Los Angeles Department of Water and Power

2024 Annual Owens Valley Report

- Annual Owens Valley Operations Plan for the 2024 - 25 Runoff Year
- Conditions in the Owens Valley
- LADWP Environmental Mitigation Projects and Other Legal Obligations

LA DWP Los Angeles Department of Water & Power

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ABBREVIATIONS, DEFINITIONS, AND MEMBERSHIP TABLE

1991 EIR	Environmental Impact Report regarding water from the Owens Valley to supply the second LAA from 1970-1990, and from 1990 onward pursuant to the Water Agreement
1997 MOU	1997 Memorandum of Understanding between the MOU Parties
ACEC	Area of Critical Environmental Concern
ACOE	United States Army Corp of Engineers
AF	Acre-feet
AFY	Acre feet per year
BLM	United States Bureau of Land Management
BWMA	Blackrock Waterfowl Management Area
CALFIRE	California Department of Forestry and Fire Protection
CalTrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife (formerly "...Fish and Game")
cfs	Cubic feet per second
City	City of Los Angeles
County	County of Inyo
E/M	Enhancement/Mitigation
Eastern Sierra Runoff	Runoff within Mono Basin, Long Valley, and Owens Valley
GBUAPCD	Great Basin Unified Air Pollution Control District
Green Book	Technical Appendix to Water Agreement and 1991 EIR
Hillside Decree	August 1940 Stipulation and Order in the case of Hillside Water Company, a corporation et al. vs. the City, a Municipal Corporation et al., which established provisions governing groundwater exports from the Bishop Cone
HCP	Habitat Conservation Plan
ICWD	Inyo County Water Department
LAA	Los Angeles Aqueduct
Laws Type E transfer	Native revegetation projects of abandoned agriculture on City property, in the Laws area of Owens Valley
LADWP	City of Los Angeles Department of Water & Power
Long Valley	Area south of Mono Basin, from Owens River headwaters to Long Valley Dam, contained within Mono County
LORP	Lower Owens River Project
MAMP	Monitor and Adaptive Management Plan

Mono Basin	Mono Lake watershed area, contained within Mono County
Mono Basin Runoff	Runoff in Mono County that generally drains towards Mono Lake
MOU Parties	Los Angeles Department of Water and Power, Inyo County, California Department of Fish and Wildlife, California State Lands Commission, Sierra Club, Owens Valley Committee
MWD	Metropolitan Water District of Southern California
NRCS	U.S. Department of Agriculture - Natural Resources Conservation Service
Operations Plan	Annual Owens Valley Report
OVC	Owens Valley Committee
OVLMP	Owens Valley Land Management Plan
Owens River Basin Runoff	Runoff that generally drains to the Owens River within Long Valley and Owens Valley
Owens Valley	Area from Round Valley to Haiwee Reservoir, contained within Inyo County
Owens Valley Runoff	Runoff within Owens Valley and contained within Inyo County that generally drains towards the Owens River
Plan 2003	The Revegetation Plans for Lands Removed from Irrigation, Laws Parcels 90, 95, and 129 and Abandoned Agricultural Land Parcel 94
RY	Runoff year (April 1 to following March 31)
SC	Sierra Club
SLC	California State Lands Commission
SWRCB	California State Water Resources Control Board
2004 and 2010 Stip and Orders	August 2004 and March 2010 Amended Stipulations and Orders in Case No. S1CVCV01 29768
Standing Committee	Comprised of elected and appointed officials from the City and County
Technical Group	Comprised of County and City staff
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
Water Agreement	Agreement between the County of Inyo and the City of Los Angeles and its Department of Water and Power on a Long-Term Groundwater Management Plan for Owens Valley and Inyo County, administered by the Standing Committee and Technical Group
YBC	Yellow-billed Cuckoo (*Coccyzus americanus*)

EXECUTIVE SUMMARY

This report includes LADWP's proposed RY 2024-25 Operations Plan, an update on Owens Valley conditions, and the status of LADWP's environmental mitigation projects and other legal commitments under the Water Agreement, 1991 EIR, the Laws Type E Transfer, 1997 MOU, and the 2004 and 2010 Stip and Orders.

The Water Agreement provides that by April 20th each year, LADWP will prepare and submit to the Technical Group a proposed operations plan and pumping program for the 12-month period beginning on April 1st. Additionally, Section 11 of the 2004 Stip and Order requires that on or about May 1 of each year LADWP shall complete and release an annual report in conformance with Section III.H of the 1997 MOU. This report will describe environmental conditions in the Owens Valley and studies, projects, and activities conducted under the Water Agreement and the 1997 MOU.

This Operations Plan is intended to fulfill these requirements.

1. Owens Valley Operations Plan for RY 2024-25

Section 1 of this report contains LADWP's Annual Operations Plan for RY 2024-25. As mentioned above, pursuant to Water Agreement Section V.D:

> *By April 20th of each year, the Department shall prepare and submit to the Inyo County Technical Group a proposed operations plan and pumping program for the twelve (12) month period beginning on April 1st.*

The Eastern Sierra experienced average winter precipitation in 2023-24, following a historically wet winter in 2022-23. The forecasted Owens River Basin runoff for the 2024-25 RY is 419,300 AF or 103% of normal.

LADWP plans to export approximately 301,000 AF of water from the Eastern Sierra during the 2024-25 RY. Uses in the Owens Valley on City-owned lands are planned to be 95,130 AF, of which 50,400 AF is intended for irrigation. Additional water uses will include water spreading and dust mitigation on Owens Lake.

LADWP groundwater pumping in the Owens Valley is governed by the ON/OFF provisions of the Water Agreement. Accordingly, approximately 225,100 AF of water is available for groundwater pumping from Owens Valley wellfields, but LADWP's planned groundwater pumping ranges from 51,470 AF to 77,415 AF for the 2024-25 RY.

2. Conditions in the Owens Valley

The overall Eastern Sierra snowpack in watersheds contributing to the LAA was measured at 97% of normal as of April 1, 2024. Precipitation on the Owens Valley floor during the 2023-24 RY averaged 8.9 inches, which was 159% of the long-term average of 5.6 inches.

The groundwater levels in the Owens Valley increased by an average of 3.2 feet during the 2023-24 runoff year.

The Lower Owens River was in full operational status meeting the minimum average flows required at all gauging stations. The Lower Owens River, the Delta, Blackrock Waterfowl Management Area, and other LORP uses were about 11,000 AF.

3. LADWP Environmental Mitigation Projects and Other Legal Commitments

Section 3 of this report provides information on all of LADWP's Mitigation Projects and other commitments required under the Water Agreement, 1991 EIR, the 1997 MOU, and related documents.

Tables 3.1 and 3.2 provide a quick reference guide to these commitments. For reference, the status of these projects is classified into the following categories:

1. ***Complete*:** Project has no additional commitments required (no water allotment or other financial or environmental mitigation; no continual monitoring and reporting),
2. ***Ongoing as necessary/required:*** These measures are only applied when necessary (monitoring and reporting for mitigation measures for new projects, construction, etc.),
3. ***Implemented and ongoing:*** The project is fully implemented and is currently meeting goals; however, there may be ongoing water or financial commitments or monitoring and reporting requirements,
4. ***Fully implemented but not meeting goals:*** The project is fully implemented but has not yet met prescribed goals or success criteria, and
5. ***Not fully implemented:*** *Project under development or under construction, but not fully implemented*.

Presently, of the 66 required environmental mitigation projects, LADWP reports:

- 9 are complete,
- 51 are implemented and ongoing,
- 6 are fully implemented but not meeting goals,
- 0 are not fully implemented.

Of the 47 other commitments, LADWP reports:

- 18 are complete,
- 6 are ongoing as necessary or required,
- 21 are implemented and ongoing,
- 0 are fully implemented and not meeting goals, and
- 2 are not fully implemented.

More detailed information regarding each of these projects and other commitments is provided in Section 3. Further, comprehensive monitoring reports for the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group, the Laws Type E revegetation, the Owens Valley Land Management Plan and the Yellow Billed Cuckoo Habitat Enhancement Plans are also supplied in Section 3.

OWENS VALLEY OPERATIONS PLAN FOR RY 2024-25

1.0 Owens Valley Operations Plan for RY 2024-25

This year's annual Operations Plan and pumping program is consistent with the management strategy of the Water Agreement between the County and the City dated October 18, 1991. As stated in the Water Agreement:

> *The overall goal of managing the water resources within Inyo County is to avoid certain described decreases and changes in vegetation and to cause no significant effect on the environment which cannot be acceptably mitigated while providing a reliable supply of water for export to Los Angeles and for use in Inyo County.*

The overall goal of the Water Agreement: environmental protections and a reliable water supply are the basis of the LADWP's operations plans. Groundwater pumping in the Owens Valley is managed in conformance with the provisions of the Water Agreement. The Water Agreement provides:

> *By April 20th of each year, the Department shall prepare and submit to the Inyo County Technical Group a proposed operations plan and pumping program for the twelve (12) month period beginning on April 1st.*

1.1. Eastern Sierra Runoff Forecast

The Runoff Forecast for Eastern Sierra, including the Owens River Basin and Mono Basin runoffs for the 2024-25 RY (Table 1.1) is based on snow surveys of key Eastern Sierra watersheds in Inyo and Mono counties. The Eastern Sierra Runoff forecast is used for planning aqueduct operations as it is a primary indicator of water supply. The April 1 forecast of the Owens River Basin runoff during the 2024-25 RY is 419,300 AF, or about 103% of the 50-year (1971-2020) average annual runoff value of 409,600 AF.

The runoff forecast for the Owens River Basin from April 1, 2024, through September 30, 2024, is 303,700 AF, which is 102% of the 50-year average (298,780 AF).

Figure 1.1 summarizes Owens River Basin runoff and groundwater pumping by LADWP since the 1972 RY. This figure demonstrates this year's forecasted runoff and planned pumping compared to the past runoff in the Owens Valley Basin.

Table 1.1. Eastern Sierra Runoff Forecast for 2024-25 RY

2024 EASTERN SIERRA RUNOFF FORECAST
April 1, 2024

APRIL THROUGH SEPTEMBER RUNOFF

	MOST PROBABLE VALUE (Acre-feet)	MOST PROBABLE VALUE (% of Avg.)	REASONABLE MAXIMUM (% of Avg.)	REASONABLE MINIMUM (% of Avg.)	LONG-TERM MEAN (1971 - 2020) (Acre-feet)
MONO BASIN:	103,400	103%	116%	91%	100,307
OWENS RIVER BASIN:	303,700	102%	115%	88%	298,780

APRIL THROUGH MARCH RUNOFF

	MOST PROBABLE VALUE (Acre-feet)	MOST PROBABLE VALUE (% of Avg.)	REASONABLE MAXIMUM (% of Avg.)	REASONABLE MINIMUM (% of Avg.)	LONG-TERM MEAN (1971 - 2020) (Acre-feet)
MONO BASIN:	122,100	103%	117%	90%	118,156
OWENS RIVER BASIN:	419,300	103%	116%	91%	406,310

NOTE - Owens River Basin includes Long, Round, and Owens Valleys

MOST PROBABLE - That runoff which is expected if median precipitation occurs after the forecast date.

REASONABLE MAXIMUM - That runoff which is expected to occur if precipitation subsequent to the forecast is equal to the amount which is exceeded on the average once in 10 years.

REASONABLE MINIMUM - That runoff which is expected to occur if precipitation subsequent to the forecast is equal to the amount which is exceeded on the average 9 out of 10 years.

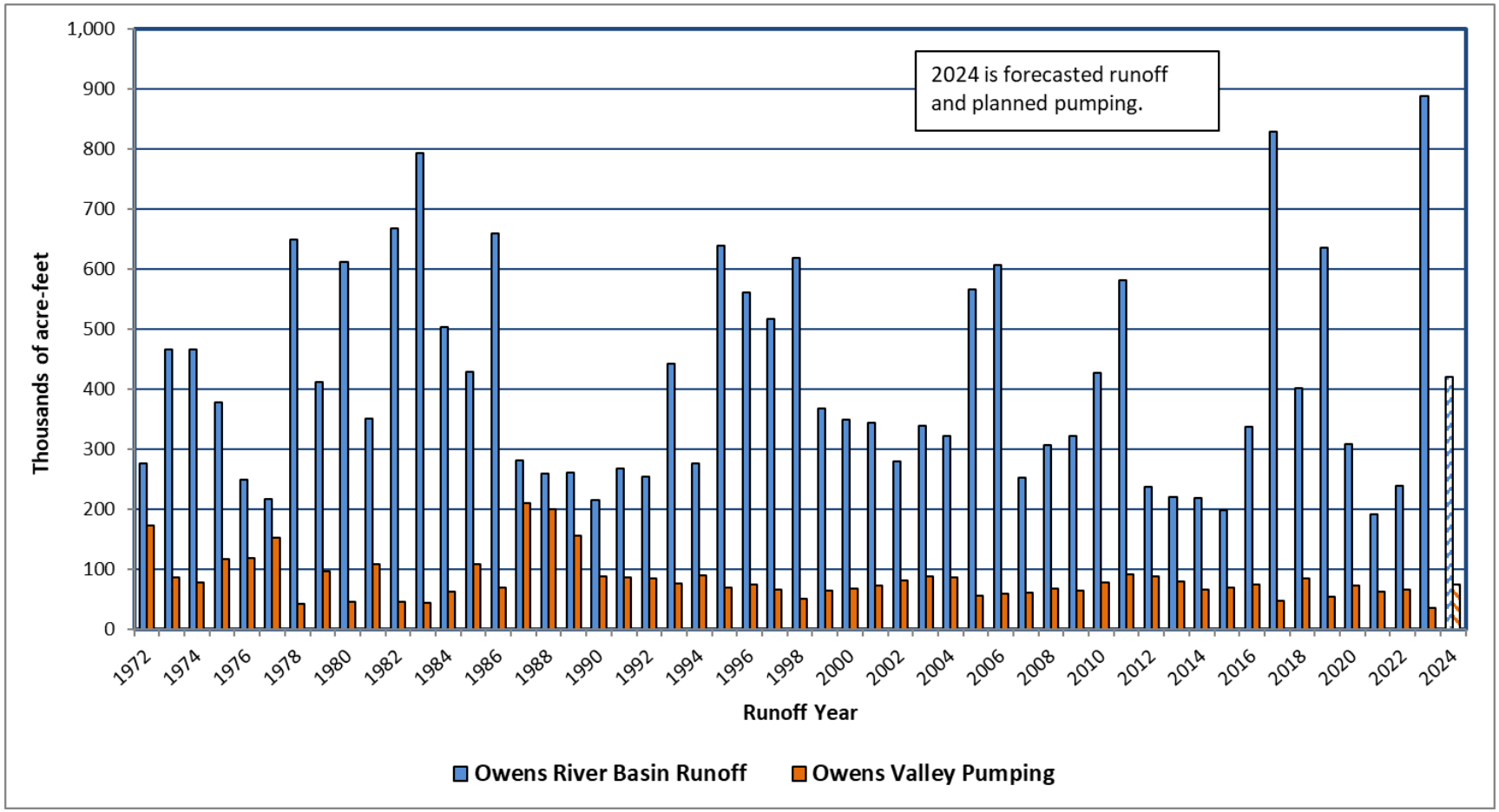


Figure 1.1. Owens River Basin Runoff and Groundwater Pumping

1.2. Owens Valley Groundwater Production

LADWP has prepared its Operations Plan based on the goals and principles of the Water Agreement. The Operations Plan is designed to avoid adverse environment impacts while providing a reliable supply of water for in-valley uses and export to Los Angeles for municipal use.

The following excerpt from Section S.6 of the 1991 EIR describes the general thoughts regarding groundwater pumping and how pumping was contemplated under the Water Agreement:

Compared to pre-1970 conditions, the project would increase the amount of groundwater and surface water exported from Owens Valley to Los Angeles. The increased amount of water exported would be obtained from an increase in groundwater pumping, from surface water that has been made available by a reduction in the number of irrigated acres owned by Los Angeles and from surface water that formerly did not enter the aqueduct system… However, for the purposes of analysis in this EIR, the average amount of pumping under the Agreement is projected to be 110,000 AFY.

Under the terms of the Water Agreement, the allowable amount of groundwater pumping from each Owens Valley wellfield is based on the ON/OFF status of monitoring sites located within each wellfield and the capacity of the wells linked to those sites (see Water Agreement Sections V.B and V.C). Table 1.2 lists the ON/OFF status of the monitoring sites within the Owens Valley as of April 1, 2024. Based on Table 1.2, 20 vegetation monitoring sites are in ON status, and 2 sites are in OFF status. The vegetation monitoring site IO-1 turned to ON status in April 2024. The Water Agreement or Technical Group has designated certain town supply wells, irrigation supply wells, fish hatchery supply wells, E/M project supply wells, and other wells determined to not significantly impact areas with groundwater-dependent vegetation as exempt from the ON/OFF provisions of the Water Agreement. These exempt wells may be pumped for their intended purpose.

Table 1.3 lists a breakdown of the available annual pumping capacity and planned groundwater pumping for the 2024-25 RY by wellfield. Table 1.3 also shows the vegetation monitoring sites in ON status as of April 1, 2023, the wells associated with the ON status monitoring sites, and the exempt wells in each wellfield. Accordingly, approximately 225,100 AF of water is available for groundwater pumping from Owens Valley wellfields under the terms of the Water Agreement during the 2024-25 RY. However, due to the extreme runoff in 2023 and high-water storage in the aqueduct system, along with a nearly average forecasted runoff year, LADWP plans to pump between 51,470 AF and 77,413 AF of groundwater during the 2024-25 RY, which is between 23 percent and 34 percent of the amount allowed under the terms of the Water Agreement. The planned range of groundwater pumping for the 2024-25 RY. This range of pumping will provide LADWP with the needed operational flexibility to supply water for in-valley uses and export to the City, depending on the hydrologic conditions during the year.

Working independently and with the Inyo/Los Angeles Technical Group, LADWP will monitor Owens Valley runoff and environmental conditions to assess if further changes to the planned pumping are needed for the second half of the 2024-25 RY. LADWP's groundwater management approach during this nearly normal runoff condition is to allow for maintaining the nearly full groundwater system, which is more environmentally conservative than pumping plans advocated by the Standing Committee in the early 1990s.

Figure 1.2 compares the amount of Owens Valley groundwater pumping allowed under the provisions of the Water Agreement and the actual groundwater pumping by LADWP for each RY since 1992 (available pumping was not calculated prior to 1992). LADWP's planned pumping for the 2024-25 RY is comparable to the pumping in 2023-24 runoff year, which was the lowest compared to the pumping in recent times. LADWP is committed to managing water resources in Owens Valley in a conservative, responsible, and environmentally sustainable manner.

In addition to complying with the ON/OFF provisions and the environmental protection goals of the Water Agreement, LADWP's pumping program for the 2024-25 RY complies with the groundwater mining provisions of the Green Book. Table 1.4 shows the latest update of the mining calculations based on the procedures described in Section IV.C of the Green Book. As shown in this table, none of the wellfields in the Owens Valley will be in deficit by the end of the first half of the 2024-25 RY.

Table 1.5 lists Owens Valley wells exempted under the Water Agreement or by approval of the Technical Group from linkage to the ON/OFF provisions of the Water Agreement. This table includes a list of wells by well number, the general location of the exempt well, and the reason the well is exempt. The Technical Group revised and approved this table at their May 6, 2016, meeting.

Table 1.6 details the planned month-to-month groundwater pumping for the 2024-25 RY for each wellfield. Pumping for town water systems, fish hatcheries, and E/M projects is included in the pumping distribution. Owens Valley groundwater production for the 2024-25 RY is consistent with the provisions of the Water Agreement. While Table 1.6 provides the planned monthly pumping volumes from each wellfield, the actual pumping amounts could vary due to the uncertainty inherent in runoff conditions, operational needs, and safety concerns of the LAA system, which could result in changes in the operation of surface and groundwater facilities throughout Eastern Sierra. Any pumping for operational tests will be in addition to the planned pumping for the 2024-25 RY. Planned pumping may also be increased to provide freeze protection for the LAA.

The following is a discussion of the planned pumping program by wellfield. Figures 1.3 and 1.5, followed by figures 1.6 through 1.10 show locations of LADWP's Owens Valley pumping wells by wellfield. These figures show the location of production wells, selected monitoring wells, and vegetation monitoring sites in each area.

Table 1.2. Soil/Vegetation Water Balance Calculations for April 2024 According to Section III of the Green Book

Site	October 1, 2023 Actual Soil AWC	50% Annual Precipitation	Projected Soil AWC	October 1, 2023 Vegetation Water Requirement	October 1, 2023 Required Soil AWC For Turn-On	October 1, 2023 On/Off Status	April 1, 2024 Soil AWC	April 1, 2024 Required Soil AWC For Turn-On	April 1, 2024 On/Off Status
LW 1	139.7	7.9	147.6	12.3	NA	ON	137.0	NA	ON
LW 2	58.7	7.9	66.6	4.3	NA	ON	60.8	NA	ON
LW 3	70.9	7.9	78.8	16.1	NA	ON	65.8	NA	ON
BP 1	55.5	7.9	63.4	25.4	NA	ON	45.7	NA	ON
BP 2	8.2	NA	NA	13.7	28.4	OFF (7/98)	14.3	28.4	OFF (7/98)
BP 3	119.2	7.6	126.8	14.1	NA	ON	120.3	NA	ON
BP 4	77.0	8.2	85.2	10.3	NA	ON	91.3	NA	ON
TA 3	18.7	7.3	26.0	19.2	NA	ON	22.2	NA	On
TA 4	24.3	7.3	31.6	12.9	NA	ON	41.1	NA	ON
TA 5	26.3	8.2	34.5	8.4	NA	ON	27.0	NA	ON
TA 6	60.8	7.3	68.1	21.9	NA	ON	68.6	NA	ON
TS 1	47.2	7.3	54.5	26.6	NA	ON	45.4	NA	ON
TS 2	25.3	7.3	32.6	13.1	NA	ON	46.3	NA	ON
TS 3	32.7	7.3	40	12.8	NA	ON	72.7	NA	ON
TS 4	43.4	7.3	50.7	38.5	NA	ON	59.5	NA	ON
IO 1	29.6	NA	NA	35.6	42.2	OFF (10/98)	42.8	NA	ON
IO 2	5.4	6.5	11.9	6.0	NA	ON	5.7	NA	ON
SS 1	45.5	6.5	52.0	15.4	NA	ON	59.0	NA	ON
SS 2	6.1	NA	NA	4.7	25.6	OFF (7/11)	7.3	25.6	OFF (7/11)
SS 3	34.5	6.5	41.0	18.7	NA	ON	50.1	NA	ON
SS 4	16.0	6.6	22.6	9.2	NA	ON	16.7	NA	ON
BG 2	49.7	6.6	56.3	16.8	NA	ON	73.2	NA	ON

Table 1.3. Annual Pumping Capacity According to Monitoring Sites with ON Status and Planned Pumping for 2024-25 RY

Wellfield	Vegetation Monitoring Site	Associated Production Wells	Available Capacity (AF/year)	Planned Pumping (AF)
Laws	L1	398, 247, 248, 249	12,670	
	L2	239, 243, 244, 426	10,430	
	L3	240, 241, 399, 376, 377	9,990	
	L5*	245, 387, 388	9,770	
	Exempt	236, 354, 422, 413	1,520	
	Wellfield Pumpage		**44,380**	**5,500-8,290**
Bishop**	All wells	140, 371, 406, 407, 408, 410, 411, 412	18,310	
	Wellfield Pumpage		**18,310**	**5,120-9,000**
Big Pine	BP1	378, 379, 389, 352	10,430	
	BP3	222, 223,232	4,850	
	BP4	331	7,530	
	Exempt	218, 219, 330, 332, 352, 375, 415	27,700	
	Wellfield Pumpage		**50,510**	**14,700-21,300**
Taboose Aberdeen	TA3	106, 110, 111, 114	11,005	
	TA4	342, 347	19,400	
	TA5	349	12,240	
	TA6	109, 370	5,720	
	Exempt	118, 355	2,560	
	Wellfield Pumpage		**50,925**	**6,750-11,325**
Thibaut Sawmill	TS1	159	1,014	
	TS2	155	800	
	TS3	103, 104, 382	2,970	
	TS4	380, 381	4,350	
	Exempt	351, 356	8,000	
	Wellfield Pumpage		**17,134**	**8,000-9,648**
Indep. - Oak	IO1	391, 400	5,285	
	IO2	63	2,317	
	Exempt	59, 60, 65, 357, 383EM, 384EM, 401, W423, W427	12,200	
	Wellfield Pumpage		**19,802**	**6,960-9,930**
Symmes Shepherd	SS1	069, 392,393	7,385	
	SS3	092, 396	5,647	
	SS4	075, 345	6,009	
	Exempt	402EM/428EM	1,200	
	Wellfield Pumpage		**20,241**	**2,640-5,040**
Bairs Georges	BG2	76, 343, 348, 403	2,830	
	Exempt	343	500	
	Wellfield Pumpage		**2,830**	**900-1,980**
Lone Pine	Exempt	344, 346, 425	990	
	Wellfield Pumpage		**990**	**900**
	Total Owens Valley		**225,122**	**51,470-77,413**

* Monitoring site has yet to be located.

** Pumping is subject to the Hillside Decree

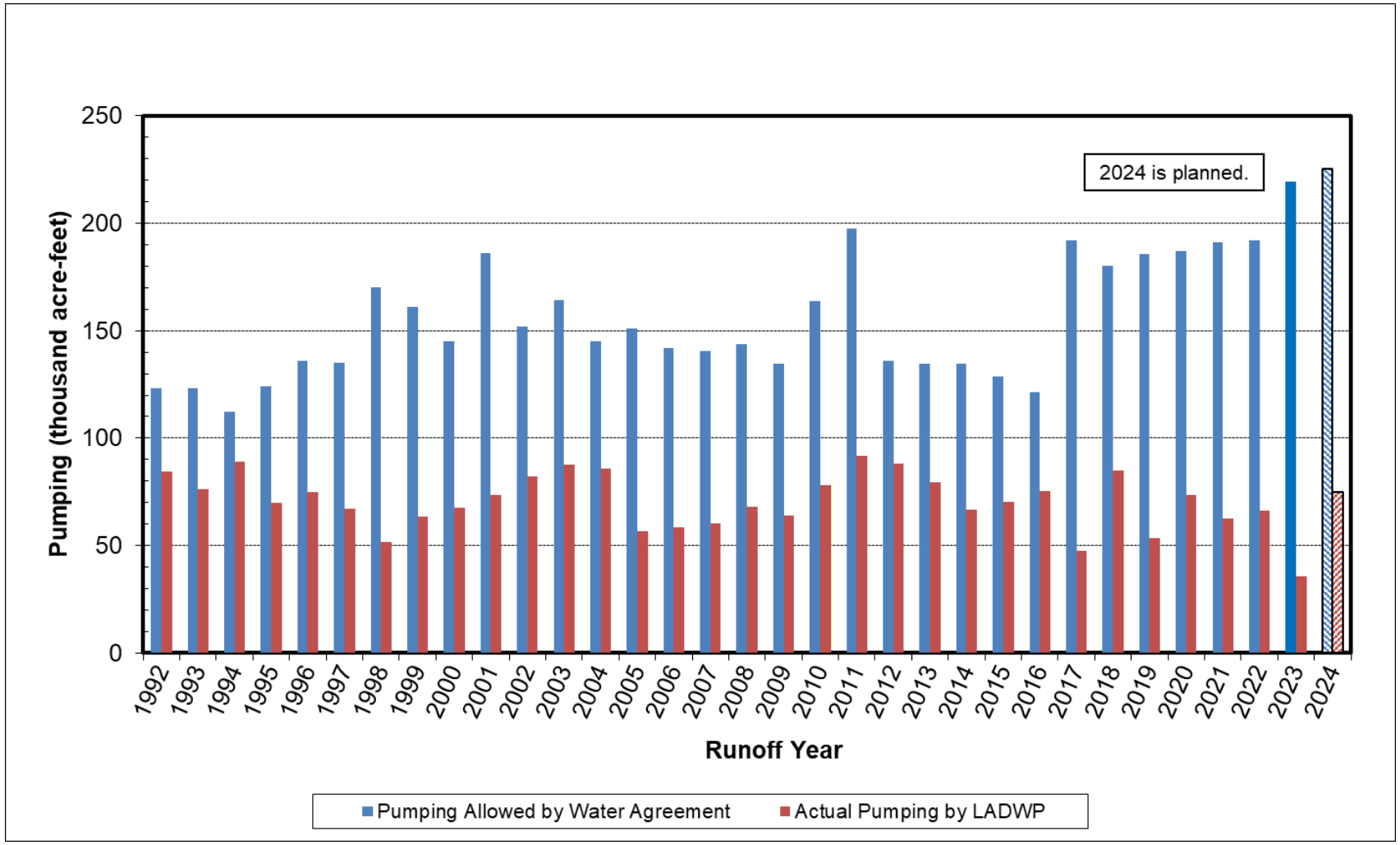


Figure 1.2. Owens Valley Pumping – Provided by Water Agreement and Actual Since Inyo/Los Angeles Water Agreement

Table 1.4. Summary of Recharge and Pumping for Water Year 2005 - 2024 and Estimated Pumping Limit for Apr-Sep 2025 in Acre-Feet

Water	OWENS VALLEY	LAWS		BISHOP		BIG PINE		TABOOSE-THIBAUT		IND-SYM-BAIRS		LONE PINE		OWENS VALLEY	
Year	Runoff Percent (c)	Recharge	Pumping	Recharge	Pumping	Recharge	Pumping	Recharge	Pumping	Recharge	Pumping	Recharge	Pumping	Recharge	Pumping
2005	120%	18,389	3,841	47,471	7,093	32,686	19,423	40,500	18,674	46,441	18,585	17,191	1,128	202,678	68,744
2006	138%	35,336	3,013	54,337	5,667	39,650	20,686	47,757	15,707	53,873	9,944	19,956	1,119	250,911	56,136
2007	64%	10,947	7,840	34,470	10,516	19,757	20,525	25,855	14,578	27,624	10,674	10,454	1,100	129,108	65,233
2008	68%	10,855	7,939	35,850	10,228	20,432	20,243	28,619	18,542	27,759	9,219	11,563	858	135,078	67,029
2009	73%	11,049	6,233	37,416	12,123	21,555	22,891	29,385	14,751	29,359	9,603	12,147	775	140,912	66,376
2010	93%	11,154	6,333	41,987	10,509	26,566	22,514	35,541	20,239	36,863	13,031	14,252	626	166,362	73,252
2011	134%	17,375	7,188	52,182	9,889	35,539	27,089	47,562	21,933	50,619	14,527	19,057	998	222,333	81,624
2012	72%	11,058	9,514	37,315	11,134	21,297	27,220	28,369	26,156	28,905	16,570	11,538	1,048	138,482	91,642
2013	62%	10,644	6,642	34,811	11,536	19,408	26,115	24,795	25,225	24,749	17,907	10,364	721	124,771	88,146
2014	50%	10,393	6,287	31,325	10,849	16,871	22,560	21,241	15,778	20,508	11,347	8,960	946	109,297	67,767
2015	43%	10,103	5,824	30,667	10,521	15,380	19,939	18,671	15,563	18,695	11,873	7,995	925	101,512	64,645
2016	63%	10,392	6,038	34,844	10,842	19,551	22,798	25,634	20,642	25,354	18,829	10,306	984	126,082	80,133
2017	175%	45,270	2,000	67,171	4,399	56,730	22,106	71,201	12,959	66,222	9,243	24,741	915	331,335	51,622
2018	93%	14,351	8,646	41,346	9,588	25,911	23,140	34,601	18,896	35,628	12,050	13,807	973	165,643	73,293
2019	132%	34,517	7,127	54,377	5,670	40,650	21,356	48,370	17,000	49,725	9,994	18,534	973	246,174	62,120
2020	76%	11,041	11,170	37,879	9,437	23,190	18,647	29,560	21,503	29,801	9,949	11,742	985	143,212	71,691
2021	46%	10,330	8,337	30,841	10,901	16,215	11,366	20,160	22,339	19,028	9,128	8,036	1,010	104,612	63,081
2022	51%	10,699	8,356	31,498	10,945	17,318	20,086	22,001	20,067	20,708	7,744	8,894	1,005	111,117	68,203
2023	196%	67,558	3,060	72,464	1,491	59,905	15,081	82,745	17,714	75,353	7,580	26,530	861	384,555	45,787
2024 (a)	106%	15,077	276	45,930	0	30,688	5,705	37,718	4,988	40,257	1,108	15,152	179	184,822	12,256
(b) TOTAL		376,539	125,664	854,181	173,338	559,300	409,490	720,284	363,254	727,473	228,905	281,219	18,129	3,518,996	1,318,780
Estimated Apr-Sep 2024 Pumping Limit			250,875		680,843		149,810		357,030		498,567		263,090		2,200,216

(a) Estimated Recharge for the 2024 Water Year; Approximate Pumping for First Half of Water year 2024 (Oct-Mar).

(b) Estimated 20 Year Total for Recharge; actual 19.5 Year Total for Pumping.

(c) Mining calculations are based Water Year (October-September) instead of Rrunoff Year (April-March).

Table 1.5. LADWP Groundwater Pumping Wells Exempt from ON/OFF Provisions of Water Agreement

Revised: May 6, 2016

Well Number	Wellfield	Duration	Reason
354	Laws	Annual	Sole Source-Town Supply
413 (1)	Laws	Annual	Same as above
422(2)	Laws	Annual	Sole Source-Irrigation; no impact on groundwater dependent vegetation
236(2)	Laws	Irrigation Season	Sole Source-Irrigation
413 E/M(1)	Laws	Irrigation Season	Sole Source – Irrigation for Laws Museum irrigation project
415 (3)	Big Pine	Annual	Sole Source-Town Supply
341	Big Pine	Annual	Same as above
352	Big Pine	Annual	Same as above
375 E/M	Big Pine	Annual	Make-up water for Big Pine Regreening Project up to 150 AF per year
330(4)	Big Pine	Annual	Sole Source-Fish Hatchery
332(4)	Big Pine	Annual	Same as above
409(4)	Big Pine	Annual	Same as above
218	Big Pine	Annual	No impact on groundwater dependent vegetation
219	Big Pine	Annual	Same as above
118	Taboose-Aberdeen	Annual	Same as above
355	Taboose-Aberdeen	Annual	Sole Source- supply 1,600 acre project
351	Thibaut-Sawmill	Annual	Sole Source – Fish Hatchery
356	Thibaut-Sawmill	Annual	Same as above
401	Independence-Oak	Annual	No Impact on groundwater dependent vegetation
59	Independence-Oak	Annual	Same as above
60	Independence-Oak	Annual	Same as above
65	Independence-Oak	Annual	Same as above
383 E/M	Independence-Oak	Annual	Same as above
384 E/M(1)	Independence-Oak	Annual	Same as above
61	Independence-Oak	Irrigation season	Sole Source-Irrigation; no impact on groundwater dependent vegetation
423 E/M	Independence-Oak	Irrigation Season	Same as above
357	Independence-Oak	Annual	Sole Source – Town Supply
384 (1)	Independence-Oak	Annual	Same as above
402 E/M	Symmes-Shepherd	Irrigation season	Sole Source-Irrigation; no impact on groundwater dependent vegetation
343(5)	Bairs-Georges	Annual	Sole Source-irrigation and stock water
425 E/M	Lone Pine	Irrigation Season	Sole Source-Irrigation; no impact on groundwater dependent vegetation
344	Lone Pine	Annual	Sole Source – Town Supply
346	Lone Pine	Annual	Same as above

1. Wells 413 in Laws and 384 in Independence are dual purpose wells to supply water for E/M supply and backup for town domestic supply.
2. Well 422 designated as primary and Well 236 designated as backup irrigation supply.
3. Replaced well W341 as the primary Big Pine town supply.
4. Wells 330, 332, and 409 may only be pumped two at a time, unless pumped for testing or emergencies.
5. Well 343 is exempt in below normal RYs to supplement flow in Georges Creek for irrigation and stock water supply

Table 1.6. Planned Owens Valley Pumping for the 2024-25 RY (AF)

Month	Laws	Bishop	Big Pine	Taboose-Aberdeen	Thibaut-Sawmill	Indep.-Oak	Symmes-Shepherd	Bairs-Georges	Lone Pine	TOTAL
April	300	0	1,000-1,700	100	666	700-950	200	0	120	3,086-4,036
May	300	0	1,000-1,700	100	666	700-950	200	0	120	3,086-4,036
June	300-1,300	530-1,500	1,000-1,700	100	666	700-950	200	0	120	3,616-6,536
July	700-1,300	530-1,500	1,300-1,700	100-1,225	666-850	700-1,200	200-440	100-220	120	4,416-8,555
August	700-1,300	530-1,500	1,300-1,700	100-1,225	667-850	700-1,200	200-440	100-220	140	4,437-8,575
September	700-1,300	530-1,500	1,300-1,700	100-1,225	667-850	700-1,200	200-440	100-220	140	4,437-8,575
October	700	500	1,300-1,700	1,025-1,225	667-850	460-580	240-520	100-220	30	5,022-6,325
November	700	500	1,300-1,700	1,025-1,225	667-850	460-580	240-520	100-220	30	5,022-6,325
December	525-520	500	1,300-1,700	1,025-1,225	667-850	460-580	240-520	100-220	20	4,837-6,135
January	525-520	500	1,300-2,000	1,025-1,225	667-850	460-580	240-520	100-220	20	4,837-6,435
February	25	500	1,300-2,000	1,025-1,225	667-850	460-580	240-520	100-220	20	4,337-5,940
March	25	500	1,300-2,000	1,025-1,225	667-850	460-580	240-520	100-220	20	4,337-5,940
TOTAL	5,500-8,290	5,120-9,000	14,700-21,300	6,750-11,325	8,000-9,648	6,960-9,930	2,640-5,040	900-1,980	900	51,470-77,413

Groundwater Level Forecasts

LADWP uses regression models to forecast the approximate changes in groundwater levels in the shallow aquifer. Groundwater pumping for the 2024-25 RY will be contingent on environmental conditions, runoff volumes, and water needs assessed during the year. Given the extremely wet 2023-24 runoff year and resulting recharge of the Owens Valley groundwater aquifers combined with the minimal pumping, resulted in rising groundwater levels during the 2023-24 RY. Based on the forecasted 2024-25 RY runoff, groundwater levels are forecasted to lower with any level of planned pumping.

The range of planned LADWP groundwater pumping for the year by wellfield is included in Table 1.3. The forecasted runoff and planned pumping for the entire year allow for forecasting estimated groundwater levels in April 2025. Based on the planned groundwater pumping in each wellfield during the 2024-25 RY, the forecasted depth-to-water changes between April 1, 2024, and April 1, 2025, in each Owens Valley wellfield and overall, in Owens Valley, utilizing select monitoring wells, are listed in Table 1.7.

Table 1.7. Forecasted Change in Average Wellfield Groundwater Levels between April 1, 2024, and April 1, 2025

Wellfield	Planned 2024-25 Pumping (af)	Select Monitoring Wells	Forecast Change in Average Groundwater Level from April 1, 2024 to April 1, 2025 (ft)*
Laws	*5,500 TO 8,290*	*T107, T435, T490, T492*	*-3.5 TO -4.3*
Big Pine	*14,700 TO 21,300*	*T425, T571, T691, T800*	*0.2 TO -1.7*
Taboose-Aberdeen	*6,750 TO 11,325*	*T502, T586, T801, T803*	*-0.5 TO -1.1*
Thibaut-Sawmill	*8,000 TO 9,648*	*T376, T415, T463, T660*	*0.1 TO -0.6*
Independence-Oak	*6,960 TO 9,930*	*T407, T409, T453, T809*	*-0.8 TO -2.2*
Symmes-Shepherd	*2,640 TO 5,040*	*T403, T601, T644, V009G*	*-0.8 TO -2.3*
Bairs-George	*900 TO 1,980*	*T398, T400, T444, T652** **Previously V087*	*-1.6 TO -1.9*
Owens Valley	*51,470 TO 77,413***	*All Monitoring Wells Listed Above*	*-1.0 TO -2.0*

* Using the forecasted Owens Valley runoff and planned wellfield pumping.

** Including planned pumping in Bishop and Lone Pine.

1.2.1. Laws Wellfield (Figure 1.3)

Monitoring sites L1, L2, and L3 are in ON status. Production wells controlled by these monitoring sites have available production capacities of 12,670, 10,430, and 9,990 AF, respectively. Wells linked to monitoring site L5 have a capacity of 9,770 AF. Exempt wells within the Laws Wellfield have a capacity of 2,100 AF. The total available pumping capacity in the Laws Wellfield is 44,380 AF. Well 426, associated with monitoring site L2, is used as a backup along with Well 422 as an exempt well irrigation water supply.

LADWP's planned groundwater pumping in the Laws Wellfield for the 2024-25 RY ranges between 5,500 AF and 8,290 AF, contingent on runoff and operation conditions, water needs, and environmental conditions. Groundwater pumping is planned to supply water for Owens Valley demands, including the town water system, E/M projects, and irrigated lands, and for export to the City.

LADWP, in cooperation with ICWD, conducted a two-month operational test of modified well W385 between December 2019 and February 2020. Wells W385 and W386 associated with monitoring site L4 were modified in 2014 by sealing the screened zone within the shallow aquifer. The modification resulted in a reduction of pumping capacity in W385 from 10.2 cfs to 2.8 cfs and in W386 from 6.1 cfs to 2.8 cfs based on the initial 24-hour pumping test. The goal of the operational test was to document the effect of well modification and to allow comparison with a similar operational test conducted in 1993-94 based on the effect on nearby shallow groundwater levels both north and south of the Owens River. Using data collected from the operational well, the Bishop-Laws groundwater flow model was updated and recalibrated. The model can simulate the future operation of W385 and W386 wells.

During the two-month operational test of W385, groundwater levels were monitored at 29 locations. Six wells were designated as trigger wells, and trigger levels were assigned to each well by staff from LADWP, ICWD, and CDFW. During the test, groundwater levels in none of the trigger wells reached the preset trigger levels. W385 pumped 463 AF of water during the pumping test. LADWP spread the same volume of water to the Five Bridges Area during the following RY from Bishop Creek Canal. Staff from LADWP and ICWD prepared a joint report that described the operational test and presented the data collected during the test.

Based on the two-month operational test results at W385, LADWP plans to conduct a similar testing of W386 depending on the field conditions. LADWP has expanded hydrologic monitoring in the vicinity of wells W385 and W386 and is currently collecting baseline hydrologic data. Quarterly monitoring data are compiled, and reports are submitted to ICWD and CDFW. LADWP will prepare and submit a W386 testing plan for consideration by the Inyo County/Los Angeles Technical Group. The testing plan for W386 will include an expanded monitoring plan and an updated trigger mechanism that was used during the W385 operational testing.

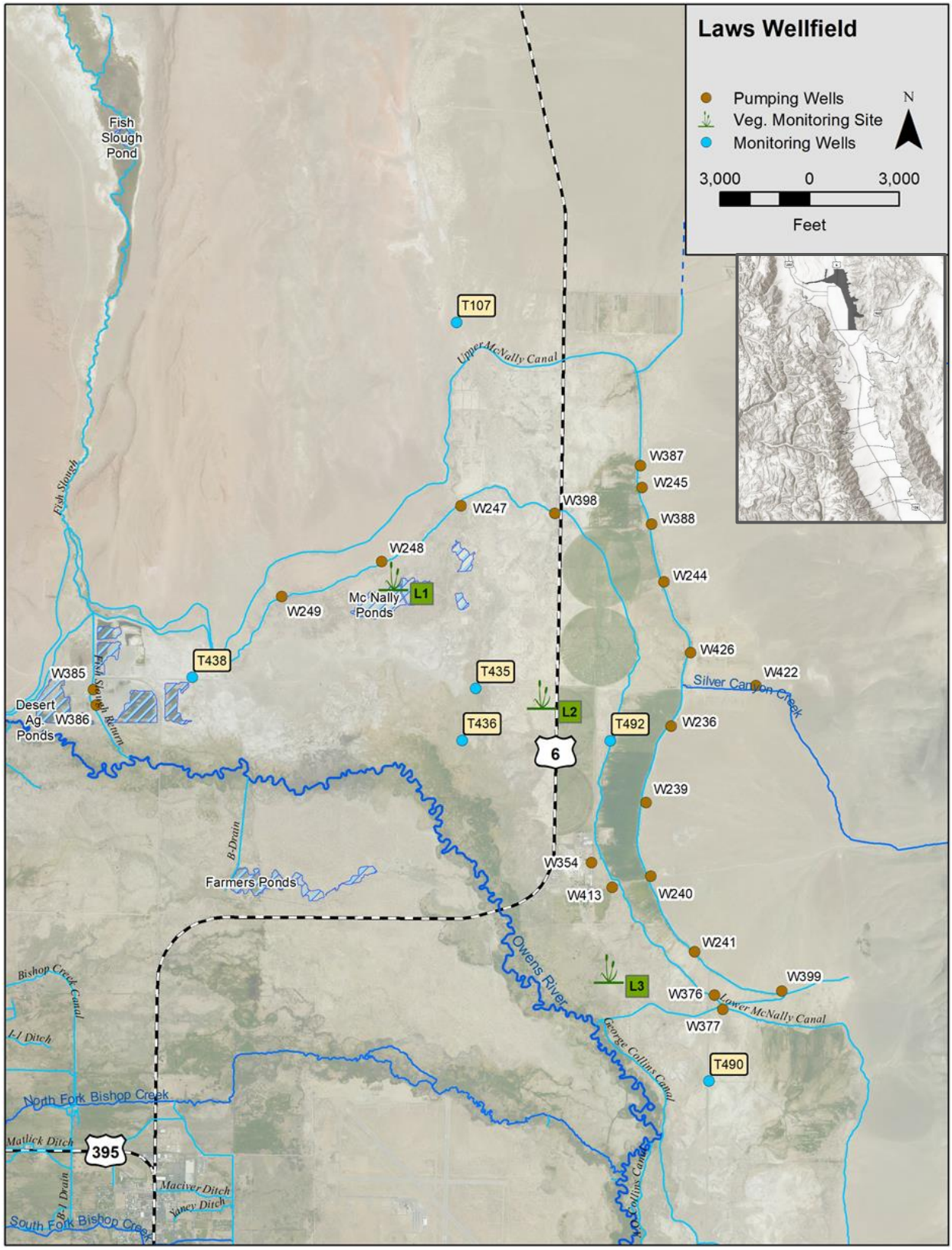


Figure 1.3. Laws Wellfield

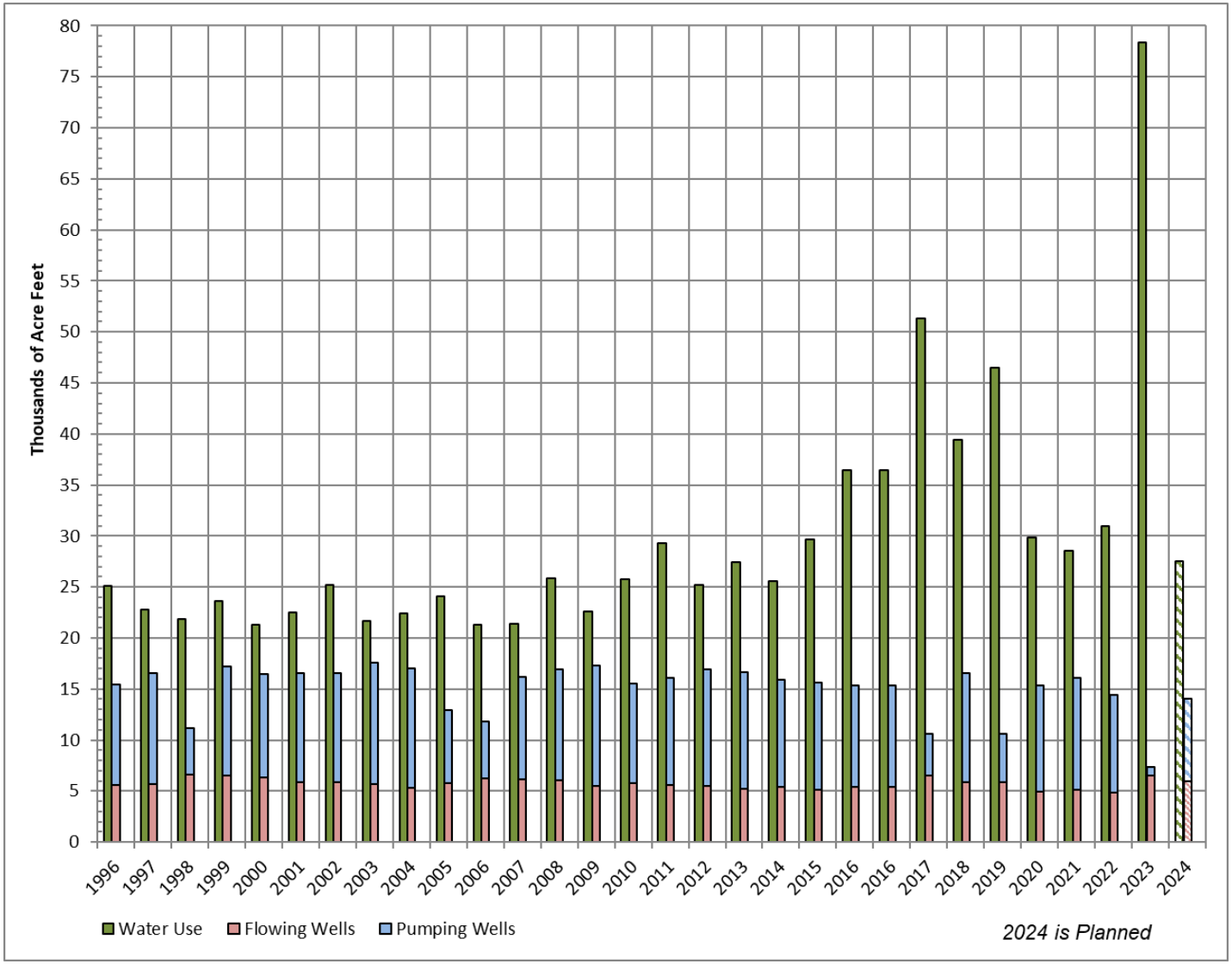
1.2.2. Bishop Wellfield (Figure 1.5)

Figure 1.4 illustrates water use on City-owned Lands on Bishop Cone compared to groundwater extractions (flowing and pumping wells) for RYs 1996 to the present.

Pumping in the Bishop Wellfield is governed by the provisions of the Hillside Decree and the Water Agreement, which limit LADWP's annual groundwater extractions (pumping and flowing wells) from Bishop Cone to an amount commensurate with the total amount of water used on City lands on Bishop Cone (including conveyance and other losses). Beginning with the 2015-16 RY, the water accounting methods were modified to analyze each area's inflows and outflows to calculate total water use. Under the modified audit protocols, the total water used on City lands within the Bishop Cone area has been approximately 38,000 AF per year in recent years. The estimated water use during the 2024-25 RY will be approximately 28,000 AF. The current total available groundwater extraction capacity in Bishop Wellfield is approximately 18,310 AF. The planned groundwater pumping from the Bishop Wellfield for the 2024-25 RY is between 5,120 and 9,000 AF, contingent on runoff conditions, water needs, and environmental conditions.

LADWP has had operational issues with well W371 in the past irrigation seasons. LADWP drilled well W429 to replace Well W371 in 2021 and plans to equip it during the current RY.

Currently, LADWP has no backup wells in Bishop Cone in case of operational issues with any of its existing supply wells. Installing wells at sites B-2 and B-5 would provide LADWP with the operational flexibility in supplying water to uses on City-owned lands in the Bishop Cone. The planned wells at sites B2 and B5 would also help provide a stable water supply for adjacent irrigation fields during prolonged droughts. LADWP has prepared updated preconstruction evaluation reports for the installation wells at sites B-2 and B-5 that address the County's concern with the potential impacts on nearby non-LADWP wells and is awaiting ICWD's comments before finalizing the reports for consideration by the Inyo/LA Technical Group.



**According to the Hillside Decree, total groundwater extraction cannot be more than water use on City-owned land on the Bishop Cone.*

Figure 1.4. Groundwater Extraction (Flowing & Pumping) and Water Use on City Land in Bishop Cone

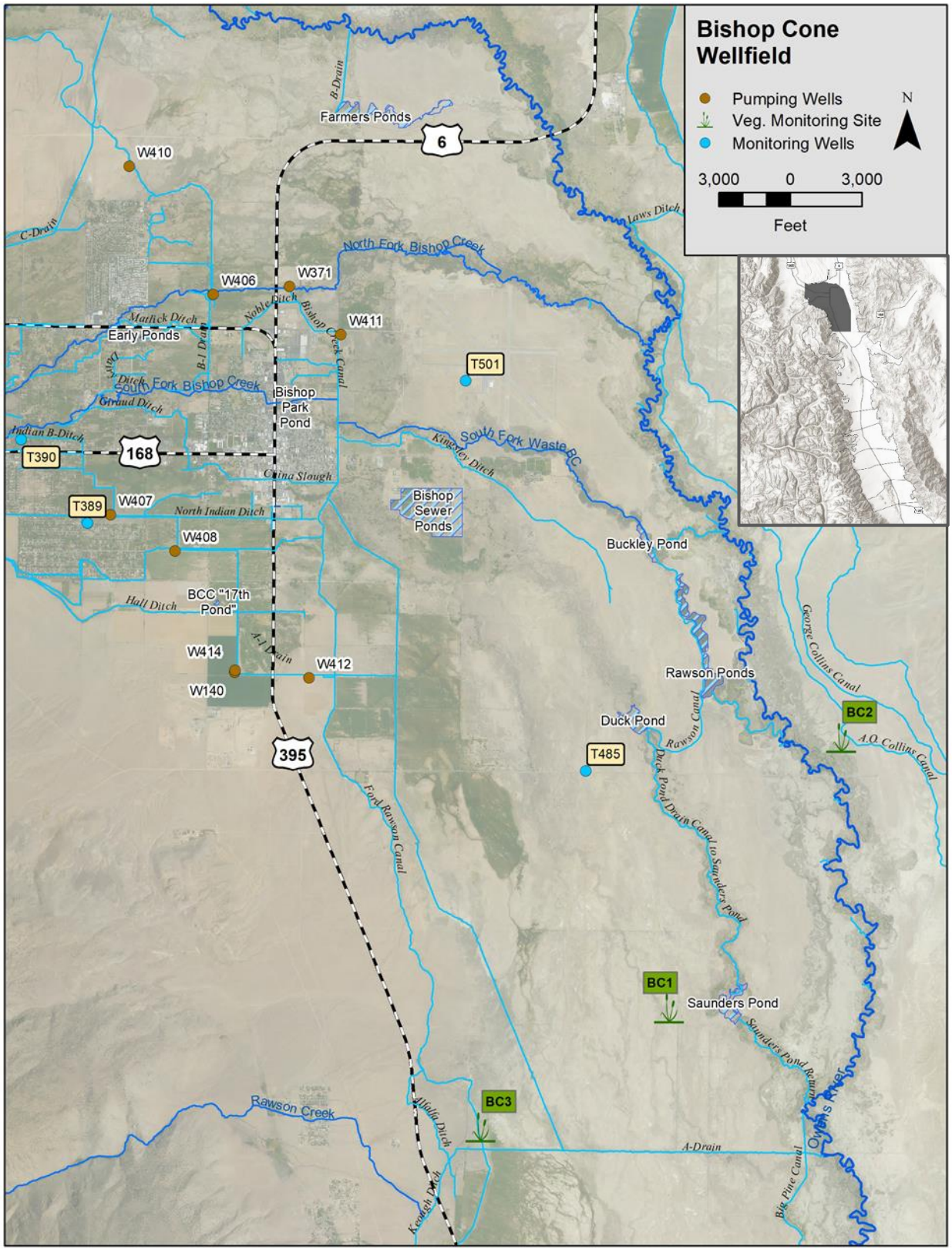


Figure 1.5. Bishop Wellfield

1.2.3. Big Pine Wellfield (Figure 1.6)

Vegetation monitoring sites BP1, BP3, and BP4 are in ON status. Production wells controlled by monitoring site BP1 have 10,430 AF pumping capacity, production wells controlled by monitoring site BP3 have 4,850 AF pumping capacity, and production Well 331, controlled by monitoring site BP4, has 7,530 AF pumping capacity. Exempt wells, including Well 218, Well 219, town supply wells, and Fish Springs Fish Hatchery wells in the Big Pine Wellfield, have a combined 27,00 AF pumping capacity. The total available pumping capacity in the Big Pine Wellfield is 50,510 AF. The planned pumping in the Big Pine Wellfield for the 2024-25 RY ranges between 14,700 AF and 21,300 AF, contingent on runoff conditions, water needs, and environmental conditions.

LADWP installed Well W415 in 2002 to replace Well W341 as the primary town water system source and to provide water to the town ditch system. Following the installation of five new monitoring wells in the vicinity of West Big Pine in 2017 and the completion of permitting requirements, LADWP transferred the town water system supply to Well W415 and decommissioned Well W341. The data from the five new monitoring wells shows the strong barrier effect of the Owens Valley fault separating the groundwater aquifer where W415 draws water from the aquifer east of the fault. Well W341 has been converted to a deep monitoring well utilizing LADWP's current well drilling contract.

A 6-month operational testing of W415 has been proposed by ICWD and approved by the Technical Group to test the capacity of this well when supplying both the Big Pine water system and the town ditch system. The testing plan includes provision for the protection of groundwater-dependent resources, including the Big Pine Paiute Tribe's water supply well.

1.2.4. Taboose-Aberdeen Wellfield (Figure 1.7)

Vegetation monitoring sites TA3, TA4, TA5, and TA6 in Taboose-Aberdeen Wellfield are in ON status. Production wells controlled by monitoring Site TA3 have 11,005 AF available pumping capacity. Production wells controlled by Site TA4 have 19,400 AF available pumping capacity. Production well W349, controlled by the vegetation monitoring site TA5, has 12,240 AF available pumping capacity. Production wells associated with monitoring site TA6 have a 5,720 AF pumping capacity. Exempt wells W118 and W355 have an available pumping capacity of 2,560 AF. The total available groundwater pumping capacity in the Taboose-Aberdeen Wellfield is 50,925 AF. The planned groundwater pumping in the Taboose-Aberdeen Wellfield for the 2024-25 RY ranges between 6,750 AF and 11,325 AF, contingent on runoff conditions, water needs, and environmental conditions.

1.2.5. Thibaut-Sawmill Wellfield (Figure 1.8)

Vegetation monitoring sites TS1, TS2, TS3, and TS4 in Thibaut-Sawmill Wellfield are in ON status. Production well W159, controlled by vegetation monitoring site TS1, has a pumping capacity of 1,090 AF. Production well W155, controlled by vegetation monitoring site TS2, has a pumping capacity of 800 AF. Production wells W103, W104, and W382, controlled by vegetation monitoring site TS3, have 2,970 AF of available pumping capacity, and production wells W380 and W381, controlled by vegetation monitoring site TS4, have 4,350 AF of available pumping capacity. Exempt Blackrock

Fish Hatchery supply wells W351 and W356 are limited to pump 8,000 AFY combined based on the resolution of a dispute between Inyo County and LADWP regarding the conditions of the vegetation parcel BLK94. The total available pumping capacity in the Thibaut-Sawmill Wellfield for the 2024-25 RY is 17,134 AF. The planned pumping in the Thibaut-Sawmill Wellfield for the 2024-25 RY is between 8,000 and 9,648 AF, subject to hatchery demands, runoff conditions, water supply needs, and environmental conditions.

1.2.6. Independence-Oak Wellfield (Figure 1.8)

Production wells W391 and W400 are controlled by the vegetation monitoring site IO1, which was turned to ON status on April 1, 2024. These wells have a combined pumping capacity of 5,285 AF per year. Production well W063, controlled by vegetation monitoring Site IO2, has a pumping capacity of 2,317 AF. Exempt wells in the Independence-Oak Wellfield have a combined pumping capacity of 12,200 AF. The total available pumping capacity of Independence-Oak Wellfield for 2024-25 RY is 19,802 AF. The planned groundwater pumping in the Independence-Oak Wellfield for the 2024-25 RY ranges between 6,960 AF and 9,930 AF, subject to runoff conditions, irrigation, and town water system and E/M projects water demand.

Production well W061 in Independence Wellfield was associated with the vegetation monitoring site IO3 and exempt from ON/OFF provisions of the Green Book during the irrigation season as the sole source for an alfalfa field. Well W061 had become inoperable recent years. LADWP replaced well W061 with a new well, W427, and converted W061 to a multi-string monitoring well. The replacement well is not pump-equipped yet.

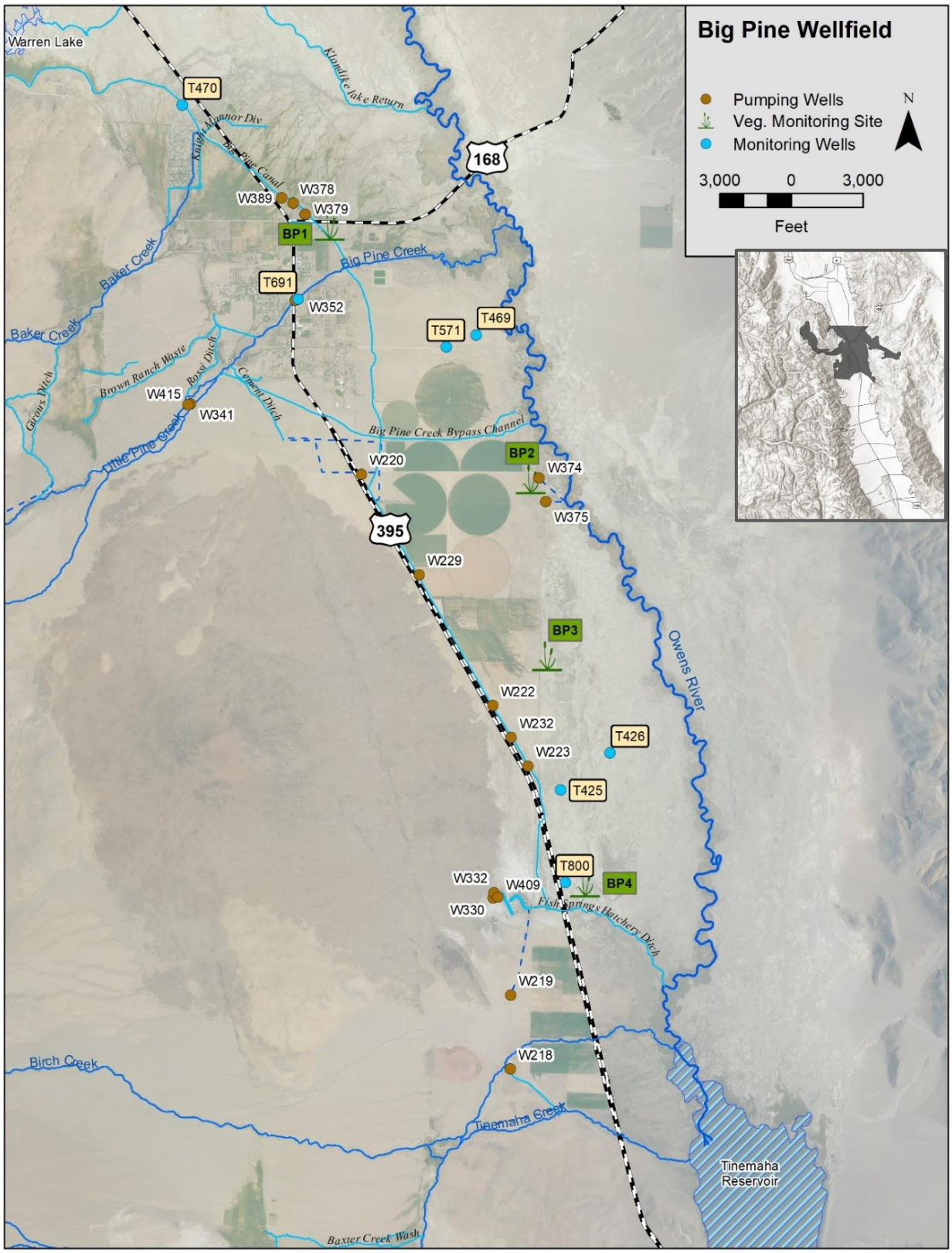


Figure 1.6. Big Pine Wellfield

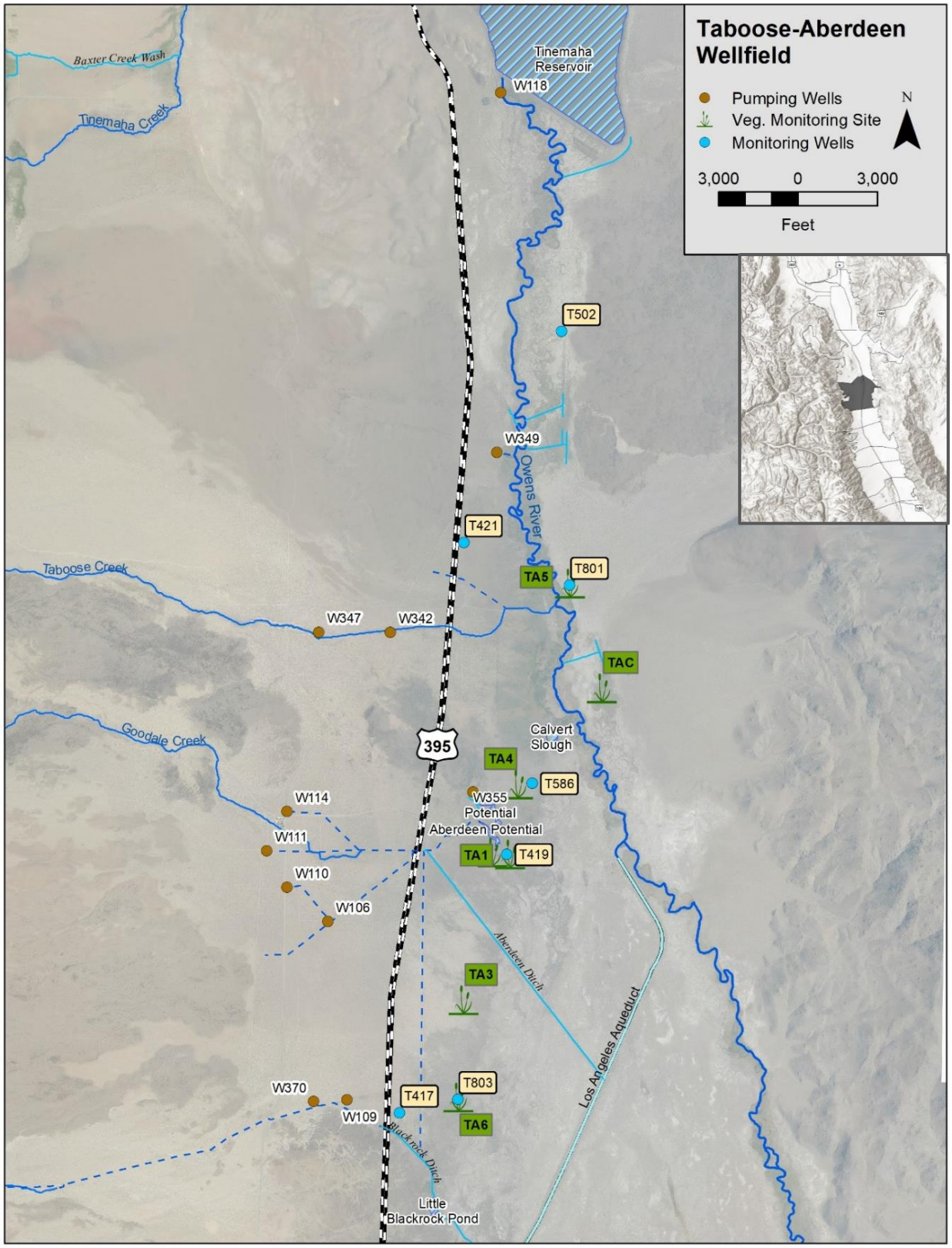


Figure 1.7. Taboose-Aberdeen Wellfield

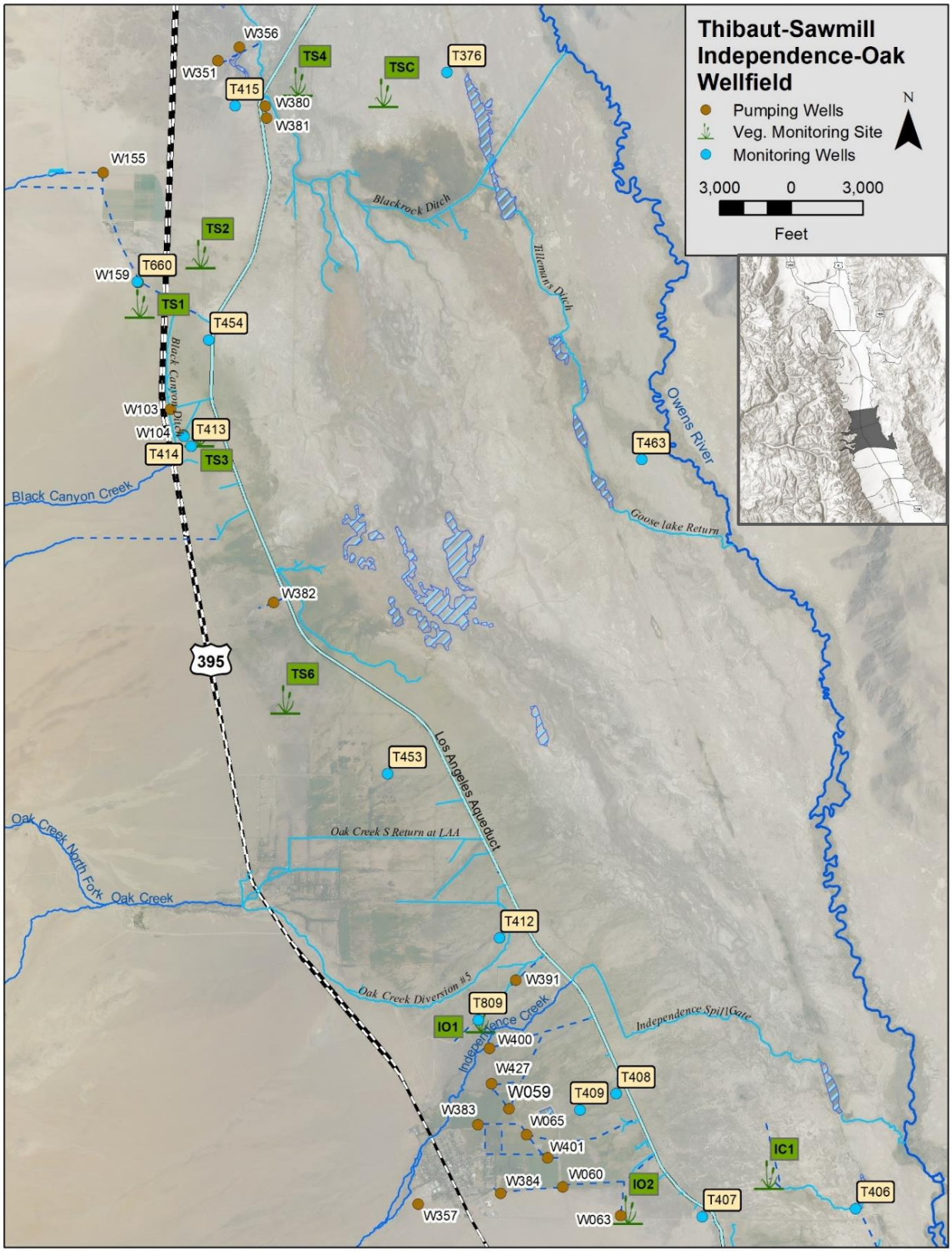


Figure 1.8. Thibaut-Sawmill and Independence-Oak Wellfields

1.2.7. Symmes-Shepherd Wellfield (Figure 1.9)

The vegetation monitoring sites SS1, SS3, and SS4 are in ON status. The available pumping capacity of wells associated with site SS1 is 7,385 AF. The available pumping capacity of wells associated with vegetation monitoring site SS3 is 5,650 AF. The available pumping capacity of wells associated with vegetation monitoring site SS4 is 6,009 AF. Exempt well W402 has a capacity of about 1,200 AF. The total available pumping capacity in the Symmes-Shepherd Wellfield for the 2024-25 RY is approximately 20,244 AF. The planned pumping in the Symmes-Shepherd Wellfield for the 2024-25 RY ranges between 2,640 and 5,040 AF, contingent on runoff conditions, E/M project water needs, and environmental conditions.

LADWP had difficulty operating well W402 in recent years, specifically during the peak of summer, when water demand for irrigation is the highest. As a result, LADWP replaced W402 last year and has equipped the replacement well, well W428, and plans to use it instead of W402 during the 2024-25 runoff to meet the water demand of the lessee for irrigation. Once W428 is fully operational, the existing well W402 will be decommissioned and will either be converted to a deep monitoring well or plugged according to the California well drilling standards.

1.2.8. Bairs-Georges Wellfield (Figure 1.9)

Vegetation monitoring site BG2 is in ON status. The wells controlled by this monitoring site have a combined 2,880 AF pumping capacity. Planned groundwater pumping in the Bairs Georges Wellfield for the 2024-25 RY ranges between 900 and 1,980 AF, contingent on runoff conditions, water needs, and environmental conditions. In this wellfield, LADWP has replaced well W076, which has been out of operation in recent years. The replacement well W430 has not been pump-equipped yet.

1.2.9. Lone Pine Wellfield (Figure 1.10)

Lone Pine Wellfield exempt wells are town supply wells W344 and W346, and E/M project supply Well W425. These three wells have an annual available pumping capacity of approximately 990 AF. The planned groundwater pumping from Lone Pine Wellfield during the 2024-25 RY is approximately 900 AF, contingent on runoff conditions, water supply needs, and environmental conditions.

Well W416 is a production well in the Lone Pine Wellfield, drilled in 2002. An operational pumping test was conducted on Well W416 during the 2009 RY. This well was modified in 2014 to seal the screen portion of the well within the shallow aquifer. LADWP is planning to develop an operational plan for this well to ensure non-LADWP wells are protected and then equip and conduct the initial operation of this well. If the initial operation is performed during the 2024-25 RY, it will be in addition to the currently planned pumping from Lone Pine Wellfield. LADWP has requested the Technical Group to designate a vegetation monitoring site for this well.

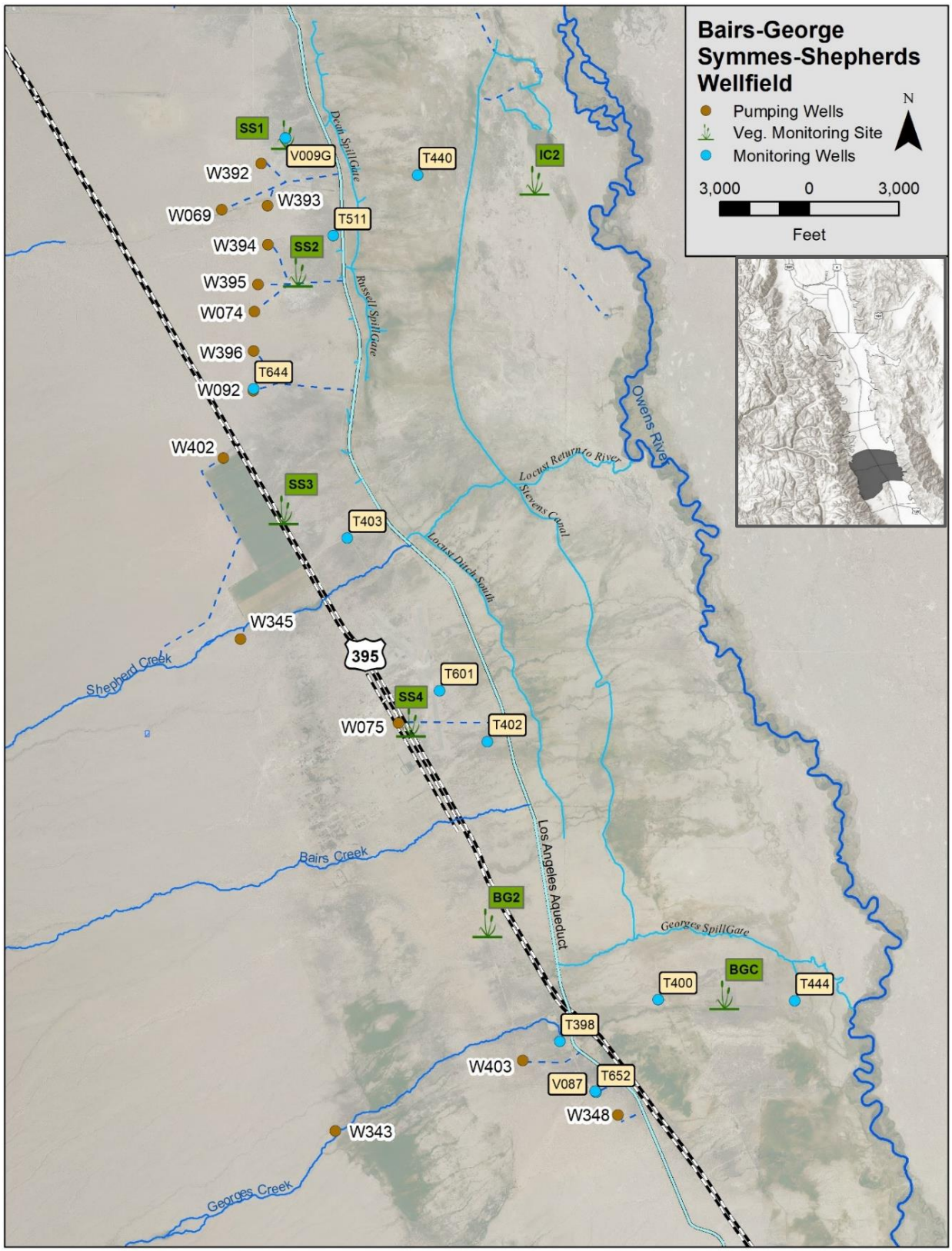


Figure 1.9. Symmes-Sheperds and Bairs-Georges Wellfields

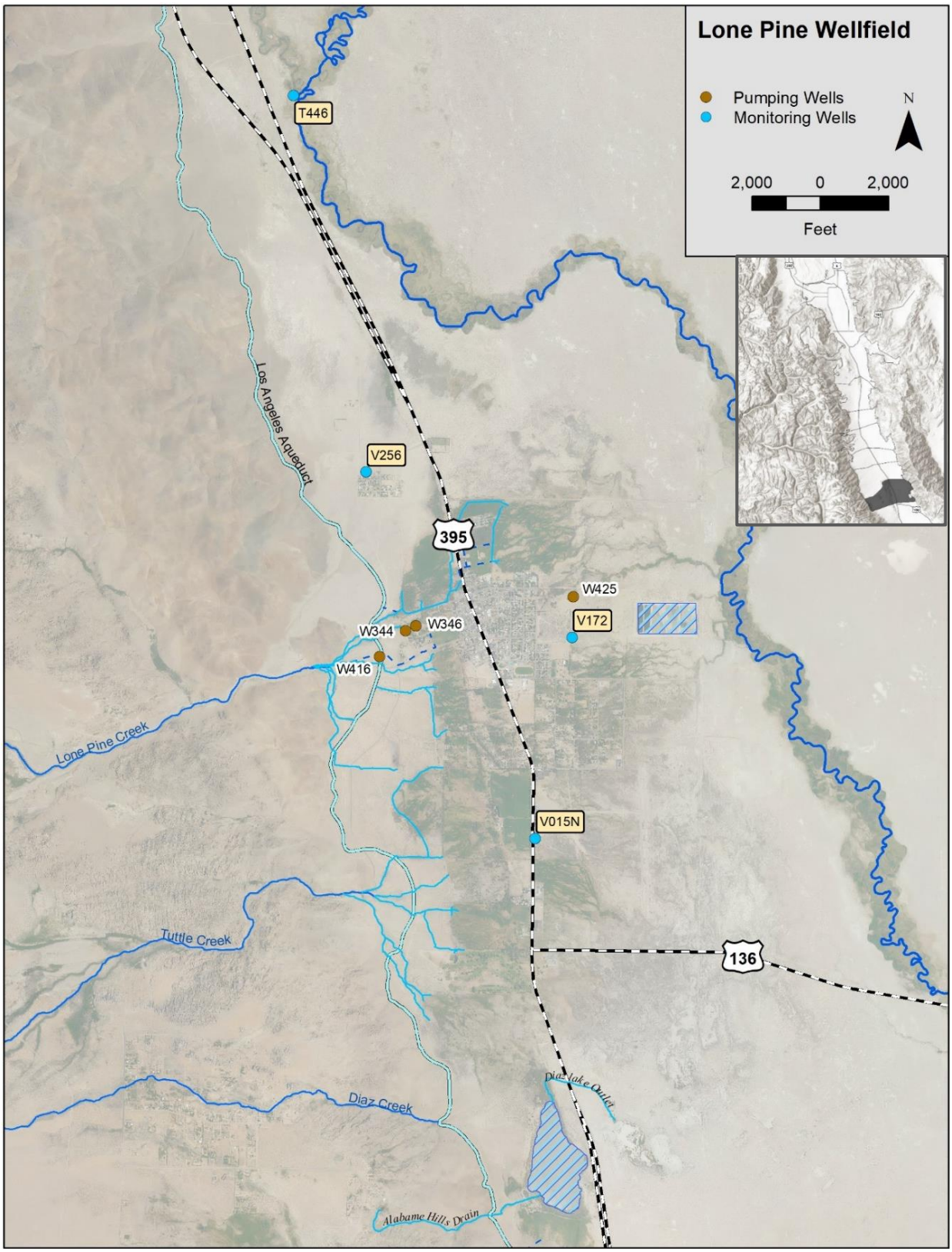


Figure 1.10. Lone Pine Wellfield

1.3. Owens Valley Uses (Including E/M Projects)

Table 1.8 shows the historical (1981-82) uses and the planned monthly uses on City-owned lands within the Owens Valley for the 2024-25 RY. The in-valley uses shown in Table 1.8 consist of irrigation, stockwater, recreation and wildlife projects, E/M projects supply, LORP usage, and 1600 AF Projects. As shown in Table 1.8 and Figure 1.11, LADWP plans to provide approximately 95,130 AF for in-valley uses on City-owned lands this RY, with additional water planned to be released through spreading.

Releases to the LORP from the LAA Intake facility began on December 6, 2006. A minimum flow of over 35 cfs is maintained throughout the 62-mile stretch of the Lower Owens River, south of the Intake structure. When needed, the releases at the Intake are augmented through additional releases at the Independence, Blackrock, Georges, Locust, and Alabama Spill Gates to maintain required flows in the river channel. Table 1.8 shows projected 2024-25 RY water use by the LORP on a monthly basis, totaling 14,910 AF. Total LORP uses include the Lower Owens River, Owens Delta, BWMA, and project-associated losses.

The Water Agreement provides that "... E/M projects shall continue to be supplied by E/M wells as necessary." Due to the monitoring sites controlling some of the production wells supplying E/M projects being in OFF status, the amount of water supplied to E/M projects has often exceeded the amount of water provided by E/M project supply wells. In the past, LADWP chose to supply certain E/M projects from surface water sources. Future E/M allotments may be influenced by the availability of E/M wells and operational demands. Table 1.9 shows the planned water supply to E/M projects and the forecast imbalance between the E/M project water use and the E/M project groundwater supply through the end of the 2024-25 RY. E/M project water demands during the 2024-25 RY are expected to be approximately 3,000 AF greater than E/M groundwater pumping. The cumulative E/M water supply shortfall, that began accumulating in the 1992-93 RY, will be approximately 213,000 AF by the end of the 2024-25 RY.

The Technical Group is currently evaluating the water supply issues associated with the E/M projects and will provide its findings to the Inyo/Los Angeles Standing Committee. It is expected that the Standing Committee will be requested to take the appropriate action necessary to ensure water supplied to E/M projects is in conformance with the provisions of the Water Agreement.

