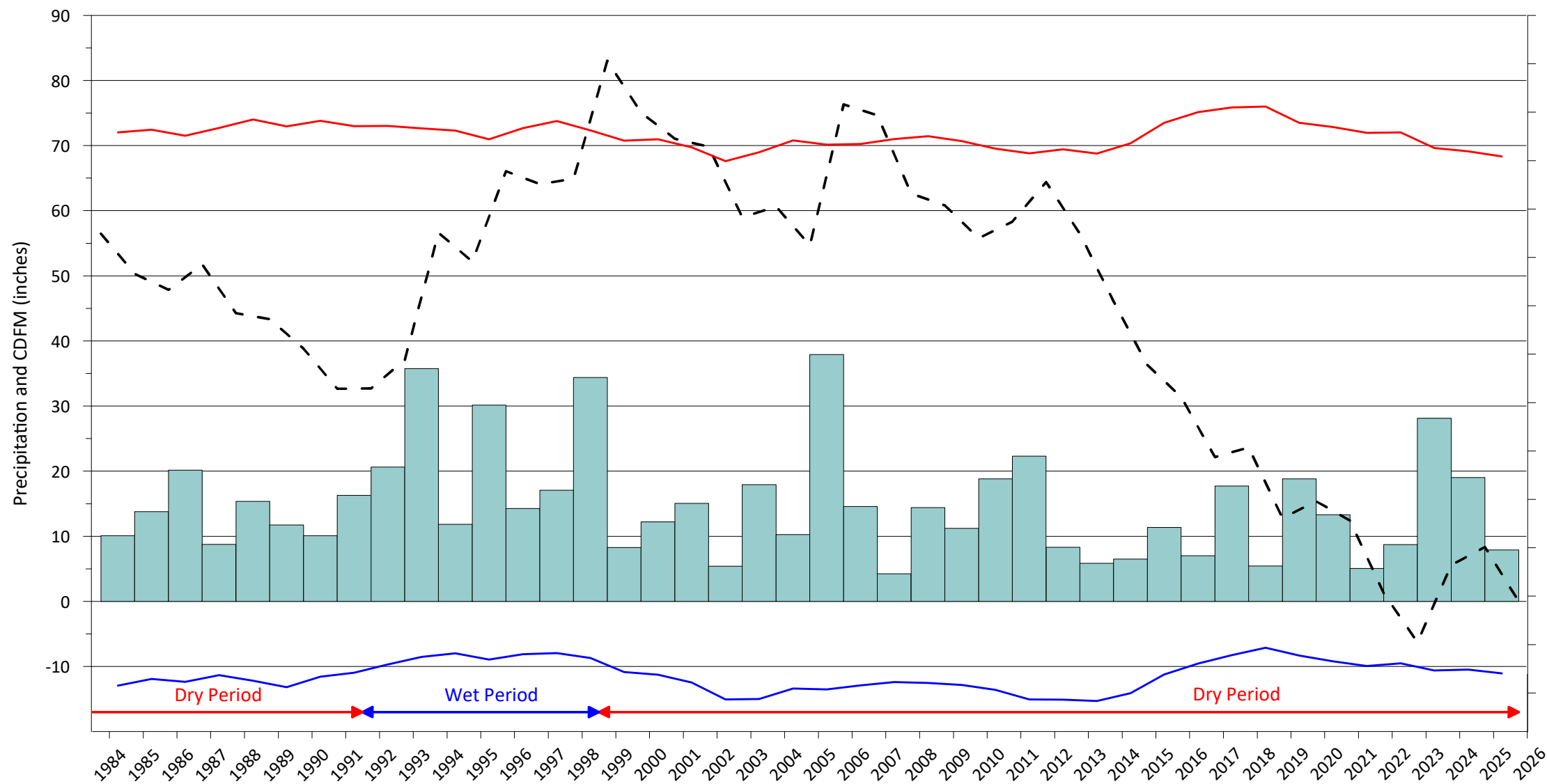
Figures 3-17a through 3-17c are time-series charts that compare long-term trends in precipitation and temperature to trends in the quality of the riparian vegetation, as indicated by NDVI, for three reaches in the Prado Basin: Chino Creek, Mill Creek, and SAR. The period of analysis is 1984-2025—the period of NDVI availability. The upper chart on the figures displays the time series of annual precipitation in Chino Basin, the CDFM precipitation curve, and the five-year moving average for the growing-season maximum and minimum temperatures in the Prado Basin. The lower chart displays the time series of the Average Growing-Season NDVI for the defined areas discussed in Section 3.1 along Chino Creek, Mill Creek, and SAR. For reference, the Mann-Kendall test results for trends in the Average Growing-Season NDVI for 1984-2025, 1984-2006, and 2007-2025 are shown in the legend.

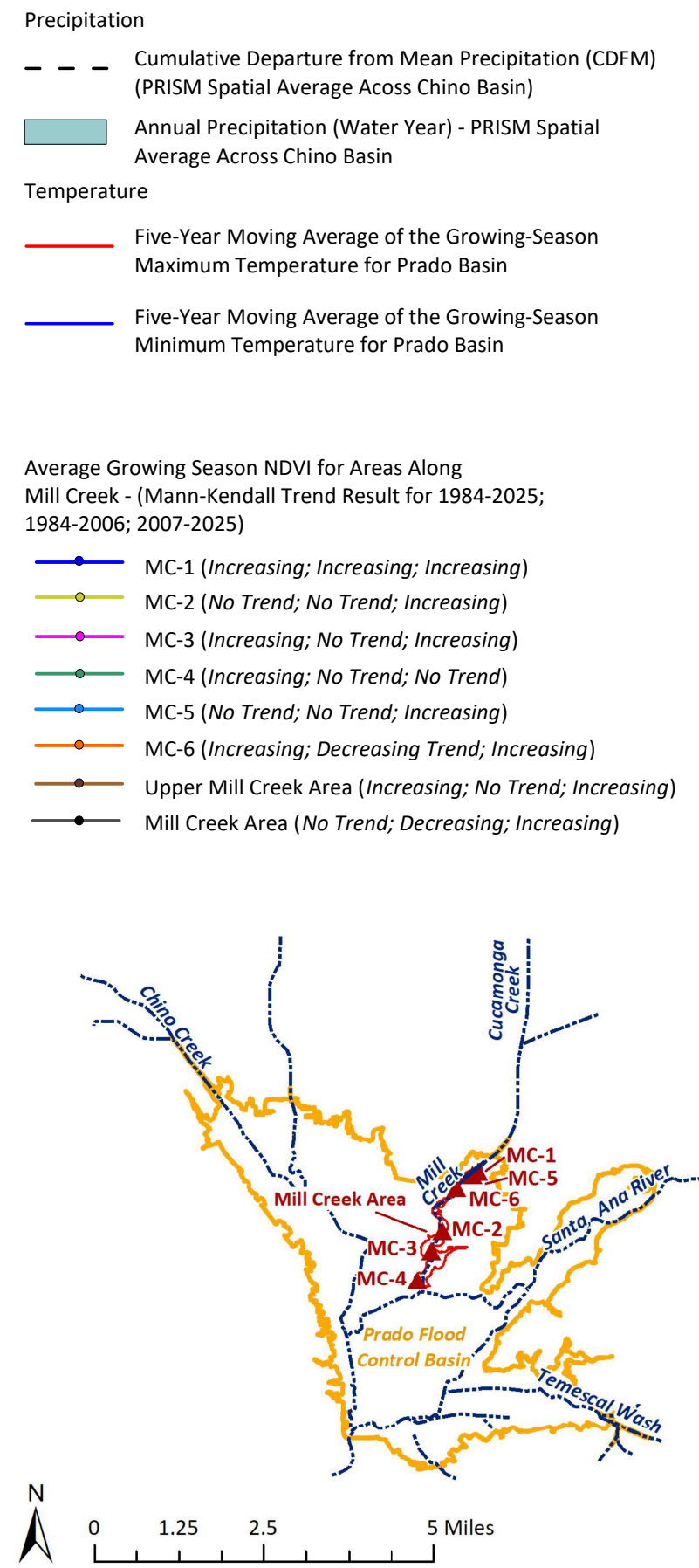
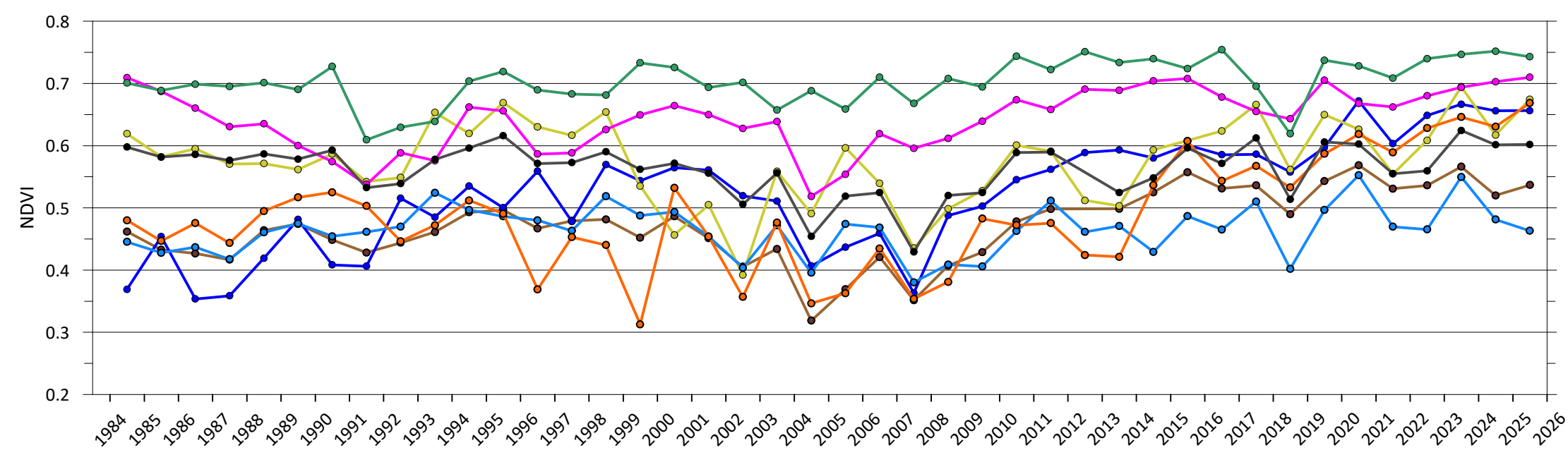
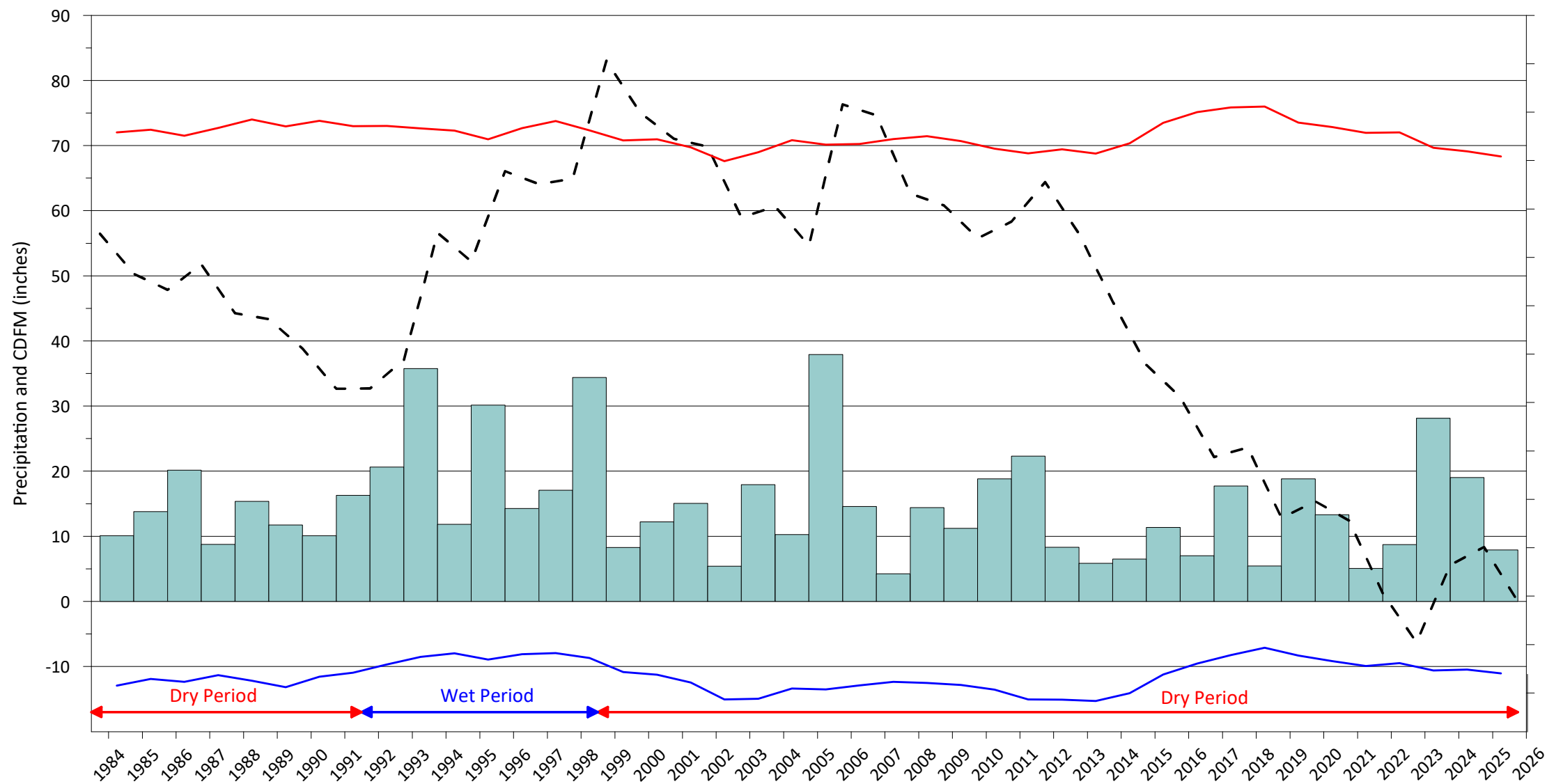
The observations and interpretations below are focused on recent changes in Average Growing-Season NDVI during 2025 described in Section 3.1, and whether observed trends in temperature and precipitation may be contributing to recent changes in NDVI.

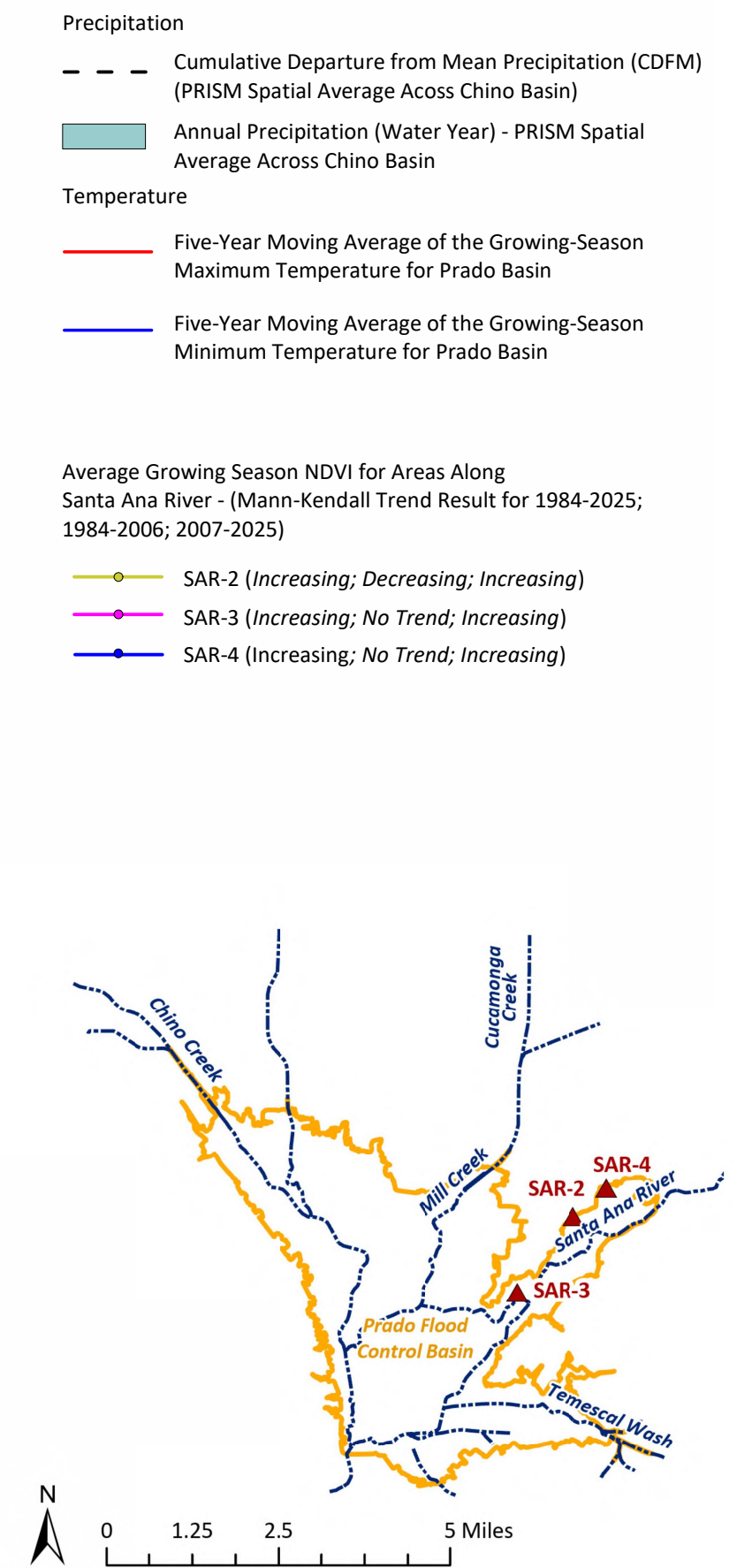
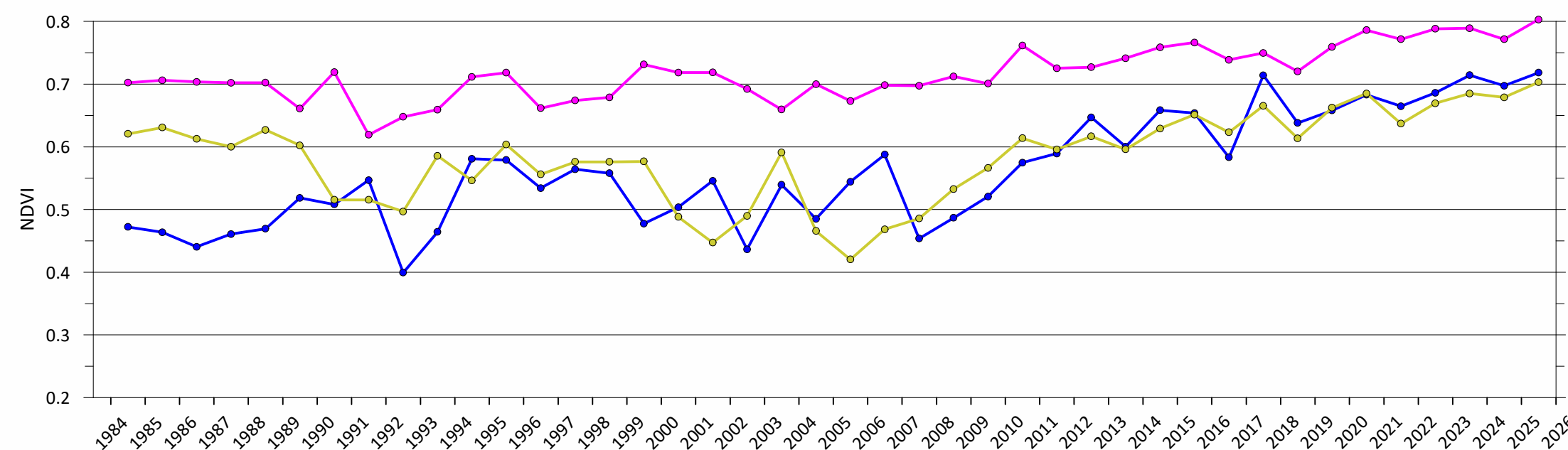
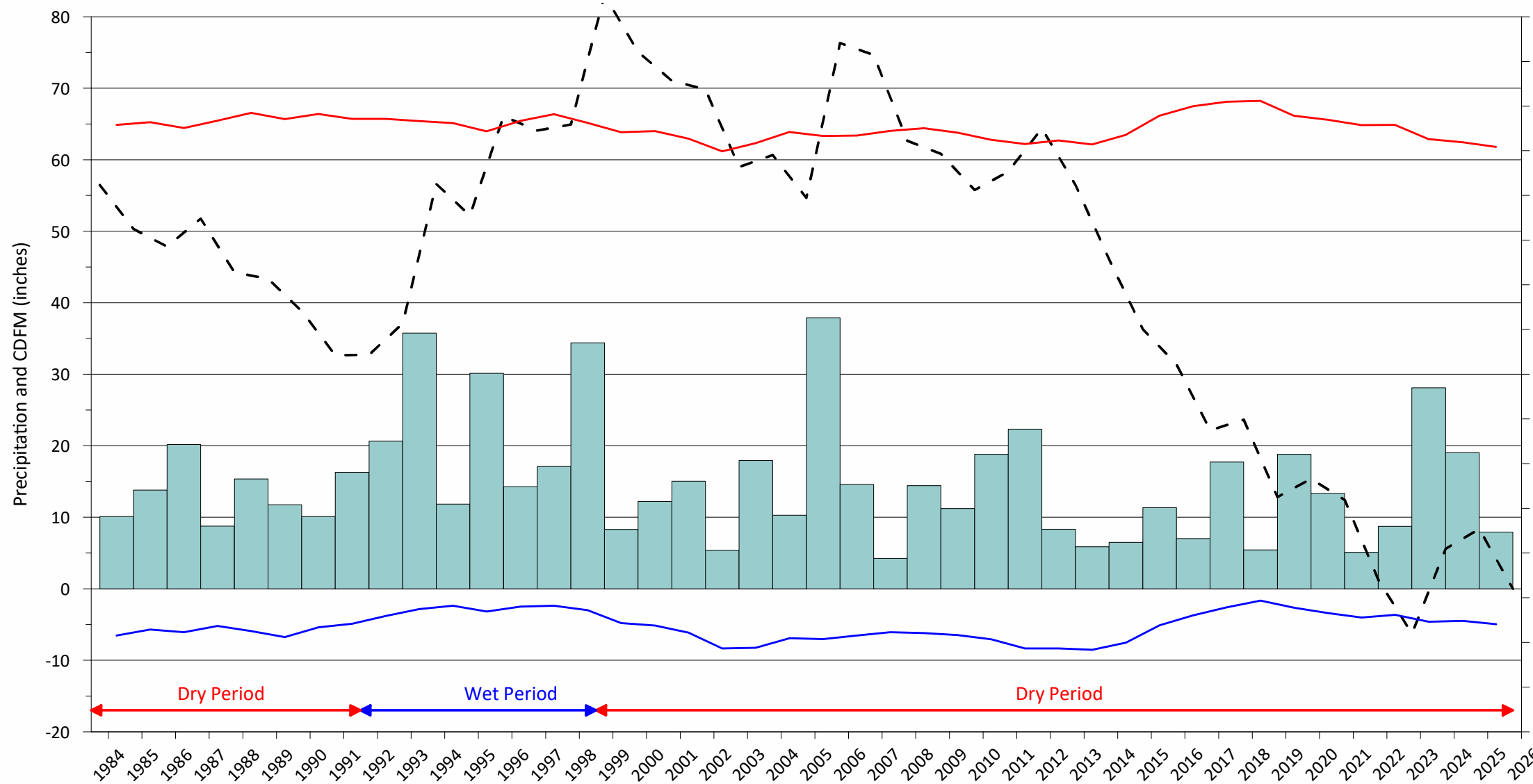
Chino Creek (Figure 3-17a). From 2024 to 2025, the Average Growing-Season NDVI slightly increased for the whole Chino Creek area and the four small areas along Chino Creek (CC-1, CC-2, CC-3, and CC-4). For all these areas, the one-year change in NDVI was relatively minor and within the historical range of one-year NDVI variability (see Table 3-2). These recent increases in NDVI and vegetation greenness occurred during a slightly warmer year, and significantly drier year following two consecutive wet years. Although the drier and slightly warmer conditions in 2025 may have contributed to some vegetation re-growth along Chino Creek previously scoured or inundated, contributing to a slight NDVI increase. The main observations and conclusions for 2024 to 2025 indicate no significant riparian vegetation changes along Chino Creek attributable to these climatic conditions.

Mill Creek (Figure 3-17b). From 2024 to 2025, the Average Growing-Season NDVI did not change across the entire Mill Creek area and slightly increased for the Upper Mill Creek area. For the small defined areas, NDVI increased at three areas (MC-2, MC-3, and MC-6), decreased at two areas (MC-4 and MC-5), and remained the same at one area (MC-1). At all the areas, the one-year NDVI changes are within the historical ranges of their one-year NDVI variability (see Table 3-2). These recent changes in NDVI occurred during a warmer and drier year following two wet years. Hence, the main observations and conclusions for the 2024 to 2025 period indicate warmer and drier conditions, with no notable changes in the riparian vegetation along Mill Creek.

Santa Ana River (Figure 3-17c). From 2024 to 2025, the Average Growing-Season NDVI increased at all three of the sites along the SAR (SAR-2, SAR-3 and SAR-4). These one-year NDVI changes were all relatively minor and within the historical ranges of their one-year NDVI variability (see Table 3-2). These changes in NDVI occurred during a slightly warmer and significantly drier year following two consecutive wet years. The drier conditions in 2025 following above average wet years, likely contributed to the increase in NDVI observed along the SAR as a result of vegetation re-growth in areas that were previously scoured or inundated. Despite these minor changes, overall, the main observations and conclusions for the 2024 to 2025 period indicate warmer and drier conditions, with no significant changes in the riparian vegetation along the SAR.







3.5 Stream Discharge and Its Relationship to the Riparian Habitat

Stream discharge in the SAR and its tributaries that flow through the Prado Basin is a factor that can affect the extent and quality of Prado Basin riparian habitat. Stream discharge can recharge the groundwater system along losing stream reaches and supply water through the groundwater system to riparian vegetation. Stream discharge is also important to fauna living within the stream system. Flooding events and flood-control/water-conservation operations at Prado Dam can scour and inundate areas of the riparian habitat and potentially cause adverse impacts.

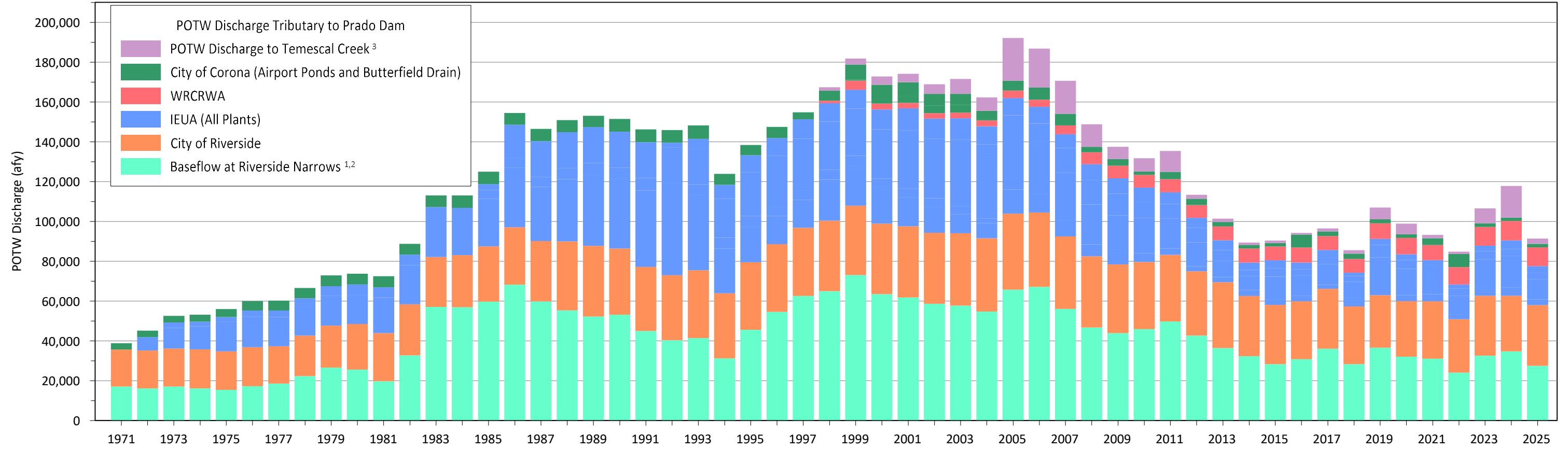
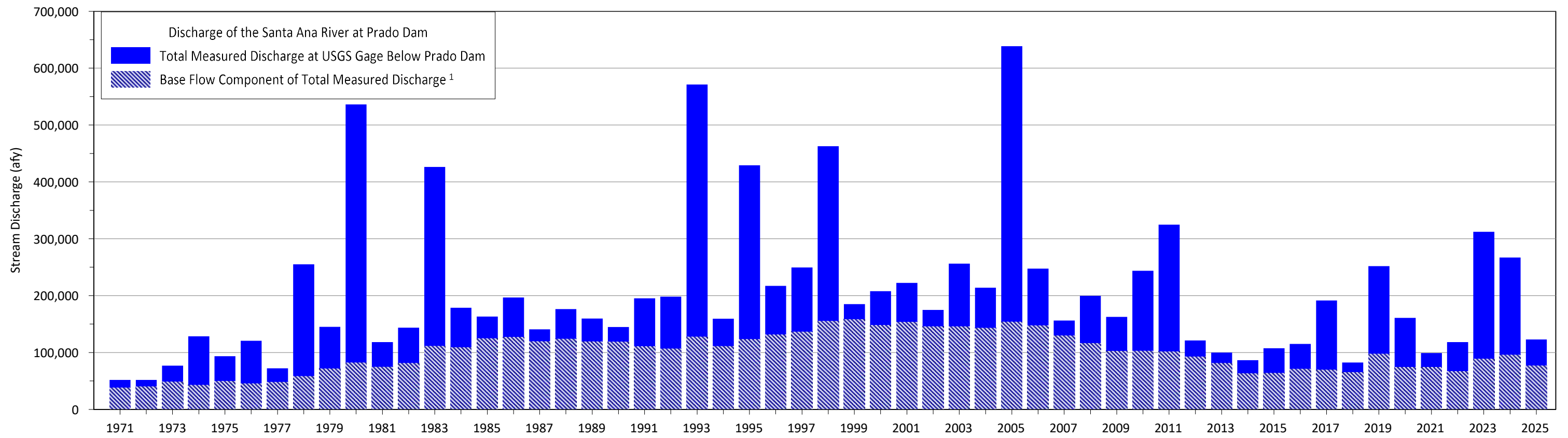
This section characterizes the time series of stream discharge within the Prado Basin and compares to trends in the extent and quality of the riparian habitat, as indicated by NDVI, to help determine whether changes in stream discharge have influenced the riparian habitat in the Prado Basin.

3.5.1 Stream Discharge

There are three primary components of stream discharge in the SAR and its tributaries: stormwater discharge, non-tributary discharge, and base-flow discharge. Stormwater discharge is rainfall runoff. Non-tributary originates outside of the watershed; and a major non-tributary discharge that occurred historically is imported water discharged at the OC-59 turnout on San Antonio Creek. Base-flow discharge, as used herein and by the Santa Ana River Watermaster (SARWM), includes tertiary-treated wastewater discharge from POTWs, rising groundwater, and dry-weather runoff. Figure 3-18 includes time-series charts that summarize important annual discharges within the upper SAR watershed that are tributary to Prado Dam from water years 1971 to 2025 (SARWM, 2025). The upper chart on Figure 3-18 characterizes the annual outflow from the Prado Basin as total measured SAR discharge at USGS gage *SAR at below Prado Dam* and shows the base-flow component of the total measured discharge as estimated by the SARWM. This chart shows that base-flow discharge declined from about 154,000 afy in 2005 to an average of about 80,800 afy over the recent five-year period 2021-2025. The decline in base-flow discharge is primarily related to declines in POTW effluent discharges that are tributary to Prado Basin. In WY 2025, both the total discharge at below Prado Dam and the total baseflow discharge decreased from the previous year:

- **Total Discharge at below Prado Dam in WY 2025.** Total discharge in WY 2025 was about 122,890 af, which is about 47,770 afy less than the average over the previous ten years (2015 to 2024), and a 144,260 afy (53 percent) decrease from WY 2024, which was a notably wet year. This below-average discharge occurred during a year in which precipitation was also below-average.
- **Base-Flow Discharge at below Prado Dam in WY 2025.** Base-flow discharge was about 77,080 afy, which is about the same as the average over the previous ten years (2015 to 2024) of 77,020 afy, and about 18,980 afy less than WY 2024.

The lower chart on Figure 3-18 shows the combined POTW discharges that are tributary, at least in part, to Prado Dam. The POTW discharges are the primary component of the baseflow discharge. The POTW discharges declined from a high of about 192,200 afy in 2005 to an average of about 98,780 afy for the last five years (2021-2025). The reduction in POTW effluent discharge since 2005 can be attributed to several factors: the increased use of recycled-water, a decline in water use due to the economic recession that began in 2008, and the implementation of emergency water-conservation measures during the 2012 drought and thereafter. In WY 2025, POTW discharge was about 91,450 afy, which is about 6,070 afy less than the average POTW discharge over the previous ten years (2015-2024), and about 26,370 afy less than POTW discharge in WY 2024.



¹ Data are interpretations of the Santa Ana River Watermaster as published in their Annual Reports.

² Baseflow at Riverside Narrows primarily includes POTW discharge from RIX and Rialto Plants; and can also include rising groundwater, dry weather flow

³ Includes discharge from EVMWD, EMWD, and LLWD plants

3.5.2 Stream Discharge Compared to NDVI

Figures 3-19a through 3-19c are time-series charts that compare long-term trends in stream discharge to trends in the quality of the riparian vegetation, as indicated by NDVI, for three reaches in Prado Basin: Chino Creek, Mill Creek, and the SAR. The period of analysis for these charts is 1984 to 2025, the period of NDVI availability. The upper chart on the figures displays the annual volumes of measured discharge to each stream during the water year, including measurements at USGS gaging stations located upstream of the Prado Basin, and POTW discharges.²⁵ The lower chart displays the time series of the Average Growing-Season NDVI for defined areas, as discussed in Section 3.1, along Chino Creek, Mill Creek, and the SAR. For reference, the Mann-Kendall test results for trends in the Average Growing-Season NDVI for 1984 to 2025, 1984 to 2006, and 2007 to 2025 are shown in the legend.

The observations and interpretations below are focused on the recent (2025) changes in Average Growing-Season NDVI, as described in Section 3.1, and whether observed trends in surface-water discharge may be contributing to recent changes in NDVI.

Chino Creek (Figure 3-19a). Chino Creek is a concrete-lined, flood-control channel that transitions into an unlined stream channel at the Prado Basin boundary and flows south into the SAR behind Prado Dam (see Figure 2-3). The upper chart on Figure 3-19a shows discharge in Chino Creek during the growing season, including: measured discharge at USGS gage *Chino Creek at Schaefer* and the POTW discharges downstream of the USGS gage, including discharges from the IEUA Carbon Canyon, RP-2, RP-5, and RP-1 plants. Measured discharge at *Chino Creek at Schaefer*²⁶ includes stormwater and dry-weather runoff in the concrete-lined channel upstream of the IEUA discharge locations. Discharges not characterized in this figure are stormwater runoff, dry-weather runoff, and rising-groundwater discharge downstream of the *Chino Creek at Schaefer* gage. From 1984 to 2025, discharge in Chino Creek during the water year progressively increased through 1997 and then decreased. The decreasing trend in growing-season discharge since about 1997 was caused by dry climatic conditions, water conservation in response to drought, and decreases in effluent discharge from the IEUA plants. During the previous ten-year period (2015-2024), annual discharge in Chino Creek averaged about 17,900 afy. In WY2025, discharge was about 12,010 afy, which is about 5,890 af less than the average discharge for the previous ten water years and about 10,500 af less than discharge in WY 2024 which was a notably wetter year.

From 2024 to 2025, the Average Growing-Season NDVI for the whole Chino Creek area as well as all four small areas along Chino Creek increased. For all these areas, the one-year changes in NDVI were relatively minor and within the historical range of their one-year NDVI variability (see Table 3-2). These recent changes in NDVI occurred during a year of below-average discharge in Chino Creek. Therefore, the main observations and conclusions for the 2025 period are that there were below-average discharge conditions in Chino Creek and the riparian vegetation along Chino Creek did not change significantly.

Mill Creek (Figure 3-19b). Cucamonga Creek is a concrete-lined flood-control channel that transitions into an unlined stream channel at the Prado Basin boundary, where its name changes to Mill Creek (see Figure 2-3). The upper chart on Figure 3-19b shows annual discharge in Mill Creek during the water year, including: POTW effluent discharge from the IEUA RP-1 plant to Cucamonga Creek, and measured discharge downstream at the USGS gage *Cucamonga Creek near Mira Loma* (less the RP-1 discharge). The

²⁵ These charts do not describe other hydrologic processes that affect surface-water discharge within the Prado Basin, including evaporation, evapotranspiration, the infiltration of water along unlined stream segments, and rising groundwater discharge.

²⁶ Historically until 2016 this also included imported water discharge from the OC-59 turnout.

measured discharge at *Cucamonga Creek near Mira Loma* (less the RP-1 discharge) is representative of stormwater and dry-weather runoff in Cucamonga Creek upstream of this gaging station. Discharges not characterized on this figure are stormwater runoff, dry-weather runoff, and rising-groundwater discharge downstream of the *Cucamonga Creek near Mira Loma* gage.

Also shown on the upper chart is the annual volume of flow that is estimated to be in the upper portion of Mill Creek excluding the surface-water diverted to the Mill Creek Wetlands. The Mill Creek Wetlands began diverting water from Mill Creek just north of where Mill Creek begins in 2016 (see inset map for location of Mill Creek Wetlands). Water from the Mill Creek Wetlands re-enters Mill Creek just downstream of the MC-6 area; hence the volume of water in the upper portion of Mill Creek near the MC-1, MC-5, and MC-6 areas is less than the total flow represented in the bar chart. Since 2016, water diverted to the Mill Creek Wetlands on an annual basis has ranged from 5 percent to 30 percent of the total flow, and the annual discharge in the northernmost region of Mill Creek near the MC-1, MC-5, and MC-6 areas is on average about 18 percent less than the discharge in Mill Creek south of the Mill Creek Wetlands.

From WY 1984 to 2025, annual discharge in Mill Creek progressively increased through 2005, then decreased through 2014, and has shown an overall increasing trend since. The decreasing trend in annual discharge since about 2005 was caused by dry climatic conditions, water conservation in response to drought conditions after 2012, and the decrease in effluent discharge from the IEUA RP-1 plant. The increasing trend since 2014 is a result of an increase in base-flow discharge, as effluent discharge from the IEUA RP-1 plant has continued to decrease. In WY 2025, annual discharge was about 28,670 afy, which is about 2,360 af less than the average annual discharge for the previous ten water years (2015-2024) and about 18,360 af less than the annual discharge in WY 2024, which was a notably wetter year. The below-average annual discharge is attributed to decreased stormwater discharge from below-average precipitation in WY 2025. In WY 2025 discharge in the upper portion of Mill Creek between the diversion and the outlet for the Mill Creek Wetlands was about 26,360 afy which is about 9 percent less than the total discharge in Mill Creek.²⁷

From 2024 to 2025, the Average Growing-Season NDVI remained unchanged across the entire Mill Creek area, increased across the Upper Mill Creek area, increased in three of the small areas (MC-2, MC-3, MC-6), remained unchanged in one area (MC-1), and decreased in two areas (MC-4 and MC-5). All of these one-year NDVI changes are within the historical range of their one-year NDVI variability (see Table 3-2) and air photos show no significant reduction in vegetation. Moreover, vegetation browning that was observed at MC-2 and MC-5 in 2024 has since returned to green. These recent changes in NDVI occurred during a year of below-average discharge in Mill Creek. Hence, the main observations and conclusions for the 2025 period are that there were below-average discharge conditions in Mill Creek and there were no notable changes in the riparian vegetation along Mill Creek.

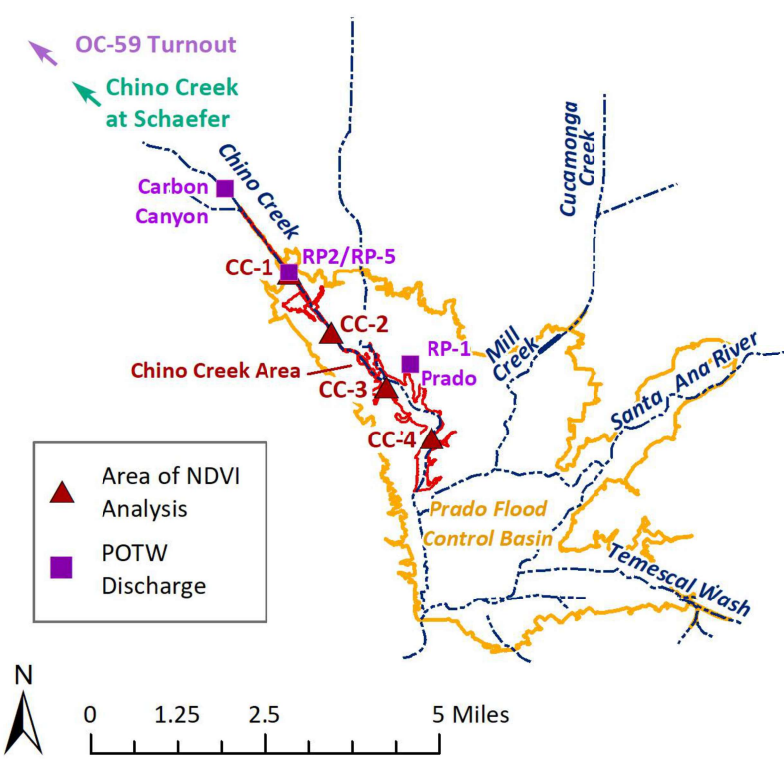
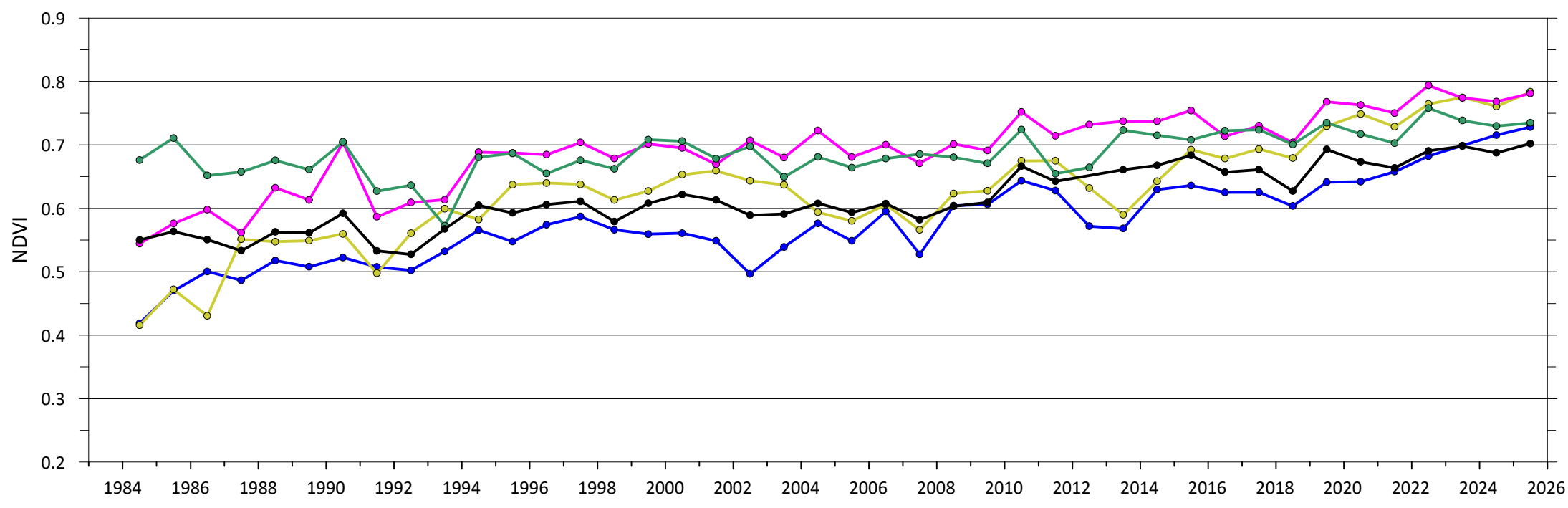
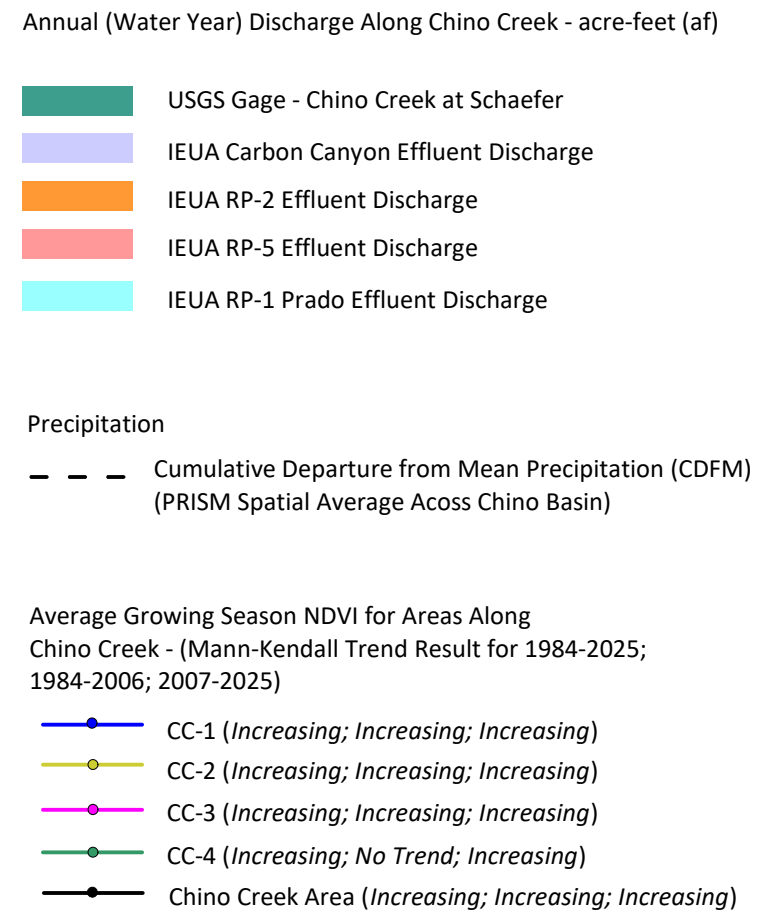
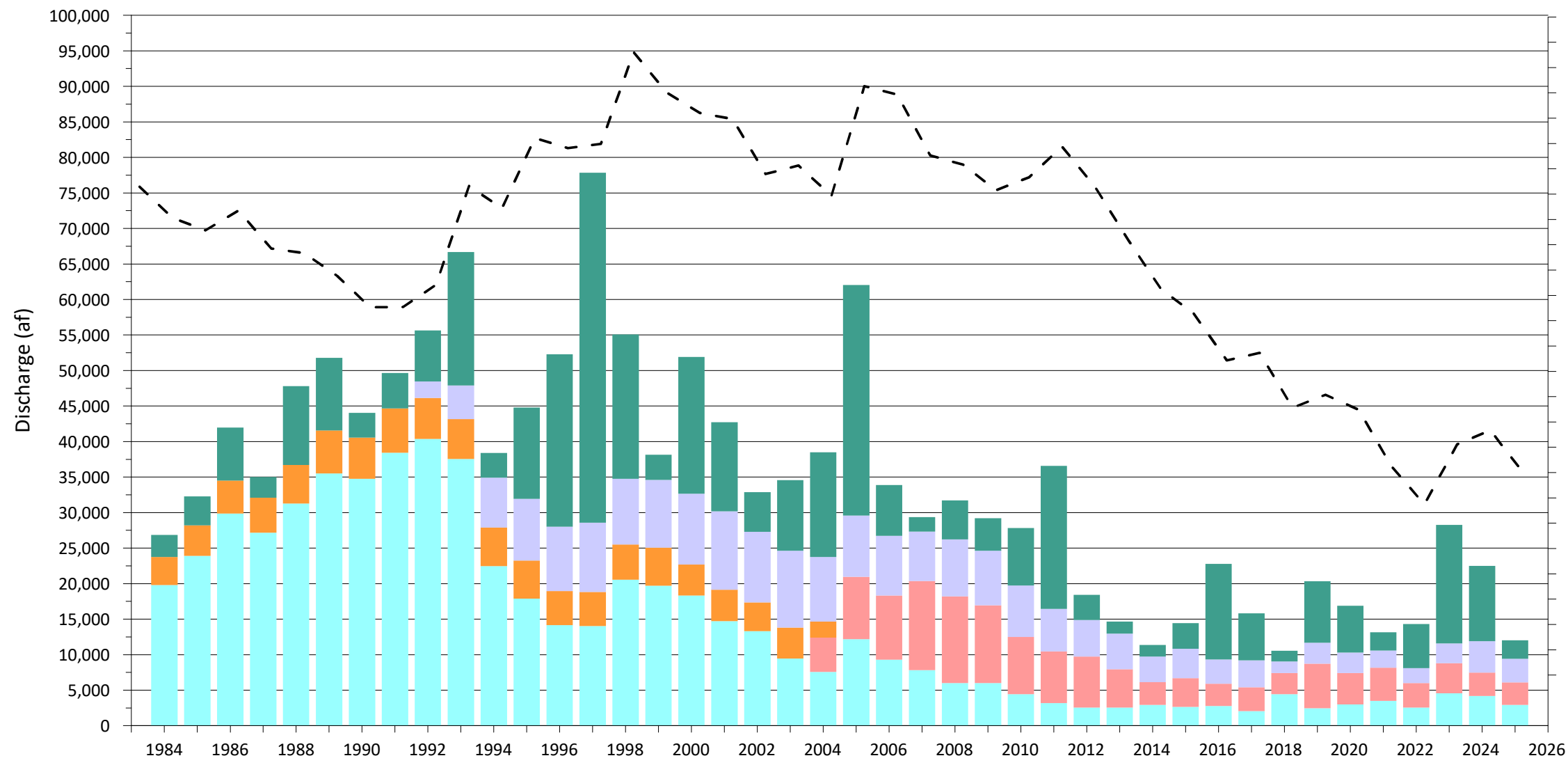
Santa Ana River (Figure 3-19c). The SAR is an unlined stream channel from the Riverside Narrows to Prado Dam—its entire reach across the Chino Basin (see Figure 2-3). The upper chart on Figure 3-19c shows the annual discharge at the USGS gage *SAR at MWD Crossing* (Riverside Narrows) and the annual discharges to the SAR downstream of the Riverside Narrows, including POTW effluent from the City of Riverside’s Regional Water Quality Control Plant, and the Western Riverside County Regional Wastewater

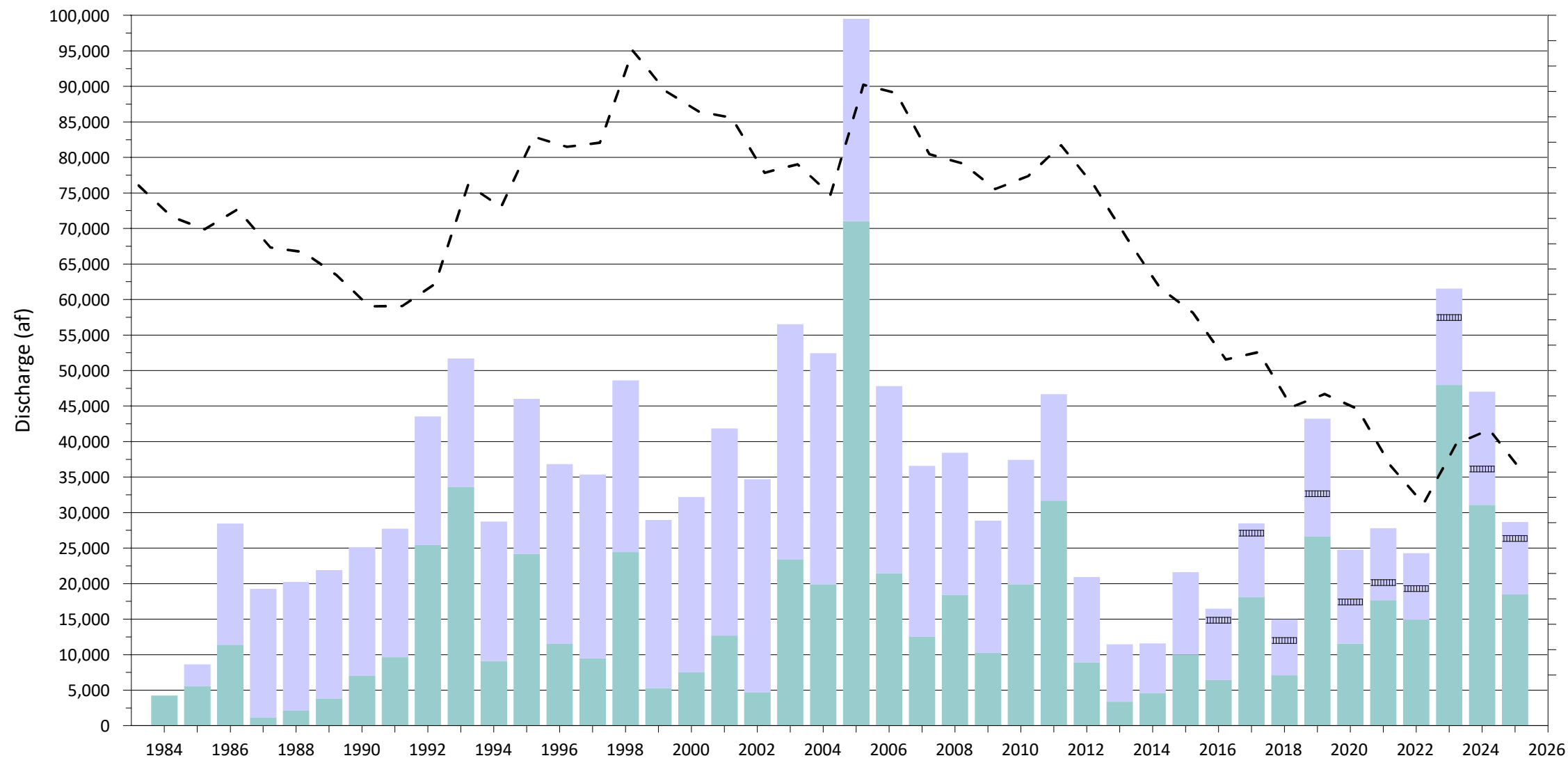
²⁷ The City of Ontario measures the water diverted to the Mill Creek Wetlands every month using flow meters located at the two culverts where water is diverted. Due to equipment malfunction no monthly flow data was available from July 2023 to August 2024. During these months, flow was estimated as 28% (average historical percentage diverted during the growing season from 2016 to 2022) of the total monthly discharge measured at the USGS gage *Cucamonga Creek near Mira Loma*.

Authority (WRCRWA) plant that is conveyed in an unlined channel (along with a portion of SAR discharge) to the OCWD Wetlands. The measured discharge at the *SAR at MWD Crossing* gage represents stormwater runoff and base flow discharge in the SAR upstream of the gaging station at the Riverside Narrows. The base flow discharge upstream of the Riverside Narrows includes POTW discharge from the RIX and Rialto treatment plants, dry-weather runoff, and rising groundwater. Discharges not characterized on this figure are stormwater runoff, dry-weather runoff, and rising-groundwater discharge downstream of the *SAR at MWD Crossing* gage.

From 1984 to 2011, discharge in the SAR averaged about 146,200 afy with episodic increases in storm water discharge during wet years. Since 2011, discharge in the SAR has been lower overall and averaged about 94,500 afy from 2013 to 2025 with episodic increases during wet years. The decreasing trend in discharge was caused by dry climatic conditions, water conservation in response to drought, and decreasing base flow at the Riverside Narrows. In WY 2025, the discharge in the SAR was about 81,500 af, which is about 13,000 af less than the average annual discharge from 2013 to 2025, and about 18,090 af less than the previous ten-year average from 2015 to 2024. The below-average annual discharge in WY 2025 is attributed to decreased stormwater discharge from below-average precipitation in WY 2025 and follows two consecutive wet years with high-discharge conditions.

From 2024 to 2025, the Average Growing-Season NDVI increased at all three areas along SAR (SAR-2, SAR-3, and SAR-4). For all these areas, the one-year NDVI changes were relatively minor and within the historical range of their one-year NDVI variability (see Table 3-2). The increase in NDVI observed along the edges of the SAR over this past year are likely a result of the below-average discharge conditions in the SAR, which contributed to an increase in vegetation growth in areas that were previously scoured or inundated in the previous two wet years. Despite these minor increases in NDVI, the main observations and conclusions for the 2025 period are that there were lower discharge conditions in the SAR and the riparian vegetation did not change significantly along the SAR.





Annual (Water Year) Discharge Along Mill Creek - acre-feet (af)

- IEUA RP-1 Cucamonga Effluent
- USGS Gage - Cucamonga Creek near Mira Loma less RP-1 Cucamonga Effluent
- Volume of Flow in the North Portion of Mill Creek After the Mill Creek Wetland Diversion* - Representative of Flow Near MC-1, MC-5, MC-6, and Upper Mill Creek Area

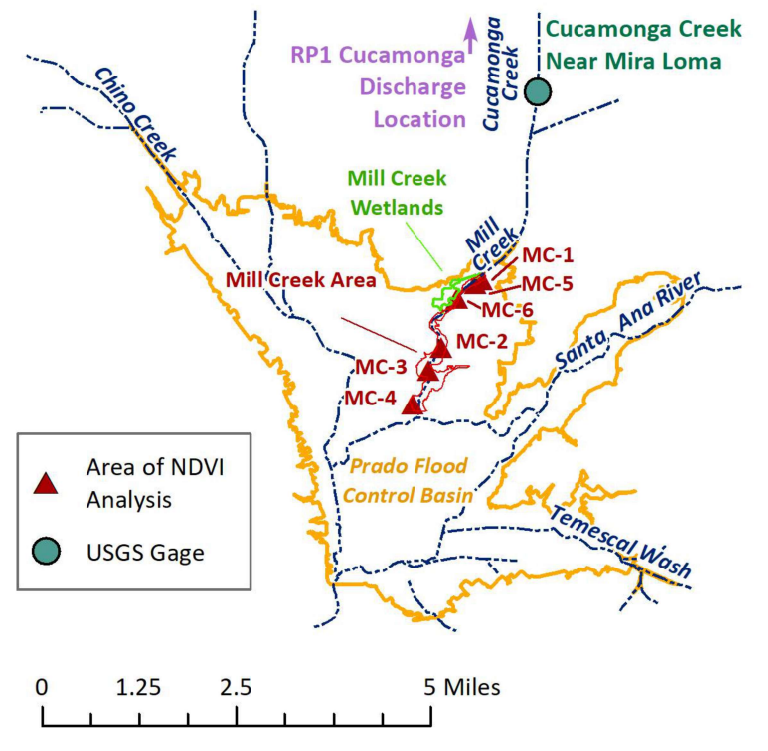
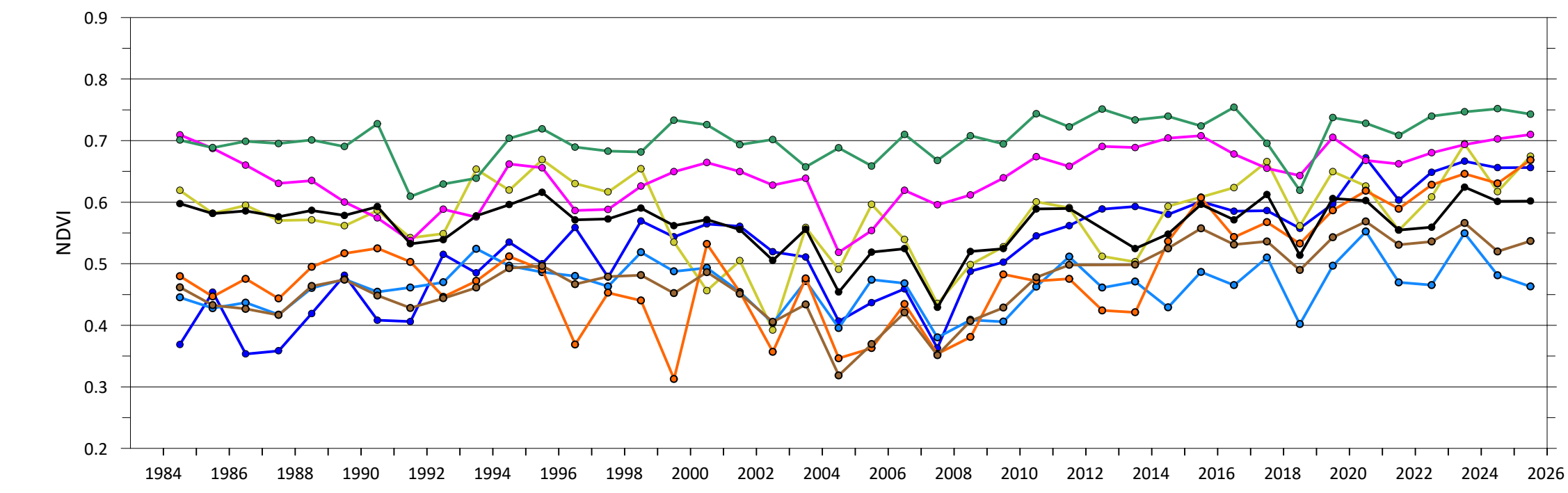
*2023 and 2024 are estimates due to limited available data

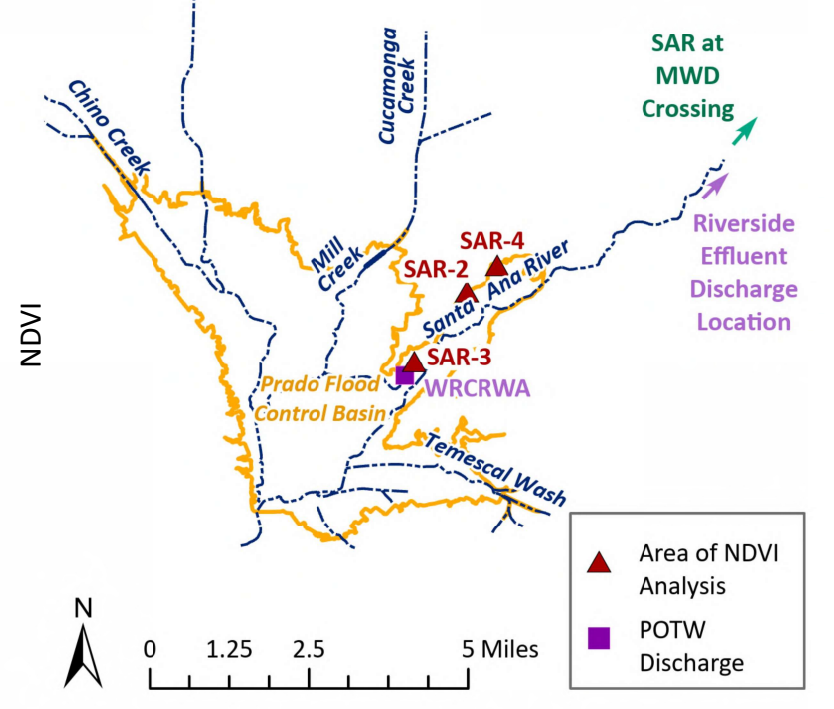
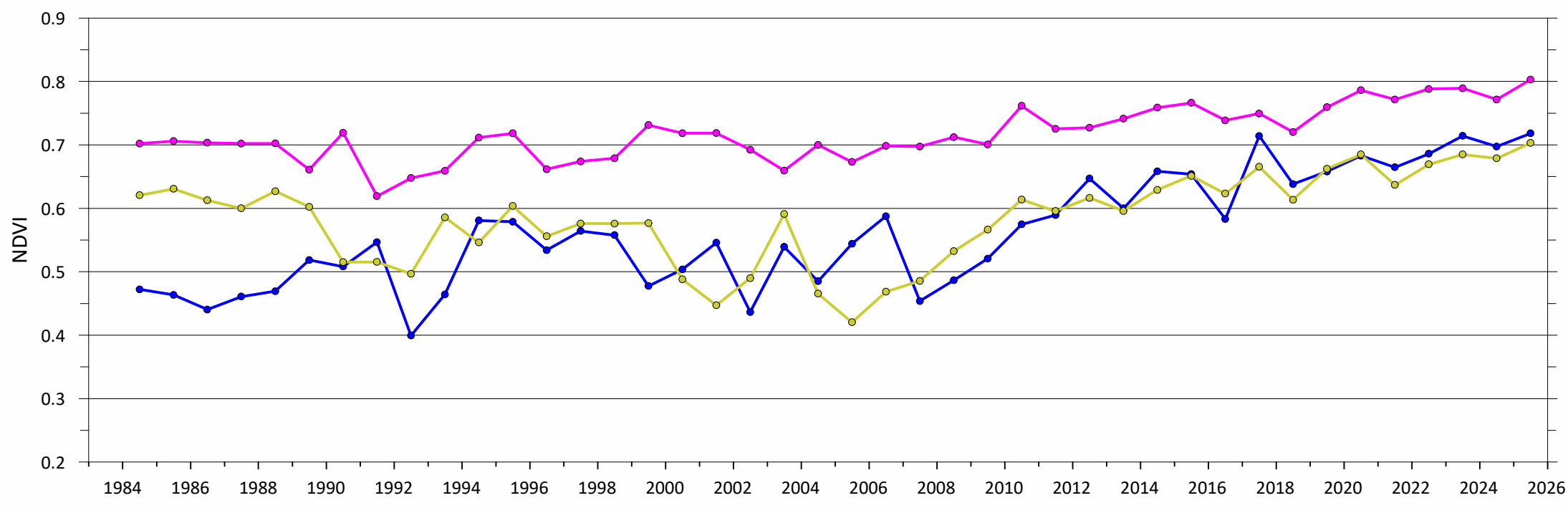
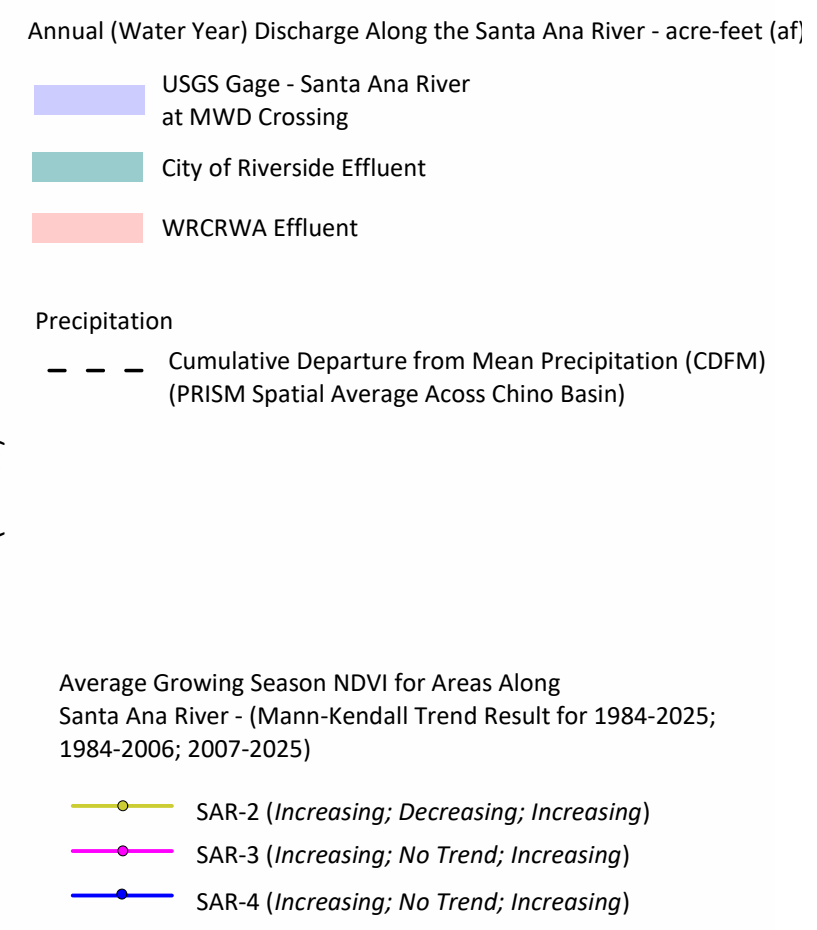
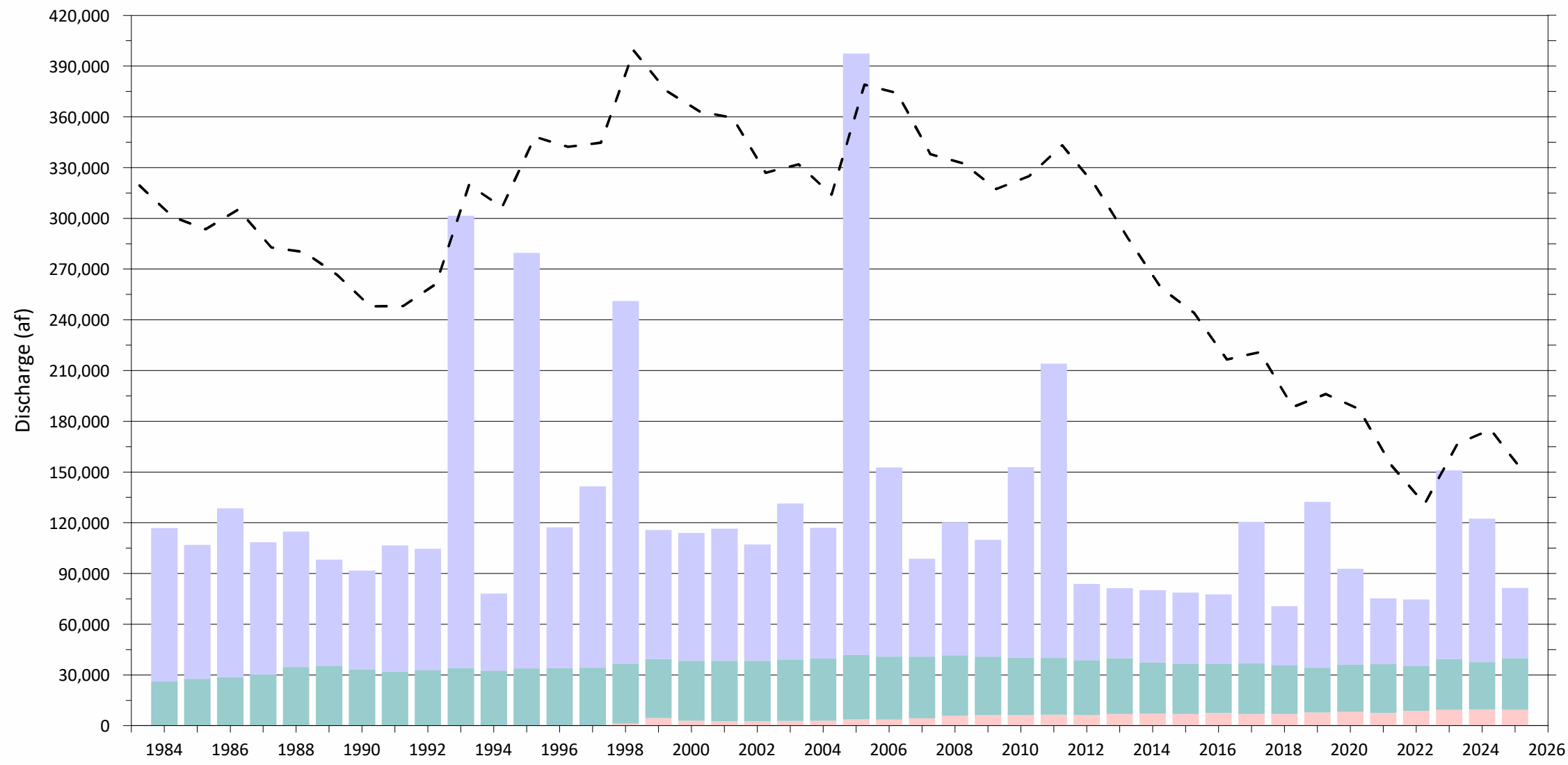
Precipitation

- Cumulative Departure from Mean Precipitation (CDFM) (PRISM Spatial Average Across Chino Basin)

Average Growing Season NDVI for Areas Along Mill Creek - (Mann-Kendall Trend Result for 1984-2025; 1984-2006; 2007-2025)

- MC-1 (Increasing; Increasing; Increasing)
- MC-2 (No Trend; No Trend; Increasing)
- MC-3 (Increasing; No Trend; Increasing)
- MC-4 (No Trend; No Trend; No Trend)
- MC-5 (No Trend; No Trend; Increasing)
- MC-6 (Increasing; Decreasing Trend; Increasing)
- Upper Mill Creek Area (Increasing; No Trend; Increasing)
- Mill Creek Area (No Trend; Decreasing; Increasing)





3.6 Other Factors and Their Relationships to Riparian Habitat

Other factors that can affect the extent and quality of riparian habitat in the Prado Basin analyzed in this Annual Report include wildfire, Arundo management, pests, non-native plant species, and development/construction. These factors are unrelated to Peace II Agreement implementation.

This section characterizes what is known about these factors and compares them to trends in the extent and quality of the riparian habitat to determine their impacts, as characterized by the NDVI.

3.6.1 Wildfire

Available wildfire perimeter data from the FRAP database²⁸ were compiled within the Prado Basin extent for the period of 1950-2024.²⁹ The FRAP database shows that wildfires occurred in the Prado Basin in 1985, 1989, 2007, 2015, 2018, and 2020. During 2025, there was a wildfire that occurred in the very west margin of the Prado Basin adjacent to Chino Creek, that was reported and delineated in the OCWD's *Prado Basin Water Conservation and Habitat Assessment 2024-2025* report (OCWD, 2026). Figure 3-20a shows the spatial extent of these wildfires, mapped over the 2025 air photo. The most recent wildfire in July 2025, termed the Euclid fire, started west of CA-71 and jumped the freeway to the west side of Prado Basin, and burned riparian vegetation adjacent to Chino Creek. The Euclid fire burned 120 acres in total, about half in the Prado Basin, affecting mostly shrub-dominated landscape and some Eucalyptus (OCWD, 2026).

Figure 3-20b shows the spatial extent of the most recent wildfires in 2015, 2018, 2020, and 2025, overlying a side-by-side of the change map of NDVI for 2024 to 2025 and the 2025 air photo. The locations of the wildfires in 2015 and 2020 align with several of the notable patches of NDVI decreases shown on the NDVI change map, and areas of less vegetated land cover along the SAR in the air photo. The recent NDVI decreases are likely not caused by these historic fires since there has been observed vegetation regrowth in these areas documented in previous Annual Reports (WEI, 2020; West Yost, 2022). The location of the 2025 wildfire, however, aligns with the notable NDVI decrease adjacent to Chino Creek, just to the northwest of the OCWD wetlands—this is likely the cause of the NDVI decreases in this area.

Figures 3-21a through 3-21c are time-series charts that explore the relationship between other factors that can impact riparian vegetation and NDVI for the three reaches in the Prado Basin: Chino Creek, Mill Creek, and the SAR. The figures show the Average Growing-Season NDVI for 15 of the defined areas of riparian habitat discussed in Section 3.1 and shown in Figures 3-6, 3-7a, 3-7b, and 3-8a through 3-8m. Wildfire occurrences, annotated by year, are shown on the charts if their extent intersects with the extent of the defined area of NDVI analysis. Previous Annual Reports have described that the NDVI time series for the entire riparian vegetation extent (Figure 3-5) and other impacted defined areas indicated NDVI declines after the 2015, 2018, and 2020 fires, followed by increases in some of these areas as the vegetation started to regrow (WEI, 2019; 2020; West Yost, 2021; 2022).

²⁸ [Link](#) (Website for California Department of Forestry and Fire Protection's Fire and Resource Assessment Program).

²⁹ Data is updated in late April for the previous year; 2025 data were not available for this annual report.

3.6.2 Polyphagous Shot Hole Borer

The PSHB, from the group known as ambrosia beetles, is a pest in Southern California that burrows into trees and introduces fungi that assists in establishing colonies. Infection caused by the fungi can cause a dark stain surrounding the entry holes, discolored bark, leaf discoloration and wilting, and die-off of entire branches or trees.

The first notable die-off in the Prado Basin confirmed to be caused by the PSHB, was in spring 2016 by OCWD biologists who observed die-off of riparian trees in patches, especially arroyo and black willows (ACOE and OCWD, 2017; OCWD 2020). Since 2016, OCWD biologists continued to note the presence of PSHB throughout the Prado Basin, which reduced tree canopy cover, but tree mortality remained confined to small local patches (Zemba, R., personal communication, 2018). OCWD biologists observed that the affected trees that had not died were showing signs of severe infestation, exhibiting branch failure, significant staining, and crown sprouting after the upper branches had died back. (ACOE and OCWD, 2017). The die back and crown sprouting was noted to reduce canopy coverage in many areas (OCWD, 2020).

In 2016 and 2017, OCWD biologists in the Prado Basin worked with the University of California, Riverside, the USFWS, and SAWA to actively monitor the occurrence and impact of PSHB within Prado Basin riparian habitat. These agencies conducted studies on how to potentially protect certain areas of the Prado Basin from PSHB using attractants and deterrents; however, there were too many trees to effectively protect the entire forest (Zemba, R., personal communication, 2018). Traps were placed throughout the lower portion of Prado Basin and along the SAR by the OCWD and SAWA. The total number of PSHB beetles trapped at each location between August 2016 and April 2017 ranged from seven to 2,092.

Since the first confirmed impact of the PSHB in 2016, the presence of the PSHB was included as part of the vegetation surveys performed for the PBHSP. Section 3.1.3.3 of this report describes the number of monitoring site plots with evidence of PSHB in 2025 and the total percentage of trees in the Chino Creek, Mill Creek, and SAR areas with evidence of the PSHB in 2022 and 2025. Table 3-3 summarizes the presence of the PSHB during the 2016, 2019, 2022, and 2025 vegetation surveys at all the sites surveyed. Primary observations from these four surveys include:

- In 2016, the presence of the PSHB was identified at 30 of the 37 survey sites. At these sites, all the trees identified with the presence of PSHB were noted as “stressed,” except one which was noted as “dead.”
- In 2019, the presence of the PSHB was identified at seven of the 30 sites where the presence was identified in 2016, and were only at sites along Chino and Mill Creeks. The reduced presence of the PSHB from 2016 to 2019 correlated to less stressed trees at each of the survey sites; however, the PSHB had an adverse impact from 2016 to 2019, as evidenced by the increased percentage of dead trees and some reductions in percent canopy cover at the monitoring site plots.
- In 2022, the presence of the PSHB was identified in 12 of the 30 sites that were identified with PSHB presence in 2016 and/or 2019. The increase in the presence of the PSHB did not, however, correlate to a trend in the increase of stressed or dead trees at the affected sites.
- In the recent 2025 vegetation surveys, evidence of the PSHB was identified in three of the 30 sites where the PSHB was noted in one or more years of the previous surveys, and in the two new sites along the SAR. Although the percentage of trees with evidence of the PSHB infestation showed an overall increase during 2025, many of the trees with PSHB evidence were recovering and appeared healthy, and there was no correlation to an increase in stressed or dead trees. Therefore, the presence of PSHB does not appear to impact vegetation health.

Figure 3-22a shows the locations where the presence of PSHB has been documented within the Prado Basin from 2016 to 2025 by: PSHB traps deployed by the OCWD and SAWA between August 2016 and April 2017; and the PBHSP vegetation surveys performed in 2016, 2019, 2022, and 2025.

Figures 3-21a through 3-21c present time-series charts that explore the relationship between PSHB occurrence and NDVI for the three reaches in Prado Basin: Chino Creek, Mill Creek, and the SAR. These figures show the Average Growing-Season NDVI for the defined areas of riparian habitat that are discussed in Section 3.1 and shown in Figures 3-6, 3-7a, 3-7 b, and 3-8a through 3-8m. For each defined area, the percentage of infected trees within each survey site that is within the area are plotted on the charts. As described above, the number of survey sites noting the PSHB presence has decreased over the years. With few exceptions, sites surveyed across multiple years show an overall pattern of the percentage of impacted trees: they decreased or stayed the same from 2016 to 2019; remained stable or decreased from 2019 to 2022; and remained stable or increased from 2022 to 2025. Many of these observed decreases in the earlier years declined to zero percent.

Overall, the increases in the percentage of infected trees at the survey sites do not correlate with a decrease in NDVI at the defined areas. Therefore, the presence of the PSHB does not appear to be causing a notable negative impact on riparian vegetation in these areas.

3.6.3 Arundo Removal and Maintenance

The OCWD and SAWA³⁰ are the main entities that implement habitat restoration programs, including the removal and management of the non-native Arundo in the SAR watershed for the promotion of native habitat for endangered or threatened species. The OCWD and SAWA sometimes work collaboratively with each other on these programs and with other stakeholders in the watershed, such as the SAWPA, the USFWS, California Department of Fish and Wildlife (CDFW), and the ACOE. There are many ongoing programs throughout the Prado Basin for the management and maintenance of riparian habitat that include the management of Arundo. SAWA publishes an annual report on the status of all habitat restoration projects they are involved with in the watershed (SAWA, 2025).

Figures 3-22a and 3-22b show the locations of known areas where habitat restoration activities have occurred recently in the Prado Basin. These locations and activities may not be inclusive of all current activities in the Prado Basin, but are the known locations where the information has been collected for the PBHSP:

- Various locations where SAWA has led the removal, treatment, and management of Arundo growth along the SAR between 2016 and 2024 (areas outlined in cyan, pink, navy, coral, yellow, and bright green in Figure 3-22a and in purple in Figure 3-22b).
- 400 acres where the OCWD has been controlling the regrowth of Arundo within the perimeter of the 2015 wildfire (area outlined in dark red).
- 287-acres ACOE Arundo mitigation site (outlined in orange) where the ACOE has historically removed and managed Arundo growth. Between May 2022 and June 2023, Arundo was removed from a small, 26.5-acre area in the western most part of the mitigation site.

³⁰SAWA is a non-profit agency with a five-member board, consisting of one member from the OCWD and the remaining from four resource conservation districts (RCDs) in the watershed, including the Riverside-Corona RCD, Temecula-Elsinore-Anza RCD, San Jacinto RCD, and Inland Empire RCD.

- Approximately 34 acres where SAWA has been removing and treating Arundo in 2025 (area outlined in light blue).

Figure 3-22b shows the locations of these known areas where habitat restoration activities have occurred, overlying a side-by-side of the change map of NDVI from 2024 to 2025, and the 2025 air photo. The locations of these habitat restoration activities generally align with areas of NDVI decreases or increases in the change map, indicating that these habitat restoration activities are likely related to the changes observed in NDVI in these areas. NDVI may decrease in areas where Arundo is removed or treated and increase in areas that are experiencing vegetation regrowth following historical Arundo removal. Just south of the OCWD wetlands, in one of the larger areas where SAWA and OCWD were performing Arundo treatment and removal in 2025, NDVI generally decreased from 2024 to 2025. In the area where SAWA and OCWD have been controlling the regrowth of Arundo since the 2015 wildfire, there are patches of both NDVI decreases and increases, which likely reflect the combination of Arundo removal/treatment and vegetation regrowth. In the western most area of the ACOE Arundo mitigation site where Arundo had been removed in 2023, NDVI decreased from 2023 to 2024, but notably increased from 2024 to 2025 likely due to vegetation regrowth following the 2023 Arundo removal. In the northern reach of the SAR, where there has been limited Arundo management activities since 2021, there are no notable changes in NDVI from 2024 to 2025.

3.6.4 Non-native and Nuisance Plant Species

Section 3.1.3 describes the non-native and nuisance plant species observed this last year during the 2025 vegetation surveys throughout the Prado Basin. These species include rough cocklebur, perennial pepper weed, wild grape, and various trees. The perennial pepperweed is the most abundant non-native species observed, and is of particular concern because it is perennial, difficult to control, and capable of proliferating rapidly and causing significant damage in riparian habitat systems. Table 3-3 summarizes the results of the 2025 vegetation surveys and includes non-native and nuisance plant species documented at each site if observed.

Figures 3-21a through 3-21c are time-series charts that explore the relationship between other factors that can impact riparian vegetation and NDVI for the three reaches in the Prado Basin: Chino Creek, Mill Creek, and the SAR. The figures show the Average Growing-Season NDVI for 15 of the defined areas of riparian habitat discussed in Section 3.1 and shown in Figures 3-6, 3-7a, 3-7b, and 3-8a through 3-8m. Non-native and nuisance plant species occurrences in 2025, annotated by species, are plotted with the NDVI time series if they were noted in the monitoring site plot that is within the defined area of NDVI analysis.

Perennial pepperweed was observed at monitoring site plots along Mill Creek and SAR during the 2025 vegetation surveys. The bullets below summarize the 2025 occurrences of perennial pepperweed, as well as associated trends in overstory health indicators and NDVI time-series results:

- Pepperweed was observed at monitoring site plots X9, X10, and X21, all of which are located below the Mill Creek Wetlands diversion, and site 82.
 - At X9, the percent of alive trees and canopy coverage decreased from 2022 to 2025, and the percent of stressed trees increased. Site X9 does not align with an area of NDVI time series analysis.
 - At X10, the percent of alive trees decreased from 2022 to 2025, and the percent of stressed trees increased. At MC-1, NDVI remained the same from 2024 to 2025.
 - At X21, the percent canopy cover decreased from 91 percent in 2022 to 73 percent in 2025, indicating that perennial pepperweed in this area may be outcompeting native

riparian vegetation. At the MC-5 area, there has been a notable decrease in NDVI over the last two years, along with a change in timing of growing season NDVI values. These changes could be related to a decrease or stressing of the native riparian vegetation species caused by the perennial pepperweed.

- At 82, the percent canopy cover and percent of alive trees both increased from 2022 to 2025. In contrast, 82 is within the MC-4 area, where NDVI decreased from 2023 to 2025, and is one of the only areas where NDVI has decreased over this least year along Mill Creek. This may be reflective of an impact of the perennial pepperweed at this site.
- Perennial pepperweed was observed at both of the new monitoring site plots along the SAR— SAR 01 and SAR 02. Scouring of the riparian habitat during high-precipitation and high-discharge events in 2023 and 2024, may have removed or knocked down larger riparian vegetation, creating open areas for the perennial pepperweed to proliferate.
 - At SAR 01, 20 percent of the trees observed were stressed. Site SAR 01 does not align with an area of NDVI time series analysis.
 - At SAR 02, 17 percent of the trees observed were dead. At the SAR-4 area, NDVI decreased from 2024 to 2025.

Overall, the NDVI time-series results suggest that perennial pepperweed is not having a significant, notable effect on the condition of riparian vegetation health.

In 2025, various species of non-native tree species were observed at monitoring site plot X3 along Chino Creek, and the NDVI is showing an increasing trend at the CC-1 area from 2024 to 2025. Additionally, the nuisance species, wild grape, was observed at monitoring site plot X13 along SAR, and the NDVI is showing an increasing trend at the SAR-2 area from 2024 to 2025.

3.6.5 Miscellaneous Factors

Figure 3-3 shows notable patches of NDVI increases and decreases from 2024 to 2025 below the OCWD wetlands, along and adjacent to the lower reach of Chino Creek, and along the SAR. The causes of these changes in NDVI have not been correlated with groundwater levels, surface-water discharge, or climate impacts. However, the area below the OCWD wetlands correlates with an area where recent *Arundo* removal and treatment occurred; and a large patch adjacent to Chino Creek just northwest of the OCWD wetlands correlates with a recent wildfire in 2025. The remaining notable areas where NDVI changed are in the lower Prado Basin and are vegetated areas mostly dominated by perennial growth, that respond to variations in precipitation over wet and dry years. As described in Section 3.4, WY 2025 was a dry year, after two subsequent wet years in WY 2024 and WY 2023. These conditions likely impacted the amount of perennial plant growth and the observed changes in NDVI from 2024 to 2025:

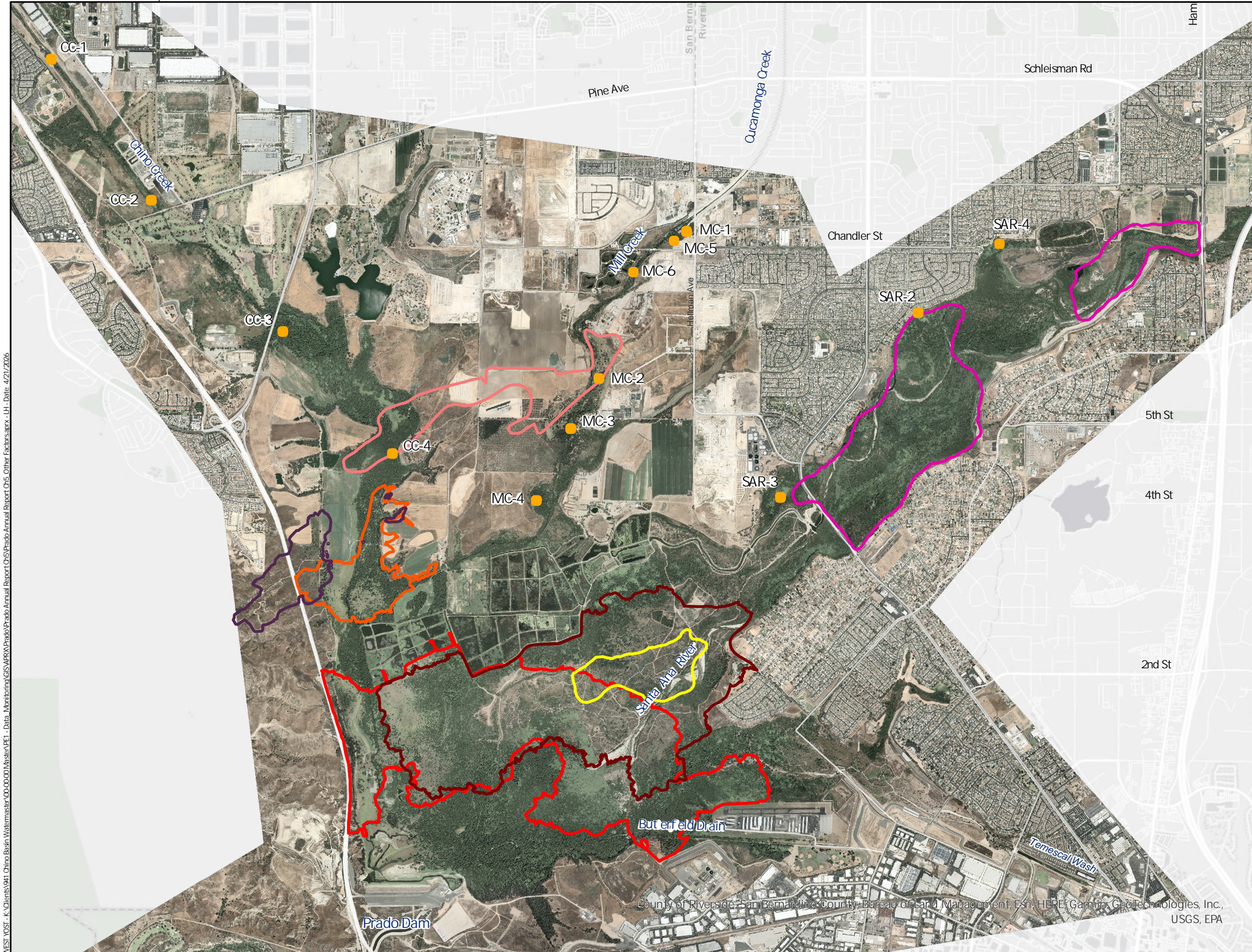
- The notable patches of NDVI increases along the SAR are likely due to regrowth of vegetation following scouring along edges of the river during the significantly higher surface-water discharge conditions in WY 2023 and WY 2024. This scouring effect was described in the 2023 and 2024 Annual Reports. Observation of the 2024 and 2025 air photos show these areas as bare land in 2024 and covered with green vegetation in 2025.
- The notable patches of NDVI increases along and adjacent to the lowest portion of Chino Creek behind Prado Dam are likely due to vegetation regrowth following an extended period of seasonal inundation during water-conservation operations. The significantly wet conditions in WY 2023 and WY 2024 resulted in a prolonged conservation pool behind Prado Dam, disrupting the growth of perennial grasses and shrubs. In contrast, the drier conditions in

2025, with no conservation pool, allowed for regrowth. Comparison of the 2024 and 2025 air photos reveals these areas as bare, gray/brown land in 2024, replaced by green land cover of perennial grasses and shrubs in 2025.

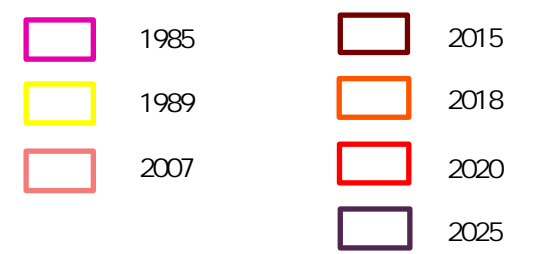
- The notable patches of NDVI decrease adjacent to the lower reach of Chino Creek are likely due to less perennial grasses and shrubs growing in the area due to a drier year than the two years before. Comparison of the 2024 and 2025 air photos show these areas as green coverage in 2024, replaced by more gray/green coverage in 2025.

DRAFT

117°40'0"W

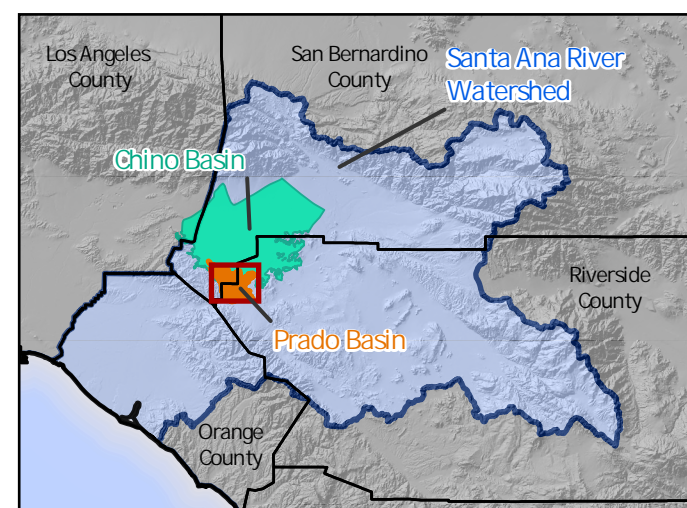


Extent of Wildfire Occurrences in Prado Basin (1985-2025)

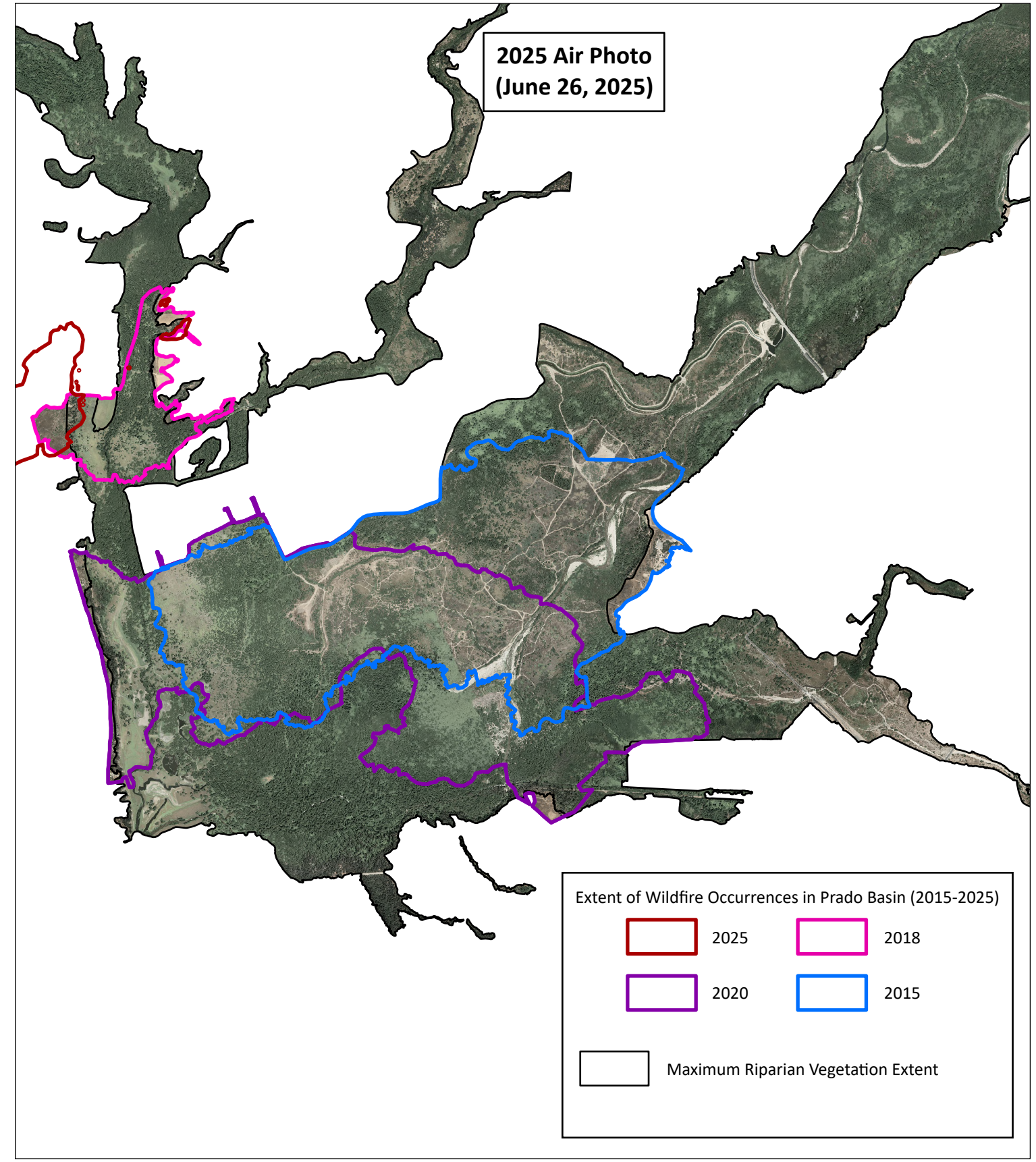
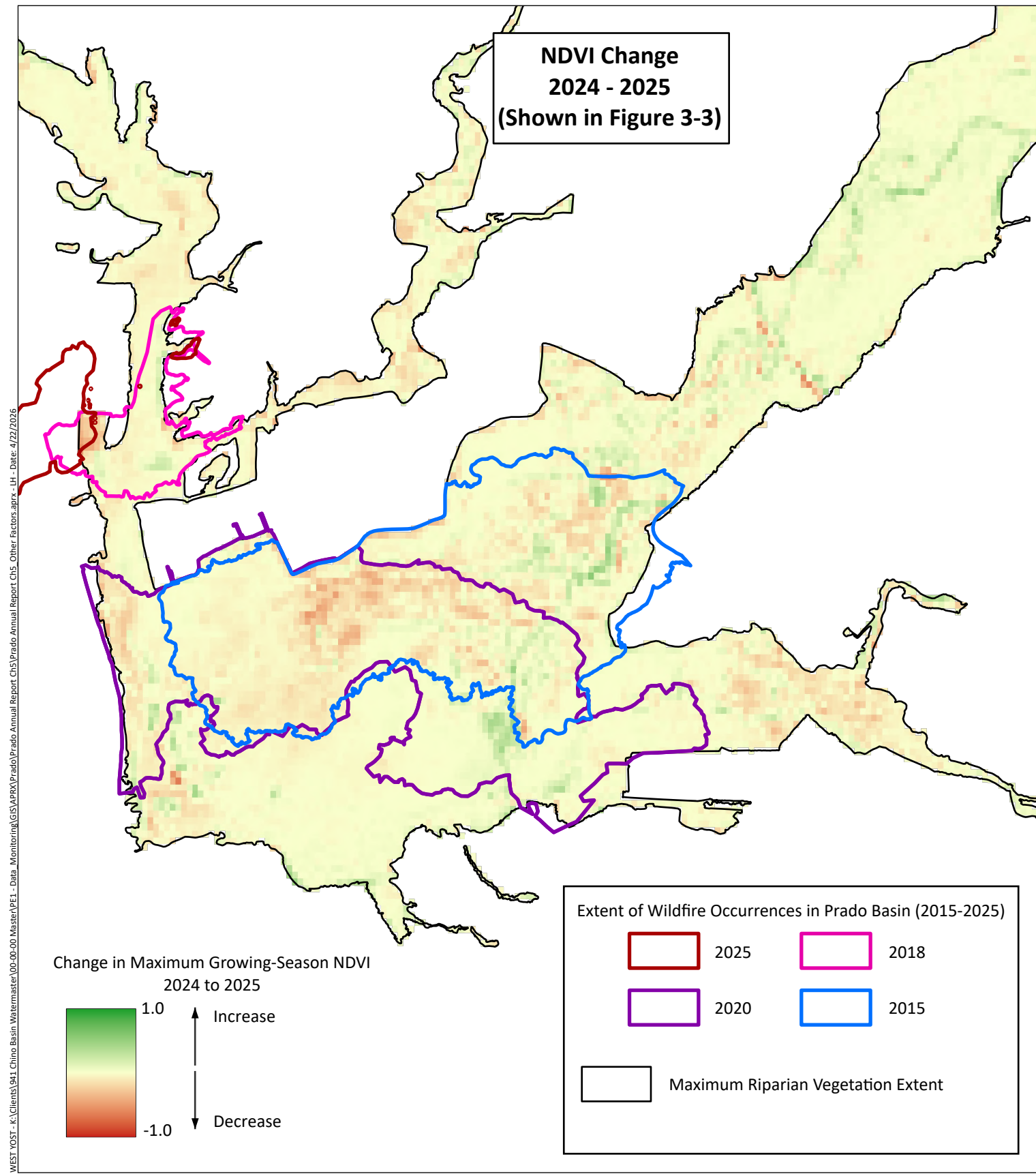