Table 1.8. Water Uses on City-Owned Lands in Owens Valley
Actual Use in 1981-82 and Planned Use in RY 2024-25 (AF)

	April		May		June		July		August		September		TOTAL Apr-Sep	
Use	**1981**	**2024**	**1981**	**2024**	**1981**	**2024**	**1981**	**2024**	**1981**	**2024**	**1981**	**2024**	**1981**	**2024**
Irrigation	3,980	7,730	7,958	9,160	10,373	9,550	9,476	9,240	8,295	8,860	6,321	5,850	**46,403**	50,390
Stockwater	1,141	960	1,319	1,030	1,244	1,060	1,245	1,050	1,219	990	1,319	960	**7,487**	6,050
E / M	0	1,040	0	1,230	0	1,560	0	1,780	0	1,620	0	1,110	**0**	8,340
LORP	0	350	0	1,290	0	3,040	0	3,210	0	2,880	0	2,670	**0**	13,440
Rec. & Wildlife	379	520	804	640	1,160	720	1,455	770	1,381	870	1,406	700	**6,585**	4,220
1600 ACFT Proj.	0	90	0	180	0	90	0	80	0	170	0	80	**0**	690
Total	***5,500***	***10,690***	***10,081***	***13,530***	***12,777***	***16,020***	***12,176***	***16,130***	***10,895***	***15,390***	***9,046***	***11,370***	***60,475***	***83,130***

	October		November		December		January		February		March		TOTAL Oct-Mar		TOTAL Apr-Mar	
Use	**1981**	**2024**	**1981**	**2024**	**1981**	**2024**	**1982**	**2025**	**1982**	**2025**	**1982**	**2025**	**81-82**	**2025**	**81-82**	**24-25**
Irrigation	263	0	0	0	0	0	0	0	0	0	14	10	**277**	10	**46,680**	50,400
Stockwater	1,065	870	1,045	810	1,050	810	1,007	740	1,010	700	1,098	860	**6,275**	4,790	**13,762**	10,840
E / M	0	440	0	380	0	280	0	310	0	40	0	130	**0**	1,580	**0**	9,920
LORP	0	950	0	240	0	190	0	10	0	10	0	70	**0**	1,470	**0**	14,910
Rec. & Wildlife	781	910	713	640	565	570	478	360	342	430	447	330	**3,326**	3,240	**9,911**	7,460
1600 ACFT Proj.	0	180	0	140	0	130	0	150	0	140	0	170	**0**	910	**0**	1,600
Total	***2,109***	***3,350***	***1,758***	***2,210***	***1,615***	***1,980***	***1,485***	***1,570***	***1,352***	***1,320***	***1,559***	***1,570***	***9,878***	***12,000***	***70,353***	***95,130***

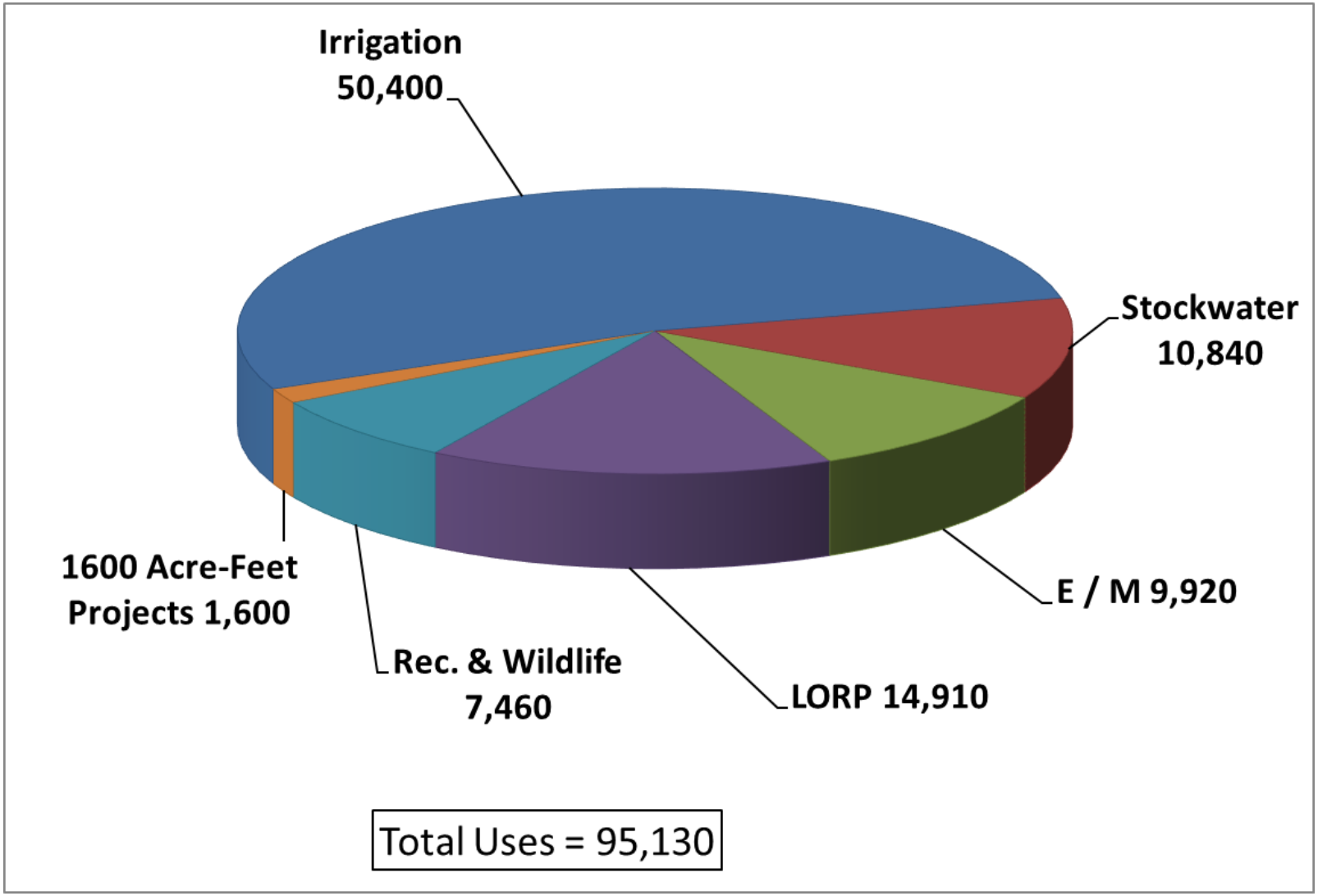


Figure 1.11. Distribution of Planned Water Use in Owens Valley on City-Owned Lands for 2023-24 RY

Table 1.9. Owens Valley Groundwater Pumping and E/M Water Use (1992-93 through 2023-24 RY (AF))

Runoff Year	Owens River Basin Runoff (1)	Total Pumping	Non-E/M Pumping	E/M Pumping	E/M Water Uses	E/M Pumping & Use Imbalance	Cumulative E/M Pumping & Use Imbalance
1992-93	62%	84,453	70,688	13,765	18,357	-4,592	-9,319
1993-94	108%	76,329	67,338	8,991	19,310	-10,319	-19,638
1994-95	67%	89,219	78,209	11,010	20,812	-9,802	-29,440
1995-96	156%	69,752	57,180	12,572	22,943	-10,342	-39,782
1996-97	137%	74,904	57,981	16,923	23,949	-7,026	-46,808
1997-98	126%	66,914	52,760	14,154	21,608	-7,346	-54,154
1998-99	151%	51,574	47,353	4,221	19,672	(3)	-54,154
1999-00	90%	63,675	59,342	4,333	24,452	-20,117	-74,271
2000-01	85%	67,795	61,456	6,339	20,782	-14,272	-88,543
2001-02	84%	73,349	70,055	3,294	21,815	-18,521	-107,064
2002-03	68%	81,979	76,059	5,920	21,394	-15,474	-122,538
2003-04	83%	87,727	80,729	6,998	21,116	-14,118	-136,656
2004-05	78%	85,820	78,110	7,710	18,918	-10,617	-147,273
2005-06	138%	56,766	51,695	5,071	20,032	-14,285	-161,558
2006-07	148%	58,621	53,925	4,696	17,357	(3)	-161,558
2007-08	61%	60,338	53,413	6,925	11,565	-4,640	-166,198
2008-09	75%	68,149	60,231	7,918	10,646	-2,728	-168,926
2009-10	79%	64,138	57,946	6,192	10,697	-4,505	-173,431
2010-11	104%	78,171	71,156	7,015	10,407	-3,392	-176,823
2011-12	142%	91,728	84,394	7,334	11,462	-4,128	-180,951
2012-13	58%	88,308	82,653	5,655	9,257	-3,602	-184,553
2013-14	54%	79,221	74,090	5,131	8,222	-3,091	-187,644
2014-15	53%	66,561	60,671	5,890	9,520	-3,630	-191,274
2015-16	48%	70,273	65,149	5,124	8,265	-3,141	-194,415
2016-17	82%	75,340	70,070	5,270	10,967	-5,697	-200,112
2017-18	202%	47,443	44,466	2,977	11,652	(3)	-200,112
2018-19	98%	84,709	77,758	6,951	9,895	-2,944	-203,056
2019-20	155%	53,453	49,722	3,731	11,196	(3)	-203,056
2020-21	75%	73,314	64,389	8,925	9,311	-386	-203,442
2021-22	47%	62,410	55,813	6,597	10,223	-3,626	-207,068
2022-23	58%	66,185	59,342	6,843	9,812	-2,969	-210,037
2023-24	214%	35,585	33,702	1,883	12,791	(3)	-210,037
2024-25	*103%*	*(2)*		*7,000*	*9,920*	*-2,920*	-212,957

(1) Based on applicable 50-year mean

(2) Planned pumping range is 51,470 - 77,415 acre-feet

(3) surface water was available

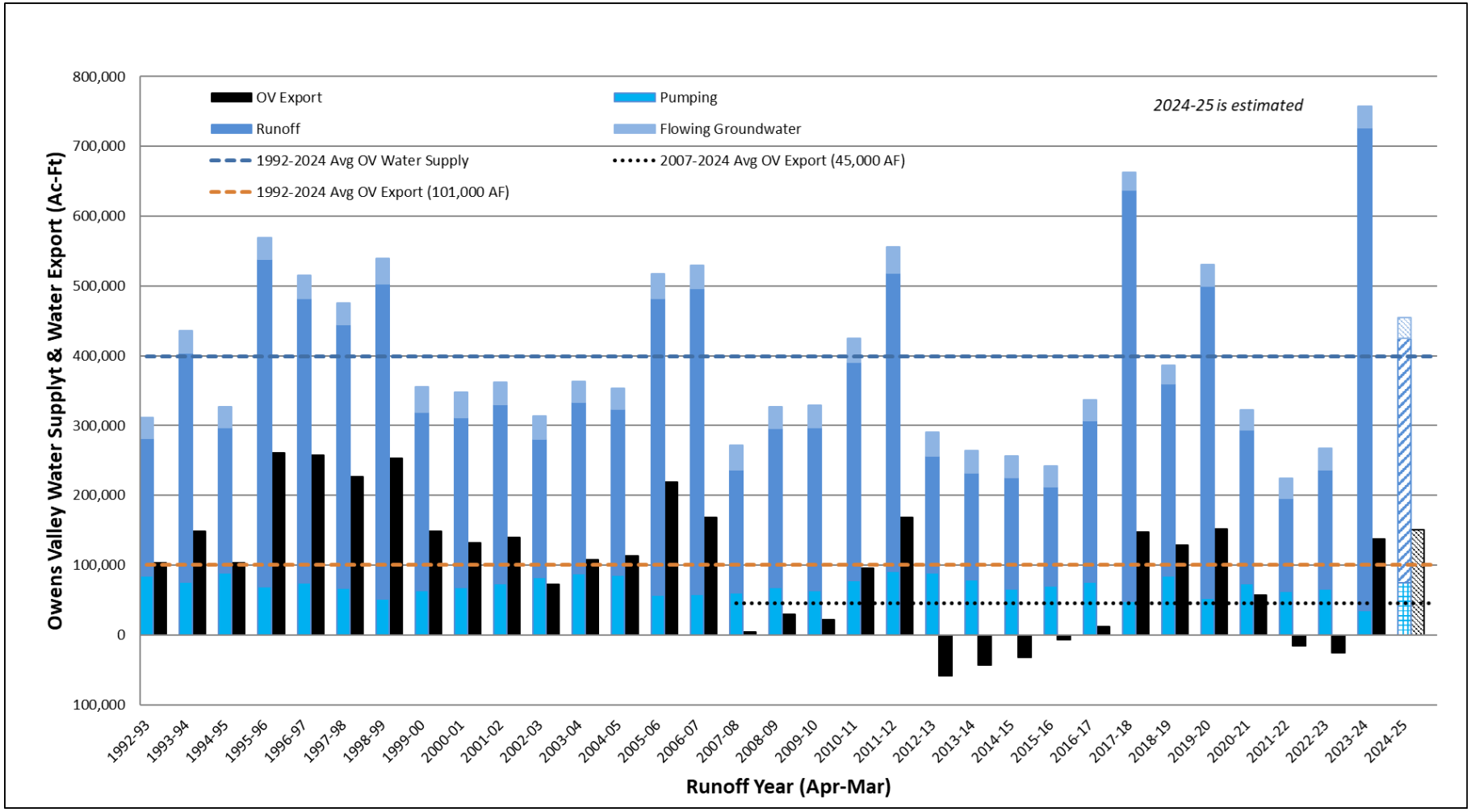
1.4. Aqueduct Operations

Table 1.10 shows planned LAA reservoir storage levels and monthly deliveries to Los Angeles. Based on this plan, approximately 301,000 AF will be exported from Eastern Sierra to the City during the 2024-25 RY. Approximately 151,000 AF of export will come from the Owens Valley water supply. Figure 1.12 shows the historical total Owens Valley water supply (made up of flowing groundwater, runoff, and pumping) alongside the amount of water exported to Los Angeles which comes from that total supply.

The 1991 EIR analyzed water supply for the LAA for pre-project conditions and for conditions under implementation of the Water Agreement. This analysis isolated the Owens Valley to determine what effect implementation of the Water Agreement would have on water supply for the LAA. Table S-1 of the 1991 EIR showed the components of aqueduct supply in average years during the pre-project and under the proposed project (1970-1990 and the Water Agreement). Calculations taken from Table S-1 show that prior to the building of the Second LAA in 1971, 38% of Owens Valley water supply was exported to Los Angeles on an annual basis. The 1991 EIR projected 44% of Owens Valley Water Supply being exported to Los Angeles annually. However, since implementation of the Water Agreement, on average, 26% of the Owens Valley water supply has been exported to Los Angeles.

Table 1.10. Planned LAA Operations for 2024-25 RY

Month	Owens Valley-Bouquet Reservoir Storage 1st of month Storage (acre-feet)	Exports from Eastern Sierra (acre-feet)
April, 2024	*245,000*	*13,000*
May	*230,000*	*39,000*
June	*211,000*	*34,000*
July	*206,000*	*40,000*
August	*206,000*	*25,000*
September	*192,000*	*25,000*
October	*172,000*	*38,000*
November	*160,000*	*24,000*
December	*161,000*	*22,000*
January, 2025	*171,000*	*8,000*
February	*194,000*	*16,000*
March	*200,000*	*17,000*
TOTAL	***-45,000***	***301,000***



Note: The blue bar made up of Runoff, Flowing Groundwater, and Pumping is the Owens Valley water supply.
The black bar is the amount of the Owens Valley water supply exported to Los Angeles. The black bar is below 0 in certain RYs because the Owens Valley uses exceeded the supply and imported water was used to meet the water demands.

Figure 1.12 Owens Valley Water Supply and Export

1.5. Water Exports to Los Angeles

Figure 1.13 provides a record of water exports from the Eastern Sierra to Los Angeles since 1970. Figure 1.14 shows the LAA contribution to the City water supply relative to other sources and the total annual water supplied to Los Angeles since 1970. LADWP estimates that the City will require about 450,000 AF of water during the 2024-25 RY Water from the Owens Valley will make up 34% of the 2024-25 supply for Los Angeles, while water from the entire Eastern Sierra will make up about 65% of the total supply. Los Angeles area aquifers will supply about 12%, MWD will supply about 20%, and recycled water will supply about 3%.

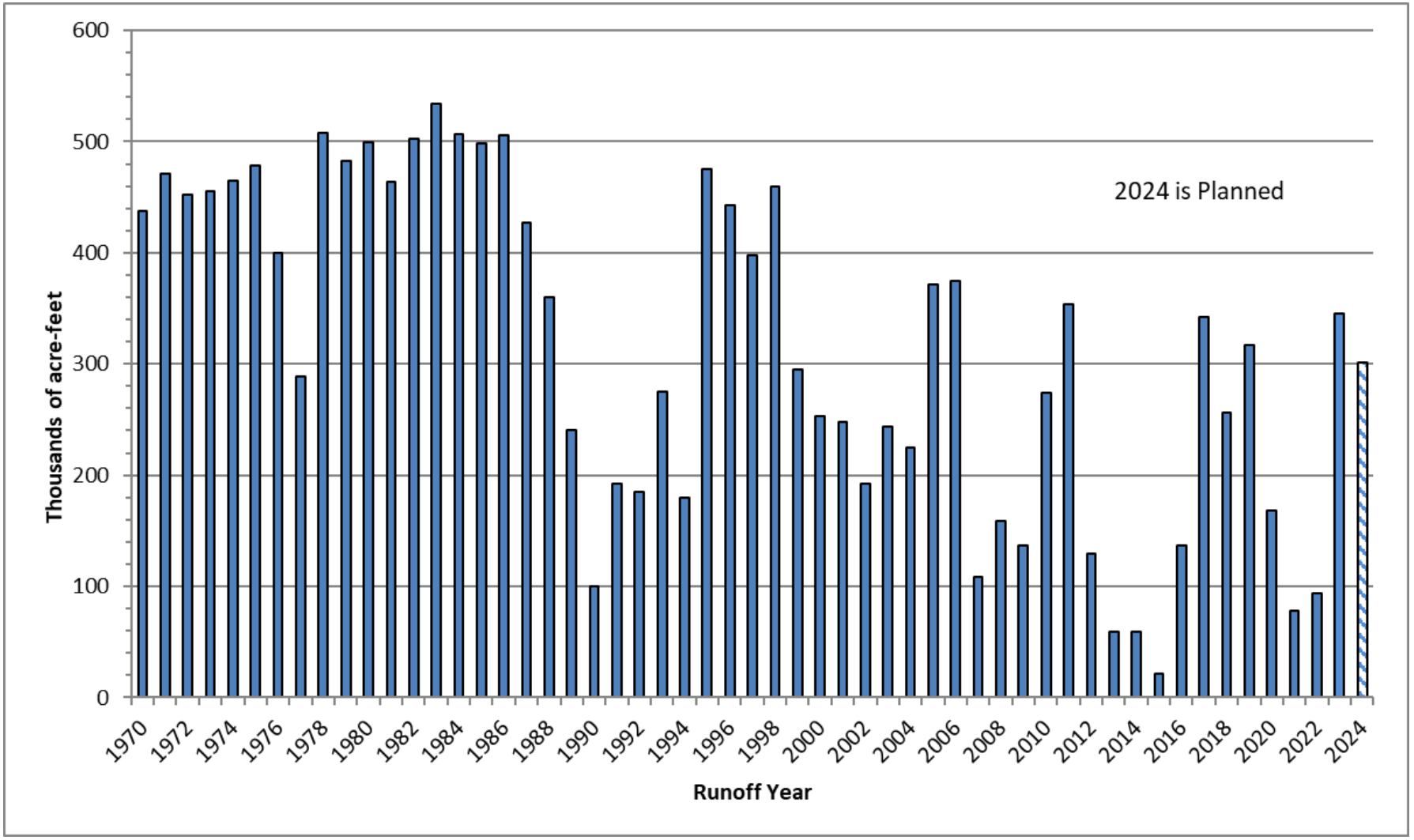


Figure 1.13. Water Export from the Eastern Sierra

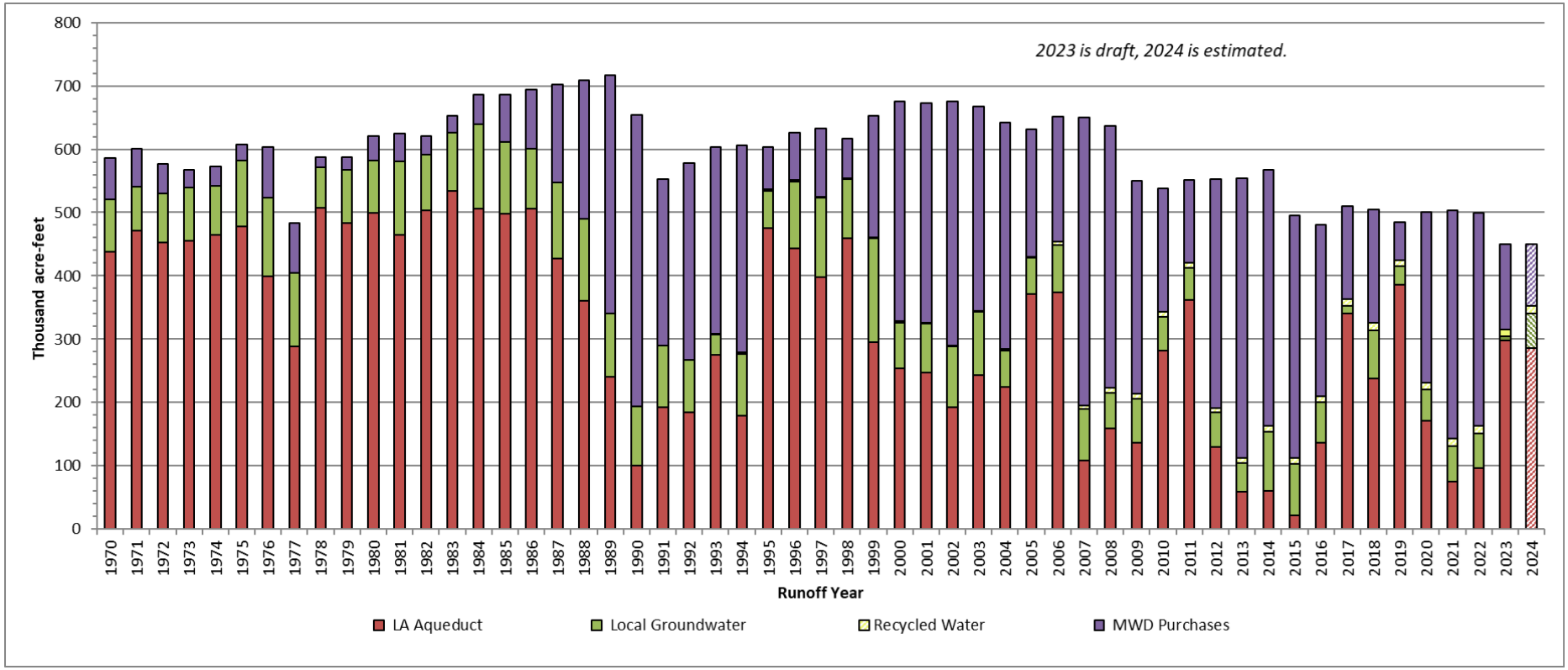


Figure 1.14. Sources of Water for the City

1.6. Water Spreading in the Owens Valley

In years with much greater than normal snowmelt, the volume of runoff may at times exceed the capacity of the LAA system. During periods of high runoff, LADWP may spread runoff water for groundwater recharge purposes. In addition, other operational needs may require LADWP to spread water.

The overall estimated Eastern Sierra snowpack as of April 1, 2024, is 97% of normal, and the forecasted runoff for the Owens River Basin is about 419,300 AF or 103% of the 50-year average. Due to the historic snowpack and runoff in 2023, which left LADWP reservoirs at capacity for the start of the 2024 runoff, LADWP has already spread water in early April. Further water spreading is anticipated during the remainder of April and perhaps into May or June, but it is unlikely to occur later in the year unless temperatures, precipitation, available LAA capacity, and operational needs dictate the need to do so.

CONDITIONS IN THE OWENS VALLEY

2.0 CONDITIONS IN THE OWENS VALLEY

As of April 1, 2024, the Eastern Sierra overall snowpack was measured to be 97% of normal (Table 2.5). Owens River Basin runoff during the 2024-25 RY is forecast to be 419,300 AF or approximately 103% of normal (Section 1, Table 1.1). Owens Valley floor precipitation during the 2023-24 RY was about 159% of average (Table 2.6). Overall, vegetation cover in the Owens Valley is comparable to mid-1980s baseline conditions. A graphical summary of Owens Valley conditions is provided in Figure 2.1. Groundwater levels are generally stable in most areas of the valley, based on depth to water in selected monitoring wells in each of LADWP's nine wellfields, as shown in Figures 2.2 through Figure 2.10.

2.1. Well ON/OFF Status

The Water Agreement includes the vegetation protection provisions of linking pumping wells to specific monitoring sites. If the available soil moisture measured at a vegetation monitoring site is not sufficient to meet the estimated demands of the vegetation associated with that monitoring site, the wells linked to that site are designated as being in the OFF status and may not be operated. The wells linked to a monitoring site may be operated if the available soil water is determined to be sufficient to have met the estimated water requirements of the vegetation at the time that the associated wells were designated as being in the OFF status. The Green Book includes the complete well ON/OFF procedures. Table 2.1 lists Owens Valley monitoring site ON/OFF status as of April 2023, the monitoring wells associated with each monitoring site, and the linked pumping wells.

Some pumping wells are designated as exempt from linkage to vegetation sites and the ON/OFF provisions of the Water Agreement because they are in areas that do not cause significant adverse impacts to the vegetation or because the County and LADWP have determined them to be a necessary source of water. A list of exempt wells and the reasons for exemption are included in Section 1, Table 1.5.

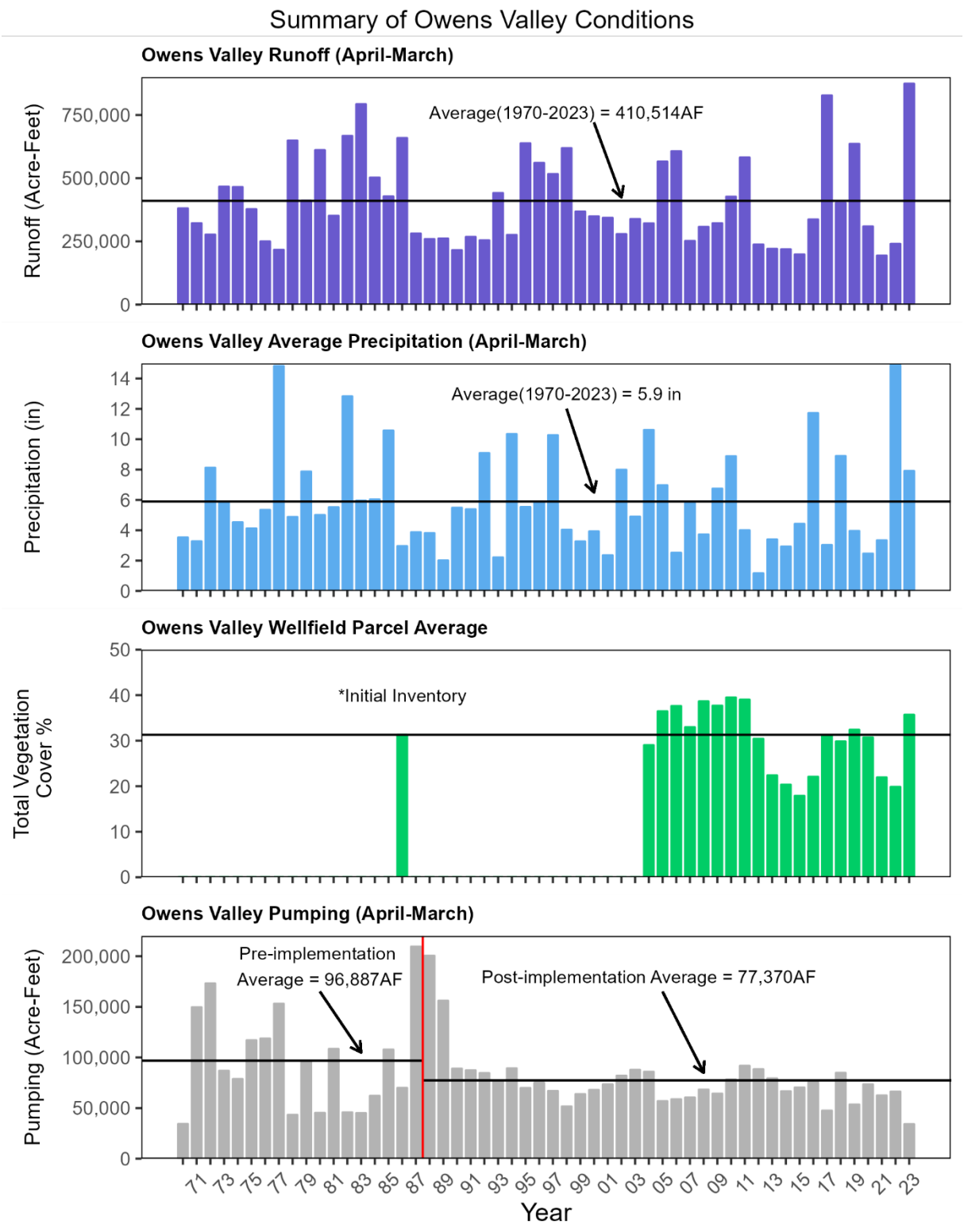


Figure 2.1. Summary of Owens Valley Conditions

Table 2.1. Owens Valley Monitoring Site Status (ON/OFF) as of April 2023

Wellfield	Monitoring Site	Monitoring Well	Pumping Wells	E/M Wells	ON/OFF Status
Laws	L1	795T	247, 248, 249, 398		ON
	L2	USGS 1	236*, 239, 243, 244		ON
	L3		240, 241, 242	376, 377	ON
	L4a, L4b			385, 386	na
	L5**		245	387, 388	na
	Exempt		236*, 354, 422, 413		Exempt
Bishop	All wells		140, 411, 410, 371		na
			406, 407, 408, 412		na
Big Pine	BP1	798T	210, 352	378, 379, 389	ON
	BP2	799T	220, 229, 374		OFF
	BP3	567T	222, 223, 231, 232		ON
	BP4	800T	331		ON
	Exempt		218, 219, 330, 332, 341, 352, 375, 415		Exempt
Taboose-Aberdeen	TA3	505T	106, 110, 111, 114		ON
	TA4	586T	342, 347		ON
	TA5	801T	349		ON
	TA6	803T	109, 370		ON
	Exempt		118		Exempt
Thibaut-Sawmill	TS1	807T	159		ON
	TS2	T806	155		ON
	TS3	454T	103, 104	382	ON
	TS4	804T		380, 381	ON
	Exempt		351, 356		Exempt
Independence-Oak	IO1	809T	391, 400		ON
	IO2	548T	63		ON
	Exempt		59, 60, 61, 65, 401, 357, 384*	383, 384	Exempt
Symmes-Shepherd	SS1	USGS 9G	69, 392, 393		ON
	SS2	646T	74, 394, 395		OFF
	SS3	561T	92, 396		ON
	SS4	811T	75, 345		ON
	Exempt			402	Exempt
Bairs-Georges	BG2	812T	76, 343*, 348, 403		ON
	Exempt		343*		na
Lone Pine	Exempt		344, 346	425	Exempt
	Other		416		na

2.2. Groundwater Level Fluctuations

LADWP's Water Operations hydrographers monitor groundwater levels in over 900 monitoring wells throughout the Owens Valley regularly, which has allowed the evaluation of groundwater levels since the early 1970s when LADWP began to utilize groundwater resources on a more consistent basis. This section presents hydrographs of the average groundwater levels in each wellfield and overall, in the Owens Valley.

Groundwater levels in select monitoring wells were used to calculate the average groundwater level in each wellfield. Four monitoring wells were selected per wellfield, listed in Table 2.2 using the following criteria: 1) be representative of the shallow aquifer that support vegetation, 2) be located spatially distributed throughout the wellfield, and 3) have groundwater level measurements back to the early 1970s.

Table 2.2 Selected Monitoring Wells in Each Wellfield Used to Prepare Hydrographs

Wellfield	Monitoring Wells
Laws	*T107, T436, T438, T490*
Bishop	*T389, T390, T485, T501*
Big Pine	*T425, T426, T469, T470*
Taboose-Aberdeen	*T417, T419, T421, T502*
Thibaut-Sawmill	*T413, T414, T415, T454*
Independence-Oak	*T406, T408, T412, T453*
Symmes-Shepherd	*T402, T403, T440, T511*
Bairs-George	*T398, T400, T444, T652** **Previously V087*
Lone-Pine	*T446, V015N, V172, V256*

A summary of the data analyzed is presented in Table 2.3, showing average wellfield pumping, Owens River Basin runoff, and DTW, for the 1991 through 2022-23 RYs.

The last row of the table shows the same information for the entire Owens Valley based on the data from all of the monitoring wells in Table 2.2.

Table 2.3 Average Annual Pumping and Depth to Groundwater since 1991 RY

Wellfield	Average (1991-2023 RYs)	
	Pumping (AF/Year)	Depth to Groundwater§ (FT)
Laws	*6,762*	*15.6*
Bishop	*9,281*	*12.2*
Big Pine	*22,333*	*16.7*
Taboose-Aberdeen	*7,722*	*20.4*
Thibaut-Sawmill	*11,465*	*12.1*
Independence-Oak	*8,120*	*5.5*
Symmes-Shepherd	*2,893*	*6.5*
Bairs-George	*662*	*6.9*
Lone Pine	*1,121*	*17.5*
Owens Valley	***70,359***	***12.7***

§ Average distance to water from surface is calculated using 1992-2024 April 1 values.

* Average 1991-2023 ROYs Owens River Basin Runoff is 403,790 acre-feet.

† Based on data from select monitoring wells presented in Table 2.2.

The following figures show graphically the change in average groundwater level with Owens River Basin runoff and pumping for each of the wellfields and for the overall Owens Valley from the early 1970s to the 2021 RY. These figures also show the correlation coefficient of the average wellfield groundwater levels with both runoff and pumping. The correlation coefficient (r-value) represents the statistical relationship between two variables and can vary between 0.0 and 1.0 for positively related variables and between -1.0 and 0.0 for negatively related variables. The closer the correlation coefficient is to 1.0 or -1.0, the stronger the relationship between the two variables.

A review of Table 2.3 and the following wellfield and overall Owens Valley hydrographs shows that since the implementation of the Inyo/Los Angeles Water Agreement in 1991:

- Owens River Basin runoff has been highly variable, ranging from 194,000 af in 2021 to 883,000 af in 2023 and an average of 404,000 af/yr,

- LADWP pumping in Owens Valley was relatively stable, ranging from 35,000 af in 2023 to 91,000 af in 2011 and an average of 70,400 af/yr,

- Average Owens Valley groundwater level was generally stable, ranging from 7 to 17 feet below ground surface with an average of 12.7 ft below ground surface and without any long-term rising or declining trends,

- The year-to-year average groundwater level trend in Owens Valley has been relatively stable based on the calculated autocorrelation.

As presented in Figures 2.2 - 2.21, historical average groundwater levels in Owens Valley correlate positively with Owens River Basin Runoff (r = 0.68) and negatively with pumping (r = -0.61). Among all wellfields, groundwater levels in Lone Pine Wellfield correlated strongest with runoff (r = 0.77), while groundwater levels in Bishop Wellfield correlated weakest with runoff (0.46). Groundwater levels in Bairs-Georges Wellfield correlated strongest with pumping (r=-0.64), while groundwater levels in Lone Pine Wellfield correlated weakest with pumping (r=-0.12). Generally, average groundwater levels have a stronger correlation with runoff than pumping in all wellfields, except Taboose-Aberdeen, Symmes-Shepherd, and Bairs-Georges wellfields.

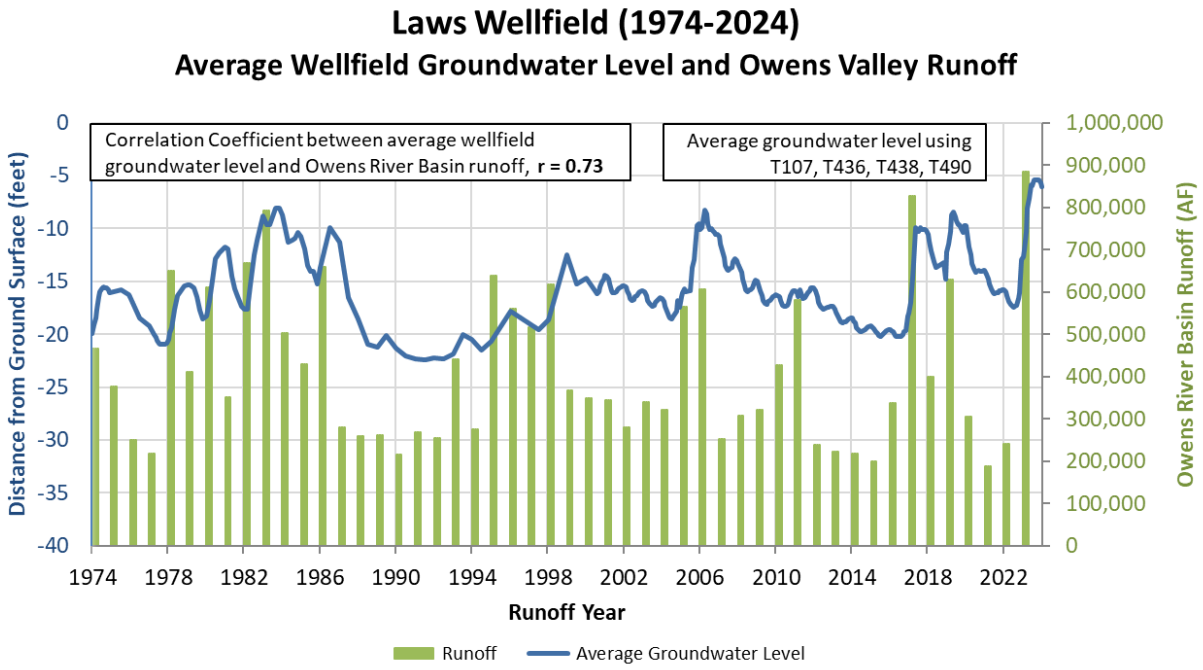


Figure 2.2. Average Laws Wellfield Groundwater Level and Owens River Basin Runoff

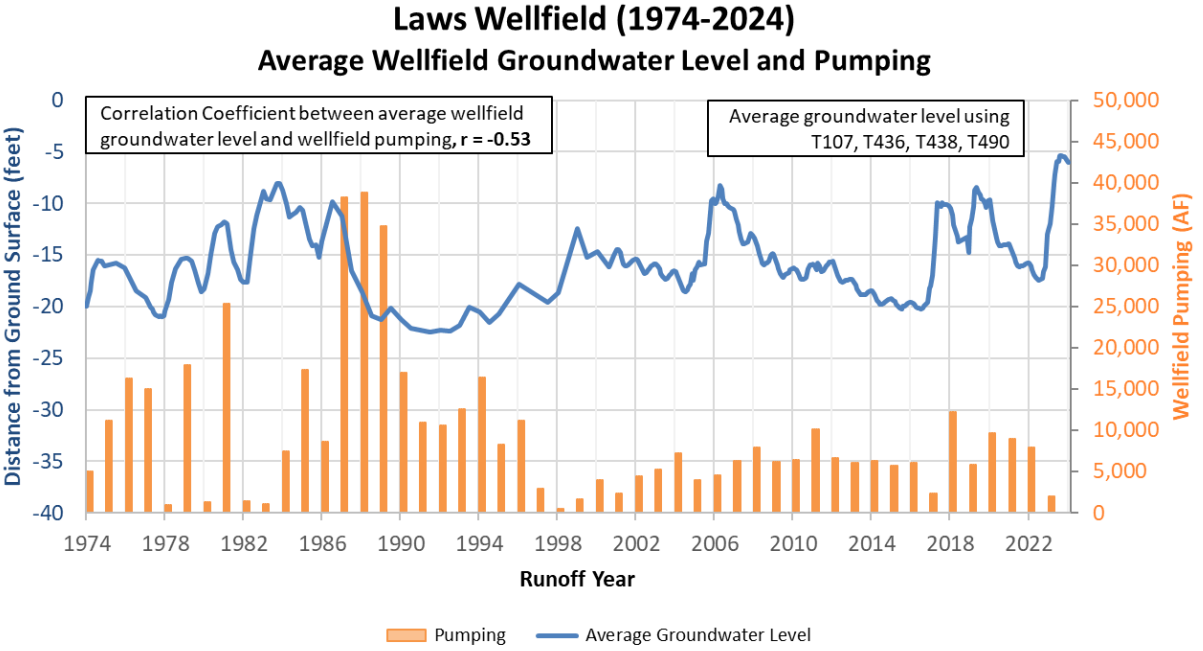


Figure 2.3. Average Laws Wellfield Groundwater Levels and Pumping

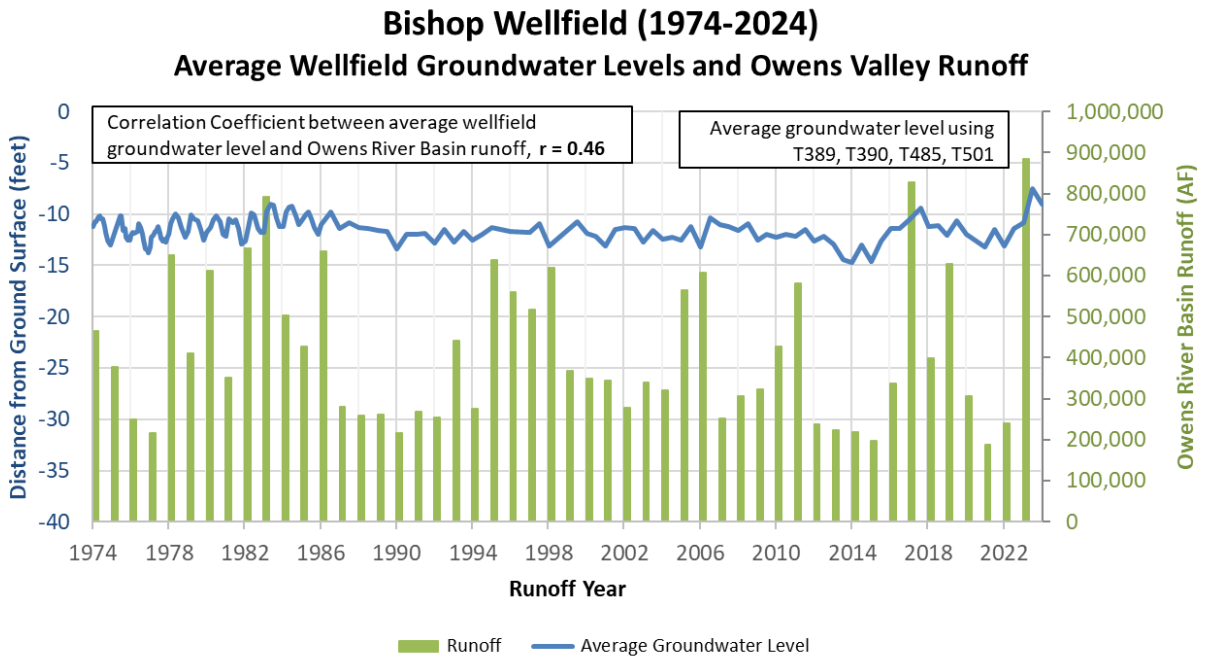


Figure 2.4. Average Bishop Wellfield Groundwater Level and Owens River Basin Runoff

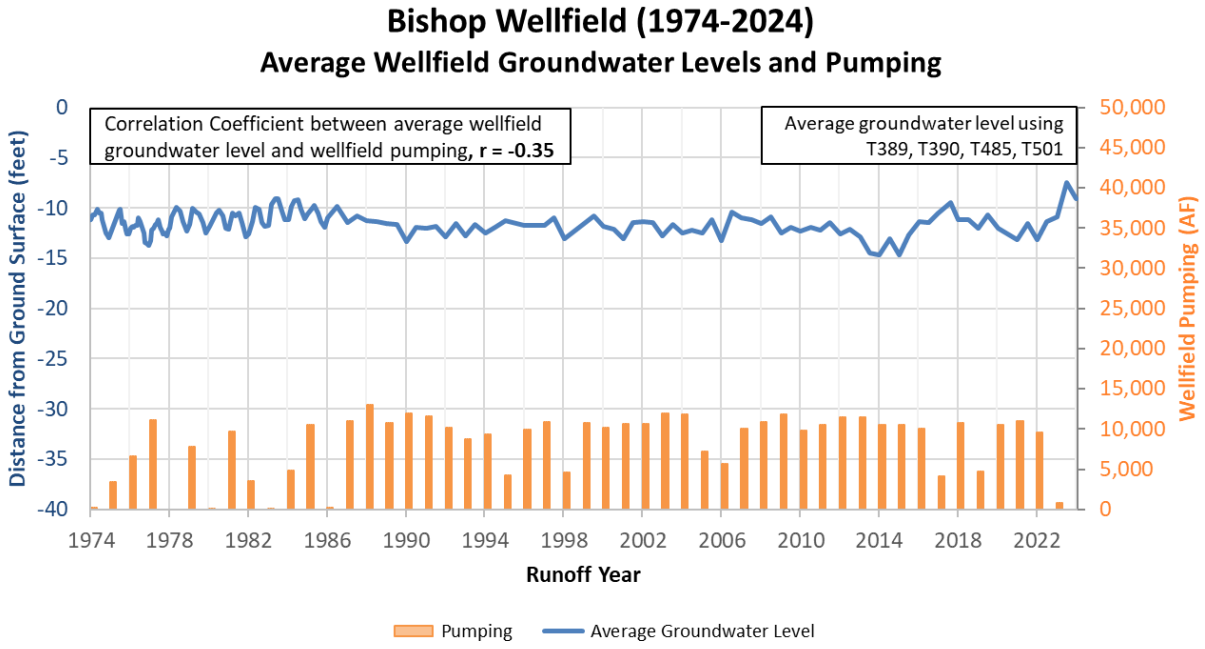


Figure 2.5. Average Bishop Wellfield Groundwater Levels and Pumping

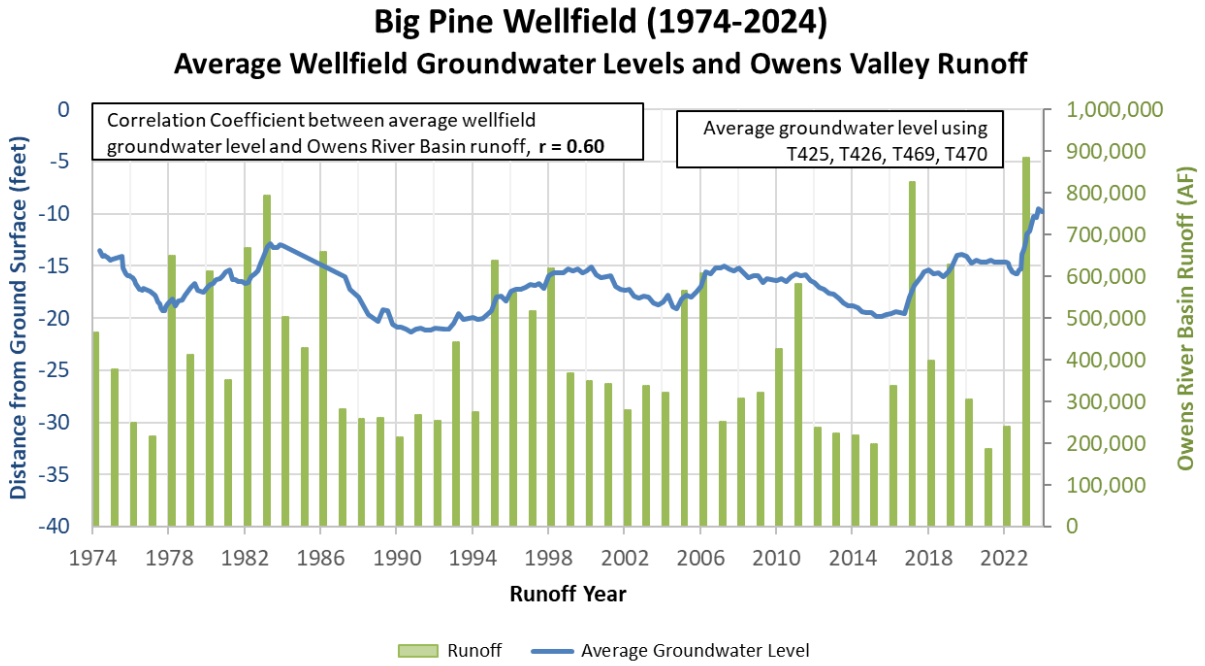


Figure 2.6. Average Big Pine Wellfield Groundwater Level and Owens River Basin Runoff

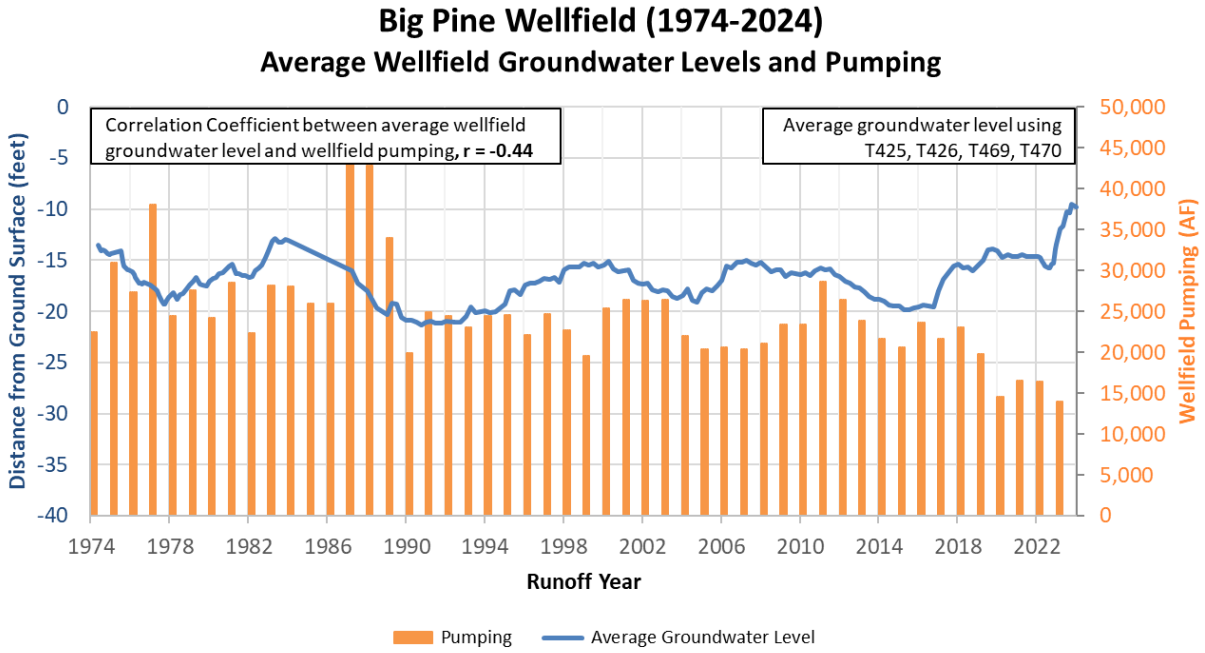


Figure 2.7. Average Big Pine Wellfield Groundwater Levels and Pumping

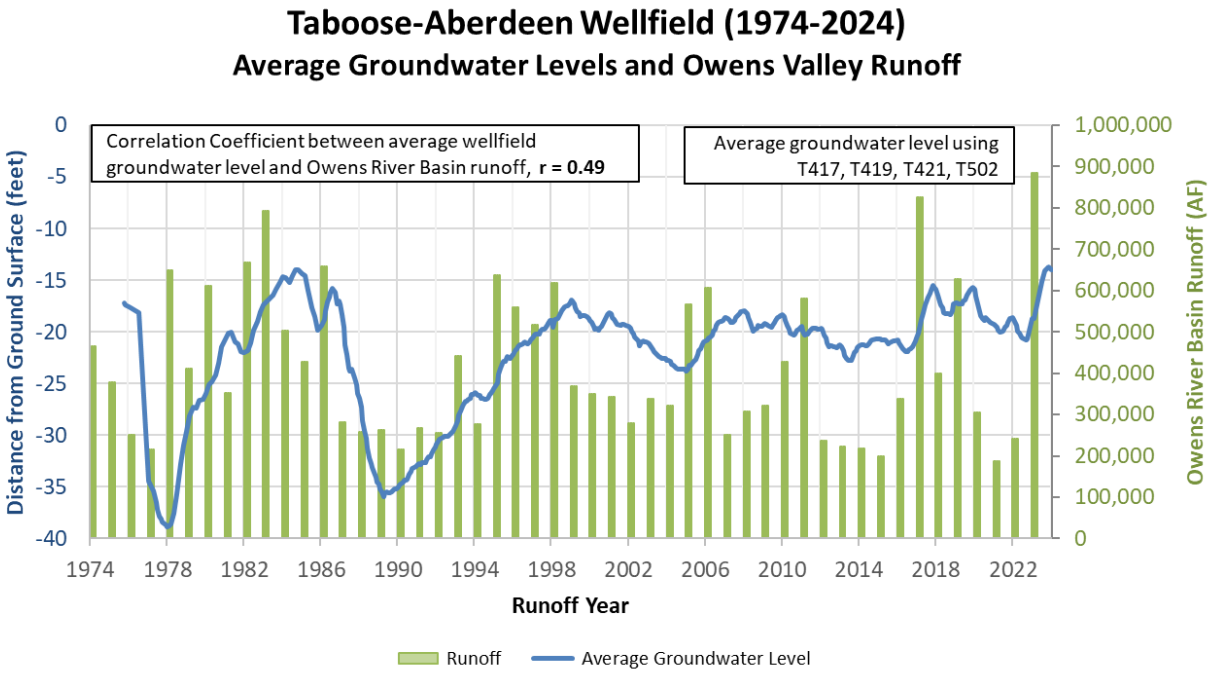


Figure 2.8. Average Taboose-Aberdeen Wellfield Groundwater Level and Owens River Basin Runoff

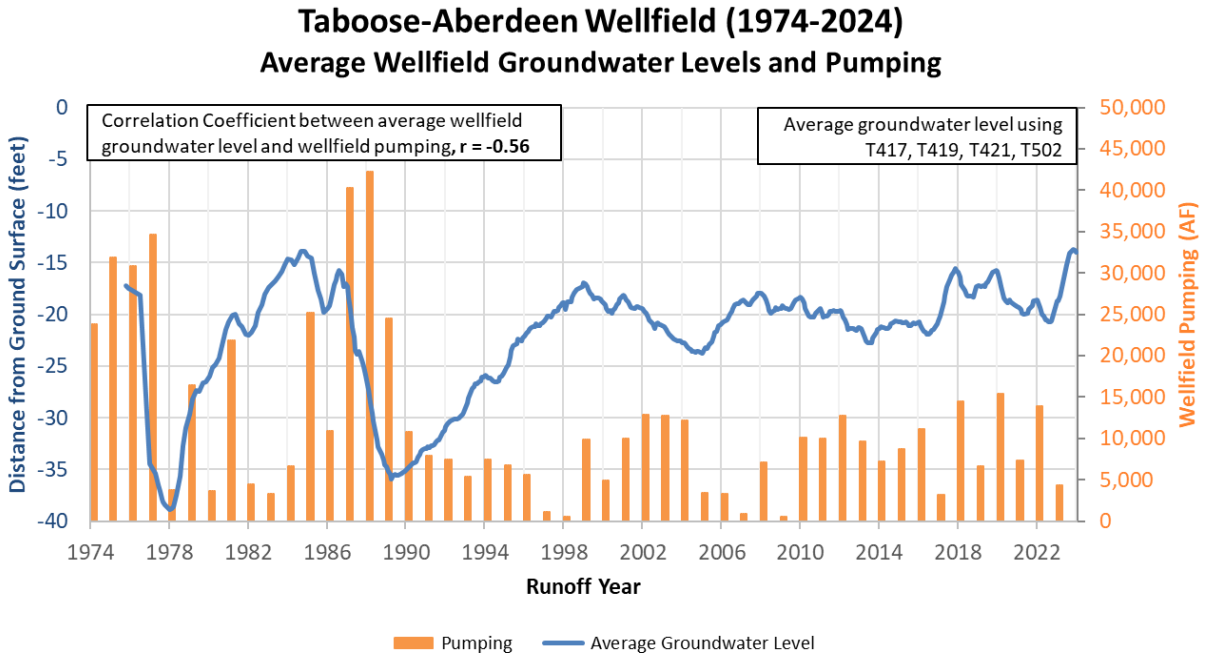


Figure 2.9. Average Taboose-Aberdeen Wellfield Groundwater Levels and Pumping

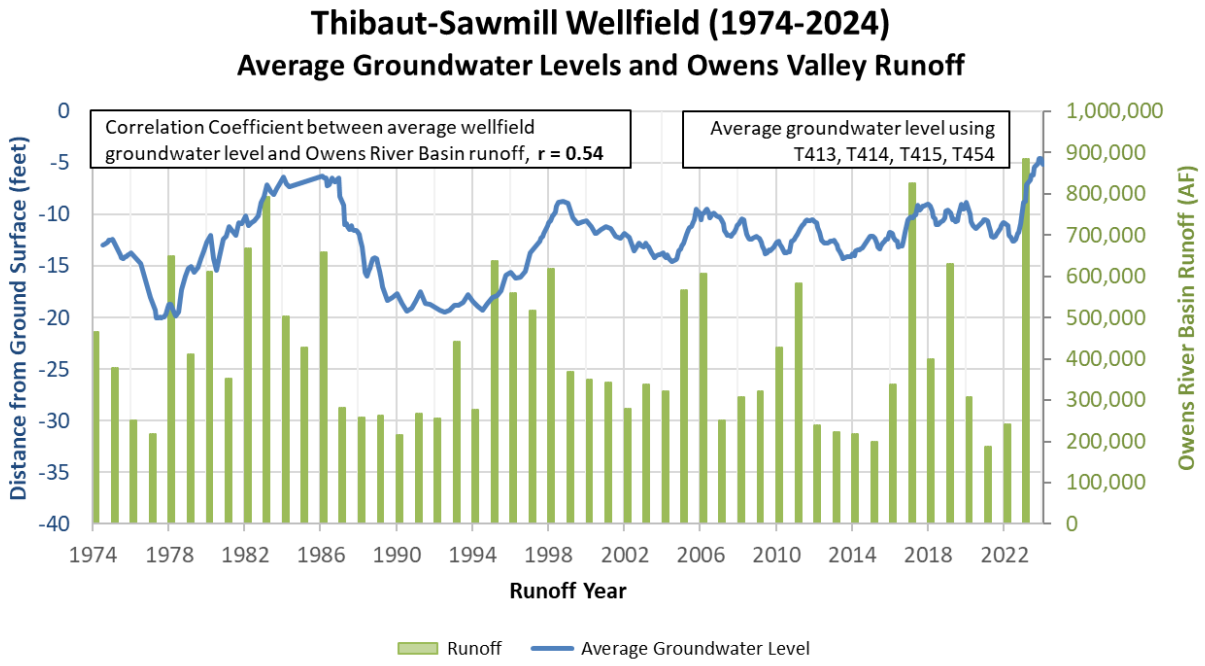


Figure 2.10. Average Thibaut-Sawmill Wellfield Groundwater Level and Owens River Basin Runoff

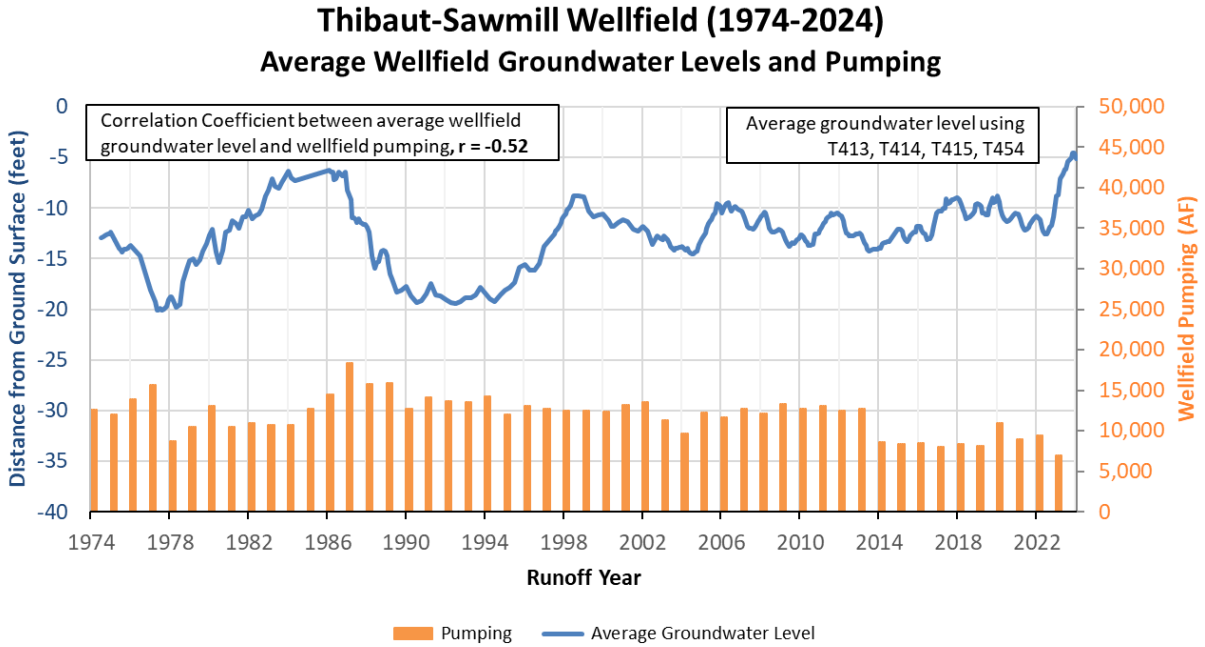


Figure 2.11. Average Thibaut-Sawmill Wellfield Groundwater Levels and Pumping

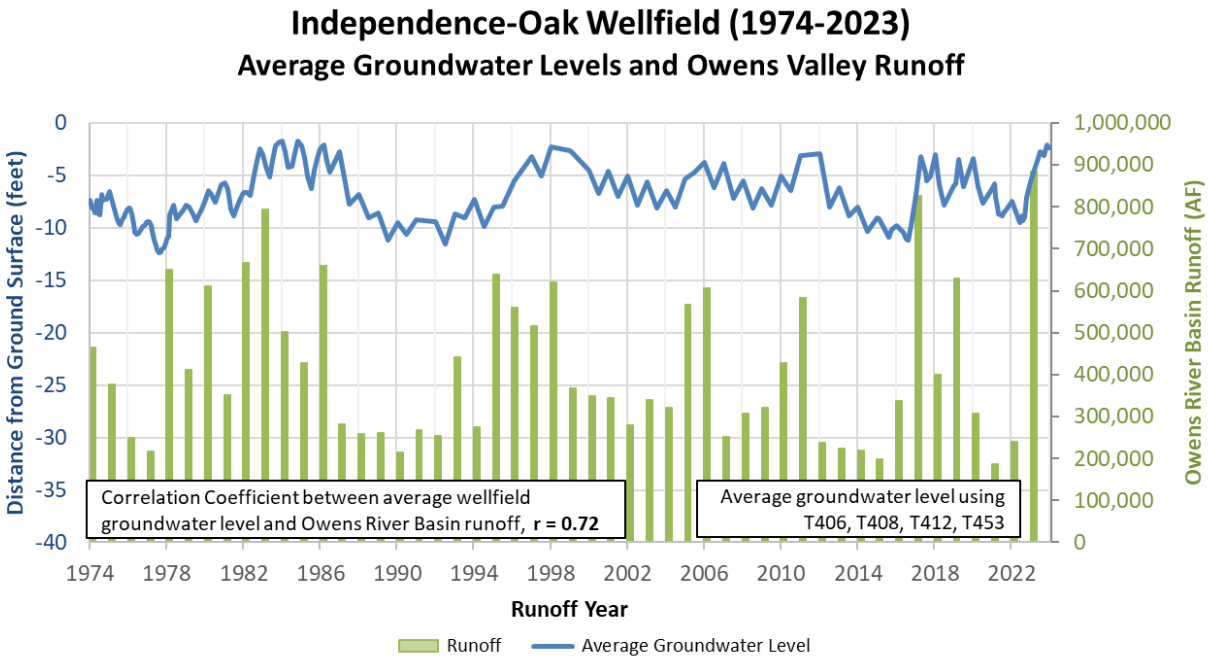


Figure 2.12. Average Independence-Oak Wellfield Groundwater Level and Owens River Basin Runoff

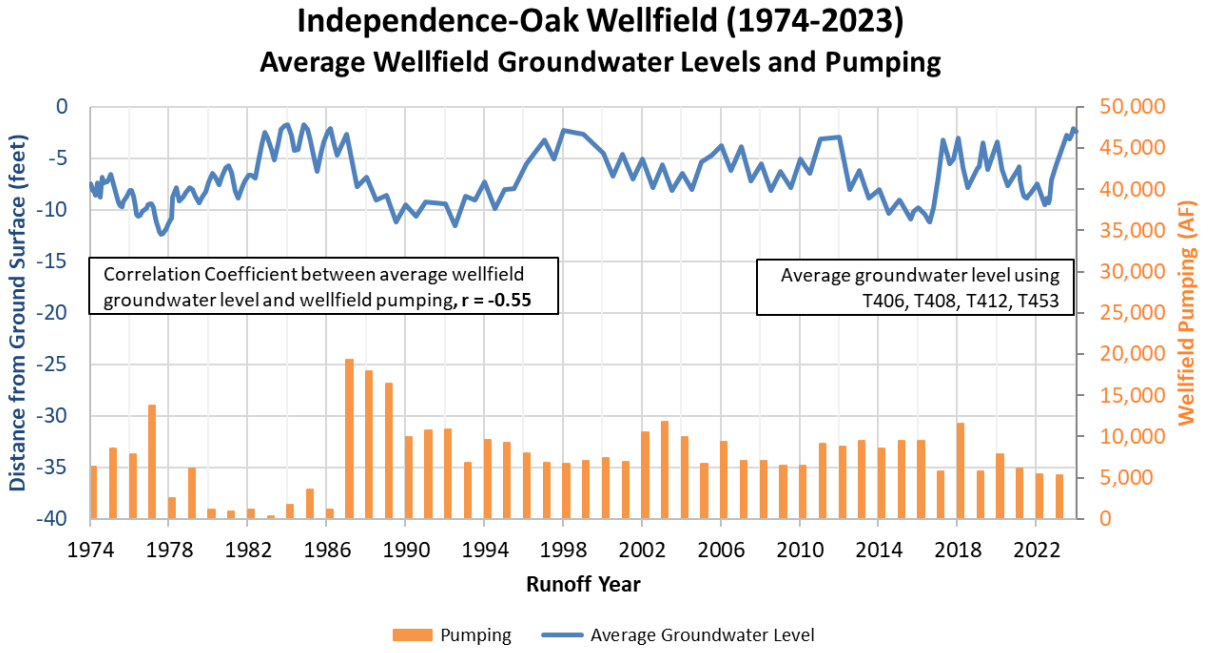


Figure 2.13. Average Independence-Oak Wellfield Groundwater Levels and Pumping

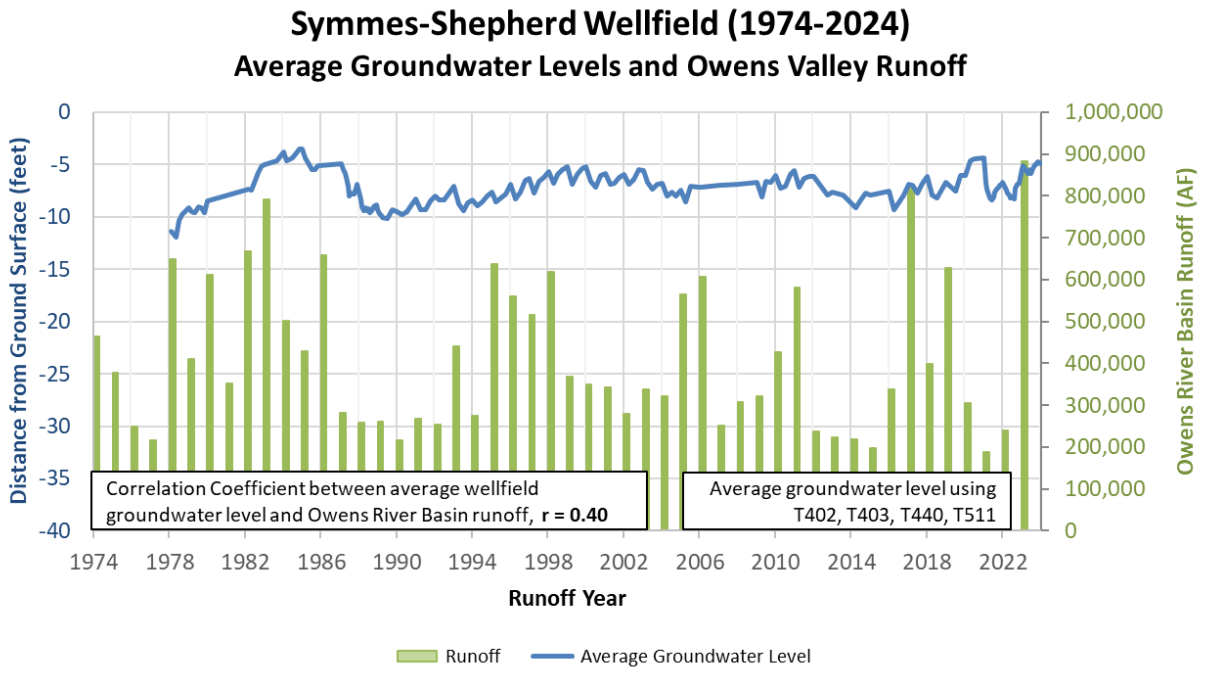


Figure 2.14. Average Symmes-Shepherd Wellfield Groundwater Level and Owens River Basin Runoff

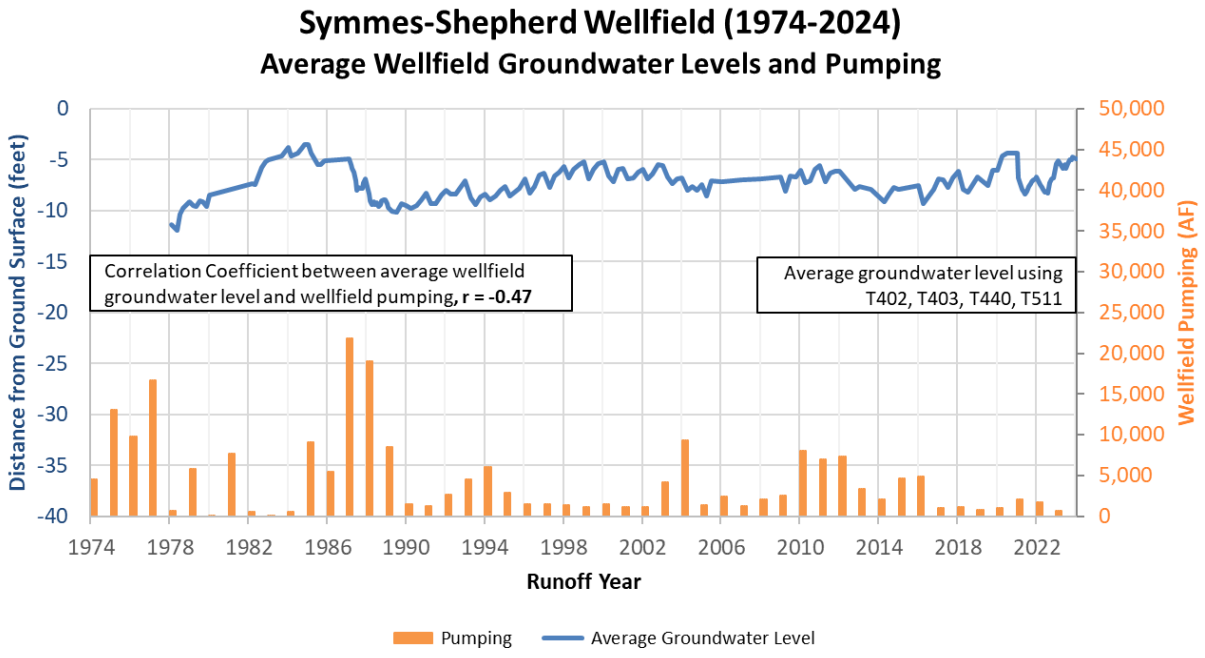


Figure 2.15. Average Symmes-Shepherd Wellfield Groundwater Levels and Pumping

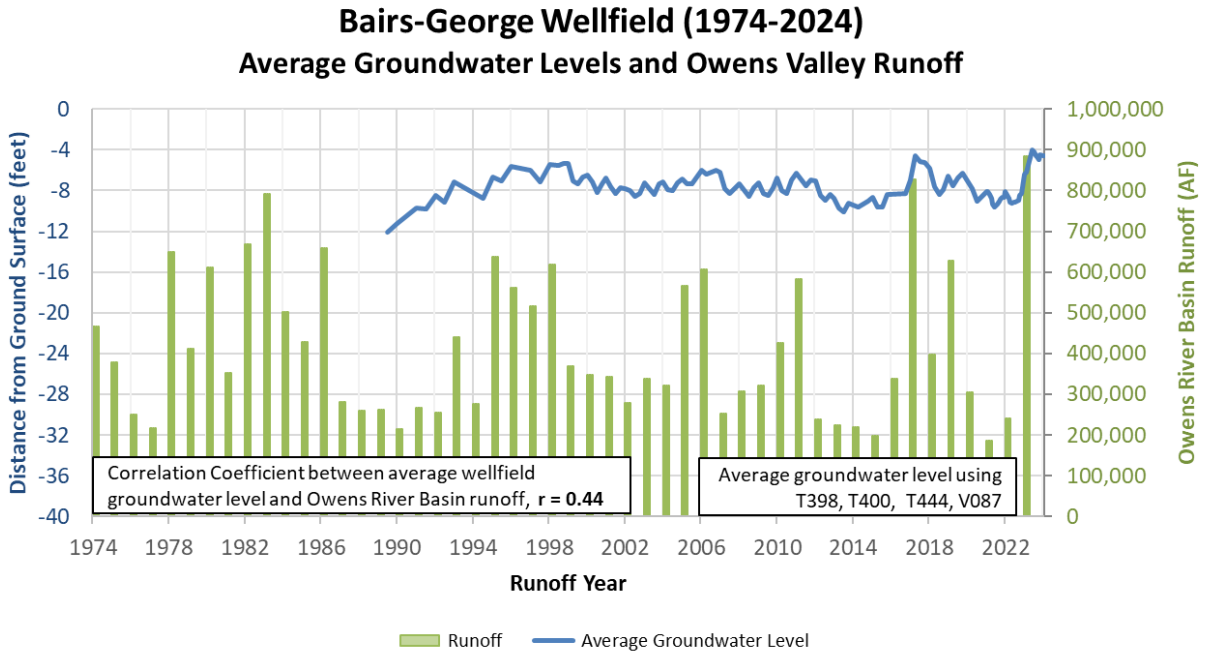


Figure 2.16. Average Bairs-George Wellfield Groundwater Level and Owens River Basin Runoff

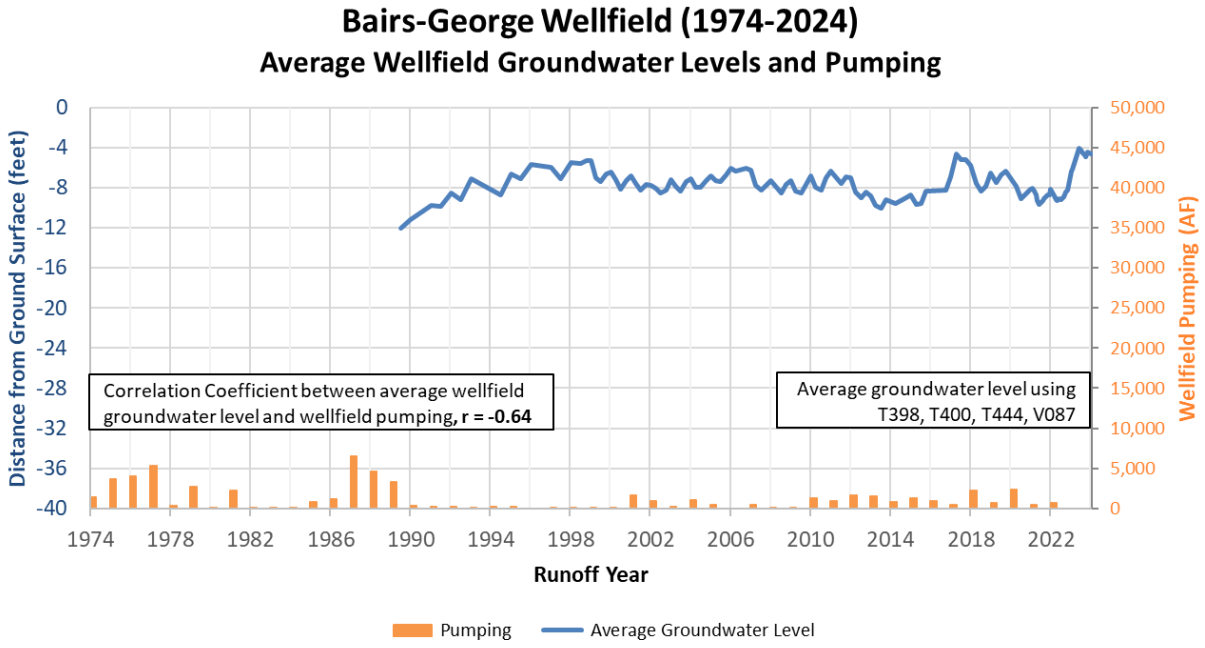


Figure 2.17. Average Bairs-George Wellfield Groundwater Levels and Pumping

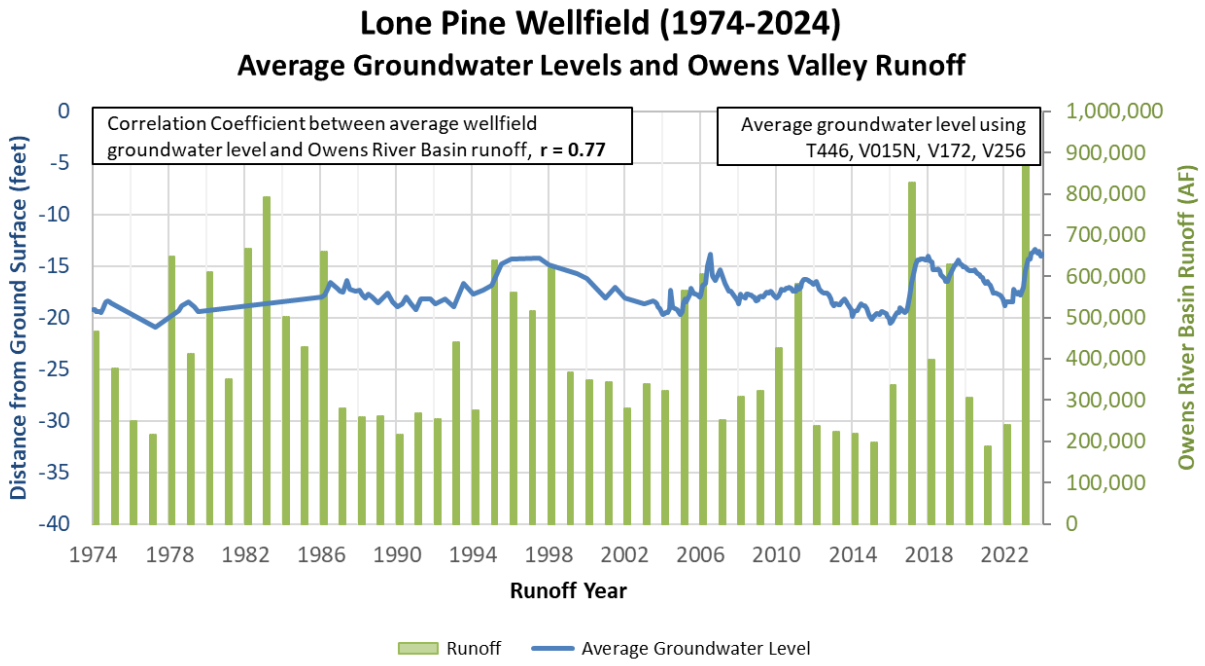


Figure 2.18. Average Lone Pine Wellfield Groundwater Level and Owens River Basin Runoff

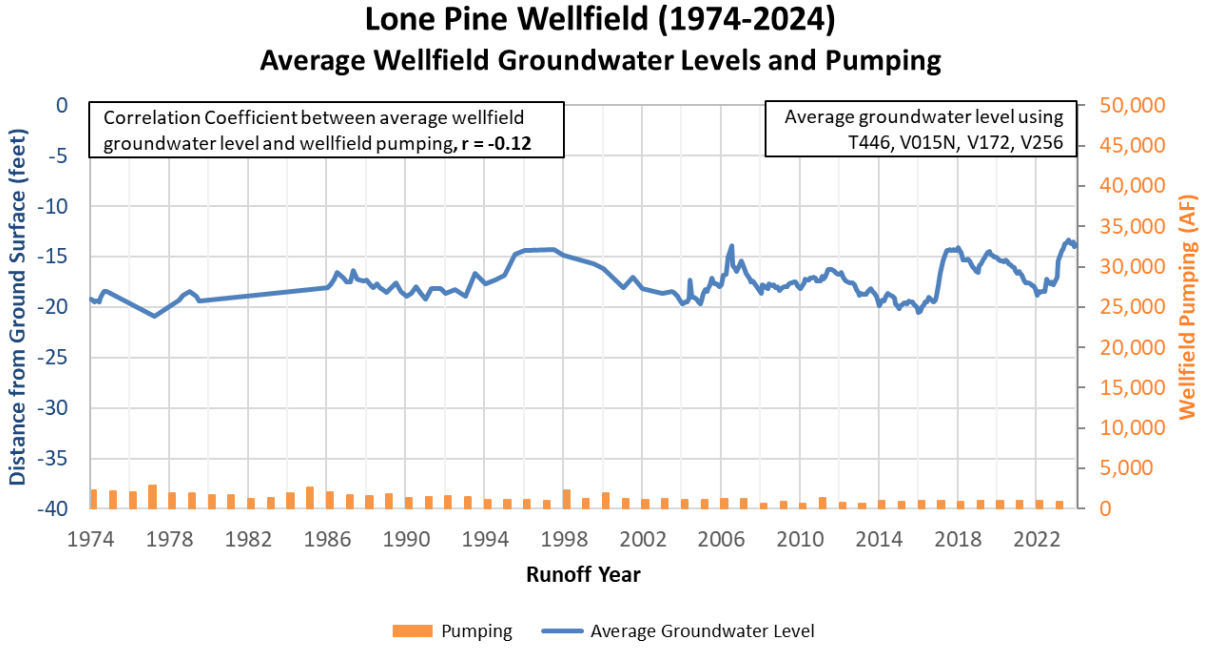


Figure 2.19. Average Lone Pine Wellfield Groundwater Levels and Pumping

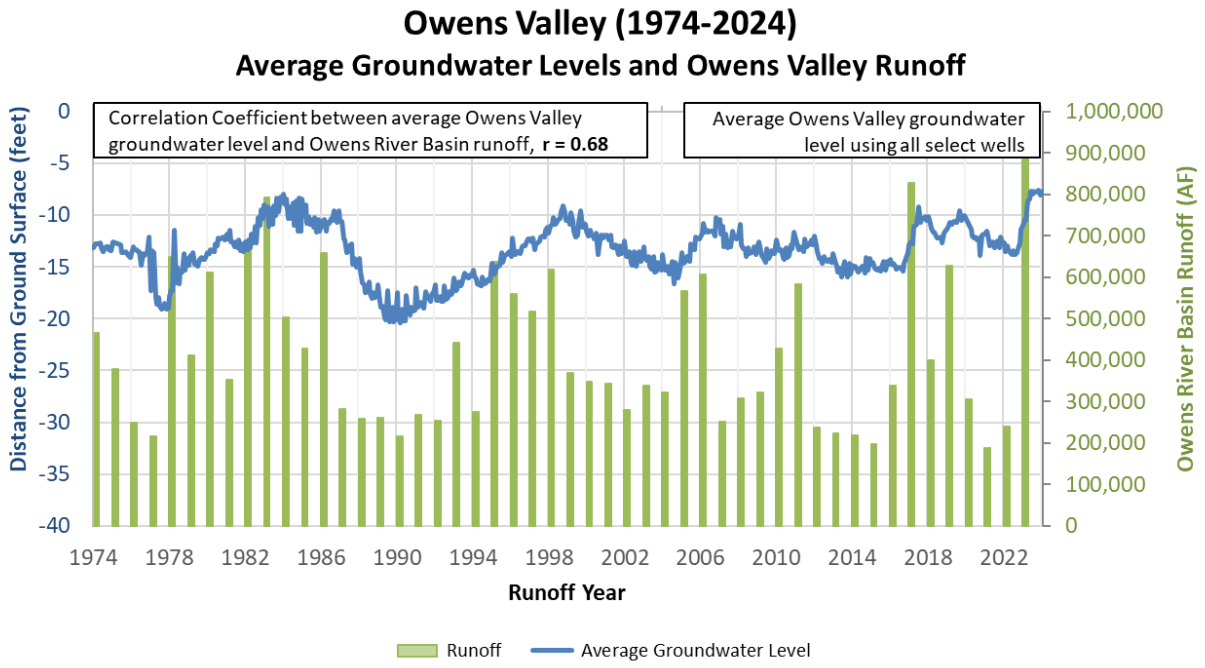


Figure 2.20. Average Owens Valley Groundwater Level and Owens River Basin Runoff

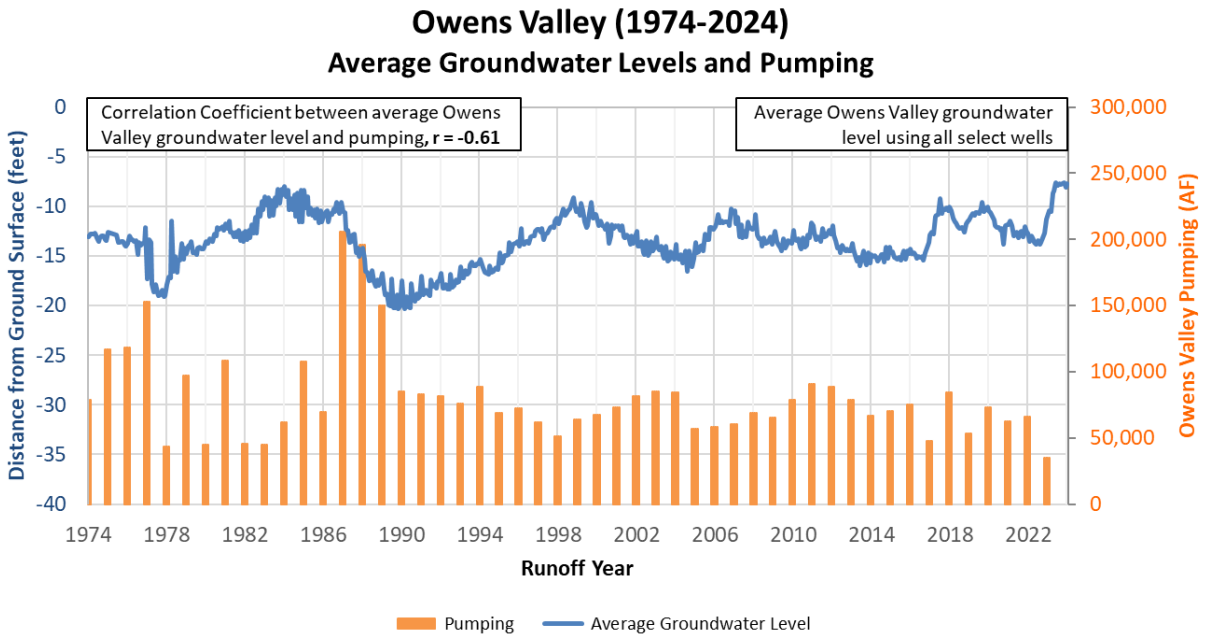


Figure 2.21. Average Owens Valley Groundwater Levels and LADWP Pumping

Table 2.4 Owens Valley Wellfield Pumping in 2023-24 RY and Change Average Groundwater Levels between April 2023 and April 2024

Wellfield	2023-24 RY Pumping (af)	Groundwater Level Change From April 2023 to April 2024 (ft) §
Laws	*1,982*	*+6.7*
Bishop	*776*	*+1.8*
Big Pine	*14,022*	*+3.7*
Taboose-Aberdeen	*4,408*	*+4.7*
Thibaut-Sawmill	*7,568*	*+3.7*
Independence-Oak	*5,295*	*+3.3*
Symmes-Shepherd	*626*	*+0.4*
Bairs-George	*0*	*+1.8*
Lone Pine	*907*	*+3.2*
Owens Valley	***35,584***	***+3.2***

§ Based on data from select monitoring wells in Table 2.2.

* 2023-24 ROY Owens River Basin Runoff was 883,552 acre-feet.

2.3. Precipitation Record and Runoff Forecast

The Eastern Sierra snowpack as of April 1, 2024, was 97% of normal in the Mammoth Lakes area, 89% of normal in the Rock Creek area, 89% of normal in the Bishop Area, 99% of normal in the Big Pine area, and 107% of normal in the Cottonwood Lakes area. The Eastern Sierra overall snowpack, weighted by contribution to Owens River watershed runoff, was calculated to be 97% of the 50-year (1971-2020) average snowpack. (Table 2.5).