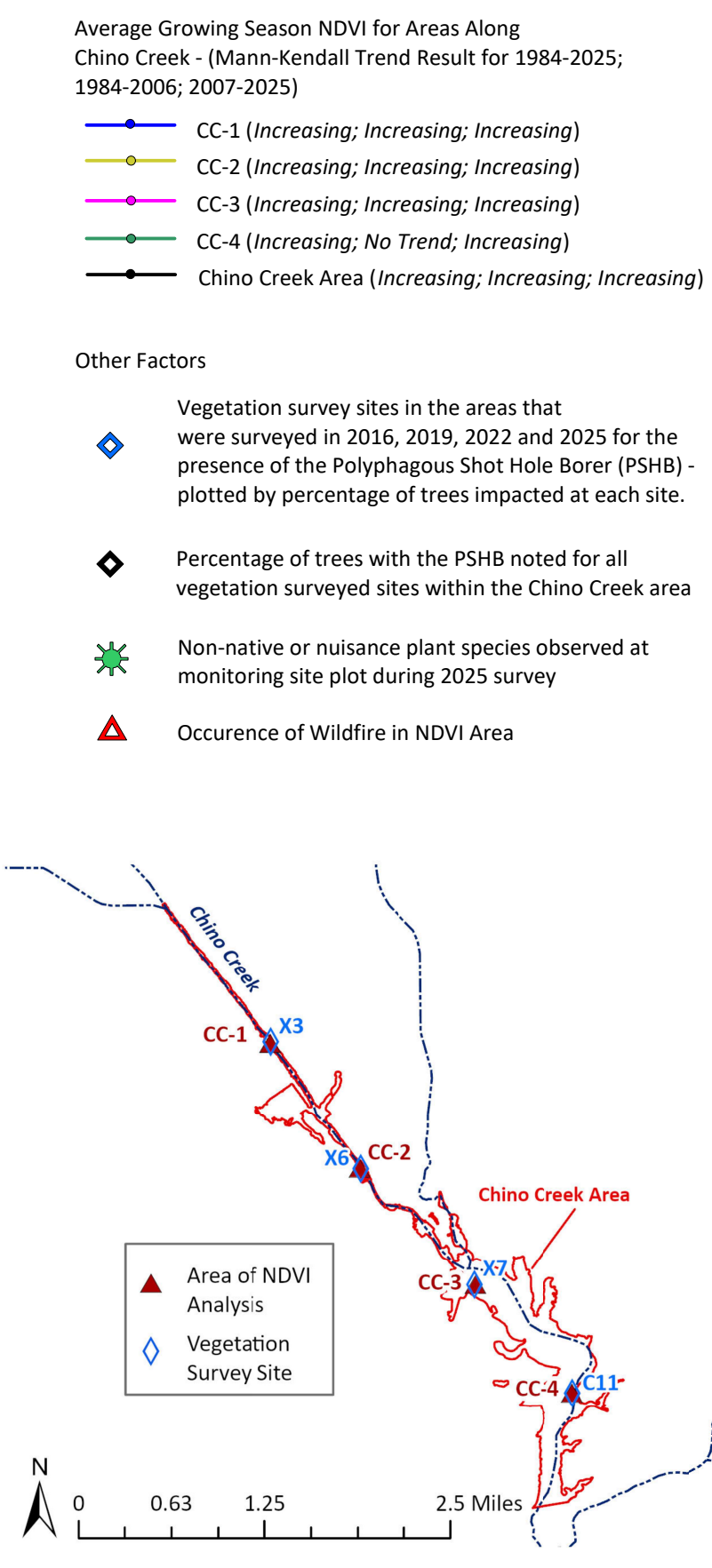
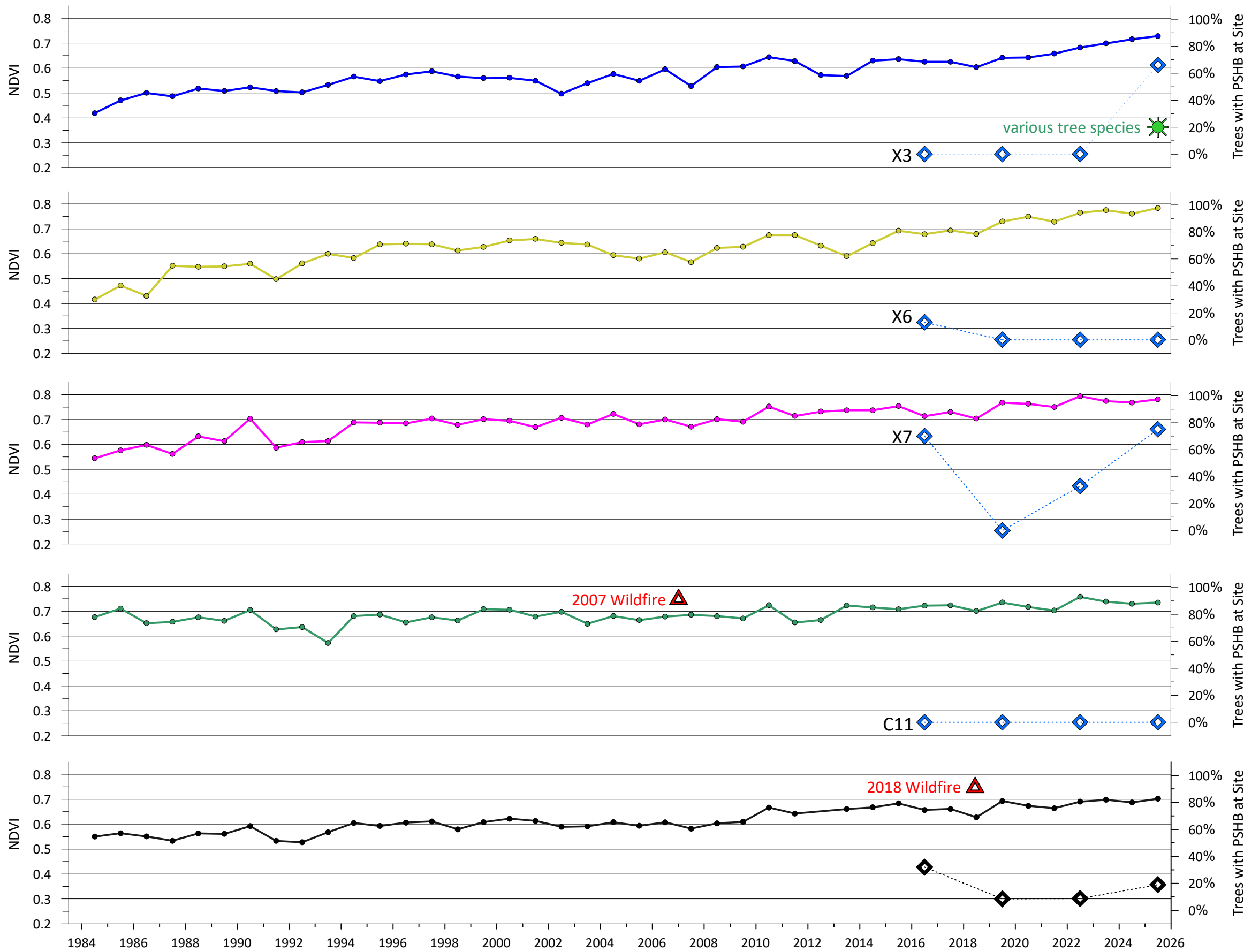
Small Defined Area Analyzed for NDVI Time Series
1 NDVI pixel (30x30-meters)

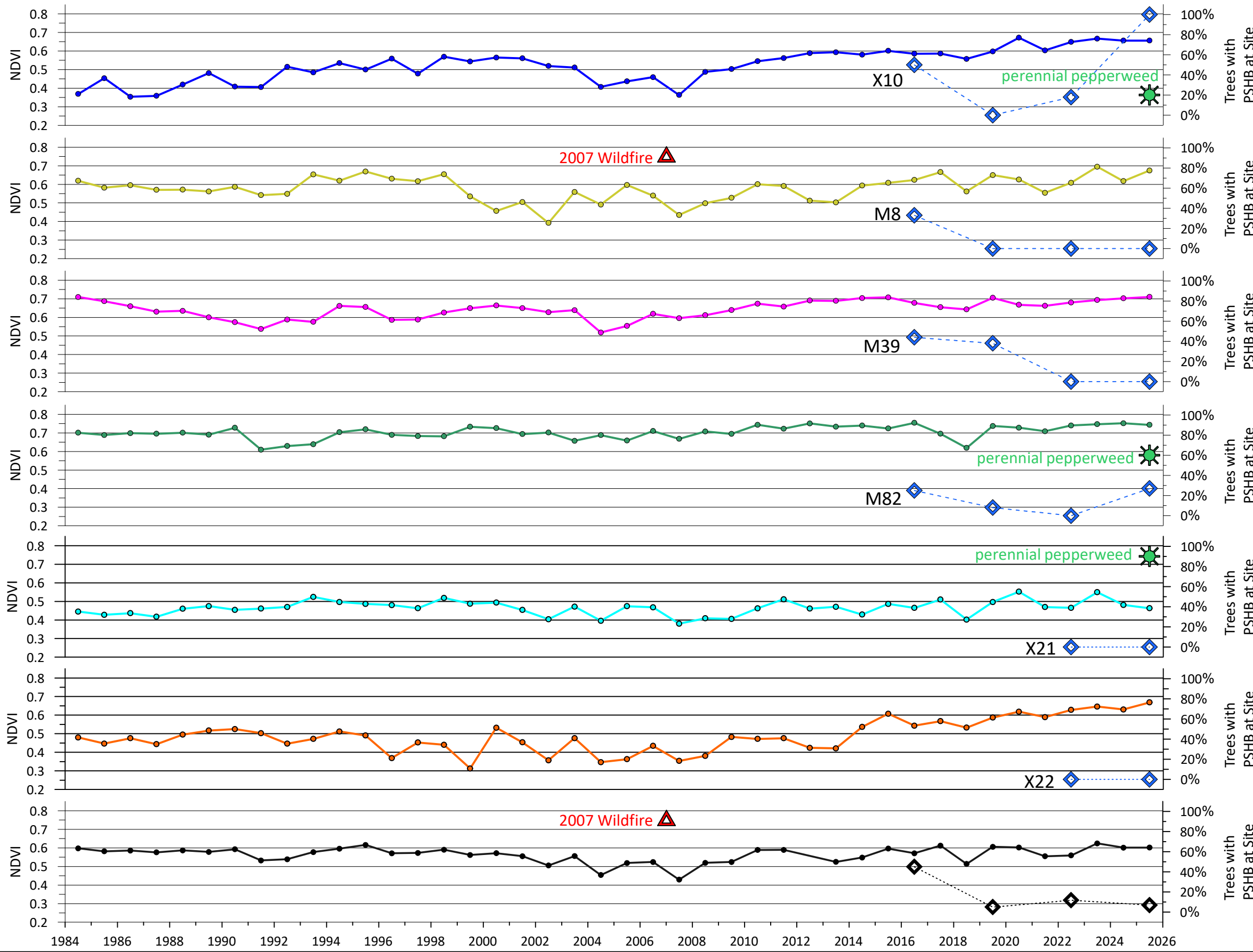
WEST_YOST - K:\Clients\0411 Chino Basin Watermaster\00000000 Master\FE1 - Data_Monitoring\GIS\MPRA\Prado\Prado Annual Report CHS\Prado Annual Report CHS\Prado Annual Report CHS - LH - Date: 4/21/2026



Location Map of Other Factors That Can Affect Riparian Habitat
Wildfire





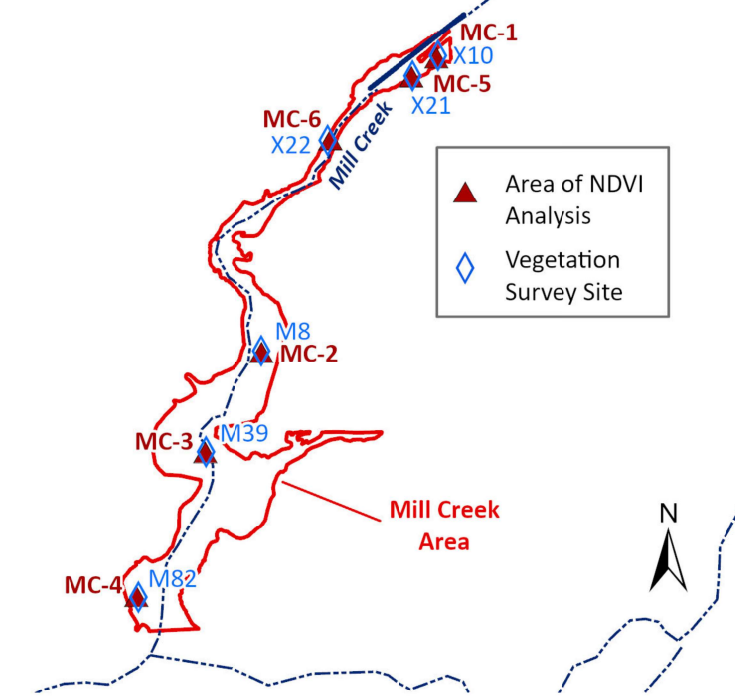
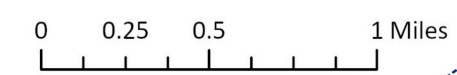


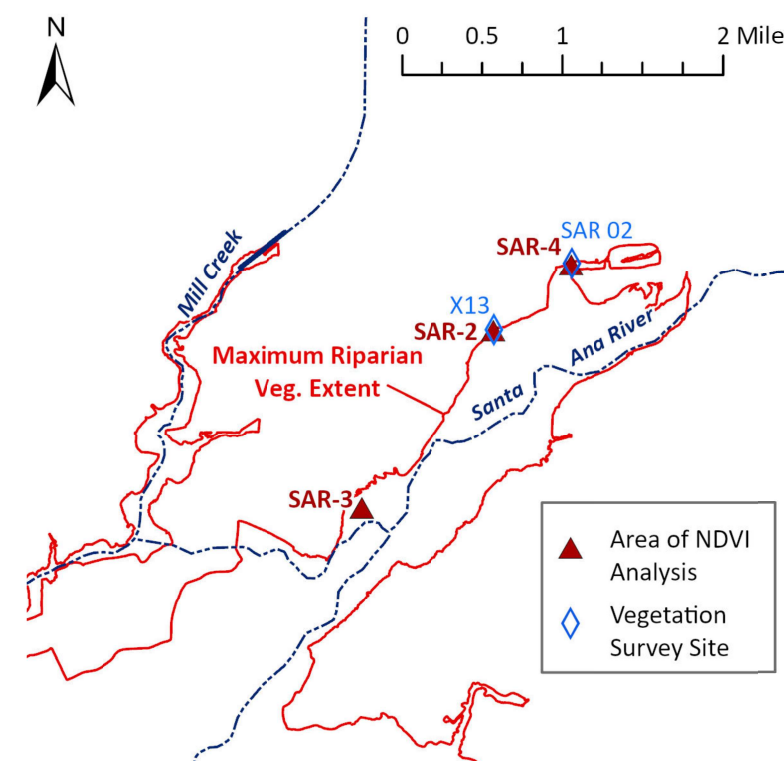
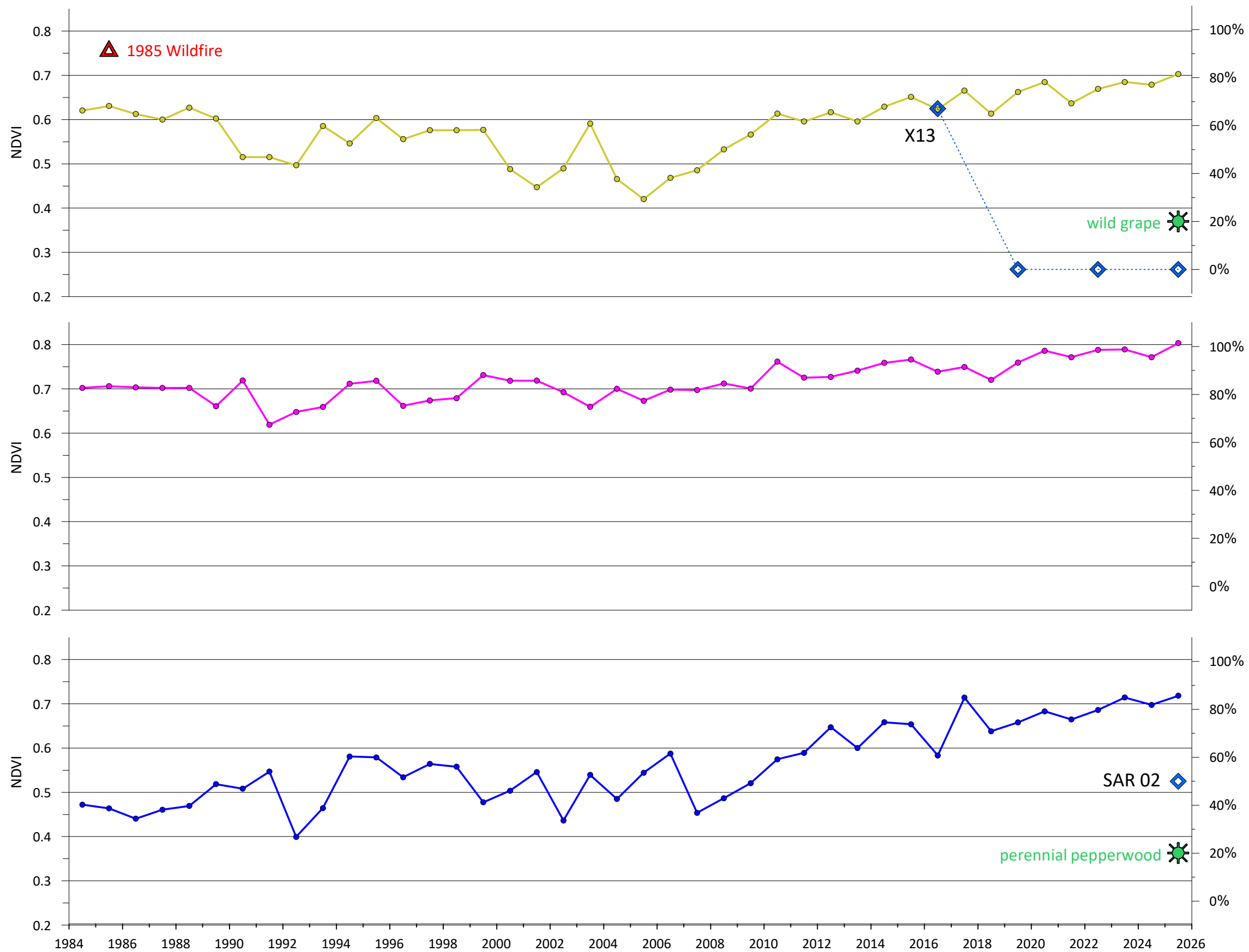
Average Growing Season NDVI for Areas Along Mill Creek - (Mann-Kendall Trend Result for 1984-2025; 1984-2006; 2007-2025)

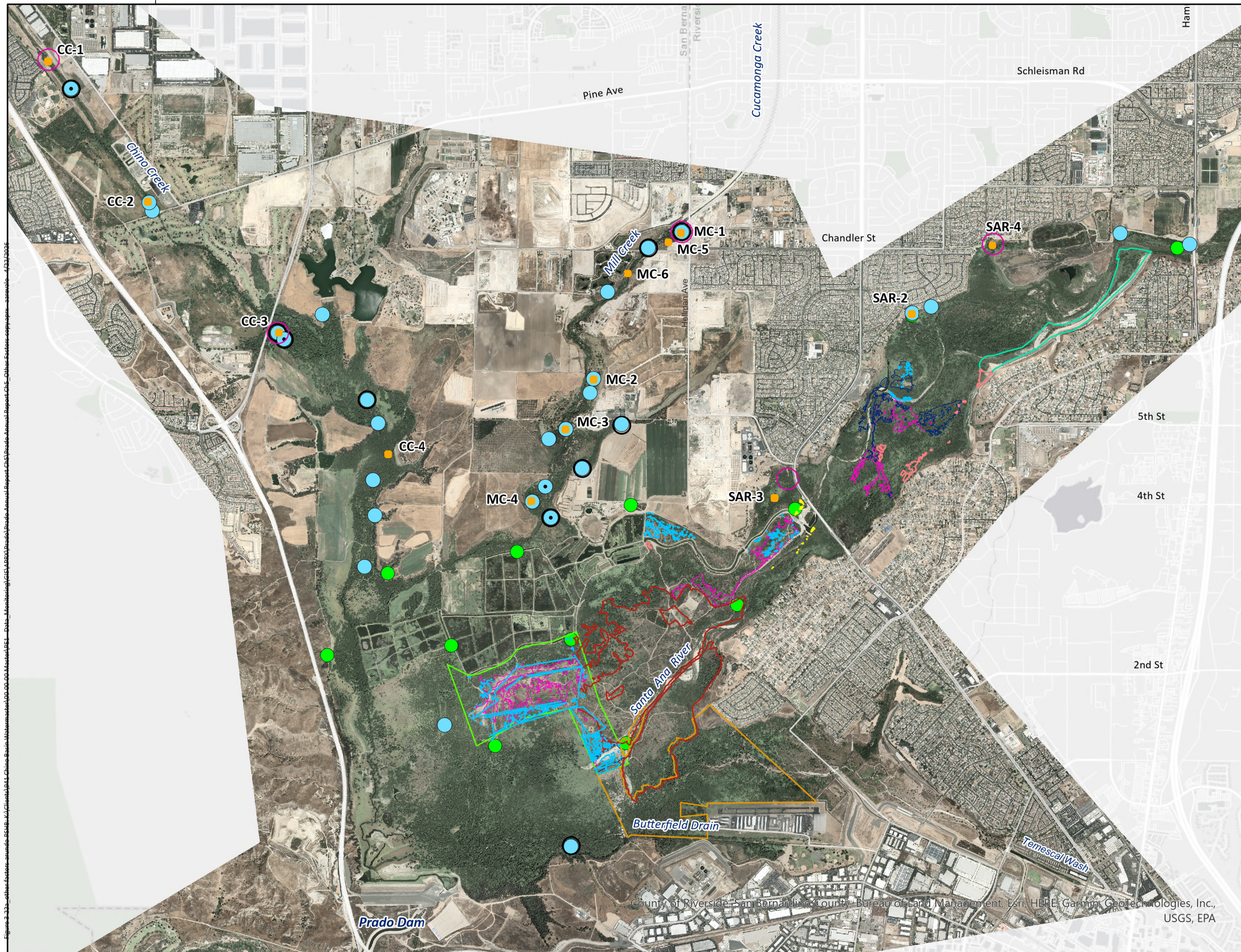
- MC-1 (Increasing; Increasing; Increasing)
- MC-2 (No Trend; No Trend; Increasing)
- MC-3 (Increasing; No Trend; Increasing)
- MC-4 (Increasing; No Trend; No Trend)
- MC-5 (No Trend; No Trend; Increasing)
- MC-6 (Increasing; Decreasing; Increasing)
- Mill Creek Area (No Trend; Decreasing; Increasing)

Other Factors

- Vegetation survey sites in the areas that were surveyed in 2016, 2019, 2022 and 2025 for the presence of the Polyphagous Shot Hole Borer (PSHB) - plotted by percentage of trees impacted at each site.
- Percentage of trees with the PSHB noted for all vegetation surveyed sites within the Mill Creek area
- Non-native or nuisance plant species observed at monitoring site plot during 2025 survey
- Occurrence of Wildfire in NDVI Area







Documented Locations of Polyphagous Shot-Hole Borer (PSHB)

- Identified by USBR during the 2016 Vegetation Surveys
- Identified by USBR during the 2019 Vegetation Surveys
- Identified by USBR during the 2022 Vegetation Surveys
- Identified by ECORP during the 2025 Vegetation Surveys
- Traps Deployed by OCWD and SAWA from August 2016 to April 2017

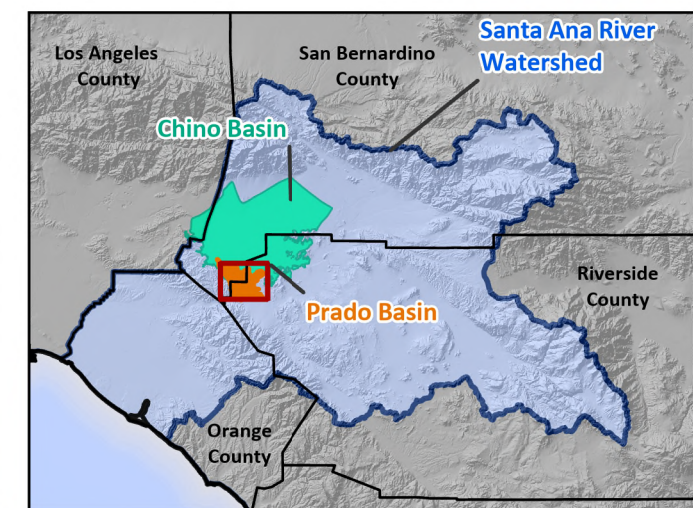
Area of SAWA Arundo Removal, Treatment, and/or Maintenance

- 2025
- 2023-2024
- 2022
- 2021
- 2020
- 2019
- 2016 - 2018

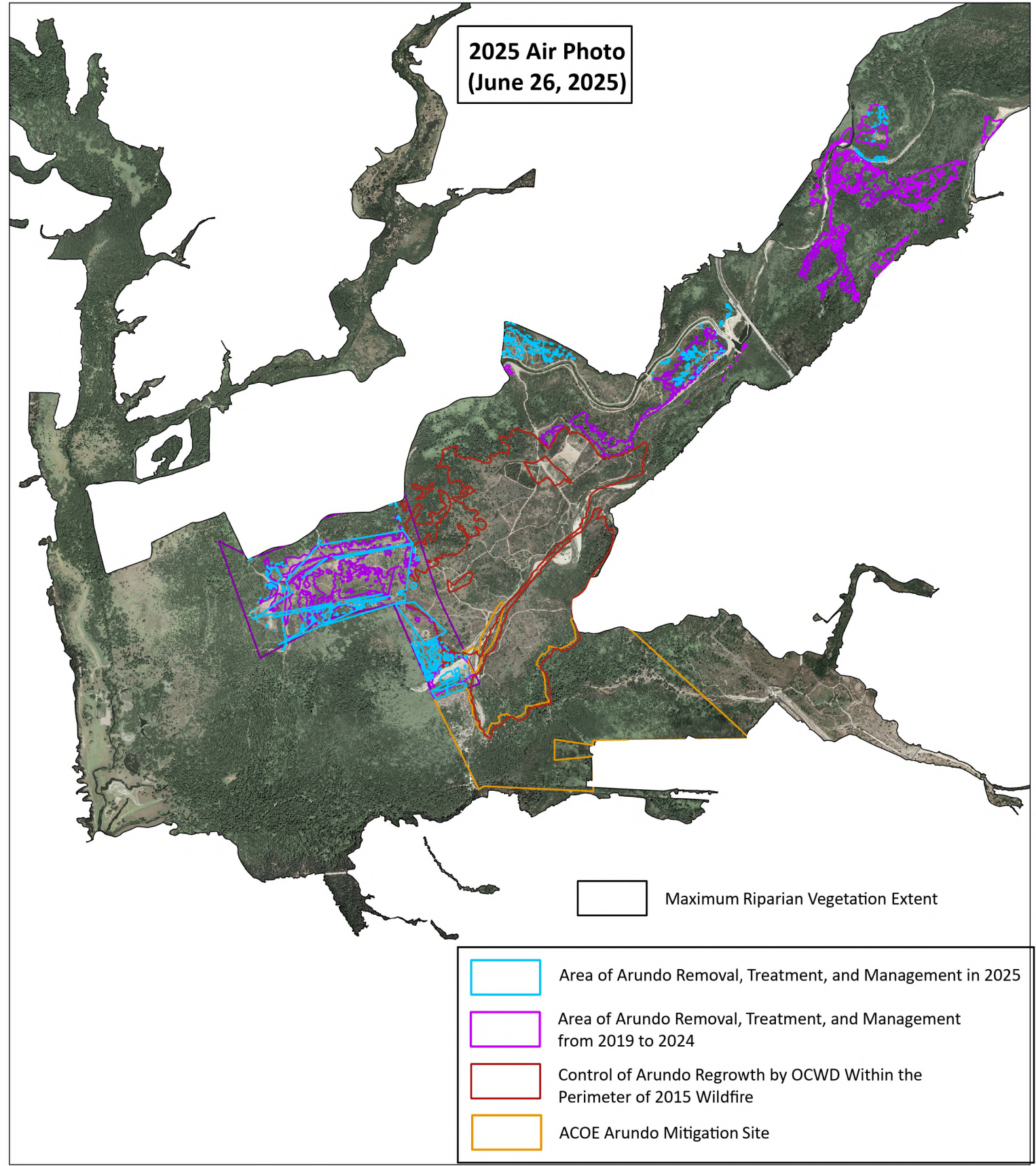
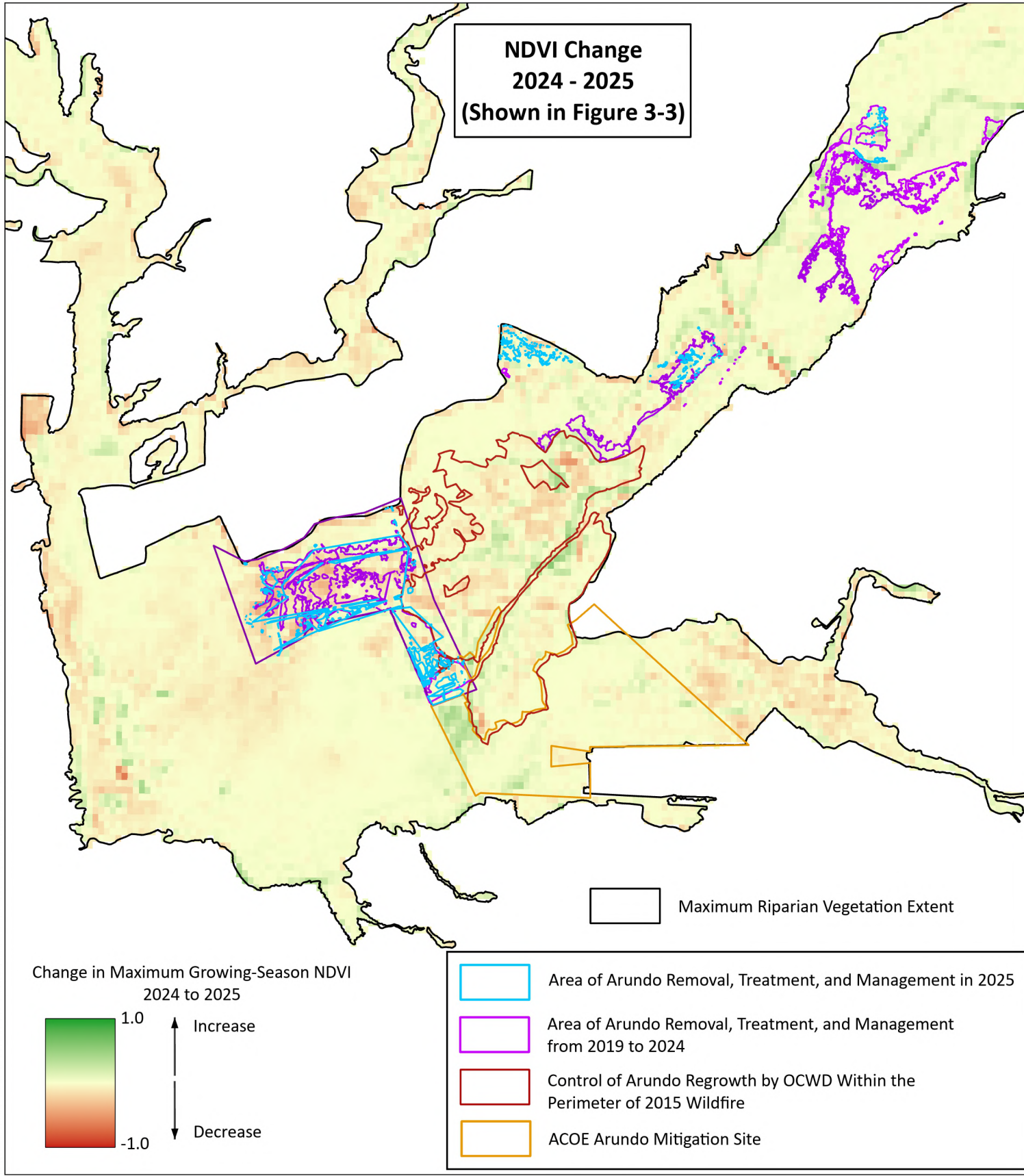
Area of Arundo Management

- Control of Arundo Regrowth by OCWD within the Perimeter of 2015 Wildfire
- ACOE Arundo Mitigation Site

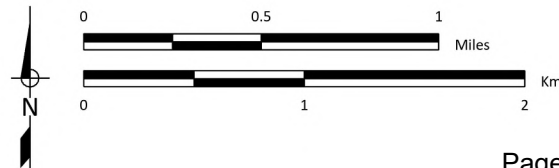
● Small Defined Area Analyzed for NDVI Time Series - 1 NDVI pixel (30 x 30-meters)



WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\APRA\Prado Annual Report Ch5\Prado Annual Report Ch5_Other Factors-copy.aprx - LH - Date: 4/22/2026



Prepared by:



Prepared for:

Prado Basin Habitat Sustainability Committee
2025 Annual Report



**Spatial NDVI Change 2024-2025 and 2025 Air Photo
with Prado Basin Arundo Removal and Management
2016-2025**

Figure 3-22b

3.7 Analysis of Prospective Loss of Riparian Habitat

The meaning of “prospective loss” of riparian habitat in this context is the “future potential loss” of riparian habitat. Watermaster’s most recent (2020) predictive modeling results³¹ were used to identify areas of prospective loss of riparian habitat that may be attributable to the Peace II Agreement by projecting future groundwater-level conditions in the Prado Basin area through 2030. To perform this evaluation, the predictive model results were mapped and charted to identify areas, if any, where groundwater levels are projected to decline to depths that may adversely impact the riparian habitat in the Prado Basin.

Figure 3-23 is a map that shows the 2020 model-predicted change in groundwater levels in the Prado Basin area over the period of 2018-2030 from the planning scenario used to recalculate the Safe Yield of the Chino Basin in 2020 using Watermaster’s updated groundwater-flow model (WEI, 2020). The map shows that groundwater levels are predicted to remain steady across most of the Prado Basin area through 2030. The stability in groundwater levels is explained in part by projected declines in groundwater production from private wells in the area, the IEUA’s delivery of treated recycled water to this area for direct uses (such as outdoor irrigation), and the fact that most of the Chino Basin Desalter production will occur to the north and northeast. Figure 3-24 shows that the most likely area where groundwater levels are projected to decline by 2030 is the northern portions of Mill Creek and the SAR.

Figure 3-24 is a time-series chart of the 2020 model-predicted groundwater levels at the PBHSP monitoring wells for the period of 2018 to 2030. These wells are strategically located adjacent to the riparian habitat south of the Chino Desalter well field to understand the potential impacts of Peace II implementation on groundwater levels and the riparian habitat. The chart shows:

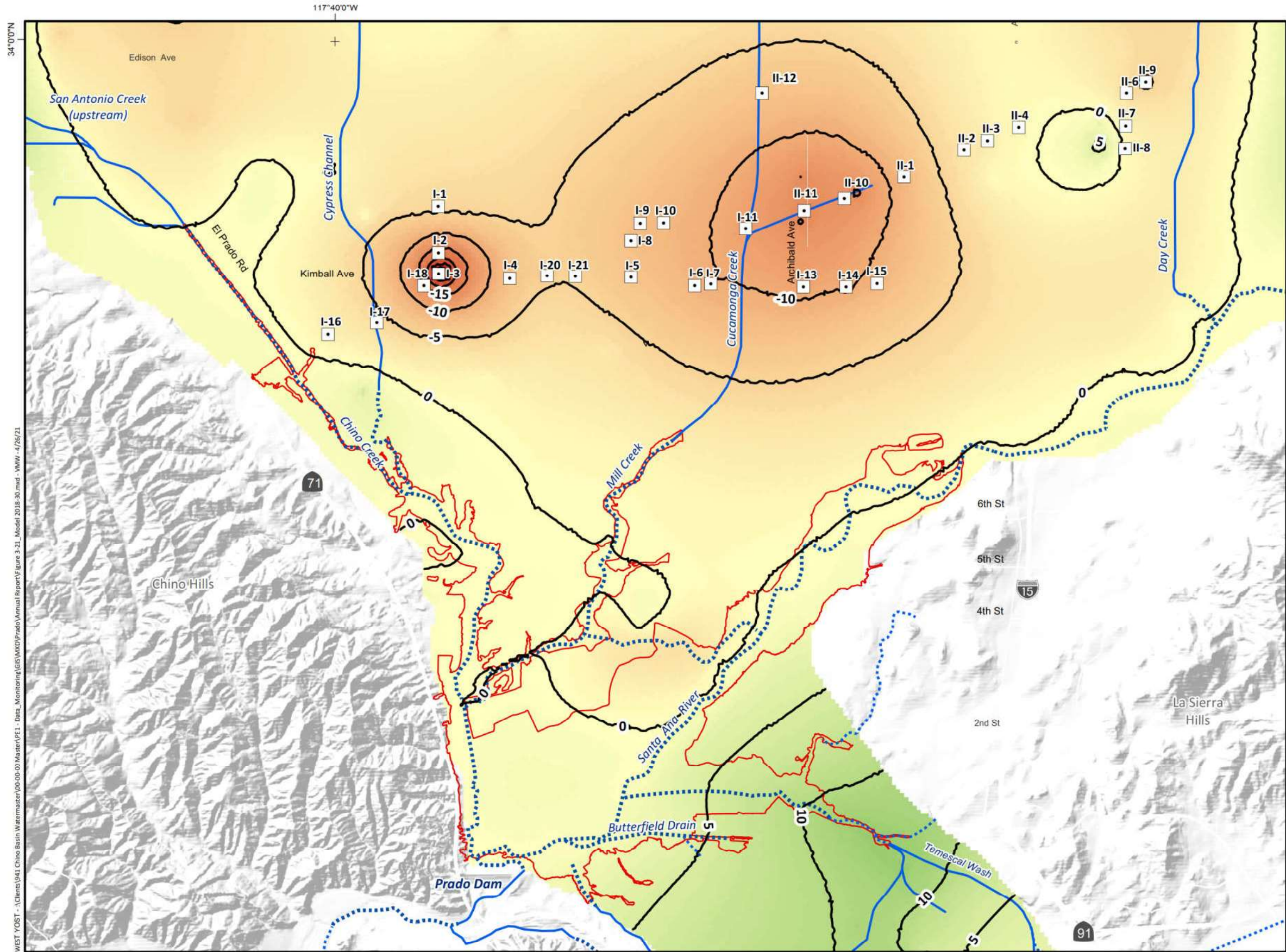
- Groundwater levels are projected to fluctuate seasonally at all PBHSP monitoring wells by about one to two feet.
- Groundwater-level trends are projected to remain stable at most of the PBHSP monitoring wells through the duration of the Peace II Agreement (through 2030).
- At two of the PBHSP monitoring wells, groundwater levels are projected to experience declines of about one to three feet from 2018 to 2030, which may represent a threat for prospective loss of riparian habitat:
 - **PB-2 above the northern reach of Mill Creek.** The 2020 model predicts a decline in groundwater levels at PB-2 of about three feet from 2018 to 2030. Figure 3-11 shows that groundwater levels declined at PB-2 by about 4.5 feet from 2018 to 2024, which is greater than the decline predicted by the model through 2030. Additionally, groundwater levels have declined by about 2.5 feet through 2024 in the riparian vegetation extent along Mill Creek just to the south. Figure 3-12 shows that the current (Fall 2024) depth-to-groundwater where the riparian vegetation is growing along the northernmost reaches of Mill Creek ranges from about 10-15 ft-bgs. Hence, if the

³¹ The predicted groundwater level changes through 2030 were made with the 2020 Chino Valley Model (CVM) for Scenario 2020 SYR1 for Layer 1 of the aquifer. The results of this model scenario were used to recalculate the 2020 Safe Yield of the Chino Basin (WEI, 2020). Scenario SYR1 is based on the water demands and water supply plans provided by the Watermaster parties, Chino Basin parties’ planning assumptions on pumping groundwater and conducting recharge operations, planning hydrology that incorporates climate change impacts on precipitation and ETO, and assumptions regarding cultural conditions and future replenishment.

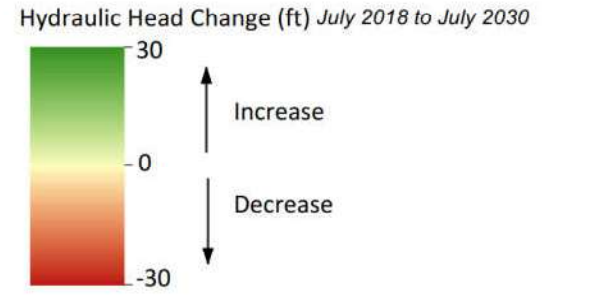
groundwater levels continue to decline along Mill Creek, then it could result in adverse impacts to the riparian habitat in this area.

- **PB-3 along the northern portion of the SAR.** The 2020 model predicts a decline in groundwater levels at PB-3 of about one foot from 2018 to 2030. Figure 3-13c shows that groundwater levels declined at PB-3 by about 1.5 feet, from 2018 to 2024, which is slightly greater than the decline predicted by the model through 2030. Figure 3-12 shows that the current (Fall 2024) depth-to-groundwater where the riparian vegetation is growing along the northernmost reaches of the SAR ranges from 6-11 ft-bgs. If groundwater levels continue to decline at similar or higher rate through 2030, then it could result in a depth to groundwater greater than 15 ft-bgs and adverse impacts to the riparian habitat in this area. However, the groundwater-level declines in this northern reach of the SAR near PB-3 are not a concern for the riparian vegetation at this time because the depth to groundwater in this area is shallow (6 to 11 ft-bgs) and is supported by SAR recharge.

DRAFT



Contours of Model-Predicted Change in Groundwater Levels for Layer 1* July 2018 to July 2030, feet

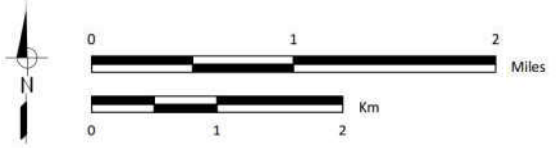


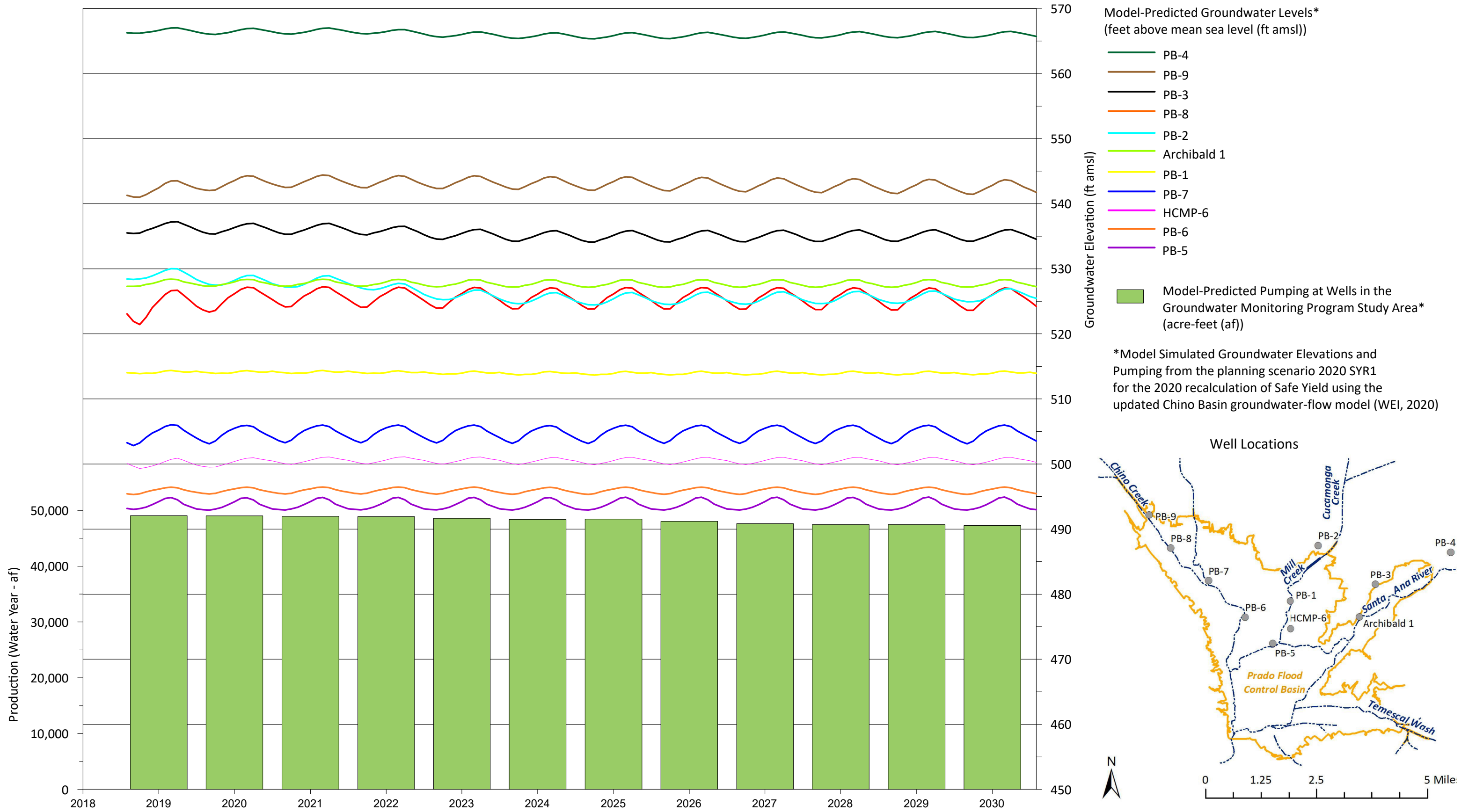
- Chino Desalter Well
- PBHSP Monitoring Well Site
- Riparian Vegetation Extent in Prado Basin
- Concrete-Lined Channels
- Unlined Rivers and Streams

* Model Predicted Change in Groundwater Levels from the planning scenario 2020 SYR1 for the recalculation of Safe Yield using the updated Chino Valley Model (WEI, 2020)



WEST_YOST - \Clients\941 Chino Basin Watermaster\00-00-00 Master\PE1 - Data_Monitoring\GIS\WXCD\Prado\Annual Report\Figure 3-21_Model 2018-30.mxd - VMMW - 4/26/21





Prepared by:



Prado Basin Habitat Sustainability Committee
2025 Annual Report

Prepared for:



Predicted Change in Groundwater Levels
2018 to 2030 - Scenario 2020 SYR1

Figure 3-24

4.0 CONCLUSIONS AND RECOMMENDATIONS

The monitoring and mitigation requirements in the Peace II SEIR call for annual reporting for the PBHSP. Annual reports include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured loss or prospective loss of riparian habitat that may be attributable to the Peace II Agreement.

The following describes the main conclusions of this annual report and provides recommendations for future monitoring, reporting, and mitigation, if any.

4.1 Main Conclusions and Recommendations

4.1.1 Conclusions

The main conclusions of the PBHSC Annual Report for WY 2025 are:

- Based on the analysis of NDVI time series and air photos, the quality (greenness) of the riparian habitat vegetation across most of the Prado Basin increased or remained the same from 2024 to 2025. The exception is two areas where the NDVI decreased, and those changes were minor and within the range of one-year variability observed historically. The 2024 and 2025 air photos reveal no significant changes in riparian vegetation, and areas previously noted as having reduced coverage or browning in 2024 exhibited increased greenness in 2025. These observations occurred during a slightly warmer and drier year following two consecutive wet years.
- Based on the analysis of NDVI spatial change maps and air photos, there were three notable areas of decreases and increases in greenness observed in the Prado Basin between 2024 and 2025: (i) increases and decreases along the lower reach of Chino Creek; (ii) increases along the SAR; and (iii) decreases below the OCWD wetlands. The increases were likely caused by growth of perennial vegetation in a dryer year following two wet years where there was scouring along the channels, and inundation from the water conversation pool behind the dam. The potential cause of the decreases varied by area, and included a 2025 wildfire, continued maintenance of Arundo, or less perennial vegetation growth in a dry year. None of the reductions in greenness were related to declining groundwater levels during the period of Peace II Agreement implementation.
- Based on the results of the vegetation survey, overall the riparian vegetation at the monitoring sites appears to be healthy and the riparian system is functioning properly. The primary driver of observed variability and year-to-year changes is climate. All the changes observed in the riparian vegetation from 2022 to 2025 appear to be within the normal range of variability related to climatic changes and it is unlikely that any observable decline in the riparian system for the monitoring site plots could be linked to groundwater pumping.
- Over this past year from 2024 to 2025, groundwater levels at the PBHSP monitoring wells along Chino Creek, Mill Creek and the SAR in the Prado Basin remained stable or showed slight changes of +/- up to a foot. These changes were likely due to a drier year with decreased stream discharge.
- Since groundwater-level measurements commenced at the PBHSP monitoring wells in 2015, there have been some increasing and decreasing trends in groundwater levels observed along the reaches of Chino Creek, Mill Creek, and SAR. From fall 2016 to fall 2025, groundwater levels throughout most of riparian vegetation extent have changed less than +/-5 feet. There are some notable areas of change:

- Groundwater levels have declined the most in the northern portion of Mill Creek just south of the PB-2 monitoring well. From 2016 to 2022 groundwater levels declined by about eight feet likely due to increased pumping at the CDA wells to the north. From 2023 to 2025, groundwater levels increased and have since leveled out in this area, for a net change of -4 feet since 2016. Based on the analysis of NDVI, air photos, and the 2025 vegetation surveys, there are no notable declines in the greenness of the riparian vegetation in this northern area of Mill Creek reach where groundwater levels have declined.
- In the northern reach of Chino Creek, groundwater levels increased by about ten feet from 2016 to 2024. These increases in groundwater levels were likely due to decreased groundwater pumping in the area.
- The depth to groundwater in the northernmost reach of Mill Creek where the groundwater levels have declined the most (near PB-2) is estimated at 10-15 ft-bgs in WY 2025. Future declines in groundwater levels in this area could result in adverse impacts to the riparian habitat.

4.1.2 Recommendations

Based on the conclusions above, the PBHSP monitoring and reporting should continue to monitor and assess the extent and quality of the riparian habitat and the factors that can influence it, consistent with the approach used through WY 2025. As described earlier, groundwater levels declined from 2016 to 2022 beneath the northern portion of Mill Creek; however, levels have since recovered to roughly halfway between their 2022 lows and historical conditions, and no long-term negative impacts to the riparian vegetation have been observed in this area. Focused monitoring along Mill Creek has continued to evaluate whether the earlier groundwater declines could affect the extent or quality of riparian habitat, and results to date indicate no sustained adverse effects.

The latest triennial vegetation surveys were in the summer of 2025 and were tailored to focus on the northern portion of Mill Creek and reduced to key locations for continued representative monitoring. The biological consultant who performed the surveys recommended the surveys continue every three years.

4.2 Recommended Mitigation Measures and/or Adjustments to the AMP

This annual report has documented no trend in the degradation of the extent or quality of riparian habitat along Chino Creek, Mill Creek, or the SAR that is contemporaneous with decreasing groundwater levels during the implementation of the Peace II Agreement. As such, no mitigation measures are proposed at this time and no adjustments to the AMP are recommended.

4.3 Recommended PBHSP for Fiscal Year 2026/27

Based on preliminary analysis of the PBHSP data for WY 2025, a draft *Technical Memorandum Recommended Scope and Budget of the Prado Basin Habitat Sustainability for FY 2026/27* was submitted to the PBHSC on March 12, 2026. On March 19, 2026, Watermaster's Engineer presented the recommended scope and budget for FY 2026/27 to the PBHSC for consideration. There were no changes recommended by the PBHSC on the proposed FY 2026/27 scope of work, and a final scope of work and budget was submitted to the PBHSC and will go through the Watermaster and the IEUA FY 2026/27 budgeting process in May and June of 2026. The scope of work for the PBHSP for FY 2026/27 is shown in Table 4-1 as a line-item cost estimate.

The following describes the scope of work for the PBHSP for FY 2026/27:

Recommended Scope of Work and Budget

Since monitoring began in 2015, the monitoring and analysis of the riparian habitat, groundwater levels, precipitation, temperature, and surface-water discharge have been successful in identifying: (i) changes in the health and extent of the riparian habitat (ii) changes in groundwater levels in the Prado Basin and the relationship to riparian habitat health, and (iii) relationships between the riparian habitat and the factors that influence it besides groundwater levels. The monitoring of the riparian habitat and changes in groundwater levels remain the most critical components of the PBHSP.

Groundwater levels in the northern portions of Mill Creek and the SAR declined for a period of time between 2021 and 2023, reaching levels lower than the model-predicted groundwater levels for Peace II implementation that were assumed to have minimal impact on the habitat. The PBHSP monitoring during this period indicated that riparian vegetation health did not exhibit a corresponding decline attributable to the lowered groundwater levels; and slight declines in the vegetation greenness that were observed were associated with other factors.

The last PBHSP Annual Report for water year 2024 documented some notable decreases in the vegetation greenness in the Mill Creek area, shown in the remote sensing data and visible as browning in the air photos. These decreases occurred during a period of cooler-than-average temperatures, stable or increasing groundwater levels, and above average precipitation and stream discharge. Preliminary analyses for the current PBHSP Annual Report for WY 2025 do not indicate a significant decrease in the vegetation greenness in any of the areas. Furthermore, field vegetation surveys conducted in October 2025 confirmed that overall, the riparian vegetation in Prado Basin appeared healthy.

The continuation of the monitoring and analyses as done in previous fiscal years is necessary to continue to identify potential changes in the riparian habitat and groundwater levels, and the specific causes of those changes during the implementation of the Peace II Agreement. If mitigation measures are ever determined to be necessary, the PBHSP results will assist in their development. Based on the monitoring and reporting completed to date—and consistent with the scope implemented in previous years, the proposed PBHSP scope of work for FY 2026/27 includes the following tasks:

- Task 1: Groundwater Monitoring Program
- Task 2: Surface-Water Monitoring Program
- Task 3: Climate Monitoring Program
- Task 4: Riparian Habitat Monitoring Program
- Task 5: Prepare Annual Report
- Task 6: Project Management and Administration

The monitoring and analysis proposed for FY 2026/27 for the PBHSP is generally the same scope as the previous year, except it excludes the periodic field vegetation surveys that are done every three years (last conducted in 2025). As a result, the proposed budget for FY 2026/27 is less than the budget for FY 2025/26 and continues to incorporate cost savings due to efficiencies in the monitoring and reporting program developed over the years.

Table 1 is a line-item cost estimate for Tasks 1 through 6. The costs of the PBHSP are shared between Watermaster and IEUA per 2016 Agreement.³² Watermaster is responsible for the costs associated with Tasks 1 and 2; IEUA and Watermaster split costs equally for Tasks 3 through 6. The OCWD is also a cost-sharing partner for sub-Task 4.1.

The proposed scope of work is described below by task.

Task 1. Groundwater Monitoring Program

The monitoring of groundwater levels in the Prado Basin is a key component of the PBHSP because declining groundwater levels could be a factor related to Peace II implementation that adversely impacts riparian vegetation. Sixteen monitoring wells were installed specifically for the PBHSP in 2015. These wells, plus monitoring wells HCMP-5/1 and RP2-MW3, are monitored for the PBHSP. Figure 1 shows these 18 PBHSP monitoring wells located at nine sites in the Prado Basin along the fringes of the riparian habitat. The 18 monitoring wells are equipped with integrated pressure transducers/data-loggers (hereafter referred to as transducers) that measure and record water level measurements and temperature readings every 15 minutes. At 15 of the 18 wells, the transducers also collect high-frequency measurements of EC. The inclusion of the high-frequency temperature and EC data was a recommendation resulting from the evaluation of a pilot monitoring program in the Annual Report for water year 2022 and is used to help evaluate groundwater/surface-water interactions. As transducers require replacements at the end of their useful life, they will be replaced with transducers that measure EC.

This task includes quarterly field visits to all 18 PBHSP monitoring wells to download the data from the transducers, and the processing, checking, and uploading of the water level, temperature, and EC data to the PBHSP database. The scope of this task is the same as the previous fiscal year.

Task 2. Surface-Water Monitoring Program

Surface-water data from the SAR and the tributaries that cross Prado Basin are used to evaluate groundwater/surface-water interactions and their importance to the impact on groundwater levels and riparian habitat, and to characterize the influence of surface-water discharge on the riparian habitat.

The surface-water monitoring program includes two components: i) collecting field surface-water measurements of EC and temperature at select locations, and ii) leveraging available surface water quality and flow data for the study area monitored by various entities.

Task 2.1 is to collect field measurements of temperature and EC at four surface-water sites in Chino Creek and Mill Creek near the PB-1, PB-2, PB-7, and PB-8 monitoring wells (see Figure 1), and to process and upload the data to the database. The collection of field surface-water measurements was another monitoring recommendation from the evaluation of the pilot monitoring program in the Annual Report for water year 2022. The collection of this data will further support the analyses of groundwater/surface-water interactions with the high-frequency EC and temperature monitoring at nearby PBHSP monitoring wells collected in Task 1. The effort to collect, process, and upload the manual measurements is minimal since it can be done during the quarterly field visits to the monitoring wells to

³² Agreement Between Chino Basin Watermaster and Inland Empire Utilities Agency Regarding Reimbursement of the Peace II Subsequent Environmental Impact Report Mitigation Measure 4.4.5 (Prado Basin Habitat Sustainability Program). Signed September 2016.

download the transducer data. The scope of this sub-task is consistent with the work performed for the previous fiscal year.

Task 2.2 includes the annual collection and review of the surface-water data from four publicly available data sets, including: the USGS daily discharge measurements at six sites along the SAR and its tributaries; daily discharge and water-quality data from POTWs that are tributary to Prado Basin; US ACOE daily measurements of reservoir elevation and releases from the reservoir at Prado Dam; and Watermaster's quarterly surface-water quality monitoring at two sites along the SAR. The locations of these surface-water monitoring sites are shown on Figure 1. The data for water year 2026 will be compiled and reviewed. This sub-task does not include the effort to obtain, process, and upload the data to the database, which is performed under other Watermaster tasks for other monitoring programs. The scope of this sub-task is consistent with the work performed for the previous fiscal year.

Task 3. Climate Monitoring Program

Climatic data are evaluated in the vicinity of the Prado Basin to characterize trends and to determine if these trends contribute to impacts on the riparian habitat. The climate monitoring program utilizes two types of publicly available, spatially gridded datasets. Task 3 includes the annual collection of these spatially gridded datasets for water year 2026 (October 2025 – September 2026), and the checking and uploading of the data to the PBHSP database. The scope of this task is consistent with the work performed for the previous fiscal year.

Task 4. Riparian Habitat Monitoring Program

Monitoring the extent and quality of the riparian habitat in the Prado Basin is a fundamental component of the PBHSP to characterize how the riparian habitat changes over time. To characterize the impacts of Peace II implementation on the riparian habitat (if any) it is necessary to understand the long-term historical trends of its extent and quality, and the factors that have affected it. The current RHMP consists of both regional and site-specific components. The proposed RHMP for FY 2026/27 is described in the subsections below.

Regional Monitoring:

The regional monitoring of riparian habitat is performed via two independent methods that complement each other: mapping and analysis of the riparian habitat using (i) air photos and (ii) the NDVI derived from the Landsat remote sensing program. Tasks 4.1, 4.2, and 4.3 are for the collection and compilation of the regional monitoring data, including:

- Perform a custom flight (via outside professional services) to acquire a high-resolution air photo (three-inch pixel) of the Prado Basin during summer 2026. The cost for the air photo is shared with OCWD.
- Catalog and review in ArcGIS the quality and extent of the riparian vegetation in the 2026 high-resolution air photo of the Prado Basin. Commonly, a meeting is held with OCWD to review the air photo and share information on the other current monitoring efforts of Prado Basin riparian habitat.
- Collect, review, and upload the Landsat NDVI data for another year through the 2026 growing season (November 2025 through October 2026) NDVI is collected for the entire Prado Basin extent and 17 defined areas. In WY 2025 two defined areas were removed (LP and SAR-1) because the analysis in these areas was no longer needed; and a new area

(SAR-4) was added in the northern portion of the riparian vegetation along the Santa Ana River.

Site-Specific Monitoring:

The site-specific monitoring of the riparian habitat consists of periodic field surveys of the riparian vegetation at selected locations. These surveys provide an independent measurement of vegetation quality that can be used to “ground truth” the regional monitoring of the riparian habitat, as well as the occurrence of the PSHB, a pest that is known to increase tree mortality in the Prado Basin. The USBR along with the OCWD³³ has conducted field surveys once every three years since 2007 at 31-39 sites. The most recent triennial field survey was conducted in the summer of 2025 by ECORP at 20 sites, including two new sites along the northern portion of Mill Creek and two new sites along the SAR. The sites were reduced to 20 to focus on key representative areas where field data are important for verifying regional assessment monitoring, where there have been some observed groundwater level declines or vegetation health, and where the Peace II implementation has potential to impact riparian vegetation.

Task 5. Prepare Annual Report of the PBHSC

This task involves the analysis of all data sets collected by the PBHSP through WY 2026, including the data collected in Tasks 1 through 4 and for other as-needed factors that can impact the riparian habitat, such as wildfires, habitat mitigation programs, or construction/development in the Basin. The results and interpretations generated from the data analysis will be documented in the *Annual Report for Prado Basin Habitat Sustainability Committee for Water Year 2026*. This task includes the effort to prepare an administrative draft report for Watermaster and IEUA staff review, a draft report for the review by the PBHSC, and a final report including comments and responses document by early June. This task also includes a PBHSC meeting to review the draft report and facilitate comments on the report. The scope of this task is consistent with the work performed for the previous fiscal year.

Task 6. Project Management and Administration

This task includes the effort to prepare the PBHSP scope, schedule, and budget for the subsequent fiscal year. A draft *Technical Memorandum Recommended Scope and Budget of the Prado Basin Habitat Sustainability Program for FY 2027/28* will be submitted to the PBHSC in February/March 2027. A PBHSC meeting will be conducted in March 2027 to review the draft recommended scope and budget and facilitate comments. Also included in this task is project administration, including management of staffing and monthly financial reporting. The scope of this task is consistent with the work performed for the previous fiscal year.

³³ OCWD staff provides assistance to the USBR in the field as in-kind services.

**Table 4-1. Work Breakdown Structure and Cost Estimate
Prado Basin Habitat Sustainability Program - Fiscal Year 2026/27**

Task Description		No. of sites	Labor Total		Other Costs, dollars			Notes	Totals, dollars		IEUA Share 2026/27	CBWM Share 2026/27
			Person Days	Total, dollars	Travel	Equipment Rental	Outside Pro		Total	Recommended Budget 2026/27		
Task 1. Groundwater Monitoring Program			20.8	\$35,818				\$1,200	\$37,018	\$34,327	-	\$37,018
1.1	Download Transducer Data from PBHSP Wells (Quarterly)	18	11.8	\$18,338	\$1,000	\$200		\$1,200	\$19,538	\$17,787		
1.2	Process, Check and Upload Water Level, Temperature, and EC Transducer Data from PBHSP Wells (Quarterly)	18	9.0	\$17,480				\$0	\$17,480	\$16,539		
Task 2. Surface Water Monitoring Program			3	\$6,240				\$200	\$6,440	\$9,402	-	\$6,440
2.1	Collect, Process, and Upload Field Measurements of Temperature and EC at Four Surface Water Sites (Quarterly)	4	2.5	\$4,678		\$200		\$200	\$4,878	\$6,408		
2.2	Collect, Check, and Upload Surface Water Discharge and Quality Data from POTWs, USGS; and Dam Level Data from the ACOE (Annual)		0.8	\$1,562				\$0	\$1,562	\$2,994		
Task 3. Climate Monitoring Program			1.6	\$3,999				\$0	\$3,999	\$3,203	\$2,000	\$2,000
3.1	Collect, Check, and Upload Climatic Data (Annual)		1.6	\$3,999				\$0	\$3,999	\$3,203		
Task 4. Riparian Habitat Monitoring Program			13.3	\$28,042				\$13,500	\$41,542	\$97,714	\$20,771	\$20,771
4.1	Perform a Custom Flight to Acquire a High-Resolution 2026 Air Photo of the Prado Basin		1.5	\$3,540			\$13,500	\$13,500	\$17,040	\$16,432		
4.2	Catalog, and Review the Extent of the Riparian Vegetation in the 2026 Air Photo of the Prado Basin		2.5	\$5,772				\$0	\$5,772	\$5,596		
4.3	Collect, Check, and Upload 2026 Landsat NDVI Data to the PBHSP Database		9.3	\$18,730				\$0	\$18,730	\$18,146		
4.4	Conduct the Field Vegetation Monitoring		0.0	\$0				\$0	\$0	\$57,540		
Task 5. Prepare Annual Report			46.3	\$95,706				\$120	\$95,826	\$93,329	\$47,913	\$47,913
5.1	Analyze Data and Prepare Admin Draft Report for CBWM/IEUA		34.3	\$68,778				\$0	\$68,778	\$68,212		
5.2	Incorporate CBWM/IEUA Comments and Prepare Draft Report: Submit Draft Report to PBHSC		3.0	\$6,464				\$0	\$6,464	\$7,271		
5.3	Meet with PBHSC to Review Draft Report		5.8	\$13,182	\$120			\$120	\$13,302	\$11,810		
5.4	Incorporate PBHSC Comments and Finalize Report		3.3	\$7,282				\$0	\$7,282	\$6,036		
Task 6. Project Management and Administration			10.5	\$25,114				\$120	\$25,234	\$24,338	\$12,617	\$12,617
6.1	Prepare Scope and Budget for FY 2027/28		3.3	\$7,574				\$0	\$7,574	\$7,340		
6.2	Meet with PBHSC to Review Scope and Budget for FY 2027/28		3.3	\$7,994	\$120			\$120	\$8,114	\$7,868		
6.3	Project Administration and Financial Reporting		4.0	\$9,546				\$0	\$9,546	\$9,130		
Totals			96	\$194,919	\$1,240	\$400	\$13,500	\$15,140	\$210,059	\$262,312	\$83,301	\$126,758

(a) This is half of the cost for the outside professional. OCWD will pay the other half.

5.0 REFERENCES

- Achard F., and Estreguil, C. (1995). *Forest Classification of Southeast Asia using NOAA AVHRR data. Remote Sensing of the Environment* v. 56, pg. 198-208.
- Alfaro, E.J., Gershunov, A., and Cayan, D. (2006). *Prediction of Summer Maximum and Minimum Temperatures Over the Central and Western United States: The Roles of Soil Moisture and Sea Surface Temperatures. J. Clim* v. 19, 1407-1421.
- Army Corps of Engineers, Los Angeles District, with technical Assistance by the Orange County Water District. (2017). *Five Year (2017 to 2022) Planned Deviation to the Prado Dam Water Control Plan and Sediment Management Demonstration Project. Biological Assessment.* August 2017.
- Associated Engineers, Inc. (2007). *Digital Elevation Model of Southern Chino Basin. Acquired by Airborne 1 Corporation via LIDAR.* March 2007.
- California Regional Water Quality Control Board, Santa Ana Region. (2016). *Water Quality Control Plan Santa Ana River Basin (Region 8) 1995.* Updated February 2008, June 2011, and February 2016.
- Campbell. (2007). *Introduction to Remote Sensing. Fourth edition.* Published 2007 Guilford Press.
- Chino Basin Watermaster. (2000). *Peace Agreement, Chino Basin. SB 240104 v 1:08350.0001.* 29 June 2000.
- Chino Basin Watermaster. (2007). *Peace II Agreement: Party Support for Watermaster's OBMP Implementation Plan, Settlement and Release of Claims Regarding Future Desalters. SB 447966 v 1:008250.0001.* 25 October 2007.
- Chino Basin Municipal Water District v. City of Chino et al., San Bernardino Superior Court, No. 164327.* (1978).
- Chen, J., Jonsson, P., Tamura, M, Gu, Z., Matsushita, B., and Eklundh, L. (2004). *A Simple Method for Reconstructing a High-Quality NDVI Time-Series Data Set Based on the Savitzky-Golay filter. Remote Sensing of Environment* v. 91, pg. 332-344.
- ECORP Consulting, Inc. (2026). *Prado Basin 2025 Vegetation Survey Western Riverside County, California. Draft Report.* January 2026.
- Flood, N. (2014). *Continuity of Reflectance Data Between Landsat-7 ET<+ and Landsat-8 OLI, for Both Top-of Atmosphere and Surface Reflectance: A Study in the Australian Landscape. Remote Sensing* v. 6, pg. 7952-7970. August 26, 2014.
- Gandhi, M., Parthiban, S., Thummalu, N., and A., C. (2015). *Ndvi: Vegetation Changes Detection Using Remote Sensing and Gis – A Case Study of Vellore District. Procedia Computer Science* v. 57, pg. 1199-1210.
- Hatfield, J.L., and Prueger, J.H. (2015). *Temperature Extremes: Effect on Plant Growth and Development. Weather and Climate Extremes* v. 10, pg. 4-10.
- Hatfield, J.L, Boote, K.J, Kimball, B.A, Ziska, L.H, Izaurralde, R.C., Ort, D., Thomson, A.M., and Wolfe, D. (2011). *Climate Impacts on Agriculture: Implications for Plant Production. Agron J*, v. 103, P.351-370.
- Hird, J., and McDermid, G. (2009). *Noise reduction of NDVI time series: An Empirical Comparison of Selected Techniques. Remote Sensing of Environment* v. 113, pg. 248-258.
- H. T. Harvey & Associates. (2015). *Prado Basin Preliminary Riparian Habitat Health and Vigor Assessment. Memorandum to the Orange County Water District.* October 26, 2015.
- James, M., and Kalluri, S. (1994). *The Pathfinder AVHRR Land Data Set; an Improved Coarse Resolution Data Set for Terrestrial Monitoring. International Journal of Remote Sensing* v. 15, pg. 3347-3363.
- Jenson, J. (2007). *Remote Sensing of the Environment: An Earth Resource Perspective, Second Edition.* Published 2007 by Prentice-Hall, Upper Saddle River, N.J.
- Johnson, B., at Orange County Water District. (2019). *Email Communication on March 19, 2019.*
- Jones, H., and Vaughan, R. (2010). *Remote Sensing of Vegetation: Principles, Techniques and Applications.* Oxford University Press, Oxford.
- Ke, Y., Im, J., Lee, J., Gong, H., and Ryu, Y. (2015). *Characteristics of Landsat 8 OLI-derived NDVI by Comparison with Multiple Sensors and In-Situ Observations. Remote Sensing of Environment* v. 164, pg. 298-313.

- Knowles, N., Dettinger, M.D., and Canyon, D.R. (2006). *Trends in Snowfall Versus Rainfall in The Western United States*. *J Clim* v.19, pg.4545-4599.
- Law, J. at Santa Ana Watershed Association. *Verbal Communication* on April 11, 2019.
- Li, P., Jiang, L., Feng, Z. (2014). *Cross Comparison of Vegetation Indices Derived from Landsat-7 Enhanced Thematic Mapper Plus (ETM+) and Landsat-8 Operational Land Imager (OLI) Sensors*. *Remote Sensing* v. 6, pg. 310-329.
- Lillesand, T., Kiefer, R, and Chipman, J. (2008). *Remote Sensing and Image Interpretation, sixth edition*. Published in 2008 by John Wiley & Sons, New York.
- Markon, C., Fleming, M., and Binnian, E. (1995). *Characteristics of Vegetation Phenology over Alaskan Landscape using AVHRR Time-Series Data*. *Polar Records* v. 31, pg.179-190.
- Markon, C., and Peterson, K. (2002). *The Utility of Estimating Net Primary Productivity over Alaska Using Baseline AVHRR Data*. *International Journal of Remote Sensing*, v.23, pg. 4571-4596. v
- McPherson, D., at United States Bureau of Reclamation. (2016). *Verbal Communication on November 2, 2016*
- Merkel & Associates, Inc. (2007). *Evapotranspiration Analysis of the Prado Basin Santa Anan River, California. Prepared for Wildermuth Environmental, Inc.* November 2007.
- Orange County Water District. (2018). *Prado Basin Water Conservation and Habitat Assessment 2017-2018 Report to U.S. Fish and Wildlife Service*. December 2018.
- Orange County Water District. (2026). *Prado Basin Water Conservation and Habitat Assessment 2024-2025 Report to U.S. Fish and Wildlife Service*. March 2026.
- Palenscar, K., at United States Fish and Wildlife. (2016). *Verbal Communication* on November 2, 2016
- Peters, A., Walter-Shea, E., Ji, L, Vina, A., Hayes, M., and Svoboda, M.D. (2002). *Drought Monitoring with NDVI-Based Standardized Vegetation Index*. *Photogrammetric Engineering & Remote Sensing* v. 68, no. 1, pg. 71-75.
- Pettorelli, N. (2013). *The Normalized Difference Vegetation Index. First edition*. Published 2013 by Oxford University Press.
- Pinzon, J., Brown, M., and Tucker, C. (2004). *Monitoring Seasonal and International Variations in Land-surface Vegetation from 1981-2003 Using GIMMS NDVI*.
- Roy, D., Kovalsky, V., Zhang, H., Vermote, E., Yan, L., Kumar, S, and Egorov, A. (2016). *Characterization of Landsat-7 to Landsat-8 Reflective Wavelength and Normalized Difference Vegetation Index Continuity*. *Remote Sensing of Environment* v. 185, pg. 57-70. January 12, 2016.
- Inland Empire Utilities Agency and Chino Basin Watermaster. (2008). *Memorandum of Understanding, Cooperative Efforts for Monitoring Programs Between the Inland Empire Utilities Agency and the Chino Basin Watermaster, Bright Line Approach*. 17 December 2008
- Intera Inc. (2015). *Memorandum Remote-Sensing Based Evaluation of Temporal Changes in Riparian Vegetation Health Along Temescal Creek, Prado Reservoir, Corona, California. Prepared for Orange County Water District*. January 30, 2015.
- Santa Ana River Watermaster. (2025). *Fifty Third Annual Report of the Santa Ana River Watermaster for Water Year October 1, 2023 – September 30, 2024. Draft Report. Prepared for Orange County Water District v. City of Chino, et al. Case No. 117628 – County of Orange*. March 2025.
- Santa Ana Watershed Association. (2025). *Annual Regulatory Report Mitigation Projects July 1, 2023 – June 30, 2024*.
- Schimdt, H. and Karnieli, A. (2000). *Remote Sensing of Seasonal Variability of Vegetation in a Semi-Arid Environment*. *Journal Of Arid Environments* V.45, Pg. 43-59.
- She, X., Zhang L., Cen, Y., Wu, T., Changping, H., and Ali Baig, H. 2015. *Comparison of the Continuity of Vegetation Indices Derived from Landsat * OLI and Landsat 7 ETM+ Data Among Different Vegetation Types*. *Remote Sensing* v.7, pg. 13485-13506. October 16, 2015.
- Siddiqui, Naeem Ahmed., at the Army Corps of Engineers. *Email communication* on April 12, 2024.
- Tanre, D., Holden, B., and Kaufman, Y. (1992). *Atmospheric Correction Algorithm for NOAA_AVHRR Products; Theory and Application*. *IEE Journal of Geosciences and Remote Sensing*, V. 30, Pg. 231-248.

- Tom Dodson & Associates. (2000). *Program Environmental Impact Report for the Optimum Basin Management Program (SCH#2000041047)*. Prepared for the Inland Empire Utilities Agency. July 2000.
- Tom Dodson & Associates. (2010). *Final Subsequent Environmental Impact Report for the Inland Empire Utilities Agency Peace II Agreement Project*. Prepared for the Inland Empire Utilities Agency. 25 September 2010.
- Tucker C., Justice, C., and Prince, S. (1986). *Monitoring the Grasslands of Sahel 1984-1985*. *International Journal of Remote Sensing*, v. 71, pg. 1571-1581.
- Tucker C., Grant, D., and Dykstra, J.D. (2004). *NASA's Global Orthorectified Landsat Data Set*. *Photogrammetric Engineering & Remote Sensing*, v. 70, pg. 313-322.
- United States Bureau of Reclamation, Lower Colorado Regional Office. (2008). *Hydraulic Control Monitoring Plan, Task 5.2: Vegetation Survey at the Prado Reservoir, Report No 2 of 5*. Prepared for the Inland Empire Utilities Agency. March 2008.
- United States Bureau of Reclamation, Lower Colorado Regional Office. (2015). *Riverside and San Bernardino Counties, California Inland Empire Utility Agency Hydraulic Control Monitoring Plan, Task 5.2: Report No 3 of 5. Draft Report*. April 2015.
- United States Bureau of Reclamation. (2016). *Prado Basin Vegetation Survey October 2013 Riverside and San Bernardino Counties, California Inland Empire Utility Agency Hydraulic Control Monitoring Plan, Task 5.2 Report No. 3 of 5*. September 2016.
- United States Bureau of Reclamation. (2017). *Prado Basin Vegetation Survey October 2016 Riverside and San Bernardino Counties, California Inland Empire Utility Agency Hydraulic Control Monitoring Plan, Task 5.2 Report No. 4 of 5*. July 2017.
- United States Bureau of Reclamation. (2020). *Technical Service Center Hydraulic Investigation and Laboratory Services Ecological Research Laboratory. Prado Basin Vegetation Survey September 2019 Riverside and San Bernardino Counties, California Inland Empire Utility Agency Task 5.2 Draft Report*. March 2020.
- United States Bureau of Reclamation. (2023). *Prado Basin Vegetation Survey September 2022 Riverside and San Bernardino Counties, California, Chino Basin Watermaster and Inland Empire Utility Agency, Prado Basin Habitat Sustainability Program. Final Report*. June 2023.
- United States Department of Agriculture. (1996). *Using NDVI to Assess Departure from Average Greenness and its Relation to Fire Business*. Burgan, R.E., Hartford, R.A, and Eidenshink, J.C. *General Technical Report INT-GTR-333*. April 1996.
- United States Department of Agriculture. (1999). *Percent Canopy Cover and Stand Structure Statistics from the Forest Vegetation Simulator*. April 1999.
- United States Department of Agriculture, Forest Service Region Pacific Southwest Region – State and Private Forestry. (2013). *Pest Alert. New Pest Complex in California: The Polyphagous Shot Hole Borer, Euwallacea sp., and Fusarium Dieback, Fusarium euwallaceae. R5-PR-032*. November 4, 2013.
- United State Geological Survey. (2013). *Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) Algorithm Description. Open-File Report 2013-1057*. 2013.
- United State Geological Survey. (2016). *Product Guide – Landsat Surface Reflectance-Derived Spectral Indices. Version 3.3*. December 2016.
- United State Geological Survey. (2017a). *Product Guide – Landsat 4-7 Climate Data Record (CDR) Surface Reflectance. Version 7.2*. January 2017.
- United State Geological Survey. (2017b). *User Guide – Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface. Version 3.7*. January 2017.
- Verbesselt, J., Hyndman, R., Newnham, G., and Culvenor, D. (2010). *Detecting Trend and Seasonal Changes in Satellite Image Time-Series*. *Remote Sensing of Environmental*, V. 17, Pg. 231-235.
- Weiss, J., Gutzler, D., Allred Coonrod, J., and Dahm, C. (2004). *Long-term vegetation monitoring with NDVI in a diverse semi-arid setting central New Mexico, USA*. *Journal of Arid Environments* v. 58, pg. 249-272.
- West Yost (2021). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2020*. June 2021
- West Yost (2022). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2021*. June 2022
- West Yost (2023). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2022*. June 2023

- Wildermuth Environmental, Inc. (1999). *Optimum Basin Management Program. Phase I Report. Prepared for the Chino Basin Watermaster.* August 19, 1999.
- Wildermuth Environmental, Inc. (2007). *2007 Chino Basin Watermaster Groundwater Model Documentation and Evaluation of the Peace II Project Description. Final Report.* November 2007.
- Wildermuth Environmental, Inc. (2015). *2013 Chino Basin Groundwater Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement (Final Report). Prepared for the Chino Basin Watermaster.* October 2015.
- Wildermuth Environmental, Inc. (2016). *2016 Adaptive Management Plan for the Prado Basin Habitat Sustainability Program, Final. Prepared for the Inland Empire Utilities Agency and Chino Basin Watermaster.* August 2016.
- Wildermuth Environmental, Inc. (2017). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2016.* July 2017.
- Wildermuth Environmental, Inc. (2018). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2017.* June 2018.
- Wildermuth Environmental, Inc. (2019). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2018.* June 2019.
- Wildermuth Environmental, Inc. (2020). *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2019.* June 2020.
- Wildermuth Environmental, Inc. (2020). *2020 Safe Yield Recalculation Report.* May 2020.
- Wang, J., Rich, P., Price, K., and Kettle, W. (2004). *Relations Between NDVI and Tree Productivity in The Central Great Plains. International Journal of Remote Sensing, V. 25, Pg. 3127-3138.*
- Woodside, G., at Orange County Water District. *Verbal communication* on March 15, 2017.
- Xie, Y., Sha, Z., and Yu, M. (2008). *Remote Sensing Imagery in Vegetation Mapping: A Review. Journal of Plant Ecology. V. 1, no.1, pg. 9-23.*
- Xue, J. and Su, B. (2017). *Significant Remote Sensing Vegetation Indices a Review of Development and Applications. Journal of Sensors V. 2017, Article ID 1353691 17 pages.*
- Zemba, R., at Orange County Water District. *Verbal communication* on March 14, 2017.
- Zemba, R., at Orange County Water District. *Email communication* on April 5, 2018.

DRAFT

A.1 BACKGROUND

Multi-spectral remote-sensing measurements of the Earth's surface from satellites are a verifiable means of deriving complete spatial coverage of environmental information. Remote-sensing measurements have been collected in a consistent manner over time. They are updated regularly and can be analyzed retrospectively, which has made these measurements useful in various types of ecological and environmental monitoring, including vegetation monitoring (USDA, 1996; Schidt and Karnieli, 2000; Campbell, 2007; Lillesand et al., 2008; Xie et al., 2008; Jones and Vaughnan, 2010).

Remote sensing-based methods of vegetation monitoring commonly use vegetation indices that can be calculated from the wavelengths of light absorbed and reflected by vegetation (Jensen, 2007). NDVI, or the normalized difference vegetation index, is a widely used numerical indicator of vegetation extent and quality that is calculated from remote-sensing measurements (Ke et al., 2015; Xue,J and Su, B., 2017). Moreover, NDVI is an index of greenness correlated with photosynthesis and can be used to assess temporal and spatial changes in the distribution, productivity, and dynamics of vegetation (Pettorelli, 2013). NDVI is calculated from visible and near-infrared radiation reflected by vegetation using the following formula:

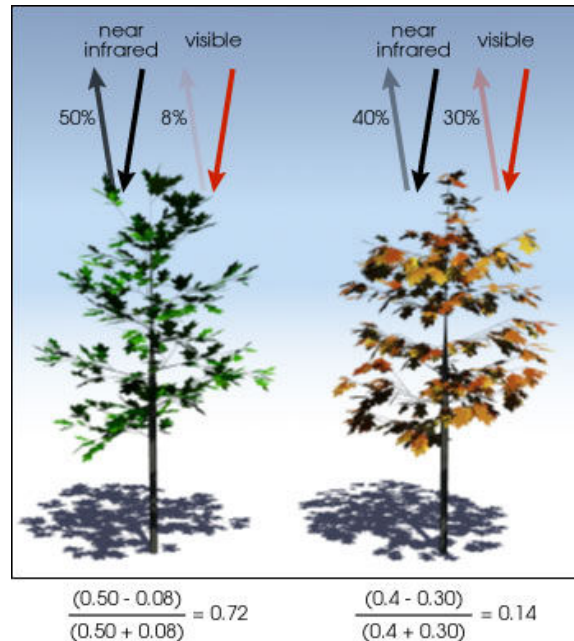
$$NDVI = \frac{(NIR - VIS)}{NIR + VIS}$$

Where: **NIR** = the spectral reflectance of near infrared radiation

VIS = the spectral reflectance of visible (red) radiation

During photosynthesis, healthy vegetation absorbs incoming visible light and reflects a large portion of near-infrared radiation. Unhealthy or dormant vegetation absorbs less visible light and reflects less near-infrared radiation. The figure¹ illustrates NDVI:

¹ [Nasa.gov](https://www.nasa.gov)



Near-infrared radiation and visible light spectral reflectance are both expressed as ratios of the reflected radiation over the incoming radiation (values between 0 and 1); therefore, NDVI estimates range between -1.0 and 1.0. Negative NDVI estimates correspond to standing water, and low positive values (0 to 0.1) correspond to non-vegetated areas, such as barren rock and sand, snow, and water. NDVI estimates ranging from 0.1 to 1.0 correspond to vegetated areas, with very low-end estimates indicating sparse, unhealthy, or dormant vegetation, and increasing estimates towards 0.9 indicating higher amounts of dense, healthy green vegetation.

Advantages and Limitations.

NDVI was chosen as a method for characterizing and monitoring the riparian habitat for the PBHSP for the following reasons:

- Peace II activities could cause regional changes in groundwater levels, which potentially could result in regional impacts to the riparian habitat that is dependent on shallow groundwater. The regional scale of NDVI makes it an appropriate “first indicator” of regional changes in the extent and quality of riparian vegetation. And, it has been widely used in the past to support similar environmental monitoring and management programs (Peters et al., 2002; Pinzon et al., 2004; Wang et al., 2004; Weiss et al., 2004; Intera, 2014; Verbesselt et al, 2010; Gandhi et al., 2015).
- There is a long time-series of historical NDVI (early 1980s to present) that spatially covers the entire Prado Basin. These datasets can be used to characterize the history of the spatial extent and quality of the riparian vegetation prior to and after the implementation of Peace II activities (2007).
- In the future, it is likely that multi-spectral remote sensing will continue to collect the commonly measured spectral bands that are used to calculate NDVI (red and near-infrared) and that these data will be available for use as part of the PBHSP at a low cost.

Like most monitoring tools, NDVI has its limitations, which can reduce its reliability and usefulness. Important examples include:



- Cloud cover, water vapor, and atmospheric contaminants can lead to false decreases in NDVI estimates compared to clear days (Tanre et al., 1992; Achard and Estreguil, 1995; Chen et al., 2004; Hird and McDermid, 2009).
- Satellite degradation, sensor errors, and data transmission errors can lead to false NDVI estimates (James and Kalluri, 1994).
- Changes in soil moisture can lead to changes in NDVI estimates that are not necessarily related to changes in vegetation (Pettorelli, 2013).
- NDVI is a composite view of plant species diversity, form, structure, density, and vigor. As such, changes in NDVI may be caused by various changes in riparian habitat (Markon et al., 1995; Markon and Peterson, 2002). In other words, NDVI does not provide a complete picture of how and why vegetative changes are occurring; it simply indicates a change in vegetation.
- In densely vegetated areas, NDVI estimates have been shown to plateau during the growing season, indicating that NDVI can underestimate the green biomass in densely vegetated areas (Tucker et al., 1986).

These limitations demand that NDVI data be screened and filtered to identify or remove errors and noise. To reduce or eliminate noise, processing algorithms can be applied to “smooth” the time-series data and reveal patterns of change over time. For example, a smoothing technique applied in this report was the averaging of all NDVI from the growing season months. The average values are then plotted on time-series charts to display long-term trends in growing season vegetation quality.

The limitations also demand that NDVI not be interpreted in isolation. Interpretations of NDVI (vegetative changes) should be (i) verified with other georeferenced datasets, such as air photos and field vegetation surveys, and (ii) explained by comparison to datasets of causal factors of vegetative changes, such as water availability.

A.2 LANDSAT PROGRAM AND NDVI

The USGS and the National Aeronautics and Space Administration (NASA) jointly manage the Landsat Program², a series of Earth-observing satellite missions that began in 1972 with sensors that observe the Earth’s surface and transmit information to ground stations that receive and process multi-spectral, remote-sensing data. Landsat satellites use technology that collects scenes of remote sensing measurements at the same time and location on the Earth’s surface at a temporal frequency of about every two weeks. Landsat remote sensing measurements (Landsat imagery) is acquired in scenes that are approximately 106 by 115 miles. Landsat imagery is the only data source with more than thirty-years of continuous records of global land surface conditions at a spatial resolution of tens of meters (Tuck et al., 2004). Landsat imagery is among the most widely used satellite imagery in ecology and conservation studies (Pettorelli, 2013), and the data have been available for no cost since about 2010.

The United States Geological Survey (USGS), in compliance with the Global Climate Observing System³, produces spectral indices products from Landsat imagery to support land surface change studies, which

² [Nasa.gov](https://www.nasa.gov)

³ [Global Climate Observing System Link](#)



includes NDVI from 1982 to present (USGS, 2016). The USGS uses remote sensing imagery from the Landsat satellites—*Landsat 4, Landsat 5, Landsat 7, Landsat 8, and Landsat 9* (*Landsat 4, 5, 7, 8, and 9*)—to generate NDVI estimates of the Earth’s surface at a 30 x 30-meter pixel resolution. To apply the necessary atmospheric corrections and generate a surface reflectance product, the USGS uses a specialized software called Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) to post-process the Landsat imagery (USGS 2015; 2017a). This surface reflectance product is then used to determine NDVI, among the other spectral indices. The spectral indices products are available for the USGS Landsat Collection 2 Level-2.⁴

A.3 Collection, Review, and Analysis of NDVI for the PBHSP

Collection

NDVI from the Landsat imagery for the period 1982 to 2025 were collected from the USGS, using the Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface⁵ (USGS 2017b). The interface requires a bulk request in the form of a text file list of specific Landsat scenes using the Landsat scene identifier ID.⁶ To obtain complete spatial coverage of the Prado Basin area, NDVI was requested for all Landsat scenes for Path 040, Rows 036 and 037.⁷ Table 1 below summarizes the Landsat satellites and periods for which NDVI was obtained to produce a near-continuous NDVI record.

⁴ Prior to 2022, this program utilized NDVI from the USGS Landsat Collection 1 Level-1, but that collection has been discontinued by the USGS. In 2022, NDVI from the entire period of record from 1984 to 2022 was obtained and uploaded to the project database to have a consistent record of NDVI from the same collection so that there are no changes in the NDVI analyzed in time series that were attributable to the difference in the spectral indices products from different Landsat Collections over time .

⁵ [USGS Link](#)

⁶ Landsat imagery is captured in scenes that are about 106 by 114 miles. Each Landsat scene has a unique scene ID based on the specific Landsat satellite, Landsat path number, Landsat row number, and date the image was collected.

⁷ The Prado Basin is in an area of the Landsat path 040 that straddles Rows 036 and 037. Landsat scenes from Path 040 Row 036 and Path 040 Row 037 overlap each other throughout most of the Prado Basin region, but both are required to obtain complete spatial coverage of the Prado Basin.



Table 1. Landsat Satellites

Satellite	Instrument	Launched	Ended	Period of NDVI Data Obtained from USGS
Landsat 4	Thematic Mapper	July 16, 1982	December 14, 1993	1982 - 1983
Landsat 5	Thematic Mapper	March 1, 1984	June 5, 2013	1984 - 2011
Landsat 7	Enhanced Thematic Mapper Plus	April 15, 1999	January 19, 2024	1999 - 2023
Landsat 8	Operational Land Imager	February 11, 2013	Still active	2013 - 2025
Landsat 9	Operational Land Imager 2 and Thermal Infrared Sensor 2	September 27, 2021	Still active	2021-2025

NDVI from scenes produced from the *Landsat 4, 5, 7, 8, and 9* satellites were obtained from the USGS for the period 1982 through 2025. The source and frequency of availability of NDVI from the USGS varies over the period of record:

- From 1982 to 1989, NDVI is from Landsat 4 and 5 and is patchy, ranging from a frequency of eight days to one year.
- From 1990 to 1999, NDVI is from Landsat 5 at a frequency of about 16 days.
- From 1999 to 2011, NDVI is from Landsat 5 and 7 at a frequency of seven to eight days.
- In 2012, NDVI is from Landsat 7 at a frequency of 14 to 16 days.
- From 2013 to 2023, NDVI is from Landsat 7 and 8 at a frequency of seven to eight days.
- From 2021 to 2023, NDVI is from Landsat 7, 8, and 9 at a frequency of one to eight days.
- Since January 2024, NDVI is from Landsat 8 and 9 at a frequency of seven to eight days.

NDVI were cataloged, processed, and uploaded into HydroDaVESM, a database management software that manages gridded datasets and features tools for viewing and extracting data.⁸ There is some overlap of NVDI data in areas where there is NVDI from Landsat scenes from Rows 036 and 037. HydroDaVE has the ability to compute a stacked average for Landsat scenes from Rows 036 and 037 for each NDVI pixel they overlay⁹ when viewing and extracting NDVI data.

Review

Spatial NDVI were reviewed for disturbances that can be caused by cloud cover, unfavorable atmospheric conditions, or satellite equipment malfunction. In HydroDaVESM, maps were prepared of spatial NDVI for

⁸ [Hydrodave Link](#)

⁹ Not all dates will have Landsat scenes for both Rows 036 and 037 if cloud cover was greater than 20 percent in one of them; Landsat scenes with a percent cloud cover greater than 20 percent were not obtained from the USGS for this study.



the entire Prado Basin region for each date. The maps were reviewed and documented to identify specific dates for exclusion due to cloud cover or other disturbances. Erroneous NDVI estimates were discernable because NDVI patterns of permanent landscape features were distorted and/or NDVI estimates were clearly not consistent with estimates typically observed for a particular area both seasonally and over time. On average, about 34 percent of the NDVI were identified as erroneous and excluded from the analysis. Most of which were rejected because of cloud coverage, which was further verified by referencing and viewing the specific Landsat scene on the USGS *EarthExplorer* website.¹⁰

After excluding erroneous NDVI estimates, there was one date for 1982, and there were no dates for 1983; as such, the time-series data discussed throughout Section 3 of the report include NDVI estimates for 1984 to 2025.

NDVI estimates derived from *Landsat 7* satellite imagery from mid-2003 to 2023 were further reviewed date-by-date for the occurrence of spatial data gaps, resulting from the failure of the Scan Line Corrector (SLC) on the *Landsat 7* satellite, which accounts for the satellite's forward motion. SLC failure results in data gaps along scan line paths of variable widths and occurrences. An estimated 22 percent of any given *Landsat 7* scene is lost because of SLC failure; however, the imagery acquired between these gaps is valid and useable for analysis.¹¹ All NDVI estimates derived from *Landsat 7* satellite imagery from 2003 to 2023 were evaluated spatially date-by-date to determine if the valid portion of the data covers the defined areas of interest used for the temporal analysis of NDVI in the time series discussed in Section 3 of this report. Date-by-date analysis is necessary because the spatial position and size of the data gaps from the *Landsat 7* satellite vary for each date. Generally, areas of interest for NDVI analysis that are larger than about 400 square meters cannot use any NDVI determined from *Landsat 7* satellite imagery during this time period because it would include data gaps within the area; while areas of interest less than 400 square meters can use NDVI determined from the *Landsat 7* satellite imagery if the data gap area is not within the area of interest. During 2012, the *Landsat 7* satellite was the only Landsat satellite collecting data. Therefore, there are no data for the areas of interest larger than 400 square meters during 2012. After the launch of the *Landsat 9* satellite in 2022, there were several dates without spatial data gaps from the *Landsat 7* satellite, which was able to be included in the analysis of the larger areas.

¹⁰ [Earthexplorer Link](#)

¹¹ [Landsat Link](#)

Analyses of Time-series Data

HydroDaVESM contains features to calculate and extract a spatial average NDVI for a designated area and time period. The NDVI spatial average for each available date is plotted in time-series charts to analyze seasonal and temporal changes for a defined area. Time-series charts of NDVI for various areas in the Prado Basin are first introduced in Section 3.1 of this report.

When viewing time-series charts of NDVI for the period of record, it should be noted that a methodological factor that can affect observed NDVI trends is the difference between the technology of the *Landsat 4, 5, and 7* satellites, and the *Landsat 8 and 9* satellites. The *Landsat 4, 5, and 7* satellites use thematic mapper technology to scan the land surface, whereas *Landsat 8* and *Landsat 9* use operational land imager sensors. It has been well documented that the NDVI estimates obtained from the operational land imager sensors used on the *Landsat 8 and 9* satellites generate slightly higher index values for vegetated land cover (Xu and Guo 2014; She et al., 2015). In order to analyze the time-series of NDVI derived across all Landsat satellites for the period of record, a bias-correction factor of -0.05, derived from literature review (Li et al., 2014; Flood, 2014; and Ke et al., 2015), was used to transform all Landsat 8 and 9 NDVI estimates such that all historical NDVI estimates could be analyzed collectively (Roy et al., 2016). The *Landsat 9* satellite was launched into orbit in 2022, and from 2022 to 2023, NDVI was available from *Landsat 7, 8, and 9* satellites. During 2023, data was collected from both the *Landsat 8 and 9* satellites on some of the same dates. On these dates, only NDVI from the *Landsat 9* satellite was used. The *Landsat 7* satellite stopped collecting data in January 2024 and since then, NDVI has been available from *Landsat 8 and 9* satellites.

In previous reports, the Average Growing-Season NDVI was the average for March through October. During WY 2025, this was revised to April through October to exclude the early to mid-March period where vegetation is still dormant or just starting to grow. Including March in the averaging period added variability that did not accurately reflect overall vegetative conditions, as NDVI values during this time are often reduced by plant growth dormancy and inconsistent green-up timing, and are frequently unusable due to storm activity and cloud cover. By shifting the period of analysis to April through October, the average growing-season NDVI values capture a more representative measure of vegetation health during the growing season.

A.4 References

- Achard F., and Estreguil, C. 1995. *Forest Classification of Southeast Asia Using NOAA AVHRR data*. Remote Sensing of the Environment v. 56, pg. 198-208.
- Chen, J., Jonsson, P., Tamura, M, Gu, Z., Matsushita, B., and Eklundh, L. 2004. *A Simple Method For Reconstructing A High-Quality NDVI Time-Series Data Set Based On The Savitzky-Golay Filter*. Remote Sensing Of Environment V. 91, Pg. 332-344.
- Campbell, 2007. *Introduction to Remote Sensing. Fourth edition*. Published 2007 Guilford Press.
- Gandhi, M., Parthiban, S., Thummalu, N., and A., C. 2015. *Ndvi: Vegetation Changes Detection Using Remote Sensing And Gis – A Case Study Of Vellore District*. Procedia Computer Science v. 57, pg. 1199-1210.
- Hird, J., and McDermid, G. 2009. *Noise reduction of NDVI time series: An Empirical Comparison of Selected Techniques*. Remote Sensing of Environment V. 113, Pg. 248-258.
- Intera Inc. 2015. *Memorandum Remote-Sensing Based Evaluation of Temporal Changes in Riparian Vegetation Health Along Temescal Creek, Prado Reservoir, Corona, California*. Prepared for Orange County Water District. January 30, 2015.
- Jones, H., and Vaughan, R. 2010. *Remote Sensing of Vegetation: Principles, Techniques and Applications*. Oxford University Press, Oxford.
- Jenson, J. 2007. *Remote Sensing of the Environment: An Earth Resource Perspective, Second Edition*.
Published 2007 by Prentice-Hall, Upper Saddle River, N.J.
- James, M., and Kalluri, S. 1994. *The Pathfinder AVHRR Land Data Set; An Improved Coarse Resolution Data Set for Terrestrial Monitoring*. International Journal Of Remote Sensing V. 15, Pg. 3347-3363.
- Ke, Y., Im, J., Lee, J., Gong, H., and Ryu, Y. 2015. *Characteristics of Landsat 8 OLI-derived NDVI by Comparison with Multiple Sensors and In-Situ Observations*. Remote Sensing of Environment v. 164, pg. 298-313.
- Lillesand, T, Kiefer, R, and Chipman, J. 2008. *Remote Sensing and Image Interpretation, Sixth Edition*. Published in 2008 by John Wiley & Sons, New York.
- Markon, C., Fleming, M., and Binnian, E. 1995. *Characteristics of Vegetation Phenology Over Alaskan Landscape Using AVHRR Time-Series Data*. Polar Records v. 31, pg.179-190.
- Markon, C., and Peterson, K. 2002. *The Utility Of Estimating Net Primary Productivity Over Alaska Using Baseline AVHRR Data*. International Journal of Remote Sensing, v.23, pg. 4571-4596
- Pettorelli, N. 2013. *The Normalized Difference Vegetation Index*. First edition. Published 2013 by Oxford University Press.
- Peters, A., Walter-Shea, E., Ji, L, Vina, A., Hayes, M., and Svoboda, M.D. 2002. *Drought Monitoring with NDVI-Based Standardized Vegetation Index*. Photogrammetric Engineering & Remote Sensing v. 68, no. 1, pg. 71-75.
- Pinzon, J., Brown, M., and Tucker, C. 2004. *Monitoring Seasonal and International Variations in Land-surface Vegetation from 1981-2003 Using GIMMS NDVI* . [Landval Link](#)
- She, X., Zhang L., Cen, Y., Wu, T., Changping, H., and Ali Baig, H. 2015. *Comparison of the Continuity of Vegetation Indices Derived from Landsat * OLI and Landsat 7 ETM+ Data Among Different Vegetation Types*. Remote Sensing v.7, pg. 13485-13506. October 16, 2015. pg. 13485-13506. October 16, 2015.
- Schimdt, H. and Karnieli, A. 2000. *Remote Sensing of Seasonal Variability of Vegetation In A Semi-Arid Environment*. Journal of Arid Environments v.45, pg. 43-59.
- Tucker C., Justice, C., and Prince, S. 1986. *Monitoring the Grasslands of Sahel 1984-1985*. International Journal of Remote Sensing, v. 71, pg. 1571-1581.
- Tucker C., Grant, D., and Dykstra, J.D. 2004. *NASA's Global Orthorectified Landsat Data Set*. Photogrammetric Engineering & Remote Sensing, v. 70, pg. 313-322.



- United State Geological Survey. 2013. *Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) Algorithm Description*. Open-File Report 2013-1057. 2013.
- United State Geological Survey. 2016. *Product Guide – Landsat Surface Reflectance-Derived Spectral Indices. Version 3.3*. December 2016.
- United State Geological Survey. 2017a. *Product Guide – Landsat 4-7 Climate Data Record (CDR) Surface Reflectance. Version 7.2*. January 2017.
- United State Geological Survey. 2017b. *User Guide – Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface. Version 3.7*. January 2017.
- United States Department of Agriculture. 1996. *Using NDVI to Assess Departure From Average Greenness and its Relation to Fire Business*. Burgan, R.E., Hartford, R.A, and Eidenshink, J.C. General Technical Report INT-GTR-333. April 1996.
- Verbesselt, J., Hyndman, R., Newnham, G., and Culvenor, D. 2010. *Detecting Trend and Seasonal Changes In Satellite Image Time-Series*. Remote Sensing of Environmental, v. 17, pg. 231-235.
- Wang, J., Rich, P., Price, K., and Kettle, W. 2004. *Relations between NDVI and Tree Productivity in The Central Great Plains*. International Journal of Remote Sensing, v. 25, pg. 3127-3138.
- Weiss, J., Gutzler, D., Allred Coonrod, J., and Dahm, C. 2004. *Long-Term Vegetation Monitoring with NDVI In A Diverse Semi-Arid Setting Central New Mexico, USA*. Journal of Arid Environments v. 58, pg. 249-272.
- Xie, Y., Sha, Z., and Yu, M. 2008. *Remote Sensing Imagery In Vegetation Mapping: A Review*. Journal of Plant Ecology. V. 1, no.1, pg 9-23.
- Xue, J. and Su, B. 2017. *Significant Remote Sensing Vegetation Indices a Review of Development and Applications*. Journal of Sensors V. 2017, Article ID 1353691 17 pages.

Mann-Kendall Analysis of NDVI

DRAFT



B.1 Introduction

The Mann-Kendall statistical trend test (Mann-Kendall test) was performed on the average growing-season NDVI metrics (NDVI) for the period of 1984 to 2025 for all 17 areas where NDVI are analyzed for the *Annual Report of the Prado Basin Habitat Sustainability Committee Water Year 2025*. The Mann-Kendall test was utilized to evaluate whether the average growing-season NDVI increased, decreased, or remained stable over time.

B.2 Methods

The Mann-Kendall test is a non-parametric statistical trend test. It is analogous to parametric trend testing such as regression (linear regression) except the data do not need to have a particular probability distribution (normal) and be accurately described by a particular measure of centrality tendency (mean, standard deviation, etc.) (Helsel and Hirsch, 2002).

To perform the test, the NDVI values are ordered chronologically and the signs (+/-) are recorded for all of the possible differences between a given NDVI value and every NDVI value that preceded it in the time series. The Mann-Kendall test statistic S is defined as the number of positive differences (+) minus the number of negative differences (-). From S and the number of NDVI values, n , the τ coefficient (analogous to the r correlation coefficient in linear associations) is then calculated. The τ coefficient represents the strength of the monotonic relationship between time and NDVI values with a possible range of -1 to 1. A perfect positive trend would yield a τ coefficient equal to 1, and a perfect negative trend would yield a τ coefficient equal to -1.

The Mann-Kendall test utilizes the null hypothesis that there is no trend. If the S test statistic and τ coefficient are significantly different than zero, the null hypothesis is rejected, and a trend exists. The level of statistical significance is expressed as a p-value between 0 and 1. The smaller the p-value the stronger the evidence that the null hypothesis should be rejected. In this study, a p-value of less than or equal to 0.05 was used to determine if a trend existed. In summary, the three possible outcomes of the test are

- Increasing trend ($p\text{-value} \leq 0.05$, $\tau > 0$)
- No trend ($p\text{-value} > 0.05$)
- Decreasing trend ($p\text{-value} \leq 0.05$, $\tau < 0$)

B.4 Data Analysis and Results

The Mann-Kendall S test statistic, τ coefficient and p-value were computed for average-growing season NDVI from 1984 to 2025 for the 17 areas in Prado Basin, using the python package *pyMann-Kendall* (Hussain, 2019). Tables B-1 through B-3 list the results of the Mann-Kendall test for the three time periods of interest: 1984 through 2025 (entire period of record); 1984 through 2006 (period prior to the Peace II Agreement); and 2007 through 2025 (period after the Peace II Agreement implementation).