The Eastern Sierra runoff forecast for the 2024-25 RY is 419,300 AF or 103% of the 50-year average (Table 1.1). Figure 2.22 compares the forecasted runoff for the 2024-25 year to the actual runoff in previous RYs.

The average precipitation on the valley floor for the 2023-24 year was 8.9 inches, which is 159% of the 50-year average precipitation of 5.6 inches. Table 2.6 details monthly precipitation totals for the 2023-24 RY as well as the long-term averages at representative precipitation gauges throughout the Owens Valley.

Table 2.5. Eastern Sierra April 1, 2024 Snow Survey Results

EASTERN SIERRA SNOW SURVEY RESULTS
April 1, 2024

MAMMOTH LAKES AREA (Contributes 27% of Owens River Basin runoff)

Course	Water Content	April 1 Normal	% of April 1 Normal
Mammoth Pass	42.6	42.7	100%
Mammoth Lakes	20.6	20.1	102%
Minarets 2	26.4	29.3	90%
Average:	29.9	30.7	97%

ROCK CREEK AREA (Contributes 16% of Owens River Basin runoff)

Course	Water Content	April 1 Normal	% of April 1 Normal
Rock Creek 1	6.3	7.1	89%
Rock Creek 2	8.8	10.1	88%
Rock Creek 3	11.8	13.2	89%
Average:	9.0	10.1	89%

BISHOP AREA (Contributes 19% of Owens River Basin runoff)

Course	Water Content	April 1 Normal	% of April 1 Normal
Sawmill	17.0	19.0	89%
Average:	17.0	19.0	89%

BIG PINE AREA (Contributes 13% of Owens River Basin runoff)

Course	Water Content	April 1 Normal	% of April 1 Normal
Big Pine Creek 2	12.3	12.6	97%
Big Pine Creek 3	17.6	17.5	100%
Average:	14.9	15.1	99%

COTTONWOOD AREA (Contributes 25% of Owens Basin River runoff)

Course	Water Content	April 1 Normal	% of April 1 Normal
Cottonwood Lakes 1	13.4	12.3	109%
Trailhead*	13.1	12.5	105%
Average:	13.3	12.4	107%

EASTERN SIERRA OVERALL SNOW PACK (Weighted by contribution to Owens River Basin runoff)

	Water Content	April 1 Normal	% of April 1 Normal
Average of all Snow Courses	18.0	18.7	97%

Table 2.6. Owens Valley Precipitation during RY 2023-24 in Inches

Month	Bishop	Big Pine	Tinemaha Reservoir	LAA Intake	Indep. Yard	Alabama Gates	Lone Pine	Cotton-wood	South Haiwee	Average Owens Valley
April, 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May	0.00	0.10	0.12	0.03	0.00	0.00	0.00	0.05	0.06	0.04
June	0.31	0.89	0.50	0.66	0.10	0.60	0.27	0.48	0.43	0.47
July	0.47	0.10	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.07
August	1.93	4.00	2.59	1.14	2.45	4.40	3.71	3.03	6.11	3.26
September	0.27	0.75	0.24	0.12	0.03	0.06	0.00	0.08	0.00	0.17
October	0.33	0.49	0.16	0.11	0.06	0.22	0.22	0.15	0.06	0.20
November	0.09	0.36	0.11	0.08	0.05	0.14	0.00	0.18	0.11	0.12
December	0.34	1.10	0.48	0.19	0.52	0.84	0.75	0.80	1.04	0.67
January, 2024	0.06	0.84	0.08	0.13	0.08	0.08	0.11	0.08	0.21	0.19
February	3.65	6.17	3.61	2.10	1.58	1.53	1.86	3.12	3.76	3.04
March	0.30	2.60	0.41	0.31	0.26	0.75	0.05	0.74	0.77	0.69
2023-24	7.8	17.4	8.3	4.9	5.2	8.6	7.0	8.7	12.6	8.9
Average*	6.0	6.4	6.3	5.3	5.3	4.0	3.8	6.5	7.0	5.6
% of Average	130%	273%	131%	92%	98%	216%	182%	134%	179%	159%

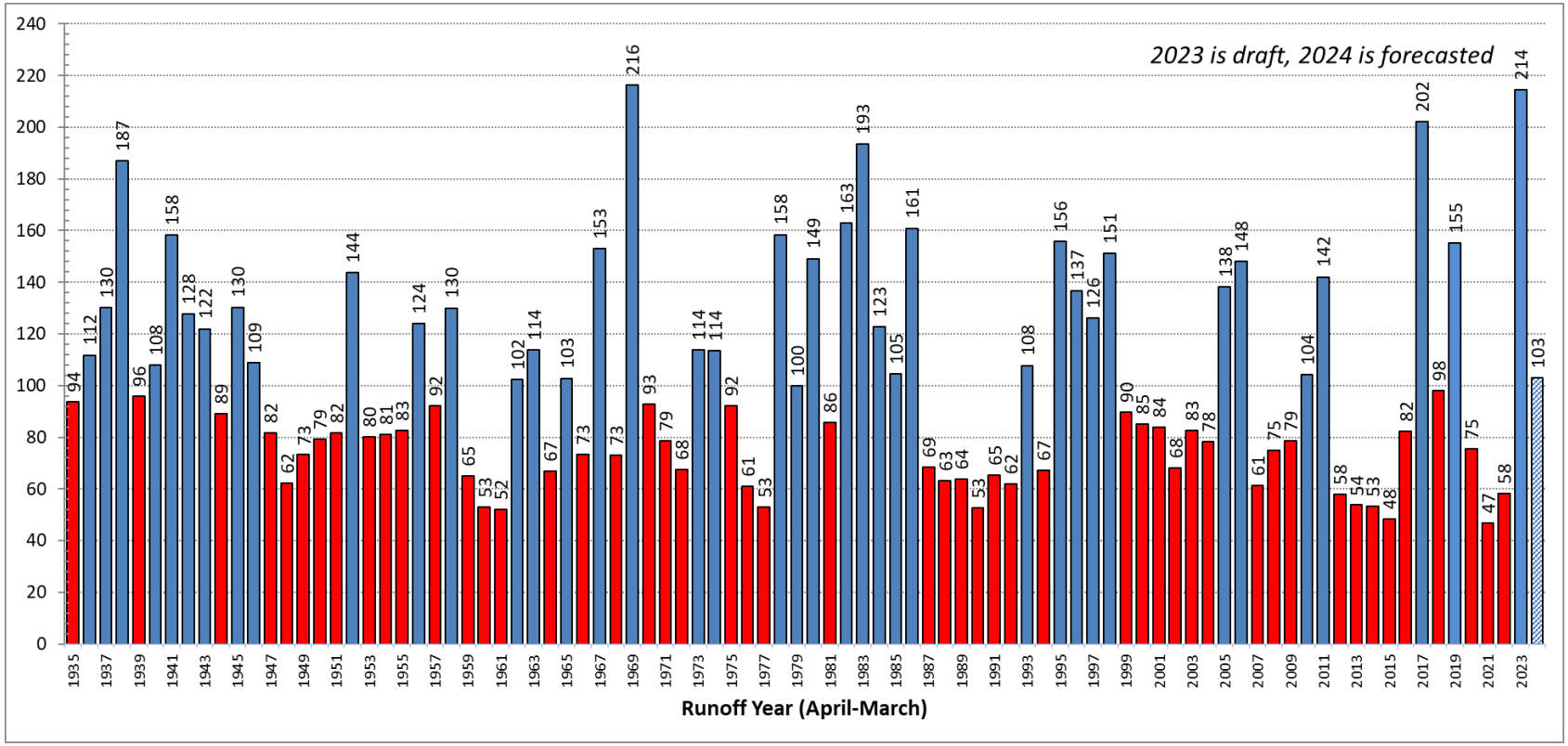


Figure 2.22. Owens River Basin Runoff – Percent of Normal

2.4. Owens Valley Water Supply and Uses

Table 2.7 provides an overview of the Owens Valley water supply, in-valley uses and losses, and LAA exports for the post-Water Agreement period (1992-93 through 2023-24 RYs) as compared to the pre-project average (pre-Second LAA) and projected water supply and uses (based on the Water Agreement, 1991 EIR, and 1997 MOU). Table 2.7 is based on a similar table from the 1991 EIR, Table S-1, that described the actual pre-project as well as projections for post-Water Agreement water supply, in-valley uses and losses, and LAA exports. Actual water uses in the Owens Valley are generally consistent with the projected values under the 1991 EIR and 1997 MOU.

While Owens Valley water supply (runoff, flowing wells, and pumped groundwater) has remained about the same over the long-term average, exports are considerably less than anticipated under the 1991 EIR and 1997 MOU. The fundamental reasons for reducing the exports for the municipal water supply in Los Angeles are increased water uses for dust mitigation on Owens Lake, mandated decreases in water exported from the Mono Basin, and less groundwater pumping than anticipated under the Water Agreement.

Current Owens Valley water uses are compared to pre-project uses, as well as those uses projected under the Water Agreement and 1997 MOU in Figure 2.23. The components of LADWP's water exports from the Eastern Sierra are compared to pre-project exports as well as those projected under the Water Agreement and 1997 MOU in Figure 2.24.

Table 2.8 provides a breakdown of Owens Valley water uses from 1992 to the present and planned water uses for the 2024-25 RY. While much of Table 2.8 is self-explanatory, for clarity, E/M water supply is the water supplied to E/M projects referenced in the 1991 EIR.

Table 2.9 lists a breakdown of water supplied to E/M projects during the 2023-24 RY.

Table 2.7 Owens Valley Water Supply and Uses

(Amounts in Thousands of Acre-Feet/Year)

	Pre-Project (1945-70)	Projected per MOU/ Water Agreement	Actual Data for Runoff Year 2023-24	Actual Post Water Agreement Averages (1992-2023)
Owens Valley Water Supply				
Runoff (Owens Valley & Round Valley)	292	310[1]	*778*	284
Flowing Wells	44	15	*32*	31
Pumped Groundwater	10	110[2]	*36*	72
Total	346	435	*846*	387
In-Valley Uses & Losses				
Water Used on City Lands in O.V.				
Irrigated Lands [3]	62	46	*53*	48
Stockwater, Wildlife, and Rec. Uses [4]	20	23	*25*	22
Post 1985 E/M Projects [5]	0	12	*13*	15[8]
Lower Owens River [6]	0	27[7]	*11*	14[8]
Additional Mitigation (1,600 af from MOU)	0	0	*3*	2[8]
Sub-Total	82	110	*105*	102
Other O.V. Uses and Losses [9]	134	135	*604*	185
Total	216	245	*709*	287
Components of Aqueduct Export				
Owens Valley Contribution to Export	130	190	*137*	100
Long Valley Contribution to Export	134	135	*204*	134
Mono Basin Contribution to Export [10]	58	30	*2*	12
Total	322	355	*343*	246

1. Average runoff for period 1935 to 1988 (Runoff Year)
2. Assumed based on 1991 O.V. Groundwater Pumping EIR
3. Does not include areas receiving water supplies non-tributary to the Owens River/Aqueduct (approx. 7,000 AFY).
4. Includes projects such as the Tule Elk Field, Farmers Ponds implemented after 1970 and before 1985 when E/M projects commenced. Also includes the LORP Off-River Lakes and Ponds uses.
5. Except Lower Owens River Rewatering E/M Project
6. Includes river losses, releases to the Blackrock Waterfowl Habitat Area, and the Delta
7. Assumes: 6,000 AF year-round flow to delta, 1,000 AF to Blackrock, and 19,600 AF for river channel losses.
8. Represents recent history.
9. Includes uses for dust mitigation for Owens Lake, Indian land, private lands, conveyance losses, recharge, evaporation, and operational releases.
10. 1993 Court decision allows approximately 30,000 AFY when lake reaches elevation 6392. Prior to Court decision Mono Basin export averaged 81,000/yr.

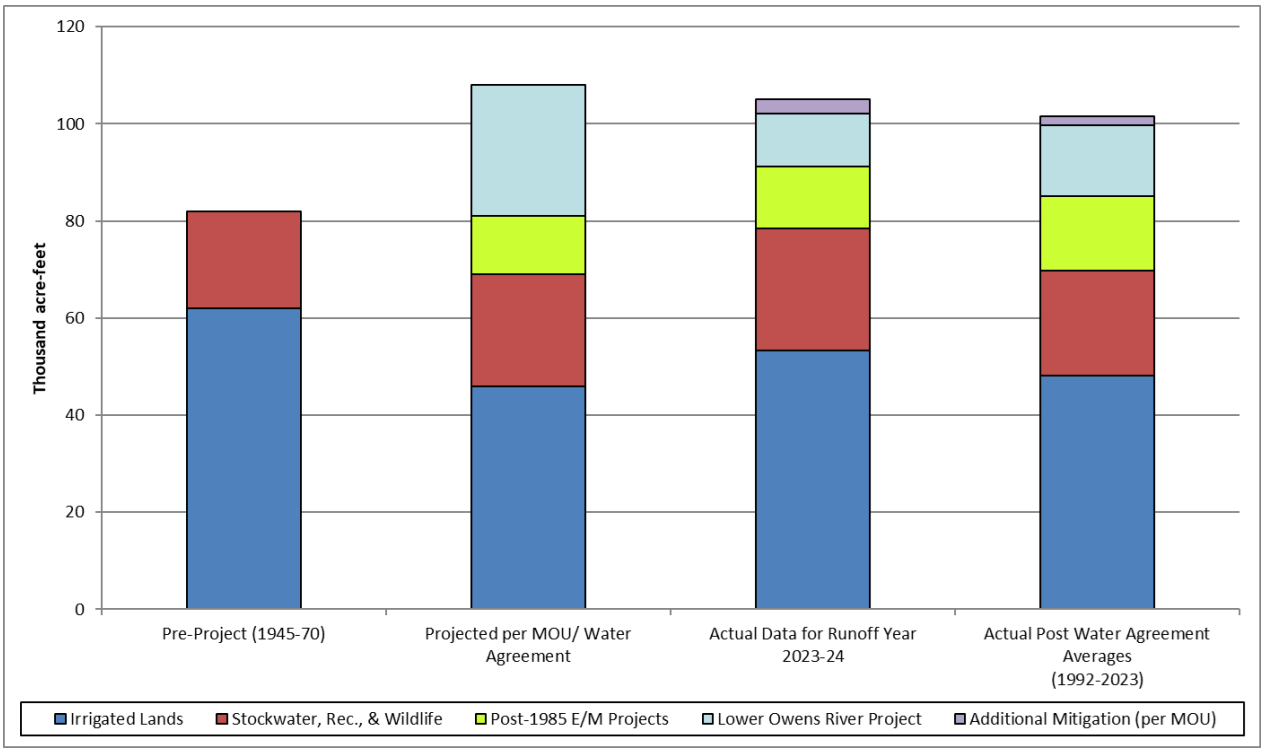


Figure 2.23. Owens Valley Water Uses on City-Owned lands

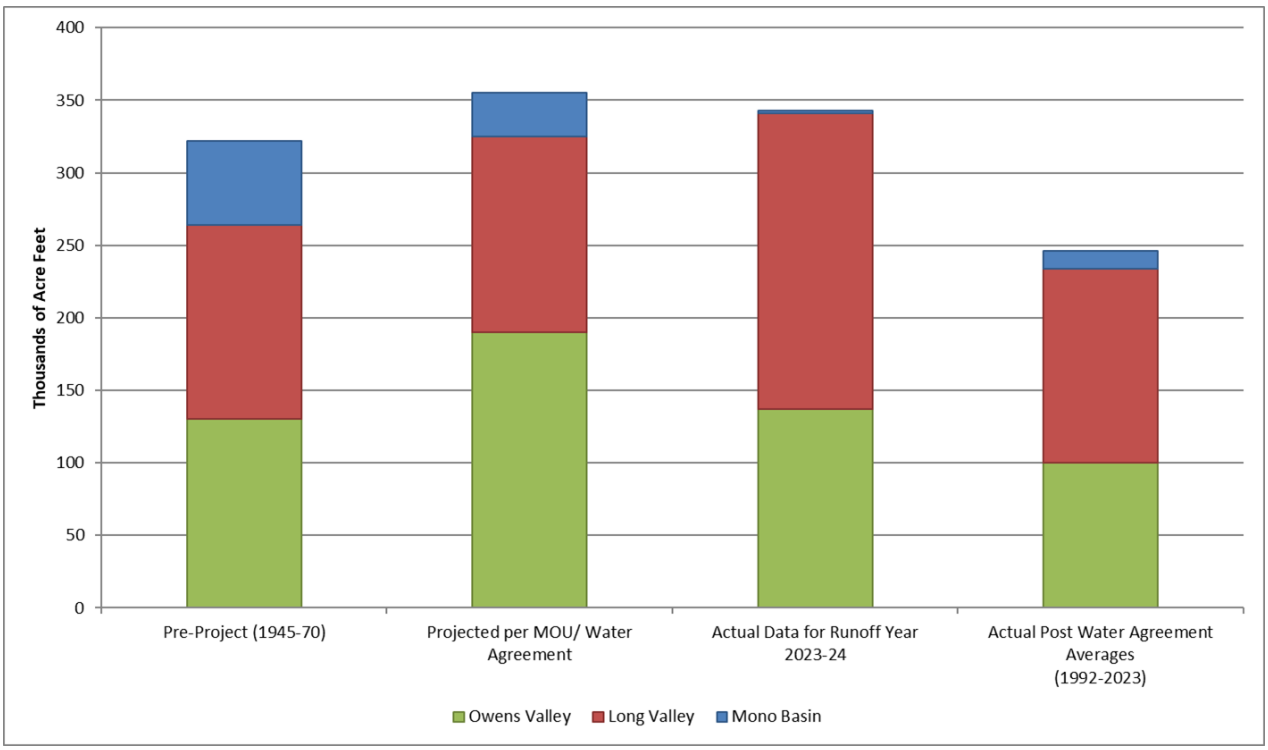


Figure 2.24. Components of the Eastern Sierra Water Exports

Table 2.8. Water Uses for 1992-93 through 2022-23 and Planned Uses for the 2023-24 RY (AF)

(1) Runoff Year	(2) Owens River Basin Runoff %	(3) Owens Valley Pumping (1000 af)	(4) Irrigation	(5) Stock Water	(6) E/M	(7) Rec. & Wildlife	(8) LORP	(9) 1600 AF Projects	(10) In-Valley Uses (sum of 4+5+6+ 7+8+9)	Groundwater Recharge		(13) Operations	(14) All Uses (sum of 10+11+12+13)
										(11) Big Pine & Independence Spreading	(12) Laws Spreading		
1992-93	62%	84	37,131	17,828	18,357	7,725	9,269		90,310	0	0	12,179	102,489
1993-94	108%	76	47,798	17,230	19,310	8,676	5,867		98,881	14,512	10,640	12,433	136,466
1994-95	67%	89	37,790	17,178	20,812	8,116	11,638		95,534	0	56	12,102	107,692
1995-96	156%	70	57,748	20,919	22,943	12,479	11,636		125,725	30,126	21,148	13,561	190,560
1996-97	137%	75	46,171	19,757	23,949	9,438	13,031		112,346	4,606	0	21,125	138,077
1997-98	126%	67	47,114	16,422	21,608	8,022	13,069		106,235	4,113	4,106	13,874	128,328
1998-99	151%	52	45,445	13,654	19,672	8,691	11,192		98,654	24,970	31,077	23,016	177,717
1999-00	90%	64	49,529	14,461	24,452	7,470	15,973		111,885	0	0	11,263	123,148
2000-01	85%	68	49,327	13,442	20,782	7,263	12,090		102,904	0	790	12,517	116,211
2001-02	84%	73	43,296	12,759	21,815	7,487	12,485		97,842	0	230	12,973	111,045
2002-03	68%	82	43,929	12,291	21,394	7,377	9,690		94,681	0	0	8,431	103,112
2003-04	83%	88	45,974	11,620	21,116	6,853	10,243		95,806	0	0	8,787	104,593
2004-05	78%	86	50,311	11,546	18,918	6,866	8,910		96,551	243	695	9,536	107,025
2005-06	138%	57	53,832	11,355	20,032	7,807	7,566		100,592	16,212	24,187	14,814	155,805
2006-07	148%	59	50,968	12,041	17,357	7,849	11,700		99,915	29,457	16,855	38,937	185,164
2007-08	61%	60	47,699	12,161	11,565	10,122	22,501		104,048	0	0	5,631	109,679
2008-09	75%	69	56,130	11,435	10,646	8,479	20,957		107,647	1,342	0	7,651	116,640
2009-10	79%	65	52,933	11,450	10,697	10,398	15,708		101,186	0	0	8,453	109,639
2010-11	104%	80	52,983	12,275	10,407	12,106	17,020		104,791	2,993	1,973	14,280	124,037
2011-12	142%	92	62,391	11,566	11,462	9,702	19,556		114,677	13,231	4,119	8,785	140,812
2012-13	58%	89	48,763	10,961	9,257	9,254	20,927	1,612	100,774	0	0	4,081	104,855

(1) Runoff Year	(2) Owens River Basin Runoff %	(3) Owens Valley Pumping (1000 af)	(4) Irrigation	(5) Stock Water	(6) E/M	(7) Rec. & Wildlife	(8) LORP	(9) 1600 AF Projects	(10) In-Valley Uses (sum of 4+5+6+ 7+8+9)	Groundwater Recharge (11) Big Pine & Independence Spreading	Groundwater Recharge (12) Laws Spreading	(13) Operations	(14) All Uses (sum of 10+11+12+13)
2013-14	54%	79	44,160	11,161	8,222	8,022	17,845	1,625	91,035	0	0	1,926	92,961
2014-15	53%	66	45,491	11,582	9,520	7,615	12,681	1,604	88,493	8,742	0	1,423	98,658
2015-16	48%	70	39,598	11,752	8,265	7,934	16,828	1,614	85,991	434	0	1,255	87,680
2016-17	82%	76	49,219	10,969	10,967	8,199	18,585	1,702	99,641	4,200	7,783	17,770	129,394
2017-18	202%	48	53,864	12,534	11,652	10,313	19,533	1,615	109,511	85,175	38,815	90,407	323,908
2018-19	98%	85	49,836	11,437	9,895	7,742	13,777	1,645	94,332	1,406	2,489	2,640	100,867
2019-20	155%	53	53,981	12,429	11,196	8,336	20,749	1,608	108,299	33,976	26,346	32,002	200,623
2020-21	75%	73	47,249	11,189	9,311	6,600	20,643	1,650	96,642	0	0	1,697	98,339
2021-22	47%	62	38,572	10,605	10,223	6,511	18,355	1,603	85,869	0	0	1,864	87,733
2022-23	58%	66	39,271	11,418	9,812	6,410	19,855	2,200	88,966	0	13,212	28,668	130,846
2023-24	214%	36	53,353	13,585	12,791	11,488	10,983	2,809	105,009	92,451	92,874	262,761	553,095
2024-25	*103%*	*(A)*	*50,400*	*10,840*	*9,920*	*7,460*	*14,910*	*1,600*	*95,130*	*2,000*	*5,000*	*5,000*	*107,130*
AVG.	100%	71	48,183	13,157	15,263	8,480	14,714	1,774	100,462	11,506	9,294	22,401	143,662

NOTES: AVG. REFLECTS RUNOFF YEAR DATA FROM 1992-1993 THROUGH 2023-2024.
2024-25 REFLECTS CURRENT YEAR OPERATIONS FORECAST. E/M EXCLUDES RELEASES TO THE LORP.
LORP IS RECORD OF THE REWATERING E/M (1985-2006) AND THE MITIGATION PROJECTS (STARTED IN DECEMBER 2006).
LORP RECORD INCLUDES RIVERINE LOSS, RELEASES TO BLACKROCK WATERFOWL, AND RELEASES TO DELTA.
(A) SEE SECTION 1.2 FOR OWENS VALLEY PUMPING DISCUSSION.

Table 2.9. Water Supplied to E/M Projects During 2023-24

Project	Water Supplied (acre-feet)
McNally Canals Conveyance Losses	*1,730*
McNally/Laws/Poleta Native Pasture Lands	*1,630*
McNally Ponds	*1,670*
Laws Historical Museum	*100*
Klondike Lake	*2,920*
Big Pine Regreening	*100*
Lower Owens River Rewatering	*-*
Independence Pasture Lands	*1,450*
Independence Springfield	*1,110*
Independence Ditch System	*760*
Independence Woodlot	*80*
Independence Regreening	*70*
Shepherd Creek Alfalfa Lands	*880*
Lone Pine Park/Richards Field	*410*
Lone Pine Woodlot	*80*
Lone Pine Van Norman Field	*400*
Lone Pine Regreening	*40*
Total E/M Uses	13,430

2.5. Owens Valley Vegetation Conditions

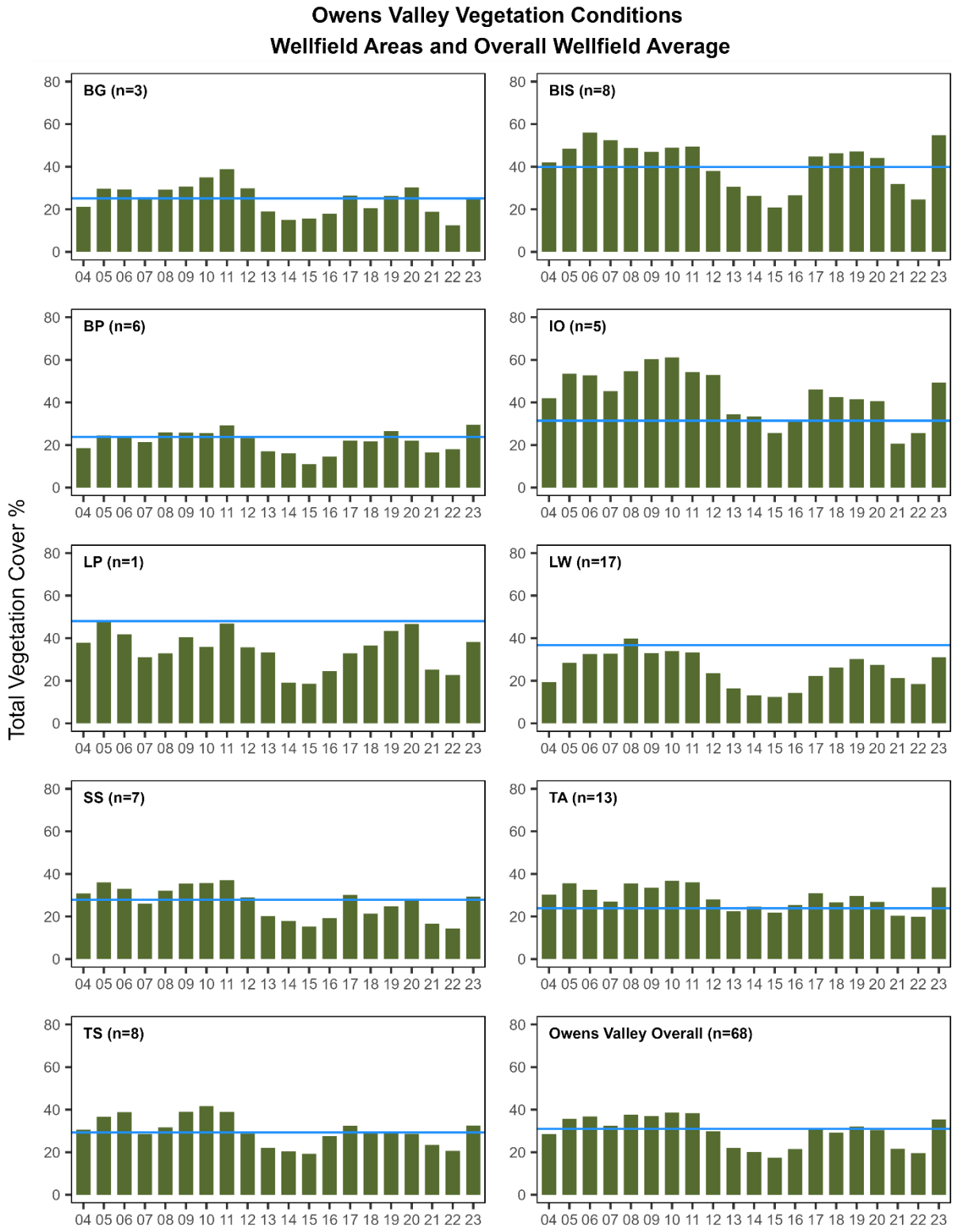
Vegetation conditions within the Owens Valley are monitored using vegetation transects as well as other methods. The Green Book describes the methodology and purposes of vegetation transects. As stated in the Green Book: "Vegetation transects are included within the Green Book to serve two purposes: 1) to estimate transpiration from a monitoring site, and 2) for use in determining whether vegetation has decreased or changed significantly from the previous cover." A reference for comparison of vegetation changes is the 1984-87 vegetation inventory data.

The Green Book requires the 1984-87 vegetation inventory to be used as a baseline when determining whether vegetation cover and/or species composition have changed. The 1984-1987 inventory transects were chosen using aerial photos to aid in determining transect locations. Transects were located visually by choosing lines that appeared to cover the representative units of vegetation within the parcel being measured. Transects were generally run toward the center of the parcels in order to avoid transitional areas at parcel edges. A minimum of five transects were run on each parcel. If the vegetation cover was particularly heterogeneous, a qualitative method was employed in selecting additional transects. The transect data were checked visually and additional transects were run to lessen the degree of variability as necessary.

The Green Book directs that future transects should be performed in a similar manner as the initial inventory to determine whether vegetation has changed but allows the technique to be modified by the Technical Group to permit statistical comparison by randomly selected transects. The procedures for modifying the Green Book procedures are included under Water Agreement Section XXV. In any case, the Green Book requires the Technical Group to perform a statistical analysis in order to determine the statistical significance of any suspected vegetation changes from the 1984-87 inventory maps.

In 2004, LADWP began running transects annually within parcels located both inside and outside wellfields. Some parcels are evaluated annually, while others are not. Percent total cover is calculated and compared to data collected within parcels during the period of baseline inventory.

Figure 2.25 includes vegetation transect data collected by LADWP and presented in a series of graphs documenting Owens Valley vegetation conditions. LADWP monitors vegetation using established vegetation transects that enable the Technical Group to reliably assess annual changes in vegetation cover and composition.



Notes: ▬ represents a mean cover during the initial inventory. Data were collected by LADWP and ICWD.

Figure *2.25. Owens Valley Vegetation Condition for Wellfields*

2.6. Bishop Cone Audit

LADWP's groundwater pumping on the Bishop Cone is governed by provisions of the Hillside Decree) as well as the Water Agreement. Annual groundwater extractions from the Bishop Cone are limited to an amount not greater than the total amount of water used on City lands on the Bishop Cone during that year. Annual groundwater extractions by LADWP on the Bishop Cone are the sum of all groundwater pumped plus the amount of artesian water that has flowed from wells on the Bishop Cone during the year. Water used on City lands on the Bishop Cone are the quantity of water supplied to such lands, including conveyance losses, less any return flow to the aqueduct system.

The ICWD performs an annual audit of LADWP water uses and groundwater extractions by LADWP on the Bishop Cone. Section 2 Appendices contain a copy of ICWD's audit for the 2022-23 RY. As shown in Figure 1.4, LADWP has historically pumped much less than allowed under the terms of the Hillside Decree. Beginning in the 2015-16 RY, the audit water account methods were modified to analyze each areas inflows and outflows to calculate total water use. The Bishop Cone Audit report for 2022-23 is available on the ICWD website and is included in Appendix A of this report.

2.7. Reinhackle Spring Monitoring

As required by the 1991 EIR, Owens Valley groundwater pumping is managed to avoid reductions in spring flows that would cause significant decreases or changes in spring-associated vegetation. Groundwater pumping from wells that may affect flow from Reinhackle Spring are managed so that flows from the spring are not significantly reduced compared to flows under prevailing natural conditions. Table 2.10 shows daily flow values for Reinhackle Spring. Over the 2023-24 RY, Reinhackle Spring had an average daily flow of about 2.3 cfs.

Analysis of Reinhackle Spring was included in a 2004 cooperative study by LADWP and ICWD on the Owens Valley groundwater geochemistry. During the study, water samples from Reinhackle Spring were chemically analyzed and compared to water samples from the LAA, nearby pumping wells, samples from the deep aquifer, and samples from shallow monitoring wells. The 2004 study concluded that the water flowing from Reinhackle Spring is similar in composition to aqueduct water and not similar to the deep aquifer samples or up-gradient shallow aquifer wells. Testing to determine the effects of groundwater pumping and LAA seepage on Reinhackle Spring flow was conducted between May 2010 and April 2011. Data and analysis from the 2004 cooperative study and 2010-11 testing have been included in a draft monitoring and operations plan for the Bairs-Georges Wellfield known as the draft Reinhackle Spring Flow Characterization Report and Operations Plan. The draft Reinhackle Spring Flow Characterization Report and Operations Plan was sent to the ICWD for review in November 2012.

Table 2.10. Reinhackle Spring Flow in cfs during 2023-24 RY

Day of Month	April	May	June	July	August	September	October	November	December	January	February	March	Annual
1	1.48	1.88	2.38	2.57	2.71	2.79	2.53	2.26	2.26	2.17	2.03	1.98	
2	1.51	1.89	2.42	2.58	2.72	2.79	2.51	2.22	2.24	2.17	2.03	1.98	
3	1.52	1.93	2.43	2.58	2.74	2.76	2.48	2.22	2.25	2.17	2.03	1.97	
4	1.52	1.94	2.43	2.59	2.74	2.74	2.48	2.22	2.26	2.14	2.04	1.95	
5	1.52	1.98	2.44	2.59	2.74	2.74	2.48	2.22	2.24	2.13	2.03	1.97	
6	1.52	2.01	2.41	2.60	2.74	2.74	2.48	2.22	2.25	2.12	2.03	1.97	
7	1.52	2.02	2.43	2.60	2.74	2.72	2.46	2.22	2.27	2.12	2.03	1.98	
8	1.55	2.03	2.43	2.60	2.74	2.69	2.43	2.22	2.27	2.12	2.03	1.98	
9	1.56	2.03	2.43	2.59	2.74	2.69	2.43	2.22	2.27	2.12	2.03	1.96	
10	1.56	2.06	2.43	2.58	2.75	2.69	2.43	2.22	2.27	2.11	2.02	1.96	
11	1.56	2.07	2.47	2.58	2.79	2.69	2.42	2.22	2.27	2.08	2.00	1.94	
12	1.56	2.07	2.48	2.58	2.80	2.69	2.37	2.22	2.25	2.08	2.01	1.93	
13	1.62	2.08	2.48	2.62	2.82	2.69	2.37	2.23	2.24	2.09	2.02	1.93	
14	1.65	2.12	2.53	2.62	2.81	2.67	2.37	2.22	2.22	2.07	2.03	1.93	
15	1.65	2.12	2.53	2.62	2.80	2.63	2.37	2.23	2.22	2.07	2.03	1.93	
16	1.69	2.12	2.53	2.63	2.80	2.63	2.37	2.22	2.22	2.07	2.03	1.93	
17	1.68	2.17	2.53	2.63	2.80	2.63	2.34	2.25	2.22	2.07	2.03	1.93	
18	1.70	2.17	2.57	2.63	2.80	2.63	2.32	2.27	2.22	2.07	2.02	1.93	
19	1.70	2.18	2.58	2.64	2.80	2.63	2.32	2.26	2.22	2.07	2.00	1.92	
20	1.73	2.22	2.58	2.64	2.91	2.63	2.32	2.26	2.19	2.07	2.01	1.88	
21	1.73	2.22	2.57	2.63	2.91	2.60	2.32	2.27	2.22	2.07	2.02	1.88	
22	1.74	2.22	2.58	2.63	2.85	2.58	2.32	2.27	2.21	2.07	2.02	1.88	
23	1.76	2.27	2.58	2.64	2.85	2.58	2.32	2.27	2.17	2.04	2.02	1.88	
24	1.79	2.28	2.58	2.66	2.85	2.58	2.28	2.27	2.17	2.03	2.00	1.88	
25	1.79	2.32	2.59	2.69	2.85	2.58	2.27	2.27	2.17	2.03	1.99	1.88	
26	1.82	2.32	2.62	2.69	2.85	2.55	2.27	2.27	2.17	2.03	1.98	1.88	
27	1.84	2.32	2.60	2.69	2.84	2.53	2.27	2.27	2.17	2.02	1.98	1.87	
28	1.84	2.32	2.58	2.69	2.80	2.53	2.27	2.27	2.17	1.99	1.98	1.88	
29	1.84	2.34	2.58	2.69	2.80	2.53	2.27	2.27	2.17	2.03	1.98	1.87	
30	1.84	2.37	2.56	2.69	2.80	2.53	2.27	2.27	2.17	2.03		1.88	
31		2.37		2.70	2.79		2.26		2.17	2.03		1.89	
Average	1.66	2.14	2.51	2.63	2.80	2.65	2.37	2.25	2.22	2.08	2.01	1.92	2.27

LADWP ENVIRONMENTAL MITIGATION PROJECTS AND OTHER LEGAL COMMITMENTS

3.0 LADWP ENVIRONMENTAL MITIGATION PROJECTS AND OTHER LEGAL COMMITMENT

3.1 Introduction

Section 3 provides information on all LADWP's environmental mitigation projects and other commitments required under the Water Agreement, the 1991 EIR, the subsequent 1997 MOU and related documents. Tables 3.1 and 3.2 provide a quick reference to all the commitments. Projects/commitments are listed alphabetically in Tables 3.1 and 3.2 and have a corresponding number in the left column for reporting purposes only and show current status of these projects/commitments.

For reference, status of these projects is classified into the following categories:

Complete: Project has no additional commitments required (no water allotment or other financial or environmental mitigation; no continual monitoring and reporting),

Ongoing as necessary/required: These measures are only applied, when necessary (monitoring and reporting for mitigation measures for new projects, construction, etc.),

Implemented and ongoing: Project is fully implemented and is currently meeting goals; however, there may be ongoing water or financial commitments or monitoring and reporting requirements,

Fully implemented but not meeting goals: Project is fully implemented but has not yet met prescribed goals or success criteria,

Not fully implemented: Project is under development or under construction, but not fully implemented.

Presently, of the 66 required environmental mitigation projects, LADWP reports:

- 9 are complete,
- 51 are implemented and ongoing (with ongoing water or financial commitments or monitoring and reporting requirements),
- 6 are fully implemented but not meeting goals,
- 0 are not fully implemented.

Of the 47 other commitments, LADWP reports:

- 18 are complete,
- 6 are ongoing as necessary or required,
- 21 are implemented and ongoing,
- 0 are fully implemented and not meeting goals, and
- 2 are not fully implemented

More detailed information regarding each of these projects and other commitments is provided in tabular format in Tables 3.3 and 3.9. Also included in this section are reports for: Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (Section 3.21), Laws Type E revegetation (Section 3.2.2), Owens Valley Land Management Plan (OVLMP) (Section 3.2.3) and the Yellow Billed Cuckoo (YBC) Habitat Enhancement Plans (Section 3.2.4). These reports are followed by updates to the Mitigation Monitoring and Reporting Programs (MMRP) (Section 3.2.5) and the Big Pine Ditch System (Section 3.2.6).

Table 3.1. LADWP Mitigation and Monitoring Summary.

1991 EIR	1991 EIR Enviro. Project	1991 EIR E/M Project	Revegetation Project	1997 MOU	Table 3.1. LADWP MITIGATION PROJECT COMMITMENTS	Complete		Ongoing as necessary	Implemented and Ongoing	Implemented; not met goal	Not Fully Implemented
				X	Aberdeen Ditch Project (Additional Mitigation Projects Developed by the MOU Ad Hoc Group (MOU Section III.A.3))				X		
X	X				Big and Little Seely Springs (1-acre pond near Well W349; EIR Impact 10-14, EIR Table 5-2)				X		
X			X		Big Pine Area Revegetation Project (160 acres; EIR Impact 10-19)					X	
X			X		Big Pine Area Revegetation Project (20 acres; EIR Impact 10-19)					X	
X					Big Pine Ditch System (EIR Impact 10-19)				X		
X		X	X		Big Pine Northeast Regreening (30 acres; EIR Impact 10-11, EIR Table 5-3)				X		
X			X		Bishop Area Revegetation Project (124 acres; EIR Impact 10-16)					X	
X			X		Blackrock 16E Revegetation Project (EIR Impact 10-11)	X					
X	X				Blackrock Hatchery (EIR Impact 10-14)				X		
X	X				Buckley Ponds (EIR Impact 10-5 and 11-1, EIR Table 5-2)				X		
X	X				Calvert Slough (EIR Impact 10-5, EIR Table 5-2)				X		
X	X			X	Diaz Lake (EIR Table 5-2, Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))				X		
X		X			Eastern California Museum (EIR Tables 4-3 and 5-3)				X		
X	X				Farmers Pond (EIR Impact 10-5, 10-18, 11-1, EIR Table 5-2)				X		
X	X				Fish Springs Hatchery (EIR Impact 10-14)				X		
X			X		Five Bridges Area Revegetation Project (300 acres; EIR Impact 10-12)	X					
				X	Freeman Creek Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))				X		
X				X	Hines Spring (1 to 2 acres, EIR Impact 10-14), implemented as the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3)				X		
X			X		Hines Spring South (EIR Impact 10-11)					X	
				X	Hines Spring Well 355 Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))				X		
				X	Homestead Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))				X		
X			X		Independence 105 (EIR Impact 10-13)	X					
X			X		Independence 123 (EIR Impact 10-13)	X					
X			X		Independence 131 (EIR Impact 10-13)					X	
X		X			Independence Ditch System (EIR Table 4-3)				X		
X		X			Independence East Side Regreening Project (23 acres; EIR Impact 10-11, EIR Table 5-3)				X		
X		X			Independence Pasturelands and Native Pasturelands (610 acres; EIR Impact 12-1, EIR Tables 4-3 and 5-3)				X		
X		X			Independence Roadside Rest Area (0.5 acres; EIR Tables 4-3 and 5-3)				X		
X		X			Independence Springfield (includes 40-acres of revegetation) (286 acres; EIR Impact 12-1, EIR Tables 4-3 and 5-3)				X		
X		X			Independence Woodlot (20 acres; EIR Impact 10-11, EIR Table 4-3)				X		
X	X	X			Klondike Lake Aquatic Habitat (160 acres; EIR Impact 10-5 and 11-1, EIR Tables 4-3, 5-2, and 5-3)				X		
					Klondike SSHA (Big Pine Ditch System MND)				X		
			X		LAWS 118 (19-acre portion) and LAWS 129 (Laws Type E Transfer MND)				X[1]		
			X		LAWS 027 (Native Seed Farm) (Laws Type E Transfer MND)				X		
			X		LAWS 090 (Laws Type E Transfer MND)				X[1]		
			X		LAWS 094 (Laws Type E Transfer MND)				X[1]		
			X		LAWS 095 (Laws Type E Transfer MND)				X[1]		
X			X		Laws Area Revegetation Project (140 acres; EIR Impact 10-18)	X[1]					
X		X			Laws Historical Museum Pasturelands (21+15 acres; EIR Impact 10-18, EIR Table 5-3)				X		
X		X			Laws/Poleta Native Pasture (216 acres; EIR Impact 10-16, EIR Tables 4-3 and 5-3)				X		
X	X				Little Blackrock Springs (EIR Impact 10-14, EIR Table 5-2)				X		
X		X			Lone Pine East Side Regreening (11 acres; EIR Impact 10-16, EIR Table 5-3)				X		
X		X			Lone Pine-North Lone Pine Clean Up (EIR Table 4-3)	X					
X		X			Lone Pine Riparian Park (320 acres, EIR Tables 4-3 and 5-3)				X		
X		X			Lone Pine Sports Complex (EIR Table 5-3)	X					
X		X			Lone Pine West Side Regreening (8 acres; EIR Impact 10-16, EIR Tables 4-3 and 5-3)				X		
X		X			Lone Pine Woodlot (12 acres; EIR Impact 10-11, EIR Table 4-3)				X		
X	X	X		X	LORP Project (60 miles, perhaps more than 1,000 acres)/ Lower Owens Rewatering Project)				X		
X		X			McNally Ponds and Native Pasturelands (300 acres pasture, 60 acres ponds; EIR Impact 10-5 and 10-18, EIR Tables 4-3, 5-3)				X		
X	X	X			Millpond Recreation Area (EIR Impact 10-5, EIR Table 5-2 and 5-3)				X		
					North of Mazourka Canyon Road Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))				X		
X	X				Olancha-Cartago Irrigated Fields (EIR Impact 10-16)				X		
				X	Owens Valley Land Management Plan (MOU Section III.B)				X		
X					Reinhackle Spring (EIR Impact 10-14)				X		
X		X			Richards Fields (160 acres; EIR Impact 10-16, EIR Table 4-3)				X		
X	X				Saunders Pond (EIR Impact 10-5, EIR Table 5-2)				X		
X		X			Shepherd Creek Alfalfa Field (198 acres; EIR Impact 10-11, EIR Tables 4-3 and 5-3)				X		
X		X			Shepherd Creek Potential (60 acres; EIR Impact 10-11, EIR Table 5-3)	X					
X					Steward Ranch (EIR Impact 9-14)	X					
X			X		Tinemaha 54 Revegetation Project (EIR Impact 10-11)					X	
X		X			Tree Planting along Roadways (EIR Table 4-3)				X		
X	X				Tule Elk Field (EIR Table 5-2)				X		
X		X			Van Norman Fields (170 acres; EIR Impact 10-16, EIR Table 4-3)				X		
				X	Warren Lake Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))				X		
				X	Well 368 Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))				X		
				X	Yellow-billed Cuckoo Habitat (Baker & Hogback Creeks) (MOU Section III.A.1)				X		
					Subtotals	9		0	51	6	0

[1] *LADWP's data indicates that compliance criteria at LAW090, 094, 095, and 118/129 were met in 2022, and LAW118 (19-acre portion) in 2023. Discussions are underway with Inyo County to confirm these findings. Monitoring will occur in 2024 as required in the 2003 Laws Revegetation Plan.*

Table 3.2. LADWP Other Legal Commitments Summary

Water Agreement	1991 EIR	Other Agreement	1997 MOU	Table 3.2. LADWP OTHER LEGAL COMMITMENTS	Completed	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented; Not Meeting Goals	Not Fully Implemented
			X	Aerial Photo Analysis (MOU Section III.E)	X				
			X	Annual Report on the Owens Valley (MOU Section III.H)			X		
		X		Blackrock 94 Burns (2014 Stipulation)	X				
X				Cooperative Studies (Water Agreement Section IX)			X		
X				Dispute Resolution (Water Agreement Section XXVI)		X			
			X	Dispute Resolution and Litigation (MOU Section VI)		X			
X				Enhancement/ Mitigation Projects (Water Agreement Section X)			X		
X				Exchange of Information and Access (Water Agreement Section XVII)			X		
X				Financial Assistance- Big Pine Ditch System (Agreement Section XIV.E)			X		
X				Financial Assistance- General Financial Assistance to the County (Water Agreement Section XIV.D)			X		
X				Financial Assistance- Park & Environmental Assistance to City of Bishop (Water Agreement Section XIV.F)			X		
X				Financial Assistance- Park Rehabilitation, Development, & Maintenance (Water Agreement Section XIV.B)			X		
X				Financial Assistance- Salt Cedar Control (Water Agreement Section XIV.A)			X		
X				Financial Assistance- Water and Environmental Activities (Water Agreement Section XIV)			X		
			X	Financial Provisions (MOU Section IX)	X				
			X	Fish Slough (MOU Section IV)			X		
X				Groundwater Management (Water Agreement Section II)			X		
X				Groundwater Pumping on the Bishop Cone (Water Agreement Section VII)			X		
X				Groundwater Recharge Facilities (Water Agreement Section VIII)		X			
			X	Habitat Conservation Plan (MOU Section III.B)	X				
X				Haiwee Reservoir (Water Agreement Section XIII)	X				
			X	Inventory of Plants and Animals at Spring and Seeps (outside LORP Planning Area) (MOU Section III.C)	X				
	X			Laws Area Potential Mitigation-Consideration by Standing Committee (640 acres; EIR Impact 10-18)		X			
X				Legislative Coordination (Water Agreement Section XVI)			X		
			X	LORP Agency Consultation and Public Involvement (MOU Section II.D)	X				
			X	LORP EIR (MOU Section II.F)	X				
			X	LORP Implementation (MOU Section II.H)	X				
			X	LORP Monitoring and Adaptive Management Plan (MOU Section II.E)			X		
			X	LORP Permits Approvals and Licenses (MOU Section II.I)	X				
			X	LORP Plan (MOU Section II.A)	X				
			X	LORP Planning Area- Inventory of Plants and Animals at Spring and Seeps (MOU Section III.A.2)	X				
			X	LORP Pumpback System (MOU Section II.G)	X				
			X	Lower Owens Off River Lakes and Ponds (MOU Section II.C.3)			X		
X				Lower Owens River (financial commitment) (Water Agreement Section XII)			X		
			X	Lower Owens River Delta Habitat Area (MOU Section II.C.2)			X		
			X	Lower Owens River Project 1500-Acre Blackrock Waterfowl Habitat Area (MOU II.C.4)			X		
			X	Lower Owens River Riverine- Riparian System (MOU Section II.C.1)			X		
			X	Mitigation Plans for Impacts Identified in the 1991 EIR and the Water Agreement (MOU III.F)			X		
X				New Wells & Production Capacity (Water Agreement Section VI)					X
X				Owens River Recreational Use Plan (Water Agreement XV.B)					X
X				Release of City Owned Lands - Lands for Public Purposes (Water Agreement Section XV.D)		X			
X				Release of City Owned Lands- Bishop (Water Agreement Section XV.B)	X				
X				Release of City Owned Lands- Inyo County (Water Agreement Section XV.A)	X				
X				Release of City-owned lands- Additional Sales (Water Agreement Section XV.C)	X				
			X	Technical Group Meetings (MOU Section III.G)		X			
X				Town Water Systems (Water Agreement Section XI)	X				
			X	Type E Vegetation Inventory (MOU Section III.D)	X				
				Subtotals	18	6	21	0	2

3.2 LADWP ENVIRONMENTAL MITIGATION PROJECTS

Table 3.3 provides project title, legal reference, mitigation measure/provision, progress to date, and current status (according to LADWP) on each of LADWP's environmental mitigation projects listed in Table 3.1.

Again, categories describing status are:

Complete: Project has no additional commitments required (no water allotment or other financial or environmental mitigation; no continual monitoring and reporting),

Ongoing as necessary/required: These measures are only applied, when necessary (monitoring and reporting for mitigation measures for new projects, construction, etc.),

Implemented and ongoing: Project is fully implemented and is currently meeting goals; however, there may be ongoing water or financial commitments or monitoring and reporting requirements,

Fully implemented but not meeting goals: Project is fully implemented but has not yet met prescribed goals or success criteria,

Not fully implemented: Project under development or under construction, but not fully implemented.

Table 3.3. LADWP Mitigation and Monitoring

Reporting No.	1991 EIR	1991 EIR Environmental 1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
					Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
1				X	Aberdeen Ditch Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))			Project was implemented in April 2011 as part of the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group. Water continues to be provided annually to this project. Please refer to Section 3.2.1 for more information. Project is implemented and ongoing.			X		
2	X	X				Big and Little Seely Springs (1-acre pond near Well W349; EIR Impact 10-14, EIR Table 5-2)	10-14: Increased groundwater pumping has reduced or eliminated flows from Fish Springs, Big and Little Seely Springs, Hines Spring, Big and Little Blackrock Springs, and Reinhackle Spring. This has caused significant adverse impacts to vegetation at several of these spring areas.	In the area of Big and Little Seely Springs, LADWP well number 349 discharges water into a pond approximately one acre in size. This pond provides a temporary resting place for waterfowl and shorebirds when the pump is operating or Big Seely Spring is flowing. This water passes through the pond to the Owens River. Riparian vegetation has become established around this pond.	Project implementation is complete. Water continues to be provided annually to this project from Well 349. Project is implemented and ongoing.			X		
3	X			X		Big Pine Area Revegetation Project (160 acres; EIR Impact 10-19)	10-19: Water management practices in a portion of the Big Pine Well Field have resulted in a significant adverse change and decrease of plant cover.	A revegetation program will be implemented for approximately 160 acres within the Big Pine area, which have lost all, or part of its vegetation cover due to increased groundwater pumping or to abandonment of irrigation as part of operations to supply the second aqueduct. Will be revegetated.	Site was fenced to reduce disturbance in 1998. Permanent vegetation transects were established in 1999. Mulch was applied to the site in 1999 and soil microbial studies were conducted in 1999, 2003, 2004, and 2005 by *Montgomery Watson Harza* (MWH). Drill seeding of the site occurred in Spring 2011 (20 acres), Winter 2014 (28 acres), and Fall/Winter 2015/2016 (154 acres). Seed germination from the 2015/2016 seeding effort was largely successful at this site. Additionally, some natural recruitment is occurring along the perimeter of the site. LADWP planted 100 greasewood (*Sarcobatus vermiculatus)* shrubs utilizing the Cocoon Planting System from *Land Life Company* in the fall of 2018. This technology allows for shrubs to grow in arid environments without additional irrigation post planting. As of 2019, there was only a 10% survivability rate of shrubs.				X	

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
									Permanent transects were first read in 1999. The parcel has had a maximum cover value of 10% and has met the composition goal since 1999. In 2022, the parcel had achieved 7% native perennial vegetation cover with 8 native perennial species (17.7% cover goal with 10 native perennial species). The site will be considered complete when the cover is 90% and composition is 75% of the stated goal with an 80% confidence limit. The project is implemented but has not yet attained both cover and composition goals.					
4	**X**			**X**		Big Pine Area Revegetation Project (20 acres; EIR Impact 10-19)	10-19: Water management practices in a portion of the Big Pine Well Field have resulted in significant adverse change and decrease of plant cover.	An area of approximately 20 acres directly to the east of Big Pine that is poorly vegetated as a result of pre-project activities and activities which are not a part of the project will be evaluated as a potential enhancement/mitigation project. If, in planning this project, it is determined that it is not feasible to permanently irrigate this area, a revegetation program will be implemented.	Site was fenced to reduce disturbance and promote reestablishment in 2007. In February 2014, LADWP crews seeded approximately 3.2 acres of this area with a native seed mix in conjunction with the adjacent 160-acre Big Pine parcel. Approximately 18 acres were drill seeded at 10lbs/acre using native shrub seed mix during Winter 2015/2016. Seed germination from the 2015/2016 seeding efforts was largely successful at this site. Additionally, some natural recruitment is occurring at this site. LADWP reseeded a 10-acre low cover portion of this parcel with native species in March 2021. Permanent transects were first read in 2013. In 2022, The parcel had achieved 4% native perennial vegetation cover with 3 perennial species (17.7% cover goal with 10 perennial species). The site will be considered complete when the cover is 90% and composition is 75% of the stated goal with an 80% confidence limit. The project is implemented but has not yet attained cover and composition goals.				**X**	
5	**X**					Big Pine Ditch System (EIR Impact 10-19)	10-19: Water management practices in a portion of the Big Pine Well Field have resulted in significant adverse change and decrease of plant cover.	The Big Pine Ditch Project was planned to be implemented as provided in the Agreement. Per the Agreement, LADWP is to provide up to $100,000 for reconstruction and upgrading of the ditch system. Additionally, LADWP is to supply up to 6 cfs to the ditch system from a new well to be constructed west of Big Pine. The Inyo/Los Angeles Water Agreement was modified in 2003 to change the source of the replacement water and to specify new sources for the Big Pine Ditch System. This revised	The Standing Committee approved procedures and guidelines for implementing the project in 1998. An *Initial Study and Mitigated Negative Declaration for the Big Pine Ditch System and Modification to the Klondike Lake Project in the Big Pine Area of Inyo County* was circulated in 2003 and was approved by the Board of Water and Power Commissioners on November 12, 2003. The Water Agreement was also amended at this time, changing the project as originally described. The Big Pine Irrigation and Improvement Association has implemented all phases required of them for the project and it has been in operation since 2005. LADWP has provided $99,745 of the $100,000 committed to the project.			**X**		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
								project includes a new well to be drilled in Bell Canyon and also includes an expansion of replacement water to include diversion from Big Pine Creek and Bell Canyon Ditch. Surface water flow in Big Pine Creek will be augmented with groundwater pumped from Well 415, and the surface water flow in Bell Canyon Ditch will be augmented from the proposed Bell Canyon Well. The project will be constructed, operated and maintained by the Big Pine Irrigation and Improvement Association.	LADWP annually supplies the required water to the project but is not currently recovering the makeup water. Well 415 has been drilled and equipped but is not yet operational. ICWD and LADWP adopted protocols for a 6-month pumping test of W415 with associated monitoring requirements at their May 6, 2020 Technical Group Meeting. The test has not yet been conducted but may occur in 2022. The Bell Canyon well has not yet been drilled. Although these two wells are not operational, this project is implemented and ongoing with water supplied annually to the project.					
6	X		X	X		Big Pine Northeast Regreening (30 acres; EIR Impact 10-11 and 10-19, EIR Table 5-3)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.10-19: Water management practices in a portion of the Big Pine Well Field have resulted in a significant adverse change and decrease of plant cover.	10-11: In the near future, two enhancement/mitigation projects will be initiated to mitigate areas affected by groundwater pumping adjacent to the towns of Independence (east side regreening project) and Big Pine (northeast regreening project). Each project was originally planned to be approximately 30 acres of irrigated pasture.10-19: LADWP and Inyo County will implement the Big Pine Regreening enhancement/mitigation project by establishing irrigated pasture on approximately 30 acres to the north and east of Big Pine.The Standing Committee approved a revised scope of work for the Big Pine Northeast Regreening Project as an Enhancement/ Mitigation Project under the EIR on November 4, 2010. The revised scope modified the boundaries of the project and amended the water supply source to be Big Pine Creek via the Big Pine Ditch System, Baker Creek via the Mendenhall Park Ditch, or Baker Return Ditch, or the Big Pine Canal, or a combination of these. The project will be supplied with up to 150 AF of water per year, and surface water supplied to the project will be made up by pumping W375 in an amount equivalent to that supplied to the project on an annual basis. Additionally,	LADWP prepared and circulated an Initial Study and Negative Declaration for the Big Pine Northeast Regreening Project. This ND was approved by the Board of Water and Power Commissioners on March 6, 2012 and its Notice of Determination was filed with the State Clearinghouse and Inyo County Clerk on March 7, 2012. The Owens Valley Committee and the Big Pine Paiute Tribe brought a lawsuit against LADWP April 6, 2012 (*Case No: SICVPT12-53541*) challenging the adequacy of the ND and impacts from the use of W375 for makeup water for the project. This suit was settled in November 26, 2012. The Technical Group exempted well W375 on November 6, 2013 for project makeup water in order to make this project feasible. Installation of the irrigation system for this project occurred in Winter 2013/2014. The Big Pine Northeast Regreening was fully implemented in Spring 2014. Water continues to be provided annually to this project. Project is implemented and ongoing.			X		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
								irrigation water will be supplied by flood or sprinkler irrigation.						
7	X			X		Bishop Area Revegetation Project (120 acres; EIR Impact 10-16)	10-16: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	120 acres of formerly irrigated land near Bishop with a loss of vegetation cover will be revegetated. The process to successfully revegetate these lands will be determined through studies to be conducted by LADWP and Inyo County. These lands will not be permanently irrigated, but will be revegetated with Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment. Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to achieve as full a vegetation cover as is feasible, but at a minimum, a vegetation cover sufficient to avoid blowing dust.	The site was fenced to reduce disturbance in 1998. Permanent transects were established in 1999. MWH conducted dryland revegetation studies at this site in 2003 and a soil microbial study at this site in 2005. In 2011, approximately 35 acres were drill seeded with locally collected seeds. In 2012, a buried drip irrigation system was installed across 16 acres of the site and seed was planted at these emitters. In 2015, approximately 6 acres were hand seeded at emitters with native seed mix and 11.3 acres were drill seeded at the south end of the site. LADWP planted 230 native shrubs utilizing the Cocoon Planting System from *Land Life Company* in the spring 2019. The cocoon planting technology allows for shrubs to grow in arid environments without additional irrigation post planting. As of 2019, the shrubs had a 48% survivability rate. The shrubs will continue to be monitored for success. Permanent transects were first read in 1999. The parcel achieved a cover value of 14% in 2019 meeting the cover goal. In 2022 the cover was 10% and the composition was 9, meeting the composition goal (15% cover goal with 12 perennial species). The site will be considered complete when the cover is 90% and composition is 75% of the stated goal with an 80% confidence limit. The project is implemented but has not yet attained both cover and composition goals.				X	

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
8	X			X		Blackrock 16E Revegetation Project (7.5 acres, EIR Impact 10-11)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.	Approximately 80 acres of land that lost a significant amount of its native vegetation cover as a result of increased groundwater pumping will be revegetated. The techniques that will be employed to revegetate these lands will be determined through studies that will be conducted by LADWP and Inyo County. These lands will not be permanently irrigated, but will be revegetated with native Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment. Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to restore as full a native vegetation cover as is feasible, but at a minimum, vegetation cover sufficient to avoid blowing dust will be achieved in that area.	Site was fenced to reduce disturbance and permanent vegetation transects were established. These transects were run in 2010 and the parcel attained cover and composition goals (31% cover consisting of 5 perennial species). Exclusionary fencing has been removed. Project is complete.	X				
9	X					Blackrock Hatchery (EIR Impact 10-14)	10-14: Increased groundwater pumping has reduced or eliminated flows from Fish Springs, Big and Little Seely Springs, Hines Spring, Big and Little Blackrock Springs, and Reinhackle Spring. This has caused significant adverse impacts to vegetation at several of these spring areas.	No on-site mitigation will be implemented at Fish Springs and Big Blackrock Springs; however, CDFW fish hatcheries at these locations serve as mitigation of a compensatory nature by producing fish that are stocked throughout Inyo County.	The Blackrock Hatchery Ponds were first operated in 1941. In 1976, the hatchery was expanded. Spawning activities ceased in 2012 at this hatchery. This hatchery raises rainbow and California Golden trout for distribution to approved waters in the State of California. Hatchery operations are managed by CDFW. The hatchery is on City of Los Angeles property and LADWP annually supplies water to the project. Project is implemented and ongoing.			X		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
10	X	X				Buckley Ponds (EIR Impact 10-5 and 11-1, EIR Table 5-2)	10-5: Between 1970 and 1990, the project resulted in beneficial changes to lakes and ponds, and the creation of new lakes and ponds, with no significant adverse impact on vegetation.11-1: Changes of surface water management practices and increased groundwater pumping have altered the habitats on which wildlife depends. Vegetation changes have been significant in many locations throughout the Valley. Therefore, impacts to certain species of wildlife, which were entirely dependent upon the impacted habitat, can be presumed to be significant.	Under this project, water is provided for a warm-water fishery and waterfowl area.	The dike system forming the Buckley Pond Series was originally constructed in the 1950s to create a water spreading and groundwater recharge area to be used only in above normal years. In 1968, a cooperative agreement between LADWP and CDFW proposed a habitat improvement project and permanent wildlife habitat area. Work under this agreement began in 1970 when it was implemented as an LADWP Environmental Project. LADWP, CDFW, and California Department of Forestry (CDF) signed onto the joint *Habitat Management Plan for the Buckley Pond Series* in 1976 that described how the pond series was to be managed. LADWP has conducted significant maintenance in these ponds in recent years. In December 2011, LADWP conducted controlled burns on Rawson Ponds #1, 2, and 3 with assistance from California Department of Forestry and Fire Protection (CalFire). Additional controlled burns were conducted on Rawson Pond #1 in December 2012 and on Rawson Pond #2 in January 2014. Following burning, all ponds were cleaned and new inlet/outlet structures installed, and handicap accessible fishing platforms were constructed by the local Lion's Club at each site. Ponds were back in service at the following times: Rawson Pond #3: March 2012; Rawson Pond #1: March 2013; and Rawson Pond #2: April 2014. Water continues to be provided annually to this project. Maintenance occurs as necessary. Project is implemented and ongoing.			X		
11	X	X				Calvert Slough (EIR Impact 10-5, EIR Table 5-2)	10-5: Between 1970 and 1990, the project resulted in beneficial changes to lakes and ponds, and the creation of new lakes and ponds, with no significant adverse impact on vegetation.	Under this project, water is provided to maintain habitat, small pond, and marsh area near the Los Angeles Aqueduct Intake.	Calvert Slough was originally implemented as an LADWP Environmental Project in the 1970s. Water continues to be provided to this project. Project is implemented and ongoing.			X		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
12	X	X			X	Diaz Lake (EIR Table 5-2, Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))		As described in the EIR, supplemental water supply is provided to Diaz Lake Recreational Area for this project. Under the 1997 MOU as one of the Additional Mitigation Projects Developed by the MOU Ad Hoc Group, the Diaz Lake Project provides a secure water supply for Diaz Lake and reduces the dependence on pumping conducted by Inyo County to supply the lake, as was the case with the original project. The primary benefit of the MOU project is reduced pumping by Inyo County in the Bairs-George wellfield to provide water for Diaz Lake.	The Diaz Lake Project was originally implemented as an LADWP Environmental Project in the 1970s. The changes in water supply and accounting for the project under the MOU were implemented in Spring 2012. Please refer to Section 3.2.1 for more information on this and other Additional Mitigation Projects Developed by the MOU Ad Hoc Group. Project is implemented and ongoing.			X		
13	X		X			Eastern California Museum (EIR Tables 4-3 and 5-3)		This project enhanced the appearance of the Eastern California Museum grounds in Independence. It consists of a small pond, trees, expanded lawn areas, and an irrigation system.	This project was implemented in 1989. Water continues to be provided annually to this project. Project is implemented and ongoing.			X		
14	X	X				Farmer's Pond (EIR Impact 10-5, 10-18, 11-1, EIR Table 5-2)	10-5: Between 1970 and 1990, the project resulted in beneficial changes to lakes and ponds, and the creation of new lakes and ponds, with no significant adverse impact on vegetation. 10-18: Significant adverse vegetation decrease and change have occurred in the Laws area due to a combination of factors, including abandoned agriculture, groundwater pumping, water spreading in wet years, livestock grazing, and drought. 11-1: Changes of surface water management practices and increased groundwater pumping have altered the habitats on which wildlife depends.	In the 1970s, LADWP started the Farmer's Pond environmental project. Water is provided in fall of each year to offer increased habitat for migrating waterfowl. The project area is two miles north of Bishop.	This project was originally implemented as an LADWP Environmental Project in the 1970s. Water continues to be provided annually to this project in the fall. Project is implemented and ongoing.			X		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
							Vegetation changes have been significant in many locations throughout the Valley. Therefore, impacts to certain species of wildlife, which were entirely dependent upon the impacted habitat, can be presumed to be significant.							
15	**X**					Fish Springs Hatchery (EIR Impact 10-14)	10-14: Increased groundwater pumping has reduced or eliminated flows from Fish Springs, Big and Little Seely Springs, Hines Spring, Big and Little Blackrock Springs, and Reinhackle Spring. This has caused significant adverse impacts to vegetation at several of these spring areas.	No on-site mitigation will be implemented at Fish Springs and Big Blackrock Springs; however, CDFW fish hatcheries at these locations serve as mitigation of a compensatory nature by producing fish that are stocked throughout Inyo County.	The Fish Springs Hatchery was originally constructed in 1952 and was modernized in 1972 and again in 2009. This hatchery produces and distributes rainbow and Eagle Lake trout to Inyo and Mono Counties. Hatchery operations are managed by CDFW. The hatchery is City property and LADWP annually supplies water to the project. Project is implemented and ongoing.			**X**		
16	**X**			**X**		Five Bridges Area Revegetation Project (300 acres; EIR Impact 10-12)	10-12: Vegetation in an area of approximately 300 acres near Five Bridges Road north of Bishop was significantly adversely affected during 1988 because of the operation of the two wells, to supply water to enhancement/mitigation projects.	Water has been spread over the affected area since 1988. By the summer of 1990, revegetation of native species had begun on approximately 80% of the affected area. LADWP and the County are developing a plan to revegetate approximately 60 acres with riparian and meadow vegetation. This plan will be implemented when it has been completed.	Since 1989, LADWP has implemented various efforts to recover native vegetation in the mitigation area through re-irrigating the affected area each growing season, extensive weed treatment to eradicate perennial pepperweed (*Lepidium latifolium),* and development and implementation of a grazing management plan to compliment these efforts. LADWP has also used controlled burns, sprinkler irrigation, seeding banks and outplanting native species to assist in mitigating the original impacts. In 2017, LADWP determined that mitigation for the impacts from groundwater pumping at Five Bridges was complete. The County and LADWP utilized the dispute resolution process to settle disagreements over the W385R pump test and the status of the Five Bridges Mitigation Project in 2017. On June 25, 2018, both parties entered into a Settlement Agreement as resolution to these disputes. Subsequently, at their July 19, 2018 meeting, the Inyo/Los Angeles Technical Group adopted resolutions to (1) adopt a monitoring and management plan for the W385R pump test and (2) amend the 1999 Revegetation Plan to temporarily suspend the provision requiring Wells 385 and 386 be permanently shut down in order to conduct the pump test. At their February 21, 2019 meeting, the Technical Group adopted a	**X**				

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
									Work Plan for the Five Bridges Mitigation Area for the 2019 and 2020 calendar years to coincide with the W385 pump test which occurred December 2019-February 2020. LADWP conducted the work outlined in that plan per agreement with Inyo County. Mitigation is complete.					
17					**X**	Freeman Creek Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))			Project was implemented in July 2010 as part of the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group. Water continues to be provided annually to this project. Please refer to Section 3.2.1 for more information on these projects. Project is implemented and ongoing.			**X**		
18	**X**				**X**	Hines Spring (1 to 2 acres, EIR Impact 10-14), implemented as the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3)	10-14: Increased groundwater pumping has reduced or eliminated flows from Fish Springs, Big and Little Seely Springs, Hines Spring, Big and Little Blackrock Springs, and Reinhackle Spring. This has caused significant adverse impacts to vegetation at several of these spring areas.	The original mitigation measure called for onsite mitigation at the Hines Spring vent and its surroundings. This project was also identified in the 1997 MOU and subject of 2004 and 2010 Stipulations and Orders.Per the MOU Section III.A.3 (Additional Mitigation), a total of 1600 AF of water per year will be supplied by LADWP for the implementation of the on-site mitigation measure at Hines Springs and on-site or off-site mitigation identified in the 1991 EIR for impacts at Fish Springs, Big and Little Seely Springs and Big and Little Blackrock Springs. Under the direction of LADWP and the County, *Ecosystem Sciences* will recommend reasonable and feasible on-site and/or off site mitigation measures, including the implementation of mitigation at Hines Springs.	*Ecosystem Sciences* developed a draft plan for this project that was finalized in October 2005. The MOU Parties found this plan to be inadequate and decided to enter into an *ad hoc* process to analyze the project at Hines Springs and other potential project areas. The Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group document was finalized in September 2008 and describes a series of eight mitigation projects to satisfy this 1600AF mitigation commitment of the 1997 MOU. This plan was completed and agreed to by the MOU Parties. CEQA analysis was conducted in Spring 2010 and the projects were adopted by the Board of Water and Power Commissioners in June 2010. Implementation of the projects began shortly thereafter and all were fully implemented by March 2012, per the 2010 Stipulation and Order (Case No: S1CVCV01-29768). Projects are further described in Section 3.2.1. Projects are implemented and ongoing.			**X**		
19	**X**			**X**		Hines Spring South (9 acres, EIR Impact 10-11)	Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.	Approximately 80 acres of land that lost a significant amount of its native vegetation cover as a result of increased groundwater pumping will be revegetated. The techniques that will be employed to revegetate these lands will be determined through studies that will be conducted by LADWP and the County. These lands will not be permanently irrigated, but will be revegetated with native Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment.	Per the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group, the timeline for implementing the Hines Spring South Revegetation Project was extended to three years post implementation of the Additional Mitigation Projects. All of the Additional Mitigation Projects were implemented by Spring 2012. The Revegetation Plan for Hines Spring South is complete and was provided in LADWP's 2015 Annual Owens Valley Report. The 9-acre exclosure was fenced in 2015 per this plan. Initial response to exclusion of this area was positive as demonstrated by prolific native grasses. Permanent vegetation transects were				**X**	

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
								Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to restore as full a native vegetation cover as is feasible, but at a minimum, vegetation cover sufficient to avoid blowing dust will be achieved in that area.	established and read in 2019 and again in 2022. The parcel has achieved 11% cover with 6 native perennial species (goal 35% cover with 4 native perennial species), meeting the composition goal. The site will be considered complete when the cover is 90% and composition is 75% of the stated goal with an 80% confidence limit. The project is implemented and but has not yet attained cover and composition goals.					
20					**X**	Hines Spring Well 355 Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))			Project was implemented in January 2012 as part of the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group. Please refer to Section 3.2.1 for more information on these projects. Project is implemented and ongoing.			**X**		
21					**X**	Homestead Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))			Project was implemented in February 2012 as part of the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group. Please refer to Section 3.2.1 for more information on these projects. Project is implemented and ongoing.			**X**		
22	**X**			**X**		Independence 105 Revegetation Project (14 acres, EIR Impact 10-13)	Increased groundwater pumping has significantly adversely affected approximately 60 acres of vegetation in the Symmes Shepherd well field area.	A revegetation program will be implemented for these effected areas utilizing native vegetation of the type that has died off. Water may be spread as necessary in these areas to accomplish the revegetation.	This project contains a portion of the 60 acres required for revegetation under EIR Impact 10-13. This 14-acre site was fenced to reduce disturbance in 1999 and permanent vegetation transects were established in 2000. As of 2017, the parcel contained 23% perennial vegetation cover consisting of 3 perennial species, attaining the goals for cover and composition (15% cover and 3 perennial species). Project is complete.	**X**				
23	**X**			**X**		Independence 123 Revegetation Project (28 acres, EIR Impact 10-13)	Increased groundwater pumping has significantly adversely affected approximately 60 acres of vegetation in the Symmes Shepherd well field area.	A revegetation program will be implemented for these effected areas utilizing native vegetation of the type that has died off. Water may be spread as necessary in these areas to accomplish the revegetation.	This project contains a portion of the 60 acres required for revegetation under EIR Impact 10-13. This 28-acre site was fenced to reduce disturbance in 1999 and permanent vegetation transects were established in 2000. As of 2006, this site had attained 17% cover with 4 native perennial species, attaining the goals for cover and composition (15% cover and 3 perennial species). Project is complete.	**X**				

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
24	**X**			**X**		Independence 131 Revegetation Project (23 acres, EIR Impact 10-13)	Increased groundwater pumping has significantly adversely affected approximately 60 acres of vegetation in the Symmes Shepherd well field area.	A revegetation program will be implemented for these effected areas utilizing native vegetation of the type that has died off. Water may be spread as necessary in these areas to accomplish the revegetation.	This project contains a portion of the 60 acres required for revegetation under EIR Impact 10-13. This 74.6-acre revegetation site is segmented by Symmes Creek and was fenced to reduce disturbance in 1999. Permanent vegetation transects were established in 2000. *Science Applications International Corporation* (SAIC) and MWH conducted dryland revegetation studies using various irrigation methods and planting techniques in 2003 and 2005. 25 acres were drill seeded with locally collected seeds in the spring of 2011. Permanent transects were first read in 2001 for both IND131N and IND131S. IND131N is to the north of Symmes Creek and IND131S is to the south. The parcel has achieved a high cover value of 9% and has met the composition requirement since 2001. In 2022, the overall cover and composition for IND131 is 7% cover and 7 native perennial species. IND131N has a cover value of 8% and composition of 4 native perennial species. IND131S has a cover value of 7% and composition of 7 native perennial species (goal is 17% cover and 4 native perennial species). The site will be considered complete when the cover is 90% and composition is 75% of the stated goal with an 80% confidence limit. This project has been fully implemented but the southern portion has not yet attained cover goals.				**X**	
25	**X**		**X**			Independence Ditch System (EIR Table 4-3)		This project will provide water to a ditch through Independence. After passing through town, the unused water may supply irrigation water to the Independence Pasturelands and/or Independence Springfield enhancement/mitigation projects.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1987. Water continues to be supplied annually to the project. Project is implemented and ongoing.			**X**		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
26	X		X	X		Independence East Side Regreening Project (23 acres; EIR Impact 10-11, 12-1, EIR Table 5-3)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands. 12-1: Significant impacts on air quality resulting from groundwater pumping during the period of 1970 to 1990 have occurred due to vegetation losses.	10-11: In the near future, two enhancement/ mitigation projects will be initiated to mitigate areas affected by groundwater pumping adjacent to the towns of Independence (east side regreening project) and Big Pine (northeast regreening project). Each project was originally planned to be approximately 30 acres of irrigated pasture.12-1: As part of the Independence Pasturelands and Springfield enhancement/mitigation projects, approximately 730 acres of barren or near barren ground have been revegetated with either native pasture or alfalfa. This area was affected by groundwater pumping and surface diversions of water.	Installation of the irrigation system for this project occurred in Winter 2013/2014. The Independence East Side Regreening Project was fully implemented in spring 2014. Water is supplied annually to the project for irrigation. Project is implemented and ongoing.			X		
27	X		X			Independence Pasturelands and Native Pasturelands (610 acres (520 acres per EIR Figure 12-2); EIR Impact 12-1, EIR Tables 4-3 and 5-3)	12-1: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	As part of the enhancement/mitigation projects implemented by LADWP and Inyo County since 1985, approximately 942 acres of these abandoned agricultural lands have been revegetated with irrigated pasture or alfalfa. These areas are the Independence Pasture and native pasture lands, the Van Norman and Richards Fields, and the Lone Pine Woodlot adjacent to Lone Pine.	This project was implemented as an LADWP Enhancement/Mitigation Project 1987-1988. Approximately 520 acres are incorporated into the project per Figure 12-2 in the 1991 EIR. Water continues to be provided annually to this project for irrigation. Project is implemented and ongoing.			X		
28	X		X			Independence Roadside Rest Area (0.5 acres; EIR Tables 4-3 and 5-3)		This project consisted of planting shade and windbreak trees and grass, installation of an irrigation system, and placement of a picnic table on a ½-acre site south of the town of Independence.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1989. Water is provided from the Independence Town Water System through a metered connection and paid for by Inyo County. Project is complete.	X				

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
29	**X**		**X**			Independence Springfield (286 acres; EIR Impact 10-11, 12-1, EIR Tables 4-3 and 5-3)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands. 12-1: Significant impacts on air quality resulting from groundwater pumping during the period of 1970 to 1990 have occurred due to vegetation losses.	10-11: As part of the Independence Springfield and Woodlot enhancement/mitigation projects, approximately 317 acres of barren or near-barren ground have been revegetated with either native pasture or alfalfa. This area was affected by groundwater pumping and surface diversions of water. 12-1: As part of the Independence Pasturelands and Springfield enhancement/mitigation projects, approximately 730 acres of barren or near barren ground have been revegetated with either native pasture or alfalfa. Approximately 40 acres remain barren and will be revegetated with native pasture. This area was affected by groundwater pumping and surface diversions of water.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1988 and irrigates approximately 300 acres. Water continues to be provided annually to the project for irrigation. The barren area is actively being naturally re-vegetated from recruitment of adjacent vegetation. Project is implemented and ongoing.			**X**		
30	**X**		**X**			Independence Woodlot (20 acres; EIR Impact 10-11, EIR Table 4-3)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.	As part of the Independence Springfield and Woodlot enhancement/mitigation projects, approximately 317 acres of barren or near-barren ground have been revegetated with either native pasture or alfalfa. This area was affected by groundwater pumping and surface diversions of water.	The Independence Wood Lot was initially planted in 1987. The wood lot was planted at a high density with the intent of thinning to a 12-foot spacing after planting success was determined. Over time, this high density of trees resulted in reduced growth and increased competition. While the hybrid poplar portions of the wood lots have been harvested several times since project implementation, the locust portions of the wood lots had never been harvested until 2015-2016. At that time, LADWP and CALFire conducted a significant thinning effort in both the Lone Pine and Independence Wood Lots resulting in approximately 130 cords of wood harvested and distributed to the Lone Pine Future Farmers of America (FFA), who holds the lease to both wood lots and manages the distribution of wood.In Winter 2016-17, LADWP and CALFire continued thinning the Hybrid Popular and Black Locust tree portions of both wood lots, resulting in another 120 cords of wood harvested and distributed to the Lone Pine FFA. Maintenance of the wood lots continues as needed. Replanting efforts of the harvested portions of the Independence woodlot occurred in spring 2017 with the planting of 675 Hybrid Popular pole plantings. Firewood distribution was turned over to Independence School in 2022. Ongoing maintenance and irrigation are handled by			**X**		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
									LADWP. Water is supplied annually to the project for irrigation. Project is implemented and ongoing.					
31	**X**	**X**	**X**			Klondike Lake Aquatic Habitat (160 acres; EIR Impact 10-5 and 11-1, EIR Tables 4-3, 5-2, and 5-3)	Changes of surface water management practices and increased groundwater pumping have altered the habitats on which wildlife depends. Vegetation changes have been significant in many locations throughout the Valley. Therefore, impacts to certain species of wildlife, which were entirely dependent upon the impacted habitat, can be presumed to be significant.	The importance of riparian, marsh and aquatic habitats is recognized for mitigation of the impacts to wildlife that occurred during the 1970 to 1990 period. Wetter habitats support many more species and greater populations of wildlife; therefore, water management to create wet habitats will be used to mitigate the significant adverse impacts of the project.	The Klondike Lake Project was implemented as an LADWP Enhancement/Mitigation Project in 1986. Klondike sustains a year-round water supply in a 160-acre formerly seasonal lakebed area providing nesting and feeding areas for waterfowl, and permitting water skiing and other water sports in summer months. Water continues to be provided annually to the project. The estimated water usage for the project was modified in the Big Pine Ditch System MND from 2,200 AF to 1,700 AF, with 1,500 AF allocated for conveyance and lake level maintenance and up to 200 AF allocated for the Klondike South Shore Habitat Area (SSHA) south of the lake. LADWP provides boat inspections for nonnative quagga and zebra mussels at Klondike annually from Memorial Day to Labor Day to ensure that these mussels are not introduced into LA's water system. Project is implemented and ongoing.			**X**		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
32						Klondike SSHA (Big Pine Ditch System MND)		Per the Big Pine Ditch System MND, up to 200 acre feet of water will be supplied to a habitat area south of Klondike Lake for waterfowl nesting and feeding.	The Klondike South Shore Habitat Area (SSHA) Project was implemented as part of the Big Pine Ditch System Project and MND (2003), as the water supply for the Klondike Lake Project was modified to supply up to 200 AF of water to the SSHA project. A new diversion was installed and implementation of the releases for waterfowl habitat south of the lake began in May 2005. Delivery and measurement of the total allocation of up to 200 AF to the south was initially problematic because of the low hydraulic gradient between the lake and the waterfowl habitat areas as well as sand accumulation in this area. An alternate water release location was utilized starting in 2012. In March 2015, LADWP disked the tules in the habitat area that had resulted from multiple years of flooding throughout the growing season to increase the amount of shallow flooding acreage available for migrants. Water continues to be provided to the project annually as required; 179.6 AF of water was released to the project in 2023 (April-May; September-October). Project is implemented and ongoing.			**X**		
33				**X**		LAWS 118 (19-acres portion) and LAWS 129 Revegetation Project (66 acres, Laws Type E Transfer MND/2003 Laws Revegetation Plan)		Per the 2003 Laws Revegetation Plan, this project requires native revegetation 19 acres of LAWS 118 (in addition to acreage required under 1991 EIR) and 47 acres of LAWS 129, with 10% cover and eight native species.	The 19-acre portion of Laws 118, covered in the Laws 2003 Plan, is a horseshoe shaped parcel surrounding Laws 129. It has a buried drip irrigation system within the western and eastern sections of the parcel. Approximately 8,000 plants were planted in this parcel from 2008 to 2018. Initial planting *is 100% complete.* In the fall of 2023 transects were established to evaluate the condition of the parcel and to determine if the parcel has met the goals as stated in the Revegetation Plan for Land Removed from Irrigation (LADWP 2003) (2003 Plan). The goal, as stated in the Plan, is 10% cover with 8 native perennial species. Additionally, the Plan states that once the parcel has met the established success criteria, the parcel would have to persist for an additional two years with no onsite revegetation activities, including irrigation. Following the two-year rest, the parcel will be reevaluated to determine if it still meets the established goals as outlined in the 2003 Plan. If the parcel meets the established goals after the two-year rest, no further revegetation efforts will be required, and the project will be considered complete.			**X**[1]		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
									Monitoring in the fall of 2023 demonstrated the parcel has met both cover (23%) and composition criteria (13 native species) and triggering subsequent monitoring five years after the cessation of both planting and irrigation. The increase in the length of time between monitoring periods is to ensure the survival of planted rabbitbrush (*Ericameria nauseosa*) in Laws 129 (see Section 3.2.2). Discussions are underway with Inyo County to confirm these findings. For Laws 129, a drip irrigation system is fully installed at this site. Approximately 26,000 plants were planted in this parcel from 2008 to 2018. Initial planting in this parcel was 100% completed by fall 2015. In the fall of 2018, approximately 6,000 plants were overplanted within the parcel, filling in all vacant emitter locations. In the summer of 2022 transects were established to evaluate the condition of the parcel and to determine if the parcel has met the goals as stated in the Revegetation Plan for Land Removed from Irrigation (LADWP 2003) (2003 Plan). The goal, as stated in the Plan, is 10% cover with 8 native perennial species. Additionally, the Plan states that once the parcel has met the established success criteria, the parcel would have to persist for an additional two years with no onsite revegetation activities, including irrigation. Following the two-year rest, the parcel will be reevaluated to determine if it still meets the established goals as outlined in the 2003 Plan. If the parcel meets the established goals after the two-year rest, no further revegetation efforts will be required, and the project will be considered complete. LADWP's 2022 data indicates Laws 129 has 17% cover and 12 native species, meeting cover and composition criteria and triggering subsequent monitoring five years after the cessation of both planting and irrigation before being deemed complete. The increase in the length of time between monitoring periods is to ensure the survival of planted rabbitbrush in the parcel (see section 3.2.2). Discussions are underway with Inyo County to confirm these findings.					

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
34				X		LAWS 27 (Native Seed Farm) (Laws Type E Transfer MND)		Per the Laws Type E Transfer MND (Irrigation Project in the Laws Area, this project requires LADWP to initiate a native seed farm for use on Owens Valley Revegetation projects.	A seed farm was initiated for seed harvest in 2004 with the intent to aid in the implementation of all revegetation projects in the Owens Valley. LADWP operates two greenhouses to grow up to 18,000 plants biannually for the seed farm and other revegetation efforts. Portions of the Seed Farm are currently well established and are producing viable seed from native grasses and shrubs. Approximately 40 acres of drip irrigation was hand seeded with rabbit brush and 2 acres of land without irrigation was drill seeded with a native upland scrub mix in winter of 2015. LADWP completed initial planting of the Laws Native Seed Farm in Spring 2017 by outplanting approximately 10,500 native plants at the site. LADWP overplanted an additional 6,000 plants at the site in Fall 2017. Survivability monitoring of the outplantings was performed in the fall of 2018, which indicated 64% survivability. In the spring of 2018, 15 acres of sprinkler irrigation was drill seeded with Indian ricegrass (*Achnatherum hymenoides*). Due to low success, in the spring of 2019, the entire western section of sprinkler irrigation (30 acres) was mowed and disked to prepare a clean seed bed for seeding. The area was drill seeded with Indian ricegrass at 30lbs/acre and irrigation was commenced. The ricegrass germinated quickly and began to grow, putting on seed early in the season. However, the area became very weedy and the ricegrass was outcompeted by annual forbs. Following a trial application of herbicide, in the spring of 2020, the entire western section was treated with herbicide. This reduced the weedy, competitive growth of forbs, and allowed the ricegrass to expand. By the end of the growing season, the entire western section of the seed farm was dominated by pasture grass with very little weedy growth. In the winter of 2022, new buried drip irrigation was installed in the center section of the parcel, just east of the 30-acre ricegrass area. There was no irrigation in this area and it is the last section to be planted in the parcel. In the spring of 2022, approximately 13,000 native plants were planted in this area, two plants per emitter, to fill in the remainder of the parcel. There is no specific cover and composition criteria for this site. The project is fully implemented and ongoing. The site is effectively mitigating dust and will continue to be irrigated per the 2003 Plan.			X		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
35				X		LAWS 90 Revegetation Project (101 acres, Laws Type E Transfer MND/2003 Laws Revegetation Plan)		Per the 2003 Laws Revegetation Plan, this project requires native revegetation of 101 acres of abandoned agriculture land with 10% cover and 10 ten native species.	The drip irrigation system is fully installed at this site. Initial planting in this large parcel is 100% complete. Approximately 91,400 plants have been planted in this parcel from 2008 to 2022. In 2014 and 2015, LADWP implemented a series of demonstration projects at Laws 90 including pre-emergent weed control, sand fencing, hay bale placement, exclusionary fencing, and mulch application. Knowledge gained from these demonstration projects have helped guide revegetation efforts in the Laws area. All of Laws 90 was overplanted in 2016 with approximately 26,400 additional plants filling in all emitter basins with either new or established live plants. Survivability monitoring of the outplantings was performed in the fall of 2018 indicating 74% survivability. In the fall of 2020, approximately 16,000 native plants were overplanted at this site. In the spring of 2022, approximately 4,000 plants were planted in the northwest section of the parcel. This area was planted in the fall of 2020, but because seedling protectors were not used, most of the plants were destroyed by herbivory. Initial planting across all 101 acres is 100% complete. In the summer of 2022 transects were established to evaluate the condition of the parcel and to determine if the parcel has met the goals. The goal, as stated in the Plan, is 10% cover with 10 native perennial species. Additionally, the Plan states that once the parcel has met the established success criteria, the parcel would have to persist for an additional two years with no onsite revegetation activities, including irrigation. Following the two-year rest, the parcel will be reevaluated to determine if it still meets the established goals. If the parcel meets the established goals after the two-year rest, no further revegetation efforts will be required and the project will be considered complete. LADWP's 2022 data indicates the site has 16% cover and 13 native species, meeting cover and composition criteria and triggering subsequent monitoring two years after the cessation of irrigation before being deemed complete. Discussions are underway with Inyo County to confirm these findings.			X[1]		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3** **LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
36				**X**		LAWS 94 Revegetation Project(40 acres, Laws Type E Transfer MND/2003 Laws Revegetation Plan)		Per the 2003 Laws Revegetation Plan, this project requires native revegetation of 40 acres of abandoned agriculture land with 10% cover and ten native species.	The initial planting for the entire parcel was complete in Fall 2013. This parcel was formerly a combination of buried and aboveground drip irrigation systems; as of spring 2018, LADWP replaced all remaining above ground drip line with new buried drip irrigation lines. Approximately 38,000 plants have been planted in this parcel from 2008 to 2019. LADWP seeded the (former) above ground drip portion in 2015/2016 but had little success with germination. Survivability monitoring of the outplantings was performed in the fall of 2018, indicating 71% survivability. In the spring of 2019, approximately 15,000 native plants were overplanted at this site. Initial planting across all 40 acres is 100% complete. In the summer of 2022 transects were established to evaluate the condition of the parcel and to determine if the parcel has met the goals. The goals, as stated in the Plan, is 10% cover with 10 native perennial species. Additionally, the Plan states that once the parcel has met the established success criteria, the parcel would have to persist for an additional two years with no onsite revegetation activities, including irrigation. Following the two-year rest, the parcel will be reevaluated to determine if it still meets the established goals. If the parcel meets the established goals after the two-year rest, no further revegetation efforts will be required and the project will be considered complete. LADWP's 2022 data indicates the site has 11% cover and 14 native species, meeting cover and composition criteria and triggering subsequent monitoring two years after the cessation of irrigation before being deemed complete. Discussions are underway with Inyo County to confirm these findings.			**X[1]**		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
38	**X**			**X**		Laws Area Revegetation Project (LAWS118) (140 acres; EIR Impact 10-18)	10-18: Significant adverse vegetation decrease and change have occurred in the Laws area due to a combination of factors, including abandoned agriculture, groundwater pumping, water spreading in wet years, livestock grazing, and drought.	Approximately 140 acres will be revegetated within the Laws area, which has lost all or part of its vegetation cover due to increased groundwater pumping or to abandonment of irrigation operations to supply the second aqueduct.	Site was fenced to reduce disturbance in 1998. Permanent transects were established in 1999. Dryland revegetation studies examining various planting and watering techniques were conducted in a portion of LAWS 118 by SAIC and MWH Americas in 2003 and 2004. In 2004, the above ground drip irrigation system was expanded and seed was planted at all emitters. The above-ground irrigation system was moved to a new area in 2005 and seed was planted at the new emitters at that time. In 2005, MWH conducted a soil microbial study at the site. In Spring 2011, 18 acres were seeded with locally collected seeds. In 2012, a buried drip system was installed at this site over approximately 30 acres. In the fall of 2018, approximately 11,000 plants were outplanted within the 30 acres of drip irrigation. New fencing was installed in 2013 on the west side of the project area along the new boundary with the Cashbaugh Lease established in the Laws Type E transfer. Approximately 46 acres was drill seeded during winter 2015/2016. In the summer of 2020, buried drip irrigation was expanded to the west to include a barren area adjacent to Laws Poleta Road. Approximately 17,000 plants were outplanted in this section in the fall of 2021. Permanent vegetation transects were first read in 1999. In 2022 the cover value was 10% with a composition of 18 native perennial species, meeting both the cover and composition goals (11.5% cover with 11 native perennial species). LADWP's data indicates that compliance criteria have been met. Discussions are underway with Inyo County to confirm these findings.	**X**[1]				
39	**X**		**X**			Laws Historical Museum Pasturelands (21+15 acres; EIR Impact 10-18, EIR Table 5-3)	Significant adverse vegetation decrease and change have occurred in the Laws area due to a combination of factors, including abandoned agriculture, groundwater pumping, water spreading in wet years, livestock grazing, and drought.	In the mid-1980s, LADWP and the County implemented the Laws-Poleta Pasture Land, Laws Museum, and McNally Ponds enhancement/mitigation projects in the Laws area totaling approximately 541 acres of pasture land.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1990. This project provides a regular water supply to improve the native vegetation on a 21-acre parcel, establish irrigated pasture on 15 acres and establish windbreak trees, all adjacent to the museum. Water continues to be provided annually to this project for irrigation. Project is implemented and ongoing.			**X**		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
40	X		X			Laws/Poleta Native Pasture (216 acres; EIR Impact 10-18, EIR Tables 4-3 and 5-3)	Significant adverse vegetation decrease and change have occurred in the Laws area due to a combination of factors, including abandoned agriculture, groundwater pumping, water spreading in wet years, livestock grazing, and drought.	In the mid-1980s, LADWP and The County implemented the Laws-Poleta Pasture Land, Laws Museum, and McNally Ponds enhancement/mitigation projects in the Laws area totaling approximately 541 acres of pasture land.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1988. This project provides water for irrigation of 220 acres of sparsely vegetated land to reestablish native vegetation on abandoned pasture lands and increase livestock grazing capabilities. Water continues to be provided annually to this project for irrigation. Project is implemented and ongoing.			X		
41	X	X				Little Blackrock Springs (EIR Impact 10-14, EIR Table 5-2)	Increased groundwater pumping has reduced or eliminated flows from Fish Springs, Big and Little Seely Springs, Hines Spring, Big and Little Blackrock Springs, and Reinhackle Spring. This has caused significant adverse impacts to vegetation at several of these spring areas.	LADWP will continue to supply water from Division Creek to the site of the former pond at Little Blackrock Springs. The marsh vegetation at this site will thus be maintained.	This project was implemented as an LADWP Environmental Project in the 1970s. Water is supplied from Division Creek to maintain the marsh vegetation as required. Project is implemented and ongoing.			X		
42	X		X			Lone Pine East Side Regreening (11 acres; EIR Impact 10-16, EIR Table 5-3)	10-16: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	A field of approximately seven acres along the Whitney Portal Road in Lone Pine, and a field of approximately 11 acres north of Lone Pine and east of Highway 395, have been converted to irrigated pasture as part of the Lone Pine Regreening enhancement/mitigation projects.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1990. This project was implemented to enhance the aesthetics of abandoned agricultural or pasture lands in areas around the towns of Big Pine, Independence, and Lone Pine. Water is supplied from LADWP facilities to promote and maintain vegetation. Water continues to be provided annually to this project for irrigation. Project is implemented and ongoing.			X		
43	X		X			Lone Pine-North Lone Pine Clean Up (EIR Table 4-3)		This project consisted of clearing unsightly, diseased or dead trees and cleaning up refuse around the community of Lone Pine.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1989 to improve the aesthetics of a 23-acre area north of Lone Pine east of Highway 395. This project is complete.	X				

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
44	X		X			Lone Pine Riparian Park (320 acres, EIR Tables 4-3 and 5-3)		Provide a continuous water supply to a reestablished ditch running through Lone Pine Town Park and then easterly to the Lone Pine Woodlot Project. Water not used by this project or the Woodlot Field project could flow to the historic Lone Pine Creek Channel east of Lone Pine and returned to the Owens River Channel.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1987. This project supplies water through a historic ditch to the Lone Pine Riparian Park, the Lone Pine Wood Lot, and approximately 320 acres of reestablished pasturelands in Richards and Van Norman Fields. Water continues to be provided annually to this project for irrigation as required. Project is implemented and ongoing.			X		
45	X		X			Lone Pine Sports Complex (EIR Table 5-3)		This project consists of a sports complex that includes a playground for Lo-Inyo School, soccer fields, softball/baseball fields, and parking and picnic area over approximately 10 acres.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1990. This project converted vacant City property to an outdoor sports complex consisting of baseball fields, soccer fields, parking, picnic, and park areas. Project is complete.	X				
46	X		X			Lone Pine West Side Regreening (8 acres; EIR Impact 10-16, EIR Tables 4-3 and 5-3)	10-16: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	A field of approximately seven acres along the Whitney Portal Road in Lone Pine, and a field of approximately 11 acres north of Lone Pine and east of Highway 395, have been converted to irrigated pasture as part of the Lone Pine Regreening enhancement/mitigation projects.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1990. This project was implemented to enhance the aesthetics of abandoned agricultural or pasture lands in areas around the towns of Big Pine, Independence, and Lone Pine. Water is supplied annually from LADWP facilities to promote and maintain vegetation. Project is implemented and ongoing.			X		
47	X		X			Lone Pine Woodlot (12 acres; EIR Impact 10-11, EIR Table 4-3)	10-11: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	As part of the enhancement/mitigation projects implemented by LADWP and the County since 1985, approximately 942 acres of these abandoned agricultural lands have been revegetated with irrigated pasture or alfalfa. These areas are the Independence Pasture and native pasture lands, the Van Norman and Richards Fields, and the Lone Pine Woodlot adjacent to Lone Pine.	The Lone Pine Wood Lot was initially planted in 1987. The wood lot was planted at a high density with the intent of thinning to a 12-foot spacing after planting success was determined. Over time, this high density of trees resulted in reduced growth and increased competition. While the hybrid poplar portions of the wood lots have been harvested several times since project implementation, the locust portions of the wood lots had never been harvested until 2015-2016. At that time, LADWP and CAL Fire conducted a significant thinning effort in both the Lone Pine and Independence Wood Lots resulting in approximately 130 cords of wood harvested and distributed to the Lone Pine Future Farmers of America (FFA), who holds the lease to both wood lots and manages the distribution of wood.In Winter 2017-18, LADWP and CAL Fire planted 825 Hybrid Popular trees in the Popular section of the Lone Pine Wood Lot. The trees were planted in			X		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
									areas where there were spaces from trees not re-sprouting. Maintenance of the wood lots continues as needed. Firewood distribution was turned over to the Lone Pine school in 2022. All maintenance and irrigation is handled by LADWP. Water is supplied annually to the project for irrigation. Project is implemented and ongoing.					
48	**X**	**X**	**X**		**X**	LORP Project (60 miles, perhaps more than 1,000 acres)/ Lower Owens Rewatering Project; EIR Impacts 10-14, 10-17, 10-20; EIR Tables 4-3 and 5-3, 1997 MOU Section II)	Increased groundwater pumping has reduced or eliminated flows from Fish Springs, Big and Little Seely Springs, Hines Spring, Big and Little Blackrock Springs, and Reinhackle Spring. This has caused significant adverse impacts to vegetation at several of these spring areas.	Although not all springs and associated riparian and meadow vegetation will receive on-site mitigation, the Lower Owens River Project will provide mitigation of a compensatory nature. This project will rewater over 50 miles of the river channel allowing for restoration of riparian vegetation along the river. This project also will result in the creation of several new ponds along the river and will provide the continuation of existing lakes associated with the project. The project will restore large areas of wetland and meadow vegetation, perhaps exceeding 1,000 acres adjacent to the river and in its delta. In comparison, the area of riparian and meadow vegetation that has been lost and will not be restored because of the elimination of spring flow due to groundwater pumping is estimated to be less than 100 acres.	Flows were initiated in the Lower Owens River Project in December 2006. All four elements of the LORP are functioning and are being adaptively managed. Monitoring is ongoing and water is annually supplied to the project as required. For more information on the monitoring and management of the LORP, refer to LADWP and ICWD's LORP Annual Report. Project is implemented and ongoing.			**X**		
49	**X**		**X**			McNally Ponds and Native Pasturelands (300 acres pasture, 60 acres ponds; EIR Impact 10-5 and 10-18, EIR Tables 4-3 and 5-3)	10-5: Between 1970 and 1990, the project resulted in beneficial changes to lakes and ponds, and the creation of new lakes and ponds, with no significant adverse impact on vegetation.10-18: Significant adverse vegetation decrease and change have occurred in the Laws area due to a combination of factors, including abandoned agriculture, groundwater pumping, water spreading in wet years, livestock grazing, and drought.	In the mid-1980s, LADWP and the County implemented the Laws-Poleta Pasture Land, Laws Museum, and McNally Ponds enhancement/mitigation projects in the Laws area totaling approximately 541 acres of pasture land.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1986-1987. When in operation, this project provides water for 300 acres during the spring and summer months to mitigate and sustain vegetation, and to provide water to 60 acres of ponds during the fall months for waterfowl habitat. The Standing Committee agreed in 1991 to reduce the water commitment to the McNally Ponds Project because of dry conditions. In most normal and below-normal runoff years since that time, the Standing Committee has reduced water releases to this project. In years of abundant runoff the project receives its full allotment of water. In drier years the McNally Canals are not operated. The Water Agreement states that LADWP shall operate the canals in accordance with its practices from 1970. There is an alternate water supply source			**X**		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3** **LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
									when wells are in "ON" status. This project was supplied with water in both 2017 and 2023 due to the high runoff conditions and water spreading in the Laws Area. Project is implemented and ongoing with water supplied to the project in years where the McNally Canals are in operation or the associated wells are in "ON" status. Project is implemented and ongoing.					
50	**X**	**X**	**X**			Millpond Recreation Area (EIR Impact 10-5, EIR Table 5-2 and 5-3)	Between 1970 and 1990, the project resulted in beneficial changes to lakes and ponds, and the creation of new lakes and ponds, with no significant adverse impact on vegetation.	This project was first implemented as an LADWP Environmental Project and required water to be provided to the pond as the recreation area either by creek flow or a well at the site. Millpond is also an Enhancement Mitigation Project that has required LADWP to provide funds to purchase energy to operate the recreation area's sprinkler system that waters 18 acres of the community park including two softball fields.	This project is managed by the Inyo County Parks and Recreation. LADWP continues to provide water and funds for power annually to this project. Project is implemented and ongoing.			**X**		
51					**X**	North of Mazourka Canyon Road Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))			Project was implemented in December 2011 as part of the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group. Please refer to Section 3.2.1 for more information on these projects. Project is implemented and ongoing.			**X**		
52	**X**	**X**				Olancha-Cartago Irrigated Fields (EIR Impact 10-16)	Approximately 1,080 acres of formerly irrigated lands, had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	Irrigated lands in Owens Valley (including Olancha-Cartago area) in existence during the 1981-82 runoff year or that have been irrigated since then, will continue to be irrigated in the future, except perhaps in very dry years. (Reductions in very dry years must be agreed upon in advance by LADWP and the Inyo County Board of Supervisors).	These lands in the Olancha-Cartago area continue to be irrigated annually as required under the Water Agreement.			**X**		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3** **LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
53					X	Owens Valley Land Management Plan (MOU Section III.B)		The City of Los Angeles retains land holdings in the Owens Valley primarily to ensure protection of both surface and groundwater resources, and to enable sustained water supply to meet the needs of the citizens of Los Angeles. As financial and personnel resources become available, but not later than 5 years after discharge of the writ, DWP will commence the preparation of management plans for Los Angeles-owned, non-urban lands within the portion of the Owens River watershed located in Inyo County not included in the LORP Planning Area. Within the Management Area, DWP, in consultation with the Parties and others, will identify and prioritize for plan development, those areas where problems exist from the. effects of livestock grazing and other land uses. The Parties will have the opportunity to review and comment on a written description of the areas identified, and the reasons for their prioritization, before plan development. The first level of priority will be given to riparian areas, irrigated meadows and sensitive plant or animal habitats. The plans will use the work done and underway in the Long Valley and Upper Owens River areas as a model where appropriate. Opportunity for Party, agency and public review of the proposed plans will be provided. The process will comply with applicable provisions of CEQA. As with the LORP Plan described above, the management plans will consider multiple resource values, and will provide for management based upon holistic management principles. While providing for the primary purpose for which Los Angeles owns the lands, including the protection of water resources utilized by the citizens of Los Angeles, the plans will also provide for the continuation of sustainable uses (including recreation, livestock grazing, agriculture, and other activities) will promote biodiversity and a healthy ecosystem, and will consider the enhancement of Threatened and Endangered Species habitats. Habitat conservation plans for Threatened and Endangered Species will be incorporated if and	LADWP's OVLMP was completed in 2010. The OVLMP contains guidance on grazing management of City lands, as well as recreation, fire, cultural resources, commercial uses, and flow management. A Mitigated Negative Declaration was prepared and circulated with the plan which was adopted by the Board of Water and Power Commissioners in June 2010. Implementation of fencing and recreational management measures were complete in early 2011. City lands outside the LORP Planning Area are currently being managed under this plan. See Section 3.2.3 for more information.			X		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
								where appropriate. Plans will include an implementation schedule for the purpose of addressing the problems identified in the planning areas, and a monitoring/reporting program. The plans will be prepared under the direction of Consultants and all plans will be completed within approximately 10 years of the discharge of the writ. As plans become final, they will be presented to the Board of Water and Power Commissioners for approval and implementation as expeditiously as possible in accordance with the schedule set forth in the plan.						
54	**X**					Reinhackle Spring (EIR Impact 10-14)	10-14: Increased groundwater pumping has reduced or eliminated flows from Fish Springs, Big and Little Seely Springs, Hines Spring, Big and Little Blackrock Springs, and Reinhackle Spring. This has caused significant adverse impacts to vegetation at several of these spring areas.	When it was determined in the late 1980s that groundwater pumping was affecting the flow from Reinhackle Spring, pumping from certain wells in the area was discontinued and the spring flow increased. No significant adverse impacts on vegetation in this area have resulted from the reduced flow. At Reinhackle Spring, groundwater pumping from wells that affect the spring flow will be managed so that flows from the spring will not be significantly reduced compared to flows under prevailing natural conditions. In addition, all of the provisions for protecting springs, described in impact 10-15 and contained in the Water Agreement and the Green Book, will be applied equally to Reinhackle Spring.	Spring flows are being monitored continually. The flow followed the typical seasonal pattern of reaching a peak flow in winter and a low flow in the spring. A geochemistry study of flow in Reinhackle Spring was conducted in 2003 as a cooperative study by LADWP, MWH Americas, Inc., and ICWD, which concluded that water from Reinhackle Spring is similar in origin to the Los Angeles Aqueduct and dissimilar to the deep aquifer samples and up gradient shallow aquifer wells. An operational test was conducted in Bairs Georges Wellfield to study the response of the spring flow to groundwater pumping by active wells in the wellfield and the flow in the Los Angeles Aqueduct (March 2011). Results show that the flow in Reinhackle Spring is affected mainly by the water levels in the shallow aquifer west of the spring. Groundwater pumping in the Bairs Georges Wellfield could affect the flow in the spring only to the extent that it affects water levels in the shallow aquifer west of the spring. LADWP has developed a monitoring and operational plan for Bairs Georges Wellfield that has been submitted to ICWD for comment. Project is implemented and ongoing.			**X**		
55	**X**		**X**			Richards Fields (160 acres; EIR Impact 10-16, EIR Table 4-3)	10-16: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	As part of the enhancement/mitigation projects implemented by LADWP and the County since 1985, approximately 942 acres of these abandoned agricultural lands have been revegetated with irrigated pasture or alfalfa. These areas are the Independence Pasture and native pasture lands, the Van Norman and Richards Fields, and the Lone Pine Woodlot adjacent to Lone Pine.	This project was implemented as a LADWP Enhancement/Mitigation Project in 1987. Water continues to be provided annually to the project for irrigation. Project is implemented and ongoing.			**X**		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
56	X	X				Saunders Pond (EIR Impact 10-5, EIR Table 5-2)	10-5: Between 1970 and 1990, the project resulted in beneficial changes to lakes and ponds, and the creation of new lakes and ponds, with no significant adverse impact on vegetation.	Under this project, water is provided for a warm-water fishery and waterfowl area.	The dike system forming the Buckley Pond Series was originally constructed in the 1950s to create a water spreading and groundwater recharge area to be used only in above normal years. In 1968, a cooperative agreement between LADWP and CDFG proposed a habitat improvement project and permanent wildlife habitat area. Work on Saunders Pond was complete in 1971. LADWP, CDFG, and California Department of Forestry (CDF) signed onto the joint Habitat Management Plan for the Buckley Pond Series in 1976 that described how the pond series was to be managed. More recently, LADWP burned Saunders Pond in spring 2016, removed aquatic vegetation, and resumed flows to the pond in fall 2016. The local Lion's Club installed a handicap accessible fishing platform/dock on the south end of the pond in summer 2016. Water continues to be provided annually to the project. Project is implemented and ongoing.			X		
57	X		X			Shepherd Creek Alfalfa Field (198 acres; EIR Impact 10-11, 12-1, EIR Tables 4-3 and 5-3)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands. 12-1: Significant impacts on air quality resulting from groundwater pumping during the period of 1970 to 1990 have occurred due to vegetation losses.	10-11: Under the Shepherd Creek enhancement/mitigation project, approximately 198 acres of poorly vegetated land has been converted to alfalfa. This area was affected by groundwater pumping and abandonment of irrigation. In addition, an area of approximately 60 acres to the east of the existing project area on the opposite side of U.S. Highway 395 is poorly vegetated. If the density of the native cover in this area does not naturally increase, the existing enhancement/mitigation project may be expanded to include this additional area. 12-1: Under the Shepherd Creek enhancement/mitigation project, approximately 200 acres of poorly vegetated land has been converted to alfalfa.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1986. The Shepherd Creek Alfalfa Field Project has been revegetated with alfalfa that is sprinkler irrigated and wind break trees. Water continues to be provided annually to the project for irrigation. Project is implemented and ongoing.			X		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
58	X		X			Shepherd Creek Potential (60 acres; EIR Impact 10-11, 12-1, EIR Table 5-3)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands. 12-1: Significant impacts on air quality resulting from groundwater pumping during the period of 1970 to 1990 have occurred due to vegetation losses.	10-11: Under the Shepherd Creek enhancement/mitigation project, approximately 198 acres of poorly vegetated land has been converted to alfalfa. This area was affected by groundwater pumping and abandonment of irrigation. In addition, an area of approximately 60 acres to the east of the existing project area on the opposite side of U.S. Highway 395 is poorly vegetated. If the density of the native cover in this area does not naturally increase, the existing enhancement/mitigation project may be expanded to include this additional area.	The Shepherd Creek Potential Project was evaluated and natural increases in the density of native cover have occurred making the site comparable to baseline conditions in adjacent undisturbed parcels. Therefore, the goals for this potential project, as stated in the EIR, have been met. Project is complete.	X				
59	X					Steward Ranch (EIR Impact 9-14)	9-14: Los Angeles Department of Water and Power (LADWP) pumping between 1970 and 1990 in the Big Pine area contributed to lowered water levels in the wells of Steward Ranch and resulted in an adverse economic effect. It is expected that LADWP will continue to pump from this area in the future. The proposed mitigation measure would reduce this impact to less-than significant.	Because groundwater pumping in the Big Pine well field was contributing to a lowering of groundwater levels at Steward Ranch, one of two wells became inoperable. LADWP reached agreement with the ranch owners to permanently mitigate the lowered groundwater levels that have existed since 1972.	The mitigation efforts are complete. LADWP continues to compensate the ranch owners for added power costs of pumping water from a greater depth. Project is implemented and ongoing.			X		
60	X			X		Tinemaha 54 Revegetation Project (EIR Impact 10-11)	10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.	Approximately 80 acres of land that lost a significant amount of its native vegetation cover as a result of increased groundwater pumping will be revegetated. The techniques that will be employed to revegetate these lands will be determined through studies that will be conducted by LADWP and the County. These lands will not be permanently irrigated, but will be revegetated with native Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment. Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to restore as full a native vegetation cover as is feasible, but at a minimum, vegetation cover	Project implementation is complete. The 0.4 acre area has been fenced, planted with 108 grass plants and drip irrigated between 1999 and 2004 to encourage plant establishment. In 2016-2017, LADWP planted 125 shrubs consisting of Torrey's Saltbush (*Atriplex torreyi*), Fourwing saltbush (*Atriplex canescens*), Cattle saltbush (*Atriplex polycarpa*), and Winterfat (*Krascheninnikovia lanata*) utilizing the Cocoon Planting System from *Land Life Company*. The cocoon planting technology allows for shrubs to grow in arid environments without additional irrigation post planting. As of 2019, there was a 56% survivability rate of the shrubs. The shrubs will continue to be monitored for success. Additionally, the road through the middle of the site was removed and reclaimed during this planting process. Plantings will be periodically monitored.				X	

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
								sufficient to avoid blowing dust will be achieved in that area.	Permanent transects were first read in 1999. The parcel has achieved the composition goal each year the transects were read besides in 2016. The parcel reached a maximum cover value in 2017 of 4%. In 2022 the cover value fell to 1% with 4 native perennial species (33% cover goal with 3 native perennial species). The site will be considered complete when the cover is 90% and composition is 75% of the stated goal with an 80% confidence limit. This project has been fully implemented but has not yet attained cover goals.					
61	**X**		**X**			Tree Planting along Roadways (EIR Table 4-3)		This project consisted of planting new trees and maintaining new and existing trees along roadways within the towns of Laws, Big Pine, Independence, and Lone Pine.	The goal of this project was to provide shade and greenways in Owens Valley communities to mitigate trees lost since the 1970s due to a reduction in surface water irrigation, higher water costs, age, disease, etc. LADWP was responsible for purchasing and planting the trees and replacement once within two years if needed. This project was implemented in Laws, Independence and Lone Pine as an LADWP Enhancement/Mitigation Project in 1988. Additional planting occurred in Big Pine in 1992. This project resulted in 14 trees planted in Laws, approximately 130 trees in Big Pine (Arizona cypress, *Hesperocyparis arizonica*), 84 in Independence, and 77 in Lone Pine. Ongoing irrigation is the responsibility of the adjacent property owner. Project is complete.	**X**				
62	**X**	**X**				Tule Elk Field (EIR Table 5-2)		Under this project, water is provided to a field that is heavily used in summer by Tule elk, near U.S. Highway 395 and Tinemaha Reservoir.	This project was implemented as and LADWP Environmental Project in the 1970's to enhance/expand elk feeding grounds in the Owens Valley. Water continues to be provided annually to this project for irrigation. This project is implemented and ongoing.			**X**		

Table 3.3
LADWP MITIGATION AND MONITORING

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	Project Title	Impact (Where Relevant)	Measure/Provision	Progress to Date	Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
										Status				
63	X		X			Van Norman Fields (170 acres; EIR Impact 10-16, EIR Table 4-3)	10-16: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	As part of the enhancement/mitigation projects implemented by LADWP and the County since 1985, approximately 942 acres of these abandoned agricultural lands have been revegetated with irrigated pasture or alfalfa. These areas are the Independence Pasture and native pasture lands, the Van Norman and Richards Fields, and the Lone Pine Woodlot adjacent to Lone Pine.	This project was implemented as an LADWP Enhancement/Mitigation Project in 1987. A portion of the project could not be irrigated due to topography. Additionally, Well 390 met the end of its service life and was replaced with Well 425 in 2014. The project was modified by the Standing Committee April 22, 2014 to include 10 acres for the Lone Pine High School Farm. The agreed upon water allotment for the modified project is approximately 2.8 AF/acre. Water continues to be provided annually to the project for irrigation. Project is implemented and ongoing.			X		
64					X	Warren Lake Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))			Project was implemented in April 2011 as part of the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group. The Warren Lake Project is implemented and ongoing as needed; it serves to balance the annual 1600 acre-foot water commitment for this provision of the MOU. Please refer to Section 3.2.1 for more information on these projects. Project is implemented and ongoing.			X		
65					X	Well 368 Project (Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (MOU Section III.A.3))			Project was implemented in February 2012 as part of the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Please refer to Section 3.2.1 for more information on these projects. Project is implemented and ongoing.			X		
66					X	YBC Habitat Enhancement Plans (MOU Section III.A.1)		Consultants will conduct an evaluation of the condition of YBC Habitat in the riparian woodland areas of Hogback and Baker Creeks. Based on that evaluation, Consultants will develop, as they deem warranted, YBC Habitat Enhancement Plans for these areas. Each will identify reasonable and feasible actions or projects to maintain and/or improve the habitat of the YBC. In developing the plans, the Consultants will consider the recommendations for these areas that were	Ecosystem Sciences completed a YBC Habitat Enhancement Plan in April 2005. LADWP released a Draft EIR in January 2006. The MOU Parties and others expressed displeasure with the Consultant's project. The MOU Parties and the lessees for the Baker Creek and Hogback Creek areas entered into negotiations with LADWP staff to develop another alternative for the YBC Habitat Plan. The *Ad Hoc* Yellow-billed Cuckoo Habitat Enhancement Plan was completed and a Mitigated Negative Declaration was released for public review in 2010. The Los Angeles Board of Water and Power Commissioners approved the project on January 19, 2010.			X		

Reporting No.	1991 EIR	1991 EIR Environmental	1991 EIR E/M Project (1985-present)	Revegetation Project	1997 MOU	**Table 3.3 LADWP MITIGATION AND MONITORING**				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
						Project Title	**Impact (Where Relevant)**	**Measure/Provision**	**Progress to Date**	Status				
								identified in the Distribution of Breeding r riparian birds in Owens Valley, Inyo County, California (Laymon and Williams, 1994) and will confer with DWP, the lessee for each area and the Parties.	Required initial plantings and replacement plantings have been fully implemented on schedule per the plan. Please see Section 3.2.4 for a progress report on this project.					

[1] *LADWP's data indicates that compliance criteria at LAW090, 094, 095, and 118/129 were met in 2022, and LAW118 (19-acre portion) in 2023. Discussions are underway with Inyo County to confirm these findings. Monitoring will occur in 2024 as required in the 2003 Laws Revegetation Plan.*

3.2.1. Additional Mitigation Projects Developed by the MOU Ad Hoc Group

Introduction

Section III.A.3. Additional Mitigation of the 1997 MOU describes LADWP's commitment to supply 1,600 acre-feet (AF) of water per year for:

> 1) the implementation of the on-site mitigation measure at Hines Spring identified in the 1991 EIR, and
>
> 2) the implementation of on and/or off-site mitigation in addition to that identified in the 1991 EIR for impacts that occurred at Fish Springs, Big and Little Blackrock Springs, and Big and Little Seely Springs.

The Second Amendment of Amended Stipulation and Order *Case No. S1CVCV01-29768* was executed on March 8, 2010, by the Superior Court of California, the County. This order accepts the eight projects described in the Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group (Additional Mitigation Projects) document as mitigation for impacts identified above and establishes a two-year timeline for their implementation. The projects are named according to their locations: Freeman Creek, Warren Lake, Hines Spring Well 355, Hines Spring Aberdeen Ditch, North of Mazourka Canyon Road, Homestead, Well 368, and Diaz Lake. LADWP completed an Initial Study for the Additional Mitigation Projects and prepared a Mitigated Negative Declaration (MND) and released it for public review March 23 - April 26, 2010. The final MND, Mitigation Monitoring and Reporting Program, and proposed implementation schedule were approved by the City of Los Angeles Board of Water and Power Commissioners (Board) on June 1, 2010. A Notice of Determination was filed with the the County Clerk on June 2, 2010. LADWP began implementing the projects shortly thereafter and implemented all eight Additional Mitigation Projects by March 8, 2012, as required in the Stipulation and Order.

Additional Mitigation Projects Annual Monitoring Report

LADWP conducted the required monitoring described in the Additional Mitigation Projects document for five years post implementation and performed a five-year evaluation of the projects in 2017. This evaluation was provided in LADWP's 2017 Annual Owens Valley Report, and described implementation, monitoring data, and recommendations for the future management of each project where relevant. Many of the initial monitoring efforts were discontinued following this evaluation.

Flow monitoring for the projects is still conducted monthly per the Additional Mitigation Project document. Table 3.4 shows flow data recorded for each of the projects from April 1, 2023, through March 31, 2024. During this time, LADWP provided 2,809 acre-feet of water to the Additional Mitigation Projects. Due to the historic winter and summer precipitation of 2022-2023 Diaz Lake remained full and did not receive any additional water. Additionally, due to water spreading from May through January, Warren Lake received 1660 acre-feet.

In addition to the monthly flow monitoring, photos were taken from established locations of each of the Projects in September of 2023 and compared to photos taken in 2013. Supplementary aerial photos were also taken of some of the Projects in August of 2023. The photo point comparison and aerial photos are in Appendix 3.1.

Table 3.4. Additional Mitigation Projects Developed by the MOU *Ad Hoc* Group
Annual Water Accounting in Acre-feet (April 1, 2023 - March 31, 2024)

Additional Mitigation Projects Developed by the MOU Ad Hoc Group
Annual Accounting in Acre Feet (April 1, 2023-March 31, 2024)

2023-2024	Freeman Creek (*Average**) (2054)	Freeman Creek Actual (2054)	Warren Lake (2173)	Hines Well 355 (W355)	Aberdeen Ditch (400)	North of Mazourka (F418)	North of Mazourka (404)	Homestead T775 (F421)	Homestead Well (F419)	Well 368 (F420)	Diaz Lake (86)	Total
April	20	70	0	17	8	11	2	7	18	13	0	97
May	19	79	54	17	7	13	3	8	21	14	0	156
June	14	44	143	16	7	12	3	7	21	14	0	237
July	13	10	186	17	7	13	3	8	21	14	0	281
August	10	8	217	16	7	13	3	8	21	14	0	309
September	13	12	281	13	8	13	3	7	21	14	0	373
October	22	29	285	12	8	14	3	8	22	14	0	387
November	22	37	252	9	6	15	3	8	23	15	0	352
December	23	43	218	3	4	16	4	8	23	15	0	314
January	23	50	24	0	1	16	3	8	23	15	0	113
February	18	56	0	0	9	16	3	8	22	14	0	90
March	18	59	0	0	13	17	3	8	23	15	0	98
Total						*169*	*34*	*93*	*260*			*2809*
Project Total	*215*	*497*	*1660*	*120*	*85*	*203*		*353*		*172*	*0*	
Annual Target AF	*215**	*215*	*0*	*240*	*145*	*300*		*300*		*150*	*250*	***1600***
Monthly Target AF	*18*	*18*	*0*	*20*	*12*	*25*		*25*		*13*		*133*

**Freeman Creek will be recorded as 215 AF/year based on long term average regardless of varying flow reads.*

***Amount in excess of project allotment may not be carried over to future years.*

3.2.2. Irrigation Project in the Laws Area (Laws Type E Transfer)

Laws 2003 Revegetation Plan

The Revegetation Plan for *Lands Removed from Irrigation, Laws Parcels 90, 95, and 129 and Abandoned Agricultural Land Parcel 94 (Plan 2003)* provides specific goals for restoring native vegetation on formerly irrigated and cultivated lands near the community of Laws. Overall, the goal of the Plan is to restore both cover and species composition, of the parcels, similar to neighboring sites. Further, in accordance to the Plan, the parcels were to be revegetated by 2013; however, owing to the scale and complexity, restoration has taken longer.

Since 2003, LADWP has acted in good faith in implementing the Plan and has put forth significant effort and resources to fulfill the project goals. Specifically, this includes the purchase of two commercial greenhouses, which allows up to 18,000 native plants, to be grown, twice a year for spring and fall plantings. Additionally, 263 miles of buried drip irrigation has been installed across the 253 acres that compose the entirety of the parcels. This irrigation system is operated to promote deeply-set roots, limit weedy growth and reduce rodent damage associated with chewing of the irrigation lines.

The initial planting for the majority of the parcels was completed by the fall 2015 and required 102,366 plants. The parcels were then overplanted in subsequent years in areas where survivability was low. To date, the total number of plants planted is approximately 233,000.

In May 2022 a field tour of the parcels was conducted with both LADWP and ICWD. The tour included a discussion of the revegetation progress to date, revegetation monitoring methods, and finally, that LADWP was prepared to monitor during the summer of 2022 to determine if the parcels were meeting the goals described in the Plan.

During the summer of 2022, permanent transects were established to evaluate the current conditions of Laws 090, 094, 095, and 118/129. Transects were established following the criteria as outlined in the Plan. The 19-acre portion of Laws 118 that surrounds Laws 129 are identified as one parcel in the Plan and subsequently was monitored as one contiguous parcel (Figure 3.3). However, owing to concerns from the County, additional transects were established and read in the 19-acres portion of Laws 118 in 2023.

Both the 2022 and 2023 vegetation monitoring data indicates that Law 090, 094, 095, and 118/129 parcels have met the cover and composition goals as described in the Plan (see Table 3.5), which triggered the cessation of all revegetation activities, including irrigation. Repeat monitoring will occur in 2024 for parcels 090, 094 and 095 and in 2027 for parcel 118/129.

Cover and Composition Goals

The Plan calls for an average of a minimum of 10% vegetation cover for all parcels. Additionally, each transect must have a cover value of at least 2%. The composition goal for parcels Laws 090, 094, and 095 is at least 10 different native perennial species, including a minimum of one native grass. For parcel Laws 118/129, the composition goal is at least eight different native perennial species, including a minimum of one native grass.

The Plan also calls for additional composition or spatial distribution goals with a minimum number of readings or hits of different native perennial species for all the possible hits in a parcel. Parcel 090 has a goal of hitting six different species three times out of the total number of hits in the parcel. The remaining four species must be present in the parcel, but do not have to be hit on a transect. Parcels 094 and 095 have a goal of hitting six different species two times out of the total of all the hits in the parcel. The remaining four species must be present in the parcel, but do not have to be on a transect. Parcel 118/129 have a goal of hitting five different species two times out of the total number of hits in the parcels. The other three species need to be present in the parcel, but do not have to be hit on a transect.

Monitoring Methods

To evaluate the cover and composition, permanent transects were established as described in the Plan. Specifically, using *ArcGIS* and a digital 2017 ortho-imagery (4-band (R,G,B & NIR) and1-ft pixel resolution), each parcel was divided into 20 equal segements. Within each segement, one permanent transect was established (Figures 3.1 through 3.4). The transect start point was chosen to accurately represent the vegetation composition within a section, while not having the adjacent section's start point be directly across from one another. Transect start points were sited at the north, central, and southern portions of a parcel. A bearing was then assigned to each transect.

The possible compass bearing for a transect included: 40°, 120°, 220° and 320°. The bearings were chosen so that a transect would not run parallel nor perpendicular to a planted row. The bearings were assigned to the transects in the field. With the exception of a few transects, transects at the northern end of a parcel were assigned a bearing of 120°, transects in the center of a parcel were assigned alternating bearings of 220° and 320°, and transects at the southern portion of a parcel were assigned a bearing of 40°. This was done to ensure that the transects would accurately monitor the revegetation efforts.

In the field, the bearings, along with the start points of the transects, were evaluated to determine if the location and direction of the transect were representative of the section. The start point of a transect was marked with a metal tag and a photo was taken at the start of the transect looking towards the end. Each transect is 50 meters in length and was read every 0.25 meters for a total of 200 possible readings. Along the transect every live occurrence or "hit" was recorded along with species in a parcel, regardless of

it not being on the transect (see Appendices 3.2 and 3.3 for field datasheets and transect photos, respectively). The transects for Laws: 90, 94, 95 and 118/129 were established and read in the summer of 2022 (July 20, 25, and 26) by LADWP and biological consutants from *Stantec Inc*. On September 18, 2023, an additional 15 transects were established in Laws 118 (19-acre portion) (Figure 3.4). The addition of these transects was to address concerns, from ICWD, that the 2022 transects did not throurghly cover the 19-acre poriton of Laws 118 (Figure 3.3). Finally, these transects were established and read by both LADWP and ICWD.

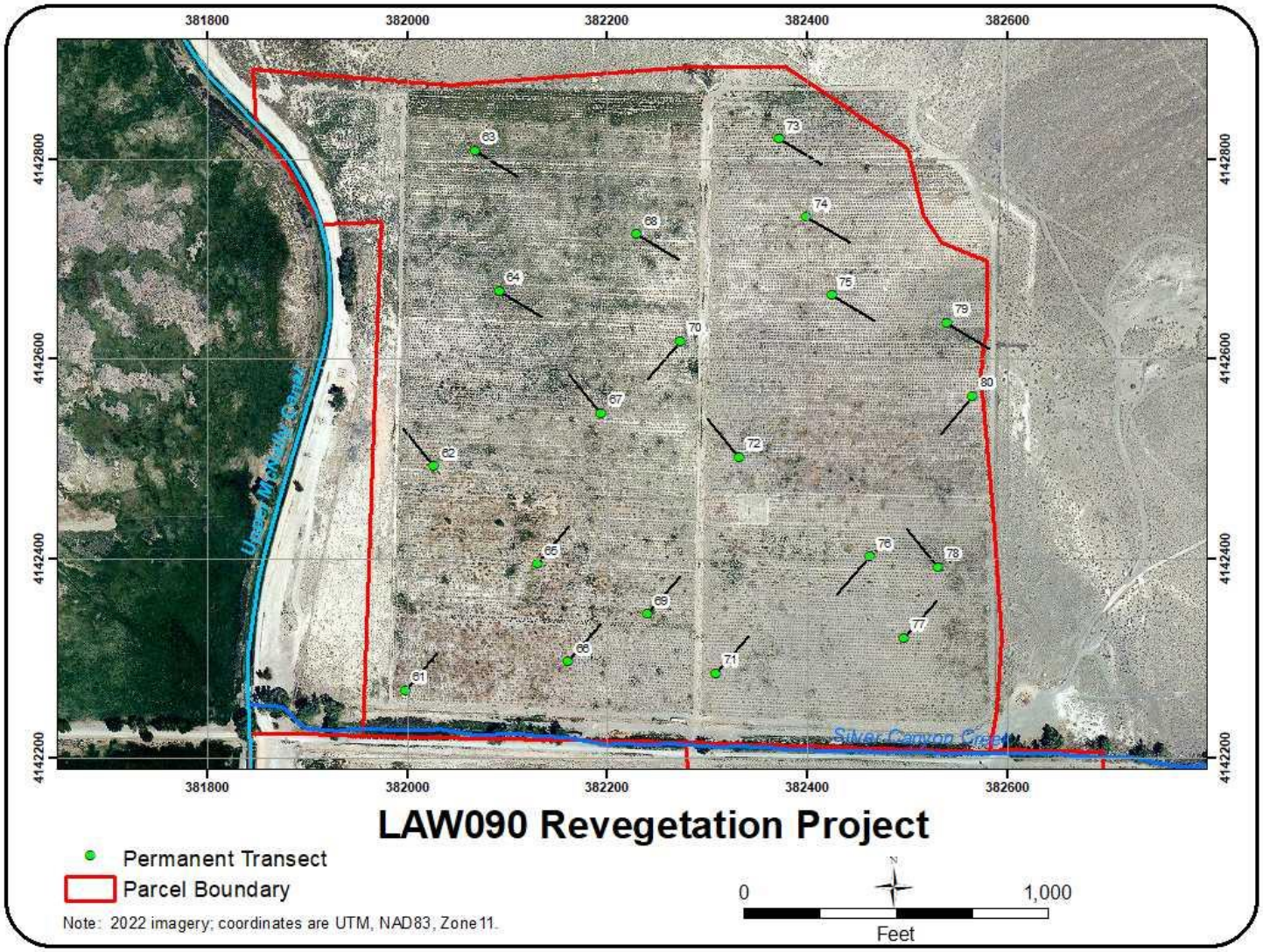


Figure 3.1. LAW090 Revegetation Transects

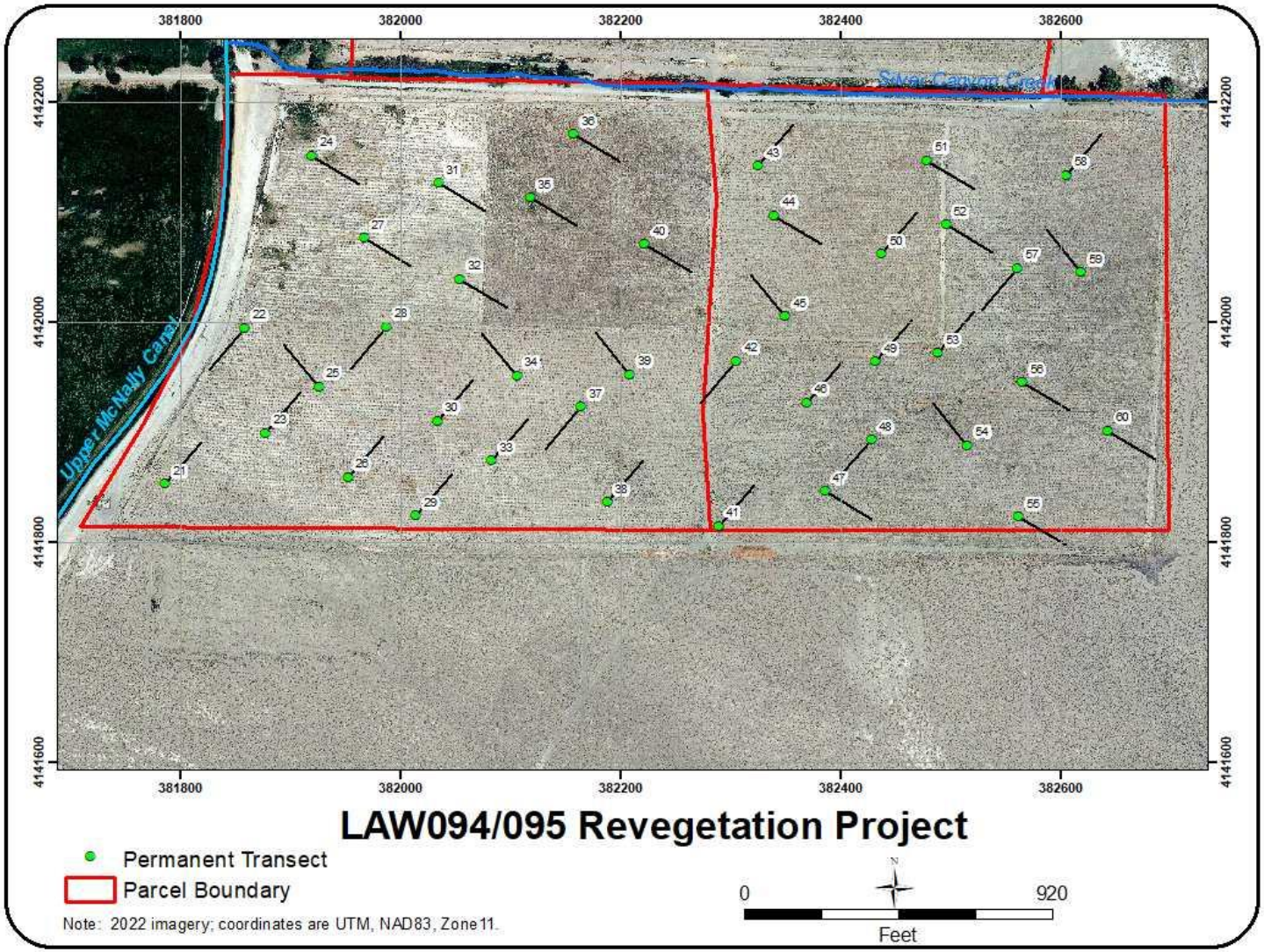


Figure 3.2. LAW094 (eastern parcel) and LAW095 (western parcel) Revegetation Transects

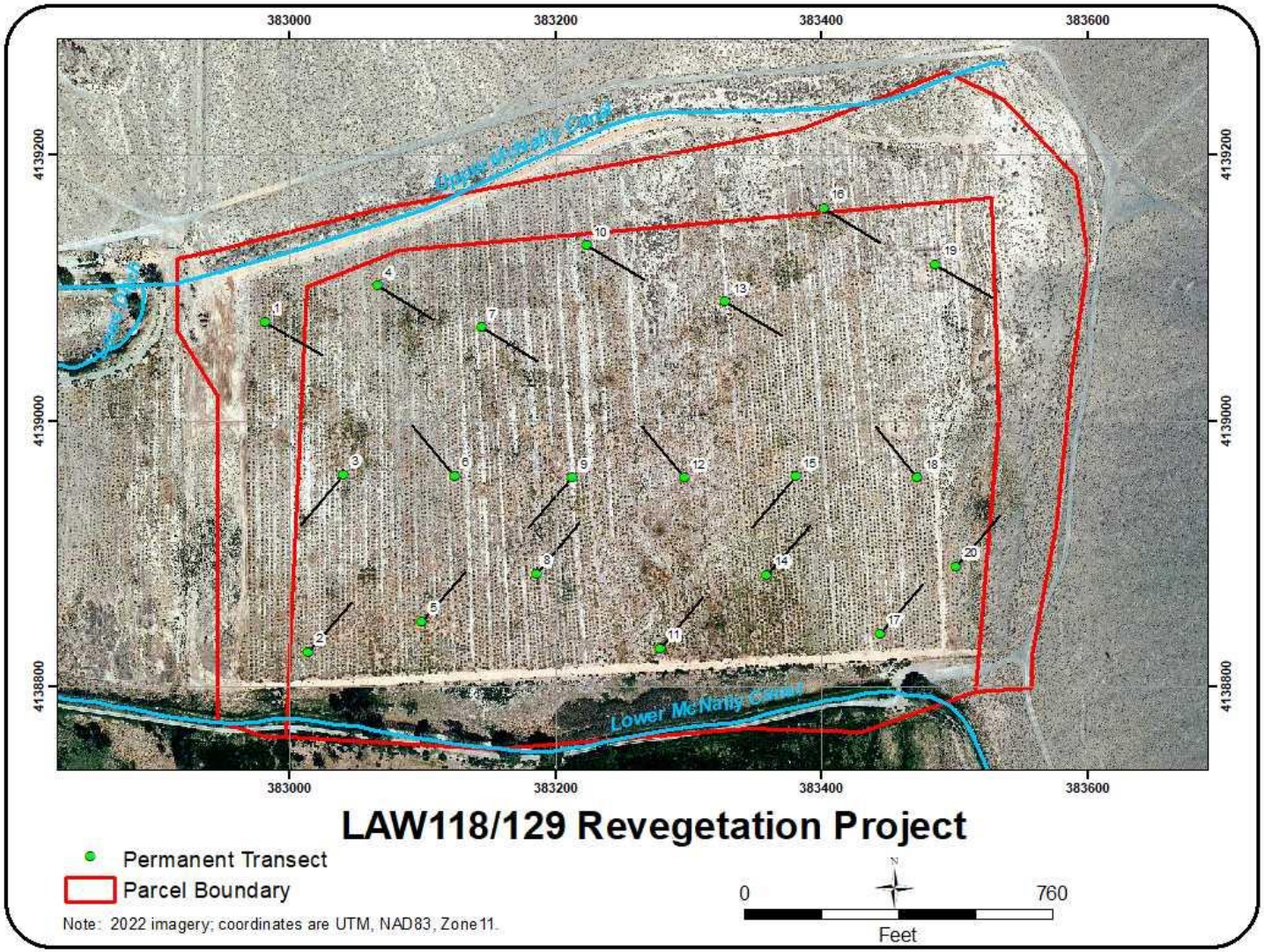


Figure 3.3. LAW118 (19-acre portion) (outside parcel) and LAW129 Revegetation Transects

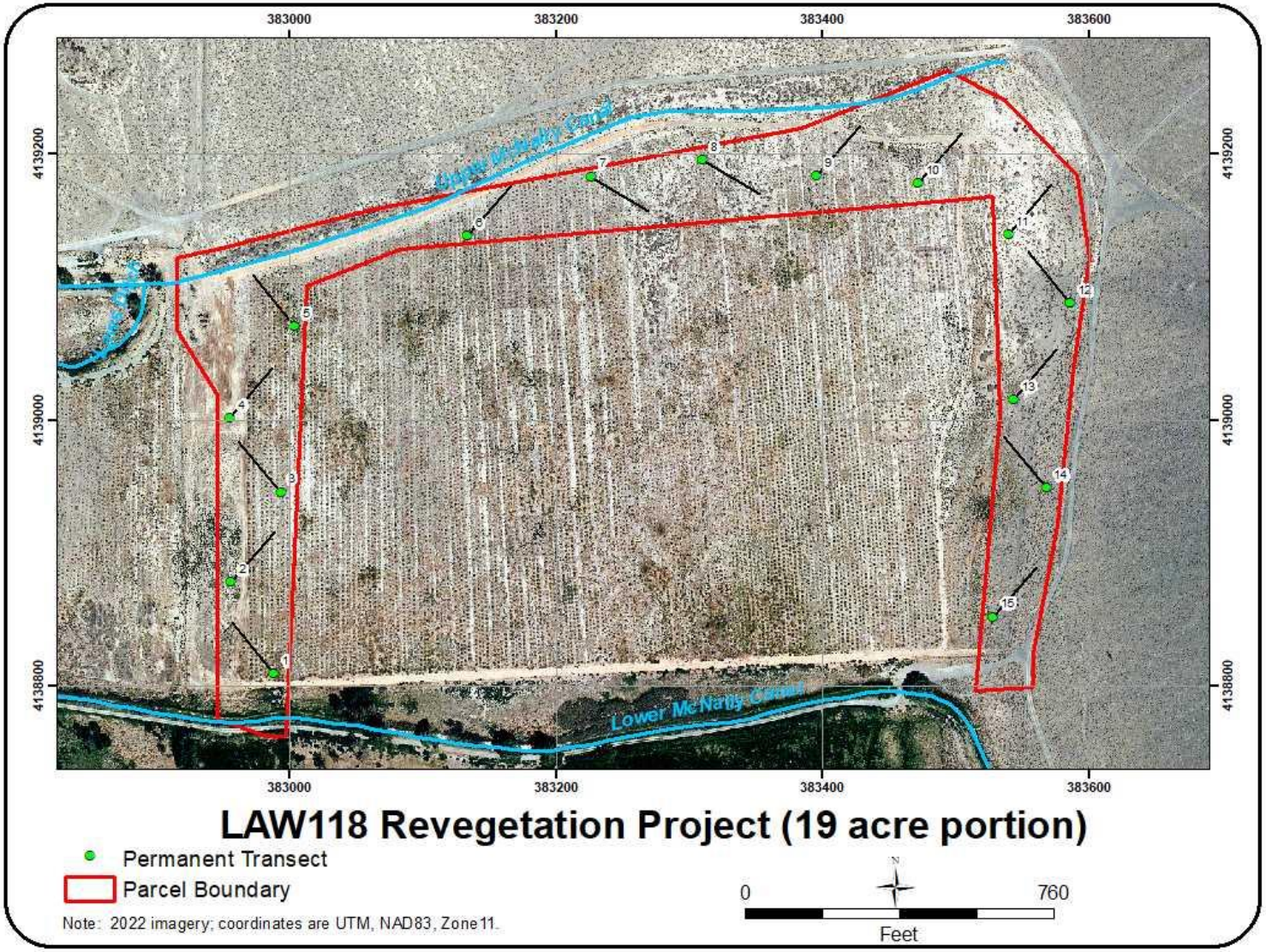


Figure 3.4. LAW118 (19-acre portion) Revegetation Transects

Results

Laws 090, 094, 095, 118, and 129 parcels have met the cover and composition goals as described in the Plan (Table 3.5)

Table 3.5. Parcel Number, Goals and Monitoring Values.

Parcel	Target Cover (%)	Absolute Perennial Cover 2022/2023 (%)	Target Composition (Number of species)	Composition 2022/2023* (Number of species)	Additional Criteria
090	10	16	10	13	Three hits for a least six different species out of all possible readings have been met and all transects are above 2% cover
094	10	11	10	14	Two hits for a least six different species out of all possible readings have been met and all transects are above 2% cover
095	10	12	10	11	Two hits for a least six different species out of all possible readings have been met and all transects are above 2% cover
118/129	10	17	8	12	Two hits for a least five different species out of all possible readings have been met and all transects are above 2% cover
118†	10	23	8	13	Two hits for a least five different species out of all possible readings have been met and all transects are above 2% cover

**Number of native perennial species, †Transects established and read in 2023*

Discussion/Conclusion

All of the Laws revegetation parcels met the goals of the Plan. According to the Plan, once the parcels have met the goals, no revegetation, nor irrigation is to occur within the parcels before the second round of monitoring, which is to take place 2-years after meeting the intial goals. The second round of monitoring is to evaluate if the parcels meet the sustainailbity metric, that is**,** the vegetation is sustainable without human-intervention. All revegetation activities, including irrigation were stopped in late-July of 2022 once the intial goals were met. Subsequently, the second round of monitoring will occur in late-summer/fall of 2024 for Parcels 090, 094 and 095. Parcels 118 (19-acre portion) and 129 will be re-evaluated in 2027, which extends the period between monitoring efforts to 5 years. This extension is because of concerns, from ICWD, that planted rubber rabbitbrush in Laws 129, may not survive following the cessation of irrigation.

Approximately 14 acres of Laws 129, which is 47-acres, was planted with rubber rabbitbrush in 2015. The remainder of the parcel has been planted with a variety of other native perennial species. Additionally, there are two varieties of rubber rabbitbrush naturally recruiting within the parcel. These varieties of rubber rabbitbrush are - *var. hololeuca* and *var. oreophila*; the former typically occurs on well drained soils and the latter typically occurs on alkaline soils. Lastly, stands of rubber rabbitbrush have been observed and documented as naturally occurring in the parcel years before the start of the project.

Future Work

Monitoring of parcels LAW090, 094 and 095 will occur in late 2024 and in late 2027 for parcels LAW118/129. If the parcels meet the goals of the Plan at the time of the second round of monitoring, the project will be considered complete, and a clean-up plan will be implemented. The cleanup plan will entail removing items and material (e.g. t-post, bait stations, storage containers and material stockpiles) and installing buried drip irrigation within the roads and open areas. Following this, containerized plants listed in the Plan will be planted in these areas as early as fall of 2025. The goals of the Plan will be applied to these newly planted areas before they are considered complete.

3.2.3. Owens Valley Land Management Plan (OVLMP)

Introduction

Section II.B of the 1997 MOU describes the requirement for a land management plan for City non-urban lands in the Owens River Watershed in the County. The 1997 MOU states that LADWP shall continue to protect water resources used by the citizens of Los Angeles while providing for the continuation of sustainable uses such as recreation, livestock grazing, agriculture, and other activities. In doing so, LADWP shall promote biodiversity and healthy ecosystems, and address situations or problems that occur from the effects of various land uses on City property. The 1997 MOU states that priority is to be given to riparian areas, irrigated meadows, and sensitive plant and animal habitats.

Subsequently, LADWP developed the OVLMP (LADWP and Ecosystem Sciences, 2010) to fulfill this requirement of the 1997 MOU and guide management of the City's lands in the Owens Valley. The OVLMP consists of 10 chapters that describe current conditions and future management of grazing, riverine-riparian ecosystems, recreation, cultural resources, fire, commercial uses, threatened and endangered species, and areas of special management concern. The fundamental role of resource management is to assess and evaluate the effects of existing land and water use practices and recommend flow management and land management improvements if necessary.

CEQA Process for the OVLMP

An Initial Study and Mitigated Negative Declaration (LADWP, 2010) was prepared for the OVLMP in March 2010. After review of the comments received and based on the information in the Initial Study, LADWP determined that with adoption of mitigation measures, implementation of the OVLMP would not have a significant impact on the environment. The final MND and Mitigation Monitoring and Reporting Program were approved by the City of Los Angeles Board of Water and Power Commissioners on June 1, 2010. A Notice of Determination was filed with the Inyo County Clerk on June 2, 2010.

3.2.3.1 OVLMP Grazing Management Monitoring Report

Introduction

The land use component of the OVLMP is composed of project elements related to livestock grazing management. Under the land management program, the intensity, location, and duration of grazing is managed through the establishment of riparian pastures, forage utilization rates, and prescribed grazing periods (described in Section 3.3 Owens Valley Land Management Plan, 2010). Other actions include protection of rare plant populations, establishment of off-river watering sources (to reduce use of the river and off-river ponds for livestock watering), irrigated pasture condition, utilization, and rangeland trend monitoring to ensure that grazing rates within all leases maintain the long-term productivity of the forage base.

Grazing management plans developed modified grazing practices in riparian and upland areas on LADWP leases in order to support OVLMP goals. The leases contained in the Owens Valley Report are listed in Table 3.10 below. Maps detailing the locations of each of these leases can be found in the OVLMP. Detailed description of each lease can also be found in reports prior to 2023 as well as in the OVLMP.

In 2023, changes were made to the Grazing Management Monitoring Report to consolidate data and remove repetitive formatting. As a result, lease overviews will no longer be presented. This information can be found in the OVLMP. All leases will continue to be monitored and reported upon annually for utilization, irrigated pasture conditions, supplemental feeding, and fencing. One third of leases will continue to be monitored and reported upon annually for range trend. Monitoring data will be presented going back five years for utilization and irrigated pasture monitoring. Range trend data will be presented for the transects monitored during the previous year and will display the full record of data.

Table 3.6. Ranch Lease Numbers and Names

RL #	Ranch Name		RL #	Ranch Name		RL #	Ranch Name	
I-401	Brockman Ranch Lease		I-435	3V Ranch Lease		I-483	Round Valley Ranch Lease	
I-402	U Bar Ranch Lease		I-438	Big Pine Canal Lease		I-487	LI Bar Ranch Lease	
I-404, 413	Quarter Circle B Ranch Lease		I-439	Rafter DD Ranch Lease		I-490	Archie Adjunct	
I-406, 489	Fort Independence Ranch Lease		I-452	Lone Pine Dairy Lease		I-489	Georges Creek Parcel	
I-407	Coloseum Ranch Lease		I-453	Reata Ranch Lease		I-489	Island Ranch Lease	
I-408	Eight Mile Ranch Lease		I-416, 454, 455	Independence Lease		I-490	Delta Ranch Lease	
I-411	Cashbaugh Ranch Lease		I-456	Lone Pine Ranch Lease		I-491	Twin Lakes Ranch Lease	
I-412, 451, 500	CT Ranch Lease		I-460	Rainbow Pack Outfit Lease		I-491, 499	Four J Ranch Lease	
I-420	Rockin DM Ranch Lease		I-461	ST Ranch Lease		I-492	Reinhackle Ranch Lease	
I-424	Mandich Ranch Lease		I-462	Horseshoe Bar Ranch Lease		I-493	Rockin' C Ranch Lease	
I-426	Frontier Pack Lease		I-464	Three Corner Round Ranch Lease		I-495	Mount Whitney Pack Lease	
I-427	Olancha Creek Adjunct		I-475	Intake Ranch Lease		I-497	Warm Springs Ranch Lease	
I-428	Blackrock Ranch Lease		I-475	Baker Road Ranch Lease		I-498	Pine Creek Ranch	
I-428A	Homeplace Adjunct		I-479	Aberdeen Pack Lease				
I-430	Thibaut Ranch Lease		I-480	Horse Shoe Ranch Lease				

Overview of Monitoring and Assessment Program

Monitoring is conducted at all irrigated pastures and at key areas within riparian and upland management areas. Areas not identified as irrigated pasture, riparian management areas, or springs and seeps are considered upland management areas. Monitoring and assessment of key sites in riparian and upland management areas includes utilization and range trend monitoring.

This report presents data collected during various periods typically beginning in 2007. All leases will be monitored annually for utilization, irrigated pasture conditions, supplemental feeding, and fencing. For range trend monitoring each lease will generally be monitored every three years unless a significant change has occurred such as a fire or a major change in management.

A description of monitoring methods, data compilation and analysis techniques can be found in Section 9.4 of the OVLMP (2010). Descriptions of the range trend monitoring sites can be found in Annual Reports prior to 2023.

Because of the high resource value associated with riparian areas on City property in the Owens Valley, the majority of the utilization and range trend monitoring plots are either located on moist floodplain or saline meadow sites in close proximity to the Owens River.

Utilization is compliance monitoring and involves determining whether the utilization guidelines set forth in the grazing plans are being adhered to. Following implementation of the grazing management plans, the utilization standard for riparian management areas is 40%. The utilization standard for upland areas is 65% if grazing occurs during the plant dormancy season. The standard for upland areas is 50% if grazing occurs during the active plant growing period; however, if the pasture is completely rested for a minimum of 60 continuous days during the latter part of the active stage to allow seed set, allowable forage utilization is 65%.

These standards are not expected to be met precisely every year because of the influence of annual climatic variation, livestock distribution and the inherent variability associated with techniques for estimating utilization. Rather, these levels should be reached over an average of several years. If utilization levels are consistently 10% or more above desired limits during this period, adjustments should be implemented (Holecheck and Galt, 2000; Smith *et al*., 2016).

An additional driver for the 40% utilization rate on riparian pastures in the northern portion of the Owens Valley are grazing requirements as they relate to the federally listed Southwestern Willow Flycatcher (*Empidonax traillii extimus*). Within the Middle Owens River management area, beginning from just north of Tinemaha Reservoir to Pleasant Valley and adjacent Horton Slough, LADWP and the USFWS, developed a Conservation Strategy designed to increase the endangered Southwestern Willow Flycatcher habitat in the Owens Valley. This strategy specifies a 40% utilization limit along the river with livestock grazing permitted between October and May of each year.

Utilization Monitoring

Monitoring methodologies are fully described in Section 9.4.1 of the OVLMP (2010). Utilization is compliance monitoring and involves determining whether the utilization guidelines set forth in the grazing plans are being adhered to. Similar to precipitation data, utilization data alone cannot be used to assess ecological condition or trend. Utilization data is used to assist in interpreting changes in vegetative and soil attributes collected from other trend monitoring methods.

Utilization monitoring is conducted annually. Permanent utilization transects have been established in upland and riparian areas of pastures within the MORP, LORP, and areas outside these two project locations. An emphasis has been placed on establishing utilization monitoring sites within riparian management areas. Each monitoring site is visited prior to any grazing in order to collect ungrazed plant heights for the season. Sites are visited again approximately mid-way through the grazing period (mid-season) and again at the conclusion of the grazing period (end-of-season).

Utilization estimates are conducted on all range trend transects if there is an adequate amount of the key forage species - alkali sacaton (*Sporobolus airoides*) and saltgrass (*Distichlis spicata*). There are additional utilization transects not associated with range trend sites. These are designated as spatial utilization transects and will be read annually as long as they represent typical use in a pasture. If they fail to be representative (e.g. fire, flooding, and change in grazing patterns) they will be temporarily or permanently abandoned.

Watershed Resources staff updates each lessee with their mid-season results if measurements are close to or exceeding utilization standards (40% or 65%). In either case the lessee is instructed to move livestock. All lessees are informed on end-of-season utilization results for each year. This allows LADWP and the lessees to communicate and make grazing management changes as needed to meet land management goals.

Target stubble heights have been calculated for each transect and pasture on a given lease. The lessee is notified of the set utilization standards and corresponding pasture, or field associated with either riparian (40%), or upland (65%) standards. If requested by the lessee, field visits will occur to assess utilization on a particular field. If not requested, Watershed Resources staff adhere to the monitoring schedule previously mentioned. To calculate target stubble heights, ungrazed plant heights are collected after the end of the growing season to allow the plants to reach maximum production before the grazing season begins. The ungrazed heights are then averaged by species and transect in order to calculate the stubble heights that will meet the utilization standards for each field. The resulting calculated stubble heights are based on the same height/weight curves used in the mid- and end-of-season utilization calculations.

Irrigated Pasture Monitoring

Irrigated areas are classified as any portion of the lease where the lessee receives an irrigation allotment based on Type-E vegetation classification. LADWP and the lessee jointly determine irrigated pasture conditions using the Natural Resource Conservation Service (NRCS) Guide to Pasture Condition Scoring (Cosgrove et al., 2001). This protocol was designed to optimize plant and livestock productivity while minimizing detrimental effects to soil or water resources. Irrigated pastures do not have a utilization standard.

Pasture condition scoring involves the visual evaluation of 10 indicators each having five environmental conditions (Cosgrove et al., 2001). Each indicator is rated separately, and the scores are combined into an overall score for the pasture. The overall score for a pasture can then be divided by the total possible score to give a percent rating (overall score ÷ total possible score x 100 = percent rating). Not all 10 indicators may be appropriate for use in every pasture. In this case, using less than 10 indicators will reduce the possible score, but the percent rating will still be comparable. All irrigated pastures within the Owens Valley are monitored using the same protocols and timing interval (every third year). All irrigated pastures that score 80 percent or greater are considered to be in good to excellent vegetation condition and are not subject to any changes in grazing management. Any irrigated field or pasture scoring less than 80 percent will receive, in consultation with the lessee, changes in management prescriptions (i.e., changes in forage utilization, livestock numbers, season, or duration of use) and will be monitored annually until pasture scoring meets or exceeds 80%.

Range Trend Monitoring

Range trend monitoring involves the quantitative sampling of the following attributes: frequency of all plant species, canopy cover estimates for herbaceous plant species, line intercept sampling for shrub canopy cover, estimates for ground cover, shrub density, and age classification of shrubs. Photo documentation of the site conditions is included as part of range trend monitoring.

Range trend monitoring at permanent transects provides quantitative data to determine the state of monitoring sites relative to baseline conditions and how a given site compares to the desired plant community. The desired plant community can be one of several plant communities that may occupy a site or one that has been identified through a management plan to best meet the plan's objective for the site. The desired plant community may be described as dynamic, changing through time, or within a range of variability (Bedell, 1998).

From 2007 to 2022, all range trend transects were compared to their representative ecological site conditions. Departures from desired conditions largely followed climatic patterns from year to year. Some transects have changed dramatically, however in these cases the changes were driven by expansion of marsh in the LORP or by impacts caused by flooding or wildfire. It is important to note that the reference plant community is a conceptual model intended to help managers gauge how a site compares to what

potentially could be found on similar sites. To expect any existing location to identically match the described community would be erroneous. Estimating how similar a given site is to its potential described in the ecological site description is useful when conducting an inventory across an area. However, now that repeat monitoring data are available for all monitoring sites (the majority of transects have 20 or more years of data), changes over time compared to the natural variability within, is a more effective approach to assessing the trend of each particular key area. This is because comparisons are made directly to the site and not between the key area and a reference plant community in an ecological site description, which ultimately has no physical existence. Given the breadth of data collected to date, site potential comparisons will no longer be the focus of this report and will be replaced by long-term trend analysis. This is not to say that site potential won't be considered in the future, however for the purposes of this report they will no longer serve as the primary metric for data analysis and display purposes.

Because frequency data is sensitive to plant densities and dispersion, frequency is an effective method for monitoring and documenting changes in plant communities (Mueller-Dombois and Ellenberg, 1974; Smith *et al*., 1986; Elzinga, Salzer *et al*., 1988; BLM, 1996; Heywood and DeBacker, 2007). For this reason, frequency data will be the primary means for evaluating trend. If present on a transect shrub cover will also be presented.

Range trend analysis on the LORP leases began in 2002. In response to the potential critical habitat designation and subsequent MOU with the USFWS concerning the Southwestern Willow Flycatcher, rangeland analysis expanded to include the Middle Owens River areas beginning in 2007. On transects with a longer history of monitoring, trends appear to be static with no obvious trajectories as each year captures and extends what appears to be the normal range of variability. The majority of range trend sites are situated on moist flood plain or saline meadow ecological sites. These sites are naturally sub-irrigated and less influenced by annual fluctuations in precipitation when compared to the more xeric ecological sites such as saline bottom or sodic sites. In general, perennial grass and forb communities on the mesic sites are resilient to both moderate and heavy grazing, particularly if grazing occurs during the dormant season which is the case for most LADWP grazing leases.

3.2.3.2 2023 Grazing Management Monitoring Data

Figures containing summarized data for utilization, irrigated pasture conditions, and range trend for each pasture/field/transect can be found in Appendices 4-6.

Utilization

Grazing pressure in 2023 remained stable and below grazing standards for all but three leases (RLI-456, RLI-483 & RLI-489). It was a record precipitation year with damage being caused by flooding and sustained inundation on the floodplains limiting grazing access and, on some leases, eliminating grazing in numerous pastures for the season. This also resulted in concentrated grazing in higher elevation areas within riparian pastures which increased utilization beyond the 40% riparian standard in three

locations. This was the case at the Lone Pine, Round Valley, and Islands leases. At one point in the grazing season cattle became trapped at the Islands lease and had to be moved. Since this was an anomalous year no grazing management changes are recommended.

Physical damage from flooding like cutting gullies, sediment deposits, and debris on riparian meadows may reduce grazing access, especially in the LORP. In other locations it may take years before livestock will be able access or graze again due to the continued inundated soil conditions. However, since upland grazing conditions were resistant to the excessive precipitation, lessees may be able to maintain cattle numbers by increasing use in the dryer uplands. This is the case for most leases but, there are some leases that have minimal upland grazing opportunities due to topography and vegetation composition. In these cases, inundated riparian pastures may have a detrimental effect on stocking rates and grazing activities heading into the future. These leases are Blackrock (RLI-428), Islands (RLI-489) Delta (RLI-490), and Lone Pine (RLI-456). As mentioned in previous LORP reports these leases are losing significant amounts of riparian pastures due to the rewatering of the LORP since 2006 and subsequent creation/expansion of wetlands in riparian pasture areas.

Irrigated Pastures

Due to drought conditions in 2022, scheduled irrigated pasture monitoring was deferred until 2023 since the most important factor determining pasture health is water. Forage availability was at a minimum going into the winter of 2023, with leases increasing supplemental feed while grazing irrigated pastures.

After receiving record breaking precipitation in 2023, mostly in the form of rain, irrigated pastures were saturated in the spring prior to the initiation of irrigation season. This gave pastures a good head start and markedly increased forage production. Although there was an increase in irrigation water throughout the season, many lessees wanted a reduction in irrigation due to the saturated conditions. In some cases, this was not possible due to the sheer amount of water throughout the summer. These conditions persisted into the fall and caused some operational problems for the lessees including health concerns for livestock such as hoof rot and upper respiratory sicknesses.

Monitoring of all irrigated pastures was conducted through the summer of 2023. Despite the above-mentioned moisture conditions irrigated pastures rated above the minimum score of 80% for all leases except RLI-439, RLI-479, and RLI-483.

There were two leases that changed ownership last year, RLI-439 and RLI-479. During the transition between owners', active irrigation had ceased resulting in scores dropping below 80%. Irrigation requirements have been discussed with both lessees and they will be ready to resume irrigation practices in the spring of 2024. The Big Pine Field, RLI-483, scored below 80% due to undesirable species. LADWP Watershed Resources staff will meet with the lessee in the spring of 2024 to develop a management plan to improve conditions. Due to snow drifts and poor road conditions

blocking access to McMurray Meadows during the monitoring period, Sanger and Cow Creek Meadows in RLI-438 were not scored in 2023.

All pastures that were missed or scored below 80% will be revisited for follow-up monitoring in 2024. The remaining leases are not scheduled to be monitored again until 2026.

Range Trend

Range Trend transects were monitored on the Tatum Lease (RLI-461), Warm Springs Lease (RLI-497), Round Valley Lease (RLI-483), Intake Lease (RLI-475), Twin Lakes (RLI-491), Blackrock Lease (RLI-428), Thibaut Lease (RLI-430) and Islands Lease (RLI-489).

Extensive flooding occurred within the riparian pastures in the Owens Valley due to record precipitation. In some cases, flows exceeded 800cfs within the riparian corridor inundating riparian meadows under several feet of water and causing bank and floodplain erosion. These impacts were more prevalent further south in the LORP due to emergency repairs to the aqueduct which caused it to be shut down sending all flows down the river to the Owens dry lake.

With the exception of one transect (CASHBA_11) in 2023, DISP (saltgrass) and SPAI (sacaton) frequencies on the Tatum, Warm Springs, and Round Valley leases on moist floodplain ecological sites were similar to 2020. DISP on CASHBA_11 decreased from 32% in 2020 to 12% in 2023 and has decreased each monitoring year since 2007 when it was measured at 53%. SPAI on this transect has remained relatively unchanged during the same period. The decrease in DISP may be due to competition from shrubs which increased from near zero percent in 2007-2009 to 18% in 2017. Flooding was also extensive in 2017 which reduced shrub cover in recent years, but may have had added to the continued decrease in DISP. Subsequent monitoring will be required to confirm. Although not reflected in the data, DISP and SPAI vigor was visually above average at all three leases and was almost certainly in response to increased precipitation last year, the Airport wildfire in 2022, and the Pleasant Valley wildfire in 2017. However, also in response to flooding and fires, shrub cover on these leases decreased.

The Thibaut and Islands leases also exhibited similar DISP and SPAI frequencies as compared to 2020. However, on the ISLAND_06 transect SPAI decreased from 27% in 2020 to 14% in 2023 and has been exhibiting a downward trend since its high of 68% in 2009. On the other hand, DISP frequency on this transect has been increasing during this same time period. Perhaps soil salinity has been changing to favor DISP over SPAI? Further investigation will be required to explain this trend. In addition, DISP on BLKROC_19 decreased from 81% in 2022 to 36% in 2023. This was likely caused by Owens River flooding. Although the site was dry at the time of monitoring in September, vegetation did display signs that flooding had occurred earlier in the summer. Similar to vigor in the MORP, DISP and SPAI on saline meadow sites in the

LORP were also visually above average. This was likely due to extensive water spreading activities occurring on these leases.

Another point of interest was DISP frequency among all transects on the Blackrock lease. Frequency across most transects was predictable and stable from 2003 to 2017. After 2017, frequency values began to diverge through 2022. This was likely due to flooding associated with record snowpack runoff in 2017. Interestingly, frequency across the majority of Blackrock transects appears to be converging on a new steady state.

Most of the transects monitored in 2024 exhibited slight changes in frequency data but, field observations differed in that plant vigor and cover was visually greater than average. This makes sense since herbaceous frequency only measures rooted presence whereas percent cover generally focuses on plant canopy which is no longer measured. Approximately 20 of the moist floodplain sites experienced heavy flooding as mentioned above and could not be monitored. A better determination of riparian condition will be performed during the 2024 monitoring season.

Supplemental Feeding

Supplemental feed is used on all LADWP leases. There are various types of supplements that are used by lessees which include hay, loose minerals, cake blocks, molasses tubs, liquid molasses, and feed pellets. However, the main supplemental feeds that are used are liquid molasses and hay. The purpose of supplemental feed is to improve and maintain body condition scores of lactating cattle during the cold winter months to assure cattle will be in peak reproductive health in the spring when it's time to breed. This is a common management practice for all the lessees.

Variations in this management practice change by the type of feed chosen and the locations where it is distributed for livestock. These decisions are made solely by the lessees and effect the livestock distribution across their lease. There were no changes in supplementation in 2023.

Fencing

Fencing is necessary on all leases to contain and control the movement of livestock. They are an important tool in grazing management regarding adherence to upland and riparian grazing prescriptions. They define lease boundaries and seldom change in location. All lessees continually maintain and repair fencing on their leases. New fence lines are seldom constructed and are only constructed to improve grazing management or an operating structure's ability to process cattle.

There was no new fencing constructed in 2023.

Summary and Conclusion

Overall, forage species throughout the OVLMP area responded well to wetter weather conditions. Utilization on all leases was largely within allowable standards and range

conditions remained relatively stable given all the flooding. However, continued inundation in the LORP, especially the Islands and below Mazourka Canyon road, will continue to aggrade the existing meadows and result in the loss of meadow habitat and the ability for livestock grazing. This could result in greater grazing pressure on the uplands and irrigated portions of the leases in the LORP.

All irrigated pastures were evaluated in 2023, and analysis of the data showed overall pasture conditions to be good. With the record precipitation there was an overabundance of water available for irrigation. Precipitation from the winter and spring months had a significant effect on the spring conditions of all irrigated pastures allowing for increased spring forage growth prior to irrigation season. The 2023 irrigation season was also extended to supplement water spreading activities in the fall. Although irrigation water was available, it was necessary to let pastures dry out prior to the fall months when livestock would return from summer grazing. Prolonged inundation may lead to negative impacts in 2024. Irrigated pasture condition evaluations for all pastures are scheduled for 2026, LADWP staff in the interim will monitor for potential concerns.

Range trend responded to wet conditions with increases in forage particularly on the northern leases where there had been recent fire activity. Southern leases experienced extensive flooding due to record precipitation and emergency construction on the aqueduct. As a result of the flooding approximately 20 transects were not able to be monitored. The sites that were monitored, vegetation frequency of dominant species largely remained within the natural variability of each. Effects of the flooding will be ascertained in summer of 2024.

Literature Cited

Bedell, T. E. (Chairman, Glossary Update Task Group). 1998. Glossary of Terms Used in Range Management. Society for Range Management, Denver, CO. 32pp.

Bureau of Land Management. 1996. Sampling Vegetation Attributes in Rangeland Analysis and Planning Guide. BLM/RS/ST-96/002+1730. National Applied Resource Science Center, Reno, NV.

Cosgrove, D., D. Undersander, and J. Cropper. 2001. Guide to Pasture Condition Scoring. USDA-NRCS Grazing Lands Technology Institute.
Mueller-Dombois, D. and Ellenberg, H. 1974. Aims and Methods of Vegetation Ecology. John Wiley and Sons, New York, 547 p.

Elzinga, C. L., D. W. Salzer, et al. 1988. Measuring and Monitoring Plant Populations. Denver, USDI, BLM.

Heywood, J. S. and M. D. DeBacker. 2007. Optimal Sampling for Monitoring Plant Frequency. Rangeland Ecology and Management 60: 426-434.
Holechek, Jerry L., and Galt, Dee. 2000. Grazing Intensity Guidelines. Rangelands 22(3): 11 – 14.

Los Angeles Department of Water and Power (LADWP). Ecosystem Sciences. Owens Valley Land Management Plan. April 28, 2010. https://www.ladwp.com/sites/default/files/documents/April_2010_Owens_Valley_Land_Mgmt_Plan.pdf Accessed March 29, 2024.

Memorandum of Understanding (MOU) Between the City of Los Angeles Dept. of Water and Power, the County of Inyo, the California Dept. of Fish and Game, the California State Lands Commission, the Sierra Club, the Owens Valley Committee, and Carla Scheidlinger. 1997. https://www.inyowater.org/wp-content/uploads/legacy/Water_Resources/mou/default.html Accessed March 29, 2024.

Smith, E. L., Bunting, S.C., and Hironaka, M. 1986. Sensitivity of frequency plots for detecting vegetation change. Northwest Science. 60(4):279-286.

Smith, Lamar., Ruyle, George., Maynard, Jim., Barker, Steve., Meyer, Walt., Stewart, Dave., Coulloudon., Willams, Stephen., and Dyess, Judith. 2016. Principles of Obtaining and Interpreting Utilization Data on Rangelands. Arizona Cooperative Extension. https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1375-2016.pdf Accessed March 29, 2024.