Appendix B
Mann-Kendall Analysis of NDVI



Table B-1. 1984 to 2025

Area	n (number of NDVI values)	S Test Statistic	τ coefficient	p-value	Trend
Riparian Vegetation Extent	41	170	0.21	5.77E-02	No Trend
Chino Creek Area	41	592	0.72	3.18E-11	Increasing
Mill Creek Area	41	2	0.00	9.91E-01	No Trend
Upper Mill Creek Area	41	346	0.42	1.07E-04	Increasing
CC-1	42	643	0.75	3.46E-12	Increasing
CC-2	42	619	0.72	2.12E-11	Increasing
CC-3	42	617	0.72	2.46E-11	Increasing
CC-4	42	409	0.48	9.79E-06	Increasing
MC-1	42	549	0.64	2.87E-09	Increasing
MC-2	42	99	0.11	2.88E-01	No Trend
MC-3	42	309	0.36	8.44E-04	Increasing
MC-4	42	333	0.39	3.21E-04	Increasing
MC-5	42	119	0.14	2.01E-01	No Trend
MC-6	42	289	0.34	1.80E-03	Increasing
SAR-2	42	291	0.34	1.67E-03	Increasing
SAR-3	42	491	0.57	1.09E-07	Increasing
SAR-4	42	594	0.64	2.87E-09	Increasing

Appendix B
Mann-Kendall Analysis of NDVI



Table B-2. 1984 to 2006

Area	n (number of NDVI values)	S Test Statistic	τ coefficient	p-value	Trend
Riparian Vegetation Extent	23	59	0.23	1.26E-01	No Trend
Chino Creek Area	23	127	0.50	8.76E-04	Increasing
Mill Creek Area	23	-121	-0.48	1.53E-03	Decreasing
Upper Mill Creek Area	23	-27	-0.11	4.92E-01	No Trend
CC-1	23	137	0.54	3.28E-04	Increasing
CC-2	23	145	0.57	1.43E-04	Increasing
CC-3	23	137	0.54	3.28E-04	Increasing
CC-4	23	29	0.11	4.60E-01	No Trend
MC-1	23	87	0.34	2.31E-02	Increasing
MC-2	23	-63	-0.25	1.02E-01	No Trend
MC-3	23	-55	-0.22	1.54E-01	No Trend
MC-4	23	-1	0.00	1.00E+00	No Trend
MC-5	23	41	0.16	2.91E-01	No Trend
MC-6	23	-77	-0.30	4.47E-02	Decreasing
SAR-2	23	-137	-0.54	3.28E-04	Decreasing
SAR-3	23	-1	0.00	1.00E+00	No Trend
SAR-4	23	73	0.29	5.72E-02	No Trend

Appendix B
Mann-Kendall Analysis of NDVI



Table B-3. 2007 to 2025

Area	n (number of NDVI values)	S Test Statistic	τ coefficient	p-value	Trend
Riparian Vegetation Extent	18	33	0.22	2.25E-01	No Trend
Chino Creek Area	18	99	0.65	2.06E-04	Increasing
Mill Creek Area	18	71	0.46	8.01E-03	Increasing
Upper Mill Creek Area	18	89	0.58	8.58E-04	Increasing
CC-1	19	111	0.65	1.19E-04	Increasing
CC-2	19	139	0.81	1.38E-06	Increasing
CC-3	19	103	0.60	3.59E-04	Increasing
CC-4	19	79	0.46	6.36E-03	Increasing
MC-1	19	125	0.73	1.44E-05	Increasing
MC-2	19	97	0.57	7.83E-04	Increasing
MC-3	19	75	0.44	9.63E-03	Increasing
MC-4	19	53	0.31	6.89E-02	No Trend
MC-5	19	59	0.35	4.24E-02	Increasing
MC-6	19	133	0.78	3.87E-06	Increasing
SAR-2	19	133	0.78	3.87E-06	Increasing
SAR-3	19	119	0.70	3.65E-05	Increasing
SAR-4	19	133	0.78	3.87E-06	Increasing



B.5 References

- Helsel, D.R., and Hirsch R.M. 2002. *Statistical Methods in Water Resources*. Techniques of Water Resource Investigations of the United States Geological Survey, Book, 4 Hydrological Analysis and Interpretation. September 2002.
- Hussain et al. 2019. *Journal of Open Source Software*. pyMannKendall: a python package for non parametric Mann Kendall family of trend tests. 4(39), 1556, <https://doi.org/10.21105/joss.01556>

Draft 2025 Prado Basin Vegetation Survey Report

DRAFT

April 28, 2026

Veva Weamer
Principal Scientist
West Yost & Associates, Inc.
25 Edelman
Irvine, CA 92618
Via Email: vweamer@westyost.com

RE: Draft Prado Basin 2025 Vegetation Survey Project, Western Riverside County, California

Dear Ms. Weamer:

ECORP Consulting Inc., (ECORP) conducted vegetation monitoring for the Inland Empire Utilities Agency (IEUA) and the Chino Basin Watermaster (CBWM) – Prado Basin Habitat Sustainability Program (PBHSP) in the City of Chino, San Bernardino County, California. This draft letter report is being submitted to document the results of the 2025 vegetation survey project (Project) conducted for the PBHSP.

PROJECT DESCRIPTION AND LOCATION

The Project is located within the Prado Flood Control Basin (Prado Basin), north of State Route (SR-) 99, east of SR-71, south of Kimball Avenue, and west of Interstate 15 (Figure 1). The Project Area encompasses a total of 20 vegetation monitoring sites (monitoring site plots) along three monitoring sections in the Prado Basin including the Santa Ana River (SAR), Mill Creek, and Chino Creek (Figure 2). Land use surrounding the 20 monitoring site plots includes residential neighborhoods, agriculture, Prado Regional Park, and the El Prado Golf Course.

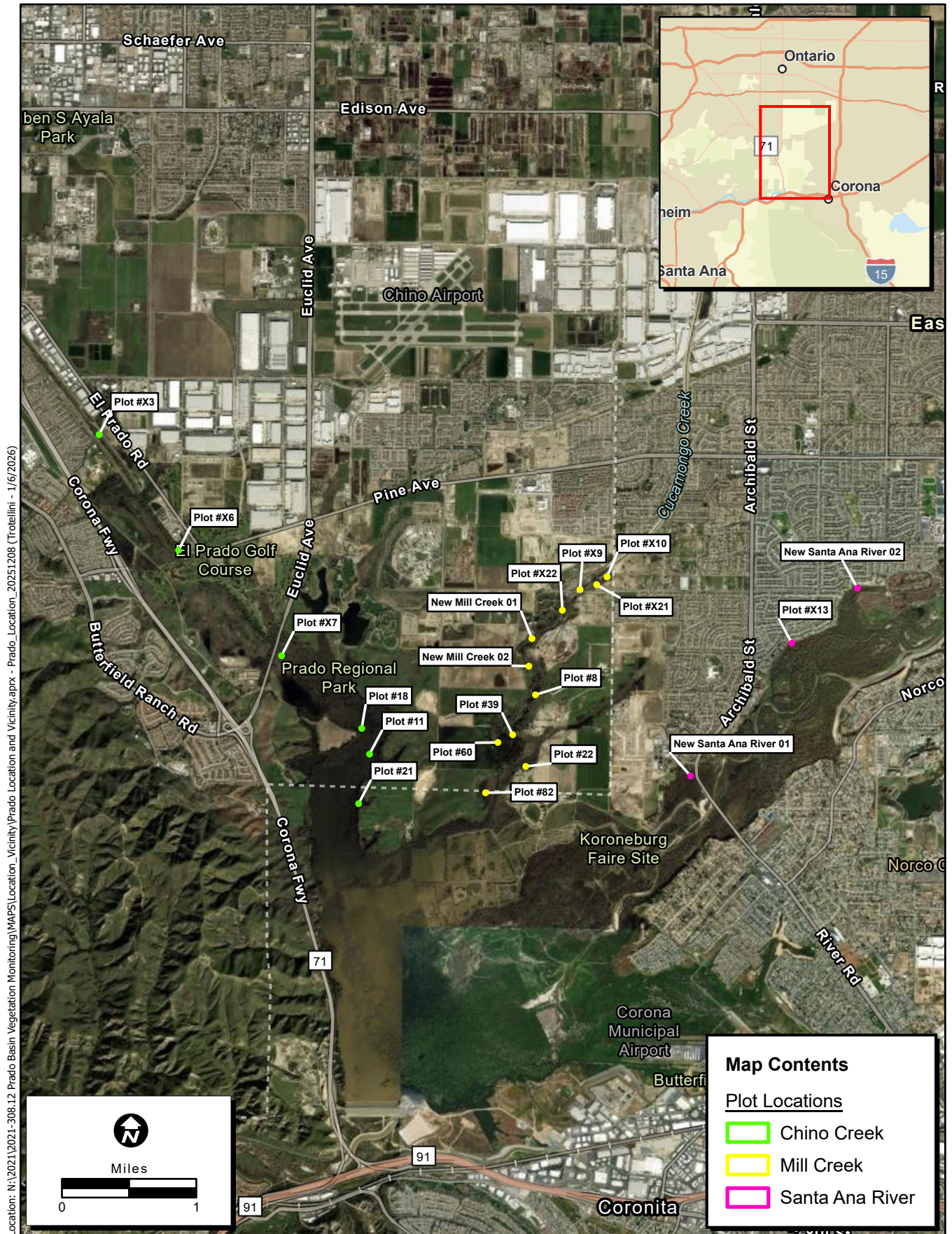
Prado Basin includes approximately 600 acres of riparian habitat which is ecologically important because its high species richness contributes to regional ecological diversity. The dominant riparian plant species in the Prado Basin are typically Goodding's black willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix exigua*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), ash (*Fraxinus* sp.), blue elderberry (*Sambucus mexicana*), Southern California black walnut (*Juglans californica*), and black cottonwood (*Populus trichocarpa*). These riparian tree species must maintain root contact with groundwater for long-term survival.

In addition, the riparian habitat within the southern Prado Basin provides breeding habitat for three state endangered species: least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

The PBHSP was implemented in 2016 to address the potential impact to the Prado Basin riparian habitat as a result of drawdown of groundwater levels from increased groundwater production by the Chino Desalter Authority (CDA) at wells located north of the Prado Basin. Because riparian vegetation relies on shallow groundwater, a decrease in groundwater levels could negatively affect the health of existing riparian trees and negatively impact breeding habitat.



Figure 1. Project Vicinity



Location: N:\2021\2021-308.12 Prado Basin Vegetation Monitoring\MAPS\Location_Vicinity\Prado_Location_and_Vicinity.aprx - Prado_Location - 1/6/2026

Map Date: 12/10/2025
Sources: ESRI, San Bernardino County (2024)

Figure 2. Project Location

PROJECT BACKGROUND

Vegetation monitoring has been conducted for the PBHSP at a frequency of approximately every 3 years since 2003. The purpose of the site-specific vegetation monitoring is to help ground-truth data collected as part of a regional assessment (remote sensing Normalized Difference Vegetation Index [NDVI], and air photo analysis) and to get a more comprehensive understanding of what is occurring on the ground, including any observed changes in vegetation structure and composition.

Vegetation monitoring for the PBHSP was conducted by the United States Bureau of Reclamation (USBR) in 2003, 2007, 2013, 2016, 2019, and 2022 and by ECORP in 2025. In 2003, Mill Creek was selected as the study area and Chino Creek was selected as the control area for the vegetation monitoring. Since 2003, the monitoring methodology has changed over time to achieve overall study goals with the available resources.

Between 2003 and 2007, USBR used a fixed area sampling method that measured species composition, density, and basal area. In addition, nested variable quadrats based on vegetation layer were used at each monitoring site plot. During this timeframe, data were collected for overstory species and understory species, including herbaceous vegetation. In each monitoring site plot, live and dead trees, saplings, shrubs, and seedlings were all counted by species. Data collected for tree and shrub species included height, diameter at breast height (DBH) measured 4.5 feet above the ground for trees, and stem diameter measured 30 centimeters (cm) above the ground for shrubs. Canopy cover data was collected using four spherical densiometer measurements taken approximately five meters from the center of the monitoring site plot in each of the four cardinal directions. In addition, photo points were established at the center of each plot and representative photos were taken in each of the four cardinal directions. In 2007, the monitoring site plot locations were marked using t-posts and trees within the plots were affixed with numerical identification tags to make the monitoring more consistent during future events.

Starting in 2013, USBR updated the monitoring methodology to exclude herbaceous vegetation from the understory monitoring due to it being less relatable to groundwater levels. Since 2013, the only vegetation monitored within the understory included shrubs or saplings with a DBH of less than 8 cm. In addition, monitoring was conducted for overstory trees with a DBH greater than 8 cm. Additionally, trees within each monitoring site plot were assessed for health condition (alive, dead or stressed), and assessed for the presence of polyphagous shot-hole borer (PSHB; *Euwallacea* sp.).

In 2016, there were no changes in the monitoring methodology, however, a total of 14 additional monitoring site plots were established along Chino Creek, Mill Creek, and the SAR.

In 2019, both the methodology and the monitoring site plots remained the same as 2016.

In 2022, a total of two additional monitoring site plots were established along Mill Creek and the monitoring protocol was modified to eliminate the collection of DBH and tree height since these variables were not used in the assessment of riparian health.

The methods used during the 2025 monitoring were mostly consistent with the methods implemented during the 2022 monitoring. Further details regarding the 2025 monitoring methods can be found in the section below.

METHODS

Vegetation monitoring in 2025 was conducted at a total of 20 variable radius monitoring site plots including 16 previously established monitoring site plots (six along Chino Creek, nine along Mill Creek, and one along the SAR), two newly established monitoring site plots along Mill Creek, and two newly established monitoring site plots along the SAR. Table 1 includes each monitoring site plot, plot location, latitude, longitude, and plot radius. Some of the plots monitored during the 2022 monitoring event were excluded from the 2025 monitoring event due to inaccessibility, safety concerns, and/or these plots no longer being necessary to collect sufficient data for the Project. The four newly established monitoring site plots were selected in target areas near Mill Creek and the SAR that were representative of the riparian system and contained approximately 10 riparian trees within a 10-meter radius. Data were taken for the understory and overstory layers and photo points were taken at each of the 20 monitoring site plots.

Monitoring Site Plot	Plot Location	Latitude	Longitude	Plot Radius (m)
New Santa Ana River 02	Santa Ana River	33.946763	-117.579331	10
X13	Santa Ana River	33.940723	-117.587734	5
New Santa Ana River 01	Santa Ana River	33.926269	-117.600619	10
X10	Mill Creek	33.947640	-117.611773	5
X21	Mill Creek	33.946774	-117.613108	10
X9	Mill Creek	33.946234	-117.615259	5
X22	Mill Creek	33.943969	-117.617503	10
New Mill Creek 01	Mill Creek	33.940879	-117.621398	10
New Mill Creek 02	Mill Creek	33.937888	-117.621760	10
8	Mill Creek	33.934851	-117.620868	5
39	Mill Creek	33.930463	-117.623704	10
60	Mill Creek	33.929597	-117.625472	10
22	Mill Creek	33.927071	-117.621991	5
82	Mill Creek	33.924159	-117.627152	10
X3	Chino Creek	33.962238	-117.677826	5

Table 1. Monitoring Site Plots				
Monitoring Site Plot	Plot Location	Latitude	Longitude	Plot Radius (m)
X6	Chino Creek	33.949904	-117.667274	5
X7	Chino Creek	33.938667	-117.653791	10
18	Chino Creek	33.930885	-117.643301	5
11	Chino Creek	33.928158	-117.642209	10
21	Chino Creek	33.922884	-117.643576	5

Understory Sampling

All shrubs and riparian saplings (trees that had a DBH of less than 8 cm) were assessed within each of the monitoring site plots. Shrubs and saplings were identified to species and assessed for their health condition (alive, dead or stressed) and all stems that branch below 10 cm above the ground were counted. Nonnative species were excluded but the presence and species were noted. An estimation of sapling density was calculated by taking the total number of saplings observed in the monitoring plots along with the total acreage of the plots and then extrapolating out the estimated number of saplings per hectare (ha).

Overstory Sampling

All riparian trees that had a DBH greater than 8 cm were assessed within the monitoring site plots. Monitoring site plots had a radius of five or ten meters and were originally designed to have approximately 10 riparian trees present. Since the establishment of the plots, the radius has been held constant across sampling years regardless of changes to tree count. Table 1 includes the radius of each of the plots. Trees within the monitoring site plots were identified to species, assessed for their health condition (alive, dead or stressed), and checked for signs of PSHB such as entry/exit holes, weeping sap, and/or branch failure. An estimation of the tree canopy cover was also recorded for each of the monitoring site plots by taking four densitometer measurements approximately 1 meter from the center of the monitoring plot in each of the four cardinal directions.

Plot Photos

Photographs were taken in each of the four cardinal directions from the center of each of the monitoring site plots.

RESULTS

The 2025 vegetation monitoring was conducted by ECORP biologists Carley (Lancaster) Adams, Greg Hampton, and Alexandra Dorough on October 1 through October 3, and October 7 and 10, 2025. The

following sections present the results from the 2025 monitoring conducted for all 20 monitoring site plots. Photo documentation completed during the monitoring event is included in Appendix A.

Appendix B includes a table that summarizes monitoring results by plot, including the number of tress measured in each plot, canopy cover in 4 directions and overall average, number and percent of live/stressed/dead trees for each plot, presence of PSHB, and number of saplings per ha.

Canopy Cover

Canopy cover is an estimate of how much of the ground is covered by overstory vegetation. Canopy cover at each monitoring site plot is calculated as the overall average of the estimated canopy cover in each of the four cardinal directions. Overall, canopy cover fluctuated among the 20 monitoring site plots within the three monitoring sections of the Prado Basin. The maximum and minimum canopy cover across the monitoring site plots were 100.0 and 10.8 percent respectively (at Chino Creek sites X3 and 18 and Mill Creek site 82 and Mill Creek site 60). The highest mean canopy cover was 80.4 percent for the Chino Creek plots and the lowest was 52.1 percent for the SAR plots. Mean canopy cover decreased from 2022 to 2025 at Chino Creek, Mill Creek, and the SAR. Table 2 lists the mean, maximum, and minimum overall canopy cover estimates for the plots along Chino Creek, Mill Creek, and SAR.

Table 2. Mean, Maximum, and Minimum Canopy Cover			
	Chino Creek (%)	Mill Creek (%)	SAR (%)
Mean Cover	80.4	69.2	52.1
Maximum Cover	100.0	100.0	78.7
Minimum Cover	55.0	10.8	36.2

Appendix B includes the overall canopy cover and canopy cover in each of the four cardinal directions for each of the monitoring plots.

Shrubs

Two shrub species were observed within the Mill Creek and the SAR monitoring site plots, mulefat (*Baccharis salicifolia*) and blue elderberry (*Sambucus mexicana*). Mulefat and blue elderberry are important species to riparian habitats because they provide habitat for endangered species such as least Bell's vireo. Mulefat and blue elderberry provide multi-layered vegetation which is preferred by least Bell's vireo. There weren't any shrub species observed within the monitoring site plots at Chino Creek. The most abundant shrub species was mulefat which had a total of 43 individuals observed. A total of 58 individual shrubs were observed and documented during the 2025 monitoring event, which is a significant increase from the five shrubs that were documented during the 2022 monitoring event. Tables 3 and 4 list the species, total number of stems, and health of the shrubs observed within the plots. The total number of stems were counted because a higher number of stems on a shrub may correlate to growth output and overall health.

Table 3. SAR Shrub Coverage

Monitoring Site Plot	Scientific Name	Common Name	Total Stems	Health
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	8	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	1	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	1	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	9	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	15	Dead
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	1	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	1	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	15	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	22	Stressed
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	9	Stressed
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	10	Stressed
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	4	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	3	Alive
New SAR 01	<i>Baccharis salicifolia</i>	Mulefat	2	Alive

Table 4. Mill Creek Shrub Coverage

Monitoring Site Plot	Scientific Name	Common Name	Total Stems	Health
New Mill Creek 01	<i>Sambucus mexicana</i>	Blue elderberry	3	Alive
08	<i>Baccharis salicifolia</i>	Mulefat	18	Alive
X09	<i>Baccharis salicifolia</i>	Mulefat	10	Alive
X09	<i>Baccharis salicifolia</i>	Mulefat	11	Alive
X09	<i>Baccharis salicifolia</i>	Mulefat	9	Stressed
X10	<i>Baccharis salicifolia</i>	Mulefat	5	Dead
X10	<i>Baccharis salicifolia</i>	Mulefat	5	Dead
X10	<i>Baccharis salicifolia</i>	Mulefat	4	Alive
X10	<i>Baccharis salicifolia</i>	Mulefat	5	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	1	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	2	Alive

Table 4. Mill Creek Shrub Coverage

Monitoring Site Plot	Scientific Name	Common Name	Total Stems	Health
X21	<i>Baccharis salicifolia</i>	Mulefat	2	Dead
X21	<i>Baccharis salicifolia</i>	Mulefat	4	Dead
X21	<i>Baccharis salicifolia</i>	Mulefat	16	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	29	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	5	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	2	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	4	Dead
X21	<i>Baccharis salicifolia</i>	Mulefat	15	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	11	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	10	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	12	Alive
X21	<i>Baccharis salicifolia</i>	Mulefat	17	Alive
X21	<i>Sambucus mexicana</i>	Blue elderberry	9	Alive
X22	<i>Baccharis salicifolia</i>	Mulefat	5	Alive
X22	<i>Baccharis salicifolia</i>	Mulefat	5	Alive
X22	<i>Baccharis salicifolia</i>	Mulefat	4	Alive
X22	<i>Baccharis salicifolia</i>	Mulefat	10	Alive
X22	<i>Baccharis salicifolia</i>	Mulefat	8	Alive
X22	<i>Baccharis salicifolia</i>	Mulefat	6	Alive
X22	<i>Baccharis salicifolia</i>	Mulefat	3	Alive
X22	<i>Sambucus mexicana</i>	Blue elderberry	3	Alive
X22	<i>Sambucus mexicana</i>	Blue elderberry	1	Alive
X22	<i>Sambucus mexicana</i>	Blue elderberry	1	Stressed
X22	<i>Sambucus mexicana</i>	Blue elderberry	2	Stressed
X22	<i>Sambucus mexicana</i>	Blue elderberry	1	Alive
X22	<i>Sambucus mexicana</i>	Blue elderberry	2	Dead
X22	<i>Sambucus mexicana</i>	Blue elderberry	7	Stressed
X22	<i>Sambucus mexicana</i>	Blue elderberry	4	Alive
X22	<i>Sambucus mexicana</i>	Blue elderberry	4	Stressed
X22	<i>Sambucus mexicana</i>	Blue elderberry	7	Alive
X22	<i>Sambucus mexicana</i>	Blue elderberry	2	Stressed

Table 4. Mill Creek Shrub Coverage				
Monitoring Site Plot	Scientific Name	Common Name	Total Stems	Health
X22	<i>Sambucus mexicana</i>	Blue elderberry	4	Stressed
X22	<i>Sambucus mexicana</i>	Blue elderberry	10	Stressed

Saplings

Three riparian sapling species were observed within the monitoring site plots including Goodding's black willow, ash (*Fraxinus* sp.), and western sycamore (*Platanus racemosa*). The most abundant sapling species was ash which had a total of seven individuals documented. Saplings were only observed at the three monitoring sites listed below. Table 5 lists overall sapling species, Table 6 lists the sapling density per ha, Table 7 lists the sapling health, and Table 8 lists the sapling species composition.

Table 5. Overall Sapling Species			
Monitoring Site Plot	Scientific Name	Common Name	Total Stems
X7	<i>Fraxinus</i> sp.	Ash	1
X7	<i>Fraxinus</i> sp.	Ash	1
X7	<i>Fraxinus</i> sp.	Ash	1
X7	<i>Fraxinus</i> sp.	Ash	1
X7	<i>Fraxinus</i> sp.	Ash	1
X7	<i>Platanus racemosa</i>	Western sycamore	1
X7	<i>Platanus racemosa</i>	Western sycamore	1
X22	<i>Fraxinus</i> sp.	Ash	1
New SAR 01	<i>Salix gooddingii</i>	Goodding's black willow	3

Table 6. Sapling Density (saplings/ha)		
Chino Creek	Mill Creek	SAR
84.9	4.0	14.1

Table 7. Sapling Health			
Health Status	Chino Creek (%)	Mill Creek (%)	SAR (%)
Live	100.0	100.0	100.0

Table 7. Sapling Health			
Health Status	Chino Creek (%)	Mill Creek (%)	SAR (%)
Dead	0.0	0.0	0.0
Stressed	0.0	0.0	0.0

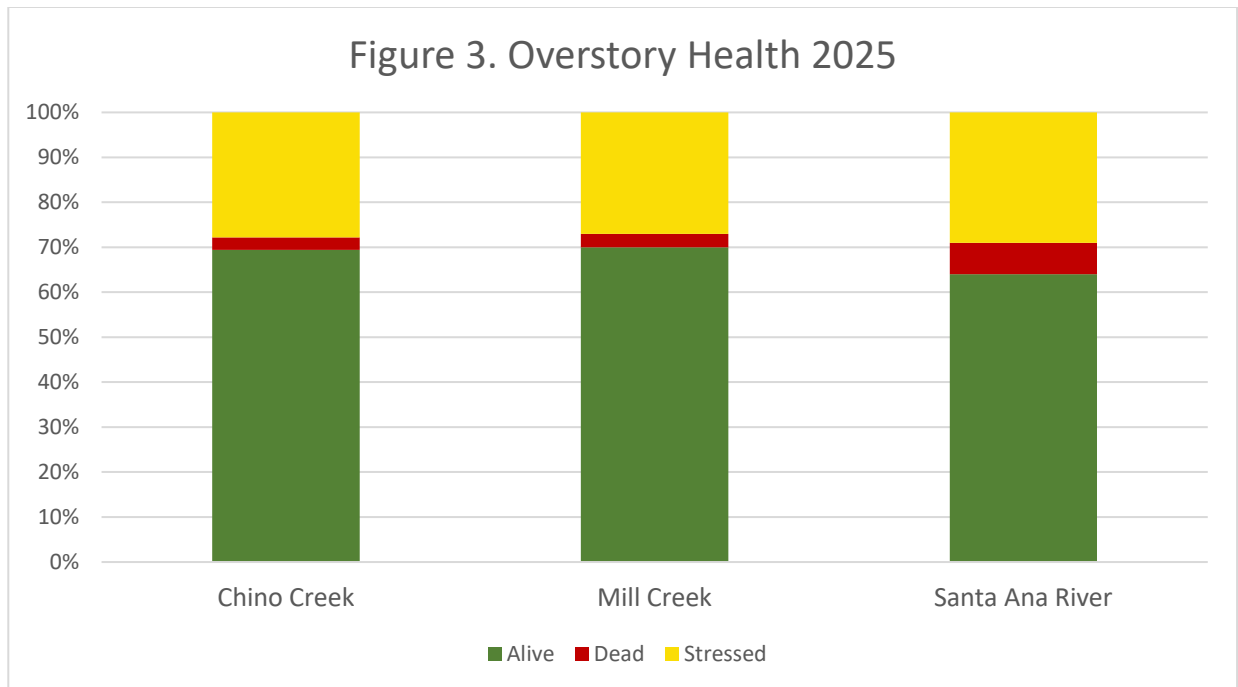
Table 8. Sapling Species Composition			
Species	Chino Creek (%)	Mill Creek (%)	SAR (%)
<i>Salix gooddingii</i>	0.0	0.0	100.0
<i>Fraxinus</i> sp.	75.0	100.0	0.0
<i>Platanus racemosa</i>	25.0	0.0	0.0

Overstory Trees

Health

The majority of trees documented within the monitoring site plots were alive and healthy. On average, 27.7 percent of the trees across all monitoring site plots were showing signs of stress. The SAR monitoring site plots had the highest percentage of stressed and dead trees (28.6 percent and 7.1 percent, respectively). The Mill Creek monitoring site plots were healthiest, with 70.0 percent of the trees being alive and only 26.7 percent showing signs of stress. Similarly, in Chino Creek, 69.4 percent of the trees were alive. The results of the overstory tree health are presented in Table 9 and Figure 3.

Table 9. Tree Health			
Health Status	Chino Creek (%)	Mill Creek (%)	SAR (%)
Live	69.4	70.0	64.3
Dead	2.8	3.3	7.1
Stressed	27.8	26.7	28.6



Tree Species Composition

Goodding's black willow was the most abundant tree species documented within the monitoring site plots. Other tree species documented within the monitoring site plots included Fremont cottonwood, ash, blue elderberry, and walnut. Species composition varied from 2022 to 2025 due to the 2025 surveys not documenting nonnative species at the monitoring site plots. Nonnative species were excluded from data collection in 2025 because they don't reflect the health of riparian communities as a whole.

Scientific Name	Common Name	Chino Creek (%)	Mill Creek (%)	SAR (%)
<i>Salix gooddingii</i>	Goodding's black willow	72.2	95.0	85.7
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood	-	1.7	-
<i>Fraxinus</i> sp.	Ash	27.8	1.7	-
<i>Sambucus mexicana</i>	Blue elderberry	-	1.7	7.1
<i>Juglans</i> sp.	Walnut	-	-	7.1

Nonnative, Invasive, and Nuisance Plant Species

Nonnative and invasive plant species were documented in each of the monitoring sections at various levels of cover. Nonnative and invasive tree species observed within and adjacent the monitoring site

plots included tree of heaven (*Ailanthus altissima*), eucalyptus (*Eucalyptus* spp.), Chinese flame (*Koelreuteria bipinnata*), Chinese elm (*Ulmus parvifolia*), and Mexican fan palm (*Washingtonia robusta*). Chino Creek Site X3 was the only monitoring site plot observed to have significant growth of nonnative and invasive tree species during the 2025 monitoring event. Many nonnative and invasive saplings were observed within this plot and cover of these species was estimated to be approximately 10 to 15 percent.

Nonnative and invasive shrub and herbaceous species commonly observed within and adjacent to the monitoring site plots included Italian thistle (*Carduus pycnocephalus*), poison hemlock (*Conium maculatum*), perennial pepperweed (*Lepidium latifolium*), hairy beggarticks (*Bidens pilosa*), and golden crownbeard (*Verbesina encelioides*). Perennial pepperweed is of particular concern as it has a California Invasive Plant Council (Cal-IPC) rating of high and can produce both asexually and through seed production. Mill Creek monitoring site plots X9, X10, X21, and 81 and SAR monitoring site plots New SAR 01 and New SAR 02 were observed to have high levels of perennial pepperweed in the understory during the 2025 monitoring visit with the level of cover of this species ranging from approximately 25 to 50 percent across the various monitoring site plots.

In addition to nonnative and invasive plant species, two nuisance species were also observed. Rough cocklebur (*Xanthium strumarium*) was proliferating at Chino Creek Site 21 and wild grape (*Vitis* sp.) was proliferating at SAR monitoring site plots X13 and New SAR 01. While both of these species are native, they can proliferate quickly in riparian habitats and compete with other species for resources. Additionally, wild grape can add significant weight to tree limbs which can lead to limb failure.

Polyphagous Shot-Hole Borer (PSHB)

The presence of the PSHB was first documented during vegetation surveys in 2016. This species of beetle is highly problematic for a wide range of native riparian tree species because it has a symbiotic relationship with the fungus *Fusarium euwallaceae*. This fungus is the food source for PSHB but disrupts the vascular system of trees. Moderate and severe infestations of trees with PSHB can lead to significant decline and/or death. During this monitoring event, the presence of PSHB was documented in each of the three monitoring sections. Evidence of PSHB was observed on seven alive trees, seven stressed trees, and two dead trees. The SAR monitoring site plots had the highest percentage of trees infected with PSHB. Table 11 lists the percentage of trees with evidence of PSHB during the 2016, 2019, 2022, and 2025 monitoring events. Although the percentage of trees infected by PSHB has increased from 2022 to 2025, the overall health of the monitoring site plots is good and several of the trees that had evidence of the PSHB did not appear to have a current infestation.

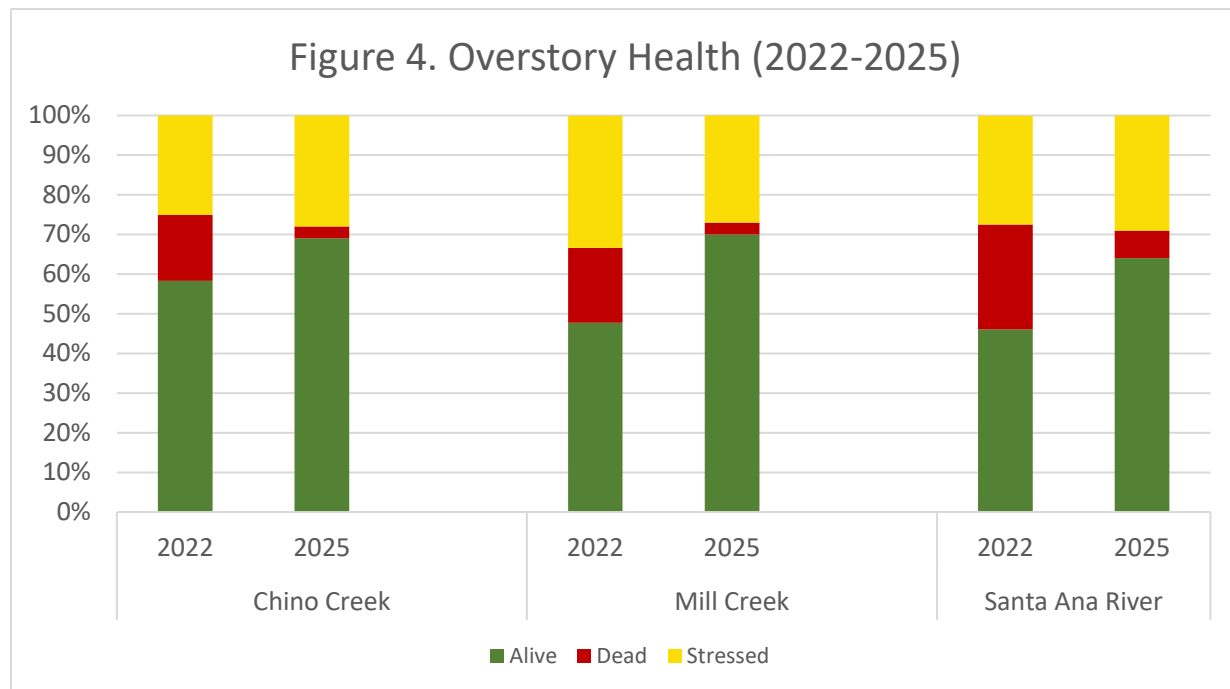
Table 11. Percentage of Trees with Shot-Hole Borer Evidence*			
Year	Chino Creek (%)	Mill Creek (%)	SAR (%)
2016	28.1	56.5	44.2
2019	2.5	9.2	0.0
2022	3.3	9.0	1.8

Table 11. Percentage of Trees with Shot-Hole Borer Evidence*			
Year	Chino Creek (%)	Mill Creek (%)	SAR (%)
2025	19.4	6.7	35.7

*Potential presence of PSHB in 2022 was only documented for trees with obvious damage, while potential presence of this species in 2025 was documented for all trees that had any signs of infestation (e.g., entry/exit holes, weeping sap, branch failure, etc.)

Temporal Comparison

Chino Creek, Mill Creek, and SAR were evaluated for changes in overstory health between 2022 and 2025. At Chino Creek the number of trees alive increased by 11 percent, the number of trees dead decreased by 14 percent, and the number of trees stressed increased by 3 percent. At Mill Creek the number of alive trees increased by 22 percent, the number of dead trees decreased by 16 percent, and the number of stressed trees decreased by 6 percent. Lastly, at the SAR, the number of alive trees increased by 20 percent, the number of dead trees decreased by 20 percent, and the number of stressed trees increased by 2 percent. These changes in overstory health are presented in Figure 4 below. It should be noted that the evaluation of overstory tree health conducted in 2022 included both nonnative and native tree species while the evaluation of tree health conducted in 2025 only included native tree species.



DISCUSSION

Riparian vegetation within the Prado Basin are easily affected by floods, winds, fire events, and variations in precipitation and growing seasons. As a result, differences in vegetation between sampling years are expected. Climatic and natural events have resulted in previously marked trees to fall and resprout,

convoluting the data over the years. Additionally, many multi-trunked trees encountered during the 2025 monitoring event had been previously marked as multiple trees, likely due to inundation and/or sediment buildup in previous years obscuring the base and root crown of these trees.

Although these variables, combined with changes to monitoring methods, complicate the ability to discern specific long-term trends, the health of the riparian vegetation in the monitoring site plots are trending in a positive direction from 2022 to 2025. The primary driver of observed variability is climate, ranging from extreme wet years to dry years. Overall, the monitoring site plots showed:

- A decrease in mean canopy cover. Mean canopy cover at the Chino Creek and Mill Creek monitoring site plots showed a minor decrease from 81.5 percent cover in 2022 to 80.4 percent cover in 2025 and 76.2 percent cover in 2022 to 69.2 percent cover in 2025, respectively. Mean canopy cover at the SAR monitoring site plots showed a more significant decrease from 72.7 percent cover in 2022 to 52.1 percent cover in 2025 which could be the result of higher levels of scouring and invasion from nonnative and invasive plant species. Changes in mean canopy cover between survey years could be attributed to natural and climatic changes. The drop in mean canopy cover could be a result of 1) lower-than-average precipitation levels during the 2025 rainy season (NOAA 2025), 2) scouring from heavy rainfall during the 2023 and 2024 rainy seasons, and/or 3) competition with nonnative and invasive species such as perennial pepperweed, poison hemlock, golden crownbeard, and eucalyptus. Lower precipitation may have resulted in less canopy output during the growing season and/or earlier seasonal dieback in deciduous species (e.g., willows) This is a short-term change which is within the normal fluctuation of canopy cover and may be reversed when precipitation levels return to average. Scouring of the riparian system during periods of heavy rainfall during the 2023 and 2024 rainy seasons could have cleared out or knocked down larger riparian while at the same time opening up areas for perennial pepperweed and other invasive species to proliferate. Additionally, densitometer readings provide estimations of canopy cover and not exact quantifiable data.
- A decrease in sapling recruitment. Saplings per hectare significantly decreased at Chino Creek, Mill Creek, and the SAR. Saplings per hectare decreased at Chino Creek by 175.0, Mill Creek by 68.2, and the SAR by 28.3. The significant decrease in sapling recruitment could be the result of lower-than-average precipitation levels and/or competition with nonnative and invasive weeds. Since 2022 was also a dry year, competition with nonnatives, especially perennial pepperweed, might have played a larger role in the reduction of sapling recruitment from 2022 to 2025. Additionally, data taken in 2025 only recorded saplings for native riparian species due to their dependence on groundwater availability compared to non-riparian species while sapling counts conducted in 2022 also included nonnative species.
- An increase in the number of shrubs. In 2025, an increase in shrub recruitment was observed. Shrubs are an important component of riparian vegetation, providing stacked habitat for species. For example, Mulefat, which is the most abundant shrub in Prado Basin provides quality habitat for the Least Bell's Vireo, one of the listed endangered species in the Prado Basin. A shift in the proportion of sapling versus shrub recruitment indicates that riparian vegetation health is still good overall. Additionally, since shrubs rely on shallower groundwater than trees (<10 feet-below

ground surface), an increase in shrub recruitment suggests that groundwater levels remain adequate.

- An increase in the percentage of healthy trees in the overstory. The percentage of healthy, alive overstory trees increased, and the percentage of dead trees decreased from 2022 to 2025 for Chino Creek, Mill Creek, and the SAR; however, the percentage of stressed trees showed a slight increase for the SAR and Chino Creek. The increase in healthy, alive trees could be attributed to trees previously documented as stressed now recovering. The increase in the percentage of stressed trees at the Chino Creek and SAR monitoring site plots could be attributed to these monitoring site plots becoming overgrown with grape (*Vitis* sp.) and/or proliferation of nonnative and invasive weeds. The fact that the percentage of stressed trees remains between 25 and 30 percent, however, is indicative of overall sustained good health.

Nonnative and invasive plant species can be problematic for riparian systems and often follow periods of disturbance. These species can outcompete native shrub and tree species for water, sunlight, and nutrients causing significant stress and dieback. Perennial pepperweed is of particular concern as this species can spread asexually through extensive root systems and through seed production. Because this species is perennial and difficult to control, it can proliferate and cause significant damage in riparian systems. Perennial pepperweed was found to be especially problematic in the upper reaches of Mill Creek downstream from previous diversions and disturbance. Nonnative and invasive species tend to follow both natural and anthropogenic disturbances.

While the percentage of trees with evidence of PSHB infestation showed an increase during the 2025 monitoring event, much of the evidence is old (e.g., old entry and exit holes with not weeping sap) and many of the trees that had evidence of PSHB were recovering and appeared healthy. Additionally, the potential presence of PSHB in 2022 was only documented for trees with obvious damage, while potential presence of this species in 2025 was documented for all trees that had any signs of infestation (e.g., entry/exit holes, weeping sap, branch failure, etc.). Currently, the potential presence of PSHB does not appear to be having a significant impact on the health of the riparian system. Continued monitoring for PSHB should be conducted on a regular basis and lab tests should be conducted to confirm the presence of PSHB.

Overall, the riparian vegetation at the monitoring site plots appears to be healthy, and the riparian system is functioning properly. Additionally, the condition of the riparian vegetation observed in all three monitoring sections during the 2025 monitoring is consistent with the condition of riparian vegetation observed in other riparian systems throughout Southern California during 2025. Therefore, it is unlikely that any observable decline in the riparian system for the monitoring site plots could be linked to groundwater pumping and is likely the result of the issues discussed above.

Limitations and Recommendations

Survey limitations during the 2025 monitoring event included sampling bias due to access limitations and inconsistencies with 2022 data collected by USBR such as multi-trunked trees being counted as separate trees in 2022 and exclusion of data collected for nonnative/invasive trees in 2025. Ground truthing at the monitoring site plots helps to support the results of the NDVI and air photo analysis by providing

additional information to substantiate what is being observed in these analyses. Ground truthing allows for on the ground determinations of site conditions that can be compared to what is being observed in aerial imagery.

Monitoring of the site plots should continue to be conducted at a minimum of every 3 years. If feasible, additional qualitative monitoring should be conducted each year to provide early detection of any decline in the health of the riparian system.

If you have any questions about the information presented in this letter, please contact me at cadams@ecorpconsulting.com or (916) 782-9100.

Sincerely,



Carley Adams
Senior Biologist

REFERENCES

NOAA. 2025. Climate Data Online: Daily Precipitation Summaries for Chino, California. Available online: <https://www.ncdc.noaa.gov/cdo-web/search>. Accessed on: January 7, 2025.

LIST OF APPENDICES

Appendix A – 2025 Monitoring Plot Site Photos

Appendix B – Data Summary Table

2025 Monitoring Plot Site Photos



Photo 1. Chino Creek – Monitoring Site Plot X3 (facing north).



Photo 2. Chino Creek – Monitoring Site Plot X3 (facing east).



Photo 3. Chino Creek – Monitoring Site Plot X3 (facing south).



Photo 4. Chino Creek – Monitoring Site Plot X3 (facing west).



Photo 5. Chino Creek – Monitoring Site Plot X6 (facing north).



Photo 6. Chino Creek – Monitoring Site Plot X6 (facing east).



Photo 7. Chino Creek – Monitoring Site Plot X6 (facing south).



Photo 8. Chino Creek – Monitoring Site Plot X6 (facing east).



Photo 9. Chino Creek – Monitoring Site Plot X7 (facing north).



Photo 10. Chino Creek – Monitoring Site Plot X7 (facing east).



Photo 11. Chino Creek – Monitoring Site Plot X7 (facing south).



Photo 12. Chino Creek – Monitoring Site Plot X7 (facing west).



Photo 13. Chino Creek – Monitoring Site Plot 18 (facing north).



Photo 14. Chino Creek – Monitoring Site Plot 18 (facing east).



Photo 15. Chino Creek – Monitoring Site Plot 18 (facing south).



Photo 16. Chino Creek – Monitoring Site Plot 18 (facing west).



Photo 17. Chino Creek – Monitoring Site Plot 11 (facing north).



Photo 18. Chino Creek – Monitoring Site Plot 11 (facing east).



Photo 19. Chino Creek – Monitoring Site Plot 11 (facing south).



Photo 20. Chino Creek – Monitoring Site Plot 11 (facing west).



Photo 21. Chino Creek – Monitoring Site Plot 21 (facing north).



Photo 22. Chino Creek – Monitoring Site Plot 21 (facing east).



Photo 23. Chino Creek – Monitoring Site Plot 21 (facing south).



Photo 24. Chino Creek – Monitoring Site Plot 21 (facing west).



Photo 25. Mill Creek – Monitoring Site Plot X10 (facing north).



Photo 26. Mill Creek – Monitoring Site Plot X10 (facing east).



Photo 27. Mill Creek – Monitoring Site Plot X10 (facing south).



Photo 28. Mill Creek – Monitoring Site Plot X10 (facing west).



Photo 29. Mill Creek – Monitoring Site Plot X21 (facing north).



Photo 30. Mill Creek – Monitoring Site Plot X21 (facing east).



Photo 31. Mill Creek – Monitoring Site Plot X21 (facing south).



Photo 32. Mill Creek – Monitoring Site Plot X21 (facing west).



Photo 33. Mill Creek – Monitoring Site Plot X09 (facing north).



Photo 34. Mill Creek – Monitoring Site Plot X09 (facing east).



Photo 35. Mill Creek – Monitoring Site Plot X09 (facing south).



Photo 36. Mill Creek – Monitoring Site Plot X09 (facing west).



Photo 37. Mill Creek – Monitoring Site Plot X22 (facing north).



Photo 38. Mill Creek – Monitoring Site Plot X22 (facing east).



Photo 39. Mill Creek – Monitoring Site Plot X22 (facing south).



Photo 40. Mill Creek – Monitoring Site Plot X22 (facing west).



Photo 41. Mill Creek – Monitoring Site Plot New Mill Creek 01 (facing north).



Photo 42. Mill Creek – Monitoring Site Plot New Mill Creek 01 (facing east).



Photo 43. Mill Creek – Monitoring Site Plot New Mill Creek 01 (facing south).



Photo 44. Mill Creek – Monitoring Site Plot New Mill Creek 01 (facing west).



Photo 45. Mill Creek – Monitoring Site Plot New Mill Creek 02 (facing north).



Photo 46. Mill Creek – Monitoring Site Plot New Mill Creek 02 (facing east).



Photo 47. Mill Creek – Monitoring Site Plot New Mill Creek 02 (facing south).



Photo 48. Mill Creek – Monitoring Site Plot New Mill Creek 02 (facing west).



Photo 49. Mill Creek – Monitoring Site Plot 08 (facing north).



Photo 50. Mill Creek – Monitoring Site Plot 08 (facing east).



Photo 51. Mill Creek – Monitoring Site Plot 08 (facing south).



Photo 52. Mill Creek – Monitoring Site Plot 08 (facing west).



Photo 53. Mill Creek – Monitoring Site Plot 39 (facing north).



Photo 54. Mill Creek – Monitoring Site Plot 39 (facing east).



Photo 55. Mill Creek – Monitoring Site Plot 39 (facing south).



Photo 56. Mill Creek – Monitoring Site Plot 39 (facing west).



Photo 57. Mill Creek – Monitoring Site Plot 60 (facing north).



Photo 58. Mill Creek – Monitoring Site Plot 60 (facing east).



Photo 59. Mill Creek – Monitoring Site Plot 60 (facing south).



Photo 60. Mill Creek – Monitoring Site Plot 60 (facing west).



Photo 61. Mill Creek – Monitoring Site Plot 22 (facing north).



Photo 62. Mill Creek – Monitoring Site Plot 22 (facing east).



Photo 63. Mill Creek – Monitoring Site Plot 22 (facing south).



Photo 64. Mill Creek – Monitoring Site Plot 22 (facing west).



Photo 65. Mill Creek – Monitoring Site Plot 82 (facing north).



Photo 66. Mill Creek – Monitoring Site Plot 82 (facing east).



Photo 67. Mill Creek – Monitoring Site Plot 82 (facing south).



Photo 68. Mill Creek – Monitoring Site Plot 82 (facing west).



Photo 69. Santa Ana River – Monitoring Site New Santa Ana River 01 (facing north).



Photo 70. Santa Ana River – Monitoring Site New Santa Ana River 01 (facing east).



Photo 71. Santa Ana River – Monitoring Site New Santa Ana River 01 (facing south).



Photo 72. Santa Ana River – Monitoring Site New Santa Ana River 01 (facing west).



Photo 73. Santa Ana River – Monitoring Site Plot X13 (facing north).



Photo 74. Santa Ana River – Monitoring Site Plot X13 (facing east).



Photo 75. Santa Ana River – Monitoring Site Plot X13 (facing south).



Photo 76. Santa Ana River – Monitoring Site Plot X13 (facing west).



Photo 77. Santa Ana River – Monitoring Site Plot New Santa Ana River 02 (facing north).



Photo 78. Santa Ana River – Monitoring Site Plot New Santa Ana River 02 (facing east).



Photo 79. Santa Ana River – Monitoring Site Plot New Santa Ana River 02 (facing south).



Photo 80. Santa Ana River – Monitoring Site Plot New Santa Ana River 02 (facing west).

Monitoring Site Plot	Plot	Number of Trees	Cover in Cardinal Directions (%)				Overall Cover (%)	Alive (%)	Stressed (%)	Dead (%)	PSHB Present	PSHB (%)	Saplings Per Hectare
			N	E	S	W							
Chino Creek	X3	3	100	100	100	100	100.0	0	67	33	Yes	67	0
Chino Creek	X6	10	95	95	90	70	87.5	60	40	0	No	0	0
Chino Creek	X7	6	80	75	100	70	81.3	100	0	0	Yes	75	84.9
Chino Creek	11	5	50	25	60	100	58.8	63	38	0	No	0	0
Chino Creek	18	2	100	100	100	100	100.0	100	0	0	No	0	0
Chino Creek	21	7	90	40	40	50	55.0	100	0	0	No	0	0
Mill Creek	X9	4	25	40	100	65	57.5	0	100	0	No	0	0
Mill Creek	X10	1	99	100	100	98	99.3	0	100	0	Yes	100	0
Mill Creek	X21	1	25	70	98	98	72.8	100	0	0	No	0	0
Mill Creek	X22	5	4	50	15	60	32.3	60	20	20	No	0	4.0
Mill Creek	New Mill Creek 01	9	90	20	35	50	49	67	33	0	No	0	0
Mill Creek	New Mill Creek 02	11	85	75	85	75	80.0	100	0	0	No	0	0
Mill Creek	8	2	95	98	85	65	86	100	0	0	No	0	0
Mill Creek	22	7	95	95	95	100	96.3	86	14	0	No	0	0
Mill Creek	39	4	65	90	95	60	77.5	100	0	0	No	0	0
Mill Creek	60	5	10	18	0	15	10.8	20	80	0	No	0	0
Mill Creek	82	11	100	100	100	100	100.0	73	18	9	Yes	27	0
Santa Ana River	X13	3	5	50	65	25	36.3	0	100	0	No	0	0
Santa Ana River	New Santa Ana River 01	5	80	90	65	80	78.8	80	20	0	Yes	40	14.1
Santa Ana River	New Santa Ana River 02	6	50	15	25	75	41.3	83	0	17	Yes	50	0



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026
TO: Board Members
SUBJECT: Application: Water Transaction – 802.36 AF from San Antonio Water Company to Monte Vista Water District (Consent Calendar Item I.D.)

Issue: To consider the Consolidated Water Transfer Forms for the sale and transfer of 802.36 acre-feet of water from San Antonio Water Company to Monte Vista Water District. This purchase is requested to be transferred from San Antonio Water Company's Annual Production Right. Monte Vista Water District is utilizing this transaction to produce its San Antonio Water Company shares. [Within WM Duties and Powers]

Recommendation: Approve the proposed transaction.

Financial Impact: None.

ACTIONS:

Appropriative Pool – May 14, 2026 [Final]: Provided advice and assistance.
Non-Agricultural Pool – May 14, 2026 [Final]: Provided advice and assistance.
Agricultural Pool – May 14, 2026 [Final]: Provided advice and assistance.
Advisory Committee – June 18, 2026 [Final]: **Provided** advice and assistance.
Watermaster Board – June 25, 2026 [Recommended]: Approval.

BACKGROUND

On July 13, 2000, the Court approved the Peace Agreement, the Implementation Plan, and the goals and objectives identified in the OBMP Phase I Report and ordered Watermaster to proceed in a manner consistent with the Peace Agreement. Under the Peace Agreement, Watermaster approval is required for applications to store, recapture, recharge, or transfer water, as well as for applications for credits or reimbursements, and storage and recovery programs.

Where this is no Material Physical Injury, Watermaster must approve the transaction. Where the request for Watermaster approval is submitted by a Party to the Judgment, there is a rebuttable presumption, under the Peace Agreement, that most of the transactions do not result in Material Physical Injury to a Party of the Judgment or the Basin (Storage and Recovery Programs do not have this presumption).

The date of this application is April 7, 2026. Notice of the transaction along with the materials submitted by the requestors was transmitted to stakeholders electronically on May 8, 2026.

DISCUSSION

Beyond confirmation of the source of the water to be transferred (Annual Production Right, Supplemental Water, or Excess Carryover), Watermaster will evaluate the eventual disposition of the transferred water (e.g. production, storage, etc.) at the end of the production year and account for the same consistent with the Watermaster Guidance Documents.

Water transactions occur each year and are included as production by the respective entity (if produced) in any relevant analysis conducted by West Yost pursuant to the Peace Agreement and the Rules & Regulations. There is no indication that additional analysis regarding this transaction is necessary at this time. As part of the OBMP Implementation Plan, measurement of groundwater levels and ground level changes are ongoing, and based on current data, there is no indication that the proposed water transaction will cause Material Physical Injury to a Party of the Judgment, or to the Basin.

The 85/15 Rule is a replenishment assessment policy that is intended to lessen the burden on Appropriative Pool overproducers that were original Parties to the Judgment. The policy may apply to water transactions when: 1) the buyer is an 85/15 Party, 2) the purpose of the transfer is to meet current demand above and beyond a party's production right, and 3) the water is placed into the buyer's Annual Account. The Rule does not apply when the buyer is utilizing the transaction to produce its West End Consolidated Water Company or San Antonio Water Company shares. Buyers that own shares in these two agencies are entitled to a certain amount of water each year and therefore those transactions would not qualify under the 85/15 Rule. Monte Vista Water District, in this application, is utilizing this transaction to produce its San Antonio Water Company shares. Therefore, the 85/15 Rule does not apply in this case.

Pursuant to the Rules & Regulations, "The Application shall not be considered by the Advisory Committee until at least twenty-one (21) days after the last of the three Pool Committee meetings to consider the matter." Therefore, this application will be presented to the Advisory Committee and Watermaster Board at their June 2026 meetings respectively.

At the Pool Committee meetings held on May 14, 2026, the Appropriative and Overlying (Agricultural) Pools unanimously recommended Advisory Committee to recommend to the Watermaster Board to approve the proposed transaction; the Overlying (Non-Agricultural) Pool unanimously recommended its representatives to support at the Advisory Committee and Watermaster Board meetings subject to changes they deem appropriate. The proposed transaction was then presented to the Advisory Committee on June 18, 2026, where it unanimously recommended to the Watermaster Board to approve the proposed transaction.

ATTACHMENTS

1. Consolidated Form 3, 4, & 5
2. Notice Forms

**CONSOLIDATED WATER TRANSFER FORMS:
 FORM 3: APPLICATION FOR SALE OR TRANSFER OF RIGHT TO PRODUCE WATER FROM STORAGE
 FORM 4: APPLICATION OR AMENDMENT TO APPLICATION TO RECAPTURE WATER IN STORAGE
 FORM 5: APPLICATION TO TRANSFER ANNUAL PRODUCTION RIGHT OR SAFE YIELD**

FISCAL YEAR 20²⁵ - 20²⁶

DATE REQUESTED: April 7, 2026

AMOUNT REQUESTED: 802.36 Acre-Feet

<p>TRANSFER FROM (SELLER / TRANSFEROR):</p> <p><u>San Antonio Water Company</u> Name of Party</p> <p><u>139 N. Euclid Avenue</u> Street Address</p> <p><u>Upland</u> <u>CA</u> <u>91786</u> City State Zip Code</p> <p><u>909.982.4107</u> Telephone</p> <p><u>NA</u> Facsimile</p>	<p>TRANSFER TO (BUYER / TRANSFEREE):</p> <p><u>Monte Vista Water District</u> Name of Party</p> <p><u>10575 Central Avenue</u> Street Address</p> <p><u>Montclair</u> <u>CA</u> <u>91763</u> City State Zip Code</p> <p><u>909.267.2125</u> Telephone</p> <p><u>NA</u> Facsimile</p>
--	---

Have any other transfers been approved by Watermaster between these parties covering the same fiscal year? Yes No

PURPOSE OF TRANSFER:

- Pump when other sources of supply are curtailed
- Pump to meet current or future demand over and above production right
- Pump as necessary to stabilize future assessment amounts
- Other, explain Meet SAWCO entitlement for Calendar Year 2026

WATER IS TO BE TRANSFERRED FROM:

- Annual Production Right (Appropriative Pool) or Operating Safe Yield (Non-Agricultural Pool)
- Storage
- Annual Production Right / Operating Safe Yield first, then any additional from Storage
- Other, explain _____

WATER IS TO BE TRANSFERRED TO:

- Annual Production Right / Operating Safe Yield (common)
- Storage (rare)
- Other, explain _____

IS THE 85/15 RULE EXPECTED TO APPLY? (If yes, all answers below must be "yes.") Yes No

Is the Buyer an 85/15 Party? Yes No

Is the purpose of the transfer to meet a current demand over and above production right? Yes No

Is the water being placed into the Buyer's Annual Account? Yes No

IF WATER IS TO BE TRANSFERRED FROM STORAGE:

700-1,000 gpm _____
Projected Rate of Recapture Projected Duration of Recapture

METHOD OF RECAPTURE (e.g. pumping, exchange, etc.):

Pumping _____

PLACE OF USE OF WATER TO BE RECAPTURED:

Regular Production Wells _____

LOCATION OF RECAPTURE FACILITIES (IF DIFFERENT FROM REGULAR PRODUCTION FACILITIES):

WATER QUALITY AND WATER LEVELS

Are the Parties aware of any water quality issues that exist in the area? Yes No

If yes, please explain:

What are the existing water levels in the areas that are likely to be affected?

MATERIAL PHYSICAL INJURY

Are any of the recapture wells located within Management Zone 1? Yes No

Is the Applicant aware of any potential Material Physical Injury to a party to the Judgment or the Basin that may be caused by the action covered by the application? Yes No

If yes, what are the proposed mitigation measures, if any, that might reasonably be imposed to ensure that the action does not result in Material Physical Injury to a party to the Judgment or the Basin?

SAID TRANSFER SHALL BE CONDITIONED UPON:

- (1) Transferee shall exercise said right on behalf of Transferor under the terms of the Judgment, the Peace Agreement, the Peace II Agreement, and the Management Zone 1 Subsidence Management Plan for the period described above. The first water produced in any year shall be that produced pursuant to carry-over rights defined in the Judgment. After production of its carry-over rights, if any, the next (or first if no carry-over rights) water produced by Transferee from the Chino Basin shall be that produced hereunder.
- (2) Transferee shall put all waters utilized pursuant to said Transfer to reasonable beneficial use.
- (3) Transferee shall pay all Watermaster assessments on account of the water production hereby Transferred.
- (4) Any Transferee not already a party must Intervene and become a party to the Judgment.

ADDITIONAL INFORMATION ATTACHED

Yes No

Brian C. Lee Digitally signed by Brian C. Lee
 Date: 2026.04.07 14:17:16
 -07'00'

Seller / Transferor Representative Signature

Brian C. Lee
 Seller / Transferor Representative Name (Printed)

Justin Scott-Coe Digitally signed by Justin Scott-Coe
 DN: O=Monte Vista Water District, CN=Justin Scott-Coe, E=jscottcoe@mvwd.org
 Reason: I am the author of this document
 Location:
 Date: 2026.04.08 15:09:17-07'00'
 Foxit PDF Editor Version: 13.1.5

Buyer / Transferee Representative Signature

Justin M. Scott-Coe
 Buyer / Transferee Representative Name (Printed)

TO BE COMPLETED BY WATERMASTER STAFF:

DATE OF WATERMASTER NOTICE: May 8, 2026

DATE OF APPROVAL FROM APPROPRIATIVE POOL: May 14, 2026

DATE OF APPROVAL FROM NON-AGRICULTURAL POOL: May 14, 2026

DATE OF APPROVAL FROM AGRICULTURAL POOL: May 14, 2026

HEARING DATE, IF ANY: _____

DATE OF ADVISORY COMMITTEE APPROVAL: June 18, 2026

DATE OF BOARD APPROVAL: _____



CHINO BASIN WATERMASTER

NOTICE

OF

APPLICATION(S)

RECEIVED FOR

TRANSFER OF WATER

Date of Notice:

May 8, 2026

This notice is to advise interested persons that the attached application(s) will come before the Watermaster Board on or after 30 days from the date of this notice.

APPLICATION FOR TRANSFER OF WATER

The attached staff report will be included in the meeting package at the time the transfer begins the Watermaster process.

NOTICE OF APPLICATION(S) RECEIVED

Date of Application: **April 07, 2026**

Date of this notice: **May 08, 2026**

Please take notice that the following Application has been received by Watermaster:

- Notice of Sale or Transfer – The purchase of 802.36 acre-feet of water from San Antonio Water Company by Monte Vista Water District. This purchase is made from San Antonio Water Company’s Annual Production Right. Monte Vista Water District is utilizing this transaction to produce its San Antonio Water Company shares.

This **Application** will first be considered by each of the respective pool committees on the following dates:

Appropriative Pool:	May 14, 2026
Non-Agricultural Pool:	May 14, 2026
Agricultural Pool:	May 14, 2026

This **Application** will be scheduled for consideration by the Advisory Committee **no earlier than thirty days from the date of this notice and a minimum of twenty-one calendar days** after the last pool committee reviews it.

After consideration by the Advisory Committee, the **Application** will be considered by the Board.

Unless the **Application** is amended, as **Contests** must be submitted a minimum of fourteen (14) days prior to the Advisory Committee’s consideration of an **Application**, parties to the Judgment may file **Contests** to the **Application** with Watermaster **within seven calendar days** of when the last pool committee considers it. Any **Contest** must be in writing and state the basis of the **Contest**.

Watermaster address:

Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Tel: (909) 484-3888
Web: www.cbwm.org
watertransactions@cbwm.org



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026
TO: Board Members
SUBJECT: Application: Recharge – San Antonio Water Company (Consent Calendar Item I.E.)

Issue: To consider the Application for Recharge submitted on April 16, 2026 by San Antonio Water Company for up to a total of 17,500 acre-feet to be recharged into basins along the San Antonio Channel.

Recommendation: Approve San Antonio Water Company's Application for Recharge and direct Watermaster staff to account for any recharge into the Chino Basin in the appropriate storage account.

Financial Impact: None

ACTIONS:

Appropriative Pool – May 14, 2026 [Final]: Provided advice and assistance.
Non-Agricultural Pool – May 14, 2026 [Final]: Provided advice and assistance.
Agricultural Pool – May 14, 2026 [Final]: Provided advice and assistance.
Advisory Committee – June 18, 2026 [Final]: Provided advice and assistance.
Watermaster Board – June 25, 2026 [Recommended]: Approval.

BACKGROUND

The Court approved the Peace Agreement, the OBMP Implementation Plan and the goals and objectives identified in the OBMP Phase I Report on July 13, 2000, and ordered the Chino Basin Watermaster (Watermaster) to proceed in a manner consistent with the Peace Agreement. Under the Peace Agreement, Watermaster approval is required for Applications to store, recapture, recharge or transfer water, as well as for Applications for credits or reimbursements and storage and recovery programs.

Where there is no Material Physical Injury (MPI), Watermaster must approve the application. Where the request for Watermaster approval is submitted by a Party to the Judgment, there is a rebuttable presumption that most of the proposed activities do not result in MPI to a Party to the Judgment or the Basin (Storage and Recovery Programs do not have this presumption).

DISCUSSION

On April 16, 2026, San Antonio Water Company (SAWCo) submitted an Application for Recharge (Attachment 1) for up to 17,500 acre-feet total from July 2026 through June 2031. The Application states that the method of recharge is surface spreading into the Upland and Montclair Basins located in Management Zone 1 (MZ-1) of the Chino Basin and identifies the source of water to be local supplemental groundwater from the San Antonio Creek.

Pursuant to Article X of the Judgment, Section 10.10, "Watermaster Summary and Notification of a Pending Application," Watermaster issued a notice of this application electronically via email to parties on May 8, 2026 and the notice is also provided below in Attachment 2. The amount recharged will be subject to evaporative losses as consistent with all surface water recharge in Chino Basin. This water may be used to offset over-production during the same fiscal year it was imported, and if not used in the fiscal year for over-production, the water will then be placed into storage. Pursuant to the Peace II Agreement and achievement of Hydraulic Control, losses will be applied to all water placed into a Local Supplemental Storage Account in a manner consistent to all other water held in storage.

West Yost completed an MPI analysis on April 27, 2026, declaring no negative impacts to the Basin from this proposed recharge event (Attachment 3). The deliveries of the water will be monitored and accounted for in coordination with IEUA and SAWCo through Watermaster's Form 2b and Form 2c (Report of Supplemental Water Recharge by a Person). Once approved, SAWCo must complete Form 2b *Request to Recharge Supplemental Water by a Person to Watermaster* for each recharge event during the Application's proposed period. Form 2b will be used by Watermaster staff to coordinate with SAWCo and the Inland Empire Utilities Agency (IEUA) to develop a Recharge Operations Plan. During the Recharge event, Watermaster and IEUA will collect data to properly ensure the water is accounted for. Upon completion of the recharge event, SAWCo will be required to submit Form 2c *Report of Supplemental Water Recharge by a Person to Watermaster* for final review and accounting.

This item was presented at the May 14, 2026 Pool Committee meetings where the Appropriate and Overlying (Agricultural) Pools unanimously recommended Advisory Committee to recommend to the Watermaster to approve the proposed application; the Overlying (Non-Agricultural) Pool unanimously recommended its representatives to support at Advisory Committee and Watermaster Board meetings subject to changes they deem appropriate.

At the June 18, 2026, Advisory Committee meeting, the item was presented and unanimously recommended to the Board for approval.

ATTACHMENTS

1. SAWCo Recharge Application Dated April 16, 2026
2. Notice Forms
3. April 27, 2026 letter from West Yost to Watermaster: Analysis of Material Physical Injury for the San Antonio Water Company Recharge Application, Submitted to Chino Basin Watermaster on 4/16/26

Form 2a - Application for Supplemental Water Recharge

Applicant Information and Recharge Request			
Person		Date Requested	
Contact (individual)		Date Approved	
Street Address		Proposed Period of Time Covered by Recharge Application (mm/yyyy to mm/yyyy)	
City			
State			
Zip Code		Requested Total Amount of Recharge Over the Application Period (AF)	
Telephone			
Fax		Approved Total Amount of Recharge Over the Application Period (AF)	
Email			

Source(s) of Supply (check box and provide supporting information)		
<input type="checkbox"/>	State Water Project	
<input type="checkbox"/>	Colorado River Aqueduct	
<input type="checkbox"/>	Local Supplemental (identify source and attach source water quality characterization including TDS and TN; use as many sheets as necessary)	
<input type="checkbox"/>	Recycled Water (identify source and attach source water quality characterization including TDS and TN; use as many sheets as necessary)	
<input type="checkbox"/>	Other (identify source and attach source water quality characterization including TDS and TN; use as many sheets as necessary)	

Method of Recharge (check box and provide supporting information)		
<input type="checkbox"/>	Surface Spreading	
	Recharge Basin Name(s)	
	Expected Period of Recharge (mm/dd to mm/dd)	
	Depth to Water in Recharge Area (ft-bgs)	
	Water Quality in Recharge Area (attach characterization)	
<input type="checkbox"/>	Injection	
	Well Names and Locations (attach well completion report if not on file with the Watermaster)	
	Expected Period of Recharge (mm/dd to mm/dd)	
	Depth to Water in Recharge Area (ft-bgs)	
	Water Quality in Recharge Area (attach characterization)	
<input type="checkbox"/>	In-Lieu Exchange	
	Treatment Plant and Turnout	
	Share of Safe Yield (percent and AFY)	
	Carryover Right, if Applicable (AF)	
	Water in Storage (AF)	
	Pumping Capacity (mgd or AFM)	
	Expected Period of Recharge (mm/dd to mm/dd)	
	Depth to Water in Area Impacted by In-Lieu Recharge (ft-bgs)	
	Water Quality in Area Impacted by In-Lieu Recharge (attach characterization)	

Form 2a - Application for Supplemental Water Recharge

Material Physical Injury

Is the applicant aware of any potential material physical injury to a Party to the Judgment or the Basin that may be caused by the action covered by the Application?

YES NO

If yes what are the proposed mitigation measures, if any, that might reasonably be imposed to ensure that the action does not result in Material Physical Injury to a Party or the Basin (provide list of mitigation measures and rationale either below or attach one to this application)

BY: _____
Applicant Date

To Be Completed by Watermaster

Is the Person a Party to the Judgment that has:

Previously contributed to the implementation of the OBMP?

YES NO

Is in compliance with their continuing covenants under the Peace Agreement?

YES NO

(If answer to previous question is NO)

Paid or delivered to Watermaster "financial equivalent" consideration to offset the past performance prior to the OBMP implementation?

YES NO

Promised continued future compliance with Watermaster Rules and Regulations?

YES NO

Date of Approval from Appropriative Pool (mm/dd/yyyy) _____

Date of Approval from Overlying Non-Ag Pool (mm/dd/yyyy) _____

Date of Approval from Overlying Ag Pool (mm/dd/yyyy) _____

Hearing Date (if any) (mm/dd/yyyy) _____

Date of Approval by Advisory Committee (mm/dd/yyyy) _____

Date of Approval from Board (mm/dd/yyyy) _____

Recharge Agreement Number _____



CHINO BASIN WATERMASTER

NOTICE

OF

APPLICATION(S)

RECEIVED FOR

RECHARGE

Date of Notice:

May 8, 2026

This notice is to advise interested persons that the attached application(s) will come before the Watermaster Board on or after 30 days from the date of this notice.

APPLICATION FOR RECHARGE

The attached staff report will be included in the meeting package at the time the transfer begins the Watermaster process.

NOTICE OF APPLICATION(S) RECEIVED

Date of Application: **April 16, 2026**

Date of this notice: **May 08, 2026**

Please take notice that the following Application has been received by Watermaster:

- Notice of Application for Recharge – On April 16, 2026, San Antonio Water Company submitted an Application for Recharge for up to 17,500 acre-feet to be recharged into basins along the San Antonio Channel.

This **Application** will first be considered by each of the respective pool committees on the following dates:

Appropriative Pool:	May 14, 2026
Non-Agricultural Pool:	May 14, 2026
Agricultural Pool:	May 14, 2026

This **Application** will be scheduled for consideration by the Advisory Committee **no earlier than thirty days from the date of this notice and a minimum of twenty-one calendar days** after the last pool committee reviews it.

After consideration by the Advisory Committee, the **Application** will be considered by the Board.

Unless the **Application** is amended, as **Contests** must be submitted a minimum of fourteen (14) days prior to the Advisory Committee's consideration of an **Application**, parties to the Judgment may file **Contests** to the **Application** with Watermaster **within seven calendar days** of when the last pool committee considers it. Any **Contest** must be in writing and state the basis of the **Contest**.

Watermaster address:

Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Tel: (909) 484-3888
Web: www.cbwm.org
recharge_storage@cbwm.org



25 Edelman
Irvine CA 92618

949.420.3030 phone
530.756.5991 fax
westyost.com

April 27, 2026

Project No.: 941-80-25-03
SENT VIA: EMAIL

Chino Basin Watermaster
Attention: Mr. Todd Corbin, General Manager
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

SUBJECT: Analysis of Material Physical Injury for the San Antonio Water Company Recharge Application, Submitted to Chino Basin Watermaster on April 16, 2026

Dear Mr. Corbin:

Pursuant to your direction, West Yost Associates, Inc. (West Yost) conducted a material physical injury (MPI) analysis on a Recharge Application submitted by the San Antonio Water Company (SAWC) to the Chino Basin Watermaster on April 16, 2026 (hereafter, April 16, 2026 recharge application). The MPI analysis was completed pursuant to the Watermaster Rules and Regulations and Peace Agreement.

In 2016, Watermaster approved a procedure for the recharge of supplemental water. This procedure includes three main steps:

1. Apply for and obtain Watermaster approval to recharge Supplemental Water
2. Plan, schedule, coordinate, and execute a Supplemental Water recharge event
3. Provide the monitoring and accounting necessary to enable the applicant and Watermaster to measure and record the volume of water that was physically recharged during a recharge event

Under Step 1, Any Person seeking to recharge Supplemental Water is required to complete Watermaster Form No. 2a *Application for Recharge*.¹ Watermaster staff reviews the completed application and conducts an analysis to determine if the proposed recharge as described in the recharge application will cause potential MPI.

Pursuant to the Peace Agreement (page 8), MPI is defined as:

“[...] material injury that is attributable to Recharge, Transfer, storage and recovery, management, movement or Production of water or implementation of the OBMP, including, but not limited to, degradation of water quality, liquefaction, land subsidence, increases in pump lift and adverse impacts associated with rising groundwater.”

¹ <https://www.cbwm.org/pages/forms/>

Article 10 of the Watermaster Rules and Regulations (paragraph 10.10) requires that:

“[...] Watermaster prepare a written summary and analysis (which will include an analysis of the potential for material physical injury) of the Application and provide the Parties with a copy of the written summary and advanced notice of the date of Watermaster’s scheduled consideration and possible action on any pending Applications.”

The MPI analysis presented herein is based on our professional experience and judgment in the Chino Basin, including the past analyses of monitoring data, past evaluations of storage programs, past groundwater modeling of various groundwater management alternatives, and prior MPI analyses.

SAWC APRIL 16, 2026 RECHARGE APPLICATION

SAWC proposes to recharge up to 17,000 acre-feet (af) of local supplemental water from the San Antonio Creek into the Chino Basin during the 5-year period of July 1, 2026 to June 31, 2031 (3,500 af per year). SAWC proposes to divert San Antonio Creek water through its existing non-potable system and subsequently discharge it to the concrete-lined reach of San Antonio Creek located downstream of the Pomona Valley Protective Association (PVPA) diversion facilities and upstream of the College Heights Basin. SAWC proposes to recharge this water in the Upland Basin and Montclair Basins 1-4. Diversions into the Upland Basin would occur through the existing San Antonio Creek diversion into Upland Basin. Diversions into the Montclair Basins would occur through the existing San Antonio Creek diversion into Montclair Basin 1 and subsequently be routed to other basins in the Montclair Basins system. SAWC will need to coordinate their proposed diversions for recharge with the Inland Empire Utilities Agency (IEUA), the Chino Basin Water Conservation District, the City of Upland, and Watermaster to ensure that their water is diverted as proposed, measured and accounted for, and its recharge activities do not interfere with other recharge operations and stormwater management.

Watermaster classifies the water proposed to be recharged by the SAWC as supplemental water; therefore, the proposed recharge will help satisfy Watermaster’s Peace II obligation to recharge 6,500 afy of supplemental water in MZ1.

West Yost evaluated for the following to determine the potential for MPI from the proposed recharge:

- Impacts to groundwater levels that could result in liquefaction and/or rising groundwater, land subsidence, and/or increases in pump lifts at wells.
- Impacts to the balance of recharge and discharge in every area and subarea of the Chino Basin.
- Impacts to groundwater quality.

Potential Impacts to Groundwater Levels

The proposed recharge will produce a localized and temporary increase in groundwater levels in the vicinity of the Upland and Montclair Basins following the recharge event. The temporary increase in groundwater levels will be followed by a return to the groundwater levels that would occur had the water not been recharged, as the recharge mound dissipates. The impacts of these localized changes in groundwater levels are described below:

- *Liquefaction and/or rising groundwater.* The current depth to water is described below:

- Near the Montclair Basin, depth to groundwater as of December 2025 was about 550 ft-bgs as measured at well MVWD 26.
- Near the Upland Basin, depth to groundwater as of December 2025 was about 90 ft-bgs, as measured at well MWU-1. Depth to groundwater near the Upland Basin is shallower than at Montclair Basin due to a clay layer that underlies the Upland Basin that results in perched groundwater.²

Depth to water in near both basins is below 50 feet bgs, the depth at which there may be a threat of liquefaction.³ The below 50 feet bgs liquefaction threshold is assumed to be protective of rising groundwater.

- *Land subsidence.* Land subsidence due to changes in groundwater levels typically occurs with declining groundwater levels. Thus, there will be no threat of aquifer-system compaction and land subsidence due to the localized increases in groundwater levels caused by the recharge.
- *Pumping lifts.* Because of the temporary increases in groundwater levels, pumping lifts and pumping costs may be temporarily reduced for wells in the vicinity of the recharge.

Potential Impacts to the Balance of Recharge and Discharge in Every Area and Subarea

SAWC did not provide information on how it plans to recover the recharged water, so the location of future recovery remains unknown; thus, the balance of recharge and discharge cannot be analyzed.

Potential Impacts to Water Quality

The source of the supplemental water in SAWC's April 16, 2026 recharge application is San Antonio Creek water diverted upstream of San Antonio Dam. West Yost obtained water quality data of the San Antonio Creek water from SAWC and the Watemaster's database for the period 2021-2025. These data indicate no exceedances of primary California Title 22 maximum contaminant levels (MCLs).

Potential Impacts to Receiving Waters

The proposed recharge water is of equal or better quality than current groundwater in the area of recharge; hence, recharge of this water will likely improve the general groundwater quality in the vicinity of the Upland and Montclair Basins.

We compared observed concentrations of chemicals regulated under Title 22 drinking water regulations at wells located near the Upland and Montclair Basins to the MCLs. The contaminants with observations exceeding MCLs in the vicinity of the Upland and Montclair Basins included 1,2,3-Trichloropropane (TCP), 1,2-Dibromo-3-chloropropane (DBCP), nitrate, and perchlorate—with all being commonly observed contaminants in areas previously used in citrus cultivation in the Chino Valley area. The "Groundwater Quality" section of the 2024 State of the Basin Report (West Yost, 2025)⁴ shows the maximum observed

² According to a study conducted by URS on behalf of IEUA in 2005, it was concluded that the "clayey sequence does not create a complete barrier to groundwater recharge."

³ Fife, Donald et al. *Geologic Hazards in Southwestern San Bernardino County, California*. California Division of Mines and Geology, 1976.

⁴ <https://arcg.is/1mfKvj>

concentrations of these and other constituents at municipal wells in the Chino Basin during the five-year period of July 2019 to June 2024.

The potential source(s) of TCP contamination in groundwater in this area were investigated in 2019 and it was concluded that the likely source of the TCP appears to be from land applications of soil fumigants.⁵ The investigation also concluded it is unlikely that managed aquifer recharge (MAR) operations in the area will have a significant impact on the TCP concentrations at MVWD wells.

In 2021, Watermaster conducted a groundwater modeling study to evaluate a 100,000 af storage and recovery program in the Chino Basin, which included recharge at the recharge basins and four Monte Vista injection wells in MZ1. The study concluded that the "displacements [of contaminant plumes due to the storage and recovery program] are negligible and are not potential MPI."⁶

Based on the water quality of the recharge source water, the water quality at nearby wells, the results of the groundwater modeling studies, and the location and magnitude of the proposed recharge, our professional opinion is that the proposed recharge will not change the direction and/or speed of movement of known contaminant plumes in the Chino Basin.

Basin Plan Compliance

The proposed recharge will occur in the Chino North Groundwater Management Zone (GMZ). The 2004 Regional Water Quality Control Plan for the Santa Ana Basin (Basin Plan) has maximum benefit-based TDS and nitrate (expressed as nitrogen) concentration objectives in the Chino-North GMZ of 420 milligrams per liter (mg/L) and 5 mg/L, respectively. Pursuant to the Basin Plan, Watermaster and the IEUA are required to manage artificial recharge in Chino North GMZ such that the five-year, volume-weighted average TDS and nitrate concentrations of the recycled water, imported water, and new stormwater recharged across all recharge facilities does not exceed the maximum benefit-based Basin Plan objectives.

Water quality data from the San Antonio Creek indicate that TDS concentration averaged is expected to be less than 260 mg/L (TDS concentrations ranged from 150 to 240 mg/L between 2021 and 2025) and nitrate concentration is expected to be less than the detection limit (nitrate concentrations ranged from below the detection limit to 0.5 mg/L between 2021 and 2025).

The current ambient TDS and nitrate concentrations in the Chino-North GMZ (covering the 20-year period from 2001 to 2021) are 360 mg/L and 10.8 mg/L,⁷ respectively. Thus, the proposed recharge will not encroach on the current assimilative capacity or interfere with Watermaster and the IEUA's regulatory obligations.

⁵ WEI, 2019. *Investigation of the Likely Source of 1,2,3-Trichloropropane (1,2,3-TCP) in Groundwater near Recharge Basins in Management Zone 1 (MZ1) and the Impact of Managed Aquifer Recharge (MAR) on It*. Technical Memorandum dated December 16, 2019.

⁶ West Yost (2021). *Evaluation of the Local Storage Limitation Solution*. February 2021.

⁷ West Yost (2023). *2021 Ambient Water Quality Pilot Study*. Prepared for the Santa Ana Watershed Project Authority Basin Monitoring Program Task Force. October 2023.

Mr. Todd Corbin
April 2026
Page 5

Conclusion

Based on the information available at this time, our professional opinion is that there will be no MPI due to the SAWC's proposed recharge as described in its April 16, 2026 recharge application.

Please contact me if you have any questions or concerns regarding this MPI analysis.

Sincerely,
WEST YOST

A handwritten signature in black ink that reads "Carolina Sanchez". The signature is written in a cursive, flowing style.

Carolina Sanchez, PE
Senior Engineer
RCE #85598

cc: Alonso Jurado



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026
TO: Board Members
SUBJECT: Professional Services Agreement Between Applied Computer Technologies and Chino Basin Watermaster (Consent Calendar Item I.F.)

Issue: Watermaster intends to renew the annual professional services arrangement with Applied Computer Technologies to provide continuing software development and database administration services. Applied Computer Technologies has been providing services to Watermaster since 2001. [Normal Course of Business]

Recommendation: Approve and authorize the General Manager to execute the contract on behalf of Watermaster.

Financial Impact: The FY 2026/27 budget (which includes account number 6052.2 in the amount of \$91,000) was adopted by the Board on May 28, 2026. The contract expenses of \$175/hour have been funded within the FY 2026/27 budget.

ACTIONS:

Watermaster Board – June 25, 2026 [Recommended]: Approve and authorize the General Manager to execute the contract on behalf of Watermaster.

BACKGROUND

In the normal course of business, Chino Basin Watermaster (Watermaster) maintains many databases. The following is a listing of those databases and their functions:

1. Administrative Database
 - a. Records of all documents we have in storage in the Annex.
 - b. Records of all Motions and Resolutions.
 - c. Generates annual mailing labels.
2. Assessment Package Database
 - a. Creates the annual Assessment Package.
 - b. Linked to Production Database.
 - c. Tracks Water Transactions, transfers, purchases, etc.
3. Production Database
 - a. Tracks production from all parties.
 - b. Contains records of parties and their contact information.
 - c. Tracks Assignments, Voluntary Agreements, and other transfers.
 - d. Records of wells, their owners and users, and the meters.
 - e. Generates quarterly/annual production request forms.
4. Tasks Database
 - a. Used as the basis for the SharePoint's Task and Obligations.
5. Human Resources Database
 - a. HR related employee information
 - b. Job descriptions.
6. Recharge Database
 - a. Tracks all recharge by basin and source.
 - b. Generates monthly reports for meetings.

Watermaster utilizes specialized consultants, when needed, to supplement the technical capabilities and capacities of staff to meet the operational needs of Watermaster. As a result, Watermaster uses Applied Computer Technologies for software development and database administration services. Applied Computer Technologies provides specialized services such as application development and support, application interface development, SQL database administration, SharePoint programming and support, SSRS report development, system interface development, and other technologies as needed.

Watermaster has received effective and innovative services from Applied Computer Technologies since 2001 and plans to continue the professional working relationship.

DISCUSSION

During the annual budget development cycle, Watermaster staff worked with Applied Computer Technologies to review the ongoing services required, along with developing the upcoming budget and ensure proper funding of the database administration services is included. For FY 2026/27, Watermaster intends to enter another one-year professional services agreement with Applied Computer Technologies (Attachment 1). A formal contract for each fiscal year memorializes the description of responsibilities, cost, and schedule, and provide legal protection should disputes arise. Additionally, it aids in clearly identifying this annual budgeted cost.

The software development and SQL database administration services scope of work for July 1, 2026 to June 30, 2027 are shown in the Scope of Work (Addendum A) – (Attachment 2). The budget of \$175/hour for the estimated costs for the FY 2026/27 ongoing services has been included in the Committee approved and Board adopted FY 2026/27 budget.

ATTACHMENTS

1. Professional Services Agreement
2. Scope of Work (Addendum A)

CONSULTING SERVICES AGREEMENT

This Consulting Services Agreement (“Agreement”) is entered into by and between the Chino Basin Watermaster (the “Watermaster”) and Applied Computer Technologies (“Consultant,” and together with the Watermaster, the “Parties”), effective as of the 1st day of July, 2026 (the “Effective Date”).

1. Term of Agreement. This Agreement will become effective as of the Effective Date. This Agreement will terminate on June 30, 2027 or prior to that time in accordance with Section 5 of this Agreement. (The period during which this Agreement is in effect, including any extensions agreed upon by the Parties, is referred to as the “Term.”)
2. Services. The Watermaster and Consultant agree that, during the Term, Consultant will provide the services set forth in the Scope of Work attached as Addendum A to this Agreement, as it may be modified from time to time in writing (the “Services”). The Parties acknowledge that the Services are outside the normal scope of the Watermaster’s Business (as defined below), and that Consultant is customarily engaged in providing such Services to third parties such as the Watermaster. Consultant will coordinate with Todd Corbin or his designee as Consultant’s Watermaster contact (the “Watermaster Contact”).
3. Compensation and Terms of Payment.
 - a. Compensation for Services. In compensation for the Services, the Watermaster will pay Consultant \$175 per hour (the “Fees”).
 - i. Billing Increments. Time will be billed in fifteen- (15-) minute increments. Consultant will invoice time such that intervals of time worked that are less than fifteen (15) minutes are combined with other time worked, so the Watermaster is not billed for more than the actual time worked by Consultant (provided that any partial increments of time on the last invoice will be paid as if the full 15-minute increment had been worked).
 - ii. Billable Time. Consultant will not bill the Watermaster for travel time. To the extent work performed is primarily for the Watermaster’s benefit, Consultant may bill the Watermaster for work performed at the Watermaster’s facilities, work performed for the Watermaster via telephone (including conferences with Watermaster staff and third parties) and preparation of required Watermaster paperwork and documentation. Consultant will not bill the Watermaster for administrative time of Consultant, including preparing invoices for submission to the Watermaster; communications with the Watermaster regarding billing issues, scheduling and the like; negotiating with the Watermaster; completing an IRS Form W-9; communications with Consultant’s own insurance carrier(s); time spent maintaining the license(s) and certification(s) of Consultant and its agents; etc.
 - b. Expenses. Consultant will be responsible for any and all expenses that may be incurred in performing the Services, including all direct and indirect costs, insurance (including professional liability insurance), fees and costs for business and professional licenses and credentialing, mileage and overhead, except as otherwise expressly agreed in writing by the Watermaster in advance with respect to particular expenses (“Expenses”).

c. Method of Payment.

- i. Consultant must have a properly-completed and current Form W-9 on file with the Watermaster in order to receive compensation under this Agreement. Consultant must submit monthly invoices to the Watermaster for Fees and Expenses incurred to that date. The monthly invoices must include an accurate and detailed summary of the Services performed and the billable hours spent on each task, itemization of any pre-approved Expenses incurred, and documentation and receipts acceptable to the Watermaster supporting any such Expenses or Fees.
- ii. The Watermaster Contact will verify the Services, Fees and Expenses detailed on the invoice and will confirm that the Services described therein have been satisfactorily completed and that appropriate documentation has been provided.
- iii. The Watermaster will make a reasonable effort to pay undisputed invoiced amounts within thirty (30) calendar days. The Watermaster will communicate with Consultant regarding any disputed amounts or amounts as to which inadequate documentation has been provided by Consultant. Payment of invoices does not constitute a waiver of the Watermaster's right to subsequently dispute any such invoice.
- iv. The Watermaster reserves the right to withhold payment for Fees and Expenses relating to Services that are not completed as scheduled, are completed unsatisfactorily, are behind schedule, are otherwise performed in an inadequate or untimely fashion, or are not properly documented, each as determined by the Watermaster, with such payments to be released and paid to Consultant if and when the Services are determined by the Watermaster to be satisfactorily completed and properly documented. The Watermaster also reserves the right to withhold payment in the event Consultant and/or its agents threaten not to comply or fail to comply with their obligations (including post-Term obligations) and/or breach or threaten to breach this Agreement in any material respect, as determined by the Watermaster.

4. Affirmation of Independent Contractor Status.

- a. Independent Contractor. The Watermaster and Consultant each expressly understand, agree and intend that Consultant is an independent contractor in the performance of each and every part of this Agreement, and is solely responsible for all costs and expenses arising in connection with the performance of the Services, except as expressly set forth herein. Consultant is responsible for obtaining any business permits or licenses required to enable it to operate as an independent contractor and perform the Services. All Services are to be performed solely at the risk of Consultant, and Consultant agrees to take all precautions necessary for the proper performance of the Services. Consultant is solely responsible for any and all claims, liabilities or damages or debts of any type whatsoever that may arise on account of the activities of Consultant and its agents. Consultant has and retains control of, and supervision over, the performance of its obligations hereunder, including scheduling and day-to-day control over the performance of the Services, and except as expressly provided herein, the Watermaster will have no right to exercise any control whatsoever over the

activities or operations of Consultant and/or its agents. Notwithstanding the foregoing, however, Consultant may not subcontract all or any portion of the performance of the Services, assign performance of the Services to any other entity(ies) or individual(s), or assign any former employee or contractor of the Watermaster to perform the Services, unless, in any such case, the Watermaster has provided its prior express written approval.

- b. Taxes and Related Matters. Consultant will be solely responsible for all tax and other government-imposed responsibilities relating to the performance of the Services, including payment of all applicable federal, state, local and social security taxes, unemployment insurance, workers' compensation and self-employment or other business taxes and licensing fees. Consultant will be solely responsible for payment of all compensation owed to its agents with respect to the Services, including all applicable federal, state and local employment taxes, and will make deductions for all taxes and withholdings required by law. Except as required by applicable law, no federal, state or local taxes of any kind will be withheld or paid by the Watermaster on behalf of Consultant and/or its agents. Consultant acknowledges that the compensation paid pursuant to this Agreement will not be considered "wages" for purposes of the Federal Insurance Contributions Act ("FICA"), unemployment or other taxes. Consultant does not (i) provide management services (within the meaning of Treasury Regulation 1.409A-1(f)(2)(iv)) to the Watermaster or (ii) hold a position as a corporate director or a similar position for the Watermaster. Consultant represents to the Watermaster that it is not subject to the statutory provisions of Section 409A of the Internal Revenue Code of 1986, as amended (the "Code") and any Treasury Regulations and other interpretive guidance issued thereunder (collectively "Section 409A") because Consultant satisfies the requirements of Treasury Regulation 1.409A-1(f)(2) (the exception to the general definition of "service provider" for certain independent contractors). The Watermaster will issue Consultant an IRS Form 1099 with respect to payments made under this Agreement, and Consultant must promptly provide to the Watermaster a completed IRS Form W-9 and other documentation as may be needed from time to time by the Watermaster. Consultant will be responsible for performing all payroll and record-keeping functions required by law. The compensation provided hereunder is not intended to constitute "nonqualified deferred compensation" within the meaning of Section 409A. No provision of this Agreement will be interpreted or construed to transfer any tax, interest, income inclusion, penalty, or other liability arising from or relating to any liability or obligation imposed on Consultant under the Code or any damages relating to or arising therefrom, including without limitation any tax, interest, income inclusion, penalty, other liability, or damages of Consultant arising from or relating to any liability for failure to comply with any applicable tax obligations, including failure to comply with the requirements of Section 409A, from Consultant or any other individual to the Watermaster.
- c. No Employee Benefits from the Watermaster. As an independent contractor, neither Consultant nor its agents will be eligible for benefits from the Watermaster or any related entity, including workers' compensation, unemployment insurance, expense reimbursement, health, dental, vision, life or disability insurance, paid holidays, paid sick leave, vacation or other paid time off, pension or 401(k) plans, educational assistance, continuing education reimbursement, or any other employee benefit that may be offered now or in the future.

- d. No Third-Party Beneficiaries. This Agreement is between the Watermaster and Consultant, and creates no individual rights for any agents of Consultant. No agent of Consultant will be deemed to be a third-party beneficiary hereunder, nor will any agent of Consultant be deemed to have any employment or contractual relationship with the Watermaster as a result of this Agreement or his, her or its performance of services for Consultant, including the Services contemplated under this Agreement. The Parties acknowledge that all individuals performing Services on behalf of Consultant are solely the employees and/or agents of Consultant. The Watermaster will not be responsible for payments due and owing to any subcontractors or other agents of Consultant; provided, however, that in the event Consultant fails timely to pay any such agents, if the Watermaster deems it appropriate to make payments directly to any such agents on behalf of Consultant, notwithstanding that it may have no legal obligation to do so, Consultant will reimburse the Watermaster therefor, and the Watermaster may offset any amounts due and owing to Consultant by any amounts it has paid to any such agents of Consultant.
5. Termination of Agreement. This Agreement will expire at the end of the Term, unless earlier terminated as follows:
- a. Termination upon Written Notice. Either Party may terminate this Agreement during the Term by providing the other Party with thirty (30) days' written notice of such termination or with any shorter notice period upon which the Parties may agree. The Watermaster may, in its sole discretion, provide compensation in lieu of all or a portion of the notice period, regardless of who initiates the termination, prorating the fees as appropriate. Payment in lieu of notice will be calculated by averaging the fees received during the prior three- (3-) month period (or such lesser number of months as this Agreement has been in effect) and pro-rating as appropriate.
- b. Termination for Cause by the Watermaster. The Watermaster may terminate this Agreement immediately for "Cause." Cause includes, but is not limited to, the following, as determined in the Watermaster's sole discretion: (i) failure of Consultant or its agents to comply in any material respect with this Agreement, including failure to perform the Services in a satisfactory manner or attempted assignment of this Agreement by Consultant, breach of any other agreement between the Parties, or violation of any applicable Watermaster policy, procedure or guideline, including the Watermaster's policy against harassment; (ii) serious personal or professional misconduct by Consultant or its agents (including dishonesty, fraud, misappropriation, criminal activity or gross or willful neglect of duty); (iii) breach or threatened breach of Consultant's duties to the Watermaster (including theft or misuse of Watermaster property or time) by Consultant or its agents; (iv) conduct that threatens public health or safety, or threatens to do immediate or substantial harm to the Watermaster's Business (as defined below), including potentially subjecting the Watermaster to civil or criminal liability; (v) falsification by Consultant or its agents of any business-related document, including invoices, or the making of any materially false or misleading statement by Consultant or its agents to or in connection with the Watermaster; (vi) an investigation that could have an adverse impact on the Watermaster is commenced with respect to Consultant and/or its agents by a regulatory agency or governmental agency; (vii) failure or refusal of Consultant or its agents to submit to legally-permissible drug screening, testing and/or medical examinations; (viii)

the professional license(s), and/or qualifications of Consultant and/or its agents deemed necessary by the Watermaster to perform the Services (if applicable) are not maintained or renewed, or are revoked or suspended by an authorized regulatory agency; (ix) any other willful or substantial misconduct, deficiency, failure of performance, breach or default by Consultant or its agents, including failing to provide Services for any reason on multiple occasions when requested by the Watermaster; or (x) in the event of the discontinuance of the Watermaster's business. The Watermaster's exercise of its right to terminate for Cause will be without prejudice to any other remedy to which it may be entitled at law, in equity, or under this Agreement. In the event of termination for Cause by the Watermaster, the only compensation due to Consultant will be payment of Fees incurred up to the date of termination and outstanding reimbursable Expenses, less appropriate offsets and any applicable Penalty (as defined below). In the event the Watermaster terminates this Agreement for Cause, it will be entitled to recover a penalty (the "Penalty") from Consultant in the amount of thirty (30) days' compensation (calculated as set forth below), which Penalty may be deducted from and offset against outstanding compensation due to Consultant.

- c. Penalty for Failure to Provide Notice. In the event either Party fails to provide notice of termination as required under this Agreement, the other Party will be entitled to recover a Penalty in the amount of the compensation that would have been due for the length of the notice period that was not provided. By way of example, if the Watermaster failed to provide any notice to Consultant and terminated this Agreement without Cause, then Consultant would be entitled to recover a Penalty from the Watermaster in the amount of thirty (30) days' compensation. The Penalty amount will be calculated by averaging the fees received during the prior three- (3-) month period (or such lesser number of months as this Agreement has been in effect) and pro-rating as appropriate.

6. Obligations of Consultant.

- a. Best Abilities; Good Workmanship; Time of the Essence. Consultant understands that time is of the essence with respect to the performance of the Services. Consultant will proceed with diligence and the Services will be performed in accordance with the highest professional workmanship, service and ethical standards in the field and to the satisfaction of the Watermaster. If Consultant's workmanship does not conform to these standards, in the Watermaster's subjective judgment and discretion, and the Watermaster so notifies Consultant, Consultant agrees immediately to take all action necessary to remedy the nonconformance. Any costs incurred by Consultant to correct such nonconformance will be at Consultant's sole expense. To the extent Consultant fails to correct such nonconformance to the Watermaster's satisfaction, or the Watermaster deems Consultant incapable of correcting such nonconformance to the Watermaster's satisfaction, the Watermaster may elect to have a third party (including a subcontractor of Consultant) correct such nonconformance at Consultant's sole expense.
- b. Use of Artificial Intelligence. Neither Consultant nor its agents may utilize artificial intelligence (AI), computer-generated preparation of documents or similar technology in performing the Services without, in each particular instance, the prior written consent of the Watermaster or as otherwise provided by Watermaster policies applicable to Consultant.

- c. Compliance with Law and Policies. Consultant and its agents will comply with all federal, state and local laws, rules and regulations applicable to them, including the Occupational Safety and Health Act ("OSHA"), non-discrimination laws, immigration law and work authorization requirements, tax and withholding obligations, wage and hour requirements (including those related to classification of employees and payment of minimum wage and overtime), and laws regarding usage of AI, in the performance of the Services. Consultant understands that, although there may not be specific laws governing usage of AI in some jurisdictions, existing laws must be harmonized with respect to any AI usage, including laws related to strict liability, negligence, and breach of warranty. Consultant will be responsible for providing, at Consultant's expense, and in Consultant's name, all licenses and permits usual or necessary for conducting the Services. Consultant and its agents also will comply with other Watermaster policies that may be applicable to them, as they may be modified from time to time, including the Watermaster's policies against harassment and discrimination, and other policies outlined on Addendum C.
- d. Qualifications. Consultant and its agents understand that the Watermaster may elect to conduct background screening, and drug screening with respect to Consultant and/or its agents, and that satisfactory completion of the same is a material condition of this Agreement. In addition, during the Term, Consultant will continuously maintain in good standing any qualifications necessary to perform the Services (including as set forth on Addendum A), and will cause its agents to do the same. Consultant and its agents must keep all licensure/certification records fully up to date with the Watermaster, including promptly reporting to the Watermaster any revocation, suspensions, restrictions, censures, or investigations.
- e. Equipment; Use of Watermaster Technology. In general, Consultant will be responsible for providing its own supplies, equipment and work location(s). However, to facilitate performance of the Services, Consultant and/or its agents may be provided with certain equipment by the Watermaster. In addition, to facilitate performance of the Services and communications with Watermaster representatives, agents and customers, and to ensure appropriate security levels, confidentiality and privacy protection and document retention procedures, Consultant and/or its agents may be provided with (i) a Watermaster email address, (ii) access to select areas of the Watermaster's computer system, data, files and/or premises, and (iii) access authority and login information with respect to select Watermaster accounts. To the extent Consultant and/or its agents are provided with a Watermaster email address, the applicable signature block must be approved by the Watermaster and must clearly and accurately indicate Consultant's status with respect to the Watermaster. Consultant and its agents will be subject to applicable Watermaster policies relating to usage of Watermaster equipment and systems, as more particularly set forth on Addendum C. To the extent non-Watermaster equipment, systems, devices and/or accounts are used, Consultant will take all reasonable steps to ensure the security of data on or in such equipment, devices, systems and accounts, including using encryption where appropriate and/or required by applicable law.
- f. Insurance. The Watermaster will not procure liability or other insurance on behalf of Consultant or its agents, **except that** the Watermaster may procure professional liability insurance coverage on its own behalf with respect to Consultant's

performance of the Services. Consultant and its agents will assist the Watermaster in procuring any such insurance by submitting to examinations, providing requested documentation, and signing such applications and other instruments as may be required by the insurance carriers to which application is made for such insurance. Procurement of all appropriate insurance coverage for Consultant and/or its agents is the sole responsibility of Consultant. Promptly upon request, Consultant will provide the Watermaster with certificates of insurance evidencing coverage for workers' compensation, unemployment insurance, Comprehensive General Liability insurance, professional liability insurance and motor vehicle insurance, to include provisions for property damage, personal injury and automobile liability, to the extent applicable to Consultant. Such insurance must be in amounts satisfactory to the Watermaster and may not be reduced or canceled without the Watermaster's written approval of such reduction or cancellation. Any insurance maintained by Consultant and/or its agents will be primary insurance to the full approved limits of liability and, should the Watermaster have other valid insurance, such insurance will be excess insurance only. The Watermaster, however, is not required to, and may or may not, include Consultant and/or its agents as additional insureds under any policy the Watermaster maintains on its own behalf, unless otherwise required by applicable law or the terms of the Watermaster's existing insurance policies.

- g. Non-Contravention; No Improper Use of Materials. Consultant represents and warrants that it has all right, power, authority and capacity and is free to enter into this Agreement. Consultant further represents that, by entering into this Agreement, neither Consultant nor its agents will violate or interfere with the rights of any other person or entity. Consultant represents and warrants that neither it nor its agents are subject to any contract, restrictive covenants, non-compete obligations, understandings or other commitments of any kind that will or might prevent, interfere with or impair Consultant's acceptance of this Agreement and/or the performance of the Services. Consultant confirms that it has identified on Addendum B any and all restrictions to which Consultant and its agents who will perform the Services are subject (including restrictive covenants and non-compete obligations) in order to allow the Watermaster the opportunity to assess any such restrictions and their potential impact on the Watermaster and the performance of the Services. Neither Consultant nor its agents will enter into any agreements inconsistent with this Agreement. Consultant further certifies that neither it nor its agents will utilize or disclose any confidential, trade secret or proprietary information of any prior employer or other individual or entity in connection with this Agreement or the performance of the Services, and they will not bring any such information onto the Watermaster's premises or introduce such information onto the Watermaster's equipment or systems.
- h. No Conflict of Interest. Consultant confirms that its and its agents undertaking the Services will not pose any actual or present any perceived conflict of interest. Consultant agrees that neither it nor its agents will, during the Term, directly or indirectly, either on their own or for or on behalf of any other individual or entity, perform any services for, sponsor, promote or enter into any employment or engagement that poses an actual conflict, or that may pose a perceived conflict, with the Watermaster's Business without the Watermaster's prior written approval. For purposes of this Agreement, the "Watermaster's Business" is to administer and enforce provisions of the 1978 Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program.

- i. Non-Disparagement. Consultant agrees that, during the Term and thereafter, neither it nor its agents will, directly or indirectly, take any action or make any statements, written or verbal, including statements on social media sites (whether made in their own name or anonymously, including using a name other than their own), that defame, disparage or in any way criticize the personal or business reputation, products, services, practices or conduct of the Watermaster or its officers, directors, employees, agents or other consultants. Consultant further agrees that neither it nor its agents will engage in any conduct, directly or indirectly, that may be detrimental to the Watermaster's mission, reputation, practices or conduct, including failing timely to provide payment to Consultant's agents. Nothing in this Agreement is intended to preclude Consultant or its agents from providing truthful testimony in response to valid legal process or otherwise truthfully cooperating with or reporting to governmental agencies, or from making other legally protected statements or disclosures.

- j. Non-Recruitment. Because of the nature of the Confidential Information (as defined below) to which Consultant and its agents will have access in the course of performing the Services, Consultant agrees that neither it nor its agents will, during the Term and for a period of twelve (12) months after the termination of this Agreement for any reason (the "Restricted Period"), in any manner whatsoever, directly or indirectly, attempt to induce any then-current employee, contractor or agent to terminate or otherwise diminish its, his or her relationship with the Watermaster.