3.3.2.1.1. Land Management Appendices

Land Management Appendix 4. End of Season Grazing Utilization by Lease and Pasture, 2019-2023

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
Aberdeen RLI-479	**Hines Spring Exclosure**	**ABERDEEN_30**		26%	21%	51%	0%
		HINES_SPRING_02	14%	23%	1%	13%	9%
		HINES_SPRING_03	7%	5%	0%	0%	0%
	Hines Spring Exclosure Average		11%	18%	7%	32%	3%
	Pipeline Field	**ABERDEEN_33**	9%		9%		0%
		PIPELINE_02		17%	9%		0%
		PIPELINE_03	6%			3%	0%
	Pipeline Field Average		8%	17%	9%	3%	0%
Aberdeen Average			9%	14%	8%		2%
Big Pine Canal RLI-438	**North 40**	**YRIB_03**	4%			Burned	0%
		YRIB_04	38%	40%	41%	Burned	22%
		YRIB_06	0%		31%	Burned	27%
	North 40 Average		14%	40%	36%	Burned	16%
	South 40	**YRIB_01**	1%	37%	13%	Burned	NR
		YRIB_02	0%	38%	30%	Burned	4%
		YRIB_05	4%		28%	Burned	4%
	South 40 Average		1%	37%	24%	Burned	4%
Big Pine Canal Average			8%	38%	28%	Burned	10%
Blackrock RLI-428	**Horse Holding**	**BLKROC_09**	0%	4%	0%	0%	0%
		HORSEHOLD_02	0%			0%	0%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Horse Holding Average		0%	4%	0%	0%	0%
	Locust Field	**BLKROC_06**	0%	0%	7%	0%	20%
	Locust Field Average		0%	0%	7%	11%	20%
	North Riparian Field	**BLKROC_12**					NR
		BLKROC_22	9%	0%	19%	20%	0%
	North Riparian Field Average		9%	0%	19%	20%	0%
	Reservation Field	**BLKROC_02**	0%	0%	53%		
		BLKROC_03	0%	6%	4%		0%
		BLKROC_44	3%	0%	22%		7%
		BLKROC_49	0%	0%	2%	0%	0%
		BLKROC_51	0%	28%	23%		9%
		RESERVATION_06	2%	2%	3%	11%	NR
	Reservation Field Average		1%	20%	18%	6%	4%
	Reservation Riparian Field	**BLKROC_17**					Flood
	Reservation Riparian Field Average						Flood
	Robinson Field	**BLKROC_04**	6%	3%	35%	22%	12%
		ROBINSON_02			13%		8%
	Robinson Field Average		6%	3%	24%	22%	9%
	Russell Field	**BLKROC_05**	9%	3%	1%	10%	13%
		RUSSELL_02	0%		6%		8%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Russell Field Average		5%	3%	4%	10%	10%
	South Riparian Field	**BLKROC_13**		23%	9%	10%	0%
		BLKROC_23	15%	32%	8%	3%	0%
		SOUTHRIP_03				18%	NR
		SOUTHRIP_04		19%	6%		NR
	South Riparian Field Average		15%	25%	8%	8%	0%
	Springer Field	**BLKROC_08**	1%				NR
	Springer Field Average		1%				0%
	White Meadow Field	**BLKROC_01**	0%	0%	9%	0%	8%
		BLKROC_39		0%	4%	0%	NR
		WHITEMEADOW_03	0%	9%	23%	0%	Flood
		WHITEMEADOW_04	4%	8%	0%		Flood
		WHITEMEADOW_05	0%		6%	29%	0%
	White Meadow Field Average		1%	4%	9%	7%	4%
	White Meadow Riparian Field	**BLKROC_11**	11%	33%	22%	26%	Flood
		BLKROC_14					Flood
		BLKROC_26					Flood
		WMRIP_T2					NR
		WMRIP_T5					NR

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
		WMRIP_T4				17%	NR
		WMRIP_T1					NR
	White Meadow Riparian Field Average		11%	33%	22%	22%	Flood
	Wrinkle Field	**BLKROC_07**	0%	3%	3%	12%	12%
		WRINKLE_03	7%	6%			0%
	Wrinkle Field Average		3%	4%	12%	12%	6%
	Wrinkle Riparian Field	**BLKROC_18**		31%		23%	Flood
		BLKROC_19	11%		11%	0%	8%
		BLKROC_20	13%	34%			Flood
		BLKROC_21	12%	35%		10%	Flood
	Wrinkle Riparian Field Average		12%	33%	11%	11%	8%
	West Field	**WRINKLE_02**	0%	3%	31%	11%	0%
	West Field Average		0%	3%	31%	11%	0%
Blackrock Average			4%	11%	13%	12%	5%
Cashbaugh RLI-411	**Bishop Creek Field**	**CASHBA_02**	17%	27%	3%	3%	2%
		CASHBA_04	1%	13%	34%	19%	13%
		CASHBA_05	20%	12%	15%		13%
		CASHBA_06	1%	0%	5%	11%	12%
		CASHBA_09	9%	16%	5%	9%	6%
	Bishop Creek Field Average		10%	14%	12%	11%	9%
	Ears Field	**CASHBA_19**	0%			Burned	0%
		CASHBA_20	0%			Burned	NR
		CASHBA_21	0%			Burned	0%
		CASHBA_22	0%			Burned	0%
		CASHBA_25	0%			Burned	NR

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Ears Field Average		0%	0%	0%	Burned	0%
	East of the River Field	**CASHBA_16**	42%	15%	0%	Burned	0%
		CASHBA_24	12%	10%		Burned	4%
		CASHBA_26	9%	32%		Burned	0%
		CASHBA_27				Burned	NR
	East of the River Field Average		21%	19%	0%	Burned	1%
	Laws River Field	**CASHBA_01**	1%	22%		7%	Flood
		CASHBA_03					Flood
		CASHBA_07	0%	5%		0%	Flood
		CASHBA_08	0%	8%		0%	Flood
	Laws River Field Average		0%	12%		2%	Flood
	Slough Field	**CASHBA_17**	7%	11%	9%	Burned	Flood
		CASHBA_18	0%	21%	0%	Burned	Flood
		CASHBA_23	18%	43%	8%	Burned	Flood
	Slough Field Average		8%	25%	6%	Burned	Flood
	Warm Springs Holding Field	**CASHBA_15**	11%	59%	10%	Burned	26%
	Warm Springs Holding Field Average		11%	59%	10%	Burned	26%
	White Mountain Field	**CASHBA_12**	14%	65%	55%	Burned	28%
		CASHBA_14	7%	54%	27%	Burned	10%
	White Mountain Field Average		10%	59%	41%	Burned	19%
Cashbaugh Ranch Average			8%		11%	12%	11%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
Coloseum RLI-407	**Movie Field**	**COLOSEUM_01**		3%		10%	0%
		COLOSEUM_02			13%		NR
		COLOSEUM_03					NR
	Movie Field Average			3%	13%	10%	0%
	South East Field	**COLOSEUM_38**	0%	78%	73%	20%	NR
		COLOSEUM_T1		59%	68%	20%	22%
		COLOSEUM_T2		10%	81%	20%	17%
		COLOSEUM_T3					NR
		COLOSEUM_T4	27%	58%			12%
		COLOSEUM_T5		23%			NR
	South East Field Average			45%	58%	20%	17%
	Northeast Pasture	**NORTHEAST_01**		22%	52%	20%	0%
	Northeast Pasture Average			22%	52%	20%	0%
Coloseum Average			14%	36%	62%	17%	6%
Delta RLI-490	**Bolin Field**	**BOLIN_02**	0%	13%			Flood
		BOLIN_01	0%	50%	5%	0%	Flood
	Bolin Field Average		0%	31%	5%	0%	Flood
	Main Delta	**DELTA_01**	26%		13%		Flood
		DELTA_02				2%	Flood
		DELTA_03	18%	18%	18%	05	Flood
		DELTA_04	31%	11%	13%	10%	Flood
		DELTA_05	0%			13%	Flood
		DELTA_06	8%	12%			Flood
		DELTA_07	14%	13%	7%	35%	Flood
	Main Delta Average		16%	14%	13%	12%	Flood
Delta Average			16%	17%	11%	12%	Flood
Intake RLI-475	**Intake**	**STUART_01**					0%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Intake Average						0%
Intake Average							0%
Island RLI-489	**Carasco Riparian Field South**	**ISLAND_06**		20%		26%	Flood
	Carasco Riparian Field South Average			20%		26%	Flood
	Depot Riparian Field	**ISLAND_08**	5%	15%	20%		0%
		ISLAND_09	2%	50%	17%	42%	75%
		RIVERFIELD_07	10%	11%	36%	27%	0%
		RIVERFIELD_09			24%	44%	0%
		RIVERFIELD_12	30%	19%	17%	7%	0%
	Depot Riparian Field Average		12%	24%	23%	30%	15%
	Lubkin	**LUBKIN_01**	0%	1%	0%	0%	0%
	Lubkin Average		0%	1%	0%	0%	0%
	River Field - Islands	**ISLAND_07**					Flood
		ISLAND_10	20%	27%	44%	8%	Flood
		ISLAND_11	1%	1%	4%	0%	Flood
		ISLAND_12					Flood
		RIVERFIELD_08	17%	10%		15%	Flood
		RIVERFIELD_11					Flood
		RIVERFIELD_06					Flood
		ISLAND_14				49%	Flood
	River Field - Islands Average		13%	13%	24%	18%	Flood
Islands Average			12%	15%	20%	25%	8%
Lone Pine RLI-456	**Johnson Pasture**	**LONEPINE_05**	0%		4%	4%	Flood

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Johnson Pasture Average		0%		4%	4%	Flood
	River Field - Lone Pine	**LONEPINE_01**	39%		32%	43%	Flood
		LONEPINE_02	29%		31%	51%	Flood
		LONEPINE_03	26%	6%	24%	48%	Flood
		LONEPINE_04	20%	40%	20%	49%	55%
		LONEPINE_06		13%			Flood
		LONEPINE_07	5%	33%	21%	23%	Flood
		LONEPINE_08				60%	Flood
	River Field - Lone Pine Average		24%	23%	26%	46%	55%
Lone Pine Average			24%	20%	22%	25%	55%
Reinhackle RLI-492	**Laws Holding Field**	**LACEY_03**	4%	22%		12%	6%
		LACEY_05	31%	15%	11%	16%	0%
		LACEY_08	23%	0%	14%		Flood
	Laws Holding Field Average		19%	19%	12%	14%	3%
	Triangle Field	**LACEY_01**	21%		17%		0%
		LACEY_02	0%		19%	18%	7%
		LACEY_04	0%	18%		0%	0%
		LACEY_06	24%	23%	0%	18%	10%
		LACEY_07	18%	15%	25%	13%	39%
	Triangle Field Average		13%	19%	15%	12%	11%
Reinhackle Ranch Average			15%	13%	14%	12%	7%
Round Valley RLI-483	**East Side Riparian**	**MEND_04**	0%		0%	37%	70%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	East Side Riparian Average		0%		0%	37%	70%
	East Side River Field	**MEND_05**		28%	10%	41%	54%
		MEND_06	30%	35%	25%	29%	25%
		MEND_07		26%		30%	25%
		MEND_08				0%	0%
	East Side River Field Average		30%	30%	18%	25%	26%
	Hole Pasture	**MEND_12**		45%	0%		34%
	Hole Pasture Average			45%	0%	Burned	34%
	River Riparian	**MEND_03**	41%	65%	50%		19%
		MEND_09	2%		0%		7%
		MEND_10	35%	27%	11%		13%
		MEND_11		52%	24%		20%
		MEND_1	27%				0%
	River Riparian Average		27%	48%	21%	Burned	12%
	Zurich Riparian	**MEND_02**		16%	10%	6%	11%
	Zurich Riparian Average			16%	10%	6%	11%
Round Valley Ranch Average			23%		14%	22%	31%
Tatum RLI-461	**Calvert Slough**	**TATUM_13**	14%	23%		0%	14%
		TATUM_29	0%	18%		0%	23%
	Calvert Slough Average		5%	20%		0%	19%
	Charlie Butte Field	**TATUM_10**	21%	43%	43%	3%	37%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Charlie Butte Field Average		21%	43%	43%	3%	37%
	East River Field	**TATUM_07**	20%		0%	0%	Flood
		TATUM_08	14%	29%	28%	11%	14%
		TATUM_09	27%				0%
		TATUM_12	11%	41%	27%	12%	14%
		TATUM_14	11%	12%	18%	0%	21%
	East River Field Average		17%	27%	18%	7%	12%
	North Horton Slough Riparian	**TATUM_02**	74%	0%	18%	1%	0%
	North Horton Slough Riparian Average		74%	0%	18%	1%	0%
	Northeast McCumber Riparian	**TATUM_01**	7%	37%	16%	2%	0%
	Northeast McCumber Riparian Average		7%	37%	16%	2%	0%
	Northwest McCumber Riparian	**TATUM_04**	29%	17%	38%	0%	Flood
	Northwest McCumber Riparian Average		29%	17%	38%	0%	Flood
	South Horton Slough Riparian	**TATUM_06**	79%	22%	12%	2%	11%
	South Horton Slough Riparian Average		79%	22%	12%	2%	11%
	Southeast McCumber Riparian	**TATUM_03**	6%	32%	0%	31%	22%
	Southeast McCumber Riparian Average		6%	32%	0%	31%	22%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Southwest McCumber Riparian	**TATUM_05**	5%	56%	9%	30%	22%
	Southwest McCumber Riparian Average		5%	56%	9%	30%	22%
	West River Field	**TATUM_15**	34%	0%	52%	0%	0%
	West River Field Average		34%	0%	52%	0&	0%
S-T Ranch Average			22%	24%	22%	11%	12%
Thibaut RLI-430	**Rare Plant Management Area**	**RAREPLANT_02**					NR
		RAREPLANT_03					NR
		THIBAUT_02		16%	5%	4%	17%
	Rare Plant Management Area Average			16%	5%	4%	17%
	Thibaut Field	**THIBAUT_03**	4%	9%	0%	1%	7%
		THIBAUT_08	1%			0%	0%
		THIBAUT_09	0%			0%	0%
		THIBAUTFIELD_02			5%		NR
		THIBAUTFIELD_03		0%	33%		4%
		THIBAUTFIELD_04	0%	0%	1%		10%
	Thibaut Field Average			9%	10%	0%	4%
	Waterfowl Management Area	**THIBAUT_01**	1%	31%	21%		19%
		WATERFOWL_02					NR
		WATERFOWL_03				2%	NR
		WATERFOWL_04					NR
		WATERFOWL_05					NR
	Waterfowl Management Area Average			31%	21%	2%	19%

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
Thibaut Average			1%	11%	11%	2%	13%
Tuttle RLI-495	**Tuttle Field**	**TUTTLE_01**		0%	0%		0%
	Tuttle Field Average			0%	0%		0%
Tuttle Average				0%	0%		0%
Twin Lakes RLI-491	**Lower Blackrock Field**	**BLKROC_37**	3%	6%	12%		0%
		BLKROC_FIELD_04					0%
		TWINLAKES_02	0%	0%	0%	0%	NR
		TWINLAKES_05					NR
	Average		3%	6%	6%	0%	0%
	Lower Blackrock Riparian Field	**BLKROC_RIP_07**				19%	0%
		TWINLAKES_03				2%	Flood
		TWINLAKES_04					Flood
		TWINLAKES_06					Flood
	Lower Blackrock Riparian Field Average					11%	0%
Smith RLI-454	**South River Field**	**4J_02**		19%	2%		Flood
		4J_03			7%		Flood
		4J_04			0%		Flood
	South River Field Average			19%	3%		Flood
Twin Lakes RLI-491	**Upper Blackrock Field**	**BLKROC_RIP_05**	26%		19%		Flood
		BLKROC_RIP_06	66%	5%	4%	4%	Flood
		BLKROC_RIP_08		18%		29%	Flood
		INTAKE_01	0%	3%	15%	0%	Flood
		BLKROC_RIP_09					Flood

Lease Name	Pasture Name	Transect Name	2019	2020	2021	2022	2023
	Upper Blackrock Field Average		44%	9%	13%	11%	Flood
Twin Lakes Average			19%		10%	11%	Flood
Warm Spring RLI-497	**River Field - Warm Springs**	**CASHBA_10**	22%	10%			Flood
		CASHBA_11		27%	6%		Flood
		CASHBA_13		0%	8%		Flood
	River Field - Warm Springs Average			19%	7%	Burned	Flood
Warm Spring Average			22%	12%	7%	Burned	Flood
Independence	**Manzanar**	**INDEP_65**	0%	0%	0%	0%	0%
	Manzanar Average		0%	0%	0%	0%	0%
Independence Average			0%	0%	0%	0%	0%

NR: Not Required. Use similar to others in pasture/field.

Land Management Appendix 5. Irrigated Pasture Scores (2019-2023)

Lease ID	Pasture	2019	2020	2021	2022	2023
Brockman RLI-401						
	# 8	88	X	X	X	94
	# 7	88	X	X	X	94
	# 5	92	X	X	X	94
	# 3	86	X	X	X	82
	# 2	92	X	X	X	94
	# 4	88	X	X	X	94
	# 1	86	X	X	X	82
	# 6	88	X	X	X	94
	# 9	92	X	X	X	94
U-Bar RLI- 402						
	Highway North	86	X	X	X	96
	Highway South	86	X	X	X	96
	Upper North 40	94	X	X	X	92
	Upper Middle	94	X	X	X	92
	Lower Middle	86	X	X	X	92
	Bull	86	X	X	X	92
Eight Mile RLI- 408						
	House Pasture	82	X	X	X	92
	Pivot					92
Cashbaugh RLI- 411						
	Bull Pasture	94	X	X	X	92
	Horse Pasture	94	X	X	X	80
	Old Bull Pasture	94	X	X	X	92
	Lower Pasture	94	X	X	X	92
	Middle Pasture	94	X	X	X	92
	Upper Pasture	94	X	X	X	92
	Sheep Pasture	86	X	X	X	92
	Winters	86	X	X	X	80
	Lake Pasture	X	X	X	X	84
	Williams Pasture	86	X	X	X	84
	Horse	84	X	X	X	80

Lease ID	Pasture	2019	2020	2021	2022	2023
	Symons	84	X	X	X	92
Quarter B RLI- 404,413						
	Riata Pasture	92	X	X	X	80
	Mummy West	84	X	X	X	80
	Otey Pasture	70	X	X	X	82
All Five RLI-416						
	Spring Field	100	X	X	X	92
	Right & Left Hand	98	X	X	X	92
	Far	70	X	X	X	92
	Airport	82	X	X	X	82
	Arena	86	X	X	X	92
Rockin D-M RLI- 420						
	Whistler	84	X	X	X	86
Mandich RLI-424						
	West Schober	94	X	X	X	82
	East Schober	94	X	X	X	92
	North Horse	96	X	X	X	92
	South Horse	96	X	X	X	92
	Heifer Pasture	96	X	X	X	92
	Jack In The Box	86	X	X	X	92
	Sheep Pasture	96	X	X	X	92
	East 80	96	X	X	X	92
	West 80	94	X	X	X	92
Olancha Cr RLI-427						
	Esta 1	96	X	X	X	92
	Esta 2	98	X	X	X	92
	Esta 3	98	X	X	X	92
	Esta 4	98	X	X	X	92
	Oesta 1	76	80	X	X	80
	Oesta 2	86	X	X	X	92
Blackrock RLI-428						

Lease ID	Pasture	2019	2020	2021	2022	2023
Homeplace RLI-428	L Pasture	94	X	X	X	92
	Hay Pasture	98	X	X	X	92
	E Stud Pasture	96	X	X	X	92
	W Stud Pasture	98	X	X	X	92
	Store Pasture	96	X	X	X	88
	Woven Wire	96	X	X	X	92
Thibaut RLI-430						
	Water Fowl Area	72	80	X	X	80
3-V RLI- 435						
	Swamp	76	80	X	X	88
	Front	80	X	X	X	88
	Horse/Little	80	X	X	X	88
	Little	80	X	X	X	88
Big Pine Canal RLI-438						
	Alfalfa 2	96	X	X	X	94
	Alfalfa 1	96	X	X	X	94
	Alfalfa 3	96	X	X	X	94
	Heifer	100	X	X	X	94
	South Meadow	98	X	X	X	94
	Horse Pasture	94	X	X	X	94
	4C	98	X	X	X	94
	Canal	98	X	X	X	94
	Baker	84	X	X	X	94
	Sanger Meadow	84	X	X	X	Snow
	Cow Creek	84	X	X	X	Snow
Rafter DD RLI - 439						
	Mare Pasture	86	X	X	X	86
	Pasture 1	80	X	X	X	80
	Pasture 2	68	X	X	X	72
RLI-426						
	Archy	86	X	X	X	82
	Corral Holding	74	80	X	X	82

Lease ID	Pasture	2019	2020	2021	2022	2023
	South Archy	80	X	X	X	82
	Schober	74	80	X	X	82
	South Schober	74	80	X	X	82
J-M RLI-445						
	#3 Pasture	84	X	X	X	82
	#2 Pasture	74	80	X	X	82
	#1 Pasture	84	X	X	X	82
	#4 Pasture	92	X	X	X	82
C-T RLI-451						
Chance	Upper Pond	88	X	X	X	94
	Locust	86	X	X	X	94
	Iron Gate	98	X	X	X	94
	80 Pasture	98	X	X	X	94
	80 Pasture	98	X	X	X	94
	Below Hay Stack	98	X	X	X	94
	Hay Stack	90	X	X	X	94
	Rock Pasture	90	X	X	X	94
	Holding Pasture	90	X	X	X	94
	Below House	90	X	X	X	94
	Stink Ant	90	X	X	X	94
	Pasture # 4	98	X	X	X	94
	Derick Pasture	98	X	X	X	94
	Pond Pasture	98	X	X	X	94
	Lowest South	98	X	X	X	94
	Lower Middle	98	X	X	X	94
	Wahlene Pasture	98	X	X	X	94
	2nd Pasture	98	X	X	X	94
	Iris Pasture	98	X	X	X	94
	Long Pasture	98	X	X	X	94
	Horse Pasture	90	X	X	X	96
Schober	Front Pasture	80	X	X	X	94
	Alfalfa Pasture	88	X	X	X	94
	Pine Cr Rd Post	88	X	X	X	94
	4 Pasture	88	X	X	X	94
	A Pasture	88	X	X	X	94
	B Pasture	88	X	X	X	94

Lease ID	Pasture	2019	2020	2021	2022	2023
	40 Acre Pasture	88	X	X	X	94
	F Pasture	88	X	X	X	94
	Lou's Pasture	88	X	X	X	94
	Highway Pasture	88	X	X	X	94
	Bull Pasture	88	X	X	X	94
	Orchard Pasture	88	X	X	X	94
	G Pasture	88	X	X	X	94
	E Pasture	88	X	X	X	94
Dairy RLI- 452						
	Calving	90	X	X	X	92
	Oystye	92	X	X	X	92
	Golf Field	90	X	X	X	92
	Middle Back	90	X	X	X	92
	North Back	90	X	X	X	92
Reata RLI-453						
	North Riata	82	X	X	X	80
	South Mummy	82	X	X	X	80
	Bishop Creek	82	X	X	X	80
	South Reata	82	X	X	X	94
	North Mummy	82	X	X	X	80
All 5 RLI-455						
	Ranch Pasture 1	98	X	X	X	94
	Ranch Pasture 3	98	X	X	X	92
	Ranch Pasture 2	98	X	X	X	92
	South Pasture	98	X	X	X	92
	Horse Field	98	X	X	X	92
	Elk Field	92	X	X	X	92
	North Feedlot	98	X	X	X	92
	NW Feedlot	98	X	X	X	92
Lone Pine RLI- 456						
	Edwards	80	X	X	X	92
	Richards	92	X	X	X	92
	Van Norman	84	X	X	X	92
	Old Place	96	X	X	X	88
	Smith	94	X	X	X	92
	Miller	90	X	X	X	92

Lease ID	Pasture	2019	2020	2021	2022	2023
Rainbow Pack RLI- 460						
	Brockman	82	82	X	X	82
S-T RLI- 461						
	N Highland	80	X	X	X	90
	S Highland	80	X	X	X	84
	N Y Road	80	X	X	X	96
	S Y Road	80	X	X	X	96
	Bogie Field	80	X	X	X	96
	Steward	74	X	X	X	80
	North Horse	84	X	X	X	96
	West Horse	82	X	X	X	96
	Wanacott	78	X	X	X	80
	Horse Trap	82	X	X	X	96
	Mare Pasture	80	X	X	X	96
	Front Pasture	82	X	X	X	96
	Swamp Pasture	72	X	X	X	82
	Castaway	80	X	X	X	82
	Calvert Slough	80	X	X	X	92
Horseshoe Bar RLI-462						
	West Pasture	70	80	X	X	84
	Front Pasture	70	80	X	X	84
Intake RLI-475						
	North Highway	92	X	X	X	94
	South Highway	80	X	X	X	94
	West County	92	X	X	X	94
	East County	92	X	X	X	94
	West Poplar	92	X	X	X	94
	East Poplar	92	X	X	X	94
	Fuller Meadow	92	X	X	X	94
	Salk	92	X	X	X	94
Aberdeen RLI- 479						
	One Acre	80	X	X	X	68
	North	78	80	X	X	68
	Middle	78	80	X	X	68

Lease ID	Pasture	2019	2020	2021	2022	2023
	South	74	80	X	X	68
	Hay stack	84	X	X	X	68
Round Valley RLI-483						
	Big Stockley	96	X	X	X	92
	Heifer	96	X	X	X	92
	Little Stockley	90	X	X	X	92
	Outside	96	X	X	X	92
	Sheep	96	X	X	X	92
	Bull	96	X	X	X	92
	Horse	96	X	X	X	92
	Triangle	96	X	X	X	92
	Georges	94	X	X	X	92
	40 Acres	92	X	X	X	92
	Freeway	94	X	X	X	92
	Tonys	96	X	X	X	92
	Rock House	96	X	X	X	92
	Steer	96	X	X	X	92
	Canal Pasture	80	X	X	X	92
	Big Pine Field	88	X	X	X	72
	Little Pasture	82	X	X	X	92
	Wells Meadow	84	X	X	X	92
	McGee Pasture	X	X	X	X	92
	Birch Pasture	82	X	X	X	92
	Horse Pasture	82	X	X	X	92
L-I Bar RLI-487						
	Sheep/Horse	94	X	X	X	96
	Hess Pasture	92	X	X	X	96
	West Line	92	X	X	X	96
Islands RLI-489						
	Zucco	98	X	X	X	96
	D&D	88	X	X	X	96
	Bardoff	88	X	X	X	96
	Plot	88	X	X	X	96
	Heifer Heaven	96	X	X	X	96

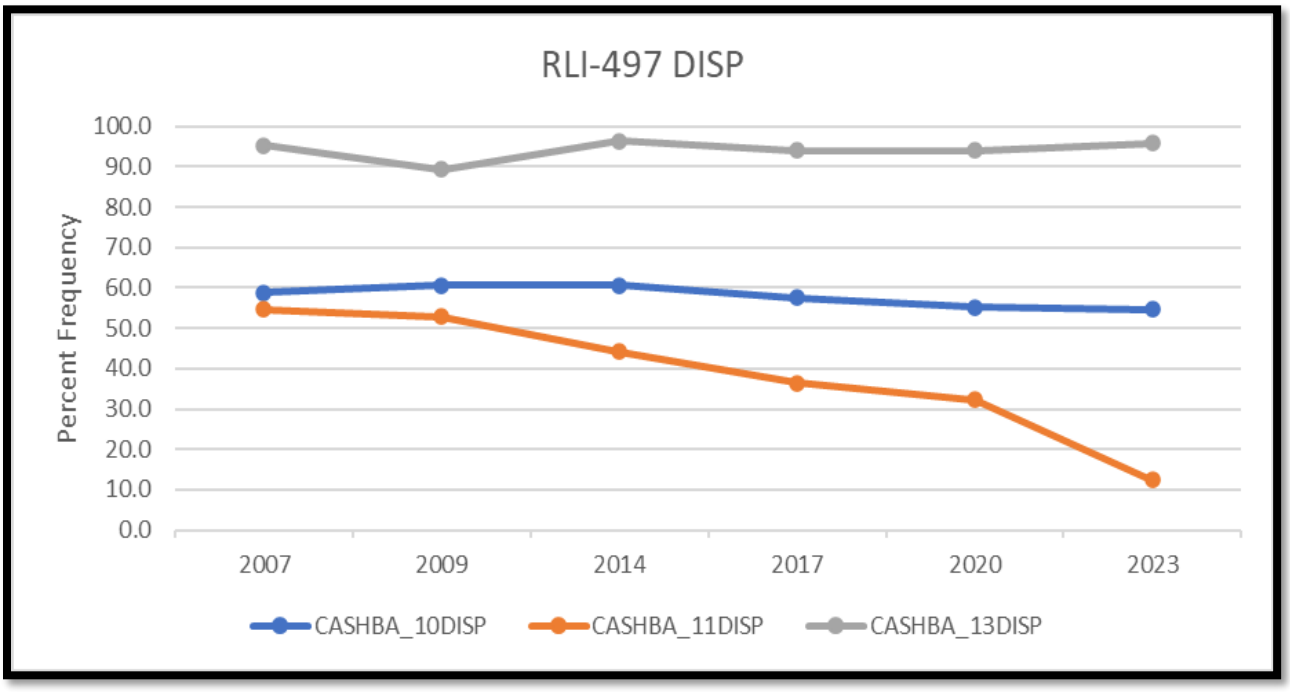
Lease ID	Pasture	2019	2020	2021	2022	2023
	Garden	92	X	X	X	96
	Orchard	92	X	X	X	96
	Pampa	88	X	X	X	96
	Cane	90	X	X	X	96
	L&L	88	X	X	X	96
	Willow	86	X	X	X	96
	Clover	92	X	X	X	96
	Horse Heaven	92	X	X	X	96
	Hectare	92	X	X	X	96
	Desert	92	X	X	X	96
	Olive Pasture	88	X	X	X	96
	Georges	92	X	X	X	96
	B and D	86	X	X	X	96
	Carasco North	86	X	X	X	94
	Lake Field	86	X	X	X	92
	Archie	86	X	X	X	92
Four J RLI- 491						
	Front Pasture	94	X	X	X	88
	Triangle	88	X	X	X	98
	West Holding	84	X	X	X	88
	Holding Field	88	X	X	X	88
	Hessian	94	X	X	X	96
	Fish Springs	78	X	X	X	82
	Tinemaha	88	X	X	X	90
Baker	Main Meadow	94	X	X	X	96
Cottonwoods	Main Meadow	84	X	X	X	94
Reinhackle RLI- 492						
	South Pasture	92	X	X	X	94
	West Pasture	86	X	X	X	94
	East Pasture	90	X	X	X	94
	Horse Pasture	84	X	X	X	94
Rockin C RLI-493						
	Rain Gun	80	X	X	X	80
	Little Horse	84	X	X	X	82

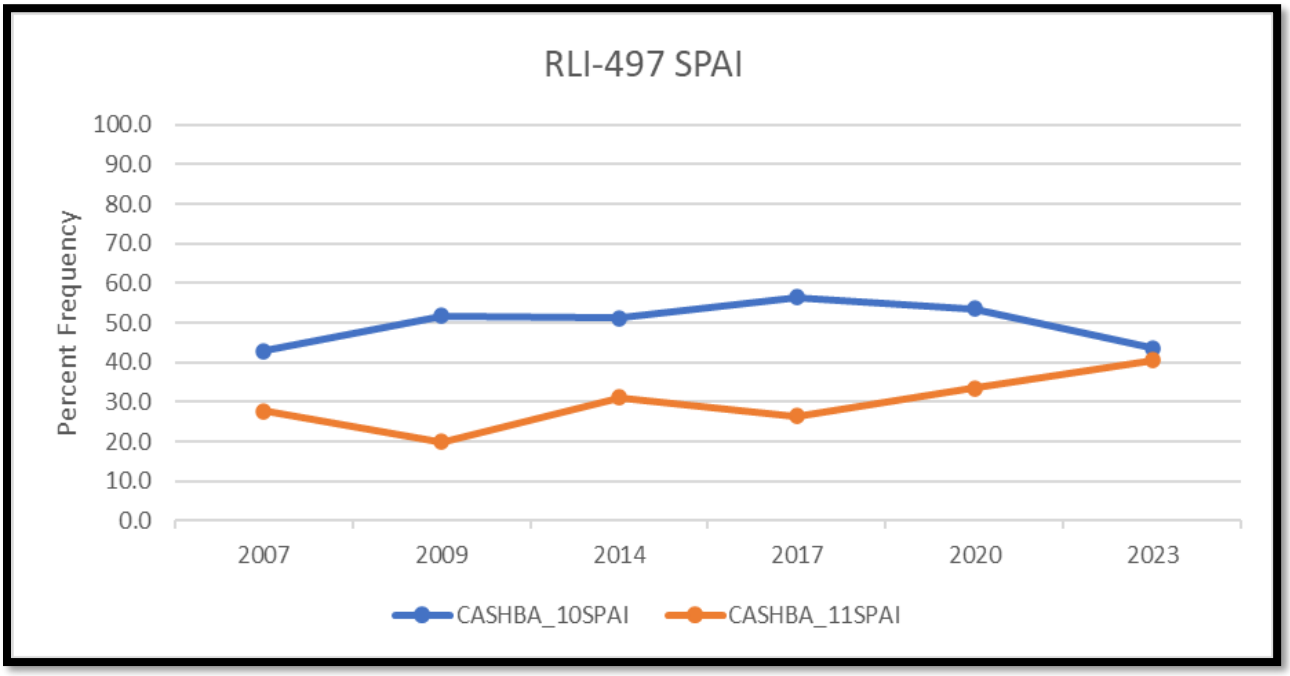
Lease ID	Pasture	2019	2020	2021	2022	2023
Pine Cr RLI-494						
	Highway Pasture	82	82	X	X	82
Mount Whitney RLI- 495						
	ED Pasture	82	X	X	X	80
	WD Pasture	82	X	X	X	80
Warm Springs RLI- 497						
	Waterson North	94	X	X	X	92
	Waterson South	94	X	X	X	92
	Calving Pasture	90	X	X	X	92
	New Alfalfa	86	X	X	X	92
	Old Alfalfa	90	X	X	X	92
Pine Cr RLI-498						
	Pine Cr. Pasture	98	X	X	X	96
	Corral Pasture	96	X	X	X	96
	Triangle Pasture	96	X	X	X	96
	Little Trap	98	X	X	X	96
	Behind Corral	96	X	X	X	96
	40 Acres	96	X	X	X	96
	Horse Field	96	X	X	X	96
	Bull	98	X	X	X	96
	New Field	96	X	X	X	96
Laws RLI- 499						
	Silver Canyon	92	X	X	X	96
	Middle Pasture	98	X	X	X	96
	Jean Blank	100	X	X	X	94
	Wiper Pivots	88	X	X	X	96
	Full Pivot N	84	X	X	X	96
	Full Pivot S	92	X	X	X	96
	Mitigation	92	X	X	X	88
C-T RLI- 500						
	South 80	90	X	X	X	90
	North 40	92	X	X	X	92

Lease ID	Pasture	2019	2020	2021	2022	2023
	Trailer Park	92	X	X	X	94

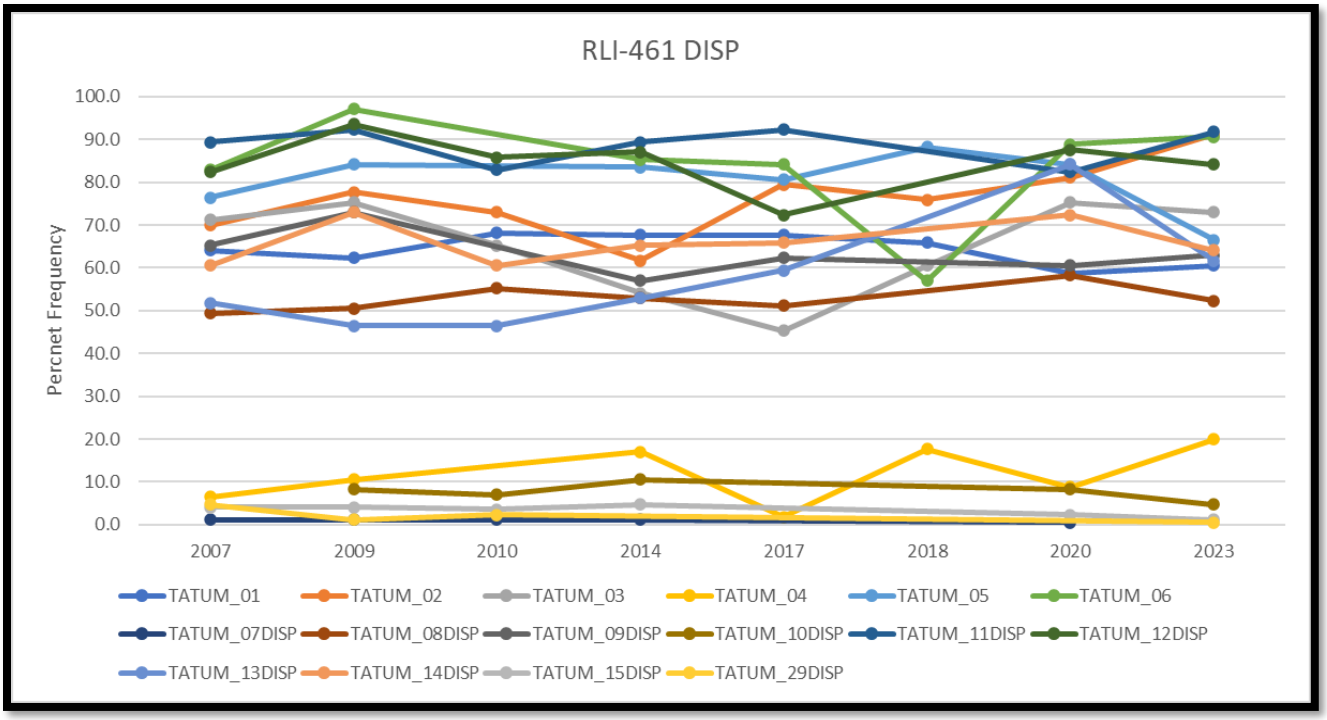
Land Management Appendix 6. Range Trend Graphs (All Available Data)

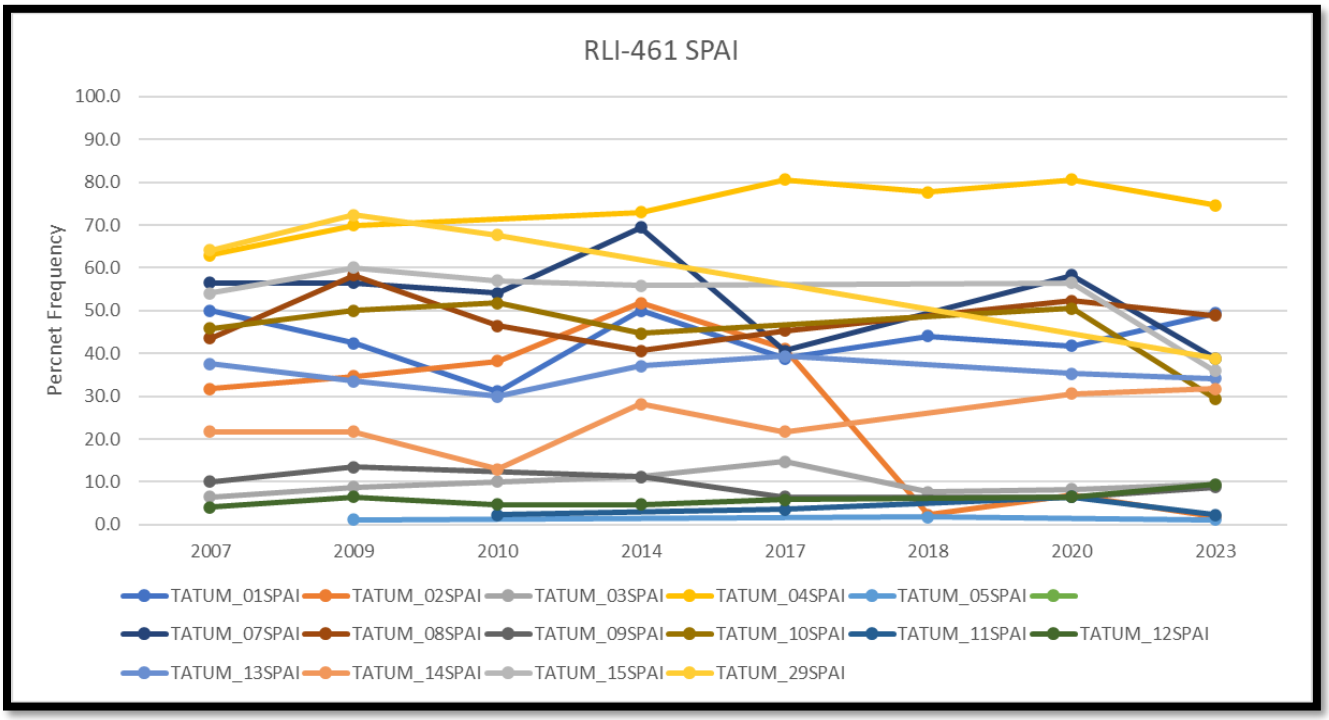
Warm Springs RLI-497 Frequency of Dominant Forage Species (DISP, SPAI)



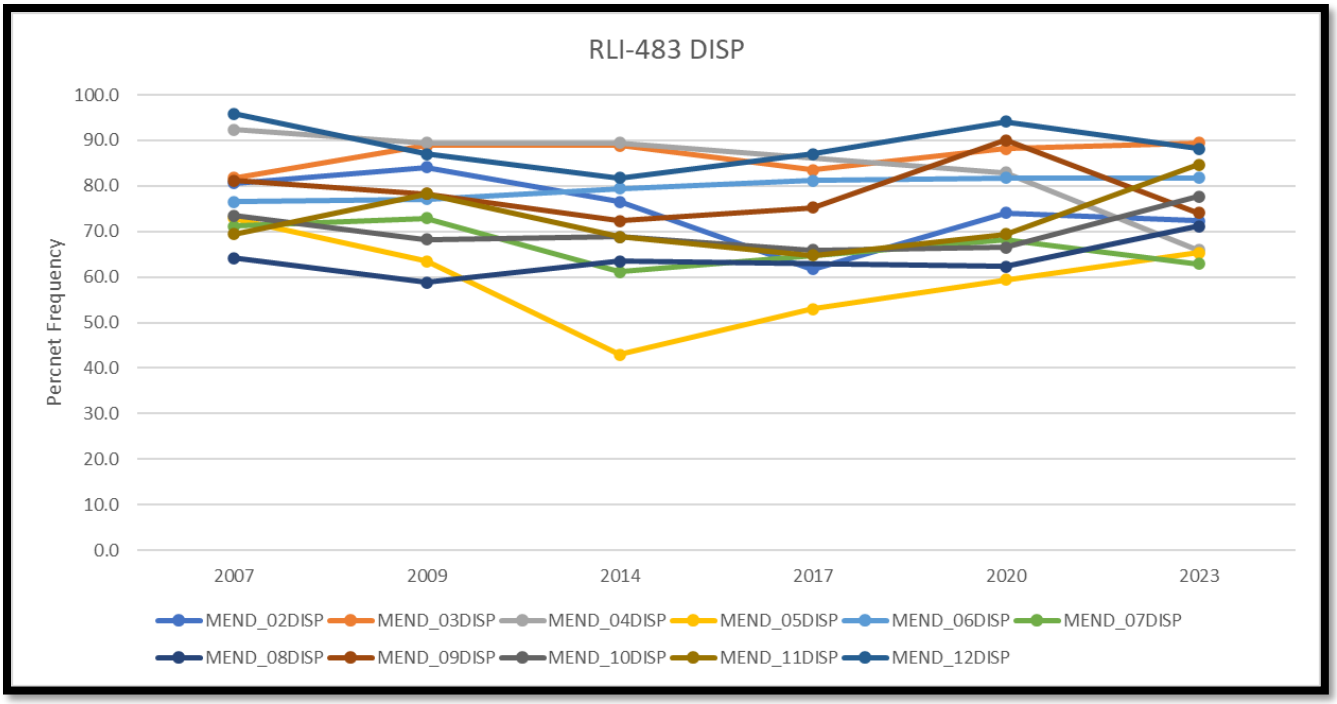


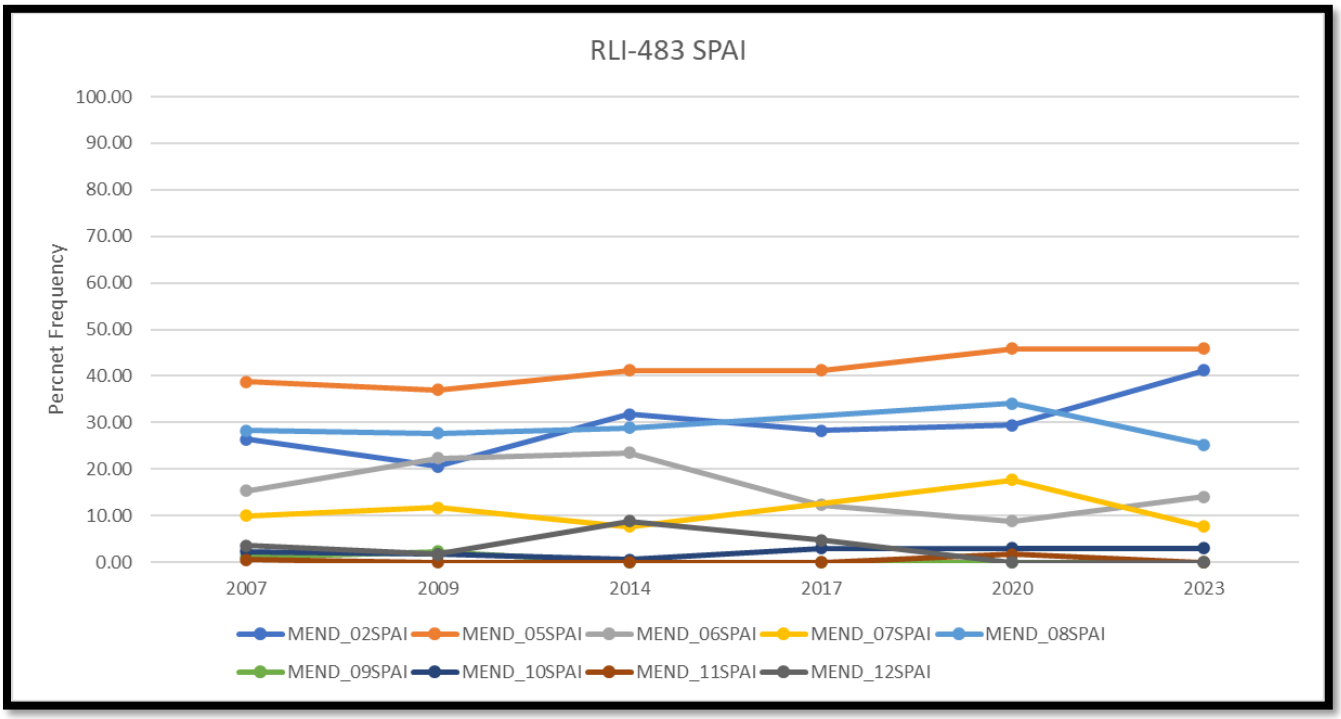
Tatum RLI-461 Frequency of Dominant Forage Species (DISP, SPAI)



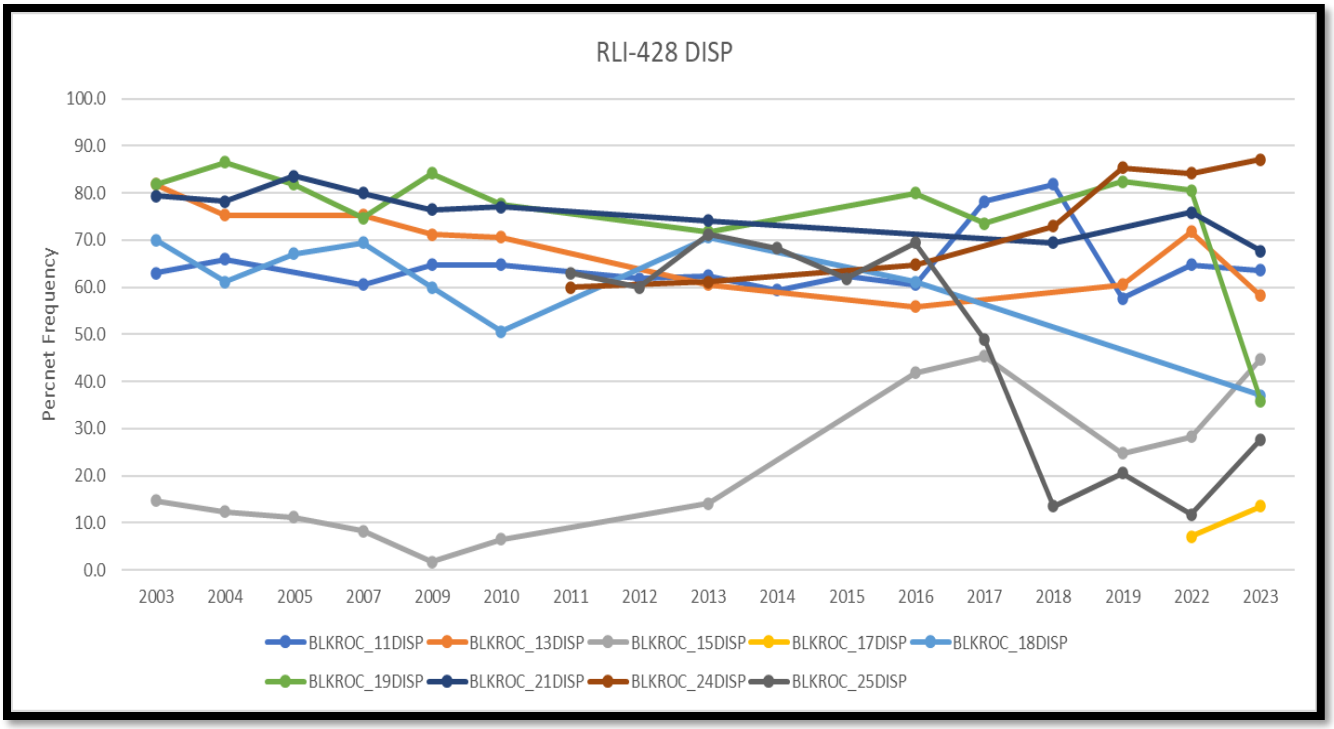


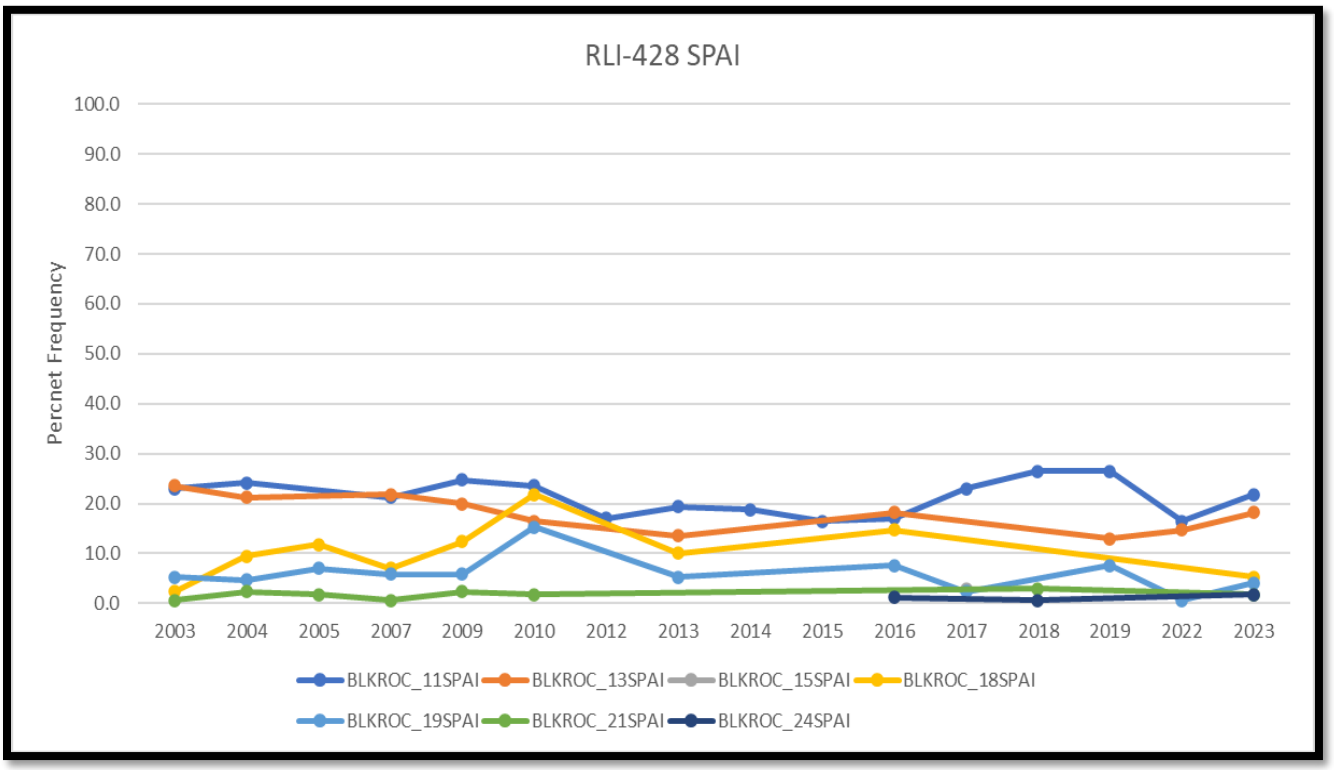
Round Valley RLI-483 Frequency of Dominant Forage Species (DISP, SPAI)



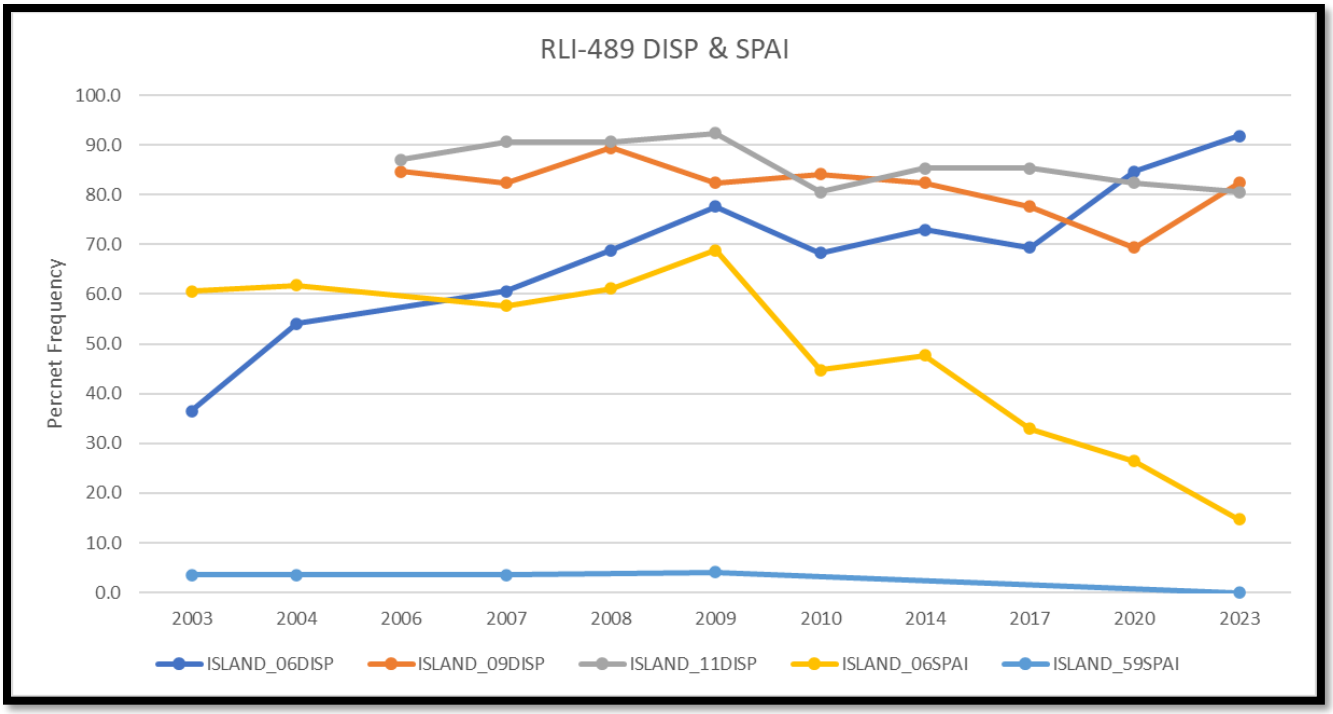


Blackrock RLI-428 Frequency of Dominant Forage Species (DISP, SPAI)

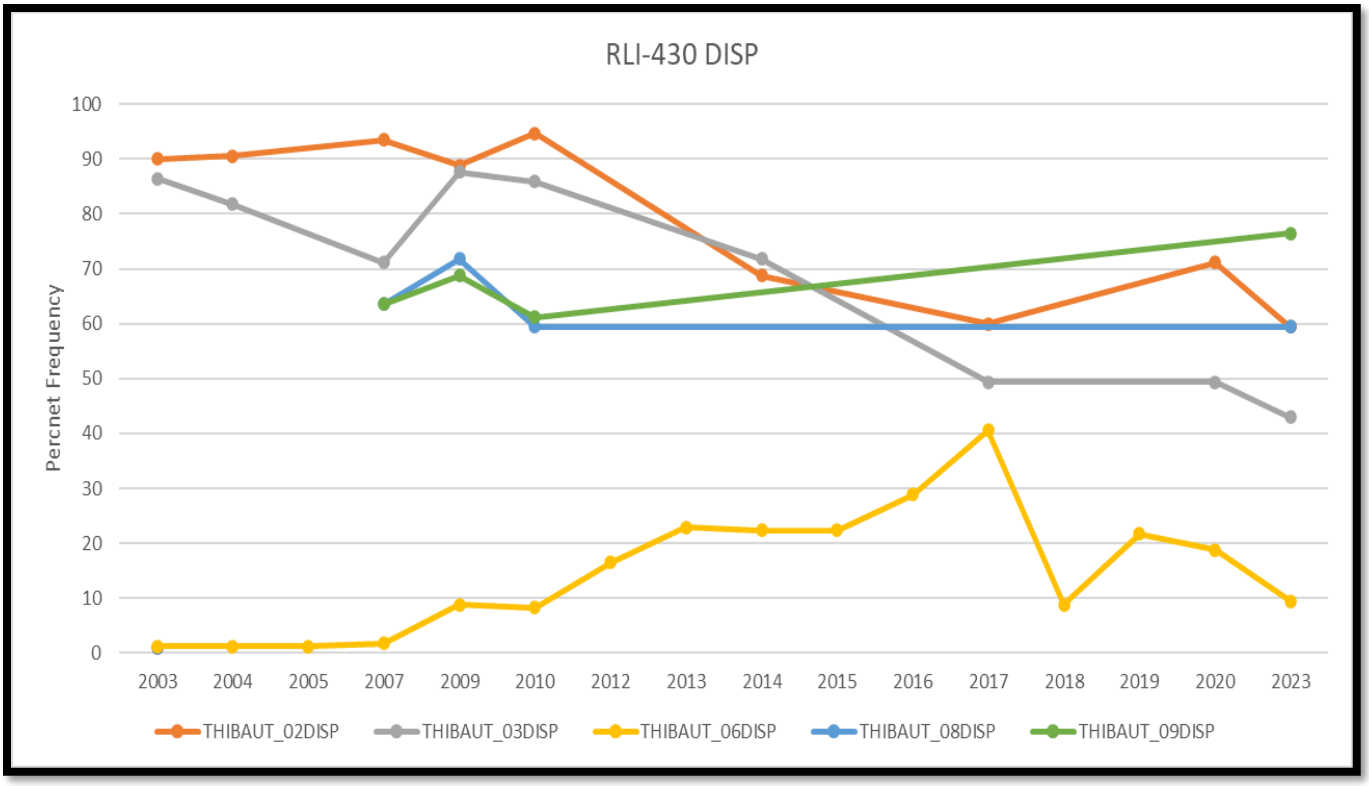


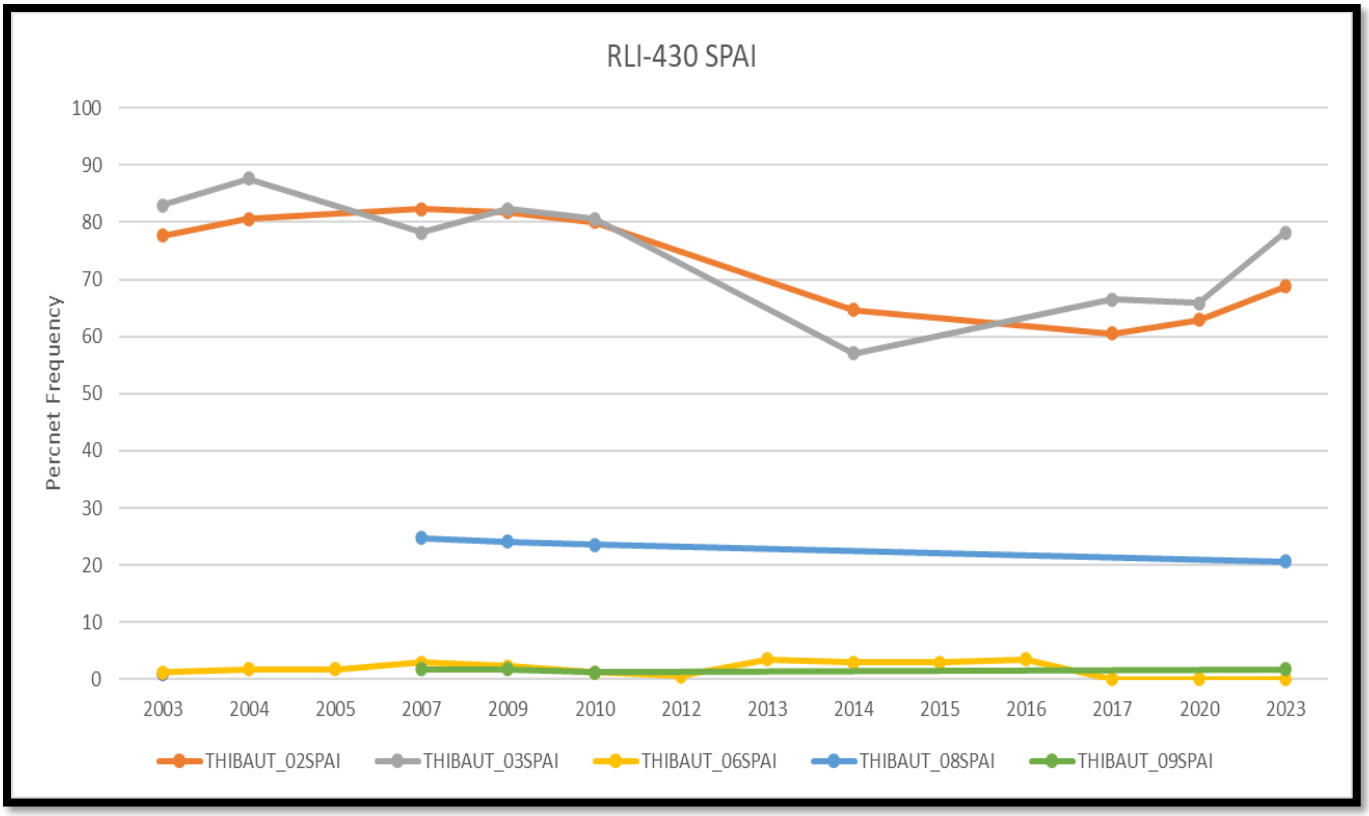


Islands RLI-489 Frequency of Dominant Forage Species (DISP, SPAI)

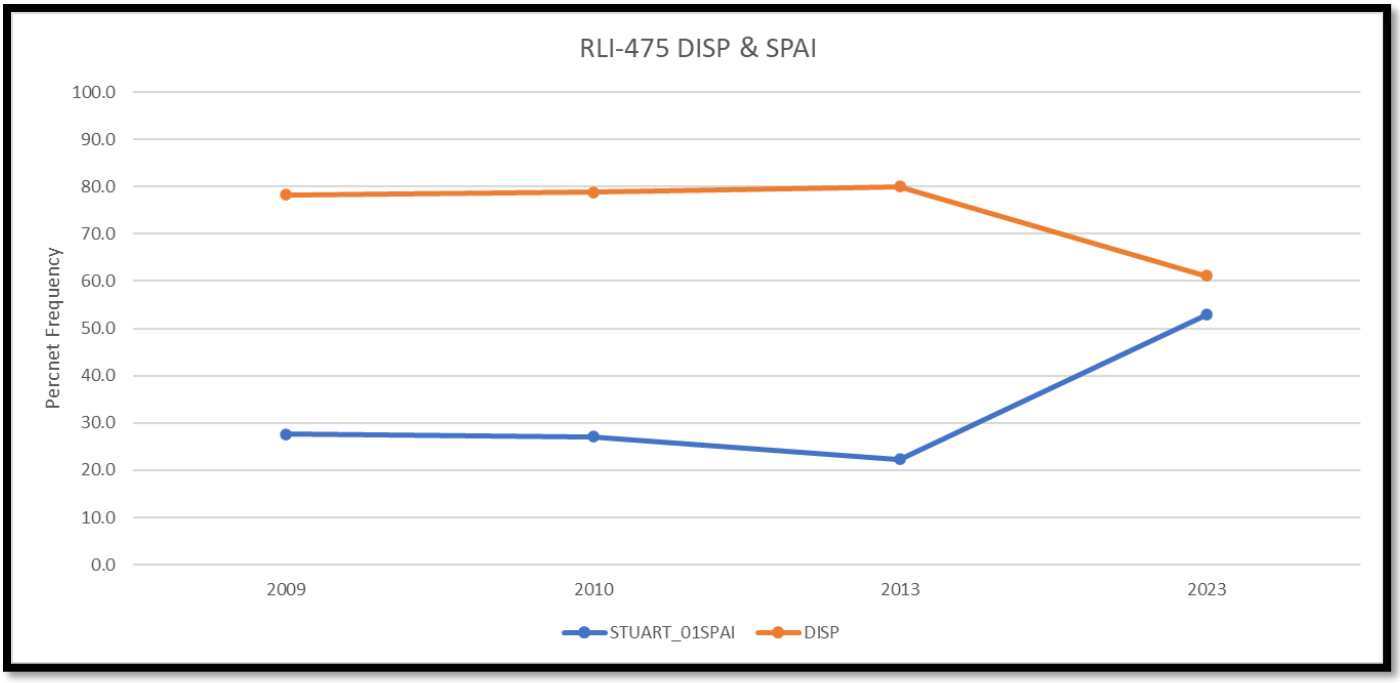


Thibaut RLI-430 Frequency of Dominant Forage Species (DISP, SPAI)

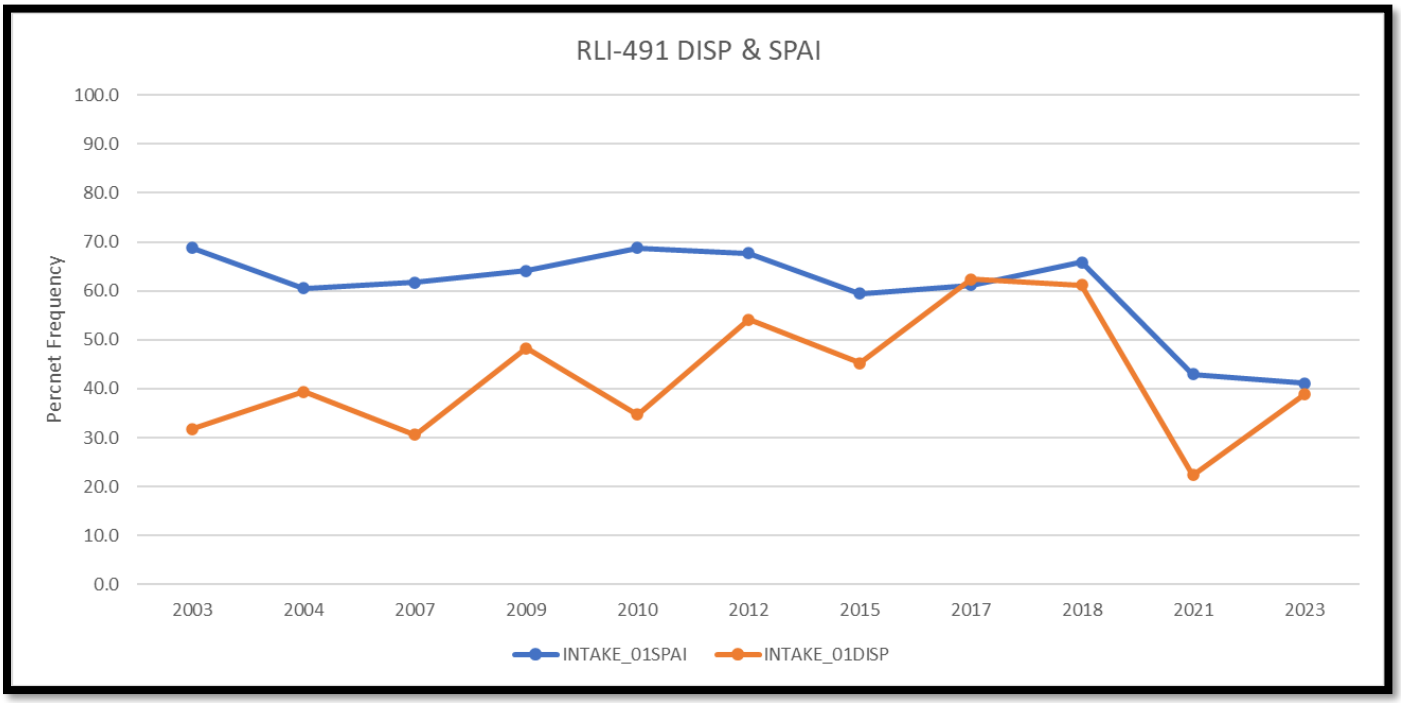




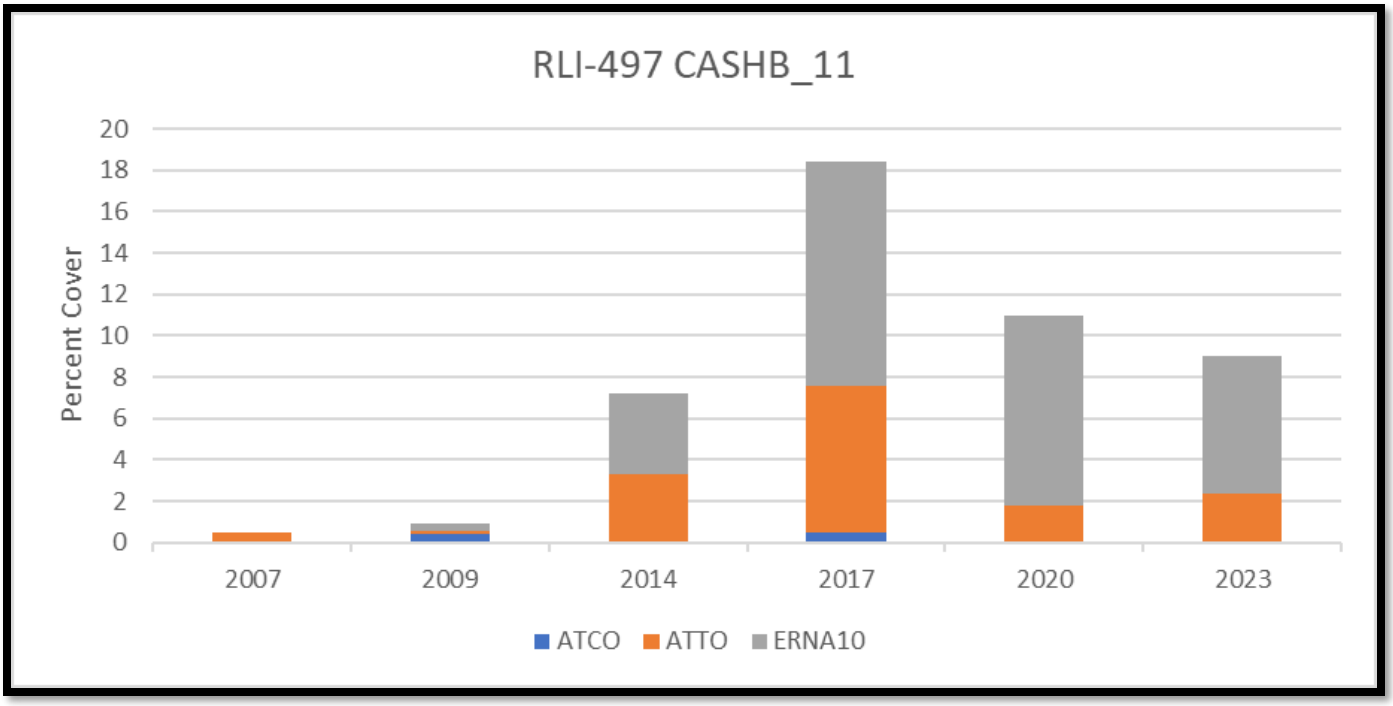
Intake RLI-475 Frequency of Dominant Forage Species (DISP, SPAI)



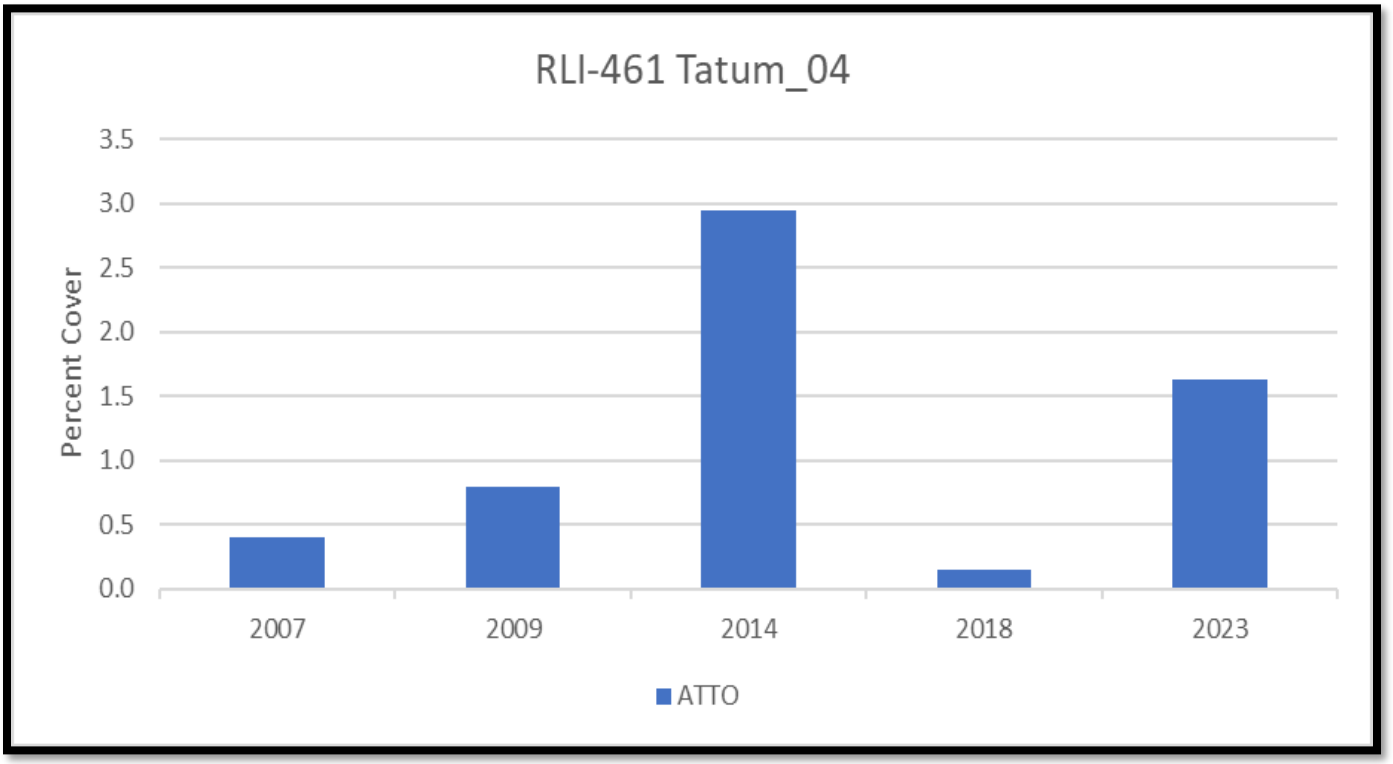
Twin Lakes RLI-491 Frequency of Dominant Forage Species (DISP, SPAI)

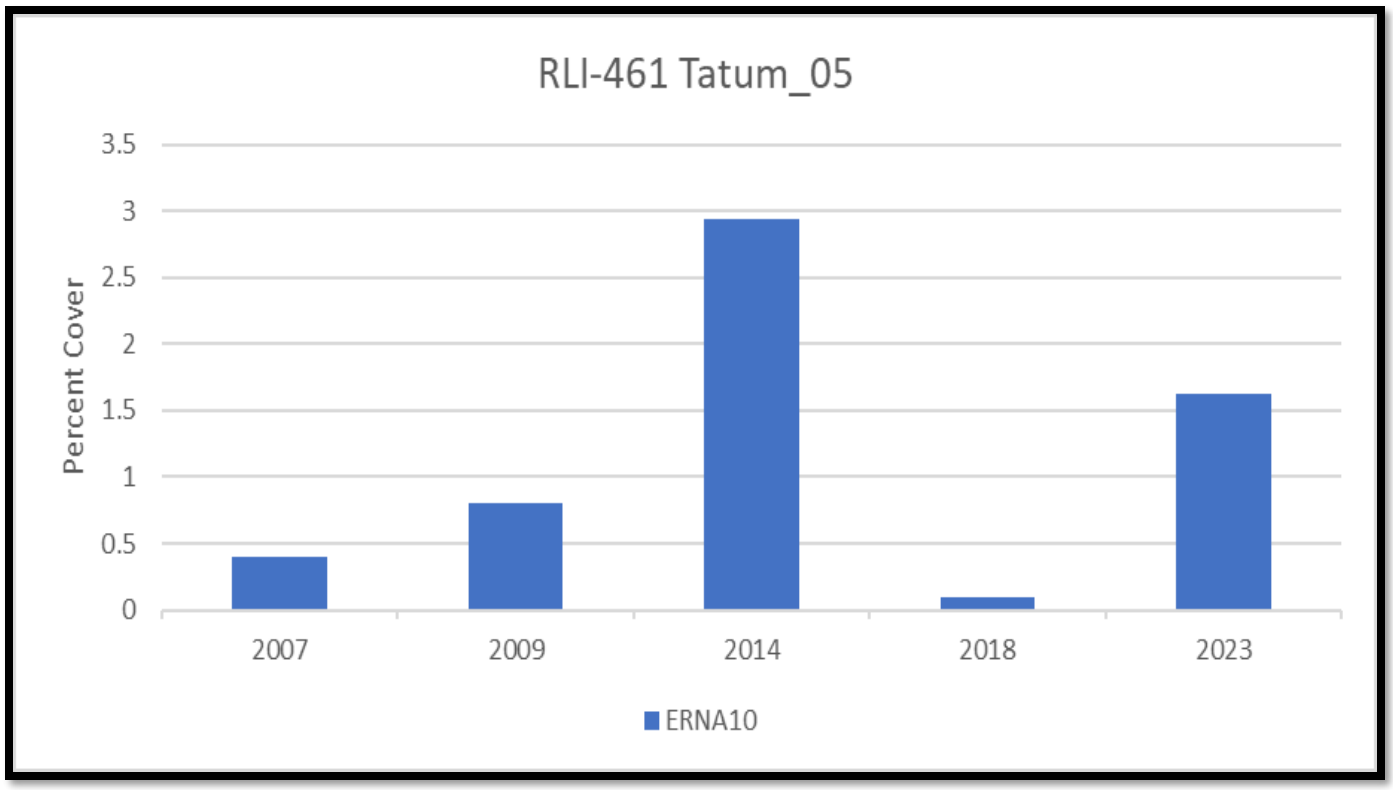


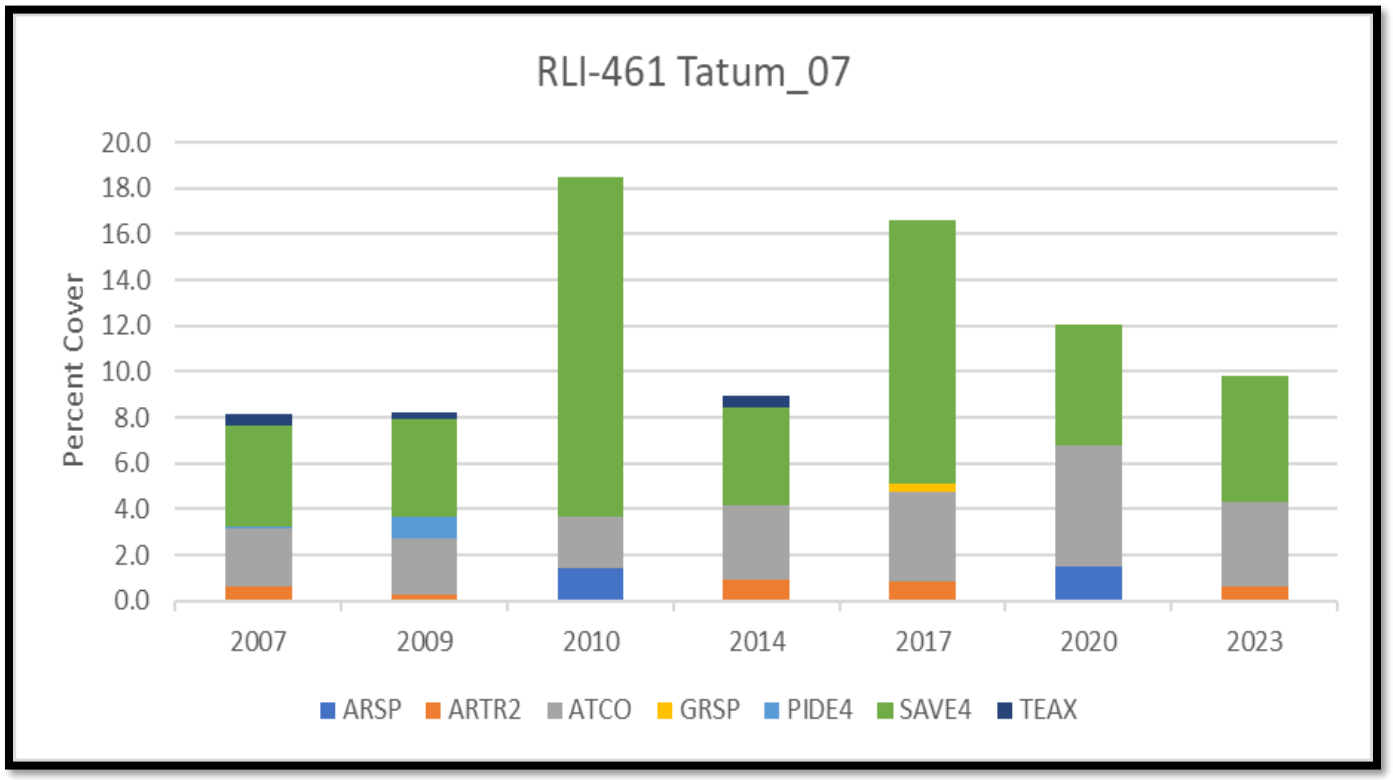
Warm Springs RLI-497 Shrub Cover Species (line intercept)

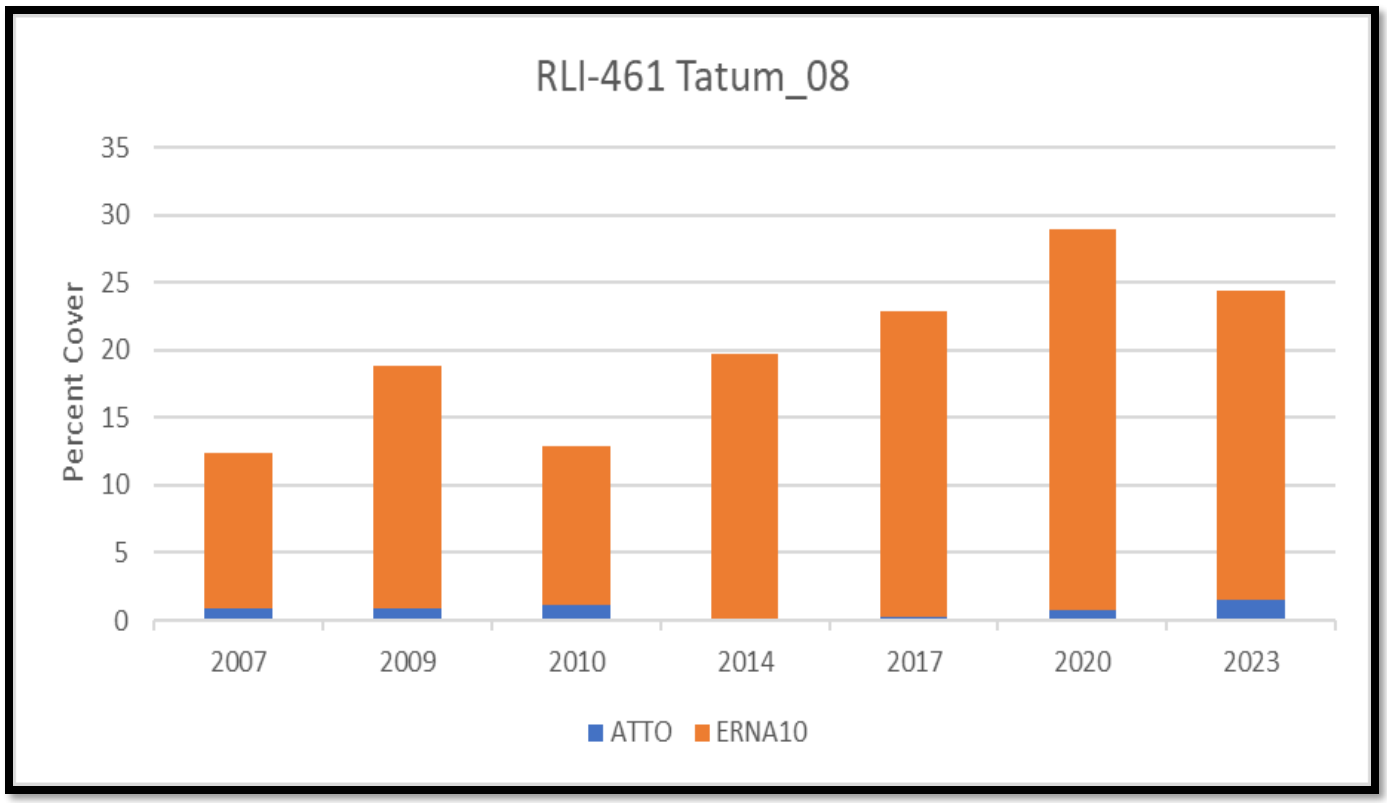


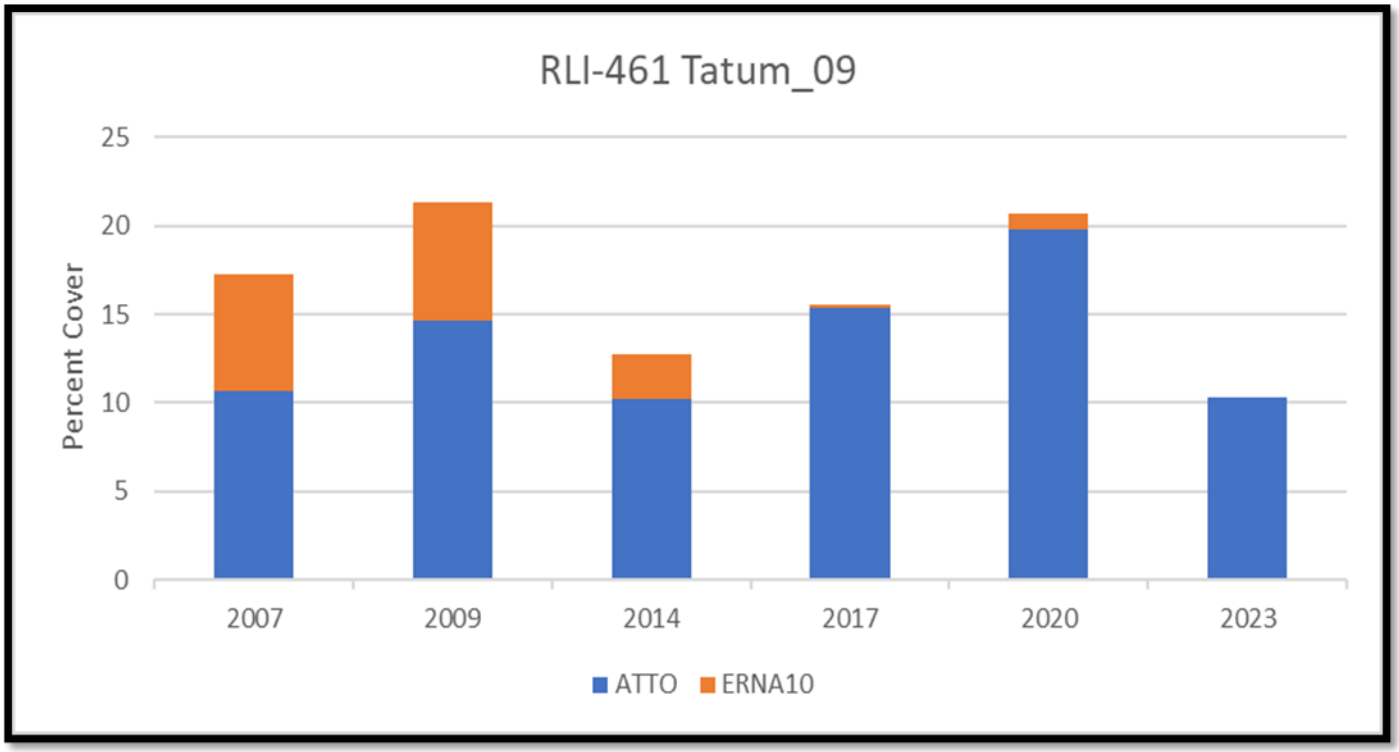
Tatum RLI-461 Shrub Cover Species (line intercept)