- k. Confidential Information. In connection with the performance of the Services, Consultant and its agents will have access to information that has been developed by, created by or provided to the Watermaster (including without limitation, information created or developed by Consultant and/or its agents) that has commercial value to the Watermaster's Business, and is not generally known to the public or others, or is otherwise required to be kept confidential by the Watermaster (all of which is referred to as "Confidential Information").
 - i. Confidential Information includes any information (whether in paper or electronic form, or contained in the memory of Consultant and/or its agents, or otherwise stored or recorded) that is not generally known and relates to the Watermaster's Business, if such information has been expressly or implicitly protected by the Watermaster from unrestricted use by persons not associated with the Watermaster. Confidential Information includes, but is not limited to, information contained in or relating to the manner and details of the Watermaster's operation, organization and management; passwords; concepts; programs; trade secrets; product designs; innovations; source codes and documentation; software; data; protocols; best practices; plans and proposals; processes and techniques; projects; passwords, security codes and procedures; the identities and contact information of, and details regarding the Watermaster's relationship with, actual and prospective stakeholders, contractors and vendors; fees and charges of the Watermaster; pricing data and related information; applicant and employee personnel information; financial information; and legal and business strategies and plans, as well as any other information marked "confidential," "proprietary," "secret" or the like. Confidential Information also includes information of the Watermaster's affiliates, customers, vendors, consultants, referral sources, contractors, partners, stakeholders,

directors, officers, employees and other third parties that was disclosed or entrusted to the Watermaster or to Consultant and/or its agents in the course of business and/or in the course of performing the Services with the expectation of confidentiality.

- ii. Consultant agrees that the Confidential Information made available to it and its agents will be used solely for the purpose of performing the Services and will be kept strictly confidential by Consultant and its agents. Consultant agrees that, unless authorized in writing by the Watermaster's General Manager, neither Consultant nor its agents will, directly or indirectly, disclose or use any Confidential Information for their own benefit or for the benefit of any individual or entity other than the Watermaster, either during the Term or thereafter. Consultant and its agents will use only business communication channels with appropriate levels of security to transmit Confidential Information and will not, for instance, transmit Confidential Information to Watermaster agents' personal email accounts. In addition, without the Watermaster's prior written consent, Consultant will not modify, disassemble, reverse engineer or decompile any Confidential Information, or copy, retransmit or otherwise reproduce for, or distribute to third parties any Confidential Information. Nothing contained in this Agreement will require the Watermaster to transmit any Confidential Information to Consultant, or be construed as granting any license or any other rights with respect to the Watermaster's proprietary rights or Confidential Information.
- iii. If, during the Term or at any time thereafter, Consultant or its agents receive a request to disclose any Confidential Information, whether under the terms of a subpoena, court order, or other governmental order or otherwise, Consultant and/or its agents will notify the Watermaster immediately of the details of the request including providing a copy thereof, unless expressly prohibited from doing so by applicable law, and will consult with the Watermaster on the advisability of taking legally available steps to resist or narrow such request. If disclosure of such Confidential Information is required to prevent Consultant and/or its agents from being held in contempt or subject to other penalty, Consultant and/or its agents will furnish only such portion of the Confidential Information as, in the written opinion of legal counsel satisfactory to the Watermaster, Consultant and/or its agents are legally compelled to disclose, and Consultant and its agents will use their best efforts to assist the Watermaster in obtaining an order or other reliable assurance that confidential treatment will be accorded to the disclosed Confidential Information.

- I. Ownership; Return of Property and Duties upon Termination. All Confidential Information, reports, recommendations, documents, drawings, plans, presentations, specifications, technical data, databases, charts, files and other information developed by or provided to Consultant and/or its agents in connection with Consultant's affiliation with the Watermaster are and will remain the property of the Watermaster. Upon termination of this Agreement for any reason, or at such earlier time as the Watermaster may request, Consultant and its agents will immediately (i) discontinue any use of the name, logo, trademarks, or slogans of the Watermaster; (ii) discontinue all representations or statements from which it might be inferred that any continuing relationship exists between Consultant and/or its

agents and the Watermaster; (iii) provide to the Watermaster reproducible copies (including electronic versions if available, in native format and with all supporting materials such as fonts, graphics and attachments) of all work product prepared or modified by Consultant and/or its agents and not previously provided to the Watermaster, whether completed or not; (iv) return to the Watermaster all tangible and intangible Confidential Information, property, documents and other information of the Watermaster, in whatever form or format, including originals and all copies of documents, drawings, computer printouts, notes, memoranda, specifications, hard drives, flash drives, disks or storage media of any kind, including all copies, summaries and compilations thereof, in the possession, custody or control of Consultant and/or its agents; (v) subject to record retention obligations, promptly and permanently delete any Confidential Information stored in the internal and/or personal email account(s), computer(s), electronic devices, voicemails, storage media and cloud-based storage (including external hard drives, flash drives, and discs) of Consultant and/or its agents, and certify the same to the Watermaster; (vi) provide the Watermaster with any and all passwords, source codes, security codes, administrative access information and/or other information in the possession of Consultant and/or its agents necessary to enable the Watermaster to get the benefit of the Services; and (vii) transition to the Watermaster ownership of any websites, accounts, handles, and the like maintained for, by or on behalf of the Watermaster. All of the foregoing will be at the sole expense of Consultant. No failure of the Watermaster to enforce the disposition of materials under this Section, or to enforce it fully or promptly, will constitute, or be interpreted or construed as, a waiver of any right of the Watermaster under this Agreement, nor will it affect in any way the characterization of any material as Confidential Information or give Consultant any rights or license as to any such Confidential Information of the Watermaster, whether by implication, estoppel, act of law, or any other theory or reason.

- m. Cooperation. During the Term and thereafter, Consultant and its agents will fully and truthfully cooperate in the investigation by the Watermaster of any issues, the defense of any claims by, against or otherwise involving the Watermaster, and/or the prosecution of any claims by the Watermaster that might arise that could involve Consultant and/or its agents or information within their knowledge, regardless of whether Consultant and/or its agents personally are named in the action, without any additional compensation for such cooperation other than reimbursement of their reasonable and pre-approved costs actually and necessarily incurred related to such cooperation. Consultant agrees to promptly advise the Watermaster if it learns or suspects that current or former agents of the Watermaster have violated or intend to violate their legal or contractual obligations to the Watermaster, including misuse of Confidential Information.
 - n. Reasonable Restrictions. Consultant, on behalf of itself and its agents, acknowledges and agrees that the requirements set forth in this Agreement are reasonable in time and scope, and do not unduly burden Consultant and/or its agents.
7. No Authority to Bind the Watermaster; Marketing and Advertising. Neither Consultant nor its agents have any authority, right or ability to bind or commit the Watermaster in any way or incur any debts or liabilities in the name of or on behalf of the Watermaster (including, without limitation, by entering into contracts or agreeing to contract terms) without the express prior written consent of the Watermaster in each individual instance, and will not

attempt to do so or imply that it may do so. Consultant and its agents agree not to advertise, promote or represent to any third party that Consultant or its agents are the agents of the Watermaster. Consultant and its agents may represent only that the Parties have an independent contractor relationship pursuant to which Consultant has accepted an opportunity to provide Consultant's customary services to the Watermaster. Consultant and its agents will refrain from using the Watermaster's name in any advertisement, promotion, business card, website, or similar manner without the Watermaster's prior written consent. Consultant and its agents will not add to, delete from or modify any documentation or forms provided by the Watermaster, except with the prior written consent of the Watermaster.

8. Indemnification; Limitation on Liability.

- a. By Consultant. Consultant agrees to indemnify, defend (with counsel selected by the Watermaster) and hold harmless the Watermaster and its affiliates, successors, agents, employees, contractors, insurers, officers and directors (the "Watermaster Indemnified Parties") from and against any and all claims, demands, damages, costs, losses, taxes, penalties, assessments, judgments, interest payments, and expenses of whatever kind and nature, to the fullest extent permitted by law, including attorneys' fees and expert witness costs, directly or indirectly arising out of or resulting from or on account of: (i) any claim, demand, and/or determination that the Watermaster is the employer (whether sole, joint and/or common law) of any agent provided by Consultant, including any claims brought by Consultant's agents arising from or relating to any purported employment relationship or other affiliation and/or the termination thereof, including claims under the California Fair Employment and Housing Act, the California Family Rights Act, the California Government Code, the California Business and Professions Code, the California Paid Sick Leave Law and related local laws, and the California Labor Code, or similar federal statutes, all as amended, for discrimination, harassment, retaliation, workers' compensation, unemployment benefits, unpaid compensation, benefits, misclassification or failure to make withholdings, and any other obligations owed by Consultant to its agents (including under California Labor Code section 2810.3, if and to the extent applicable); (ii) any claim, demand or charge based upon acts or omissions of Consultant or its agents in relation to the Services (including failure to maintain appropriate credentials or insurance); (iii) any claim for negligence or misconduct against any of the Watermaster Indemnified Parties in connection with the engagement of Consultant and/or arising under or relating to this Agreement, including without limitation any unauthorized effort by Consultant or its agents to bind the Watermaster with respect to third parties or the failure of Consultant or its agents to comply with their obligations under this Agreement; (iv) any claim for injury to or death of any person or for damage to or destruction of property resulting from any act or omission of Consultant or its agents arising under or relating to this Agreement, including any motor vehicle accident; (v) any misappropriation, misuse or theft of Confidential Information, unfair competition, breach of contract (including breach of this Agreement), or other acts or omissions of Consultant or its agents that harm or damage (or threaten to harm or damage) any of the Watermaster Indemnified Parties or their business, goodwill or reputation; (v) any claim arising from omissions or misrepresentations by Consultant in Section 6.f above, including claims by third parties for alleged violations of restrictive covenants by Consultant and/or its agents; (vi) any claim arising out of the failure of Consultant and/or its agents to comply with their technology security obligations under Section 6.e

above and/or any compromise of the equipment, systems, or accounts of Consultant or its agents leading to unauthorized access to data, systems or accounts of any Indemnified Party; and (vii) any claims that any work performed by Consultant infringes, misappropriates or violates any third party's patent, copyright, trademark, trade secret, right of publicity, right of privacy, or any other intellectual property or proprietary right; including, in each of the subsections above, claims and proceedings brought by the Watermaster. Such obligations will not be construed to negate, abridge, or otherwise reduce other rights or obligations of indemnity that would otherwise exist as to a Watermaster Indemnified Party, and do not limit the Watermaster's rights under any applicable law to seek additional relief. The indemnification obligations of Consultant under this Section will not be subject to any limitation on amount or type of damages, compensation or benefits payable by or for the Watermaster under workers' compensation laws, unemployment statutes, disability or other employee benefit acts, any applicable insurance policy, or any other federal, state or local law or regulation.

- b. By the Watermaster. The Watermaster agrees to defend, indemnify and hold Consultant and its officers, directors and agents harmless from and against any and all claims, demands, damages, costs, losses, taxes, penalties, assessments, judgments, interest payments, and expenses of whatever kind and nature, to the fullest extent permitted by law, including attorneys' fees and expert witness costs, directly or indirectly arising out of or resulting from (i) the Watermaster's gross negligence or willful misconduct relating to its performance under this Agreement, and (ii) claims brought against Consultant by a third party as a result of Consultant's activities as authorized by the Watermaster and/or Consultant's activities that are within the course and scope of this Agreement, in each case only to the extent that such losses, costs, claims, demands, judgments or liability are not due in whole or in part to the negligence or wrongful act(s) of Consultant and/or its agents. The Watermaster may, at its option, elect to provide a defense in lieu of indemnifying Consultant and/or its agents for attorneys' fees and related defense costs, subject to applicable conflict of interest considerations. In any proceeding in which defense and/or indemnification will be sought by Consultant, Consultant must give prompt written notice of such proceeding to the Watermaster. As a condition to receiving indemnification, Consultant and its agents also must promptly cooperate with all reasonable requests by the Watermaster in connection with the defense of such proceeding. The right to indemnification of Consultant and its agents does not apply to (i) any proceeding or claims initiated by Consultant or its agents against the Watermaster or any other person or entity, including counterclaims, unless the Watermaster has expressly agreed in writing to waive this provision with respect to the proceeding or claims at issue, (ii) any proceeding initiated by the Watermaster against Consultant and/or its agents, (iii) any proceeding or claims alleging or involving conduct by Consultant and/or its agents that the Watermaster in its sole discretion determines was outside the course and scope of the Services, was in breach of this Agreement, constituted gross misconduct or was a violation of applicable law or the ethical duties of Consultant and/or its agents, or (iv) any situation in which indemnification of Consultant and/or its agents is not authorized or permitted pursuant to applicable law.
- c. Limitation on the Watermaster's Liability. The Watermaster will not be liable to Consultant or its agents for any incidental, indirect, special, consequential, punitive or reliance damages of any nature whatsoever, regardless of the foreseeability thereof (including any claim for loss of services, lost profits or lost revenues) arising

under or related to this Agreement, whether based on breach of contract, tort, breach of warranty, negligence or any other theory of liability in law or in equity. Notwithstanding anything to the contrary in this Agreement, Consultant's remedy, if any, for any breach of this Agreement, will be solely in damages, and Consultant may look solely to the Watermaster for recovery of such damages. Consultant waives and relinquishes any right Consultant may otherwise have to obtain injunctive or equitable relief against any third party with respect to any dispute arising under this Agreement. Notwithstanding anything to the contrary in this Agreement, the Watermaster's entire liability, and Consultant's ability to recover damages, at law or in equity with respect to any and/or all claims, damages, losses, costs or causes of action arising from or related to this Agreement (other than any action for payment of the Services and invoices related thereto) may not exceed the aggregate dollar amount paid by the Watermaster to Consultant under this Agreement.

9. General Provisions.

- a. Entire Agreement. This Agreement, along with other documents incorporated herein, constitutes the entire agreement between the Watermaster and Consultant relating to the subject matter hereof and supersedes all prior oral and written understandings, communications and agreements relating to such subject matter, whether verbal or written, implied or otherwise, provided that Consultant's continuing obligations under prior agreements with the Watermaster, including the Consulting Services Agreements between Consultant and the Watermaster dated as of July 1, 2023, July 1, 2024 and July 1, 2025 will continue in full force and effect. In the event of an express conflict between any provisions appearing in any other writing and those in this Agreement, the provisions of this Agreement will control. Unless otherwise agreed by the Parties, all services performed by Consultant for the Watermaster during the Term of this Agreement, whether or not set forth in Addendum A, will be governed by this Agreement.
- b. Assignment. This Agreement is not assignable by Consultant without the prior written consent of the Watermaster, and any purported transfer or assignment is void. This Agreement, or the Watermaster's interest in this Agreement, may be assigned and transferred by the Watermaster, temporarily or permanently, whether expressly, by operation of law or otherwise, and Consultant agrees to perform the Services for the benefit of any such assignee.
- c. Nonexclusive Nature of Agreement. This Agreement does not grant Consultant and/or its agents an exclusive privilege or right to supply Services to the Watermaster. Other than as expressly set forth in this Agreement, the Watermaster makes no representations or warranties as to a minimum or maximum procurement of Services. Nothing in this Agreement will be construed as limiting in any manner the ability of Consultant and/or its agents to procure other engagements consistent with their obligations to the Watermaster hereunder, including the post-Term obligations.
- d. Use of Name, Likeness and Biography. The Watermaster will have the right (but not the obligation) to make public announcements concerning the affiliation of Consultant and its agents with the Watermaster. The Watermaster will have the right (but not the obligation) to use, publish and broadcast, and to authorize others to do so, the name photograph, likeness and biographical information of

Consultant and its agents on any media, now known or later discovered, in connection with the business of the Watermaster.

- e. Amendments; Waiver. This Agreement may not be amended except by a writing executed by all of the Parties hereto. No delay or omission by the Watermaster in exercising any right under this Agreement will operate as a waiver of that or any other right. No waiver by either Party of a right or remedy hereunder will be deemed to be a waiver of any other right or remedy or of any subsequent right or remedy of the same kind.
- f. Provisions Subject to Applicable Law; Modification; Severability. All provisions of this Agreement will be applicable only to the extent that they do not violate any applicable law. If any term, provision, covenant, paragraph or condition of this Agreement is held to be invalid, illegal, or unenforceable by any court or arbitrator of competent jurisdiction, as to such jurisdiction that provision will be limited (“blue-penciled”) to the minimum extent necessary so this Agreement will otherwise remain enforceable in full force and effect. To the extent such provision cannot be so modified, the offending provision will, as to such jurisdiction, be deemed severable from the remainder of this Agreement, and the remaining provisions of this Agreement will be construed to preserve to the maximum permissible extent the intent of the Parties and the purpose of this Agreement.
- g. Notices. All notices, demands, consents, waivers, and other communications under this Agreement will be deemed to have been duly given when (i) delivered by hand; (ii) when received by the addressee, if sent by registered mail (return receipt requested), a nationally recognized overnight delivery service (signature requested) or electronic mail, in each case to the addresses or email addresses set forth below (or to such other addresses as either Party may designate upon written notice):

If to Consultant:

Applied Computer Technologies
Attn: Susan M. Knowlton
417 296th Street East
Roy, Washington 98580
Email: appliedcomputertechnologiesllc@gmail.com

If to the Watermaster:

Chino Basin Watermaster
Attn: Todd Corbin
9641 San Bernardino Road
Rancho Cucamonga, California 91730
Email: tcorbin@cbwm.org

With a copy (which will not constitute notice) to:

Brownstein Hyatt Farber Schreck, LLP
1021 Anacapa Street, 2nd Floor
Santa Barbara, California 93101
Attention: Scott Slater
Email: sslater@bhfs.com

- h. Construction. The Section headings in this Agreement are for convenience and reference only, and the words contained therein in no way will be held to explain, modify, amplify or aid in the interpretation, construction, or meaning of the provisions of this Agreement. The word “including” will mean “including but not limited to.” The word “agents” includes employees, contractors, subcontractors, agents, owners and other representatives. Both Parties participated in the drafting of this Agreement, and each had the opportunity to consult with counsel of their own choosing in connection therewith. The rule that ambiguities in an agreement will be construed against the drafter does not apply to this Agreement.
- i. Force Majeure. Each Party’s obligations hereunder will be suspended during the duration of events beyond that Party’s reasonable control (including labor strikes, lockouts, enactment of laws or regulations, civil unrest, acts of terrorism, pandemics, infectious diseases, measures implemented by any governmental authority, natural disasters, fire, flood, earthquakes, prolonged power outages and acts of God), provided such Party makes reasonable efforts to perform and resumes performance at the earliest opportunity. If Consultant suspends the Services for a period in excess of five (5) calendar/business days, the Watermaster may elect to terminate this Agreement immediately thereafter by providing written notice thereof, notwithstanding anything to the contrary in Section 5 of this Agreement.
- j. Governing Law; Venue; Fees. This Agreement is entered into and will be governed by and construed and enforced in accordance with the laws of the State of California and the United States as applied to agreements among California residents entered into and to be performed entirely within the State of California. Unless waived by the Watermaster in writing for the particular instance, the sole jurisdiction and venue for actions related to the subject matter hereof will be the Court maintaining jurisdiction over the case *Chino Basin Municipal Water District v. City of Chino*, San Bernardino Superior Court Case No. RCV RS 51010. The Parties irrevocably consent to the exclusive jurisdiction of such court (and of the appropriate appellate courts therefrom) in any such action, suit or proceeding. The substantially prevailing Party in any action related to this Agreement, including the breach or enforcement hereof, will be entitled to recover its costs and reasonable attorneys’ fees and expenses, including expert witness fees, to the fullest extent permitted by applicable law.
- k. Legal and Equitable Remedies. Because Consultant’s Services are personal and unique, and because Consultant and its agents will have access to and become acquainted with the Confidential Information (as defined above), the Watermaster will have the right to enforce this Agreement and any of its provisions by injunction, specific performance or other equitable relief, without bond or other security, without prejudice to any other rights and remedies that the Watermaster may have for a breach of this Agreement, and Consultant and its agents waive the claim or defense that the Watermaster has an adequate remedy at law.
- l. Jury Trial Waiver. CONSULTANT, ON BEHALF OF ITSELF AND ITS AGENTS, UNCONDITIONALLY WAIVES ANY RIGHT TO A TRIAL BY JURY RELATED TO ANY DISPUTE OR PROCEEDING THAT ARISES OUT OF THIS AGREEMENT, CONSULTANT’S ENGAGEMENT OR OTHER AFFILIATION WITH THE COMPANY AND/OR THE PERFORMANCE OF THE SERVICES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, AND UNDERSTANDS

THAT THE COMPANY LIKEWISE WAIVES ITS RIGHT TO A TRIAL BY JURY IN SUCH DISPUTES OR PROCEEDINGS.

- m. Authority; Counterparts. Each Party represents and warrants that it has full power and authority to enter into this Agreement. This Agreement may be executed in separate counterparts, each of which will be deemed an original, and both of which taken together will constitute one and the same instrument. A facsimile, pdf, DocuSigned or emailed signature will have the same force and effect as an original signature.

ACKNOWLEDGED AND AGREED:

Applied Computer Technologies

Chino Basin Watermaster

By: _____
 Susan M. Knowlton
 Its: President

By: _____
 Todd Corbin
 Its: General Manager

ADDENDUM A: SCOPE OF WORK

Consultant will provide to the Watermaster Software Development and SQL Database Administrator Services, including the following:

- Application Development and Support
- Application Interface Development
- SQL Database Administration
- SharePoint Programming and Support
- SSRS Report Development
- System Interface Development
- Knowledge transfer to new consulting firm
- Other technologies as needed

The exact work to be performed during the Term will be identified in coordination with Watermaster staff, as it may be modified from time to time. The implementation plan will be developed and directed by Consultant.

In addition, Consultant will provide as-needed on-site services at the Watermaster's offices in Rancho Cucamonga, California to facilitate interaction with Watermaster staff on the status and scope of the project, ongoing needs, and modifications.

ADDENDUM B: DISCLOSURE OF RESTRICTIVE COVENANTS

Consultant hereby discloses all restrictions to which Consultant and/or its agents who may be performing the Services are or may be subject, including restrictive covenants and non-compete obligations, in order to allow the Watermaster the opportunity to assess any such restrictions and their potential impact on the Watermaster and/or the performance of the Services. Consultant understands that such restrictions may be included in, among other things, confidentiality agreements, consulting agreements, employment agreements, separation agreements, employee handbooks, option agreements, and other types of documents. Consultant agrees to provide copies of the applicable restrictive covenants promptly upon request. Consultant further agrees to update this Disclosure promptly upon any changes to the information provided.

Check one:

- Neither Consultant nor its agents are subject to any restrictive covenants or non-compete provisions that may impact the performance of the Services.

- Consultant and/or its agents are subject to the following restrictive covenants or non-compete provisions that may impact the performance of the Services:

ADDENDUM C:

HANDBOOK POLICIES APPLICABLE TO CONSULTANT

- 2.5 – Equal Employment Opportunity
- 4.6 – Conflicts of Interest
- 4.7 – Confidential Information and Watermaster Records
- 4.13 – Safety
- 4.17 – Use of Company Computers and Other Equipment
- 4.18 – Harassment and Discrimination
- 4.19 – Inspections, Searches and Monitoring
- 4.20 – Right to Search
- 4.21 – Smoking
- 4.22 – Voicemail, E-Mail and Technology
- 4.23 – Social Media
- Appendix B – Substance Abuse Policy

Applied Computer Technologies

BUSINESS SOLUTIONS PROVIDER

June 2, 2026

Edgar Tellez Foster
Frank Yoo
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

SUBJECT: Software Development and SQL Database Administrator Services
Scope of Work for Fiscal Year 2026-2027

Dear Edgar and Frank,

I am pleased to offer continuing software development and database administrator services for Chino Basin Watermaster for the 2026-2027 fiscal year. The ongoing services to be provided include the following:

- Application Development and Support
- Application Interface Development
- SQL Database Administration
- SharePoint Programming and Support
- SSRS Report Development
- System Interface Development
- Knowledge transfer to new consulting firm
- Other technologies as needed.

The exact work to be performed will be identified in coordination with Watermaster staff. In addition, we will provide on-site services at the Watermaster's offices in Rancho Cucamonga as needed to facilitate interaction with Watermaster staff on the status and scope of the project, ongoing needs, and modifications. The hourly rate for this service is \$175 per hour, billed on an as needed basis.

If you have additional questions, please do not hesitate to contact me at 951-265-0433 or by email to appliedcomputertechnologiesllc@gmail.com.

Thank you.



Susan M. Knowlton
President, Applied Computer Technologies



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026
TO: Board Members
SUBJECT: Professional Services Agreement Between Rauch Communication Consultants Inc. and Chino Basin Watermaster (Consent Calendar Item I.G.)

Issue: Watermaster seeks to enter into a contract with Rauch Communication Consultants, Inc. to aid in the creation of the 49th Annual Report (Fiscal Year 2025/26). Rauch Communications Consultants have been providing services to Watermaster since 2002. [Normal Course of Business]

Recommendation: Approve and authorize the General Manager to execute the contract on behalf of Watermaster.

Financial Impact: The contract expenses of \$24,675 are funded within the FY 2025/26 budget under account number 6061.3, which was adopted by the Board on May 28, 2026.

ACTIONS:

Watermaster Board – June 25, 2026 [Recommended]: Approve and authorize the General Manager to execute the contract on behalf of Watermaster.

BACKGROUND

Paragraph 48 of the Restated Judgment requires that Watermaster file an Annual Report with the Court by January 31 each year. The Restated Judgment states that the Report shall apply to the preceding fiscal year's operation, contain details as to operation of the Pools, contain a certified audit of assessments and expenditures pursuant to the Physical Solution, and review Watermaster activity.

Chino Basin Watermaster (Watermaster) has partnered with Rauch Communication Consultants, Inc. (RCC) since the preparation of the 26th Annual Report in 2002 and plans to continue the engagement for the fiscal year ending June 30, 2026 report. RCC provides additional research, writing, optimization of photos, graphic designs, layout, proofing, printing, and delivery of the Annual Report.

DISCUSSION

Each year, Watermaster has entered into a formal contract with RCC and plans to continue the practice as shown in the Consulting Services Agreement (Attachment 1). Entering into a contract for each Annual Report will help memorialize the description of responsibilities, cost, and schedule, as well as provide legal protection should disputes arise. Additionally, it will aid in clearly identifying this annual budgeted cost.

The cost and proposed scope of work for RCC's services for the 49th Annual Report has been reviewed by staff and is included as Addendum A within Attachment 1. Costs for the 49th Annual Report are included in the approved Fiscal Year 2026/27 budget as approved by the Advisory Committee and adopted by the Board in May 2026 respectively.

ATTACHMENT

1. Professional Services Agreement with Scope of Work as Addendum A

CONSULTING SERVICES AGREEMENT

This Consulting Services Agreement (“Agreement”) is entered into by and between the Chino Basin Watermaster (the “Watermaster”) and Rauch Communication Consultants, Inc. (“Consultant,” and, together with the Watermaster, the “Parties”), effective as of the 1st day of July, 2026 (the “Effective Date”).

1. **Term of Agreement.** This Agreement will become effective as of the Effective Date. This Agreement will terminate on June 30, 2027 or prior to that time in accordance with Section 5 of this Agreement. (The period during which this Agreement is in effect, including any extensions agreed upon by the Parties, is referred to as the “Term.”)
2. **Services.** The Watermaster and Consultant agree that, during the Term, Consultant will provide the services set forth in the Scope of Work attached as Addendum A to this Agreement, as it may be modified from time to time in writing. Consultant must provide regular written progress reports to the Watermaster, no less frequently than monthly, and maintain regular contact with the Watermaster for project clarification, guidance and issue resolution. Consultant may from time to time be required to perform other duties that are reasonably related to Consultant’s expertise and skills. Collectively, these are referred to as the “Services.” The Parties acknowledge that the Services are outside the normal scope of the Watermaster’s Business (as defined below), and that Consultant is customarily engaged in providing such Services to third parties such as the Watermaster. Consultant will coordinate with Todd Corbin or his designee as Consultant’s Watermaster contact (the “Watermaster Contact”).
3. **Compensation and Terms of Payment.**
 - a. **Compensation for Services.** In compensation for the Services, the Watermaster will pay Consultant on a time and materials basis, with a total cost not to exceed \$24,675.00 over the Term of the Agreement (the “Fees”). Current rates are as shown on Addendum A.
 - b. **Expenses.** Consultant will be responsible for any and all expenses that may be incurred in performing the Services, including all direct and indirect costs, insurance (including professional liability insurance), fees and costs for business and professional licenses and credentialing, mileage and overhead, except as otherwise expressly agreed in writing by the Watermaster in advance with respect to particular expenses (“Expenses”).
 - c. **Method of Payment.**
 - i. Consultant must have a properly-completed and current Form W-9 on file with the Watermaster in order to receive compensation under this Agreement. Consultant must submit monthly invoices to the Watermaster for Fees and Expenses incurred to that date. The monthly invoices must include an accurate and detailed summary of the Services performed and the billable hours spent on each task, itemization of any pre-approved Expenses incurred, and documentation and receipts acceptable to the Watermaster supporting any such Expenses or Fees.
 - ii. The Watermaster Contact will verify the Services, Fees and Expenses detailed on the invoice and will confirm that the Services described therein have been satisfactorily completed and that appropriate documentation has been provided.

- iii. The Watermaster will make a reasonable effort to pay undisputed invoiced amounts within thirty (30) calendar days. The Watermaster will communicate with Consultant regarding any disputed amounts or amounts as to which inadequate documentation has been provided by Consultant. Payment of invoices does not constitute a waiver of the Watermaster's right to subsequently dispute any such invoice.
- iv. The Watermaster reserves the right to withhold payment for Fees and Expenses relating to Services that are not completed as scheduled, are completed unsatisfactorily, are behind schedule, are otherwise performed in an inadequate or untimely fashion, or are not properly documented, each as determined by the Watermaster, with such payments to be released and paid to Consultant if and when the Services are determined by the Watermaster to be satisfactorily completed and properly documented. The Watermaster also reserves the right to withhold payment in the event Consultant and/or its agents threaten not to comply or fail to comply with their obligations (including post-Term obligations) and/or breach or threaten to breach this Agreement in any material respect, as determined by the Watermaster.

4. Affirmation of Independent Contractor Status.

- a. Independent Contractor. The Watermaster and Consultant each expressly understand, agree and intend that Consultant is an independent contractor in the performance of each and every part of this Agreement, and is solely responsible for all costs and expenses arising in connection with the performance of the Services, except as expressly set forth herein. Consultant is responsible for obtaining any business permits or licenses required to enable it to operate as an independent contractor and perform the Services. All Services are to be performed solely at the risk of Consultant, and Consultant agrees to take all precautions necessary for the proper performance of the Services. Consultant is solely responsible for any and all claims, liabilities or damages or debts of any type whatsoever that may arise on account of the activities of Consultant and its agents. Consultant has and retains control of, and supervision over, the performance of its obligations hereunder, including scheduling and day-to-day control over the performance of the Services, and except as expressly provided herein, the Watermaster will have no right to exercise any control whatsoever over the activities or operations of Consultant and/or its agents. Notwithstanding the foregoing, however, Consultant may not subcontract all or any portion of the performance of the Services, assign performance of the Services to any other entity(ies) or individual(s) other than as listed on Addendum A, or assign any former employee or contractor of the Watermaster to perform the Services, unless, in any such case, the Watermaster has provided its prior express written approval.
- b. Taxes and Related Matters. Consultant will be solely responsible for all tax and other government-imposed responsibilities relating to the performance of the Services, including payment of all applicable federal, state, local and social security taxes, unemployment insurance, workers' compensation and self-employment or other business taxes and licensing fees. Consultant will be solely responsible for payment of all compensation owed to its agents with respect to the Services, including all applicable federal, state and local employment taxes,

and will make deductions for all taxes and withholdings required by law. Except as required by applicable law, no federal, state or local taxes of any kind will be withheld or paid by the Watermaster on behalf of Consultant and/or its agents. Consultant acknowledges that the compensation paid pursuant to this Agreement will not be considered "wages" for purposes of the Federal Insurance Contributions Act ("FICA"), unemployment or other taxes. Consultant does not (i) provide management services (within the meaning of Treasury Regulation 1.409A-1(f)(2)(iv)) to the Watermaster or (ii) hold a position as a corporate director or a similar position for the Watermaster. Consultant represents to the Watermaster that it is not subject to the statutory provisions of Section 409A of the Internal Revenue Code of 1986, as amended (the "Code") and any Treasury Regulations and other interpretive guidance issued thereunder (collectively "Section 409A") because Consultant satisfies the requirements of Treasury Regulation 1.409A-1(f)(2) (the exception to the general definition of "service provider" for certain independent contractors). The Watermaster will issue Consultant an IRS Form 1099 with respect to payments made under this Agreement, and Consultant must promptly provide to the Watermaster a completed IRS Form W-9 and other documentation as may be needed from time to time by the Watermaster. Consultant will be responsible for performing all payroll and record-keeping functions required by law. The compensation provided hereunder is not intended to constitute "nonqualified deferred compensation" within the meaning of Section 409A. No provision of this Agreement will be interpreted or construed to transfer any tax, interest, income inclusion, penalty, or other liability arising from or relating to any liability or obligation imposed on Consultant under the Code or any damages relating to or arising therefrom, including without limitation any tax, interest, income inclusion, penalty, other liability, or damages of Consultant arising from or relating to any liability for failure to comply with any applicable tax obligations, including failure to comply with the requirements of Section 409A, from Consultant or any other individual to the Watermaster.

- c. No Employee Benefits from the Watermaster. As an independent contractor, neither Consultant nor its agents will be eligible for benefits from the Watermaster or any related entity, including workers' compensation, unemployment insurance, expense reimbursement, health, dental, vision, life or disability insurance, paid holidays, paid sick leave, vacation or other paid time off, pension or 401(k) plans, educational assistance, continuing education reimbursement, or any other employee benefit that may be offered now or in the future.
- d. No Third-Party Beneficiaries. This Agreement is between the Watermaster and Consultant, and creates no individual rights for any agents of Consultant. No agent of Consultant will be deemed to be a third-party beneficiary hereunder, nor will any agent of Consultant be deemed to have any employment or contractual relationship with the Watermaster as a result of this Agreement or his, her or its performance of services for Consultant, including the Services contemplated under this Agreement. The Parties acknowledge that all individuals performing Services on behalf of Consultant are solely the employees and/or agents of Consultant. The Watermaster will not be responsible for payments due and owing to any subcontractors or other agents of Consultant; provided, however, that in the event Consultant fails timely to pay any such agents, if the Watermaster deems it appropriate to make payments directly to any such agents on behalf of Consultant, notwithstanding that it may have no legal obligation to do so,

Consultant will reimburse the Watermaster therefor, and the Watermaster may offset any amounts due and owing to Consultant by any amounts it has paid to any such agents of Consultant.

5. Termination of Agreement. This Agreement will expire at the end of the Term, unless earlier terminated as follows:
- a. Termination upon Written Notice. Either Party may terminate this Agreement during the Term by providing the other Party with thirty (30) days' written notice of such termination or with any shorter notice period upon which the Parties may agree. The Watermaster may, in its sole discretion, provide compensation in lieu of all or a portion of the notice period, regardless of who initiates the termination, prorating the fees as appropriate. Payment in lieu of notice will be calculated by averaging the fees received during the prior three- (3-) month period (or such lesser number of months as this Agreement has been in effect) and pro-rating as appropriate.
 - b. Termination for Cause by the Watermaster. The Watermaster may terminate this Agreement immediately for "Cause." Cause includes, but is not limited to, the following, as determined in the Watermaster's sole discretion: (i) failure of Consultant or its agents to comply in any material respect with this Agreement, including failure to perform the Services in a satisfactory manner or attempted assignment of this Agreement by Consultant, breach of any other agreement between the Parties, or violation of any applicable Watermaster policy, procedure or guideline, including the Watermaster's policy against harassment; (ii) serious personal or professional misconduct by Consultant or its agents (including dishonesty, fraud, misappropriation, criminal activity or gross or willful neglect of duty); (iii) breach or threatened breach of Consultant's duties to the Watermaster (including theft or misuse of Watermaster property or time) by Consultant or its agents; (iv) conduct that threatens public health or safety, or threatens to do immediate or substantial harm to the Watermaster's Business (as defined below), including potentially subjecting the Watermaster to civil or criminal liability; (v) falsification by Consultant or its agents of any business-related document, including invoices, or the making of any materially false or misleading statement by Consultant or its agents to or in connection with the Watermaster; (vi) an investigation that could have an adverse impact on the Watermaster is commenced with respect to Consultant and/or its agents by a regulatory agency or governmental agency; (vii) failure or refusal of Consultant or its agents to submit to legally-permissible drug screening, testing and/or medical examinations; (viii) the professional license(s), and/or qualifications of Consultant and/or its agents deemed necessary by the Watermaster to perform the Services (if applicable) are not maintained or renewed, or are revoked or suspended by an authorized regulatory agency; (ix) any other willful or substantial misconduct, deficiency, failure of performance, breach or default by Consultant or its agents, including failing to provide Services for any reason on multiple occasions when requested by the Watermaster; or (x) in the event of the discontinuance of the Watermaster's business. The Watermaster's exercise of its right to terminate for Cause will be without prejudice to any other remedy to which it may be entitled at law, in equity, or under this Agreement. In the event of termination for Cause by the Watermaster, the only compensation due to Consultant will be payment of Fees incurred up to the date of termination and outstanding reimbursable Expenses, less appropriate offsets and any applicable Penalty (as defined below). In the

event the Watermaster terminates this Agreement for Cause, it will be entitled to recover a penalty (the "Penalty") from Consultant in the amount of thirty (30) days' compensation (calculated as set forth below), which Penalty may be deducted from and offset against outstanding compensation due to Consultant.

- c. Penalty for Failure to Provide Notice. In the event either Party fails to provide notice of termination as required under this Agreement, the other Party will be entitled to recover a Penalty in the amount of the compensation that would have been due for the length of the notice period that was not provided. By way of example, if the Watermaster failed to provide any notice to Consultant and terminated this Agreement without Cause, then Consultant would be entitled to recover a Penalty from the Watermaster in the amount of thirty (30) days' compensation. The Penalty amount will be calculated by averaging the fees received during the prior three- (3-) month period (or such lesser number of months as this Agreement has been in effect) and pro-rating as appropriate.

6. Obligations of Consultant.

- a. Best Abilities; Good Workmanship; Time of the Essence. Consultant understands that time is of the essence with respect to the performance of the Services. Consultant will proceed with diligence and the Services will be performed in accordance with the highest professional workmanship, service and ethical standards in the field and to the satisfaction of the Watermaster. If Consultant's workmanship does not conform to these standards, in the Watermaster's subjective judgment and absolute discretion, and the Watermaster so notifies Consultant, Consultant agrees immediately to take all action necessary to remedy the nonconformance. Any costs incurred by Consultant to correct such nonconformance will be at Consultant's sole expense. To the extent Consultant fails to correct such nonconformance to the Watermaster's satisfaction, or the Watermaster deems Consultant incapable of correcting such nonconformance to the Watermaster's satisfaction, the Watermaster may elect to have a third party (including a subcontractor of Consultant) correct such nonconformance at Consultant's sole expense.
- b. Use of Artificial Intelligence. Neither Consultant nor its agents may utilize artificial intelligence (AI), computer-generated preparation of documents or similar technology in performing the Services without, in each particular instance, the prior written consent of the Watermaster or as otherwise provided by Watermaster policies applicable to Consultant.
- c. Compliance with Law and Policies. Consultant and its agents will comply with all federal, state and local laws, rules and regulations applicable to them, including the Occupational Safety and Health Act ("OSHA"), non-discrimination laws, immigration law and work authorization requirements, tax and withholding obligations, wage and hour requirements (including those related to classification of employees and payment of minimum wage and overtime) and laws regarding usage of AI, in the performance of the Services. Consultant understands that, although there may not be specific laws governing usage of AI in some jurisdictions, existing laws must be harmonized with respect to any AI usage, including laws related to strict liability, negligence, and breach of warranty. Consultant will be responsible for providing, at Consultant's expense and in Consultant's name, all licenses and permits usual or necessary for conducting the Services. Consultant and its agents also will comply with other Watermaster

policies that may be applicable to them, as they may be modified from time to time, including the Watermaster's policies against harassment and discrimination, and other policies outlined on Addendum C.

- d. Qualifications. Consultant and its agents understand that the Watermaster may elect to conduct background screening, and drug screening with respect to Consultant and/or its agents, and that satisfactory completion of the same is a material condition of this Agreement. In addition, during the Term, Consultant will continuously maintain in good standing any qualifications necessary to perform the Services (including as set forth on Addendum A), and will cause its agents to do the same. Consultant and its agents must keep all licensure/certification records fully up to date with the Watermaster, including promptly reporting to the Watermaster any revocation, suspensions, restrictions, censures or investigations.
- e. Equipment; Use of Watermaster Technology. In general, Consultant will be responsible for providing its own supplies, equipment and work location(s). However, to facilitate performance of the Services, Consultant and/or its agents may be provided with certain equipment by the Watermaster. In addition, to facilitate performance of the Services and communications with Watermaster representatives, agents and customers, and to ensure appropriate security levels, confidentiality and privacy protection and document retention procedures, Consultant and/or its agents may be provided with (i) a Watermaster email address, (ii) access to select areas of the Watermaster's computer system, data, files and/or premises, and (iii) access authority and login information with respect to select Watermaster accounts. To the extent Consultant and/or its agents are provided with a Watermaster email address, the applicable signature block must be approved by the Watermaster and must clearly and accurately indicate Consultant's status with respect to the Watermaster. Consultant and its agents will be subject to applicable Watermaster policies relating to usage of Watermaster equipment and systems, as more particularly set forth on Addendum C. To the extent non-Watermaster equipment, devices, systems and/or accounts are used, Consultant will take all reasonable steps to ensure the security of data on or in such equipment, devices, systems and accounts, including using encryption where appropriate and/or required by applicable law.
- f. Insurance. The Watermaster will not procure liability or other insurance on behalf of Consultant or its agents, except that the Watermaster may procure professional liability insurance coverage on its own behalf with respect to Consultant's performance of the Services. Consultant and its agents will assist the Watermaster in procuring any such insurance by submitting to examinations, providing requested documentation, and signing such applications and other instruments as may be required by the insurance carriers to which application is made for such insurance. Procurement of all appropriate insurance coverage for Consultant and/or its agents is the sole responsibility of Consultant. Promptly upon request, Consultant will provide the Watermaster with certificates of insurance evidencing coverage for workers' compensation, unemployment insurance, Comprehensive General Liability insurance, professional liability insurance and motor vehicle insurance, to include provisions for property damage, personal injury and automobile liability, to the extent applicable to Consultant. Such insurance must be in amounts satisfactory to the Watermaster and may not be reduced or canceled without the Watermaster's written approval of such

reduction or cancellation. Any insurance maintained by Consultant and/or its agents will be primary insurance to the full approved limits of liability and, should the Watermaster have other valid insurance, such insurance will be excess insurance only. The Watermaster, however, is not required to, and may or may not, include Consultant and/or its agents as additional insureds under any policy the Watermaster maintains on its own behalf, unless otherwise required by applicable law or the terms of the Watermaster's existing insurance policies.

- g. Non-Contravention; No Improper Use of Materials. Consultant represents and warrants that it has all right, power, authority and capacity and is free to enter into this Agreement. Consultant further represents that, by entering into this Agreement, neither Consultant nor its agents will violate or interfere with the rights of any other person or entity. Consultant represents and warrants that neither it nor its agents are subject to any contract, restrictive covenants, non-compete obligations, understandings or other commitments of any kind that will or might prevent, interfere with or impair Consultant's acceptance of this Agreement and/or the performance of the Services. Consultant confirms that it has identified on Addendum B any and all restrictions to which Consultant and its agents who will perform the Services are subject (including restrictive covenants and non-compete obligations) in order to allow the Watermaster the opportunity to assess any such restrictions and their potential impact on the Watermaster and the performance of the Services. Neither Consultant nor its agents will enter into any agreements inconsistent with this Agreement. Consultant further certifies that neither it nor its agents will utilize or disclose any confidential, trade secret or proprietary information of any prior employer or other individual or entity in connection with this Agreement or the performance of the Services, and they will not bring any such information onto the Watermaster's premises or introduce such information onto the Watermaster's equipment or systems.
- h. No Conflict of Interest. Consultant confirms that its and its agents undertaking the Services will not pose any actual or present any perceived conflict of interest. Consultant agrees that neither it nor its agents will, during the Term, directly or indirectly, either on their own or for or on behalf of any other individual or entity, perform any services for, sponsor, promote or enter into any employment or engagement that poses an actual conflict, or that may pose a perceived conflict, with the Watermaster's Business without the Watermaster's prior written approval. For purposes of this Agreement, the "Watermaster's Business" is to administer and enforce provisions of the 1978 Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program.
- i. Non-Disparagement. Consultant agrees that, during the Term and thereafter, neither it nor its agents will, directly or indirectly, take any action or make any statements, written or verbal, including statements on social media sites (whether made in their own name or anonymously, including using a name other than their own), that defame, disparage or in any way criticize the personal or business reputation, products, services, practices or conduct of the Watermaster or its officers, directors, employees, agents or other consultants. Consultant further agrees that neither it nor its agents will engage in any conduct, directly or indirectly, that may be detrimental to the Watermaster's mission, reputation, practices or conduct, including failing timely to provide payment to Consultant's agents. Nothing in this Agreement is intended to preclude Consultant or its agents from providing truthful testimony in response to valid legal process or otherwise

truthfully cooperating with or reporting to governmental agencies, or from making other legally protected statements or disclosures.

- j. Non-Recruitment. Because of the nature of the Confidential Information (as defined below) to which Consultant and its agents will have access in the course of performing the Services, Consultant agrees that neither it nor its agents will, during the Term and for a period of twelve (12) months after the termination of this Agreement for any reason (the "Restricted Period"), in any manner whatsoever, directly or indirectly, attempt to induce any then-current employee, contractor or agent to terminate or otherwise diminish its, his or her relationship with the Watermaster.
- k. Confidential Information. In connection with the performance of the Services, Consultant and its agents will have access to information that has been developed by, created by or provided to the Watermaster (including without limitation, information created or developed by Consultant and/or its agents) that has commercial value to the Watermaster's Business, and is not generally known to the public or others, or is otherwise required to be kept confidential by the Watermaster (all of which is referred to as "Confidential Information").
 - i. Confidential Information includes any information (whether in paper or electronic form, or contained in the memory of Consultant and/or its agents, or otherwise stored or recorded) that is not generally known and relates to the Watermaster's Business, if such information has been expressly or implicitly protected by the Watermaster from unrestricted use by persons not associated with the Watermaster. Confidential Information includes, but is not limited to, information contained in or relating to the manner and details of the Watermaster's operation, organization and management; passwords; concepts; programs; trade secrets; product designs; innovations; source codes and documentation; software; data; protocols; best practices; plans and proposals; processes and techniques; projects; passwords, security codes and procedures; the identities and contact information of, and details regarding the Watermaster's relationship with, actual and prospective stakeholders, contractors and vendors; fees and charges of the Watermaster; pricing data and related information; applicant and employee personnel information; financial information; and legal and business strategies and plans, as well as any other information marked "confidential," "proprietary," "secret" or the like. Confidential Information also includes information of the Watermaster's affiliates, customers, vendors, consultants, referral sources, contractors, partners, stakeholders, directors, officers, employees and other third parties that was disclosed or entrusted to the Watermaster or to Consultant and/or its agents in the course of business and/or in the course of performing the Services with the expectation of confidentiality.
 - ii. Consultant agrees that the Confidential Information made available to it and its agents will be used solely for the purpose of performing the Services and will be kept strictly confidential by Consultant and its agents. Consultant agrees that, unless authorized in writing by the Watermaster's General Manager, neither Consultant nor its agents will, directly or indirectly, disclose or use any Confidential Information for their own benefit or for the benefit of any individual or entity other than the Watermaster,

either during the Term or thereafter. Consultant and its agents will use only business communication channels with appropriate levels of security to transmit Confidential Information and will not, for instance, transmit Confidential Information to Watermaster agents' personal email accounts. In addition, without the Watermaster's prior written consent, Consultant will not modify, disassemble, reverse engineer or decompile any Confidential Information, or copy, retransmit or otherwise reproduce for, or distribute to third parties any Confidential Information. Nothing contained in this Agreement will require the Watermaster to transmit any Confidential Information to Consultant, or be construed as granting any license or any other rights with respect to the Watermaster's proprietary rights or Confidential Information.

iii. If, during the Term or at any time thereafter, Consultant or its agents receive a request to disclose any Confidential Information, whether under the terms of a subpoena, court order, or other governmental order or otherwise, Consultant and/or its agents will notify the Watermaster immediately of the details of the request, including providing a copy thereof, unless expressly prohibited from doing so by applicable law, and will consult with the Watermaster on the advisability of taking legally available steps to resist or narrow such request. If disclosure of such Confidential Information is required to prevent Consultant and/or its agents from being held in contempt or subject to other penalty, Consultant and/or its agents will furnish only such portion of the Confidential Information as, in the written opinion of legal counsel satisfactory to the Watermaster, Consultant and/or its agents are legally compelled to disclose, and Consultant and its agents will use their best efforts to assist the Watermaster in obtaining an order or other reliable assurance that confidential treatment will be accorded to the disclosed Confidential Information.

i. Ownership; Return of Property and Duties upon Termination. All Confidential Information, reports, recommendations, documents, drawings, plans, presentations, specifications, technical data, databases, charts, files and other information developed by or provided to Consultant and/or its agents in connection with Consultant's affiliation with the Watermaster are and will remain the property of the Watermaster. Upon termination of this Agreement for any reason, or at such earlier time as the Watermaster may request, Consultant and its agents will immediately (i) discontinue any use of the name, logo, trademarks, or slogans of the Watermaster; (ii) discontinue all representations or statements from which it might be inferred that any continuing relationship exists between Consultant and/or its agents and the Watermaster; (iii) provide to the Watermaster reproducible copies (including electronic versions if available, in native format and with all supporting materials such as fonts, graphics and attachments) of all work product prepared or modified by Consultant and/or its agents and not previously provided to the Watermaster, whether completed or not; (iv) return to the Watermaster all tangible and intangible Confidential Information, property, documents and other information of the Watermaster, in whatever form or format, including originals and all copies of documents, drawings, computer printouts, notes, memoranda, specifications, hard drives, flash drives, disks or storage media of any kind, including all copies, summaries and compilations thereof, in

the possession, custody or control of Consultant and/or its agents; (v) subject to record retention obligations, promptly and permanently delete any Confidential Information stored in the internal and/or personal email account(s), computer(s), electronic devices, voicemails, storage media and cloud-based storage (including external hard drives, flash drives, and discs) of Consultant and/or its agents, and certify the same to the Watermaster; (vi) provide the Watermaster with any and all passwords, source codes, security codes, administrative access information and/or other information in the possession of Consultant and/or its agents necessary to enable the Watermaster to get the benefit of the Services; and (vii) transition to the Watermaster ownership of any websites, accounts, handles, and the like maintained for, by or on behalf of the Watermaster. All of the foregoing will be at the sole expense of Consultant. No failure of the Watermaster to enforce the disposition of materials under this Section, or to enforce it fully or promptly, will constitute, or be interpreted or construed as, a waiver of any right of the Watermaster under this Agreement, nor will it affect in any way the characterization of any material as Confidential Information or give Consultant any rights or license as to any such Confidential Information of the Watermaster, whether by implication, estoppel, act of law, or any other theory or reason.

- m. Cooperation. During the Term and thereafter, Consultant and its agents will fully and truthfully cooperate in the investigation by the Watermaster of any issues, the defense of any claims by, against or otherwise involving the Watermaster and/or the prosecution of any claims by the Watermaster that might arise that could involve Consultant and/or its agents or information within their knowledge, regardless of whether Consultant and/or its agents personally are named in the action, without any additional compensation for such cooperation other than reimbursement of their reasonable and pre-approved costs actually and necessarily incurred related to such cooperation. Consultant agrees to promptly advise the Watermaster if it learns or suspects that current or former agents of the Watermaster have violated or intend to violate their legal or contractual obligations to the Watermaster including misuse of Confidential Information.
 - n. Reasonable Restrictions. Consultant, on behalf of itself and its agents, acknowledges and agrees that the requirements set forth in this Agreement are reasonable in time and scope, and do not unduly burden Consultant and/or its agents.
7. No Authority to Bind the Watermaster; Marketing and Advertising. Neither Consultant nor its agents have any authority, right or ability to bind or commit the Watermaster in any way or incur any debts or liabilities in the name of or on behalf of the Watermaster (including, without limitation, by entering into contracts or agreeing to contract terms) without the express prior written consent of the Watermaster in each individual instance, and will not attempt to do so or imply that it may do so. Consultant and its agents agree not to advertise, promote or represent to any third party that Consultant or its agents are the agents of the Watermaster. Consultant and its agents may represent only that the Parties have an independent contractor relationship pursuant to which Consultant has accepted an opportunity to provide Consultant's customary services to the Watermaster. Consultant and its agents will refrain from using the Watermaster's name in any advertisement, promotion, business card, website, or similar manner without the Watermaster's prior written consent. Consultant and its agents will not add to, delete from or modify any documentation or forms provided by the Watermaster, except with the prior written consent of the Watermaster.

8. Indemnification; Limitation on Liability.

- a. By Consultant. Consultant agrees to indemnify, defend (with counsel selected by the Watermaster) and hold harmless the Watermaster and its affiliates, successors, agents, employees, contractors, insurers, officers and directors (the "Watermaster Indemnified Parties") from and against any and all claims, demands, damages, costs, losses, taxes, penalties, assessments, judgments, interest payments, and expenses of whatever kind and nature, to the fullest extent permitted by law, including attorneys' fees and expert witness costs, directly or indirectly arising out of or resulting from or on account of: (i) any claim, demand, and/or determination that the Watermaster is the employer (whether sole, joint and/or common law) of any agent provided by Consultant, including any claims brought by Consultant's agents arising from or relating to any purported employment relationship or other affiliation and/or the termination thereof, including claims under the California Fair Employment and Housing Act, the California Family Rights Act, the California Government Code, the California Business and Professions Code, the California Paid Sick Leave Law and related local laws, and the California Labor Code, or similar federal statutes, all as amended, for discrimination, harassment, retaliation, workers' compensation, unemployment benefits, unpaid compensation, benefits, misclassification or failure to make withholdings, and any other obligations owed by Consultant to its agents (including under California Labor Code section 2810.3, if and to the extent applicable); (ii) any claim, demand or charge based upon acts or omissions of Consultant or its agents in relation to the Services (including failure to maintain appropriate credentials or insurance); (iii) any claim for negligence or misconduct against any of the Watermaster Indemnified Parties in connection with the engagement of Consultant and/or arising under or relating to this Agreement, including without limitation any unauthorized effort by Consultant or its agents to bind the Watermaster with respect to third parties or the failure of Consultant or its agents to comply with their obligations under this Agreement; (iv) any claim for injury to or death of any person or for damage to or destruction of property resulting from any act or omission of Consultant or its agents arising under or relating to this Agreement, including any motor vehicle accident; (v) any claim arising from omissions or misrepresentations by Consultant in Section 6.f above, including claims by third parties for alleged violations of restrictive covenants by Consultant and/or its agents; (vi) any claim arising out of the failure of Consultant and/or its agents to comply with their technology security obligations under Section 6.e above and/or any compromise of the equipment, systems, or accounts of Consultant or its agents leading to unauthorized access to data, systems or accounts of any Indemnified Party; (vii) any misappropriation, misuse or theft of Confidential Information, unfair competition, breach of contract, (including breach of this Agreement), or other acts or omissions of Consultant or its agents that harm or damage (or threaten to harm or damage) any of the Watermaster Indemnified Parties or their business, goodwill or reputation; and (viii) any claims that any work performed by Consultant infringes, misappropriates or violates any third party's patent, copyright, trademark, trade secret, right of publicity, right of privacy, or any other intellectual property or proprietary right; including, in each of the subsections above, claims and proceedings brought by the Watermaster. Such obligations will not be construed to negate, abridge, or otherwise reduce other rights or obligations of indemnity that would otherwise exist as to a

Watermaster Indemnified Party, and do not limit the Watermaster's rights under any applicable law to seek additional relief. The indemnification obligations of Consultant under this Section will not be subject to any limitation on amount or type of damages, compensation or benefits payable by or for the Watermaster under workers' compensation laws, unemployment statutes, disability or other employee benefit acts, any applicable insurance policy, or any other federal, state or local law or regulation.

- b. By the Watermaster. The Watermaster agrees to defend, indemnify and hold Consultant and its officers, directors, and agents harmless from and against any and all claims, demands, damages, costs, losses, taxes, penalties, assessments, judgments, interest payments, and expenses of whatever kind and nature, to the fullest extent permitted by law, including attorneys' fees and expert witness costs, directly or indirectly arising out of or resulting from (i) the Watermaster's gross negligence or willful misconduct relating to its performance under this Agreement, and (ii) claims brought against Consultant by a third party as a result of Consultant's activities as authorized by the Watermaster and/or Consultant's activities that are within the course and scope of this Agreement, in each case only to the extent that such losses, costs, claims, demands, judgments or liability are not due in whole or in part to the negligence or wrongful act(s) of Consultant and/or its agents. The Watermaster may, at its option, elect to provide a defense in lieu of indemnifying Consultant and/or its agents for attorneys' fees and related defense costs, subject to applicable conflict of interest considerations. In any proceeding in which defense and/or indemnification will be sought by Consultant, Consultant must give prompt written notice of such proceeding to the Watermaster. As a condition to receiving indemnification, Consultant and its agents also must promptly cooperate with all reasonable requests by the Watermaster in connection with the defense of such proceeding. The right to indemnification of Consultant and its agents does not apply to (i) any proceeding or claims initiated by Consultant or its agents against the Watermaster or any other person or entity, including counterclaims, unless the Watermaster has expressly agreed in writing to waive this provision with respect to the proceeding or claims at issue, (ii) any proceeding initiated by the Watermaster against Consultant and/or its agents, (iii) any proceeding or claims alleging or involving conduct by Consultant and/or its agents that the Watermaster in its sole discretion determines was outside the course and scope of the Services, was in breach of this Agreement, constituted gross misconduct or was a violation of applicable law or the ethical duties of Consultant and/or its agents, or (iv) any situation in which indemnification of Consultant and/or its agents is not authorized or permitted pursuant to applicable law.
- c. Limitation on the Watermaster's Liability. The Watermaster will not be liable to Consultant or its agents for any incidental, indirect, special, consequential, punitive or reliance damages of any nature whatsoever, regardless of the foreseeability thereof (including any claim for loss of services, lost profits or lost revenues) arising under or related to this Agreement, whether based on breach of contract, tort, breach of warranty, negligence or any other theory of liability in law or in equity. Notwithstanding anything to the contrary in this Agreement, Consultant's remedy, if any, for any breach of this Agreement, will be solely in damages, and Consultant may look solely to the Watermaster for recovery of such damages. Consultant waives and relinquishes any right Consultant may otherwise have to obtain injunctive or equitable relief against any third party with respect to

any dispute arising under this Agreement. Notwithstanding anything to the contrary in this Agreement, the Watermaster's entire liability, and Consultant's ability to recover damages, at law or in equity with respect to any and/or all claims, damages, losses, costs or causes of action arising from or related to this Agreement (other than any action for payment of the Services and invoices related thereto) may not exceed the aggregate dollar amount paid by the Watermaster to Consultant under this Agreement.

9. General Provisions.

- a. Entire Agreement. This Agreement, along with other documents incorporated herein, constitutes the entire agreement between the Watermaster and Consultant relating to the subject matter hereof and supersedes all prior oral and written understandings, communications and agreements relating to such subject matter, whether verbal or written, implied or otherwise; provided that Consultant's continuing obligations under prior agreements with the Watermaster, including the Consulting Services Agreements between Consultant and the Watermaster dated as of July 1, 2023, July 1, 2024 and July 1, 2025 will continue in full force and effect. In the event of an express conflict between any provisions appearing in any other writing and those in this Agreement, the provisions of this Agreement will control. Unless otherwise agreed by the Parties, all services performed by Consultant for the Watermaster during the Term of this Agreement, whether or not set forth in Addendum A, will be governed by this Agreement.
- b. Assignment. This Agreement is not assignable by Consultant without the prior written consent of the Watermaster, and any purported transfer or assignment is void. This Agreement, or the Watermaster's interest in this Agreement, may be assigned and transferred by the Watermaster, temporarily or permanently, whether expressly, by operation of law or otherwise, and Consultant agrees to perform the Services for the benefit of any such assignee.
- c. Nonexclusive Nature of Agreement. This Agreement does not grant Consultant and/or its agents an exclusive privilege or right to supply Services to the Watermaster. Other than as expressly set forth in this Agreement, the Watermaster makes no representations or warranties as to a minimum or maximum procurement of Services. Nothing in this Agreement will be construed as limiting in any manner the ability of Consultant and/or its agents to procure other engagements consistent with their obligations to the Watermaster hereunder, including the post-Term obligations.
- d. Use of Name, Likeness and Biography. The Watermaster will have the right (but not the obligation) to make public announcements concerning the affiliation of Consultant and its agents with the Watermaster. The Watermaster will have the right (but not the obligation) to use, publish and broadcast, and to authorize others to do so, the name, photograph, likeness and biographical information of Consultant and its agents on any media, now known or later discovered, in connection with the business of the Watermaster.
- e. Amendments; Waiver. This Agreement may not be amended except by a writing executed by all of the Parties hereto. No delay or omission by the Watermaster in exercising any right under this Agreement will operate as a waiver of that or any other right. No waiver by either Party of a right or remedy hereunder will be deemed to be a waiver of any other right or remedy or of any subsequent right or remedy of the same kind.

- f. Provisions Subject to Applicable Law; Modification; Severability. All provisions of this Agreement will be applicable only to the extent that they do not violate any applicable law. If any term, provision, covenant, paragraph or condition of this Agreement is held to be invalid, illegal, or unenforceable by any court or arbitrator of competent jurisdiction, as to such jurisdiction that provision will be limited (“blue-penciled”) to the minimum extent necessary so this Agreement will otherwise remain enforceable in full force and effect. To the extent such provision cannot be so modified, the offending provision will, as to such jurisdiction, be deemed severable from the remainder of this Agreement, and the remaining provisions of this Agreement will be construed to preserve to the maximum permissible extent the intent of the Parties and the purpose of this Agreement.
- g. Notices. All notices, demands, consents, waivers, and other communications under this Agreement will be deemed to have been duly given when (i) delivered by hand; (ii) when received by the addressee, if sent by registered mail (return receipt requested), a nationally recognized overnight delivery service (signature requested) or electronic mail, in each case to the addresses or email addresses set forth below (or to such other addresses as either Party may designate upon written notice):

If to Consultant:

Rauch Communication Consultants LLC
Attn: Martin Rauch
936 Old Orchard Road Campbell, CA 95008
Email: martin@rauchcc.com

If to the Watermaster:

Chino Basin Watermaster
Attn: Todd Corbin
9641 San Bernardino Road
Rancho Cucamonga, California 91730
Email: TCorbin@cbwm.org[mailto:](mailto:TCorbin@cbwm.org)

With a copy (which will not constitute notice) to:

Brownstein Hyatt Farber Schreck, LLP
1021 Anacapa Street, 2nd Floor
Santa Barbara, California 93101
Attention: Scott Slater
Email: sslater@bhfs.com

- h. Construction. The Section headings in this Agreement are for convenience and reference only, and the words contained therein in no way will be held to explain, modify, amplify or aid in the interpretation, construction, or meaning of the provisions of this Agreement. The word “including” will mean “including but not limited to.” The word “agents” includes employees, contractors, subcontractors, agents, owners and other representatives. Both Parties participated in the drafting of this Agreement, and each had the opportunity to consult with counsel of their

own choosing in connection therewith. The rule that ambiguities in an agreement will be construed against the drafter does not apply to this Agreement.

- i. Force Majeure. Each Party's obligations hereunder will be suspended during the duration of events beyond that Party's reasonable control (including labor strikes, lockouts, enactment of laws or regulations, civil unrest, acts of terrorism, pandemics, infectious diseases, measures implemented by any governmental authority, natural disasters, fire, flood, earthquakes, prolonged power outages and acts of God), provided such Party makes reasonable efforts to perform and resumes performance at the earliest opportunity. If Consultant suspends the Services for a period in excess of five (5) calendar/business days, the Watermaster may elect to terminate this Agreement immediately thereafter by providing written notice thereof, notwithstanding anything to the contrary in Section 5 of this Agreement.
- j. Governing Law; Venue; Fees. This Agreement is entered into and will be governed by and construed and enforced in accordance with the laws of the State of California and the United States as applied to agreements among California residents entered into and to be performed entirely within the State of California. Unless waived by the Watermaster in writing for the particular instance, the sole jurisdiction and venue for actions related to the subject matter hereof will be the Court maintaining jurisdiction over the case *Chino Basin Municipal Water District v. City of Chino*, San Bernardino Superior Court Case No. RCV RS 51010. The Parties irrevocably consent to the exclusive jurisdiction of such court (and of the appropriate appellate courts therefrom) in any such action, suit or proceeding. The substantially prevailing Party in any action related to this Agreement, including the breach or enforcement hereof, will be entitled to recover its costs and reasonable attorneys' fees and expenses, including expert witness fees, to the fullest extent permitted by applicable law.
- k. Legal and Equitable Remedies. Because Consultant's Services are personal and unique, and because Consultant and its agents will have access to and become acquainted with the Confidential Information (as defined above), the Watermaster will have the right to enforce this Agreement and any of its provisions by injunction, specific performance or other equitable relief, without bond or other security, without prejudice to any other rights and remedies that the Watermaster may have for a breach of this Agreement, and Consultant and its agents waive the claim or defense that the Watermaster has an adequate remedy at law.
- l. Jury Trial Waiver. CONSULTANT, ON BEHALF OF ITSELF AND ITS AGENTS, UNCONDITIONALLY WAIVES ANY RIGHT TO A TRIAL BY JURY RELATED TO ANY DISPUTE OR PROCEEDING THAT ARISES OUT OF THIS AGREEMENT, CONSULTANT'S ENGAGEMENT OR OTHER AFFILIATION WITH THE COMPANY AND/OR THE PERFORMANCE OF THE SERVICES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, AND UNDERSTANDS THAT THE COMPANY LIKewise WAIVES ITS RIGHT TO A TRIAL BY JURY IN SUCH DISPUTES OR PROCEEDINGS.
- m. Authority; Counterparts. Each Party represents and warrants that it has full power and authority to enter into this Agreement. This Agreement may be executed in separate counterparts, each of which will be deemed an original, and both of which taken together will constitute one and the same instrument. A facsimile, pdf,

DocuSigned or emailed signature will have the same force and effect as an original signature.

ACKNOWLEDGED AND AGREED:

Rauch Communication Consultants LLC

Chino Basin Watermaster

By: _____

Martin Rauch

Its: Principal Consultant

By: _____

Todd Corbin

Its: General Manager

ADDENDUM A: SCOPE OF WORK

Consultant will provide Martin Rauch and such other individuals as may be designated from time to time (the "Service Providers") with the approval of the Watermaster, and with the Watermaster having sole and absolute discretion to request removal of any such Service Provider, to provide the Services described herein, which include the following:

[See attached]

Dynamic Public Outreach, Smart Strategic Planning*For local governments, special districts, and the engineering, environmental and law firms that support them.***DATE:** March 24, 2026**NO OF PAGES:** 3**TO:** Frank Yoo, Data Services and Judgment Reporting Manager**FROM:** Martin Rauch**RE:** Proposed Costs and Scope for Annual Report

This document outlines our proposed scope of work for the development of the 49th Annual Report. It includes a description of key tasks, a cost breakdown by category, and estimated hours per team member.

Over the years of producing this report for the District, we have refined and streamlined our process into the proven approach outlined below. We remain committed to delivering the high-quality results you expect, efficiently and on schedule.

RESEARCH AND COORDINATION

RCC will participate in a kickoff meeting with staff and the engineer to review key actions, themes, and messages from the staff narrative. We will seek early input from the General Manager and coordinate closely throughout the process to ensure alignment with District priorities.

1. Coordinate with staff to gather information, clarify questions, and confirm key messages and themes.
2. Review background materials, including the State of the Basin Report, Status Reports, agendas and minutes, and other relevant studies, and develop a detailed outline of content.
3. Review and evaluate photography. RCC will recommend additional photo needs to CBWM, assess staff-provided images for quality and suitability, and supplement with images from RCC's library and royalty-free sources.

WRITING AND EDITING

RCC will lead all writing and editing efforts to produce a polished, engaging document that clearly communicates Chino Basin Watermaster's key information and messages.

4. Write the full report, including headlines, captions, the opening letter, and pull quotes. Edit content for clarity, flow, and consistency across spreads, ensuring key messages are communicated effectively.
5. Coordinate client review and revisions in Microsoft Word through an iterative process until a strong draft is achieved. RCC will then develop an initial design to confirm layout, photo placement, color palette, and overall look. A near-final designed version will follow for final review and edits.

6. Proofreading at key milestones. To maintain quality control, a dedicated proofreader will review the document at three stages: after initial writing, prior to design; once a complete draft is ready, before the next design phase; and the full document, including appendices, prior to print.

APPENDICES

RCC has retained the final approved appendix files from the 48th Annual Report, including all accepted edits and formatting. These files are stored on a secure, password-protected RCC server and will serve as the baseline for the 49th Annual Report. Team members will be granted access at the start of the project.

7. Update current appendices. Once CBWM confirms that all appendix files have been updated, RCC will prepare an unformatted PDF of the full appendices for review. CBWM will provide final edits, which RCC will incorporate before finalizing.
8. Integrate appendices into the report using the established framework, including headers, page numbers, and section dividers. RCC will apply minor formatting to ensure clean page breaks, consistent alignment, and readable layouts. Any work beyond this scope will be billed on a time-and-materials basis.

GOVERNANCE SECTION

9. CBWM will provide the updated member list later in the process. RCC will review the list, suggest edits as needed, and incorporate the final approved version into the report. Additional revision rounds will be billed on a time-and-materials basis.

GRAPHIC DESIGN AND LAYOUT

10. Provide full-service graphic design and layout, including cover concepts, overall design direction, photo placement and color correction, text layout, and development of graphics, tables, and charts. The draft will be considered complete once all elements have been submitted for client approval and all requested corrections have been made. Changes beyond minor edits at that stage will be billed on a time-and-materials basis.

DIGITAL AND PRINTED FINAL DOCUMENT

11. RCC will coordinate printing and delivery of the final document in the desired quantity and provide a web-optimized version for digital distribution and posting on the website.

ESTIMATED COST

We propose to complete the project on a time-and-materials basis, which is unchanged from the previous year.

We are pleased to note that the 48th Annual Report came in about 17% under budget, and we remain committed to that same level of efficiency. We are holding the line on the estimate despite inflation's impact. As always, we will make every effort to deliver exceptional work while staying under budget whenever possible.

Estimated Consultant Costs

49th Annual Report Proposal	Senior Consultant	Graphic Design	Writing, Research	Admin. + Production	Subtotal
	\$225	\$105	\$90	\$95	
Hours	7	0	6	0	13
Step 1. Research and coordination	\$1,575	\$0	\$540	\$0	\$2,115
Hours	40	0	12	2	54
Step 2. Outline, write, edit, proof document	\$9,000	\$0	\$1,080	\$190	\$10,270
Hours	7	33	0	1	41
Step 3. Graphic design, select and choose photos, frame appendices	\$1,575	\$3,465	\$0	\$95	\$5,135
Hours	4	31	10	20	65
Step 4. Review, comment and insert appendices with consistent formatting	\$900	\$3,255	\$900	\$1,900	\$6,955
TOTAL	\$13,050	\$6,720	\$2,520	\$2,185	\$24,475

We propose to complete the project on a time-and-materials basis, not to exceed \$24,475 + \$200 in photos for a total of 24,675. Actual costs may be less; individual task costs may vary. The total will not exceed the estimate without the client's prior written agreement. No out-of-scope work will be undertaken without prior email approval from the agency. Out-of-scope work includes new tasks or additional work on existing tasks that exceed the project's total estimated cost.

Current Rates. Management and Strategic Planning Consulting for the senior consultants is \$245 per hour. The outreach and public involvement program rate for the senior consultants is \$225 per hour. The outreach and public involvement program rate for associate consultants is \$115 per hour. The graphic designer and webmaster services rate is \$105 per hour. Rates for social media, writing specialist, and project administrator are \$90 to \$95 per hour.

Travel and Expenses. We expect photo purchase costs to range from \$25 to \$200 above the labor cost shown above. Subject to the terms of the Professional Public Outreach Service Agreement, basic material expenses, including travel expenses (transportation and lodging), office printing, shipping, and sales tax, are additional and passed on at cost. Car mileage is at the IRS California rate at the time, or the actual rental car cost plus fuel. For meetings that involve travel, the minimum charge is 4 hours.

We look forward to continuing to work with you on this important project. Please let me know if you have any questions or if there is anything else we can do to help.

Sincerely,



Martin Rauch, Principal Consultant
Rauch Communication Consultants, Inc.

ADDENDUM B: DISCLOSURE OF RESTRICTIVE COVENANTS

Consultant hereby discloses all restrictions to which Consultant and/or its agents who may be performing the Services are or may be subject, including restrictive covenants and non-compete obligations, in order to allow the Watermaster the opportunity to assess any such restrictions and their potential impact on the Watermaster and/or the performance of the Services. Consultant understands that such restrictions may be included in, among other things, confidentiality agreements, consulting agreements, employment agreements, separation agreements, employee handbooks, option agreements, and other types of documents. Consultant agrees to provide copies of the applicable restrictive covenants promptly upon request. Consultant further agrees to update this Disclosure promptly upon any changes to the information provided.

Check one:

- Neither Consultant nor its agents are subject to any restrictive covenants or non-compete provisions that may impact the performance of the Services.

- Consultant and/or its agents are subject to the following restrictive covenants or non-compete provisions that may impact the performance of the Services:

ADDENDUM C: HANDBOOK POLICIES APPLICABLE TO CONSULTANT

- 2.5 – Equal Employment Opportunity
- 4.6 – Conflicts of Interest
- 4.7 – Confidential Information and Watermaster Records
- 4.13 – Safety
- 4.17 – Use of Company Computers and Other Equipment
- 4.18 – Harassment and Discrimination
- 4.19 – Inspections, Searches and Monitoring
- 4.20 – Right to Search
- 4.21 – Smoking
- 4.22 – Voicemail, E-Mail and Technology
- 4.23 – Social Media
- Appendix B – Substance Abuse Policy



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026

TO: Board Members

SUBJECT: Letter of Support for Grant Application in Support of Three Valleys Municipal Water District Miramar Pumpback Project (Consent Calendar Item I.H.)

Issue: The item is to consider approval of a letter of support requested by the Three Valleys Municipal Water District (TVMWD) in support of a grant application for the Miramar Pumpback Project.

Recommendation: Approve letter of support for signature as presented

Financial Impact: None.

ACTIONS:

Watermaster Board – June 25, 2026 [Recommended]: Approve for signature

BACKGROUND

Watermaster received a request from TVMWD for a letter of support for its Miramar Pumpback Project. The grant application submission to the U.S. Bureau of Reclamation (USBR) is in response to the Funding Opportunity Announcement No. R26AS0016.

DISCUSSION

The project is in partnership with the Metropolitan Water District of Southern California to enhance operational flexibility and diversify its water supplies. The project will enable access to Colorado River Aqueduct supplies, when available, to alleviate reliance on State Water Project supplies.

This project provides added flexibility of imported water supplies to TVMWD member agencies and builds long-term water resiliency opportunities within the Chino Basin.

ATTACHMENT

1. CBWM Letter of Support (Draft)



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

BOARD MEMBERS

Marty Zvirbulis Chair

*Appropriative Pool
Fontana Water Company*

Jeffrey Pierson Vice-Chair

*Overlying Agricultural Pool
Crops*

Robert Bowcock Secretary/Treasurer

*Overlying Non-Agricultural Pool
CalMat Co., Inc.*

Curtis Burton Board Member

*Appropriative Pool
City of Chino*

Steve Elie

*Board Member
Municipal
Inland Empire Utilities Agency*

Mike Gardner

*Board Member
Municipal
Western Municipal Water District*

Bob Kuhn

*Board Member
Municipal
Three Valleys Municipal Water
District*

Jimmy Medrano

*Board Member
Overlying Agricultural Pool
State of California*

Bill Velto

*Board Member
Appropriative Pool
City of Upland*

General Manager

Todd M. Corbin

Legal Counsel

*BHFS, LLP
Brownstein Hyatt Farber
Schreck, LLP*

June 25, 2026

United States Bureau of Reclamation
Financial Assistance Operations Section
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

**Subject: Funding Opportunity Announcement No: R26AS00016
WaterSMART Drought Response Program for Fiscal Year 2026**

To the Selection Committee:

Chino Basin Watermaster is pleased to provide strong support for Three Valleys Municipal Water District (TVMWD) in its submission of a grant application to the U.S. Bureau of Reclamation (USBR) in response to the Funding Opportunity Announcement No: R26AS00016, Drought Response Program for Fiscal Year 2026. We commend TVMWD for advancing the Miramar Pumpback Project, a critical investment that will improve regional water supply reliability during drought, supply shortage conditions, planned shutdowns, and unforeseen emergencies.

This project represents an important partnership between TVMWD and the Metropolitan Water District of Southern California that will enhance operational flexibility and diversify water supplies. By enabling access to Colorado River Aqueduct supplies, the project will reduce TVMWD's and our reliance on State Water Project deliveries, which have become increasingly variable and uncertain. We recognize that increasing the flexibility of water conveyance and deliveries and facilitating access to more diverse water supplies in increasingly frequent times of drought are important to ensuring water reliability. Implementation of this project will advance Chino Basin Watermaster's goal of strengthening water supply reliability, and this effort will allow us to build long-term water resiliency for the region, which Chino Basin Watermaster strongly supports.

We are excited to support this vital project and look forward to implementation of the Miramar Pumpback Project to improve Chino Basin Watermaster's water supply management efforts in the face of ongoing and cyclic drought conditions. We hope that this expression of support is helpful to TVMWD in their efforts to secure grant funding assistance for the proposed project.

Sincerely,

Martin E. Zvirbulis
Board Chair



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026
TO: Board Members
SUBJECT: Engineering Services (West Yost) Contract Rate Schedule for FY 2026/27 - Information Only (Consent Calendar Item I.I.)

Issue: The item is to disclose the West Yost & Associates, Inc. (West Yost) billing rate schedule for the fiscal year (FY) 2026/27 per the terms of the current contract approved in June 2024. [Normal Course of Business]

Recommendation: Information Only

Financial Impact: None. No amendments to the approved FY 2026/27 budget are required to fund the updated billing rates as presented.

ACTIONS:
Watermaster Board – June 25, 2026 [Recommended]: Information Only.

BACKGROUND

Watermaster contracts with West Yost Associates, Inc. for engineering services related to enforcement of the Judgment and implementation of the Optimum Basin Management Program (OBMP). West Yost's scope includes among other items, support with Watermaster's reporting requirements, periodic calculation of the safe yield of Chino Basin, assistance with the ongoing monitoring program (water levels, ground levels, water quality, production, Prado Basin habitat, etc.), studies (e.g. salinity study), attendance at various meetings, and development of management plans (OBMP, Recharge, Ground Level Monitoring, etc.).

The current contract with West Yost, approved by the Board in June 2024, provides for rates to be adjusted by the greater of 3.0%, or the average annual increase in the U.S. Bureau of Labor Statistics' Consumer Price Index for the Inland Empire and Orange County regions not to exceed a 5.0% increase. The proposed billing rates for FY 2026/27 can be found in Attachment 1.

DISCUSSION

Watermaster staff have conducted an analysis of the proposed billing rates for FY 2026/27 and confirmed that the proposed billing rate change of 3.1% aligns with the provision in the approved contract.

ATTACHMENT

1. FY 2025/26 West Yost Rate Schedule



Fiscal Year 2026/27 Billing Rate Schedule
Chino Basin Watermaster
 (Effective July 1, 2026, through June 30, 2027)*

POSITIONS	LABOR CHARGES (DOLLARS PER HOUR)
ENGINEERING	
Principal/Vice President	\$385
Engineer/Scientist/Geologist Manager I / II	\$363 / \$381
Principal Engineer/Scientist/Geologist I / II	\$327 / \$349
Senior Engineer/Scientist/Geologist I / II	\$295 / \$310
Associate Engineer/Scientist/Geologist I / II	\$245 / \$263
Engineer/Scientist/Geologist I / II / III	\$191 / \$222 / \$231
Engineering Aide	\$115
Field Monitoring Services	\$143
Administrative I / II / III / IV	\$105 / \$131 / \$157 / \$174
ENGINEERING TECHNOLOGY	
Engineering Tech Manager I / II	\$378 / \$381
Principal Tech Specialist I / II	\$347 / \$359
Senior Tech Specialist I / II	\$318 / \$331
Senior GIS Analyst	\$287
GIS Analyst	\$273
Technical Specialist I / II / III / IV	\$203 / \$231 / \$259 / \$289
Technical Analyst I / II	\$146 / \$174
Technical Analyst Intern	\$117
Cross-Connection Control Specialist I / II / III / IV	\$152 / \$164 / \$185 / \$205
CAD Manager	\$229
CAD Designer I / II	\$178 / \$201
CONSTRUCTION MANAGEMENT	
Senior Construction Manager	\$367
Construction Manager I / II / III / IV	\$218 / \$234 / \$247 / \$313
Resident Inspector (Prevailing Wage Groups 4 / 3 / 2 / 1)	\$196 / \$218 / \$243 / \$252
Apprentice Inspector	\$178
CM Administrative I / II	\$94 / \$128
Field Services	\$252

- Hourly rates include charges for technology and communication, such as general and CAD computer software, telephone calls, routine in-house copies/prints, postage, miscellaneous supplies, and other incidental project expenses.
- Outside services, such as vendor reproductions, prints, and shipping; major West Yost reproduction efforts; as well as engineering supplies, etc., will be billed at the actual cost.
- The Federal Mileage Rate will be used for mileage charges and will be based on the Federal Mileage Rate applicable to when the mileage costs were incurred. Travel other than mileage will be billed at cost.
- Subconsultants will be billed at actual cost.
- Expert witness services, research, technical review, analysis, preparation, and meetings will be billed at 150% of standard hourly rates. Expert witness testimony and depositions will be billed at 200% of standard hourly rates.
- A finance charge of 1.5% per month (an annual rate of 18%) on the unpaid balance will be added to invoice amounts if not paid within 45 days from the date of the invoice.

Fiscal Year 2026/27 Billing Rate Schedule

Chino Basin Watermaster

(Effective July 1, 2026, through June 30, 2027)*

Equipment Charges

EQUIPMENT	BILLING RATES
2" Purge Pump & Control Box	\$300 / day
Aquacalc / Pygmy or AA Flow Meter	\$28 / day
Emergency SCADA System	\$35 / day
Field Vehicles (Groundwater)	\$200 / day
Gas Detector	\$80 / day
Generator	\$60 / day
Hydrant Pressure Gauge	\$10 / day
Hydrant Pressure Recorder, Impulse (Transient)	\$55 / day
Hydrant Pressure Recorder, Standard	\$40 / day
Low Flow Pump Back Pack	\$135 / day
Low Flow Pump Controller	\$200 / day
Powers Water Level Meter	\$32 / day
Precision Water Level Meter 300ft	\$30 / day
Precision Water Level Meter 500ft	\$40 / day
Precision Water Level Meter 700ft	\$45 / day
QED Sample Pro Bladder Pump	\$65 / day
Skydio 2+ Drone (2 hour minimum)	\$100 / hour
Storage Tank	\$20 / day
Sump Pump	\$24 / day
Transducer Communications Cable	\$10 / day
Transducer Components (per installation)	\$23 / day
Trimble GPS – Geo 7x	\$220 / day
Tube Length Counter	\$22 / day
Turbidity Meter	\$30 / day
Turbidity Meter (2100Q Portable)	\$35 / day
Vehicle (Construction Management)	\$ 18.75 / hour
Water Flow Probe Meter	\$20 / day
Water Quality Meter	\$50 / day
Water Quality Multimeter	\$185 / day
Well Sounder	\$30 / day



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: June 25, 2026
TO: Board Members
SUBJECT: Fiscal Year 2026/27 Proposed Pay Schedule Effective July 1, 2026 (Business Item II.C.)

Issue: The item is to consider the Fiscal Year 2026/27 Salary Schedule for approval. [Normal Course of Business]

Recommendation: Approve the Fiscal Year 2026/27 Pay Schedule as presented.

Financial Impact: The salaries in the recommended Pay Schedule for the twelve (12) budgeted Watermaster positions are included in the FY 2026/27 Watermaster Budget of \$13,371,561. The FY 2026/27 budget was unanimously approved by the Advisory Committee and adopted by the Watermaster Board at their May 2026 meetings respectively.

ACTIONS:
Watermaster Board – Date [Recommended]: Approve as presented

BACKGROUND

As a CalPERS contracted employer and to comply with statutory and regulatory requirements, Chino Basin Watermaster developed a Pay Schedule which must be approved by the Watermaster Board in open session (pursuant to California Code of Regulations (CCR) § 570.5) and must contain the required pay information for current hourly and salaried employees and potential positions which could be filled as approved. Each time a change is made to the pay schedule, it also needs to be approved by the Board in open session and uploaded to the Watermaster's website to ensure continued compliance with CalPERS' requirements. Pay schedules are required to be retained for a period of 5 years.

The current pay schedule for Fiscal Year 2025/26 was approved by the Board on June 26, 2025 (Attachment 1) and became effective on July 1, 2025. The current pay schedule along with prior schedules are currently posted on the Watermaster website and are accessible at this [link](#).

DISCUSSION

The currently approved FY 2026/27 labor budget for all categories is \$2,628,569 which includes salaries of \$1,877,737 and payroll burden of \$1,228,962. This is a 6% overall increase from FY 2025/26 which includes a proposed 3.4% cost of living adjustment (COLA) as well as projected inflationary increases to overall benefits as was presented by staff and approved through the Watermaster budget process in May 2026. The Personnel Committee supported the 3.4% COLA at its meeting on April 13, 2026. The salaries budget was developed with twelve (12) full-time employees and currently Watermaster employs thirteen (13) full-time employees as a result of the recent staff restructuring as presented to the Committees and Board in May 2026, and as shown in the Organizational Structure (Attachment 2).

The General Manager's employment contract was effective April 15, 2024, through April 14, 2027, unless there is a specified change by the Board. The GM's contract was subsequently amended on September 25, 2025 (effective August 2, 2025) to adjust base salary, Section 5a and Administrative Leave and Holidays, Section 5e, and is published on Watermaster's website under the Careers section. There have been no other modifications to the GM's contract since.

As with past practice, Watermaster uses January to January CPI data, organizational-wide efforts, and the recommendations for the Watermaster FY 2026/27 salaries and benefits as included in the recently approved FY 2026/27 approved budget. The proposed Fiscal Year 2026/27 Pay Schedule is shown in Attachment 3 for the Board's consideration and approval.

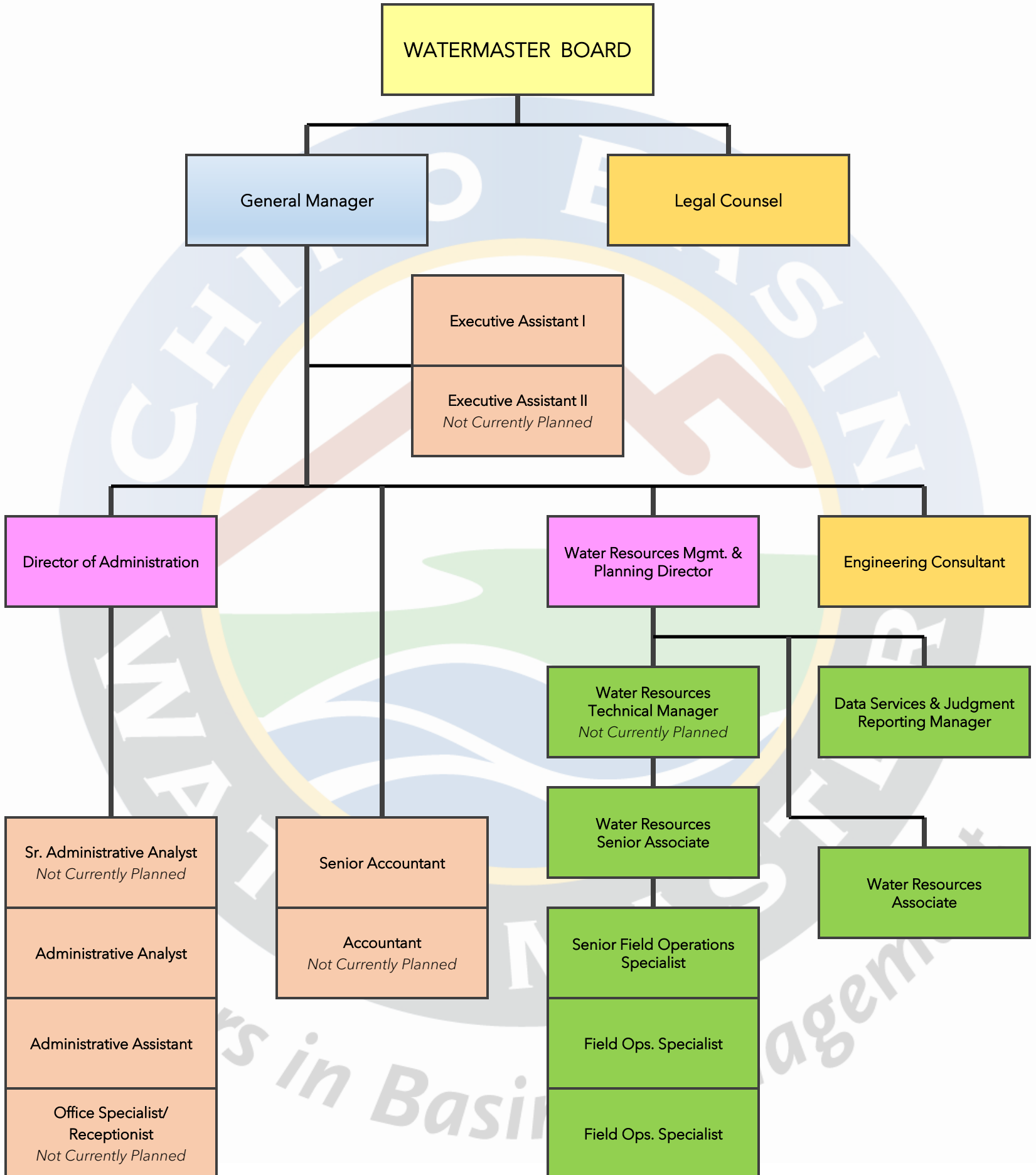
Once approved, the FY 2026/27 Pay Schedule will supersede the previous FY 2025/26 Pay Schedule and will become effective on July 1, 2026. Following approval from the Board, staff will make the FY 2026/27 Pay Schedule publicly available by posting it to the Watermaster website as consistent with past practices.

ATTACHMENTS

1. FY 2025/26 Pay Schedule (Approved by Board on June 26, 2025)
2. Organizational Structure (Current)
3. FY 2026/27 Proposed Pay Schedule – Effective July 1, 2026 (Draft)

CHINO BASIN WATERMASTER PAY SCHEDULE			FISCAL YEAR 2025/26							Effective Date: July 1, 2025 Approved by Board: June 26, 2025						
Revision Date: June 18, 2025																
POSITION	TYPE	FTE COUNT								MONTHLY						
										LOW	MEDIAN				HIGH	
General Manager	1	1								\$22,115.60	\$23,221.47	\$24,382.80	\$25,601.33	\$26,882.27	\$28,225.60	\$29,636.53
			HOURLY							MONTHLY						
			STEP A	STEP B	STEP C	STEP D	STEP E	STEP F	STEP G	STEP A	STEP B	STEP C	STEP D	STEP E	STEP F	STEP G
Water Resources Management and Planning Director	2	1	\$83.56	\$87.74	\$92.13	\$96.74	\$101.58	\$106.66	\$111.99	\$14,483.73	\$15,208.27	\$15,969.20	\$16,768.27	\$17,607.20	\$18,487.73	\$19,411.60
Director of Administration	2	1	\$80.12	\$84.13	\$88.34	\$92.76	\$97.40	\$102.27	\$107.38	\$13,887.47	\$14,582.53	\$15,312.27	\$16,078.40	\$16,882.67	\$17,726.80	\$18,612.53
Water Resources Technical Manager	3	1	\$63.67	\$66.85	\$70.19	\$73.70	\$77.39	\$81.26	\$85.32	\$11,036.13	\$11,587.33	\$12,166.27	\$12,774.67	\$13,414.27	\$14,085.07	\$14,788.80
Data Services and Judgment Reporting Manager	3	1	\$63.67	\$66.85	\$70.19	\$73.70	\$77.39	\$81.26	\$85.32	\$11,036.13	\$11,587.33	\$12,166.27	\$12,774.67	\$13,414.27	\$14,085.07	\$14,788.80
Water Resources Sr. Associate	3	0	\$48.99	\$51.44	\$54.01	\$56.71	\$59.55	\$62.53	\$65.66	\$8,491.60	\$8,916.27	\$9,361.73	\$9,829.73	\$10,322.00	\$10,838.53	\$11,381.07
Water Resources Associate	3	1	\$37.02	\$38.87	\$40.81	\$42.85	\$44.99	\$47.24	\$49.60	\$6,416.80	\$6,737.47	\$7,073.73	\$7,427.33	\$7,798.27	\$8,188.27	\$8,597.33
Sr. Field Operations Specialist	3	1	\$34.25	\$35.96	\$37.76	\$39.65	\$41.63	\$43.71	\$45.90	\$5,936.67	\$6,233.07	\$6,545.07	\$6,872.67	\$7,215.87	\$7,576.40	\$7,956.00
Field Operations Specialist	3	1	\$29.69	\$31.17	\$32.73	\$34.37	\$36.09	\$37.89	\$39.78	\$5,146.27	\$5,402.80	\$5,673.20	\$5,957.47	\$6,255.60	\$6,567.60	\$6,895.20
Sr. Accountant	3	1	\$48.99	\$51.44	\$54.01	\$56.71	\$59.55	\$62.53	\$65.66	\$8,491.60	\$8,916.27	\$9,361.73	\$9,829.73	\$10,322.00	\$10,838.53	\$11,381.07
Executive Assistant II - Board Clerk	3	0	\$43.36	\$45.53	\$47.81	\$50.20	\$52.71	\$55.35	\$58.12	\$7,515.73	\$7,891.87	\$8,287.07	\$8,701.33	\$9,136.40	\$9,594.00	\$10,074.13
Executive Assistant I - Board Clerk	3	1	\$33.97	\$35.67	\$37.45	\$39.32	\$41.29	\$43.35	\$45.52	\$5,888.13	\$6,182.80	\$6,491.33	\$6,815.47	\$7,156.93	\$7,514.00	\$7,890.13
Sr. Administrative Analyst	3	0	\$39.63	\$41.61	\$43.69	\$45.87	\$48.16	\$50.57	\$53.10	\$6,869.20	\$7,212.40	\$7,572.93	\$7,950.80	\$8,347.73	\$8,765.47	\$9,204.00
Administrative Analyst	3	1	\$33.02	\$34.67	\$36.40	\$38.22	\$40.13	\$42.14	\$44.25	\$5,723.47	\$6,009.47	\$6,309.33	\$6,624.80	\$6,955.87	\$7,304.27	\$7,670.00
Accountant	3	0	\$33.02	\$34.67	\$36.40	\$38.22	\$40.13	\$42.14	\$44.25	\$5,723.47	\$6,009.47	\$6,309.33	\$6,624.80	\$6,955.87	\$7,304.27	\$7,670.00
Administrative Assistant	3	0	\$29.58	\$31.06	\$32.61	\$34.24	\$35.95	\$37.75	\$39.64	\$5,127.20	\$5,383.73	\$5,652.40	\$5,934.93	\$6,231.33	\$6,543.33	\$6,870.93
Office Specialist/Receptionist	3	0	\$24.67	\$25.90	\$27.20	\$28.56	\$29.99	\$31.49	\$33.06	\$4,276.13	\$4,489.33	\$4,714.67	\$4,950.40	\$5,198.27	\$5,458.27	\$5,730.40
TOTAL FULL-TIME EMPLOYEE COUNT		11														
Classifications:																
Type 1: Exempt - Executive Management																
Type 2: Exempt - Mid-Management/Supervisor																
Type 3: Non-Exempt (Operations)																
Type 3: Non-Exempt (Administration)																

CHINO BASIN WATERMASTER
ORGANIZATIONAL CHART



CHINO BASIN WATERMASTER PAY SCHEDULE			PROPOSED - FISCAL YEAR 2026/27							Effective Date: July 1, 2026 Approved by Board:						
Revision Date: March 19, 2026																
POSITION	TYPE	FTE COUNT								MONTHLY						
										LOW	MEDIAN				HIGH	
General Manager	1	1								\$22,867.87	\$24,011.87	\$25,213.07	\$26,473.20	\$27,797.47	\$29,187.60	\$30,647.07
			HOURLY							MONTHLY						
			STEP A	STEP B	STEP C	STEP D	STEP E	STEP F	STEP G	STEP A	STEP B	STEP C	STEP D	STEP E	STEP F	STEP G
Water Resources Management and Planning Director	2	1	\$86.40	\$90.72	\$95.26	\$100.02	\$105.02	\$110.27	\$115.78	\$14,976.00	\$15,724.80	\$16,511.73	\$17,336.80	\$18,203.47	\$19,113.47	\$20,068.53
Director of Administration	2	1	\$82.84	\$86.98	\$91.33	\$95.90	\$100.70	\$105.74	\$111.03	\$14,358.93	\$15,076.53	\$15,830.53	\$16,622.67	\$17,454.67	\$18,328.27	\$19,245.20
Water Resources Technical Manager	3	0	\$65.83	\$69.12	\$72.58	\$76.21	\$80.02	\$84.02	\$88.22	\$11,410.53	\$11,980.80	\$12,580.53	\$13,209.73	\$13,870.13	\$14,563.47	\$15,291.47
Data Services and Judgment Reporting Manager	3	1	\$65.83	\$69.12	\$72.58	\$76.21	\$80.02	\$84.02	\$88.22	\$11,410.53	\$11,980.80	\$12,580.53	\$13,209.73	\$13,870.13	\$14,563.47	\$15,291.47
Water Resources Sr. Associate	3	0	\$50.66	\$53.19	\$55.85	\$58.64	\$61.57	\$64.65	\$67.88	\$8,781.07	\$9,219.60	\$9,680.67	\$10,164.27	\$10,672.13	\$11,206.00	\$11,765.87
Water Resources Associate	3	1	\$38.28	\$40.19	\$42.20	\$44.31	\$46.53	\$48.86	\$51.30	\$6,635.20	\$6,966.27	\$7,314.67	\$7,680.40	\$8,065.20	\$8,469.07	\$8,892.00
Sr. Field Operations Specialist	3	1	\$35.41	\$37.18	\$39.04	\$40.99	\$43.04	\$45.19	\$47.45	\$6,137.73	\$6,444.53	\$6,766.93	\$7,104.93	\$7,460.27	\$7,832.93	\$8,224.67
Field Operations Specialist	3	1	\$30.70	\$32.24	\$33.85	\$35.54	\$37.32	\$39.19	\$41.15	\$5,321.33	\$5,588.27	\$5,867.33	\$6,160.27	\$6,468.80	\$6,792.93	\$7,132.67
Sr. Accountant	3	1	\$50.66	\$53.19	\$55.85	\$58.64	\$61.57	\$64.65	\$67.88	\$8,781.07	\$9,219.60	\$9,680.67	\$10,164.27	\$10,672.13	\$11,206.00	\$11,765.87
Executive Assistant II - Board Clerk	3	0	\$44.83	\$47.07	\$49.42	\$51.89	\$54.48	\$57.20	\$60.06	\$7,770.53	\$8,158.80	\$8,566.13	\$8,994.27	\$9,443.20	\$9,914.67	\$10,410.40
Executive Assistant I - Board Clerk	3	1	\$35.12	\$36.88	\$38.72	\$40.66	\$42.69	\$44.82	\$47.06	\$6,087.47	\$6,392.53	\$6,711.47	\$7,047.73	\$7,399.60	\$7,768.80	\$8,157.07
Sr. Administrative Analyst	3	0	\$40.98	\$43.03	\$45.18	\$47.44	\$49.81	\$52.30	\$54.92	\$7,103.20	\$7,458.53	\$7,831.20	\$8,222.93	\$8,633.73	\$9,065.33	\$9,519.47
Administrative Analyst	3	1	\$34.14	\$35.85	\$37.64	\$39.52	\$41.50	\$43.58	\$45.76	\$5,917.60	\$6,214.00	\$6,524.27	\$6,850.13	\$7,193.33	\$7,553.87	\$7,931.73
Accountant	3	0	\$34.14	\$35.85	\$37.64	\$39.52	\$41.50	\$43.58	\$45.76	\$5,917.60	\$6,214.00	\$6,524.27	\$6,850.13	\$7,193.33	\$7,553.87	\$7,931.73
Administrative Assistant	3	0	\$30.59	\$32.12	\$33.73	\$35.42	\$37.19	\$39.05	\$41.00	\$5,302.27	\$5,567.47	\$5,846.53	\$6,139.47	\$6,446.27	\$6,768.67	\$7,106.67
Office Specialist/Receptionist	3	0	\$25.51	\$26.79	\$28.13	\$29.54	\$31.02	\$32.57	\$34.20	\$4,421.73	\$4,643.60	\$4,875.87	\$5,120.27	\$5,376.80	\$5,645.47	\$5,928.00
TOTAL FULL-TIME EMPLOYEE COUNT		10														
Classifications:																
Type 1: Exempt - Executive Management																
Type 2: Exempt - Mid-Management/Supervisor																
Type 3: Non-Exempt (Operations)																
Type 3: Non-Exempt (Administration)																



Wineville Rubber Dam



New Wineville Pumps

Project Status: Wineville/Jurupa/RP3 Basin Improvements

Budget:

- Authorized capital budget: \$28,846,016

Available Funding:

- \$15.4 M in SRF Loan at 0.55%
- \$10.8 M is State and Federal Grants

Cost Summary:

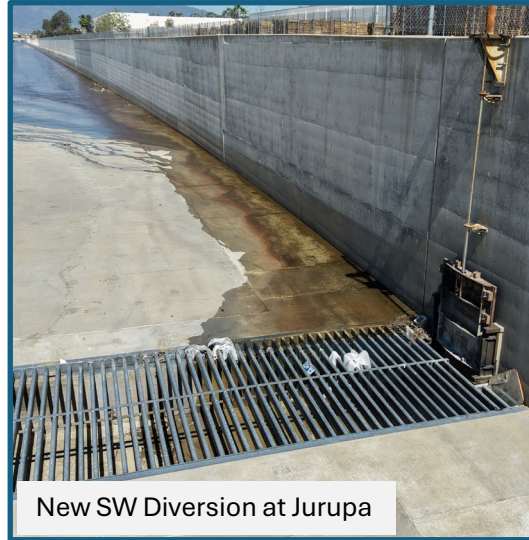
- Actual/POs Cost: **\$28,715,304 (as of June 3, 2026)**
- Remaining Budget: **\$130,712 (finalizing cost)**

Completed scope items (all project items completed)

- New added basin at RP3 Basin
- Rubber dam system at Wineville Basin’s spillway
- Control slide gates within Wineville Basin
- Basin grading for a new pump station at Wineville
- Power, controls, and communication systems at Wineville
- 2-miles of 30-Inch Pipeline passing through Fontana and Ontario.
- Stormwater diversion to Jurupa Basin.
- All new pumps fully installed and tested
- All system controls and SCADA connections tested and functional.



Pump flow into Jurupa



New SW Diversion at Jurupa



New Jurupa Pump



Added Basin at RP3

Updates:

- March 30, 2026, the contract work with SCW for the final phase of the Project—the installation and testing of the new pumps at the Wineville and Jurupa Basins—was substantially completed/closing out the project
- April 2, 2026, IEUA completed a final inspection with the State Water Resources Control Board to verify compliance for the \$15 million State Revolving Fund Loan and \$9.8 million Storm Water Grant.
- IEUA staff will host the U.S. Bureau of Reclamation for its final inspection of the Wineville and Jurupa Basin Improvements on May 5, 2026, for which USBR provided \$740,000 in construction funding.
- IEUA is finalizing project costs.



Chino Basin Day DRAFT Agenda

Regional Board Offices, Riverside, CA - May 19, 2026

8:30 AM to 12:00 PM

Microsoft Teams Access

Join: <https://teams.microsoft.com/meet/27445475867725?p=lvLCAhmT4hul48X5to>

Meeting ID: 274 454 758 677 25

Passcode: aG7Tu3EW

Dial in by phone

[+1 916-562-0861,935528084#](tel:+19165620861935528084) United States, Sacramento

Phone conference ID: 935 528 084#

- Introductions
- Discussion Items with Regional Board:
 - Regional Board Priorities
- Priority (IEUA, CBWM, CDA) Updates:
 - Maximum Benefit SNMP – CBWM/IEUA/WY
 - Hydraulic Control
 - CDA Operations – CDA
 - Basin Plan Amendment – CBWM/IEUA/ WY
 - Septic to Sewer Study Update – IEUA
 - Chino Basin Program – IEUA
- Break
- Secondary (IEUA, CBWM, CDA) Updates:
 - State of the Basin – CBWM/WY
 - Reach 3 Special Study – IEUA/CBWM
 - Chino Creek 1B – IEUA/WY
 - Water Quality Scenario Planning- IEUA