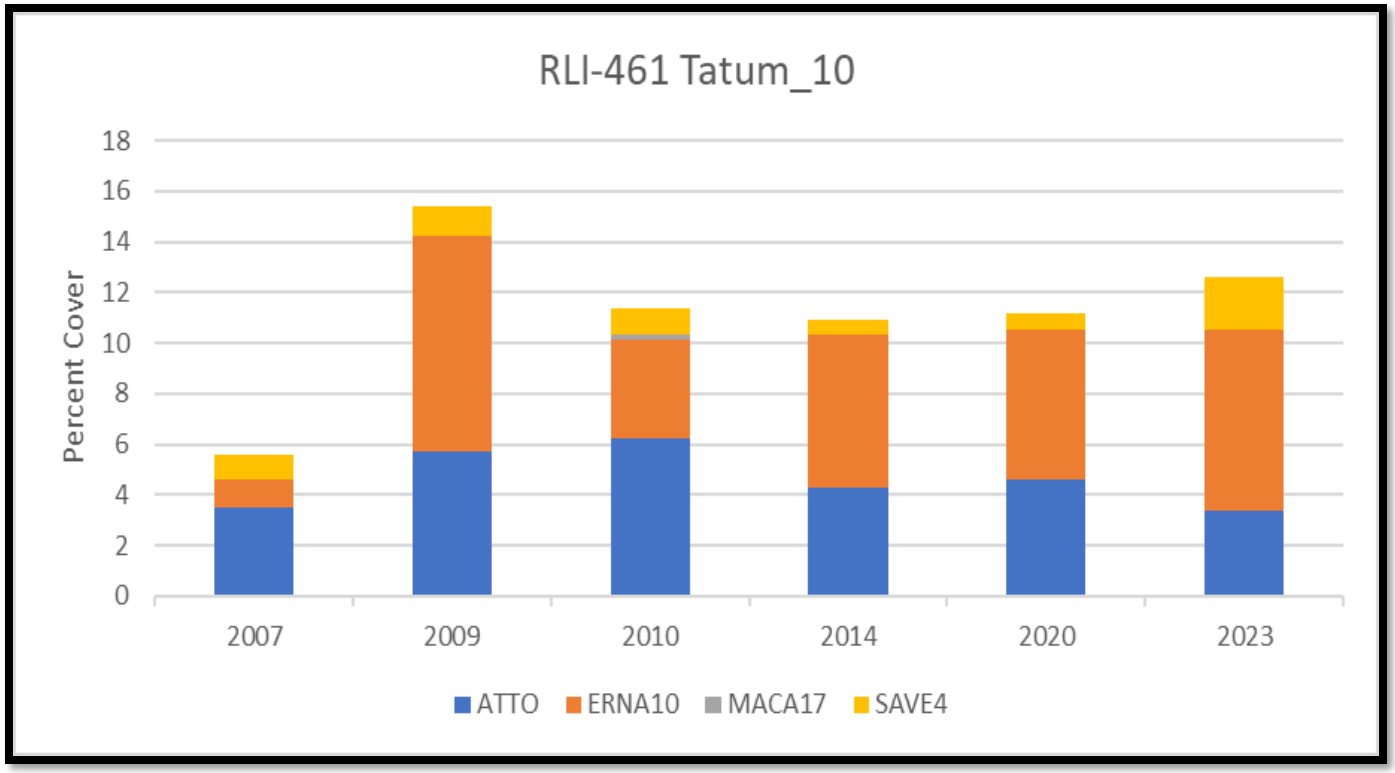


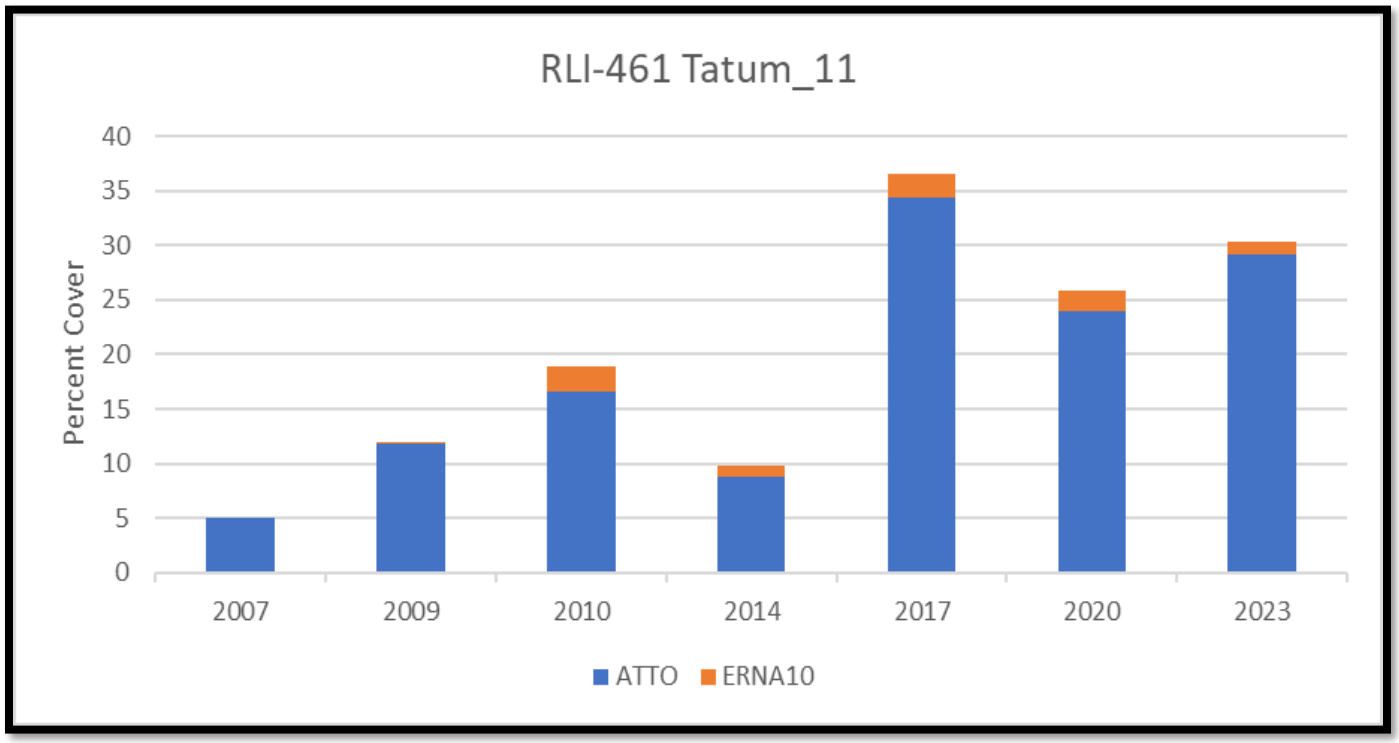

RLI-461 Tatum_05
Percent Cover
3.5
3
2.5
2
1.5
1
0.5
0
2007
2009
2014
2018
2023
ERNA10

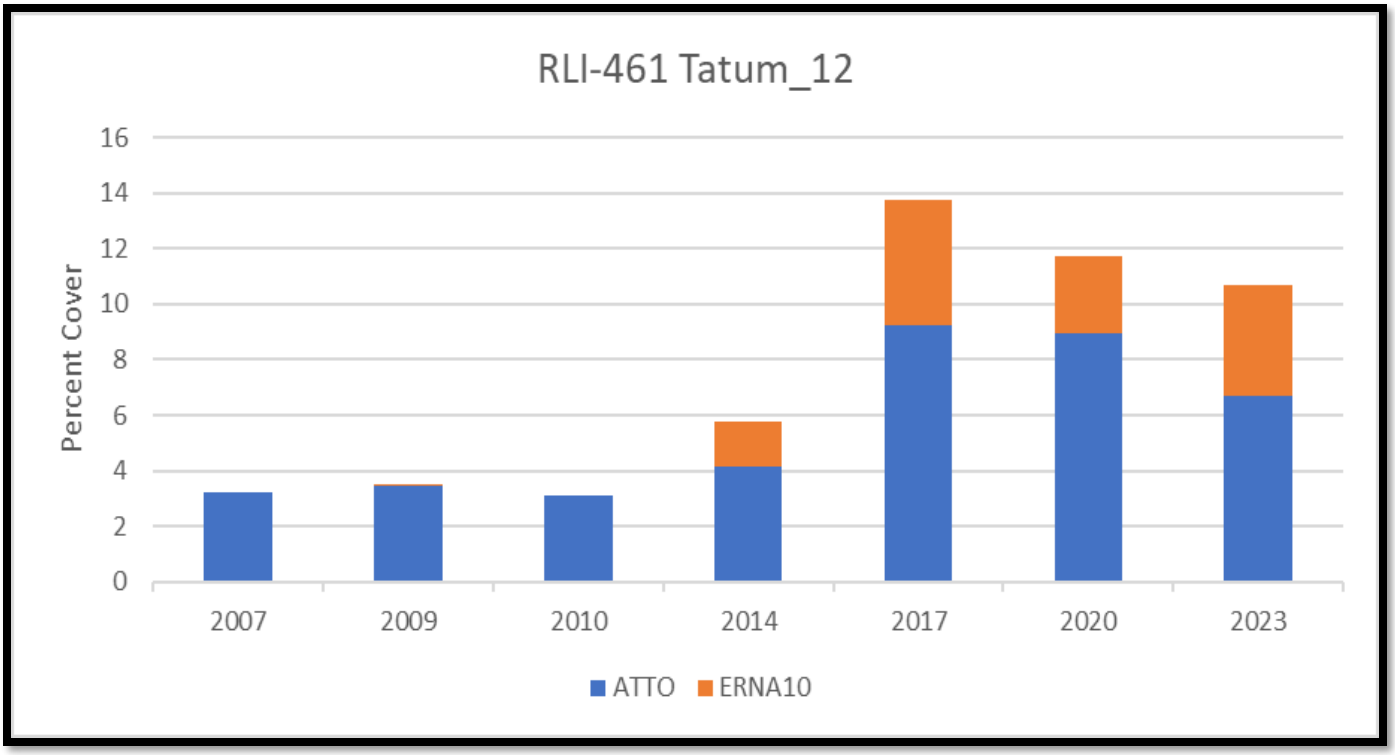

RLI-461 Tatum_07
Percent Cover
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2007
2009
2010
2014
2017
2020
2023
ARSP
ARTR2
ATCO
GRSP
PIDE4
SAVE4
TEAX

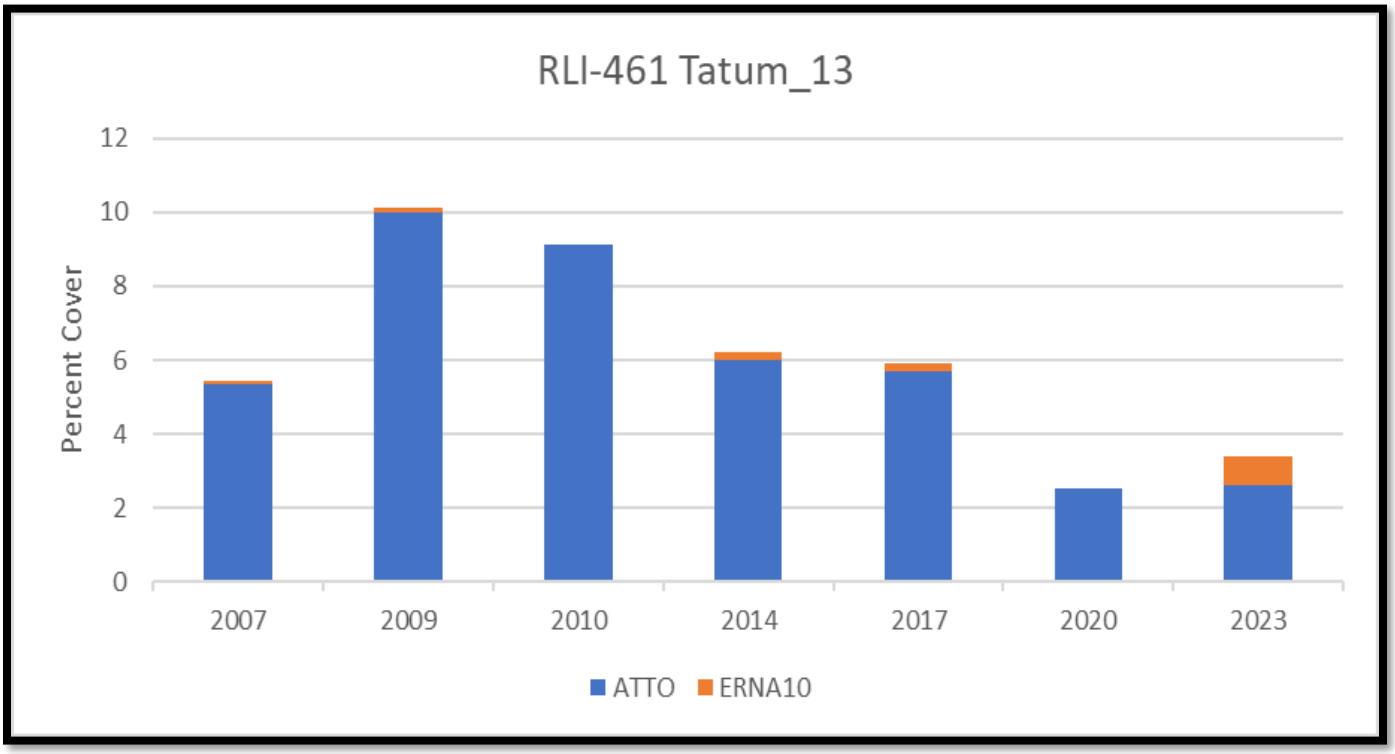

RLI-461 Tatum_08
Percent Cover
35
30
25
20
15
10
5
0
2007
2009
2010
2014
2017
2020
2023
ATTO
ERNA10

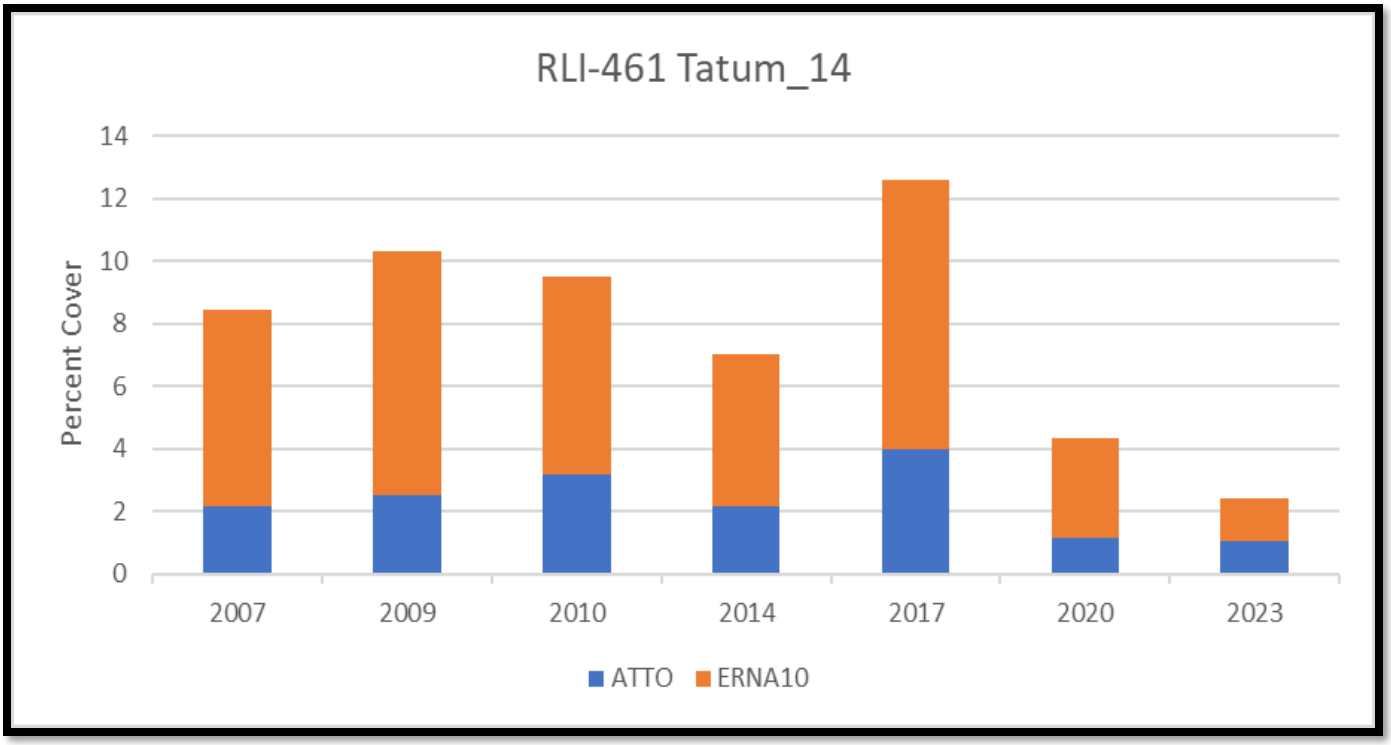

RLI-461 Tatum_09
Percent Cover
25
20
15
10
5
0
2007
2009
2014
2017
2020
2023
ATTO
ERNA10

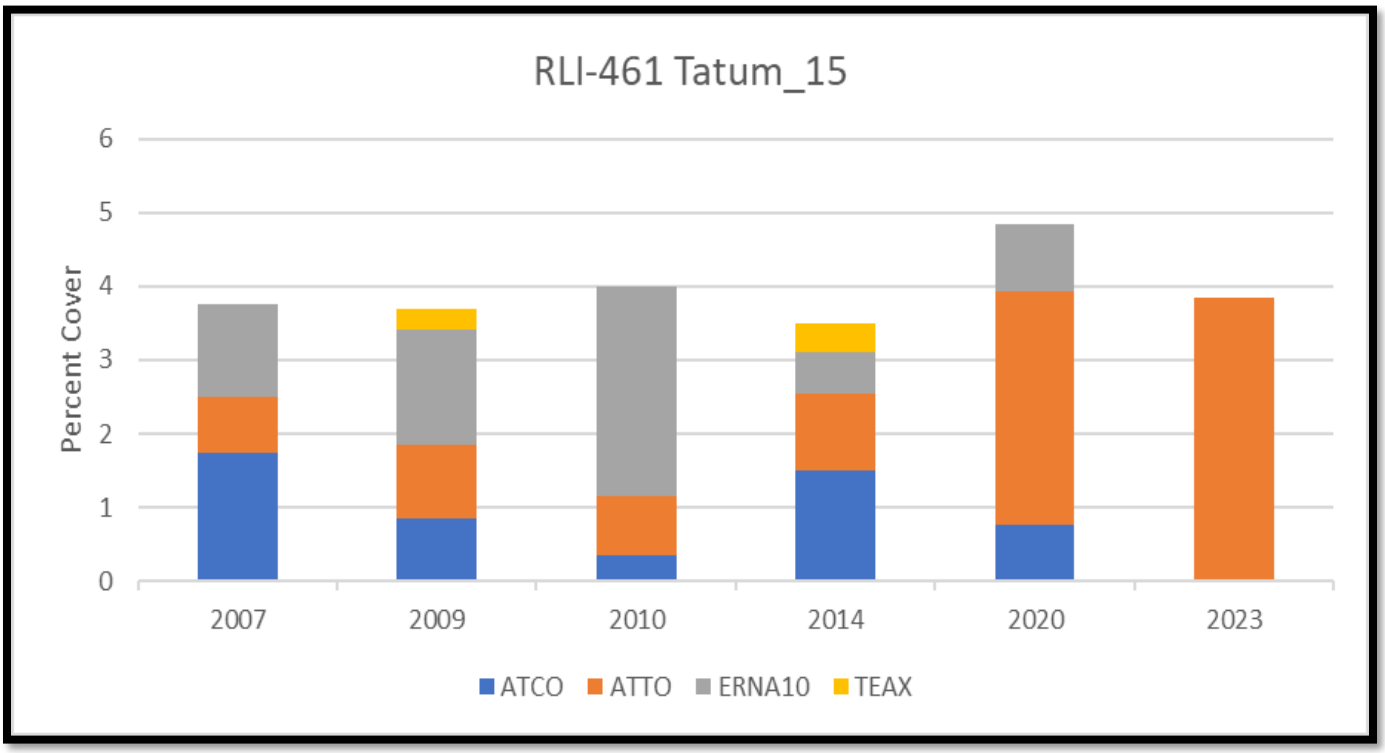

RLI-461 Tatum_10
Percent Cover
18
16
14
12
10
8
6
4
2
0
2007
2009
2010
2014
2020
2023
ATTO
ERNA10
MACA17
SAVE4

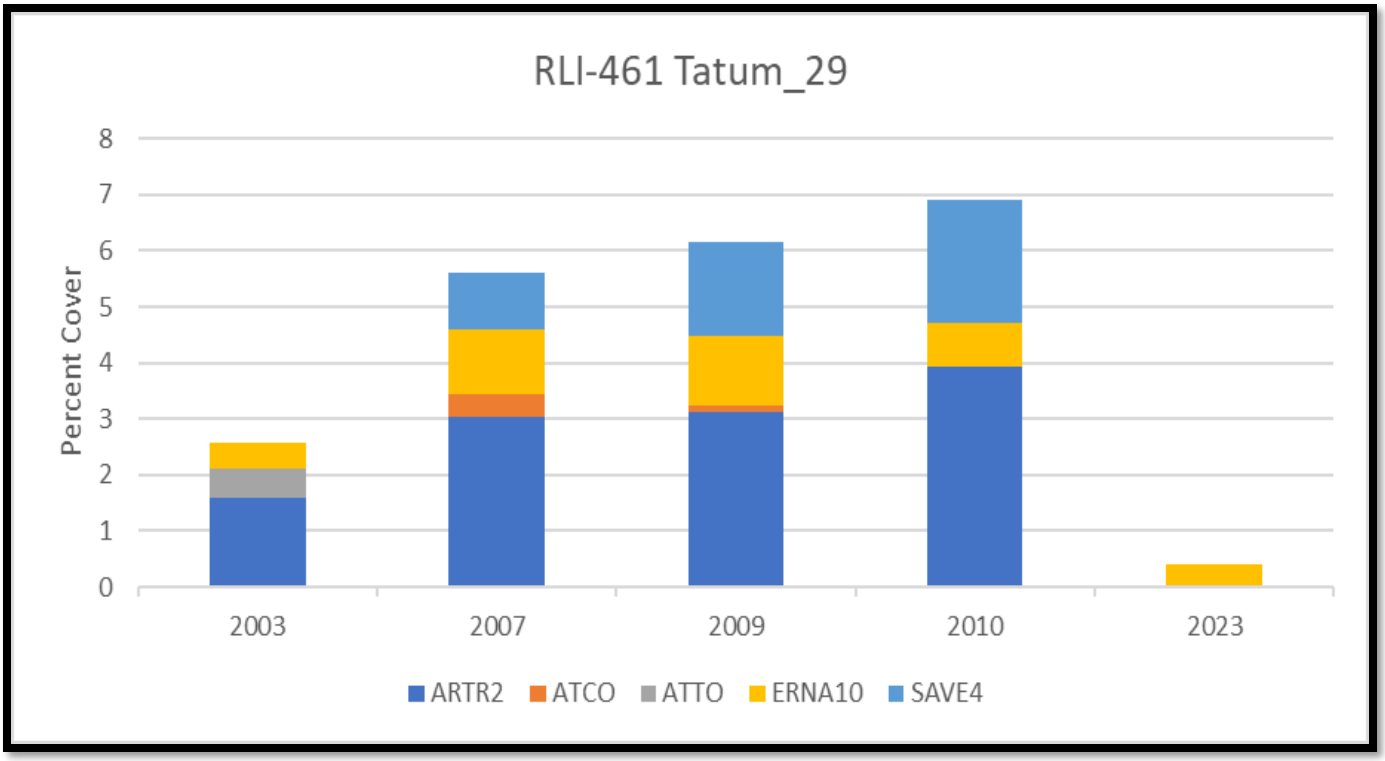

RLI-461 Tatum_11
Percent Cover
40
35
30
25
20
15
10
5
0
2007
2009
2010
2014
2017
2020
2023
ATTO
ERNA10


RLI-461 Tatum_12
Percent Cover
16
14
12
10
8
6
4
2
0
2007
2009
2010
2014
2017
2020
2023
ATTO
ERNA10

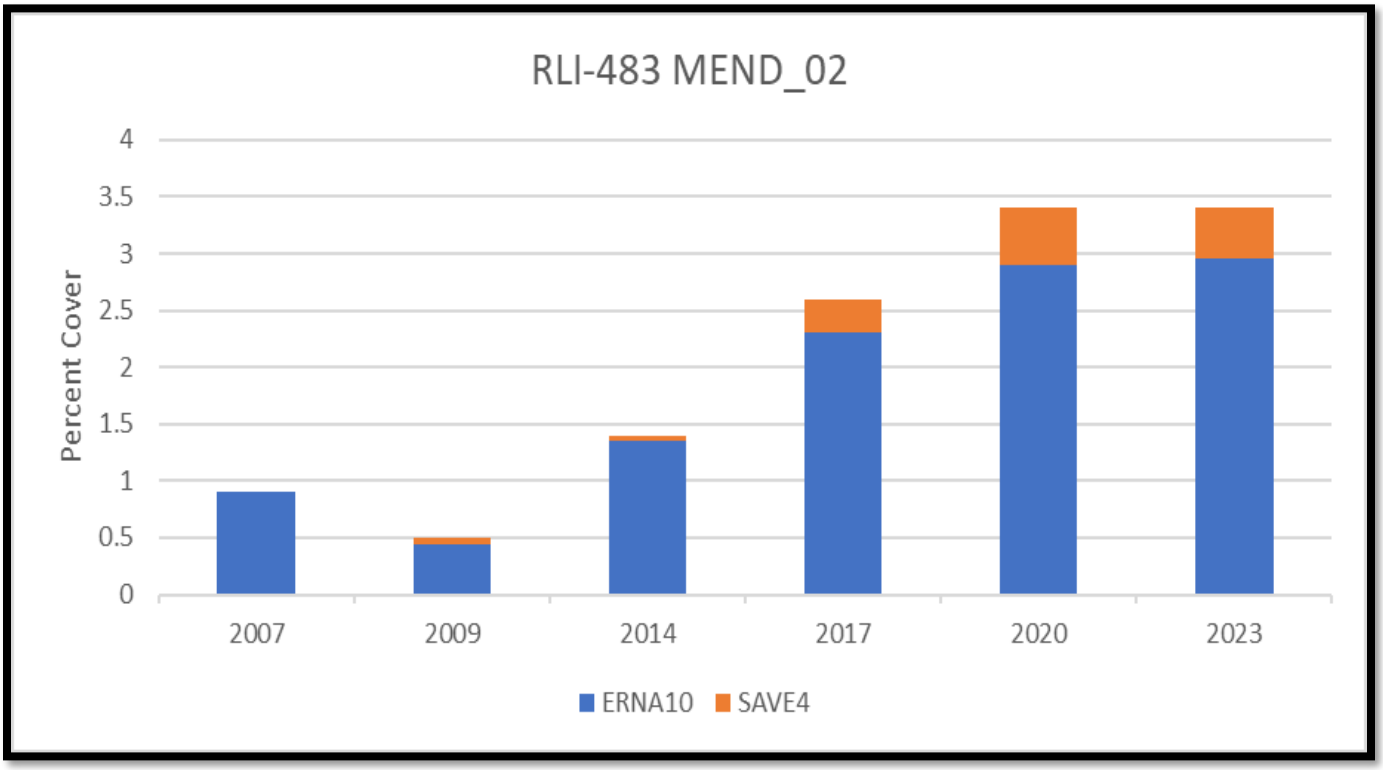

RLI-461 Tatum_13
Percent Cover
12
10
8
6
4
2
0
2007
2009
2010
2014
2017
2020
2023
ATTO
ERNA10

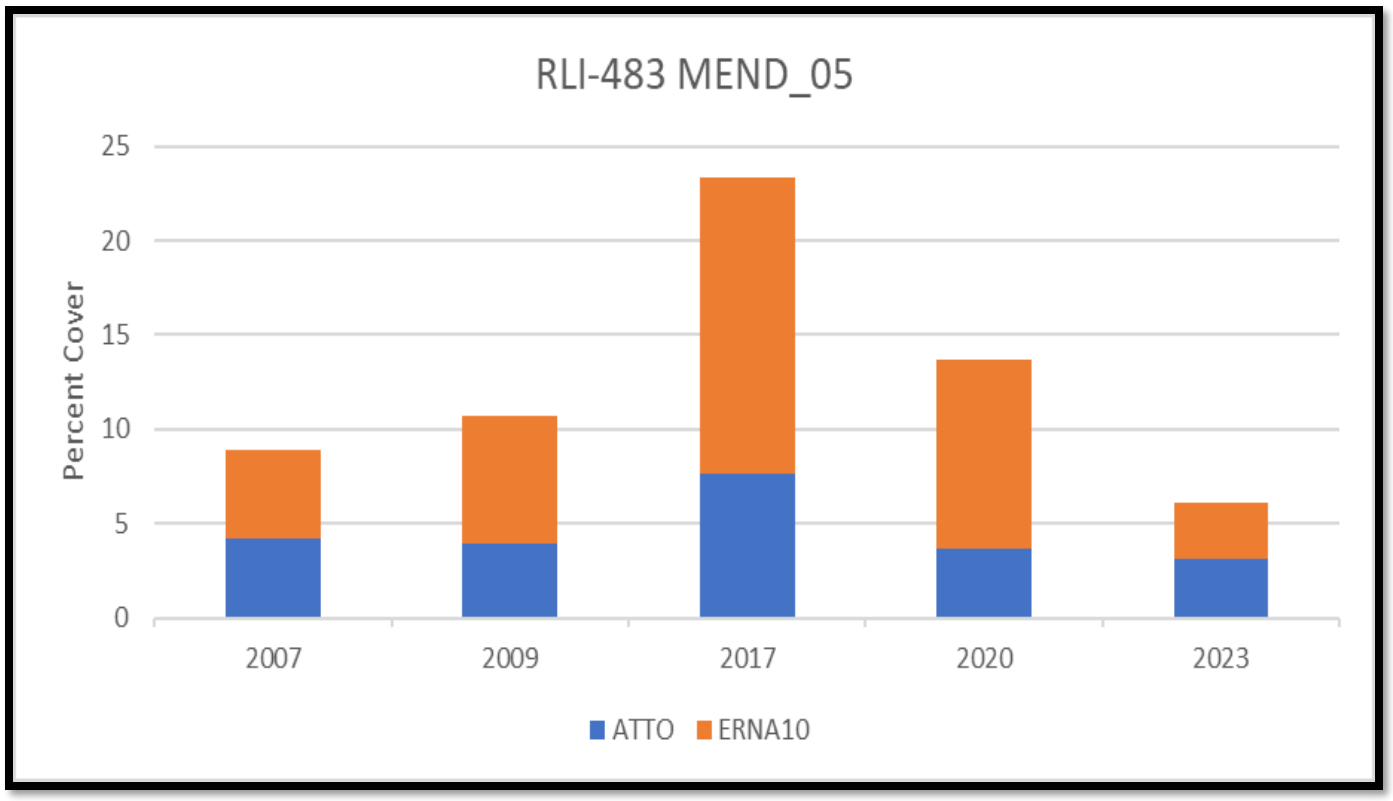

RLI-461 Tatum_14
Percent Cover
14
12
10
8
6
4
2
0
2007
2009
2010
2014
2017
2020
2023
ATTO
ERNA10

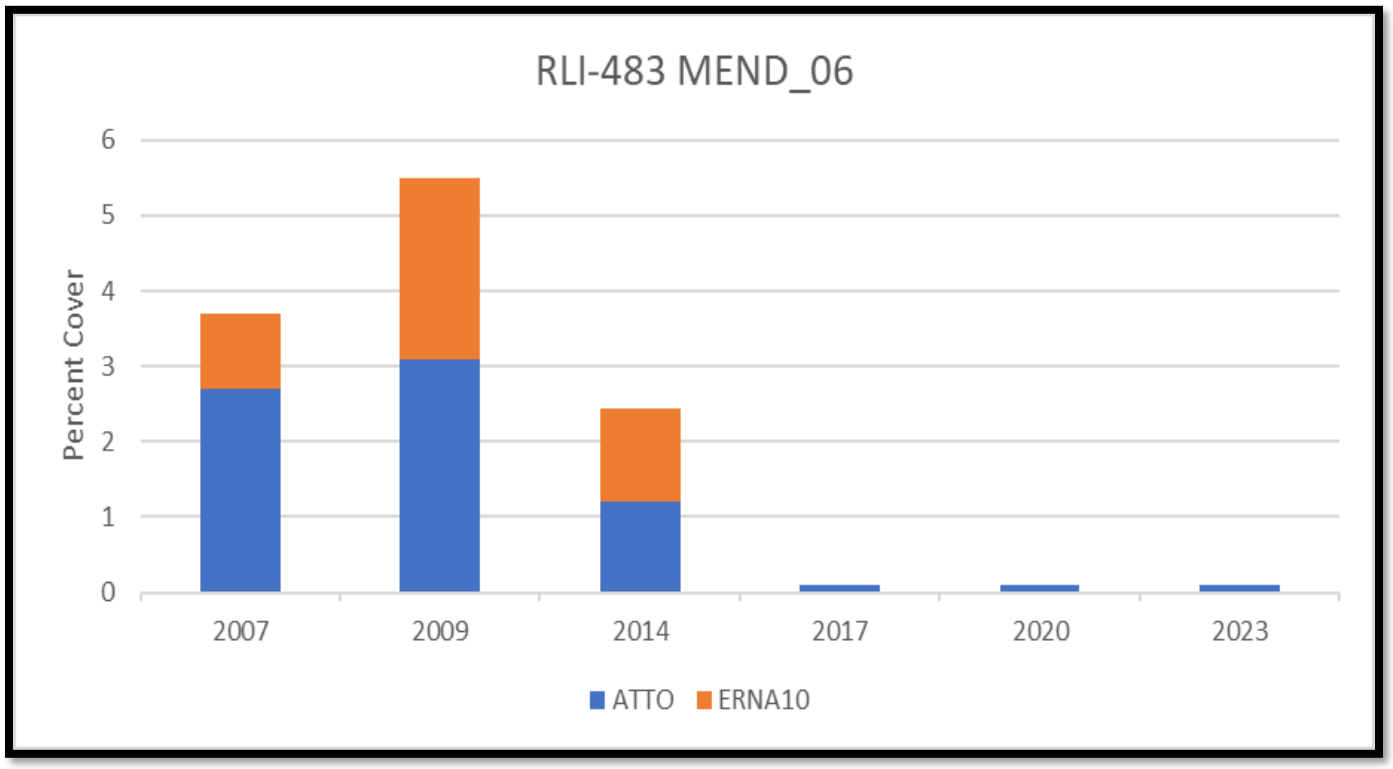

RLI-461 Tatum_15
Percent Cover
6
5
4
3
2
1
0
2007
2009
2010
2014
2020
2023
ATCO
ATTO
ERNA10
TEAX

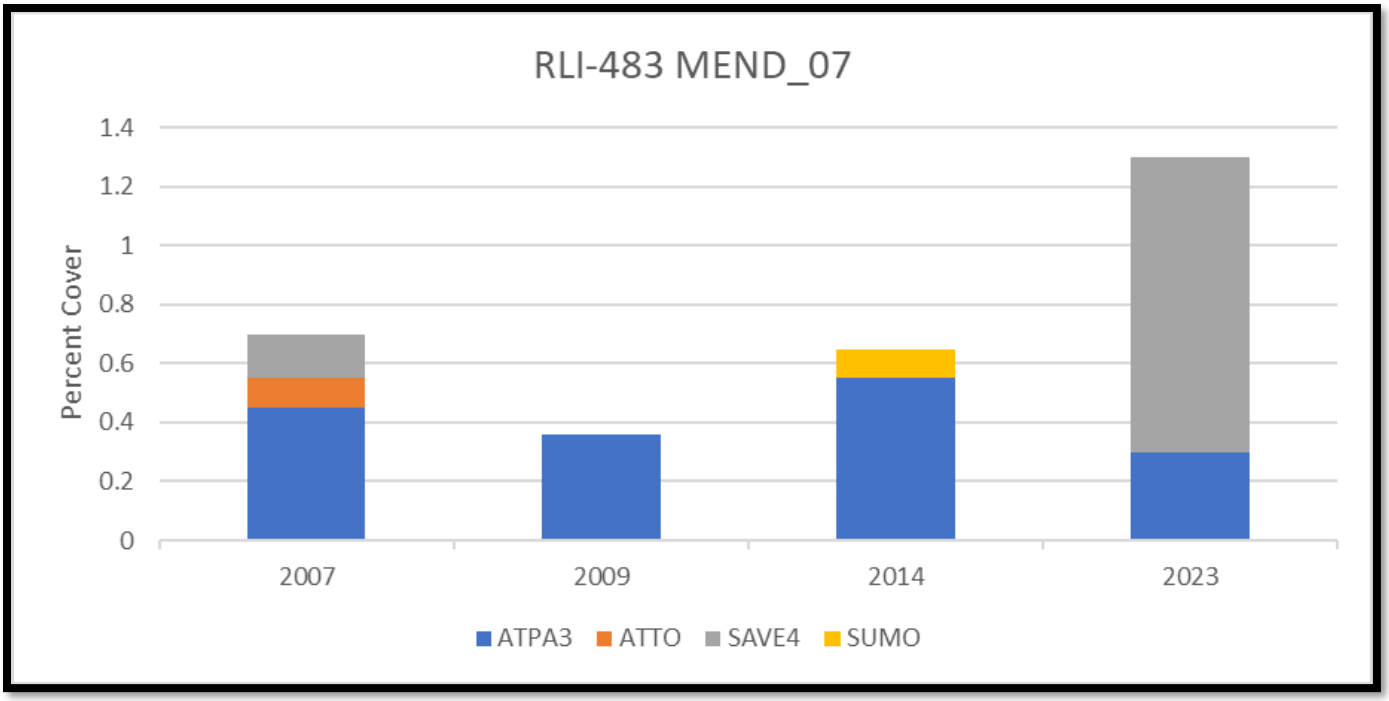


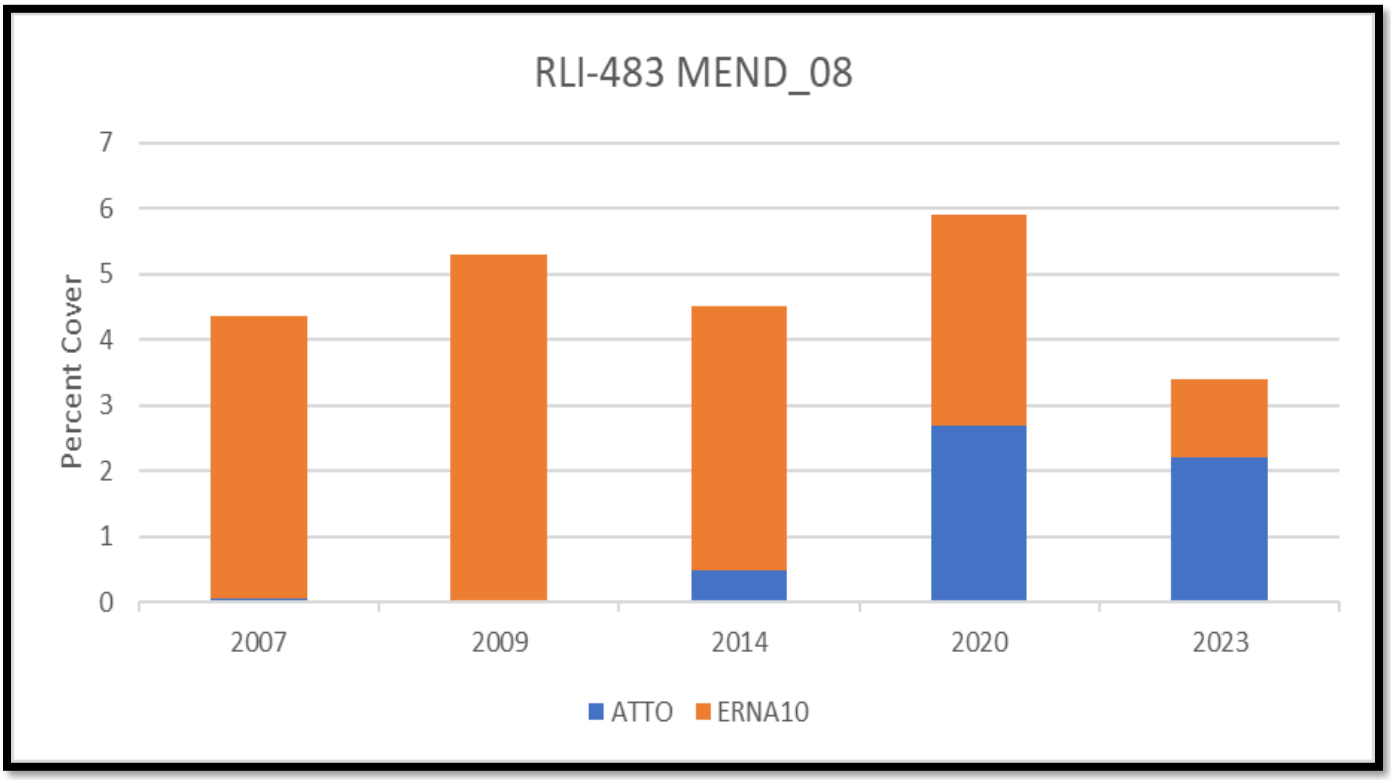
Round Valley RLI-483 Shrub Cover Species (line intercept)

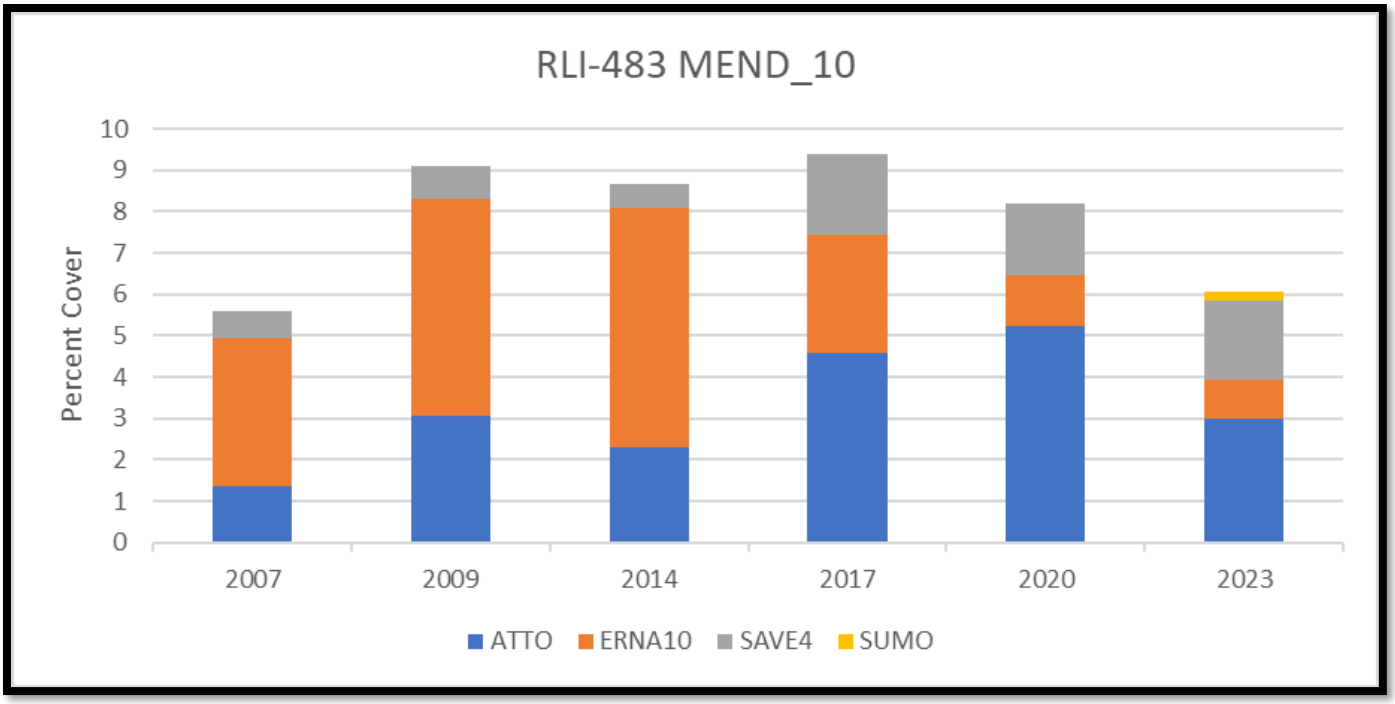


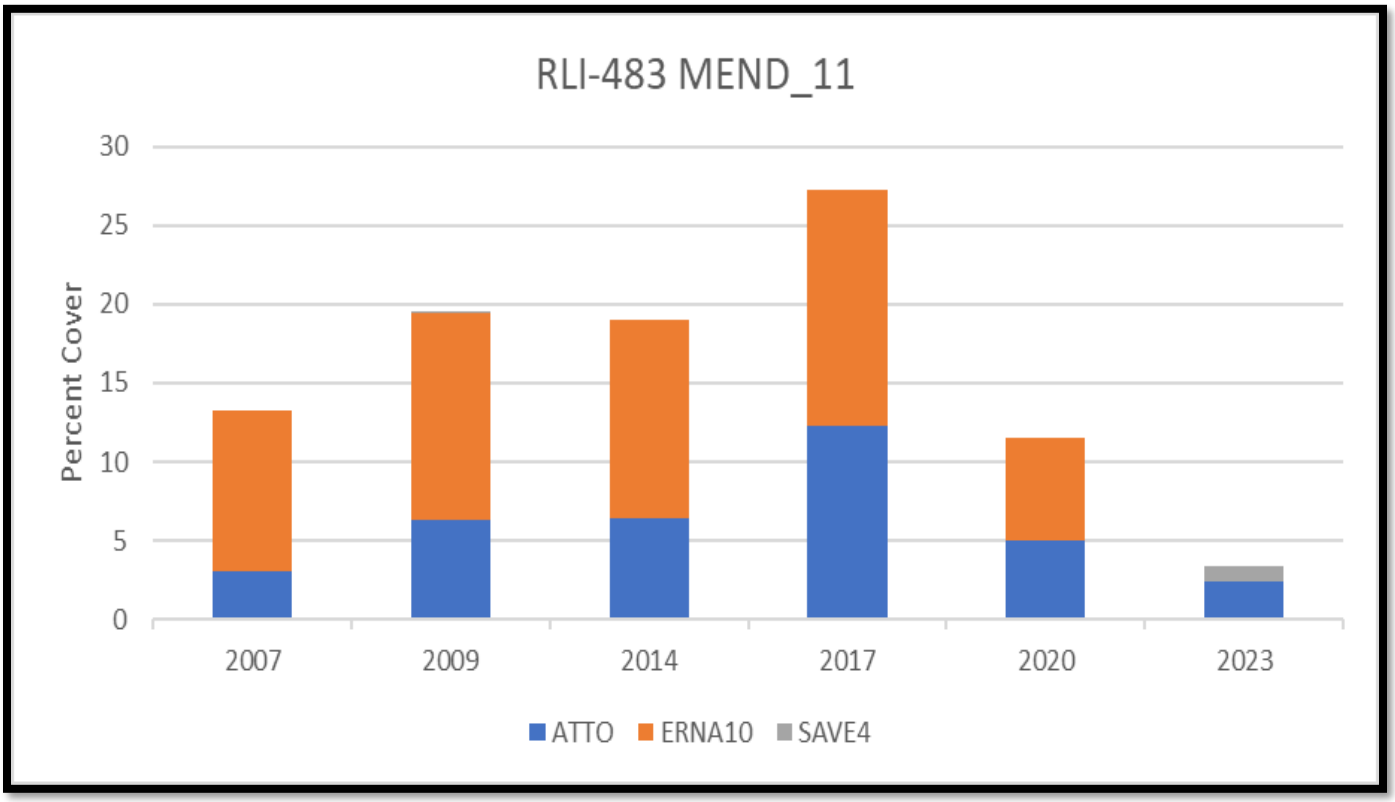

RLI-483 MEND_05
Percent Cover
25
20
15
10
5
0
2007
2009
2017
2020
2023
ATTO
ERNA10


RLI-483 MEND_06
Percent Cover
6
5
4
3
2
1
0
2007
2009
2014
2017
2020
2023
ATTO
ERNA10

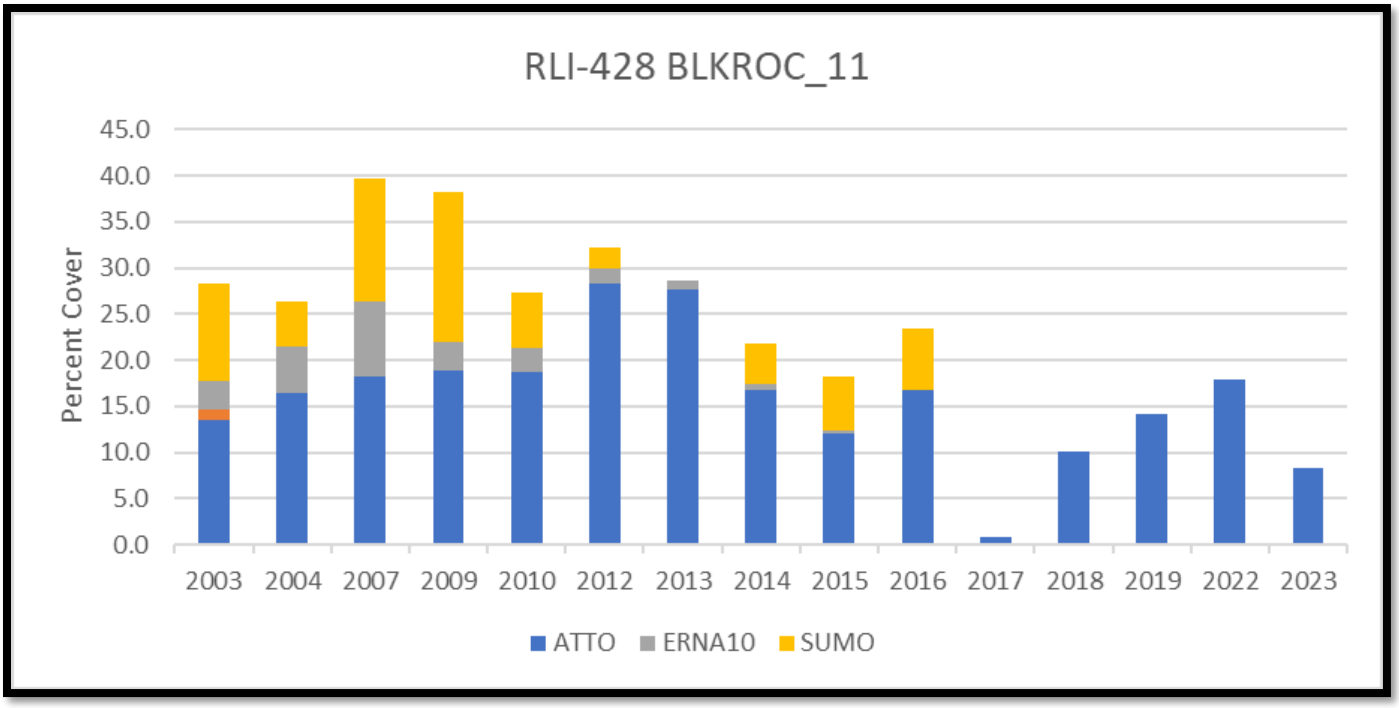

RLI-483 MEND_07
Percent Cover
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2007
2009
2014
2023
ATPA3
ATTO
SAVE4
SUMO

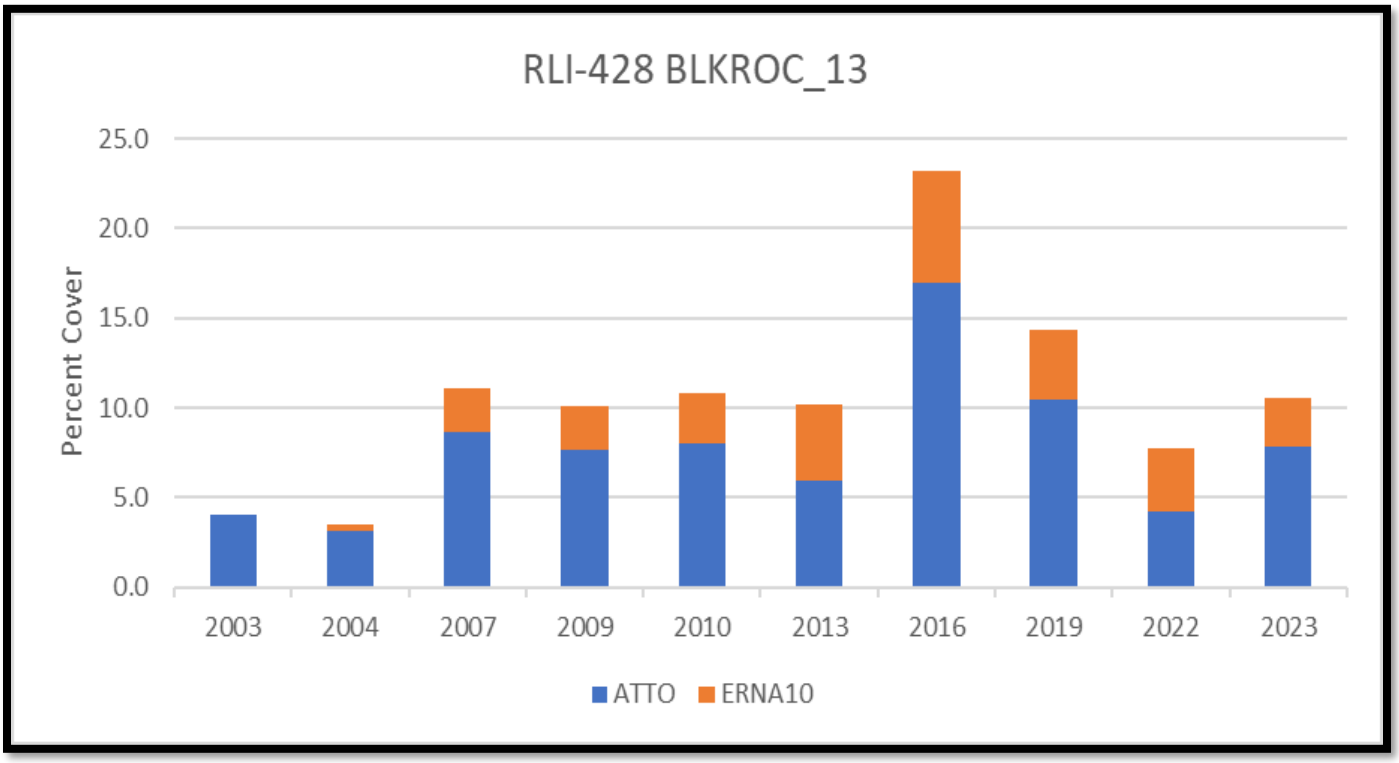

RLI-483 MEND_08
Percent Cover
7
6
5
4
3
2
1
0
2007
2009
2014
2020
2023
ATTO
ERNA10

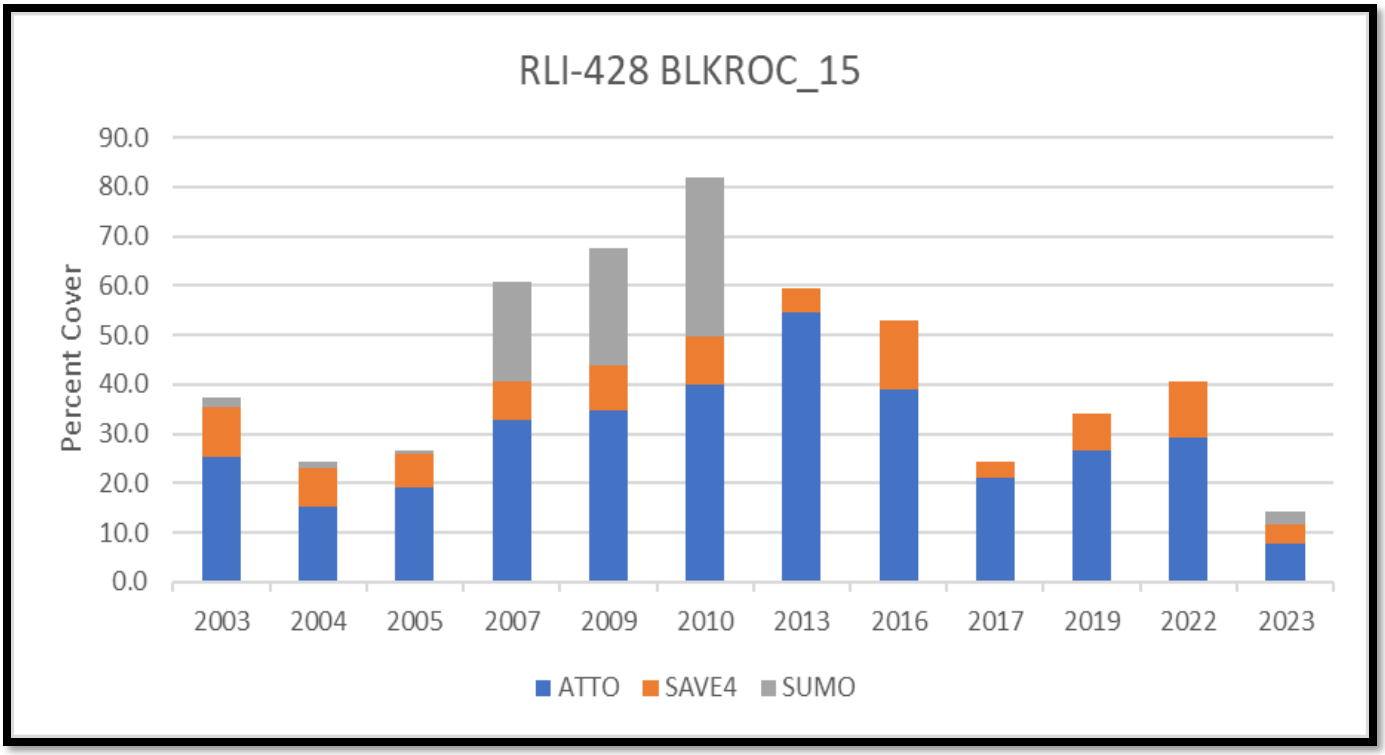


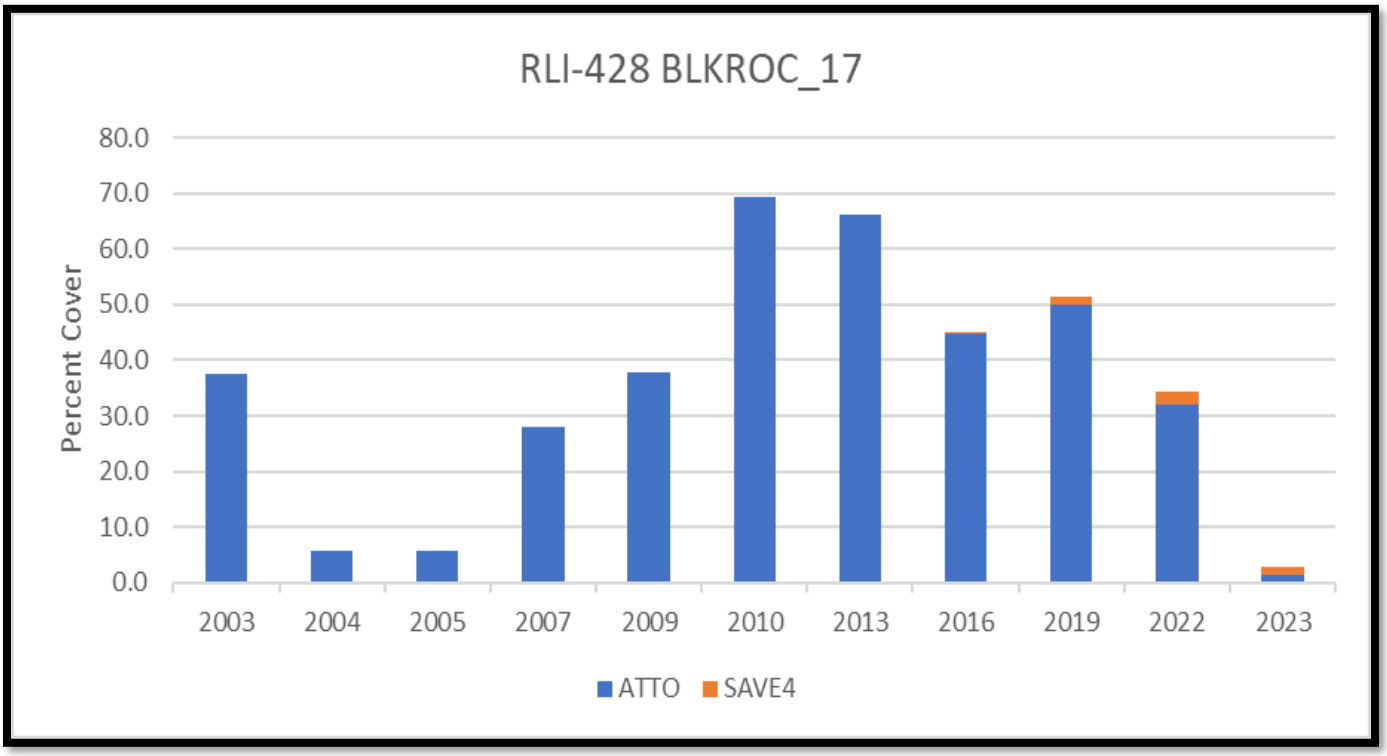


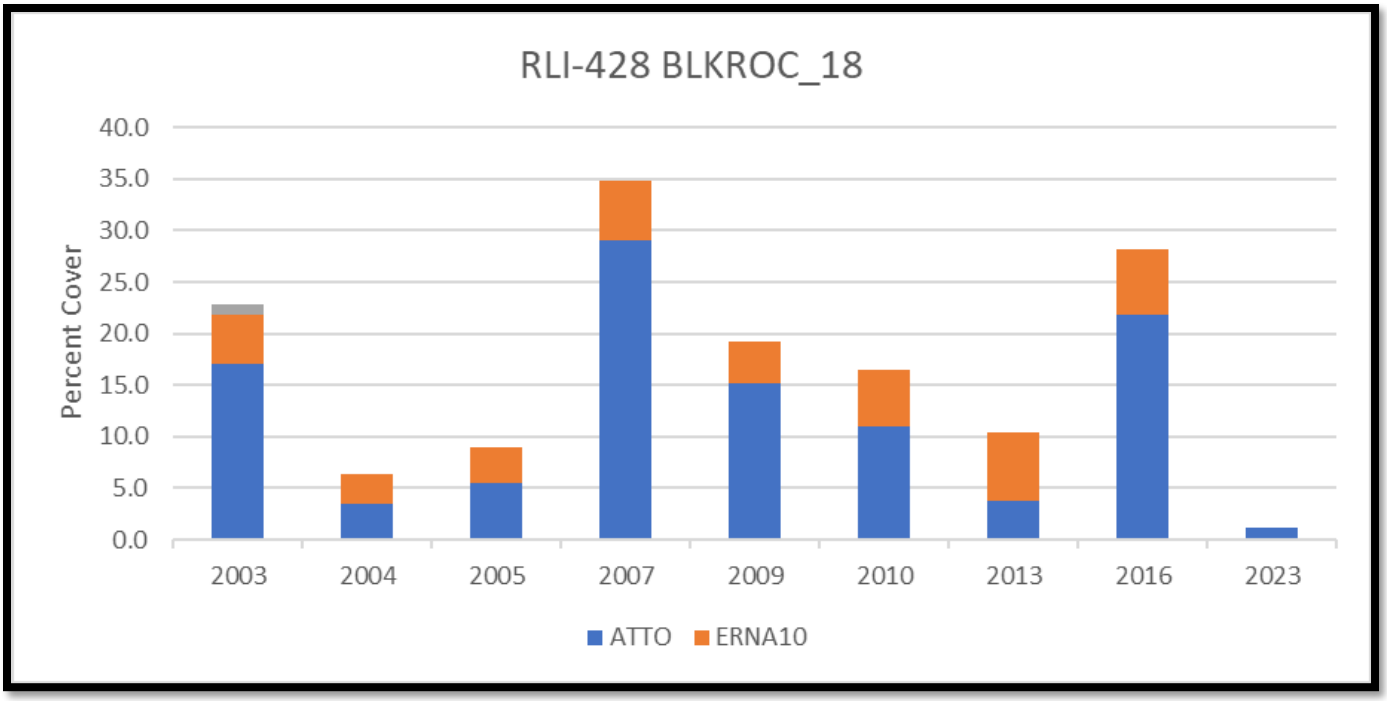
Blackrock RLI-428 Shrub Cover Species (line intercept)

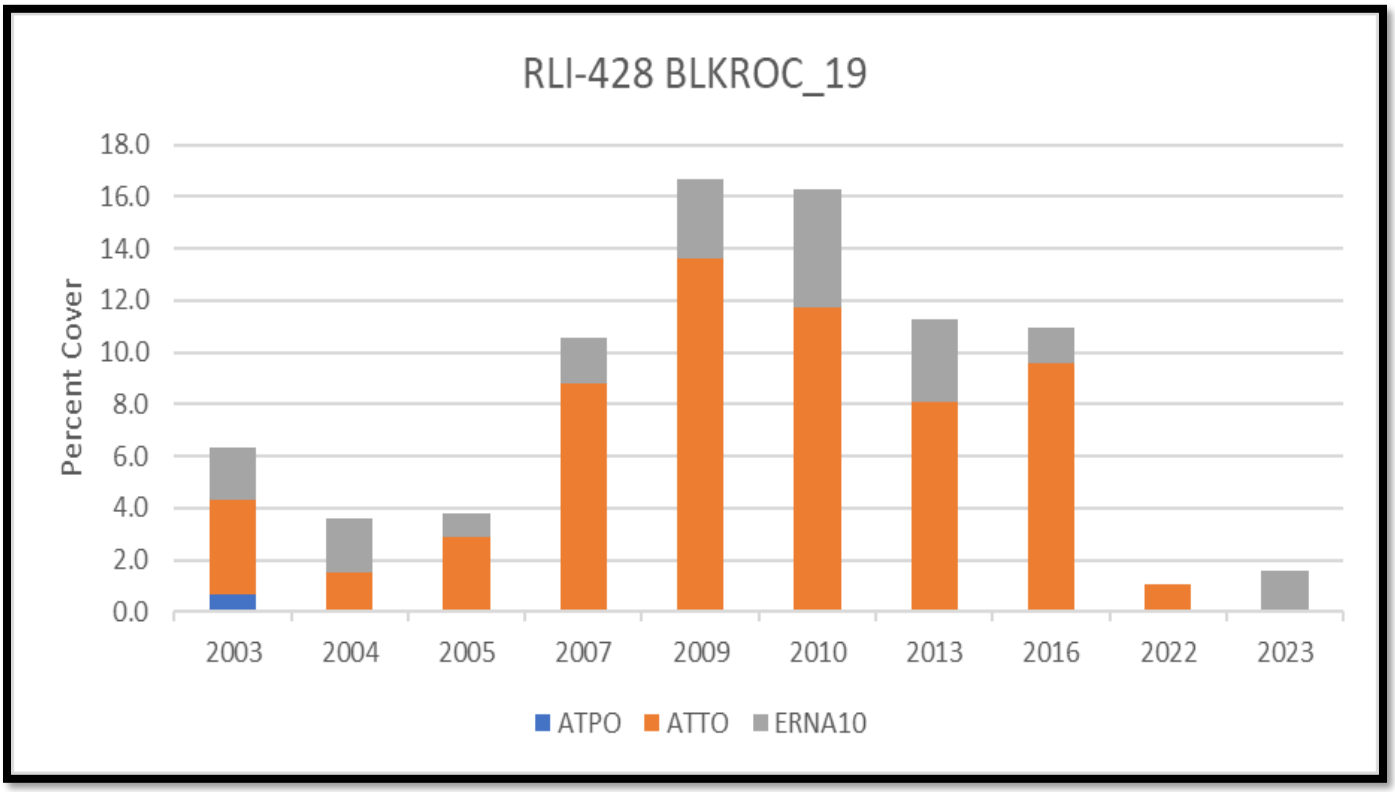

RLI-428 BLKROC_11
Percent Cover
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2003
2004
2007
2009
2010
2012
2013
2014
2015
2016
2017
2018
2019
2022
2023
ATTO
ERNA10
SUMO

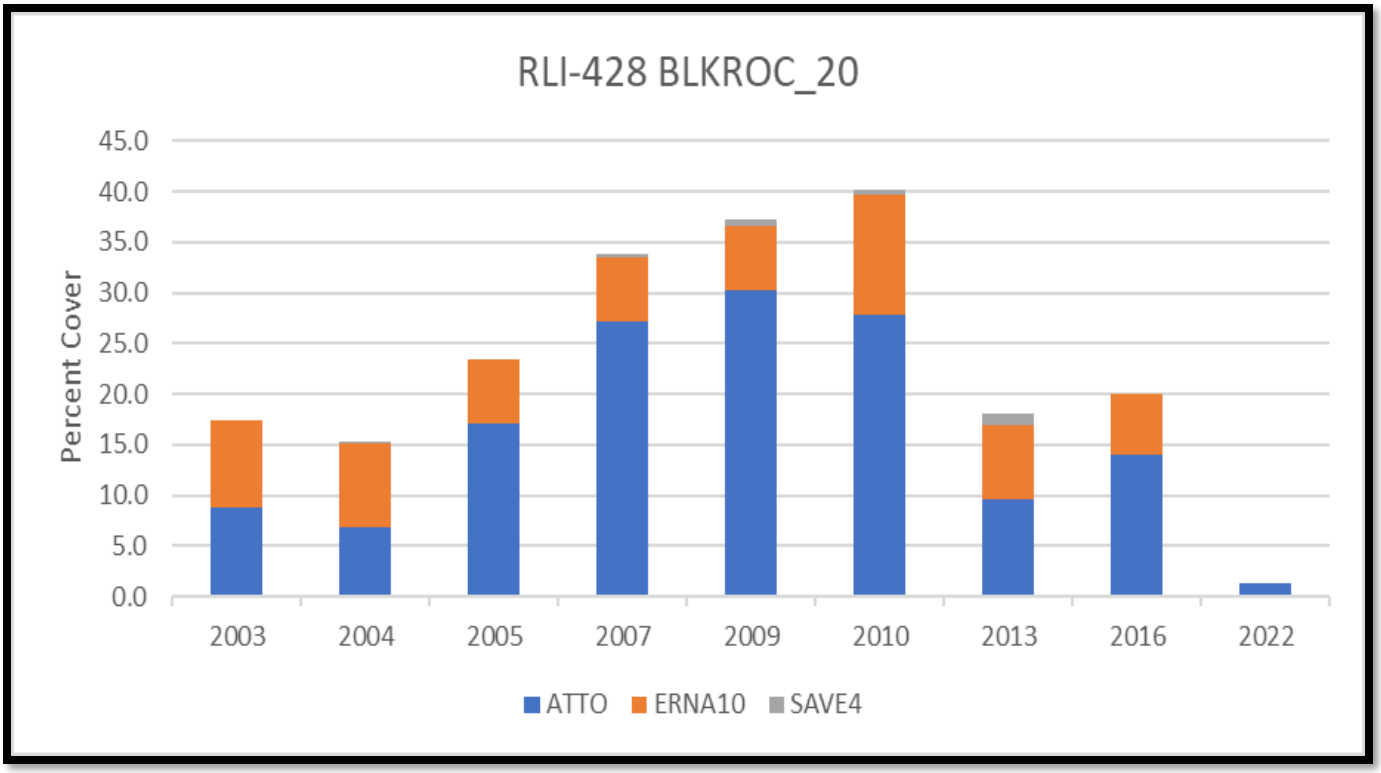

RLI-428 BLKROC_13
Percent Cover
25.0
20.0
15.0
10.0
5.0
0.0
2003
2004
2007
2009
2010
2013
2016
2019
2022
2023
ATTO
ERNA10

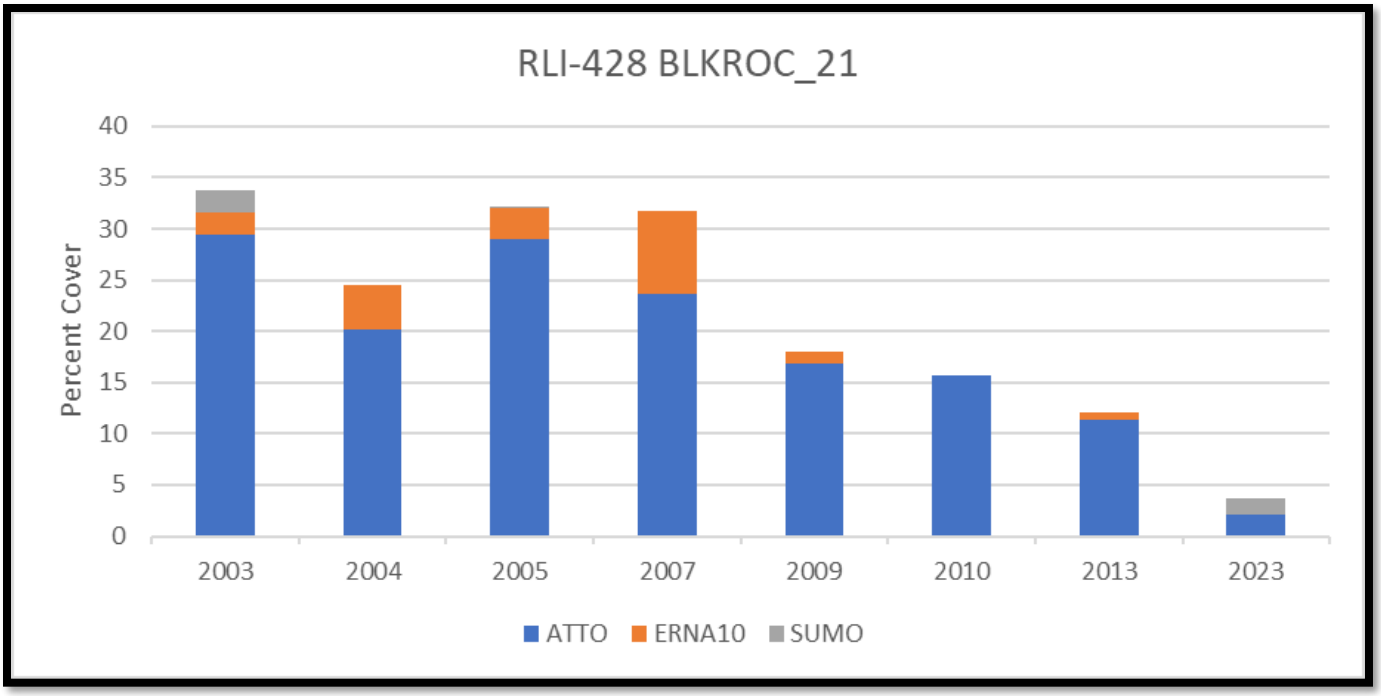

RLI-428 BLKROC_15
Percent Cover
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
2003
2004
2005
2007
2009
2010
2013
2016
2017
2019
2022
2023
ATTO
SAVE4
SUMO

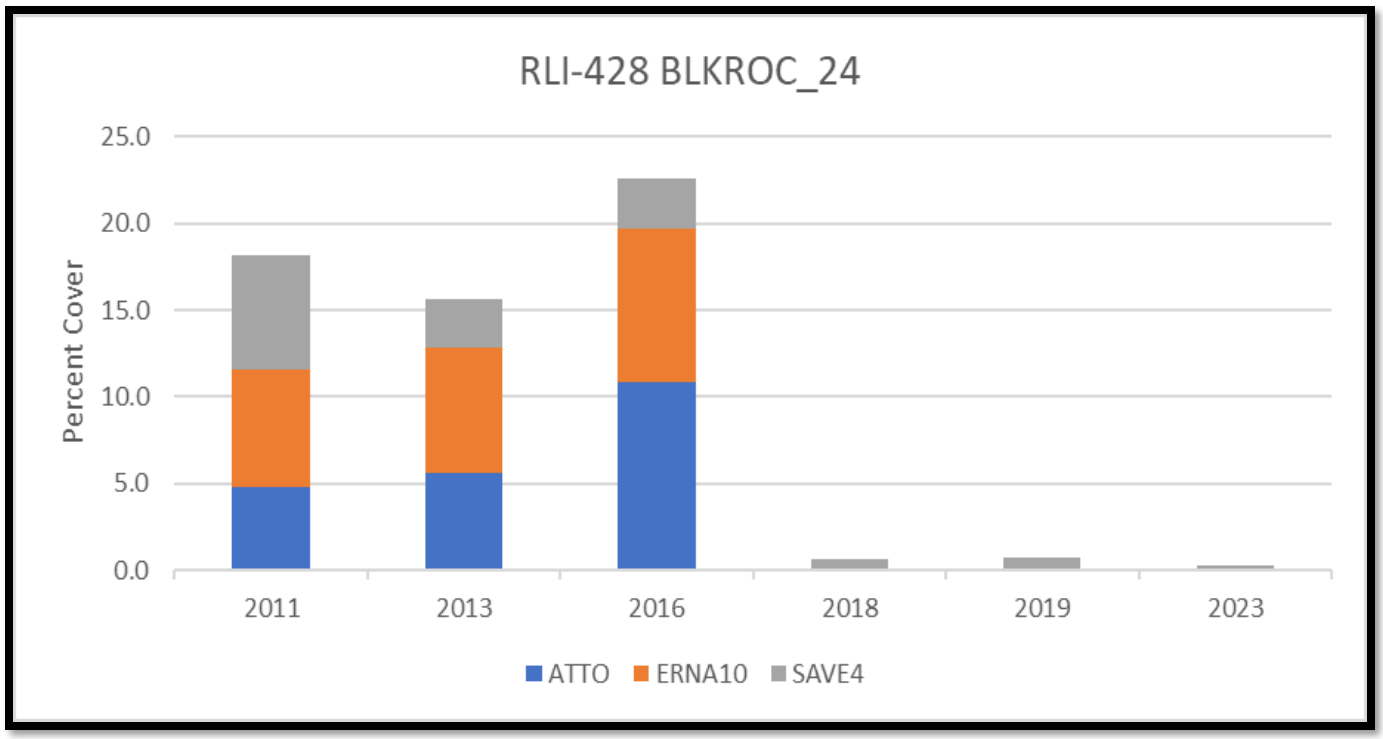

RLI-428 BLKROC_17
Percent Cover
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
2003
2004
2005
2007
2009
2010
2013
2016
2019
2022
2023
ATTO
SAVE4

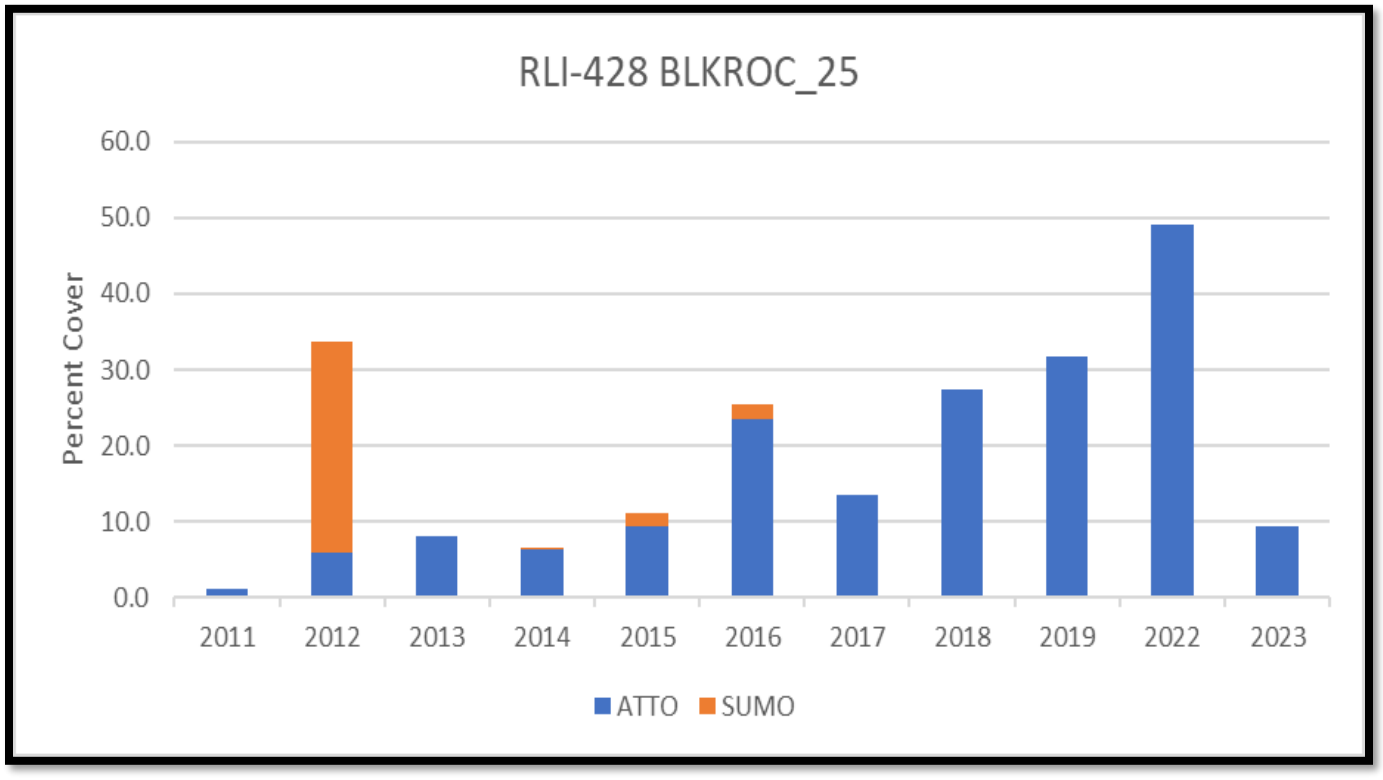

RLI-428 BLKROC_18
Percent Cover
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2003
2004
2005
2007
2009
2010
2013
2016
2023
ATTO
ERNA10


RLI-428 BLKROC_19
Percent Cover
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2003
2004
2005
2007
2009
2010
2013
2016
2022
2023
ATPO
ATTO
ERNA10

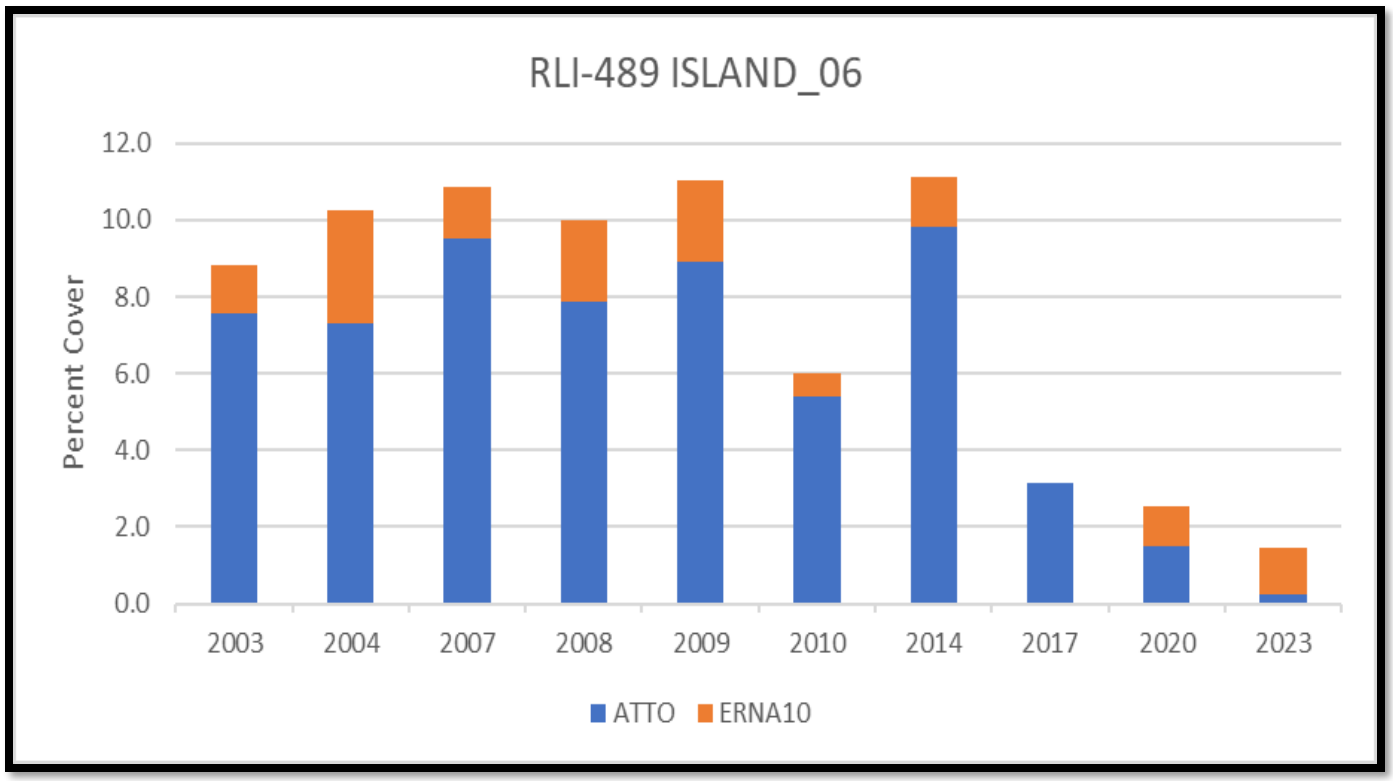

RLI-428 BLKROC_20
Percent Cover
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2003
2004
2005
2007
2009
2010
2013
2016
2022
ATTO
ERNA10
SAVE4

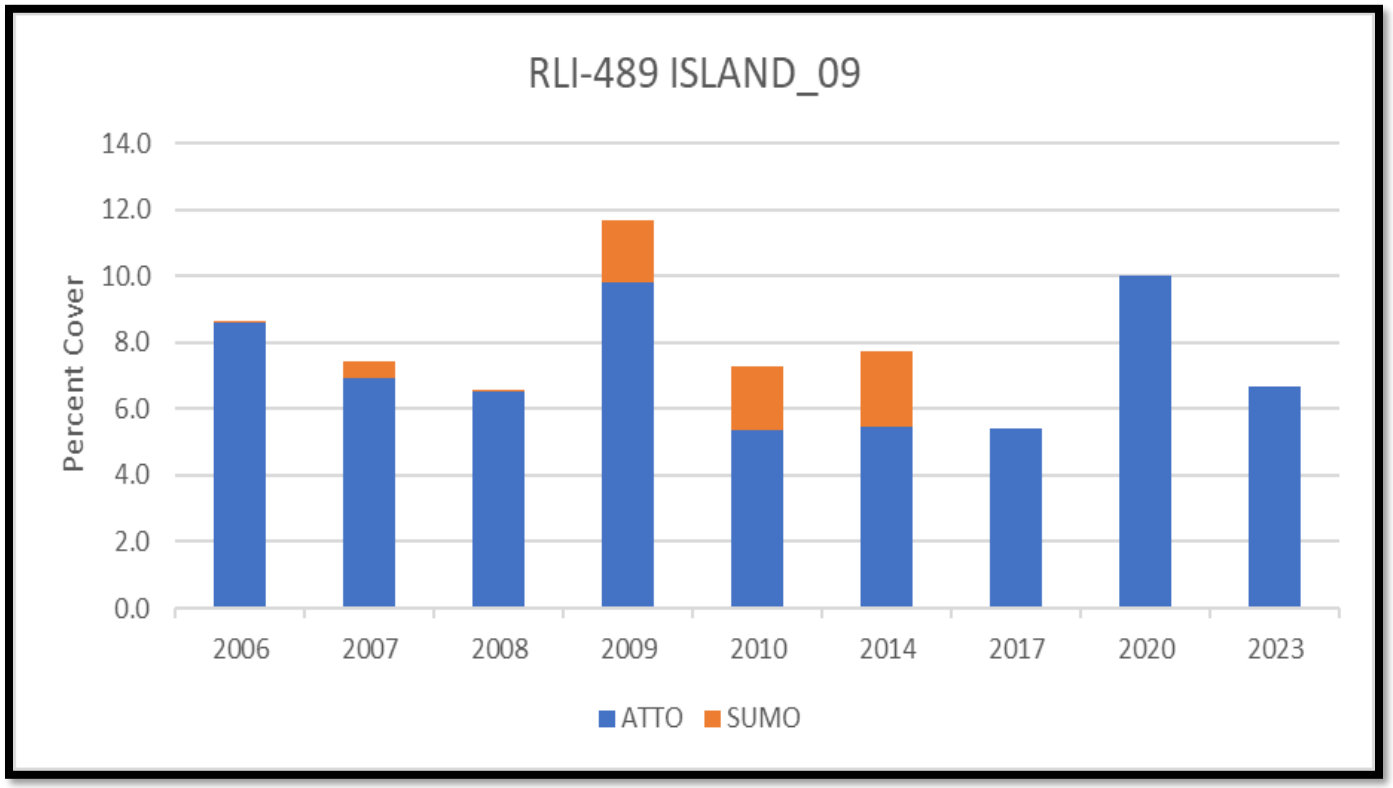

RLI-428 BLKROC_21
Percent Cover
40
35
30
25
20
15
10
5
0
2003
2004
2005
2007
2009
2010
2013
2023
ATTO
ERNA10
SUMO

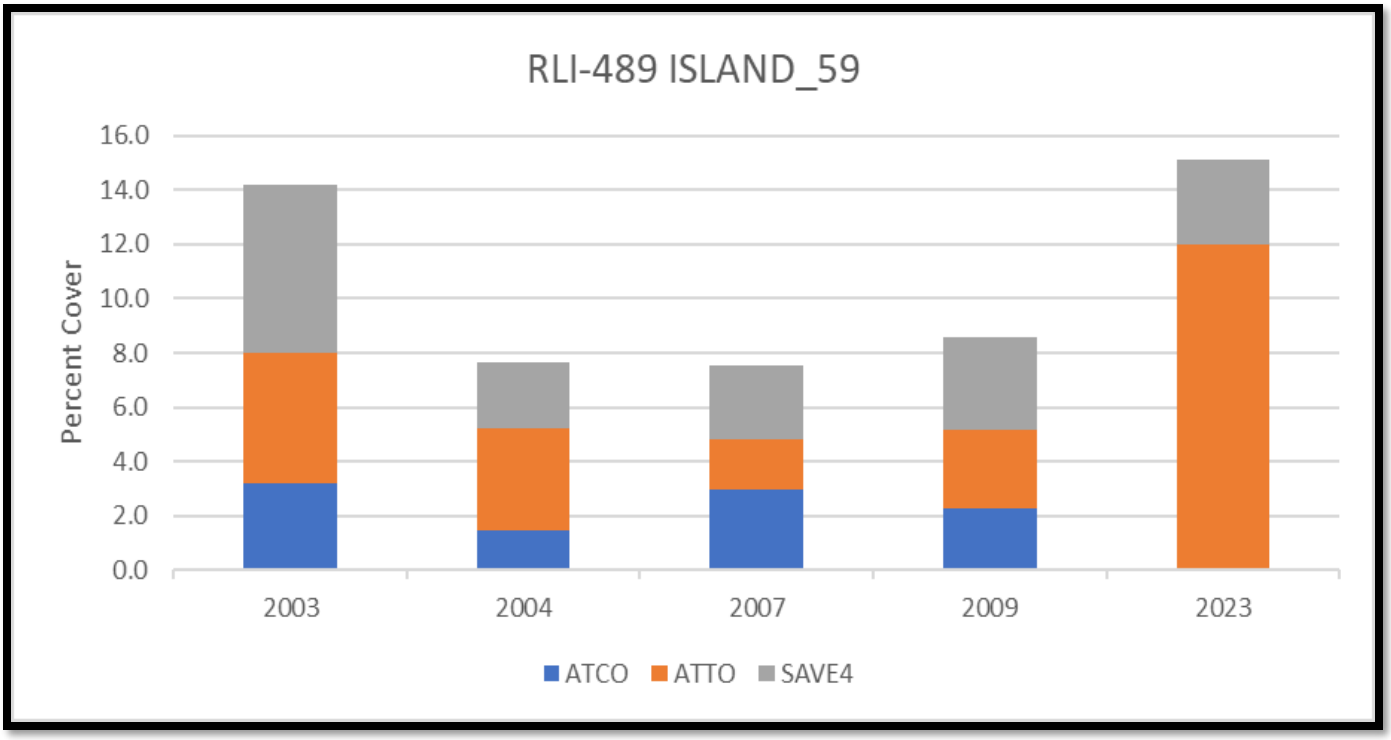




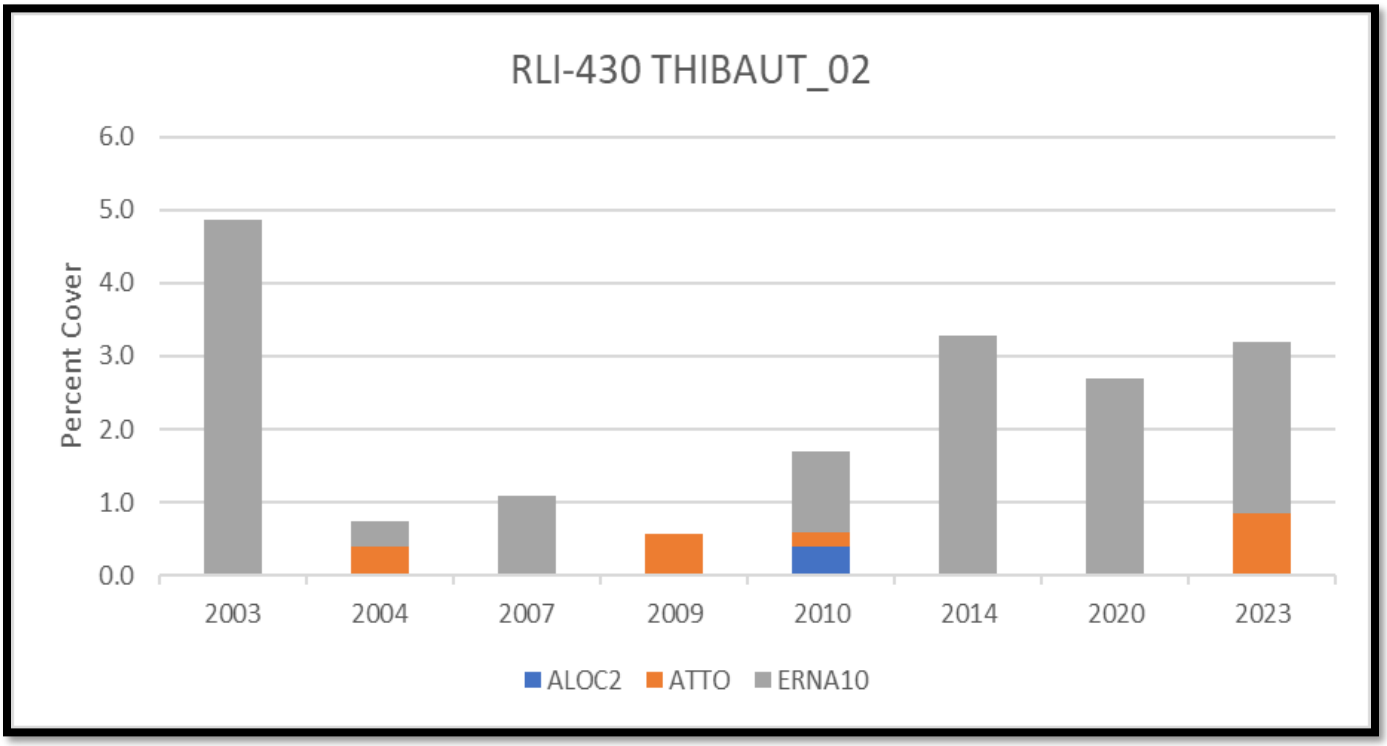
Islands RLI-489 Shrub Cover Species (line intercept)

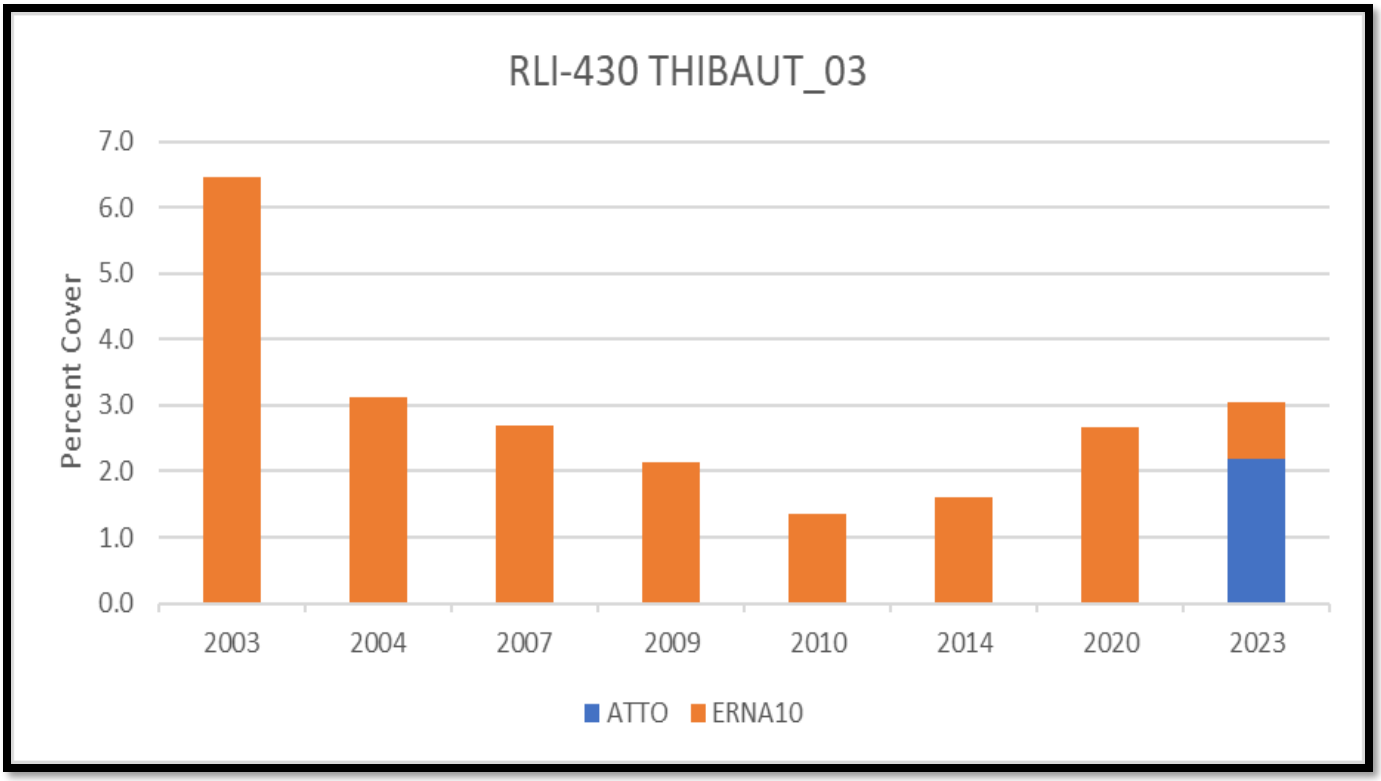

RLI-489 ISLAND_06
Percent Cover
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2003
2004
2007
2008
2009
2010
2014
2017
2020
2023
ATTO
ERNA10

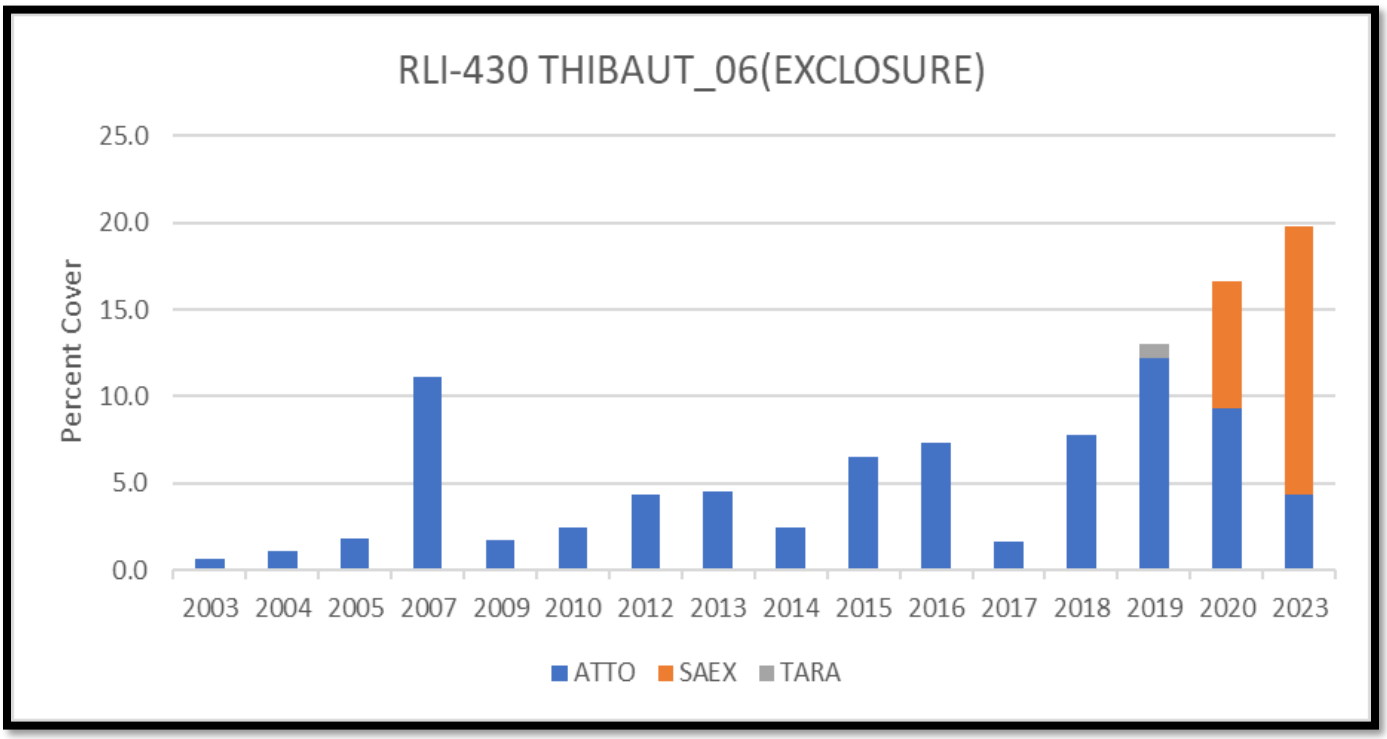

RLI-489 ISLAND_09
Percent Cover
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2006
2007
2008
2009
2010
2014
2017
2020
2023
ATTO
SUMO

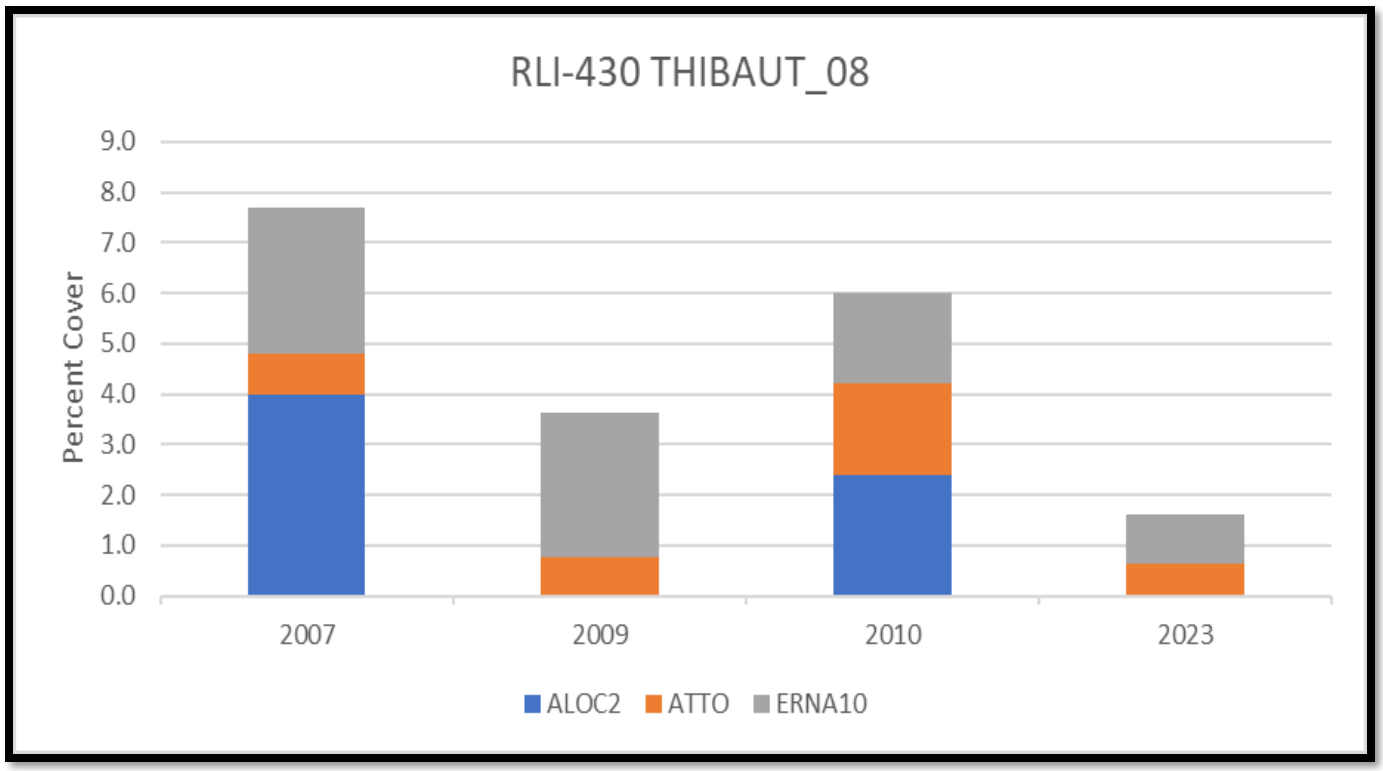


Thibaut RLI-430 Shrub Cover Species (line intercept)

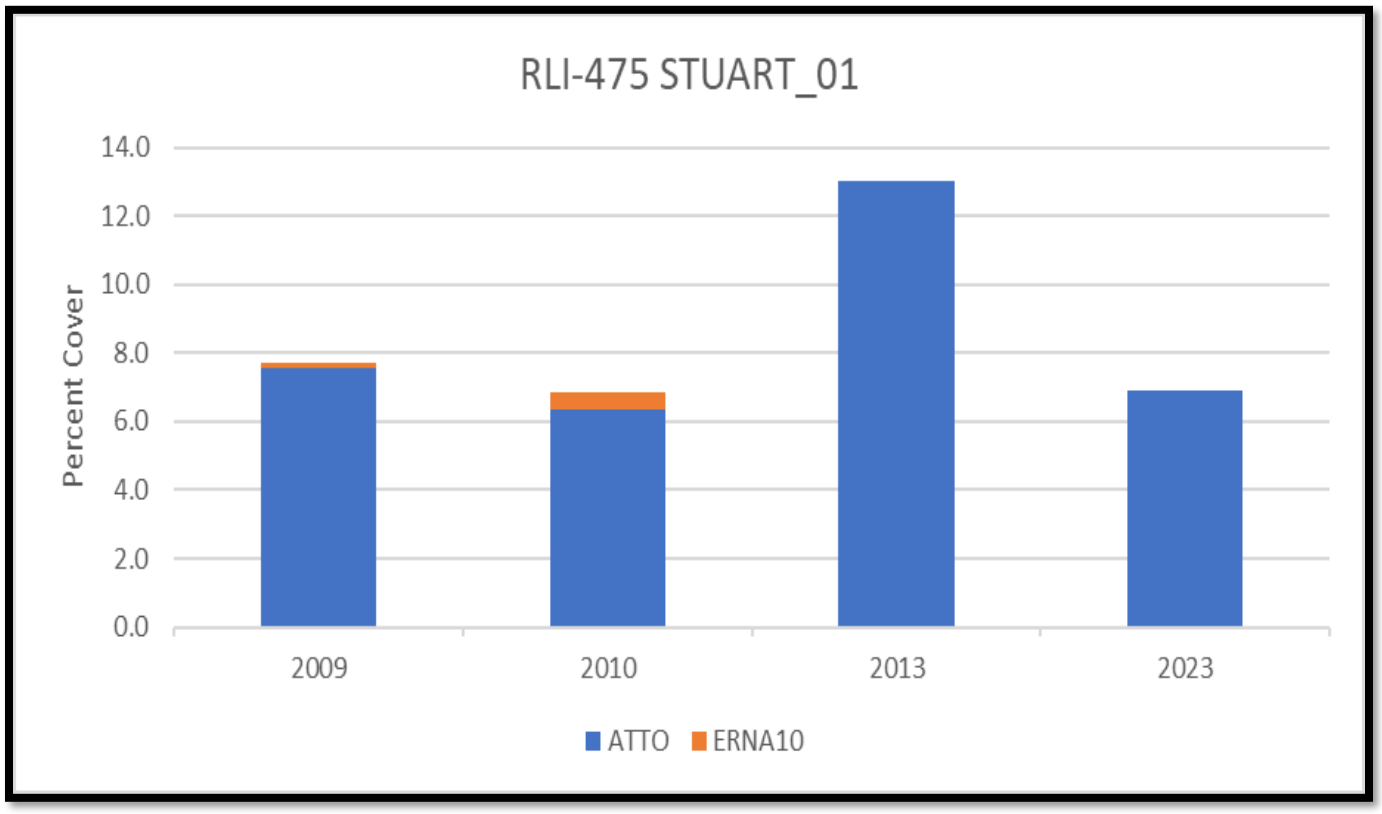



RLI-430 THIBAUT_03
Percent Cover
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2003
2004
2007
2009
2010
2014
2020
2023
ATTO
ERNA10


RLI-430 THIBAUT_06(EXCLOSURE)
Percent Cover
25.0
20.0
15.0
10.0
5.0
0.0
2003
2004
2005
2007
2009
2010
2012
2013
2014
2015
2016
2017
2018
2019
2020
2023
ATTO
SAEX
TARA



Intake RLI-475 Shrub Cover Species (line intercept)



3.2.4. Yellow Billed Cuckoo Habitat Enhancement Plan

The *Final Ad Hoc Yellow-billed Cuckoo Habitat Enhancement Plan* (Enhancement Plan) states in Section 2.1.8.3:

> *"Annual reports will be prepared each year by LADWP to summarize the progress of the willow and cottonwood planting and black locust control. The annual reports will include a brief introduction to include the performance standards, monitoring methodologies, monitoring results for the year, and discussion of any adjustments required to achieve the overall goal to improve the habitat."*

Fences

All fencing required by the Enhancement Plan was complete as of 2011.

Baker Creek Planting

All planting areas (Figure 3.5) within Baker Creek have received their initial pole plantings and replacement pole plantings based on the first growing season monitoring data.

Nonnative Species Control - Black Locust (*Robinia pseudoacacia*)

All planting areas were below the criterion for upper canopy nonnative cover values besides area E, where the cover value in 2023 was 10%. The western edge of area E has a mature stand of black locust with very little understory. Additionally, black locust has re-sprouted in areas where pole plantings were planted. Black locust provides habitat and shade, suppressing the understory deterring unwanted, weedy understory growth. Removal of black locust would disturb the surrounding area and inevitably, cut stumps will re-sprout. In Area E, black locust cover values have always been above the set criterion, even during years of active treatment (Table 3.6). Black locust will continue to be monitored and if cover values remain in the current range, it will be proposed to change the criterion to reflect what is naturally occurring within area E.

Planting Area Monitoring

Section 2.1.8.1. of the Enhancement Plan states:

> *"Quantitative monitoring will assess the attainment of final success criteria and identify the need to implement contingency measures in the event of failure. Monitoring will begin in late summer after the second growing season since initial planting to capture the fullest extent of the growing season and after the majority of avian species have finished breeding. Monitoring will continue annually through Year 6 within each planting area or until the success criteria are met."*

Planting criteria for the planting areas are as follows: areas E and F the cover values for upper and mid canopy native species are greater than or equal to 50%, area G the cover values for upper and mid canopy native species is greater than or equal to 65%.

In LADWP's 2017 Owens Valley Annual Report, LADWP recommended that the native understory cover criterion of 50% be eliminated due to competing goals with upper and mid canopy cover values and the resulting drop in ground water levels due to the prolonged drought that had negative impacts on the understory. Nonnative canopy species will be less than 5% and nonnative understory species cover will be less than 25% in all planting areas.

A comprehensive analysis of each planting area was conducted in 2016 and is summarized in LADWP's 2017 Owens Valley Annual Report. From this analysis, it was recommended to discontinue further planting and monitoring efforts in areas A, B, and C (through Adaptive Management Sections 2.1.9. and 2.1.9.1 of the Enhancement Plan) based on little success since implementation at each of these sites. Although planted multiple times, planting areas A, B, and C have been unable to support the establishment of pole plantings to attain desired canopy cover as described in the Enhancement Plan, most likely due to clay soils as a limiting factor and poor suitability of planting sites.

Planting areas D, F and H have met all enhancement criteria as of 2018 and therefore, vegetation monitoring in these areas is no longer conducted. Vegetation monitoring for areas E and G occurred on August 24, 2023. This information is summarized in Table 3.6. Since initial planting was phased over three years, 2023 was the eleventh year of line point monitoring for planting area E and the thirteenth year for planting area G.

Figure 3.5. Overview of Pole Planting Areas in the Baker Creek Watershed

Table 3.7. Percent Absolute Cover Values for 2011-2023 within Planting Areas: D, E, F, G & H

		Planting Area D Met Criteria	Planting Area E	Planting Area F Met Criteria	Criteria for Areas D, E and F	Planting Area G Met Criteria	Planting Area H Met Criteria	Criteria for Area G and H
Upper Canopy Native	2011			1		6		
	2012	2		1		5	7	
	2013	3	7	2		15	8	
	2014	2	8	2		13	4	
	2015	5	11	3		3	8	
	2016	8	9	2		17	5	
	2017	7	13	6		27	12	
	2018	**	13	4		13	**	
	2019	**	19	**		15	**	
	2020	**	21	**		9	**	
	2021	**	12	**		7	**	
	2022	**	17	**		12	**	
	2023	**	19	**		25	**	
Upper Canopy Non-Native	2011			T*	<5	1*		<5
	2012	0*		2*		4*	1*	
	2013	0*	6	1*		T*	T*	
	2014	0*	5	T*		T*	T*	
	2015	0*	7	T*		T*	1*	
	2016	0*	11	1*		13	T*	
	2017	0*	9	3*		1*	4*	
	2018	**	11	2*		T*	**	
	2019	**	7	**		1*	**	
	2020	**	13	**		1*	**	
	2021	**	11	**		1*	**	
	2022	**	10	**		1*	**	
	2023	**	10	**		1**	**	
Mid Canopy	2011			30		15		
	2012	45		45		15	35	
	2013	48	6	42		26	37	
	2014	55	6	36		21	46	
	2015	62	6	50		31	47	
	2016	59	8	46		27	48	
	2017	67	14	51		37	71	
	2018	**	15	52		35	**	
	2019	**	14	**		40	**	
	2020	**	11	**		52	**	
	2021	**	8	**		45	**	
	2022	**	12	**		41	**	
	2023	**	14	**		40	**	

Table 3.7. Percent Absolute Cover Values for 2011-2023 within Planting Areas: D, E, F, G & H (continued).

		Planting Area D Met Criteria	Planting Area E	Planting Area F Met Criteria	Criteria for Areas D, E and F	Planting Area G Met Criteria	Planting Area H Met Criteria	Criteria for Area G and H
Upper & Mid Canopy	2011			32	≥50	21		≥65
	2012	46		46		20	42	
	2013	51*	12	44		41	45	
	2014	57*	15	38		34	48	
	2015	67*	17	52*		34	55	
	2016	67*	16	48		44	53	
	2017	74*	28	57*		64	83*	
	2018	**	27	56*		48	**	
	2019	**	33	**		55	**	
	2020	**	32	**		61	**	
	2021	**	20	**		52	**	
	2022	**	29	**		53	**	
	2023	**	33	**		65**	**	
Understory Non-Native	2011			11*	<25	13*		<25
	2012	3*		11*		13*	4*	
	2013	T*	7*	10*		7*	9*	
	2014	2*	2*	2*		6*	7*	
	2015	2*	4*	2*		1*	6*	
	2016	3*	17*	2*		11*	11*	
	2017	18*	9*	36		14*	11*	
	2018	**	16*	18*		12*	**	
	2019	**	8*	**		1*	**	
	2020	**	4*	**		T*	**	
	2021	**	4*	**		T*	**	
	2022	**	2*	**		2*	**	
	2023	**	8*	**		2**	**	

**Has met criteria as stated above. **Area has met all enhancement plan criteria. T=Trace<1*

Planting Area E

Pre-existing conditions

Located in the Brown Pasture, planting area E (Figure 3.5) is approximately 8.7 acres in size. The site is dominated by meadow grass and shrubs, tree and shrub willows (*Salix spp*.), along with scattered Fremont cottonwood (*Populus fremontii*) and black cottonwood (*Populus trichocarpa*). This area was burned during the Center Fire in 2011. Soils in this planting area are loam to sandy- loam to sand in the near surface horizons.

Desired condition

The recommended number of pole plantings for area E is 3,036 pole plantings based on 12-foot spacing. If successful, planting in area E would increase habitat acreage and connect existing habitat to the south in the Brown Pasture to habitat to the north in the Apple Orchard Enclosure. Pre-fire habitat suitability was classified as low. Habitat conditions 6 to 10 years post implementation of medium suitability is desired.

Implementation Efforts

In 2012, initial pole planting was implemented in area E. The plan called for an estimate of 3,036 pole plantings but only 1,205 were planted due to 12 foot spacing from existing canopy and depth to ground water. The Enhancement Plan required that 222 of the original 1,205 pole plantings in area E be replanted in 2013. In 2014, an additional 260 pole plantings were planted to try and meet criteria by the sixth year following the initial planting. A total of 1,687 pole plantings were planted in area E over three years. In 2019, an additional 300 pole plantings were planted to fill in areas that had low survivability and to help meet criteria.

Current conditions

Planting of area E is in the eleventh year since the initial planting. According to the Enhancement Plan, the criterion for upper and mid canopy cover is ≥50%. The criterion for nonnative canopy cover is <5% and nonnative understory cover is <25%.

Until the growing season of 2021, upper and mid canopy cover had been slowly trending upward (Figure 3.7). Upper and mid canopy cover has increased from a low of 12% in 2013 to 33% in 2023. At 33%, this planting area is 17% from meeting the enhancement criterion of ≥50%.

The nonnative canopy cover in 2023 was 10% which is 5% over the criterion for this planting area. There are mature stands of black locust that were not removed because they may not be able to be replaced with willows and cottonwoods due to the depth of ground water in the area. The nonnative understory cover value of 8% in 2023 has met the enhancement plan's criteria of ≤25% for area E (Table 3.7).

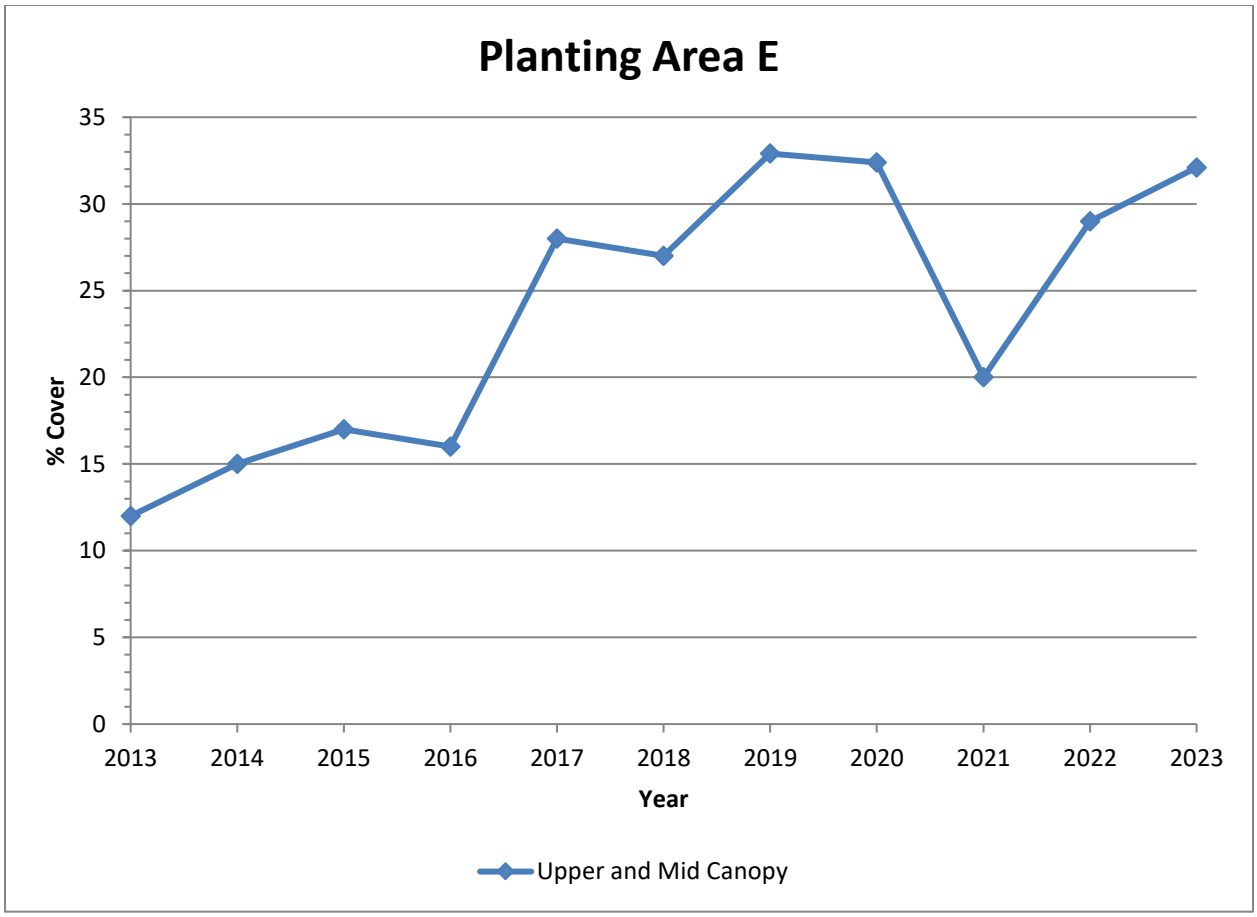


Figure 3.6. Percent Absolute Cover Values for 2013-2023 for Area E

Planting Area G

Pre-existing conditions

Area G lies adjacent to area F (Figure 3.5) but has been designated as a separate planting area due to variation in the vegetation composition between the two areas. Planting area G is approximately 1.0 acres in size and is located in the Apple Orchard Enclosure. Vegetation in this area includes creeping wildrye (*Elymus triticoides*), brome (*Bromus madritensis*), tree and shrub willow, and black locust. Vegetation in this area is recovering from the 2007 Inyo Complex Fire. Soils are sandy loam in the near surface horizons with sand at depth.

Desired condition

A total of 262 pole plantings were recommended based on 12-foot spacing. If planting area G is successful, it will combine with existing habitat to the north and east, increasing the acreage of suitable habitat in the Apple Orchard Enclosure. Pre-fire suitability for area G was medium with a desired condition in 6 to 10 years of high suitability.

Implementation Efforts

Area G was implemented as one unit with area F. In 2010, the initial pole planting was implemented in planting area F. Area F and G were planted as one planting area due to their proximity with each other and received 589 of the recommended 995 due to the 12-foot spacing from existing canopy. In 2011, areas F and G received the replacement pole plantings required by the plan. A total of 371 of the 589 pole plantings were replanted in areas F and G. In 2013, area F and G received an additional 55 pole plantings and then another 130 in 2014. The total number of poles planted in areas F and G is 1,145.

Current conditions

Planting of area G is in the thirteenth year since the initial planting. According to the Enhancement Plan, the upper and mid canopy cover criterion is ≥65%, 15% higher than area E. Nonnative canopy cover criterion is <5% and nonnative understory cover is <25%.

Upper and mid canopy cover increased from a low of 21% in 2011 to 65% in 2023, meeting the Enhancement Plan criteria (Figure 3.7).

Nonnative canopy cover values in 2023 are at trace levels well below the 5% criterion. Nonnative understory cover has decreased from 13% in 2011 to near trace levels 2023 (Table 3.7). Nonnative cover values have met the Enhancement Plan criteria.

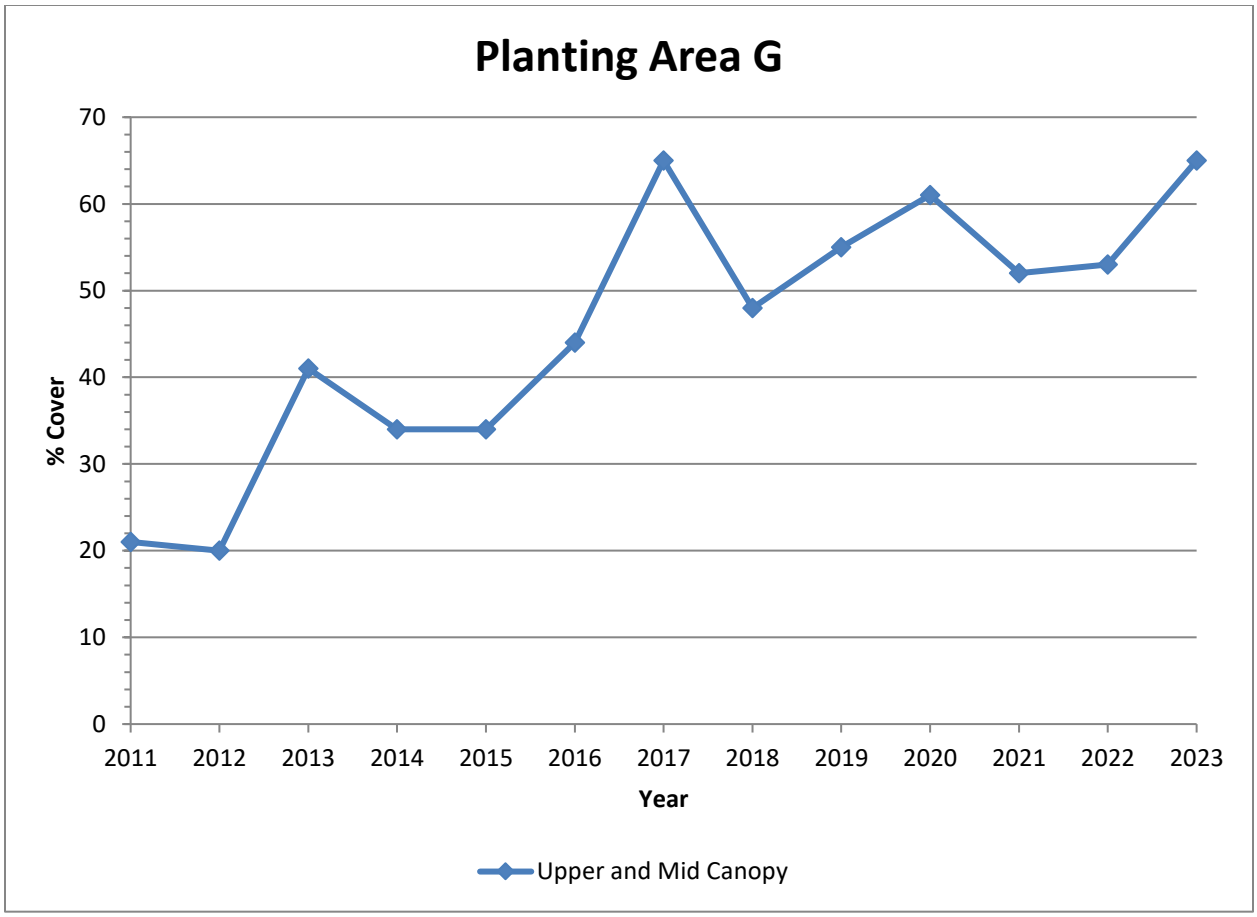


Figure 3.7. Percent Absolute Cover Values for 2011-2023 for Area G

Summary

2023 marks the thirteenth year since pole planting at the Baker Creek Yellow-Billed Cuckoo Project was implemented. During this time, the Project area has experienced a major wildland fire, a five-year drought and the wettest winter on record. The 2022/2023 winter is the wettest period on record with Bishop receiving approximately seventeen inches of rain, more than 3 times the normal amount. This resulted in an increase in upper and mid canopy cover, with Area G meeting all criteria.

In 2017, planting areas D and H met the criteria stated in the Enhancement Plan and are complete. In 2018, planting area F met the criteria stated in the Enhancement Plan and is also complete. In 2023, planting area G met all non-native criteria and the 65% criterion for upper and mid canopy cover and is complete. Planting area E has met the criterion for understory nonnative cover but has yet to meet the criterion for both native and nonnative canopy cover.

Recommendations

LADWP recommends discontinuing monitoring in all planting areas that have met the criterion in the Enhancement Plan. Additionally, it is recommended that no new pole plantings be planted in area E.

LADWP will continue monitoring planting area E until the area reaches the criteria as described in the Enhancement Plan. LADWP will report on conditions of the remaining planting area (area E) in its 2025 Owens Valley Annual Report.

3.2.5. Mitigation Monitoring Reporting Program for Irrigation Project in the Laws Area

POT. IMPACT		MITIGATION			MONITORING			
Summary of Impact	**MM No.**	**Measure**	**Timing**	**Responsibility**	**Method**	**Period**	**Frequency**	**Responsibility**
Air Quality								
Creation of dust during pipeline installation and ground preparation for planting.	M-1	Ground surfaces will be thoroughly wet prior to and during work to minimize dust.	To be implemented throughout the project as needed.	LADWP construction staff and/or LADWP lessee.	Water trucks will pre-wet construction areas and water as necessary throughout construction. Ground will be pre-irrigated prior to planting.	As needed throughout construction and/ or prior to planting.	Throughout the construction or agricultural period.	LADWP construction staff and/or LADWP lessee.
Groundwater pumping to supply water to the project could adversely affect groundwater dependent vegetation in the vicinity of the project and cause blowing dust.	M-2	Section III and Section IV of the Agreement between the County of Inyo and the City of Los Angeles and its Department of Water and Power on a Long-Term Groundwater Management Plan for Owens Valley and the County	To be implemented throughout the project as needed.	Inyo/Los Angeles Technical Group	Annual monitoring of the vegetation in the vicinity is being conducted.	During the period when groundwater pumping and water management practices could affect vegetation.	Annually during the growing season.	Inyo/Los Angeles Technical Group
Hydrology and Water Quality								
Groundwater pumping	M-3	Water Agreement	To be implemented throughout the project as needed.	Inyo/Los Angeles Technical Group	Monitoring at each identified site will consist of one or more field visits during the period when groundwater pumping and water management practices could affect such vegetation.	During the period when groundwater pumping and water management practices could affect vegetation.	Annually during the growing season.	Inyo/Los Angeles Technical Group

3.2.5. Mitigation Monitoring Reporting Program for Irrigation Project in the Laws Area (continued).

OT. IMPACT		MITIGATION			MONITORING			
Summary of Impact	**MM No.**	**Measure**	**Timing**	**Responsibility**	**Method**	**Period**	**Frequency**	**Responsibility**
Reducing the irrigation duty from 5 AF per acre to 3 AF per acre and of changing from flood irrigation to sprinkler irrigation.	M-4	Water Agreement	To be implemented throughout the work as needed.	Inyo/Los Angeles Technical Group	Monitoring at each identified site will consist of one or more field visits during the period when groundwater pumping and surface water management practices could affect such vegetation.	During irrigation season	Annually during the growing season.	Inyo/Los Angeles Technical Group
Biological Resources								
Altering the flow in a ditch that carries water diverted from Coldwater Canyon.	M-5	Water Agreement	To be implemented throughout the work as needed.	Inyo/Los Angeles Technical Group	Monitoring at each identified site will consist of one or more field visits during the period when surface water management practices could affect such vegetation.	During the period of changes in surface water management practices could affect vegetation.	Annually during the growing season.	Inyo/Los Angeles Technical Group
Altering the flow in Silver Canyon Ditch.	M-6	Water Agreement	To be implemented throughout the work as needed.	Inyo/Los Angeles Technical Group	Monitoring at each identified site will consist of one or more field visits during the period when surface water management practices could affect such vegetation.	During the period of changes in surface water management practices could affect vegetation.	Annually during the growing season.	Inyo/Los Angeles Technical Group
Growth of noxious weeds	M-7	LADWP or its lessee or lessees, in conjunction with the County's weed abatement program, will promptly treat or remove the weed.	To be implemented throughout the work as needed.	LADWP Watershed Resources Staff; LADWP Lessee; and/or Inyo County Agricultural Department.	Monitoring consists of field visits during the growing season.	Annually during the growing season.	Annually during the growing season.	LADWP Watershed Resources Staff; LADWP Lessee; and/or Inyo County Agricultural Department.

3.2.5. Mitigation Monitoring Reporting Program for Irrigation Project in the Laws Area (continued).

POT. IMPACT		MITIGATION			MONITORING			
Summary of Impact	**MM No.**	**Measure**	**Timing**	**Responsibility**	**Method**	**Period**	**Frequency**	**Responsibility**
Cultural Resources								
Archaeological investigations identified six previously unrecorded archaeological sites and 11 isolates within the project area.	M-8	Pipeline placement was to avoid identified sites; if new sites are encountered during implementation, work will be halted until an archaeologist can be consulted.	To be implemented throughout the work as needed.	LADWP Construction Manager	Construction personnel will monitor for unidentified sites during the progression of construction.	During construction activities.	Throughout the construction period.	LADWP Construction Manager

MITIGATION MEASURES

Mitigation Measure M-1

Impact: Creation of dust during pipeline installation and ground preparation for planting.

Measure: Ground surfaces will be thoroughly wet prior to and during work to minimize dust.

LADWP currently applies water through irrigation systems at the revegetation sites as described in the previous section and additionally with water trucks for dust control if and where necessary.

Mitigation Measure M-2 and M-3

Impact: Groundwater pumping to supply water to the project could adversely affect groundwater-dependent vegetation in the vicinity of the project and cause blowing dust.

Measure: *1991 Agreement between the County of Inyo and the City of Los Angeles and its Department of Water and Power on a Long Term Groundwater Management Plan for Owens Valley and Inyo County* (Water Agreement).

Table 3.8 shows the vegetation cover in vegetation parcels within the Laws Wellfield as determined by LADWP. Data from the baseline period 1985 to 1987 (depicted as 1986 for simplicity) indicates estimates of vegetation cover in the parcels prior to implementation of the irrigation project in the Laws area. Data since 2004 are estimates of vegetation cover after implementation of the irrigation project in the Laws area. Lastly, Table 3.9 shows groundwater levels in the Laws wellfield before and after the start of pumping associated with irrigating the revegetation parcels.

Table 3.8. Vegetation Cover in Selected Parcels within the Laws Wellfield

Parcel	1986	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
FSL048	18	-	-	-	-	-	-	-	-	-	-	-	8	8	20	34	30	34	24	17	30
LAW030	23	26	30	51	40	39	36	31	35	22	24	12	13	17	24	33	23	32	22	19	31
LAW035	34	3	14	17	11	13	2	12	17	4	2	1	1	1	6	5	17	3	2	3	14
LAW043	61	5	13	10	14	18	8	11	20	7	3	3	6	4	14	10	17	13	5	9	18
LAW052	27	5	14	11	9	15	15	6	16	8	4	4	4	3	5	11	13	15	6	9	16
LAW062	21	5	11	14	16	22	12	12	17	10	5	4	2	2	4	9	9	10	8	9	18
LAW063	11	9	17	15	19	26	14	15	25	12	6	6	4	5	12	14	19	16	14	15	22
LAW065	10	7	8	11	12	18	12	10	20	7	5	4	3	2	8	9	12	9	10	8	17
LAW070	59	6	8	18	20	21	11	20	23	10	6	3	4	3	12	11	39	10	5	7	19
LAW072	64	-	-	-	-	-	-	-	-	-	10	6	6	4	37	52	42	55	33	27	55
LAW078	52	36	49	54	58	67	69	65	53	35	27	23	23	16	35	46	41	44	35	28	50
LAW082	16	4	5	10	6	9	8	12	10	8	6	5	4	6	8	14	12	17	8	8	11
LAW085	30	5	12	21	26	35	29	31	14	14	6	5	2	6	13	17	17	20	16	15	14
LAW105	26	35	49	48	44	68	41	58	43	43	27	19	26	21	33	38	44	35	35	21	39
LAW107	48	46	68	71	79	80	90	81	65	54	45	34	32	46	59	67	68	62	59	43	65
LAW110	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	64	-	-	-
LAW112	20	17	36	33	38	49	40	31	32	33	14	11	8	10	20	20	36	36	23	22	28
LAW120	26	33	41	47	48	48	50	52	47	35	39	26	30	21	41	49	55	55	31	32	62
LAW122	60	64	73	78	75	70	78	68	77	60	45	42	26	32	51	61	61	63	55	33	66
LAW137	22	19	33	32	24	27	20	27	28	21	17	13	16	16	23	23	24	21	15	19	30

Table 3.9. April Depth to Water (in feet) for Test Holes in the Laws Wellfield

	Test Hole				
Year	**T107**	**T436**	**T438**	**T490**	**T492**
2004	30.1	10.1	11.6	14.6	31.9
2005	31.9	10.2	8.9	14.7	31.5
2006	18.1	4.5	3.7	13.2	24.0
2007	21.1	5.3	6.3	10.2	23.1
2008	25.1	7.3	8.6	12.5	27.6
2009	28.0	8.8	9.4	13.8	29.1
2010	30.8	9.5	11.4	13.6	31.0
2011	31.5	9.6	9.1	13.2	32.3
2012	31.9	10.1	9.6	10.9	32.7
2013	33.1	11.1	12.0	13.2	32.7
2014	34.4	11.8	12.5	15.1	33.9
2015	35.5	12.7	13.0	16.0	36.6
2016	35.8	12.8	13.2	16.5	36.2
2017	35.8	10.4	8.7	16.0	33.3
2018	22.9	5.1	5.5	8.6	21.9
2019	27.2	6.4	5.1	9.2	26.3
2020	22.9	4.9	4.8	7.3	22.9
2021	26.5	7.2	10.3	12.2	30.0
2022	29.2	7.9	11.5	14.4	30.4
2023	24.8	5.0	9.2	11.6	23.2

Mitigation Measure M-4

Impact: Reducing the irrigation duty from 5 AF per-acre to 3 AF per acre and of changing from flood irrigation to sprinkler irrigation.

Measure: Water Agreement

LADWP evaluates pasture condition using the Natural Resource Conservation Service (NRCS) Pasture Condition Assessment (Cosgrove et. al. 1991). This protocol is designed to optimize plant and livestock productivity while minimizing detrimental effects to soil or water resources. All irrigated pastures are evaluated every three years. Lessees are required to maintain scores above 80% which equates to “good condition”.

Mitigation Measure M-5

Impact: Altering the flow in a ditch that carries water diverted from Coldwater Canyon.

Measure: Water Agreement

Diversions from Coldwater Canyon Ditch are utilized for irrigation of the Seed Farm. During operation, approximately one-quarter of the total flow remains in the ditch.

Diversions for irrigation from Coldwater Canyon Ditch continued in 2023. Periodic examinations were conducted along the ditch throughout the growing season. These examinations did not indicate any signs of vegetation stress.

Mitigation Measure M-6

Impact: Altering the flow in Silver Canyon Ditch.

Measure: Water Agreement

Diversions from Silver Canyon Ditch are no longer utilized for irrigation of Parcels LAWS 90, 94, and 95. Well 422 supplies irrigation water for these parcels.

Mitigation Measure M-7

Impact: Growth of State-rated A or B noxious weeds in the project area.

Measure: LADWP or its lessee or lessees, in conjunction with Inyo County’s weed abatement program, will promptly treat or remove the weed.

Surveys were conducted on the irrigation project in the Laws area for noxious weeds during the 2012 growing season. No A or B listed noxious weeds were found. The lessee treats weeds through a combination of grazing and burning as necessary.

Mitigation Measure M-8

Impact: Archaeological investigations identified six previously unrecorded archaeological sites and 11 isolates within the project area.

Measure: Pipeline placement was to avoid identified sites; if new sites are encountered during implementation, work will be halted until an archeologist can be consulted.

No cultural resources have been encountered during construction or operation of the irrigation project in the Laws area.

3.2.6. Irrigation Project in the Big Pine Area (Big Pine Ditch System)

POT. IMPACT		MITIGATION			MONITORING			
Summary of Impact	**MM No.**	**Measure**	**Timing**	**Responsibility**	**Method**	**Period**	**Frequency**	**Responsibility**
Hydrology and Water Quality								
The cumulative effect of groundwater pumping from Well W415, the new Bell Canyon well, as proposed in the project, in combination with the operation of other wells in the Big Pine area could cause significant adverse impacts to groundwater dependent vegetation, other vegetation, or non-LADWP wells in the area.	M-1	Water Agreement	To be implemented throughout the project as needed.	Inyo/Los Angeles Technical Group	A monitoring site will be developed by the Inyo/Los Angeles Technical Group as called for in the Inyo/Los Angeles Water Agreement to manage operation of each well.	During the period when groundwater pumping is needed for the project.	As decided by the Inyo/Los Angeles Technical Group, consistent with the Water Agreement.	Inyo/Los Angeles Technical Group

Well 415 has been drilled and equipped but is not yet in operation. The Bell Canyon Well has not yet been drilled. In Spring of 2020, ICWD and LADWP agreed upon a 6-month pumping test and associated monitoring for W415. The test has not yet been conducted but may occur in 2024.

3.3. LADWP OTHER COMMITMENTS

Table 3.10. provides title, legal reference, provision, progress to date, and current status on each of LADWP's other commitments listed on Table 3.2.

Again, categories describing status are:

Complete: Project has no additional commitments required (no water allotment or other financial or environmental mitigation; no continual monitoring and reporting),

Ongoing as necessary/required: These measures are only applied when necessary (monitoring and reporting for mitigation measures for new projects, construction, etc.),

Implemented and ongoing: Project is fully implemented and is currently meeting goals; however, there may be ongoing water or financial commitments or monitoring and reporting requirements,

Fully implemented but not meeting goals: Project is fully implemented but has not yet met prescribed goals or success criteria,

Not fully implemented: Project under development or under construction, but not fully implemented.

Table 3.10. LADWP Other Legal Commitments

Reporting No.	Table 3.9 LADWP OTHER LEGAL COMMITMENTS				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
1	Aerial Photo Analysis	MOU Section III.E	By June 2000, LADWP, the County, and experts in aerial photography interpretation will conduct a study analyzing existing air photos of the Owens Valley to evaluate the merits of using air photos in monitoring vegetation in the valley, to determine the feasibility of using air photos to analyze and refine the vegetation map data base, and to provide recommendations on how aerial photography, or other remote sensing techniques, could be used to monitor vegetation conditions and changes. If feasible and cost-effective relative to other field monitoring techniques, recommendations will be implemented.	The deadline was extended by the 1997 MOU Parties. In January 2002, *Ecosat Geobotanical Surveys, Inc*. completed reports addressing the 1997 MOU requirements. Complete.	**X**				
2	Annual Report on the Owens Valley	MOU Section III.H	LADWP and the County will prepare an annual report describing environmental conditions in the Owens Valley and studies, projects, and activities conducted under the Inyo-Los Angeles Agreement and the MOU. Copies of the report will be distributed to the other Parties and made available to the public. The report will be released on or about May 1 of each year.	ICWD has prepared annual reports since 1991. LADWP has released annual reports since 2001. Presently, annual reports are written separately by each agency due to timing constraints; LADWP must issue their annual report in conjunction with their Annual Operations Plan near May 1 each year. ICWD is not required to meet this timeline for their report.			**X**		
3	BLK 094 Burns	Proposed Resolution of the Blackrock 94 Dispute (2014)	To enhance certain alkali meadows by reversing the encroachment of woody shrubs into such meadows, LADWP will perform prescribed burns on approximately 665 acres of shrub encroached alkali meadows in the Owens Valley. Recognizing CALFIRE and GBUAPCD will require that regulatory permits be issued prior to burning, burning the entire 665 acres may take several years; however, if permits and conditions allow, LADWP will conduct the burning of the 665 acres within 5 years of the date of this Settlement Agreement. The burning of the 665 acres will be conducted as described in LADWP's land management plans.	LADWP conducted the following burns with the assistance from CALFIRE to meet this commitment: White Meadow Burns (2015, 2016), 167 acres; Long Pond Burn (2019), 318 acres; Calvert Burn (2021), 193 acres. LADWP's prescribed burn commitment has been met. Project is complete.	**X**				
4	Cooperative Studies	Water Agreement Section IX	It is recognized that additional cooperative studies related to the effects of groundwater pumping on the environment of the Owens Valley are necessary. The reasonable costs of the studies implemented under the Stipulation and Order or the Green Book shall be funded by the LADWP. If necessary, such funding will be in addition to funds provided under section XIV (Financial Assistance).	Several cooperative studies have been performed to date. Currently, LADWP and ICWD are conducting a cooperative study with *Formation Environmental LLC* to evaluate the utility of remote sensing technology in Owens Valley vegetation monitoring. Information gathered may be used to improve upon current methods of monitoring described in the Green Book.			**X**		

Reporting No.	Table 3.9 LADWP OTHER LEGAL COMMITMENTS				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
5	Dispute Resolution	Water Agreement Section XXVI	The agreement provides a process for resolving disputes between the County and Los Angeles regarding issues related to the agreement or the Green Book.	The County and Los Angeles use the Dispute Resolution process identified in the Water Agreement as needed. The County and Los Angeles entered into a Settlement Agreement on June 25, 2018 as resolution to the dispute regarding issues surrounding W385R pump test and the status of the Five Bridges Mitigation Project. The pump test was conducted December 2019-February 2020.		**X**			
6	Dispute Resolution and Litigation	MOU Section VI	The parties to the 1997 MOU will maintain frequent, informal communications to minimize disagreements. In the event of a dispute among the parties over the 1997 MOU, the parties will meet and confer before any litigation concerning the dispute may be commenced. The parties may elect to retain the services of a mutually acceptable impartial mediator/facilitator to assist in dispute resolution. Any litigation arising out of the 1997 MOU is to be commenced in the Inyo County Superior Court.	The MOU Signatory Group has met regularly and on an as needed basis. Additionally, in 2023, there were multiple meetings between the MOU parties, ICWD and DWP discussing the status of revegetation mitigation projects.		**X**			
7	Enhancement/ Mitigation Projects	Water Agreement Section X	All existing E/M projects will continue unless the Standing Committee agrees to modify or discontinue a project. Periodic evaluations should be made by the Technical Group. Enhancement/mitigation projects shall continue to be supplied by enhancement/mitigation wells as necessary. New enhancement projects will be implemented if such projects are approved by the Standing Committee.	All Enhancement/Mitigation Projects defined in the 1991 EIR are complete or are implemented/ongoing.			**X**		
8	Exchange of Information and Access	Water Agreement Section XVII	The County and LADWP shall make any data or information in its possession that reasonably pertains to purposes of the Water Agreement available to the other party with reasonable notice.	LADWP and ICWD exchange data and information as necessary per the Water Agreement.			**X**		
9	Financial Assistance-Big Pine Ditch System	Water Agreement Section XIV.E	LADWP is to provide up to $100,000 for reconstruction and upgrading of the Big Pine ditch system. LADWP is to supply up to 6 cfs to the ditch system from a new well to be constructed west of Big Pine.	The Big Pine Irrigation and Improvement Association has implemented all Phases of the project. LADWP has provided $99,745 of the $100,000 committed to the project. The Improved Big Pine Ditch System has been in operation since 2005. After test pumping and identification of a monitoring site for Well 415 to supply supplemental water and makeup water for the ditch system, a contract will be considered for the installation of another well in Bell Canyon to provide additional water for the project.			**X**		
10	Financial Assistance-General Financial Assistance to the County	Water Agreement Section XIV.D	LADWP is to make an annual payment to the County to assist the County in providing services to its citizens. The first payment shall be $1,221,685 minus previous contributions made during the 1991-1992 fiscal year. The annual payment thereafter is to be adjusted upward or downward each year in accordance with a formula in the State Constitution for an assessment of Los Angeles-owned property in Inyo County.	Los Angeles has provided these annual payments to the County since 1991, and provided $5,636,654 in 2023. Funds provided by Los Angeles have been deposited into the County's General Fund and expended on County services as directed by the Board of Supervisors. LADWP has paid the County more than $88 million since 1991 for this purpose.			**X**		

Reporting No.	Table 3.9 LADWP OTHER LEGAL COMMITMENTS				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
11	Financial Assistance-Park & Environmental Assistance to City of Bishop	Water Agreement Section XIV.F	LADWP is to make an annual payment to the City of Bishop to assist the City in maintaining its park and for other environment-related activities. The payment of $125,000 is to be adjusted upward or downward each year in accordance with the consumer price index, not to exceed 5% in any year. The County shall make an annual payment to the City of Bishop in an amount equal to the payment made by LADWP.	Los Angeles has provided annual payments to the City of Bishop, and provided $232,799 in 2023. LADWP has paid the City of Bishop $4,836,463 since 1997 for this purpose. The County has made its required payment under this section of the agreement.	**X**				
12	Financial Assistance-Park Rehabilitation, Development, & Maintenance	Water Agreement Section XIV.B	LADWP shall provide funding to the County for rehabilitation of existing County parks and campgrounds, development of new County campgrounds, parks, and recreational facilities and programs, and for the annual operation and maintenance of existing and new facilities and programs on lands owned by the City of Los Angeles. LADWP is to provide up to $2 million to the County for these purposes. LADWP is to make an annual payment of $100,000 (adjusted upward or downward in accordance with the consumer price index not to exceed 5%) by July 10 of each year. The annual funding will be placed in trust by the County and shall be used only for the purposes of existing and new parks, recreational facilities and programs. If at any time $300,000 or more is accumulated in the trust, LADWP shall not be required to make an additional annual payment until the trust is less than $100,000 as of June 30 any given year.	LADWP has provided annual payments to The County for parks operation and maintenance activities including a payment in 2023 of $189,964 for a total of $3,834,247. Combined with the $1,831,914 paid to The County for parks rehabilitation during the first 10 years of the Stipulation and Order, LADWP has paid the County $5,666,161 since 1997 under this provision of the Agreement.			**X**		
13	Financial Assistance-Salt Cedar Control	Water Agreement Section XIV.A	LADWP shall provide funding to the County to implement a Saltcedar Control Program: a total of $750,000 for the first three years of the program; thereafter, $50,000 per year for annual maintenance and control efforts (adjusted upward or downward in accordance with the consumer price index not to exceed 5% in any year). The funds are to be placed in trust with the County and will be used only for the purposes of salt cedar control. If at any time, $150,000 or more is accumulated in trust, LADWP shall not be required to make an annual payment until fund in trust are less than $50,000.	ICWD initiated the Saltcedar Control Program in 1997. LADWP began making required payments at that time. In 2023, LADWP paid ICWD $88,988 for this work. LADWP has paid the County $2,398,963 since 1997 under this provision of the Water Agreement. In 2004, as part of a Wildlife Conservation Board (WCB) grant, LADWP provided $56,000 for Saltcedar control, and the balance of the program was funded from a WCB grant for $490,000 obtained by the County working in cooperation with LADWP. A second grant from the WCB for $560,000 was received in February 2004. A third grant for $600,000 from the WCB was received by ICWD in November 2007.			**X**		

Reporting No.	Table 3.9 LADWP OTHER LEGAL COMMITMENTS				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
14	Financial Assistance-Water and Environmental Activities	Water Agreement Section XIV.C	LADWP shall assist the County in funding water and environmentally related activities by making an annual payment to the County. The amount of the first payment shall be $820,580. The annual payment is to be adjusted upward or downward each year in accordance with the consumer price index and shall be made by July 10th each year. The maximum adjustment shall not exceed 5% in any year.Annual funding has been placed in trust with the County and shall be used only for purposes of operation and maintenance of water and environmentally related activities. If at any time $1,500,000 or more is accumulated in the trust, LADWP should not be required to make an additional payment until the funds in the trust are less than $820,580 as of June 30 of any year.	Los Angeles has provided annual payments to the County, and provided $1,770,713 in 2023. Funds provided by Los Angeles have been expended to fund ICWD. LADWP has paid the County $41,450,445 since 1988 for this purpose.			**X**		
15	Financial Provisions	MOU Section IX	Within 90 days after the discharge of the writ, the County will pay the sum of $53,000 to Sierra Club, and the sum of $30,000 to the Owens Valley Committee (OVC) for professional services in the development and preparation of the MOU.	The specified amounts have been paid by the County to the identified parties.	**X**				
16	Fish Slough	MOU Section IV	The Parties acknowledge that LADWP and CDFW have reached agreement concerning threatened and endangered species that involves land management and other activities in the Fish Slough area of Mono County. The agreement is to be memorialized in a letter from LADWP to CDFW.	A letter agreement was never memorialized; however, LADWP has worked closely with CDFW on the Fish Slough Area of Critical Environmental Concern (ACEC) for many years.			**X**		
17	Groundwater Management	Water Agreement Section II	The County and LADWP are to manage water resources within the County to avoid certain described decreases and changes in vegetation and to cause no significant effect on the environment which cannot be acceptably mitigated while providing a reliable supply of water for export to Los Angeles and for use in the County.	By agreement of the Standing Committee, implementation of groundwater management pursuant to the Agreement commenced in 1987.			**X**		
18	Groundwater Pumping on the Bishop Cone	Water Agreement Section VII	LADWP pumping on the Bishop Cone must be in strict adherence to the provisions of the "Hillside Decree." Before LADWP may increase groundwater pumping on the Cone, or construct new wells on the Cone, the Technical Group must agree on a method for determining the exact amount of water annually used on Los Angeles owned lands on the Cone. The agreed upon method shall be based on a jointly conducted audit of such water uses. LADWP's annual groundwater extractions from the Cone shall be limited to an amount not greater than the total amount of water used on Los Angeles owned lands on the Cone during that year.	The Standing Committee adopted the Bishop Cone audit procedure and the audit has been conducted since 1996. In 1998, the Superior Court entered a "Memorandum of Judgment" in Matlick vs. City of Los Angeles which reaffirmed LADWP's pumping practices on the Bishop Cone. Revised audit methods were agreed upon by the County and LADWP in 2016 because past audits did not account for stockwater use and ditch losses on the Bishop Cone. Audits beginning with the 2015-16 runoff year reflect all sources of water supplied to the Bishop Cone.			**X**		

Reporting No.	Table 3.9 LADWP OTHER LEGAL COMMITMENTS				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
19	Groundwater Recharge Facilities	Water Agreement Section VIII	LADWP may construct groundwater banking and groundwater recharge facilities in the Owens Valley and in Rose Valley. (The EIR describes certain groundwater recharge facilities in Laws, Big Pine, and Rose Valley.) Development of such facilities are subject to agreement by the Standing Committee.	These facilities have not been constructed to date and are not under development at this time.		**X**			
20	Habitat Conservation Plan	MOU Section III.B	LADWP, in consultation with the parties to the 1997 MOU and others, is to identify areas of City-owned land, which are not included in the LORP planning area, and develop plans for the identified areas to remedy problems caused by livestock grazing and other uses of the land. Priority will be given to riparian areas, irrigated meadows and sensitive plant and animal habitats. The plans will provide for the continuation of sustainable uses (including recreation, livestock grazing, agriculture, and other activities) will promote biodiversity and a healthy ecosystem, and will consider the enhancement of threatened and endangered species habitats. Habitat conservation plans for Threatened and Endangered Species will be incorporated if and where appropriate.	LADWP finalized the *Habitat Conservation Plan for City lands in Inyo and Mono Counties* in 2015. On October 7, 2015 the United States Fish and Wildlife Service (USFWS) announced the availability of the Draft Low Effect Habitat Conservation Plan (draft HCP) for LADWP's operations, maintenance, and management activities on City land in Inyo and Mono Counties, California. The comment period ended on January 15, 2016. A total of nine comment letters were received from the public and other governmental agencies. LADWP and USFWS staff have completed responses to comments and developed the final HCP. Complete as of April 2017.	**X**				
21	Haiwee Reservoir	Water Agreement Section XIII	The County and Los Angeles will develop a recreational plan for South Haiwee. The recreation plan will be implemented and operated by the County or a concessionaire. Any plan must take into account Los Angeles' operating and security needs.	A recreational plan has not been developed. A security audit was performed following the September 11, 2001 national security incident. This audit concluded that due to a potential security threat to a municipal water source, Haiwee Reservoir should be closed to the public. A Negative Declaration was filed to close Haiwee Reservoir on December 16, 2004. The facility was officially closed to the public in 2005.	**X**				
22	Inventory of Plants and Animals at Spring and Seeps (outside LORP Planning Area)	MOU Section III.C	Within 36 months of the discharge of the writ, DWP and the County will jointly complete an inventory of plants and animals at existing springs and seeps and associated wetlands on lands owned by the City of Los Angeles within the portion of the Owens River watershed located in the County that is not included in the LORP Planning area.	LADWP completed data collection for spring and seep discharge. *Ecosystem Sciences* completed the inventory of plants and animals from 1998-2000.	**X**				
23	Laws Area Potential Mitigation-Consideration by Standing Committee	1991 EIR Impact 10-18	Approximately 640 acres in the Laws area have a very low density of vegetation cover. The loss or reduction of vegetation cover in these areas was caused by the abandonment of agriculture following purchase of lands by Los Angeles, wet year water spreading from the McNally Canals by LADWP during the pre-project and project periods, wildfire, groundwater pumping, and other factors. The primary cause of the loss or reduction of the vegetation is, therefore, not a result of the project. Although these conditions on these lands are not a result of the project, because of the existing sparse vegetation conditions, these lands will be considered by the Standing Committee for selective mitigation, which would be compatible with water spreading and groundwater recharge activities during wet years.	These lands have not been presented to the Standing Committee to date for selective mitigation. LADWP continues to implement the defined mitigation requirements prescribed in the 1991 EIR and other guiding legal documents.		**X**			

Reporting No.	Table 3.9 LADWP OTHER LEGAL COMMITMENTS				Complete	Ongoing as Necessary/Required	Implemented and Ongoing	Fully Implemented but not meeting goals	Not fully implemented
	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
24	Legislative Coordination	Water Agreement Section XVI	Except under certain circumstances, the County and LA are to refrain from seeking or supporting any legislation, administrative regulation, or litigation that would weaken or strengthen local or state authority to regulate groundwater or that would affect any provision of the agreement.	The legislative coordination policy has been followed by both the County and Los Angeles to date.			**X**		
25	LORP Agency Consultation and Public Involvement	MOU Section II.D	Consultation with the Parties, agencies, DWP ranch lessees, and the public concerned with the development of the LORP Plan will occur throughout the development and implementation of the LORP Plan.	The MOU Parties, agencies, LADWP ranch lessees, and the public were consulted during the development of *Ecosystem Sciences'* 2002 LORP Ecosystem Management Plan.	**X**				
26	LORP EIR	MOU Section II.F	DWP as the lead agency and the County as responsible agency will jointly prepare an EIR on the LORP. A draft LORP EIR will be released within 36 months of the discharge of the writ, and a final LORP EIR will be completed and presented for certification as soon as possible following the release of the draft. Extension of these deadlines may be granted by unanimous consent of the Parties or due to circumstances beyond the control of the DWP and/or the County.	The LORP DEIR was released November 1, 2002. The public comment period concluded January 14, 2003. The Final EIR was approved by the Board of Water and Power Commissioners in July 2004 and the County Board of Supervisors in November 2005. LADWP received all the necessary permits for implementation by January 9, 2006 and construction began immediately thereafter.	**X**				
27	LORP Implementation	MOU Section II.H	DWP will commence the baseflow of 40 cfs in the river channel by the 72nd month after the discharge of the writ unless circumstances beyond DWP's control prevent the completion of the pumpback system and/or the commencement of the baseflow within the 72 month period. DWP will commence implementation of the other physical features of the LORP upon the certification of the LORP EIR.	The LORP DEIR stated that the baseflow would not commence on June 13, 2003. The Final EIR was completed in June 2004 per the February 13, 2004 Stipulation and Order. Phase I flow releases began December 6, 2006. Phase II releases of 40 cfs were achieved in February 2007, and were certified by the court in July 2007. Additional punitive conditions involving maintaining flows and recording of flows were added to the 2007 Stipulation and Order following certification of the 40 cfs base flows.	**X**				
28	LORP Monitoring and Adaptive Management Plan	MOU Section II.E	Monitoring sites and water flow gaging stations will be identified and a program for data collection, analysis, and reporting will be described as part of this plan. Should the reported information reveal that adaptive modifications to the LORP management are necessary to ensure the successful implementation of the project, or the attainment of the LORP goals, such adaptive modifications will be made.	*Ecosystem Sciences* finalized the LORP Monitoring and Adaptive Management Plan (MAMP) in 2008. Monitoring follows that prescribed in this plan and LADWP and ICWD generate a joint annual report each year that contains monitoring results and adaptive management recommendations.			**X**		
29	LORP Permits Approvals and Licenses	MOU Section II.I	The Parties will work cooperatively with LADWP and/or the County in obtaining, and will support the issuance of, any permits, approvals, licenses, or agreements which are required by law and/or are necessary for the implementation of the LORP.	Permits were received from the following agencies to facilitate implementation of the LORP: California State Water Resources Control Board (CWRCB), California Department of Fish and Wildlife (CDF&W), California State Lands Commission (CSLC), US Army Corps of Engineers (ACOE), California Department of Transportation (CalTrans), and the Bureau of Land Management (BLM).	**X**				
30	LORP Plan	MOU Section II.A	LADWP and the County will direct and assist Consultants in the preparation and implementation of the LORP ecosystem management plan. This plan will apply to all lands within the LORP Planning area and will address the four physical features of the LORP.	The Lower Owens River Project Ecosystem Management Plan was authored by *Ecosystem Sciences* in 2002. This document was prepared for LADWP and ICWD per the 1997 MOU.	**X**				

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	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
31	LORP Planning Area-Inventory of Plants and Animals at Spring and Seeps	MOU Section III.A.2	An inventory of plants and animals at existing springs and seeps and associated wetlands on lands owned by the City of Los Angeles located within the LORP Planning Area will be conducted by Consultants.	*Ecosystem Sciences* completed the inventory and submitted results to the MOU Parties in June 2001.	**X**				
32	LORP Pumpback System	MOU Section II.G	Construction of a pumpback system will commence as soon as possible following the certification of the LORP EIR and will proceed as expeditiously as possible. Construction should be completed within 3 years after it is commenced.	The Pumpback Station was constructed prior to flow releases associated with project implementation in December 2006.	**X**				
33	Lower Owens Off River Lakes and Ponds	MOU Section II.C.3	Off-river lakes and ponds in the LORP area will be maintained and/or established through flow and land management to provide habitat for fisheries, waterfowl, shorebirds, and other animals. These habitats will be as self-sustaining as possible.	Several of these ponds were originally supplied water in the 1980s as part of the Lower Owens River Rewatering (E/M) Project. Water supply to the ponds continues as managed under the LORP.			**X**		
34	Lower Owens River (financial commitment)	Water Agreement Section XII	Los Angeles will pay the costs of implementing the LORP. the County will repay Los Angeles one half of the project costs up to maximum of $3.75 million. Any funds provided for the project from sources other than Los Angeles will be an off-set against the County's repayment obligation. Los Angeles will pay the annual costs of operating the pumpback system. the County and Los Angeles will each pay one half of the other costs of the project.	As part of a negotiated agreement with the County to not pursue funding from the United States Environmental Protection Agency (USEPA), LADWP has credited the County $5.1 million to cover the County's $3.75 million obligation for LORP implementation with the remaining $1.35 million to be used by the County towards post implementation costs. LADWP and the County continue to share costs of operations and maintenance of the LORP per the LORP Post Implementation Agreement.			**X**		
35	Lower Owens River Delta Habitat Area	MOU Section II.C.2	This feature provides for the enhancement and maintenance of approximately 325 acres of existing habitat and the establishment and maintenance of new habitat consisting of riparian areas and ponds suitable for shorebirds, waterfowl, and other animals. An annual average of approximately 6 to 9 cfs will be released below the pumpback system to supply this area.	Releases for the Delta Habitat Area occur simultaneously with the 40 cfs baseflow. No construction was necessary for this component of the project other than the completion of the Pumpback Station.			**X**		

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36	Lower Owens River Project 1500-Acre Blackrock Waterfowl Habitat Area (BWMA)	MOU Section II.C.4	The goal of this component is to maintain this waterfowl habitat area to provide the opportunity for the establishment of resident and migratory waterfowl populations and to provide habitat for other native species. Diverse natural habitats will be created and maintained through flow and land management to the extent feasible consistent with the needs of the "habitat indicator species" for the Blackrock Waterfowl Habitat Area. These habitats will be as self-sustaining as possible. In average and above runoff years, approximately 500 acres within an overall project area of 1500 acres will be flooded to provide habitat for resident and migratory waterfowl and other native species. In years when the runoff is forecasted to be less than average, the water supply to the area will be reduced in general proportion to the forecasted runoff in the watershed.	All preliminary construction work identified for implementation of the Blackrock Waterfowl component is complete. The Blackrock Waterfowl Habitat Area has been managed in accordance with the LORP EIR and 1997 MOU since implementation. In Spring 2021, the Inyo/Los Angeles Standing Committee adopted a 5 year Interim Management and Monitoring Plan to manage the BWMA with seasonal flooding and moist soil management to further improve habitat for wildlife. LADWP and the County implemented the first year of the Interim Plan in 2021-2022 and is currently on-going.			X		
37	Lower Owens River Riverine- Riparian System	MOU Section II.C.1	A continuous flow will be established and maintained in the river channel from at or near the intake structure which diverts the Owens River into the Los Angeles Aqueduct to a pumpback system located near the river delta which will convey water from the river to the Los Angeles Aqueduct. A base flow of approximately 40 cfs from at or near the Intake to the pumpback system will be maintained year round. Additionally, a seasonal habitat flow of up to 200 cfs will be released annually based on estimated runoff in the Owens River watershed.Any water in the river channel that is above the amount specified in this MOU for release below the pumpback system to supply the Owens River Delta Habitat Area will be recovered by the pumpback system for delivery to Los Angeles.	The Lower Owens River Project was implemented in 2006 and project base flows were achieved in July 2007 throughout the system. Seasonal habitat flows are released annually according to the guidelines provided in the LORP EIR (2004).			X		
38	Mitigation Plans for Impacts Identified in the 1991 EIR and the Water Agreement	MOU Section III.F	The Technical Group will prepare mitigation plans and implementation schedules for all areas for which on-site mitigation measures have been adopted in the 1991 EIR. The plans will be completed by June 1998. In accordance with the EIR, on-site mitigation will be accomplished through revegetation with native Owens Valley species and through establishment of irrigation.	To date, projects associated with all mitigation measures have been implemented, satisfying the relevant mitigation measures found in the 1991 EIR. Project and plan enforcement is within the jurisdiction of the LTWA and the Technical Group through dispute resolution. Some projects are complete, some are implemented and ongoing, and some are implemented but not yet meeting goals. Refer to Table 3.1 for current status of each of these projects.				X	
39	New Wells & Production Capacity	Water Agreement Section VI	LADWP's groundwater pumping capacity may be increased to provide increased operational flexibility and to facilitate rotational pumping. The Department may replace existing wells and construct new wells in areas where hydrogeologic conditions are favorable, and where the operation of that well will not cause a change in vegetation that would be consistent with these goals and principles.	The Water Agreement and 1991 EIR describe 15 new wells that LADWP proposes to construct in the Owens Valley. LADWP has constructed 6 replacement wells on Bishop Cone and one of the 15 new wells allowed under the Water Agreement (located in Lone Pine). The Technical Group must establish management for the well before it can be operated. Development of two new wells on the Bishop Cone (B2 and B5) is presently on hold. LADWP is evaluating potential new well development in the Owens Valley.					X

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	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
40	Owens River Recreational Use Plan	Water Agreement XIV.B	As part of the parks rehabilitation program, the County is to develop a plan for recreational use and management of the Owens River from Pleasant Valley Reservoir to the Owens River delta as one of the first new programs.	ICWD initiated this project in 2007 by forming a collaborative group to gather preliminary information. In 2010, *MIG Consultants* were selected to write the LORP Recreational Use Plan. A Draft Recreation Use Plan was released February 2012. This plan was presented to the Standing Committee and the public in October 2012. Next steps include further review of the draft plan, CEQA evaluation and obtaining permits prior to implementation of the project. The County is pursuing the development of the Owens River Water Trail in 6 river miles of the LORP. ICWD obtained a $500,000 grant from California Boating and Waterways to implement the project. LADWP funded the CEQA evaluation of the project ($546,000) in 2018; the Draft EIR for the project was issued for public review in Spring 2010.					X
41	Release of City Owned Lands - Lands for Public Purposes	Water Agreement Section XV.D	Los Angeles shall negotiate in good faith for the sale or lease to the County of any Los Angeles-owned land requested by the County for use as a public park or for other public purposes.	LADWP currently has 40 leases, 13 license agreements, 0 use permits, and 3 sign permits with Inyo County for public purposes. These include agreements for local parks, campgrounds, landfills, maintenance yards, borrow pits, etc. LADWP responds as needed upon request by Inyo County.		X			
42	Release of City Owned Lands-Bishop	Water Agreement Section XV.B	Los Angeles will sell at public auction, or sell directly to the City of Bishop Community Development Agency, properties within the Bishop City limits totaling 26 acres of surplus Los Angeles owned land.	LADWP has fulfilled this requirement by selling 26 acres in the Bishop City limits in 1995.	X				
43	Release of City Owned Lands- Inyo County	Water Agreement Section XV.A	Los Angeles shall offer for sale 75 acres of Los Angeles owned lands in Inyo County for the orderly development of the towns in the county.	LADWP has fulfilled this requirement by offering for sale 75 acres in 2011.	X				

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	Commitment	**Legal Reference**	**Provision**	**Progress to Date**	Status				
44	Release of City-owned lands-Additional Sales (Water Agreement Section XV.C)	Water Agreement Section XV.C	Upon the request of the Inyo County Board of Supervisors or Bishop City Council, Los Angeles shall negotiate in good faith for the sale at public auction of additional surplus City land in or near valley towns for specific identified needs.	**Big Pine Area** • LADWP has released land to the Big Pine Fire Department for the sale of 1.02 acres. **City of Bishop Area** • LADWP has completed the sale of 3.48 acres with the City of Bishop for the Silver Peaks Project. This property, located at 935 Spruce Street, is designated for disabled and affordable housing purposes. • LADWP is processing the sale of land to the City of Bishop for the See Vee Lane Signal Project and an aerial easement for powerlines. • LADWP is processing the sale of an easement to the City of Bishop for a water pipeline. • LADWP is processing the sale of an easement with the City of Bishop for a multi-use path for the Seibu to School Project. • LADWP is in the process of approving a sale of 275 acres to the Bishop Area Wastewater Authority for expansion of the wastewater treatment facilities. • LADWP has completed the sale of land where Bishop Nursery was located. **Lone Pine Area and South** • LADWP has granted the sale of two easements to Caltrans for highway purposes associated with the Olancha-Cartago Four-Lane Expressway Project. • LADWP is processing two sales for easements to the County for the Pine Creek and Carroll Creek bridge replacements. **LADWP Initiative** • LADWP's Board approved a land divestment policy for in-town leased property. Divestment of in-town properties that are no longer needed for operational purposes is underway. Commitment is complete.	X				
45	Technical Group Meetings	MOU Section III.G	All scheduled meetings of the Technical Group will be open to the public.	Scheduled Technical Group meetings were opened to the public beginning October 15, 1997.		X			
46	Town Water Systems	Water Agreement Section XI	LADWP shall transfer ownership of the water systems in the towns of Lone Pine, Independence, and Laws to the County, or another Owens Valley public entity or entities. Prior to transferring the systems, evaluations of each system will be performed by a mutually agreed upon consultant, and if necessary, work will be done to upgrade the systems.	The County contracted with a private company to assume the operation, maintenance and billing for the systems in July 1999. Pursuant to an agreement with LADWP, the County completed upgrades of the systems in December 2002, using $2.6M in funds provided by LADWP. LADWP completed the transfer of ownership to the County in January 2005.	X				

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47	Type E Vegetation Inventory	MOU Section III.D	Within 30 months of the discharge of the writ (December 1999), LADWP and the County are to develop baseline conditions for management of vegetation classified as Type E in the long-term agreement. These conditions will be adopted by the Standing Committee.	The inventory of Type E Vegetation was conducted by *Resource Concepts, Inc*. (RCI) under a contract administered by the County and funded by LADWP. The final report on the inventory was complete in December 1999.	X				

3.4. Appendices
Appendix 3.1. Additional Mitigation Projects Photographs

AberdeenDitchAberdeen2013 (1)

AberdeenDitchAberdeen2023 (1)

AberdeenDitchAberdeen2013 (2)

AberdeenDitchAberdeen2023 (2)

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AberdeenDitchAberdeen2023 (5)

AberdeenDitchAberdeen2013 (6)

AberdeenDitchAberdeen2023 (6)

AberdeenDitchGoodaleHinesReveg2013 (1)

AberdeenDitchGoodaleHinesReveg2023 (1)

AberdeenDitchGoodaleHinesReveg2013 (2)

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AberdeenDitchGoodaleHinesReveg2023 (5)

AberdeenDitchGoodaleHinesReveg2013 (6)

AberdeenDitchGoodaleHinesReveg2023 (6)

AberdeenDitchPipeOutfall2023 (1)

AberdeenDitchPipeOutfall2023 (2)

AberdeenDitchPipeOutfall2023 (3)

AberdeenDitchPipeOutfall2023 (4)

AberdeenDitchPipeOutfall2023 (5)

AberdeenDitchPipeOutfall2023 (6)

AberdeenDitchRdCrossing2013 (1)

AberdeenDitchRdCrossing2023 (1)

AberdeenDitchRdCrossing2013 (2)

AberdeenDitchRdCrossing2023 (2)

AberdeenDitchRdCrossing2013 (3)

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AberdeenDitchRdCrossing2013 (5)

AberdeenDitchRdCrossing2023 (5)

AberdeenDitchRdCrossing2013 (6)

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AberdeenDitchStructure2013 (1)

AberdeenDitchStructure2023 (1)

AberdeenDitchStructure2013 (2)

AberdeenDitchStructure2023 (2)

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AberdeenDitchWestBank1_2023 (4)

AberdeenDitchWestBank2_2023 (1)

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AberdeenDitchWestBank2_2023 (3)

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Freeman Creek

Freeman Creek

Freeman Creek

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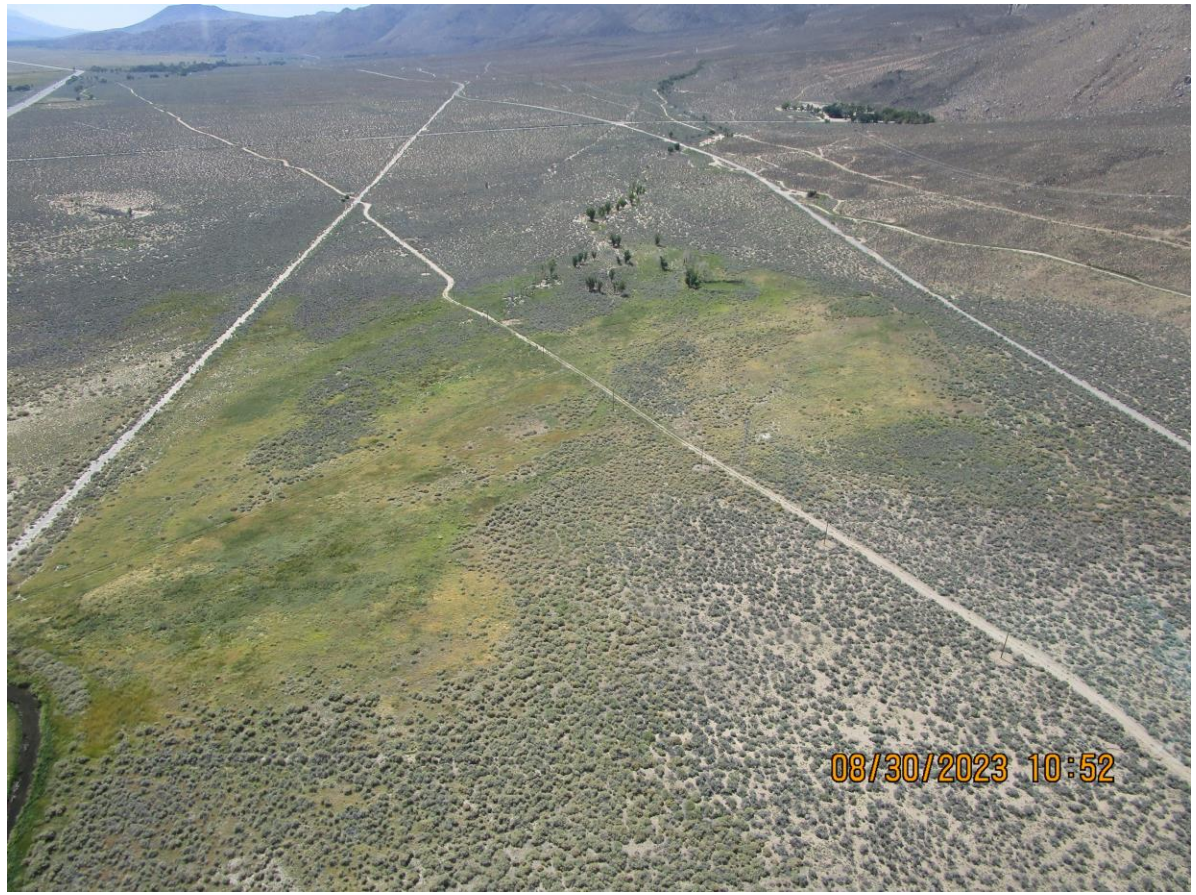
Freeman Creek



Freeman Creek

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Hines Spring

Hines Spring

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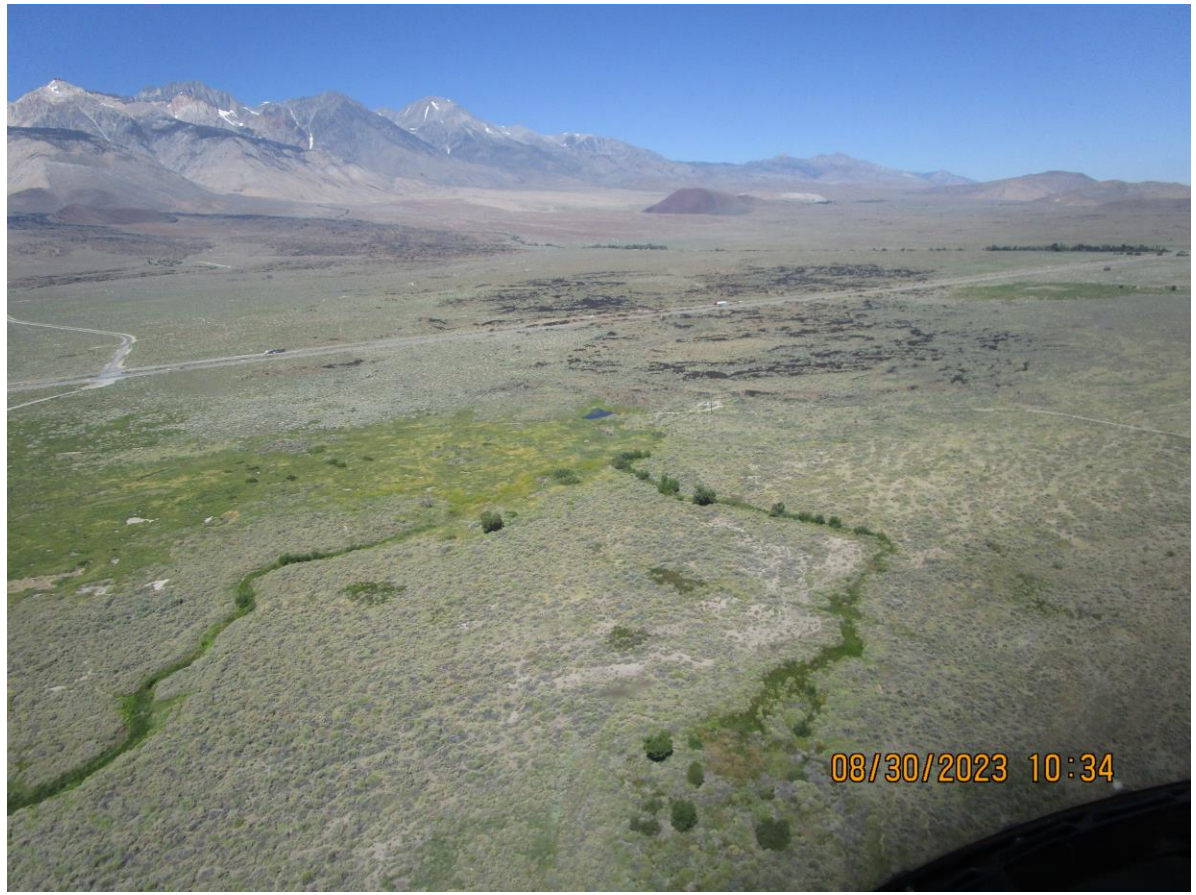

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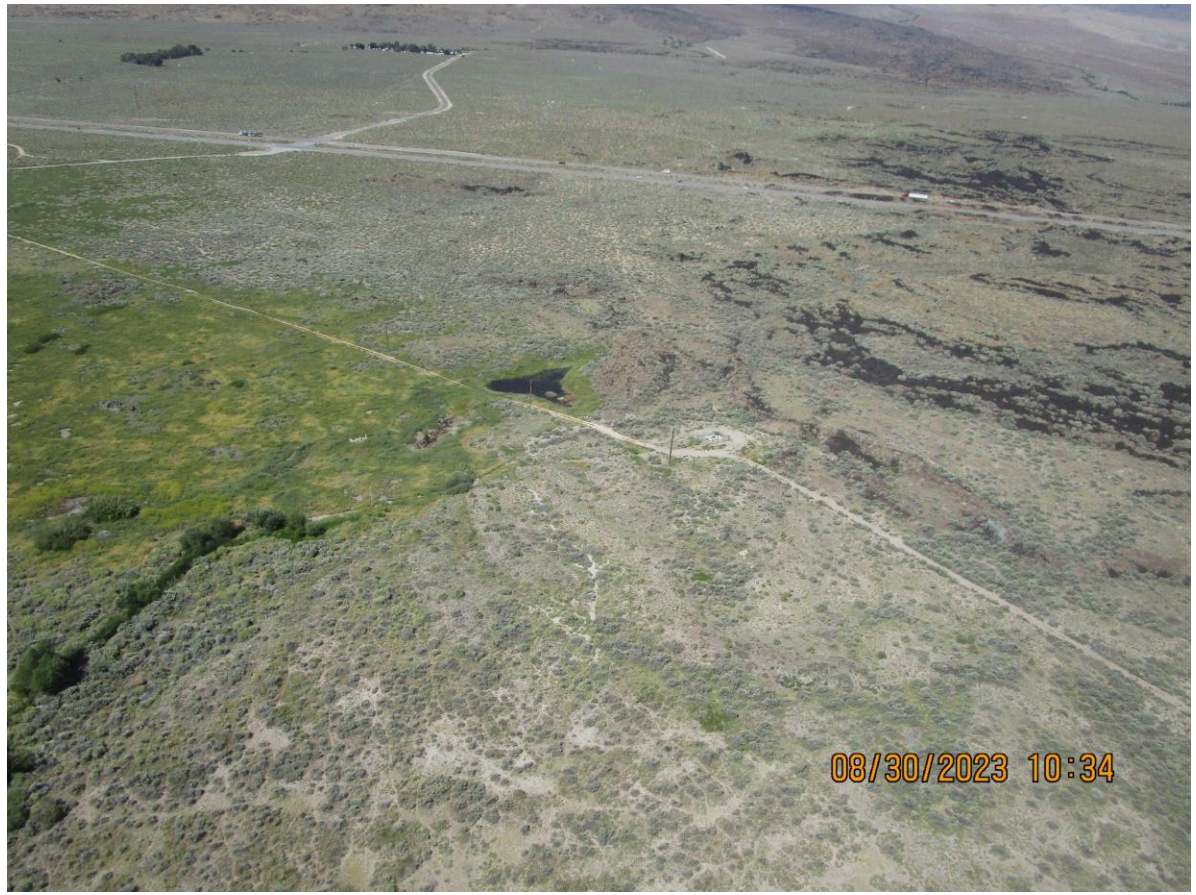

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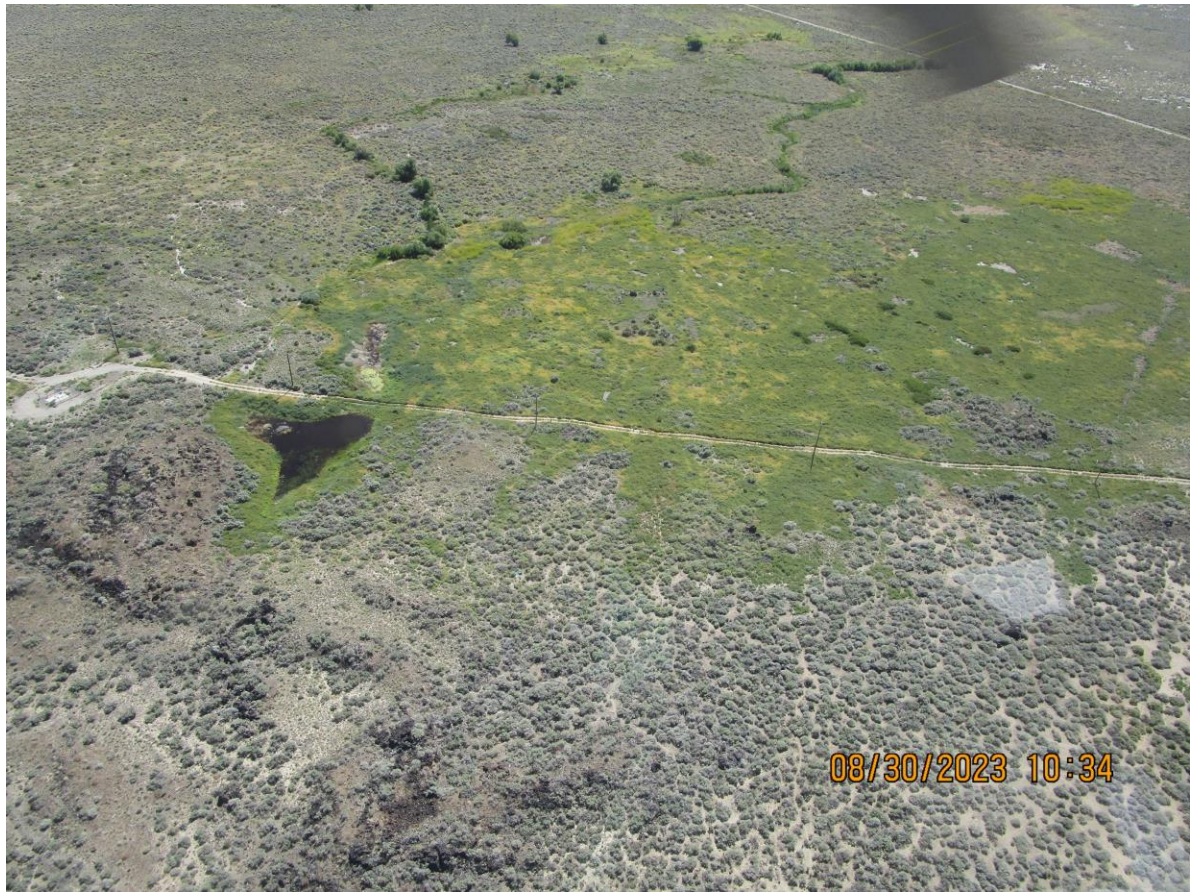

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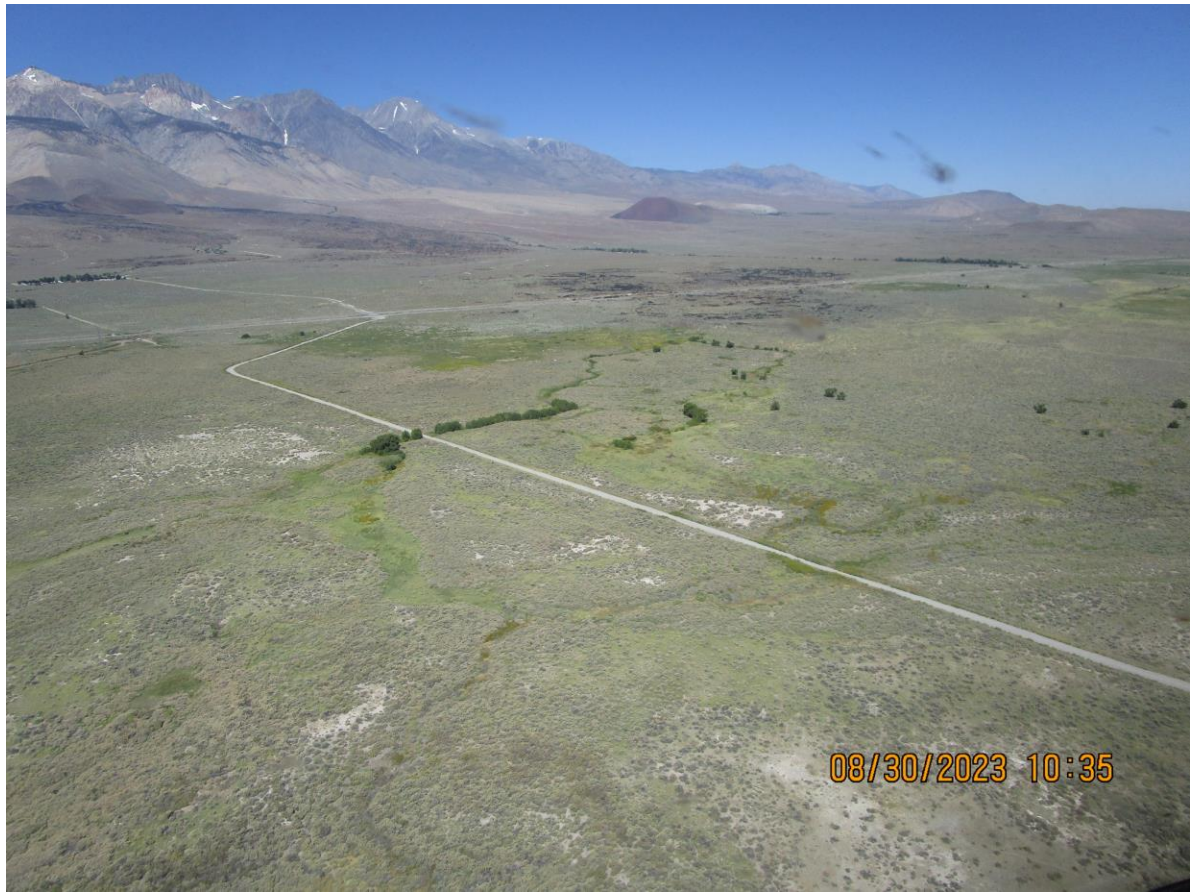

Hines Spring

Homestead

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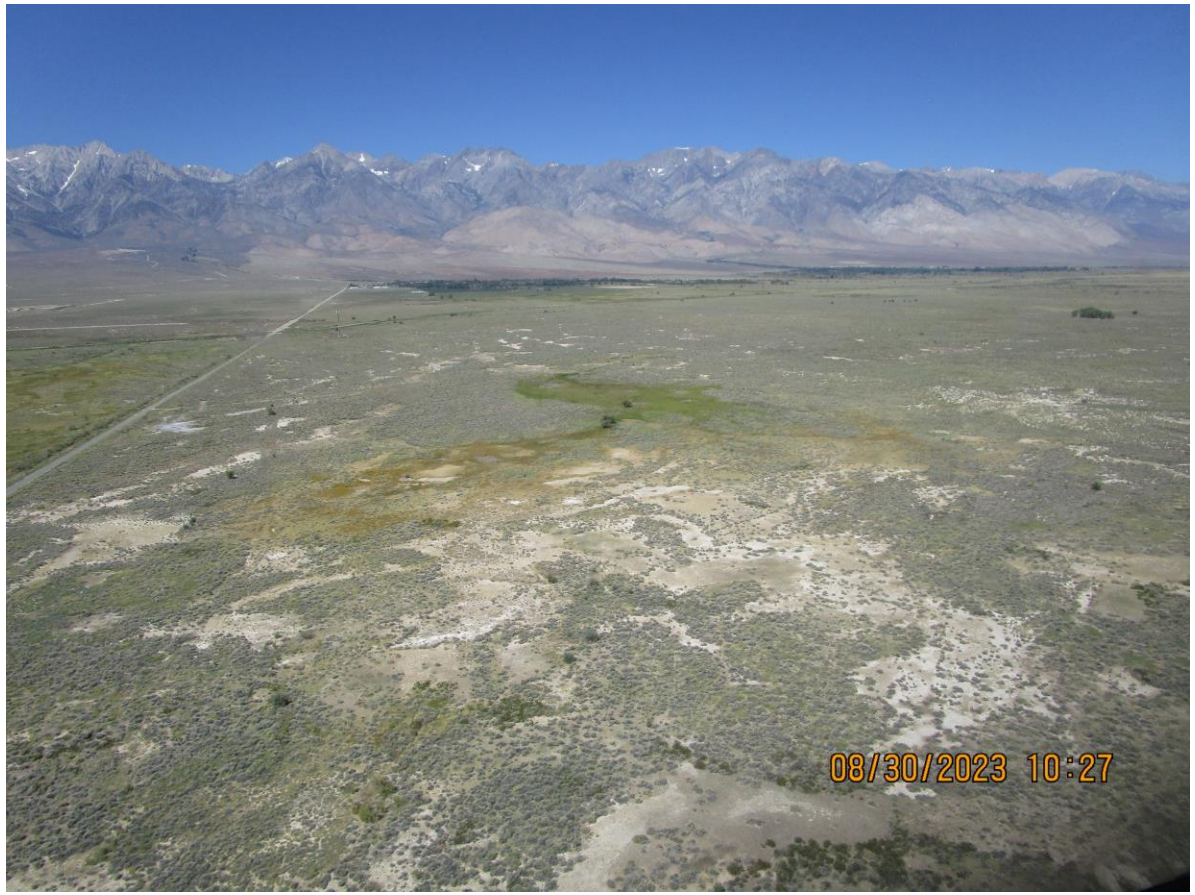
North Mazurka



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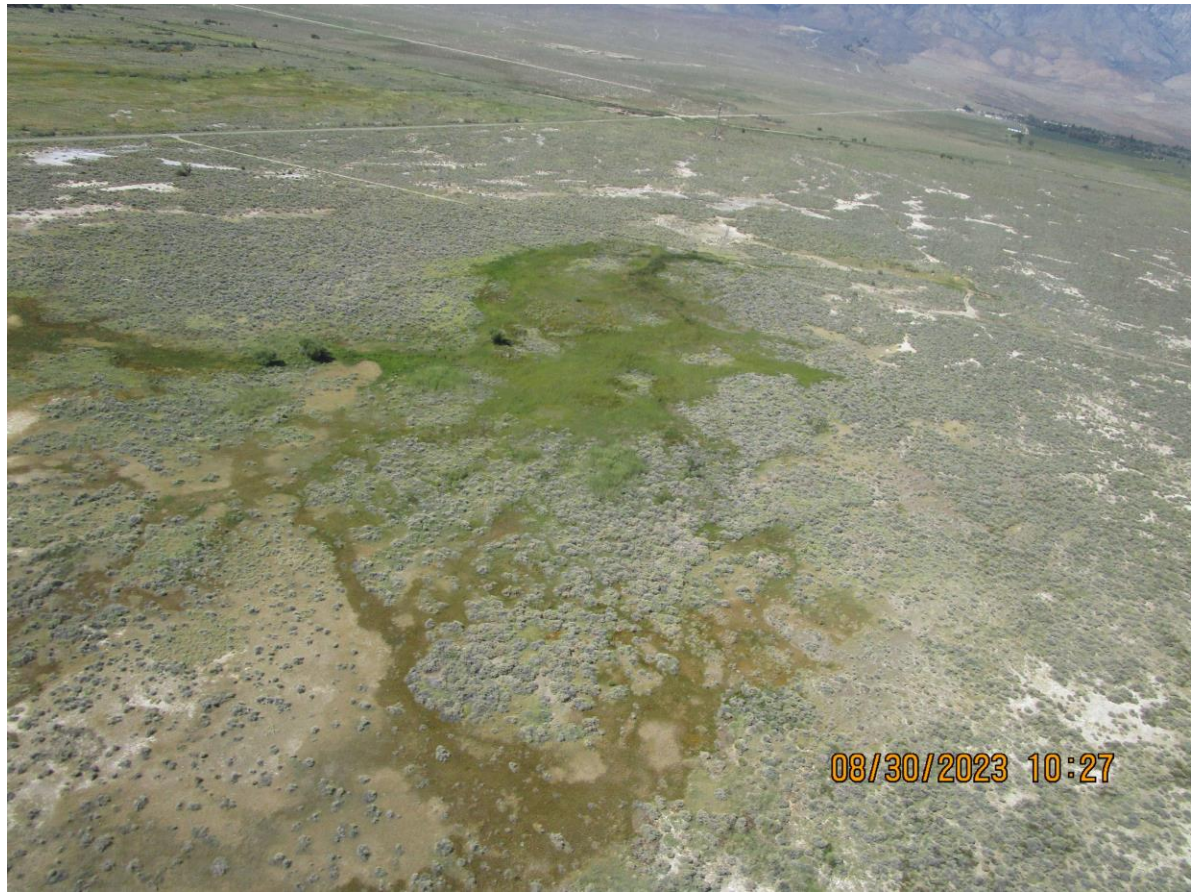

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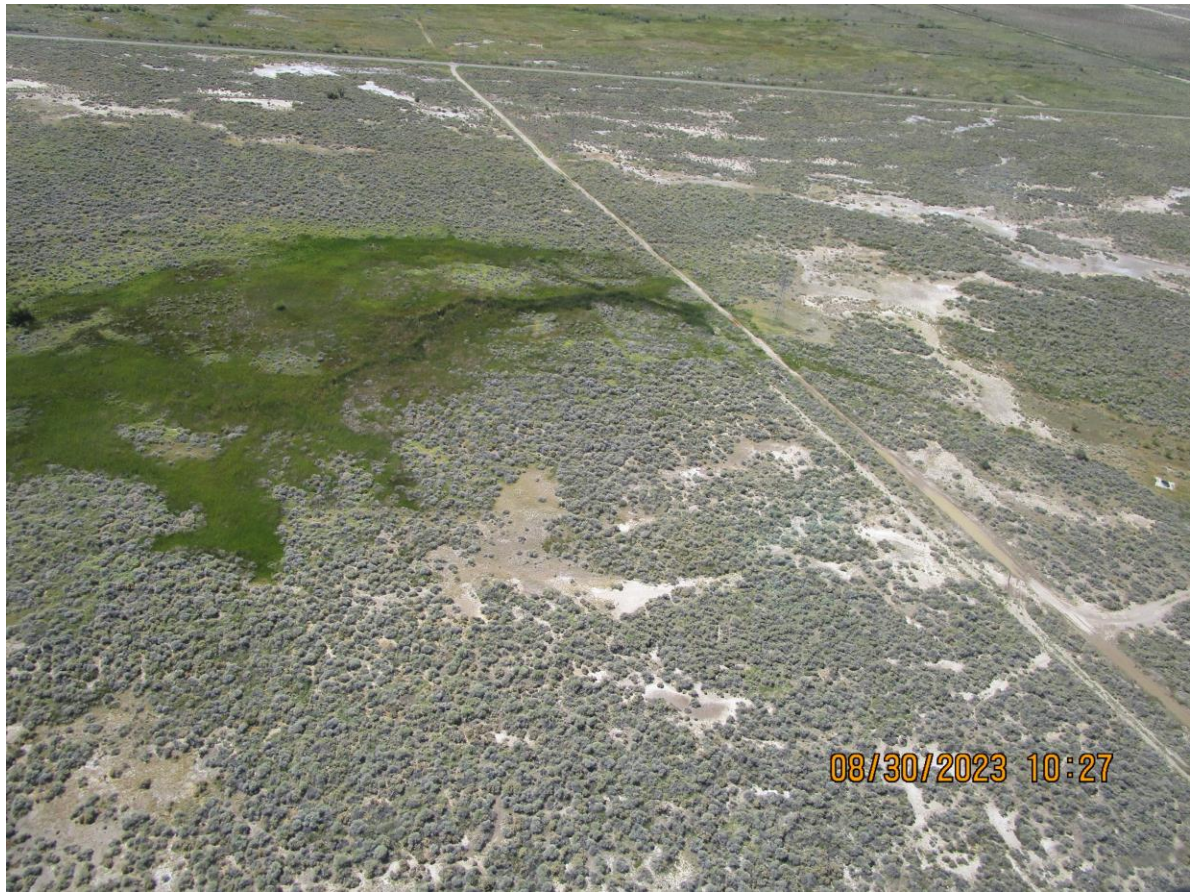

North Mazurka

North Mazurka

Well368

Well368

Well368

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FreemanCreekCulvert2023 (2)

FreemanCreekMeadow(Canal)2013 (1)

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FreemanCreekMeadow(Canal)2013 (6)

FreemanCreekMeadow(Canal)2023 (6)

FreemanCreekRiparianRecruitment2013 (1)

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FreemanCreekRiparianRecruitment2013 (3)

FreemanCreekRiparianRecruitment2023 (3)

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FreemanCreekWash1_2023 (1)

FreemanCreekWash1_2013 (2)

FreemanCreekWash1_2023 (2)

FreemanCreekWash1_2013 (3)

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FreemanCreekWash2_2013 (2)

FreemanCreekWash2_2023 (2)

HinesSpringWell355PipeOutfall2013 (1)

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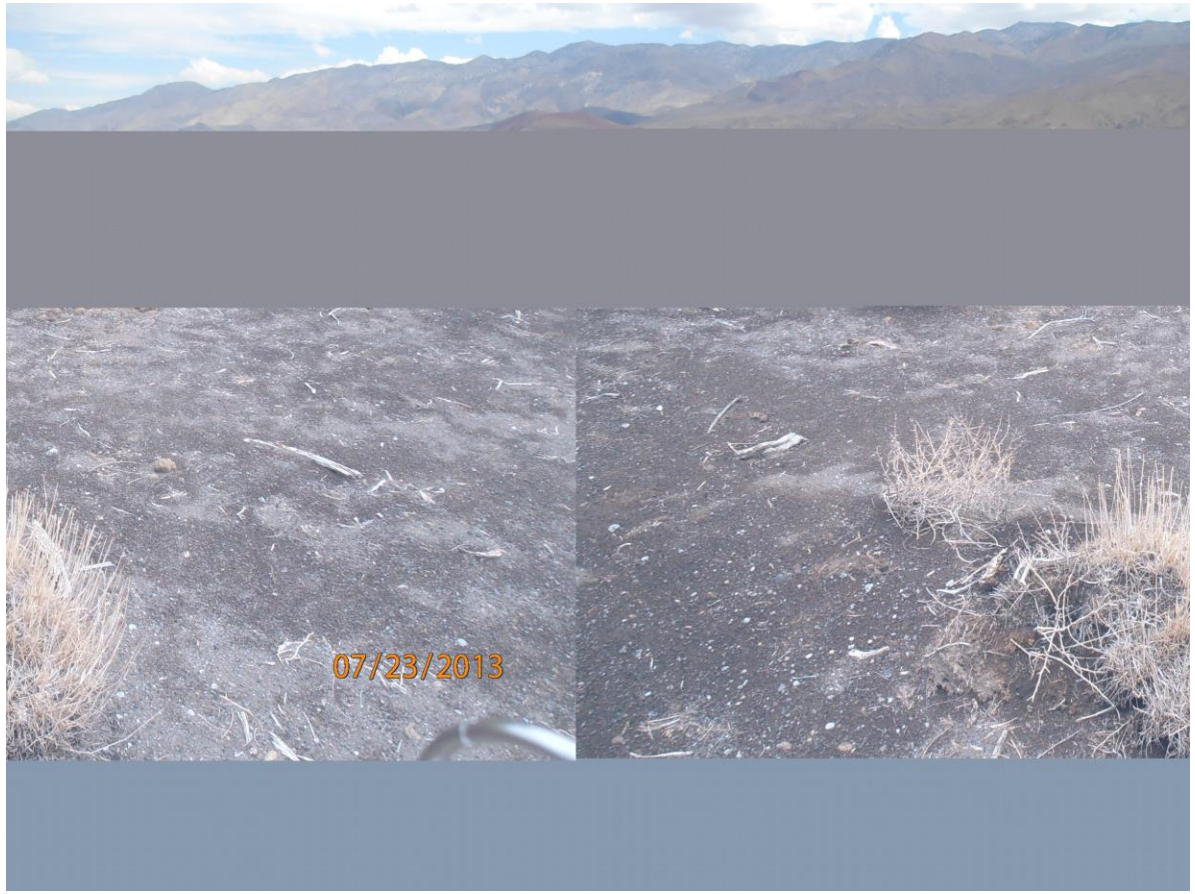


HinesSpringWell355Pond1_2013 (1)

HinesSpringWell355Pond1_2023 (1)

HinesSpringWell355Pond1_2013 (2)

HinesSpringWell355Pond1_2023 (2)

HinesSpringWell355Pond1_2013 (3)

HinesSpringWell355Pond1_2023 (3)

HinesSpringWell355Pond1_2013 (4)

HinesSpringWell355Pond1_2023 (4)

HinesSpringWell355Pond1_2013 (5)

HinesSpringWell355Pond1_2023 (5)

HinesSpringWell355Pond1_2013 (6)

HinesSpringWell355Pond1_2023 (6)

HinesSpringWell355Pond2_2013 (1)

HinesSpringWell355Pond2_2023 (1)

HinesSpringWell355Pond2_2013 (2)

HinesSpringWell355Pond2_2023 (2)

HinesSpringWell355Pond2_2013 (3)

HinesSpringWell355Pond2_2023 (3)

HinesSpringWell355Pond2_2013 (4)

HinesSpringWell355Pond2_2023 (4)

HinesSpringWell355Pond2_2013 (5)

HinesSpringWell355Pond2_2023 (5)

HinesSpringWell355Pond2_2013 (6)

HinesSpringWell355Pond2_2023 (6)

HinesSpringWell355Pond2_2013 (7)

HinesSpringWell355Pond2_2023 (7)

HinesSpringWell355Pond3_2013 (1)

HinesSpringWell355Pond3_2023 (1)

HinesSpringWell355Pond3_2013 (2)

HinesSpringWell355Pond3_2023 (2)

HinesSpringWell355Pond3_2013 (3)

HinesSpringWell355Pond3_2023 (3)

HinesSpringWell355Pond3_2013 (4)

HinesSpringWell355Pond3_2023 (4)

HinesSpringWell355Pond3_2013 (5)

HinesSpringWell355Pond3_2023 (5)

HinesSpringWell355Pond3_2013 (6)

HinesSpringWell355Pond3_2023 (6)

HinesSpringWell355Pond3_2013 (7)

HinesSpringWell355Pond3_2023 (7)

HinesSpringWell355Pond3_2013 (8)

HinesSpringWell355Pond3_2023 (8)

HinesSpringWell355New2023 (1)

HinesSpringWell355New2023 (2)

HinesSpringWell355New2023 (3)

HinesSpringWell355New2023 (4)

HinesSpringWell355New2023 (5)

HomesteadDiversionBox2013 (1)

HomesteadDiversionBox2023 (1)

HomesteadDiversionBox2013 (2)

HomesteadDiversionBox2023 (2)

HomesteadDiversionBox2013 (3)

HomesteadDiversionBox2023 (3)

HomesteadDiversionBox2013 (4)

HomesteadDiversionBox2023 (4)

HomesteadDiversionBox2013 (5)

HomesteadDiversionBox2023 (5)

HomesteadDiversionBox2013 (6)

HomesteadDiversionBox2023 (6)

HomesteadMainSpringChannel2013 (1)

HomesteadMainSpringChannel2023 (1)

HomesteadMainSpringChannel2013 (2)

HomesteadMainSpringChannel2023 (2)

HomesteadMainSpringChannel2013 (3)

HomesteadMainSpringChannel2023 (3)

HomesteadMainSpringChannel2013 (4)

HomesteadMainSpringChannel2023 (4)

HomesteadMainSpringChannel2013 (5)

HomesteadMainSpringChannel2023 (5)

HomesteadOverview2013 (1)

HomesteadOverview2023 (1)

HomesteadOverview2013 (2)

HomesteadOverview2023 (2)

HomesteadOverview2013 (3)

HomesteadOverview2023 (3)

HomesteadOverview2013 (4)

HomesteadOverview2023 (4)

HomesteadOverview2013 (5)

HomesteadOverview2023 (5)

HomesteadOverview2013 (6)

HomesteadOverview2023 (6)

HomesteadOverview2013 (7)

HomesteadOverview2023 (7)

HomesteadPond2013 (1)

HomesteadPond2023 (1)

HomesteadPond2013 (2)

HomesteadPond2023 (2)

HomesteadPond2013 (3)

HomesteadPond2023 (3)

HomesteadPond2013 (4)

HomesteadPond2023 (4)

HomesteadPond2013 (5)

HomesteadPond2023 (5)

HomesteadPond2013 (6)

HomesteadPond2023 (6)

HomesteadPond2013 (7)

HomesteadPond2023 (7)

HomesteadPond2013 (8)

HomesteadPond2023 (8)

HomesteadPond2013 (9)

HomesteadPond2023 (9)

HomesteadPond2013 (10)

HomesteadPond2023 (10)

HomesteadT-DitchTerminus2013 (1)

HomesteadT-DitchTerminus2023 (1)

HomesteadT-DitchTerminus2013 (2)

HomesteadT-DitchTerminus2023 (2)

HomesteadT-DitchTerminus2013 (3)

HomesteadT-DitchTerminus2023 (3)

HomesteadT-DitchTerminus2013 (4)

HomesteadT-DitchTerminus2023 (4)

HomesteadT-DitchTerminus2013 (5)

HomesteadT-DitchTerminus2023 (5)

HomesteadT-DitchTerminus2013 (6)

HomesteadT-DitchTerminus2023 (6)

NorthMazourkaExclosurePipeOutfall2013 (1)

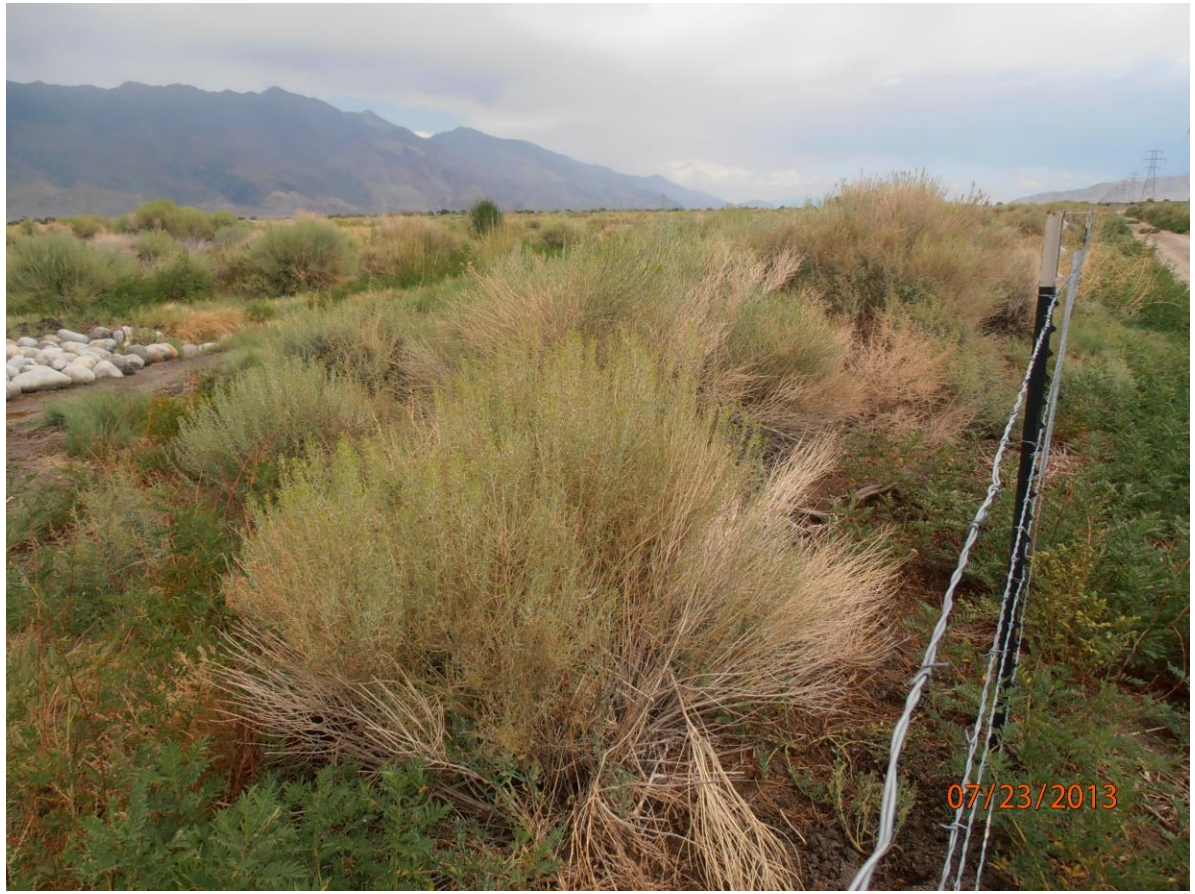
NorthMazourkaExclosurePipeOutfall2023 (1)

NorthMazourkaExclosurePipeOutfall2013 (2)

NorthMazourkaExclosurePipeOutfall2023 (2)

NorthMazourkaExclosurePipeOutfall2013 (3)

NorthMazourkaExclosurePipeOutfall2023 (3)



NorthMazourkaExclosurePipeOutfall2013 (4)

NorthMazourkaExclosurePipeOutfall2023 (4)

NorthMazourkaExclosurePipeOutfall2013 (5)

NorthMazourkaExclosurePipeOutfall2023 (5)

NorthMazourkaFloodedArea2013 (1)

NorthMazourkaFloodedArea2023 (1)

NorthMazourkaFloodedArea2013 (2)

NorthMazourkaFloodedArea2023 (2)

NorthMazourkaFloodedArea2013 (3)

NorthMazourkaFloodedArea2023 (3)

NorthMazourkaFloodedArea2013 (4)

NorthMazourkaFloodedArea2023 (4)

NorthMazourkaFloodedArea2013 (5)

NorthMazourkaFloodedArea2023 (5)

NorthMazourkaFloodedArea2013 (6)

NorthMazourkaFloodedArea2023 (6)

NorthMazourkaFloodedArea2013 (7)

NorthMazourkaFloodedArea2023 (7)

NorthMazourkaFloodedArea2013 (8)

NorthMazourkaFloodedArea2023 (8)

NorthMazourkaPond2013 (1)

NorthMazourkaPond2023 (1)

NorthMazourkaPond2013 (2)

NorthMazourkaPond2023 (2)

NorthMazourkaPond2013 (3)

NorthMazourkaPond2023 (3)

NorthMazourkaPond2013 (4)

NorthMazourkaPond2023 (4)

WarrenLakeDiversion2013 (1)

WarrenLakeDiversion2023 (1)

WarrenLakeDiversion2013 (2)

WarrenLakeDiversion2023 (2)

WarrenLakeDiversion2013 (3)

WarrenLakeDiversion2023 (3)

WarrenLakeSouth2013 (1)

WarrenLakeSouth2023 (1)

WarrenLakeSouth2013 (2)

WarrenLakeSouth2023 (2)

WarrenLakeSouth2013 (3)

WarrenLakeSouth2023 (3)

WarrenLakeSouth2013 (4)

WarrenLakeSouth2023 (4)

WarrenLakeWest2013 (1)

WarrenLakeWest2023 (1)

WarrenLakeWest2013 (2)

WarrenLakeWest2023 (2)

WarrenLakeWest2013 (3)

WarrenLakeWest2023 (3)

WarrenLakeWest2013 (4)

WarrenLakeWest2023 (4)

WarrenLakeWest2013 (5)

WarrenLakeWest2023 (5)

WarrenLakeWest2013 (6)

WarrenLakeWest2023 (6)

WarrenLakeWest2013 (7)

WarrenLakeWest2023 (7)

WarrenLakeSouthDiversionNew2023 (1)

WarrenLakeSouthDiversionNew2023 (2)

WarrenLakeSouthDiversionNew2023 (3)

WarrenLakeSouthDiversionNew2023 (4)

Well368EasternBerm2013 (1)

Well368EasternBerm2023 (1)

Well368EasternBerm2013 (2)

Well368EasternBerm2023 (2)

Well368EasternBerm2013 (3)

Well368EasternBerm2023 (3)

Well368OverviewLowerPond2013 (1)

Well368OverviewLowerPond2023 (1)

Well368OverviewLowerPond2013 (2)

Well368OverviewLowerPond2023 (2)

Well368OverviewLowerPond2013 (3)

Well368OverviewLowerPond2023 (3)

Well368OverviewLowerPond2013 (4)

Well368OverviewLowerPond2023 (4)

Well368OverviewLowerPond2013 (5)

Well368OverviewLowerPond2023 (5)

Well368OverviewLowerPond2013 (6)

Well368OverviewLowerPond2023 (6)

Well368PipeOutfall2013 (1)

Well368PipeOutfall2023 (1)

Well368PipeOutfall2013 (2)

Well368PipeOutfall2023 (2)

Well368PupfishMarsh2013 (1)

Well368PupfishMarsh2023 (1)

Well368PupfishMarsh2013 (2)

Well368PupfishMarsh2023 (2)

Well368PupfishMarsh2013 (3)

Well368PupfishMarsh2023 (3)

Well368PupfishMarsh2013 (4)

Well368PupfishMarsh2023 (4)

Well368PupfishMarsh2013 (5)

Well368PupfishMarsh2023 (5)

Well368PupfishMarsh2013 (6)

Well368PupfishMarsh2023 (6)

Well368SouthEndPipeOutfall2013 (1)

Well368SouthEndPipeOutfall2023 (1)

Well368SouthEndPipeOutfall2013 (2)

Well368SouthEndPipeOutfall2023 (2)

Well368SouthEndPipeOutfall2013 (3)

Well368SouthEndPipeOutfall2023 (3)

Well368OverviewNew2023 (1)

Well368OverviewNew2023 (2)

Well368OverviewNew2023 (3)

Well368OverviewNew2023 (4)

Well368OverviewNew2023 (5)

Appendix 3.2. Revegetation Transect Datasheets

Date	7/25/22		Surveyor	Matt T			
Parcel	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090
Transect	61	62	63	64	65	66	67
Easting	381997	382026	382067	382092	382129	382160	382193
Northing	4142268	4142492	4142808	4142667	4142394	4142296	4142545
Bearing	40	320	120	120	40	40	320
ERNAIU		9	10			3	7
ATPU	3	10	6			6	3
SATH12	1	8	8	26 16	8	1	2
ATCA2	2	9	11	21		14	13
ACHY							2
ATO	11	3			43	8	8
BAHY		2					
HECU3		1					
SAVE4	6					2	
POFR	5						
SPAI	2						

Date	7/25/22		**Surveyor**	Matt T			
Parcel	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090
Transect	68	69	70	71	72	73	74
Easting	382229	382240	382273	382308	382332	382371	382399
Northing	4142724	4142344	4142617	4142285	4142501	4142820	4142741
Bearing	120	90	220	90	320	120	120
ATPO	☐ (9)	☒ 1 : (5)	L (6)				
SATA12	☒ ☐ (A)	L (6)	1 : (5)				
ATCA	L (6)		L (6)				
EHNA10		: (4)	☐ (8)				
HECU3			: (2)				
KRLA2		(6)					
ATC		L (7)					

Date	7/25/2022		**Surveyor**	Ryan Blaich			
Parcel	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090
Transect	61	62	63	64	65	66	67
Easting	381997	382026	382067	382092	382129	382160	382193
Northing	4142268	4142492	4142808	4142667	4142394	4142296	4142545
Bearing	40	320	120	120	40	40	320

Date	7/25/22		Surveyor	Ryan Blaich		
Parcel	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090
Transect	75	76	77	78	79	80
Easting	382424	382462	382497	382531	382540	382565
Northing	4142663	4142402	4142320	4142391	4142635	4142562
Bearing	120	220	40	320	120 (45)	220
SATR12	2	1	2	17	4	4
ATCA2	1	1	18	9	4 (3)	5
ATPO	36	5	14	14	7	38
ARTR2				4		
ERNA10		28		8		
KRLA2						4
ATTO	5				7	
MACA17					1	

Date	7/25/28		Surveyor	Ryan Blaich			
Parcel	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090	LAW090
Transect	68	69	70	71	72	73	74
Easting	382229	382240	382273	382308	382332	382371	382399
Northing	4142724	4142344	4142617	4142285	4142501	4142820	4142741
Bearing	120	40	220	40	320	120	120
ERNA10				6			
SATR12				17	2	1	
ATCA2				3	15	22	7
PSARM				1			
ATPO				3	10	18	42
KRLA2				1		4	
SPA1							5

Void

Date	7/26/22		Surveyor	Matt			
Parcel	LAW094	LAW094	LAW094	LAW094	LAW094	LAW094	LAW094
Transect	41	42	43	44	45	46	47
Easting	382289	382305	382325	382339	382349	382369	382385
Northing	4141814	4141964	4142141	4142096	4142004	4141926	4141846
Bearing	90	220	120	120	320	220	40
SATRIZ	: : (4)	1 : (5)	1 : (5)	: : (4)	: : (3)	: : (3)	L : (6)
ATCA2	☒ (10)	☒ L : (16)	☒ : : (14)	☐ (8)	☒ L : (10)		☒ L : (16)
ICRLAZ	. (1)						: : (4)
ATPO	L : (6)	L (7)	L (6)	☒ : (13)	☒ : (13)	☐ (9)	
SPAI							(1)
PSAMM						(1)	
ERNAIO						6	
ENFA						: : (4)	

Date	7/20/22		**Surveyor**	Matt J			
Parcel	LAW094	LAW094	LAW094	LAW094	LAW094	LAW094	LAW094
Transect	48	49	50	51	52	53	54
Easting	382428	382432	382437	382478	382496	382488	382515
Northing	4141892	4141963	4142061	4142147	4142088	4141971	4141887
Bearing	90	320	120	120	120	220	90
ERNA10	X (6)	L (7)					
PSARM	: (4)						
SATR12	L (6)	: (3)	: (2)				
SPAI	: (2)						
DISP	: (1)						
ATPO	: (3)	X L (13)	X L (10)				
ATCA	L (6)	: (4)	X (10)				

* Castilleja spp. also present.

* Asclepias fascicularus present at the site.

* Eriogonum fasciculatum present at site.

Date	7/26/22		Surveyor	Ryan Blanch			
Parcel	LAW094	LAW094	LAW094	LAW094	LAW094	LAW094	LAW094
Transect	48	49	50	51	52	53	54
Easting	382428	382432	382437	382478	382496	382488	382515
Northing	4141892	4141963	4142061	4142147	4142088	4141971	4141887
Bearing	40	320	120	120	120	220	40
SATR12				19	10	24	23
ATTO				4			
ATCA2				8	6		12
ATPO					9	11	
KRLA2						2	3
LETR5						3	
ERNA10						5	3
SPA1						4	2

*Leymus cinereus is present.

Date	7/26/22		Surveyor	Ryan Blaich		
Parcel	LAW094	LAW094	LAW094	LAW094	LAW094	LAW094
Transect	55	56	57	58	59	60
Easting	382562	382565	382561	382605	382618	382643
Northing	4141822	4141945	4142049	4142133	4142045	4141900
Bearing	40	320	120	120	120	320
SATR12	18	23	18	22	24	18
ATTO				9		8
ERNA10	5	4		6	8	
ENFA				3		
ATCA2	7	12	14	5	15	9
SPAI	7	4			1	3
ATPO	1		9			2
DISP		1				
KRLA2	6					

Date	7/20/22		Surveyor	SR			
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	21	22	23	24	25	26	27
Easting	381786	381858	381876	381919	381925	381952	381966
Northing	4141852	4141994	4141898	4142151	4141940	4141858	4142075
Bearing	40		40			40	
SATR12	1		4			3	
ATUA2	5					18	
SPA1	4		3			9	
ERNA10	5		10			4	
ATTU			5			3	
DISP			3			1	
ATTU			2				
LYLO			1				
LEC14			1				
Total	55		32				

3

LETRS

ATPU 25 35

AMPU 2

Date	7/20/22		**Surveyor**	Ryan Blaich			
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	21	22	23	23	25	26	27
Easting	381786	381858	381876	381919	381925	381952	381966
Northing	4141852	4141994	4141898	4142151	4141940	4141858	4142075
Bearing		220			320		
ATTO		: (2)			⁞ : (5)		
SPA1					: (1)		
ATCA2		⊠ : (12)			⊠ : (12)		
ATPO		⊠ ⊠ (20)			⊠ ⌐ (16)		
SATR12		: (2)			: (1)		
ERNA10		⁞ : (3)			(35)		
		(39)					

Date			Surveyor				
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	21	22	23	24	25	26	27
Easting	381786	381858	381876	381919	381925	381952	381966
Northing	4141852	4141994	4141898	4142151	4141940	4141858	4142075
Bearing				120			120
ERNA10				X : (12)			: (4)
ATIO				X : (2)			
ATGA2				: (2)			: (2)
SPAI							: (3)
SATRI2							: (4)
DIS8							: (2)

LECI
ENFA

Date	7/20/22		Surveyor	SR			
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	28	29	30	31	32	33	34
Easting	381987	382013	382033	382034	382054	382082	382105
Northing	4141995	4141823	4141910	4142126	4142038	4141873	4141951
Bearing		40	40			40	
DIST						" (2)	
SATM2			' (1)			" (2)	
ATTU						(9)	
ATPU		" (2)	(10)			(5)	
SPAI						" (4)	
ATCA2		" (4)	(7)			" (2)	
LEFR2						' (1)	
ERNAIU		(11)	(8)			(5)	
AMOU2		7	" (3)				
Total		(19)	(29)			(30)	

LETRS " (2)

Date			**Surveyor**				
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	28	29	30	31	32	33	34
Easting	381987	382013	382033	382034	382054	382082	382105
Northing	4141995	4141823	4141910	4142126	4142038	4141873	4141951
Bearing				120	120		
SATR12				2	9		
ATPO				5	5		
ERNA10				5			
ATCA2				3	7		

LECI

Date	7/20/22		Surveyor	Ryan Blaich			
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	28	29	30	31	32	33	34
Easting	381987	382013	382033	382034	382054	382082	382105
Northing	4141995	4141823	4141910	4142126	4142038	4141873	4141951
Bearing	220						320
SATR12	(1)						T. (6)
DISP							(1)
ERNA10	(1)						☒ ½ 10
ATPO	☒ ☒ 17 (27)						☐ (8)
ATCA2	T. (6)						☒ (11)
ATTO	(3)						(0)
SPA1	(1)						(37)
~~LEC1~~	(39)						

LETRS
DISP

Date	07/20/22		Surveyor	Ryan Blaich		
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	35	36	37	38	39	40
Easting	382117	382157	382164	382188	382208	382222
Northing	4142113	4142170	4141922	4141835	4141952	4142070
Bearing			220		320	
SATR12			10		9	
ATCA2			8		9	
ATPO			3		16	
ERNA10			2		34	
ATTO			3			
			26			

Date	7/20/22		Surveyor	SK		
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	35	36	37	38	39	40
Easting	382117	382157	382164	382188	382208	382222
Northing	4142113	4142170	4141922	4141835	4141952	4142070
Bearing				40		
SATM12				(15)		
ATCA2				(7)		
ERNA10				(3)		
PISP				(2)		
ATPO				(4)		
Totzl				(31)		

Date			**Surveyor**			
Parcel	LAW095	LAW095	LAW095	LAW095	LAW095	LAW095
Transect	35	36	37	38	39	40
Easting	382117	382157	382164	382188	382208	382222
Northing	4142113	4142170	4141922	4141835	4141952	4142070
Bearing	120	120				120
SATR12	☒ L: (6)	☒ : (13)				☒ : (14)
ATCA2	☒ (10)	L: (6)				L (8)
ATTO		L (7)				
ATTO						1: (5)

SR, JZ

Date	9/18/23		Surveyor				
Parcel	LAW118	LAW118	LAW118	LAW118	LAW118	LAW118	LAW118
Transect	1	2	3	4	5	6	7
Easting	382988	382956	382993	382955	383004	383133	383226
Northing	4138809	4138878	4138945	4139001	4139070	4139138	4139183
Bearing	**320**	**40**	**320**	**40**	**320**	**40**	**120**
ERNA10	50	37	2	23	16	13	14
ATCA2	6	29	22	25	35	15	14
DISP	2						
ERNA10	22 50 72						
SATRI2	39	58	52	36	18	52	46
IVAX	4	3		2			
SPAR		2					
ATRO			6		5	5	8
ACHY					1		
STPA4						1	
ERDE6						1	1
SYAS3							

Date			Surveyor				
Parcel	LAW118	LAW118	LAW118	LAW118	LAW118	LAW118	LAW118
Transect	8	9	10	11	12	13	14
Easting	383310	383395	383472	383539	383586	383543	383568
Northing	4139195	4139183	4139177	4139139	4139087	4139015	4138948
Bearing	**120**	**40**	**40**	**40**	**320**	**40**	**320**
ERC16	1 (1)						
COARSE	1 (1)						
LACO13	5+2 (7)						
SATR12	23	38	46				
KALA2	1 (1)						
ERNIO	5+2 (12)	5+2 (17)	5+1 (6)				
ATCA2	5+1 (6)						
ARTR		2					
ATPO		1 1	5 (5)				
VIAX			3 (3)				

Date	9/18/23		**Surveyor**	SR			
Parcel	LAW118	LAW118	LAW118	LAW118	LAW118	LAW118	LAW118
Transect	8	9	10	11	12	13	14
Easting	383310	383395	383472	383539	383586	383543	383568
Northing	4139195	4139183	4139177	4139139	4139087	4139015	4138948
Bearing	**120**	**40**	**40**	**40**	**320**	**40**	**320**
ATPO				[illegible] (42)	47 [illegible] (73)	[illegible] (54)	[illegible] 15 (45)
SATR12				[illegible] (23)	[illegible] (5)	[illegible] (4)	[illegible] (9)
ERDE6					[illegible] (11)	[illegible] (16)	[illegible] (11)

Date	9/18/23		Surveyor	SR		
Parcel	LAW118					
Transect	15					
Easting	383528					
Northing	4138851					
Bearing	**40**					
ATPO	[illegible] (38)					
SATR12	[illegible] (22)					

ACHY
LYCO

Fix plots
Read Bearings

Date 7/20/22			Surveyor SR				
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	1	2	3	4	5	6	7
Easting	382981	383014	383041	383066	383099	383124	383144
Northing	4139074	4138826	4138959	4139101	4138849	4138958	4139070
Bearing	~~220~~ 120			120			120
ERNA10	22			18			1
ATCA2	8						9
FATR12	3			10			11
IVAX	1						
COCA5				5			1
ATPO				4			11
BindCOAR4 weed				4			1
MEOF				1			
SPA1				2			
Total	34			44			37

FRLA

3

120, Indian rice grass
ACHY
Lycium cooperi

Date	7/20/22		Surveyor	Ryan Black			
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	1	2	3	4	5	6	7
Easting	382981	383014	383041	383066	383099	383124	383144
Northing	4139074	4138826	4138959	4139101	4138849	4138958	4139070
Bearing			270			360	
SATR12			3			3	
ATPO			2				
ERNA10			37			21	
ATCA2			1			15	
ATPO			7			5	
			50			44	

120 for N

220 + 320 for Middle

40 for S

Lycium cooperi

Date	7/20/22		Surveyor	Matt T			
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	1	2	3	4	5	6	7
Easting	382981	383014	383041	383066	383099	383124	383144
Northing	4139074	4138826	4138959	4139101	4138849	4138958	4139070
Bearing		40			40		
ERNA10		(36) ☒ ☒ ☒			☒ : (13)		
ATCA2					☒ : (12)		
SATA12					: (3)		

Date	7/20/22		**Surveyor**	Matt T			
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	8	9	10	11	12	13	14
Easting	383185	383212	383223	383278	383296	383328	383359
Northing	4138885	4138957	4139132	4138829	4138957	4139089	4138884
Bearing	90			90			40
COAG4				: (3)			
ATCA2	☒ : (1)						
ELNA10	☒ L (17)			☒ ☒ : (22)		(59) ☒	☒ ☒ ☒ ☒ ☒
ATPO	: (3)			L : (6)			
CLLV32				: (2)			
IVAX							: (2)

Date	7/20/22		Surveyor	Ryan Blaich			
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	8	9	10	11	12	13	14
Easting	383185	383212	383223	383278	383296	383328	383359
Northing	4138885	4138957	4139132	4138829	4138957	4139089	4138884
Bearing		270			320		
ATCA2		☒ : 13			: (2)		
ERNA10		☒ ☒ : 22			: (3)		
ATPO		☐ 7			☒ ☒ ☐ (26)		
DISP		1					
SATR12		1			☒ (11)		
COAR4		(43)			(1) (43)		

Date	7/20/22		Surveyor	SR			
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	8	9	10	11	12	13	14
Easting	383185	383212	383223	383278	383296	383328	383359
Northing	4138885	4138957	4139132	4138829	4138957	4139089	4138884
Bearing			120			120	
ATPO			: 2				
ATCA			⊠ ⊠ ⊠ 29				
ELWA10			: 1			□ 31 39	
SATR12						: 1	
Total			33			40	

Date	7/20/22		**Surveyor**	Ryan Blaich		
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	15	16	17	18	19	20
Easting	383380	383401	383444	383472	383486	383501
Northing	4138957	4139160	4138840	4138957	4139117	4138890
Bearing	220			320		
ERNAIO	☒☒☒☒☒☐ (68)			☒☒☒☐	(37)	
KRLA2	(1)					
SATR12				(2)		
	(69)			(39)		

LEFR
ENFA

Date	7/20/22		Surveyor	SR		
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	15	16	17	18	19	20
Easting	383380	383401	383444	383472	383486	383501
Northing	4138957	4139160	4138840	4138957	4139117	4138890
Bearing		120			120	
SATM2		(10)			(6)	
ATTO		(1)				
ENWA10		(7)			(3)	
Bindwood		(1)				
ATPO					(6)	
ATCA					(9) (8)	
Total		(19)			(24)	

Date	7/20/22		**Surveyor**	Matt T		
Parcel	LAW129	LAW129	LAW129	LAW129	LAW129	LAW129
Transect	15	16	17	18	19	20
Easting	383380	383401	383444	383472	383486	383501
Northing	4138957	4139160	4138840	4138957	4139117	4138890
Bearing			40			40
ERNAD			☒☒ 20			: 3
SATAR			1			☒☒ : 24
ATCA2						: 3
ATPU						: 1
ATTO						: 1

Appendix 3.3. Revegetation Transect Photos

LAW090_61

LAW090_63

LAW090_64

LAW090_65

LAW090_66

LAW090_67

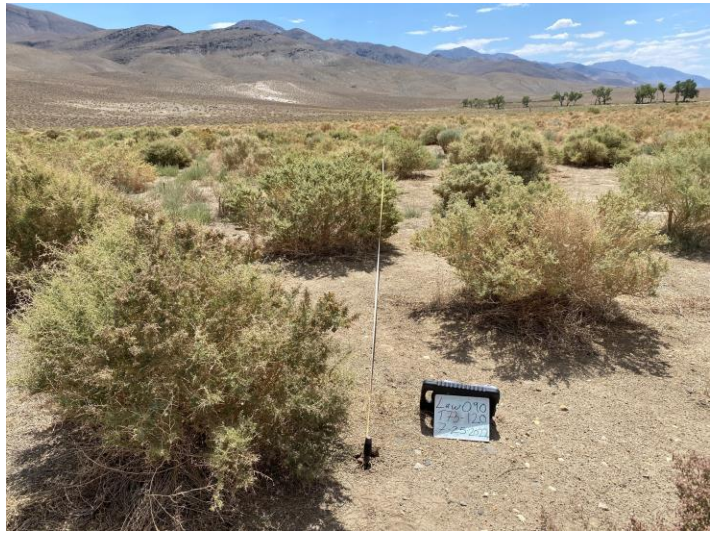
LAW090_68

LAW090_69

LAW090_70

LAW090_71

LAW090_72



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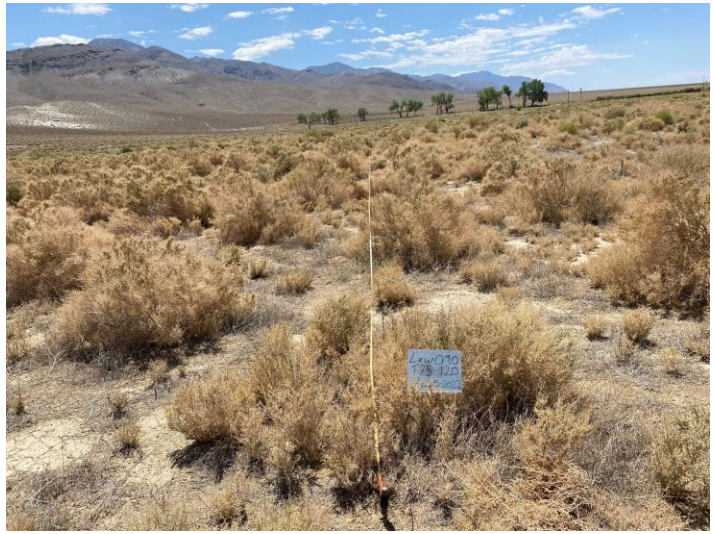

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LAW090_76

LAW090_77

LAW090_78

LAW090_79

LAW090_80

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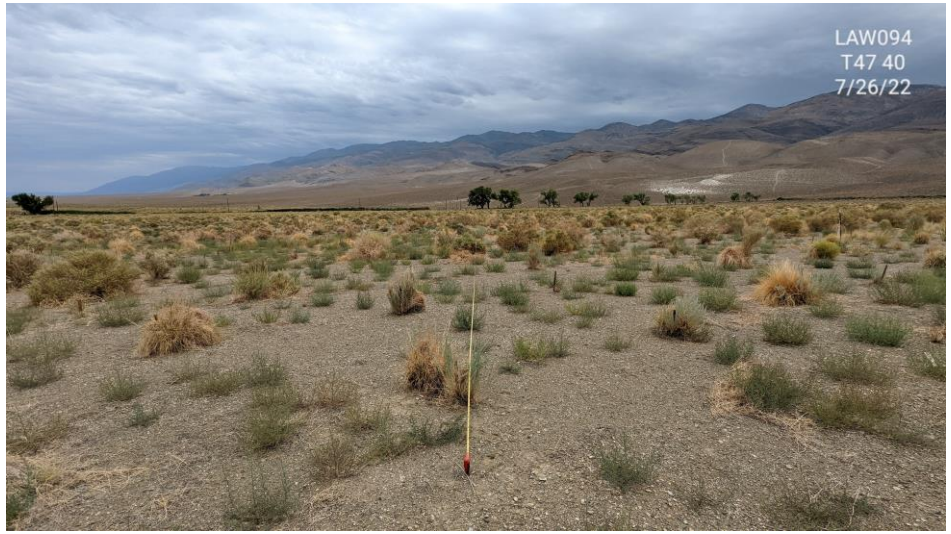
LAW094_45

LAW094_46



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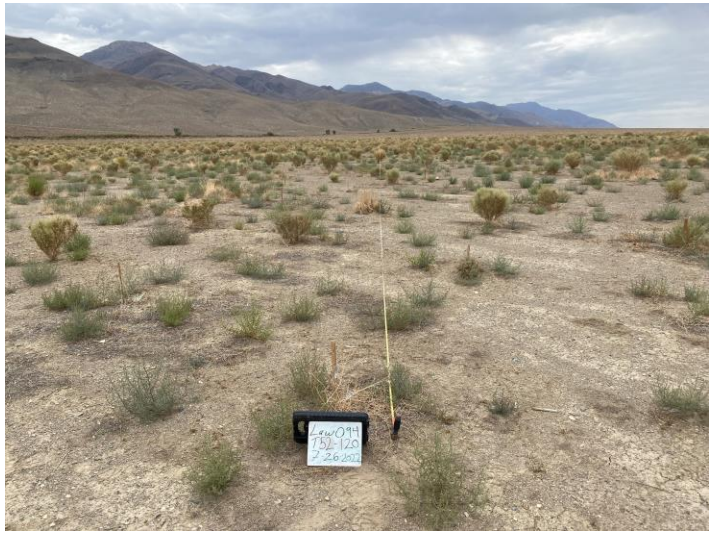
LAW094_49

LAW094_50

LAW094_51



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LAW094_54

LAW094_55

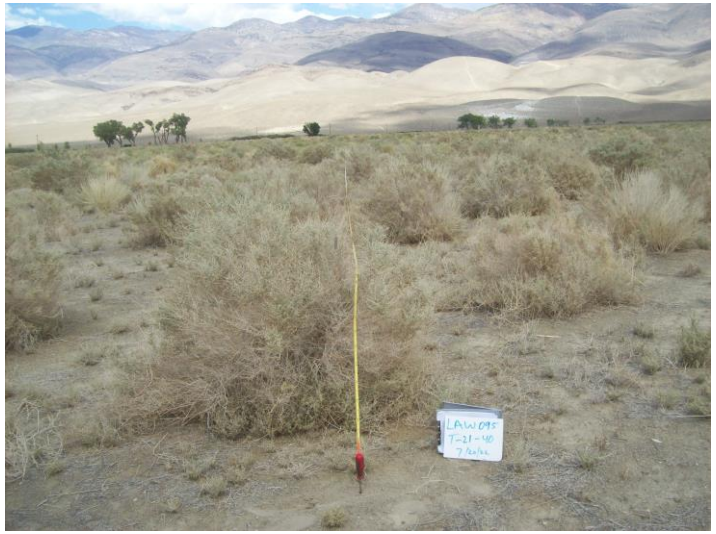
LAW094_56

LAW094_57

LAW094_58

LAW094_59

LAW094_60



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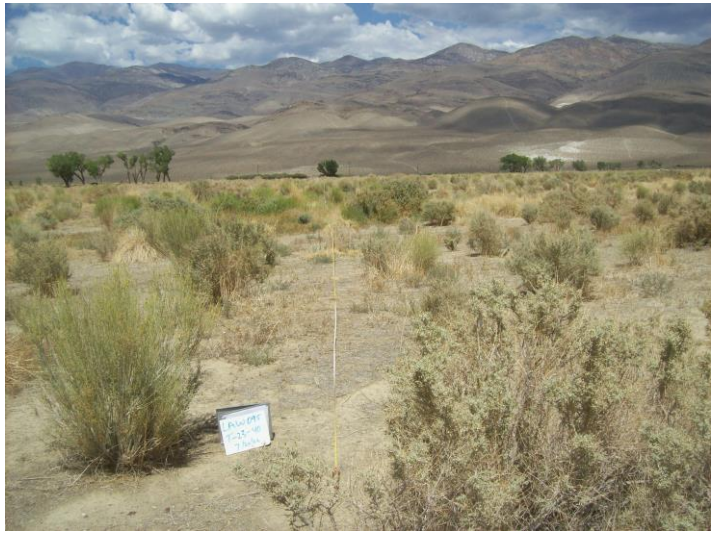

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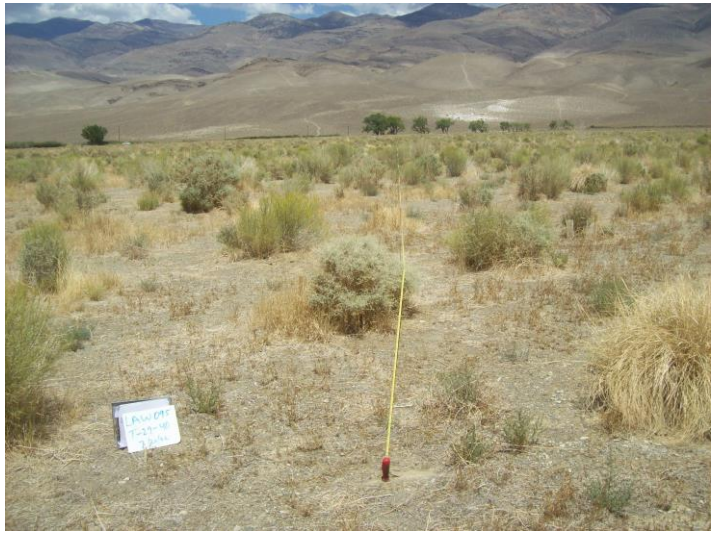
LAW095_26

LAW095_27

LAW095_28



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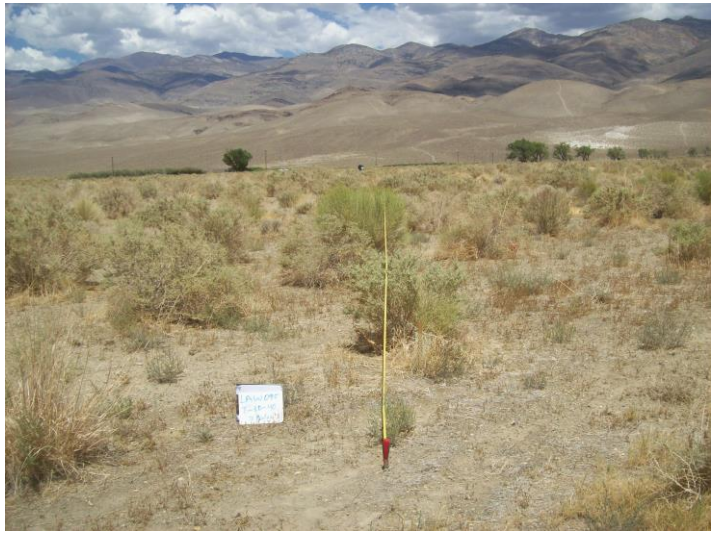

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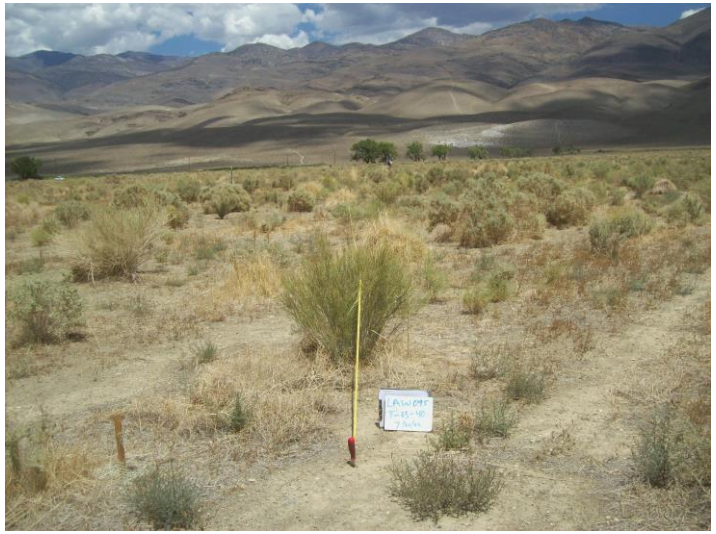

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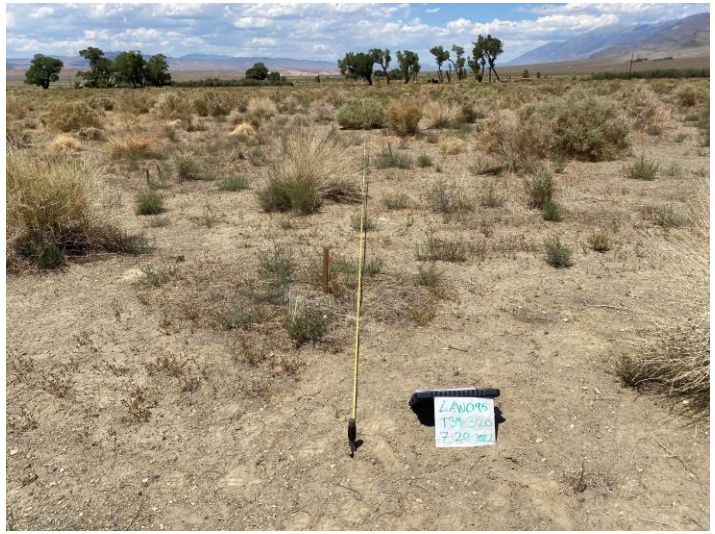
LAW095_35

LAW095_36

LAW095_37

LAW095_38



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LAW095_40

LAW118_01

LAW118_02

LAW118_03

LAW118_04

LAW118_05

LAW118_06

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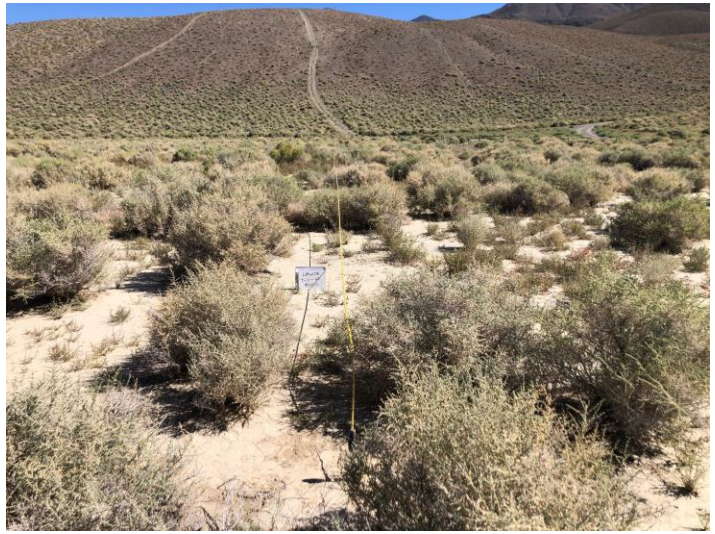
LAW118_09

LAW118_10



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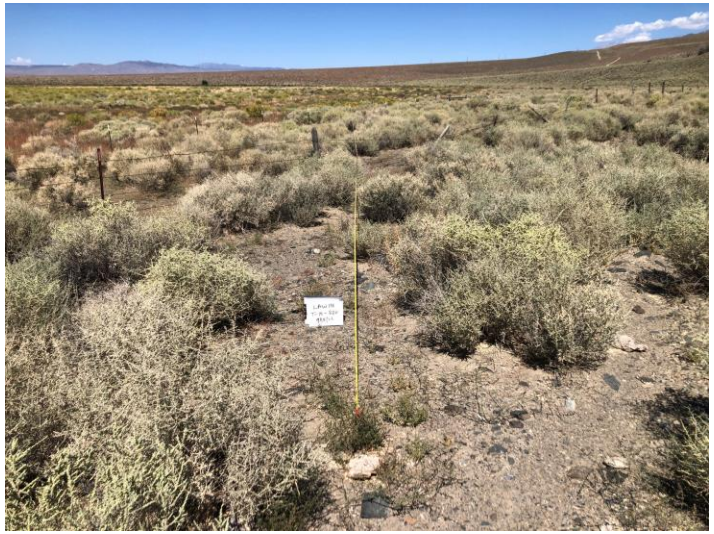
LAW118_12

LAW118_13



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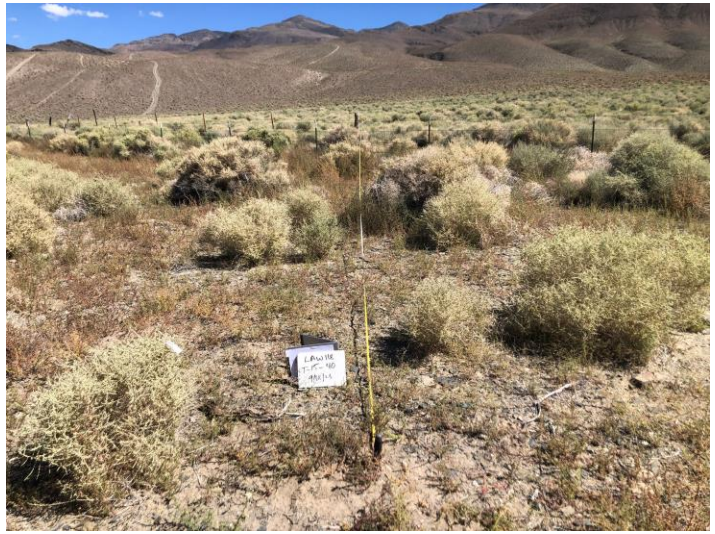

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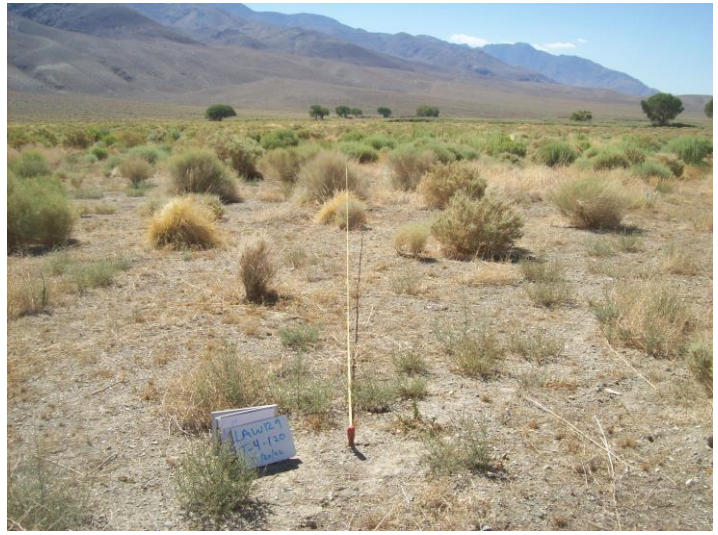
LAW129_01

LAW129_02

LAW129_03



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LAW129_08

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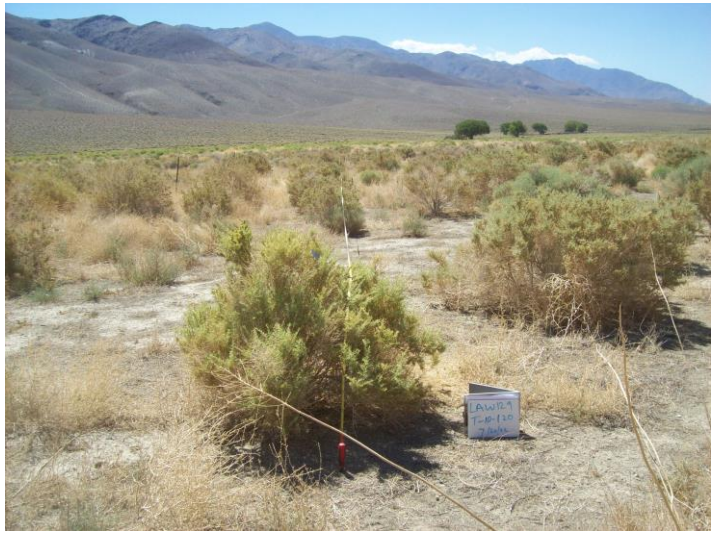

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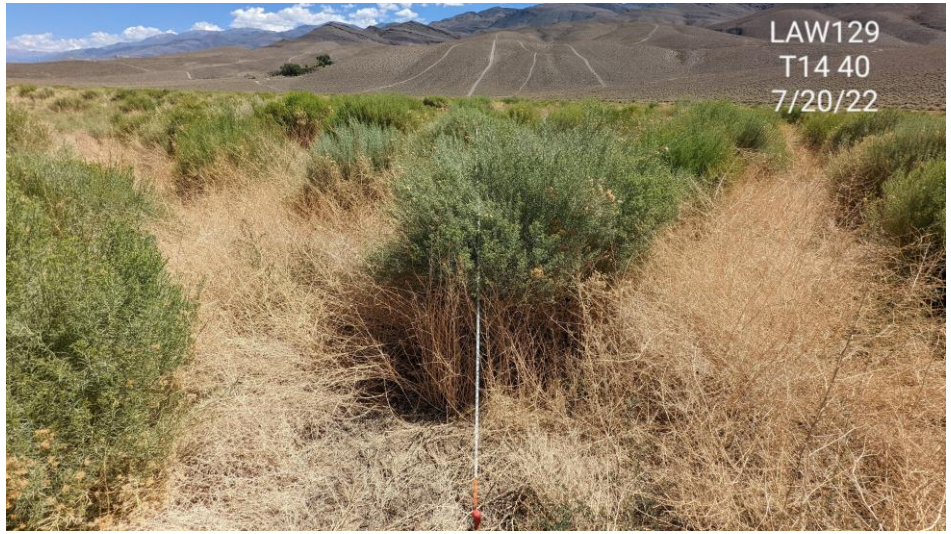
LAW129_11

LAW129_12

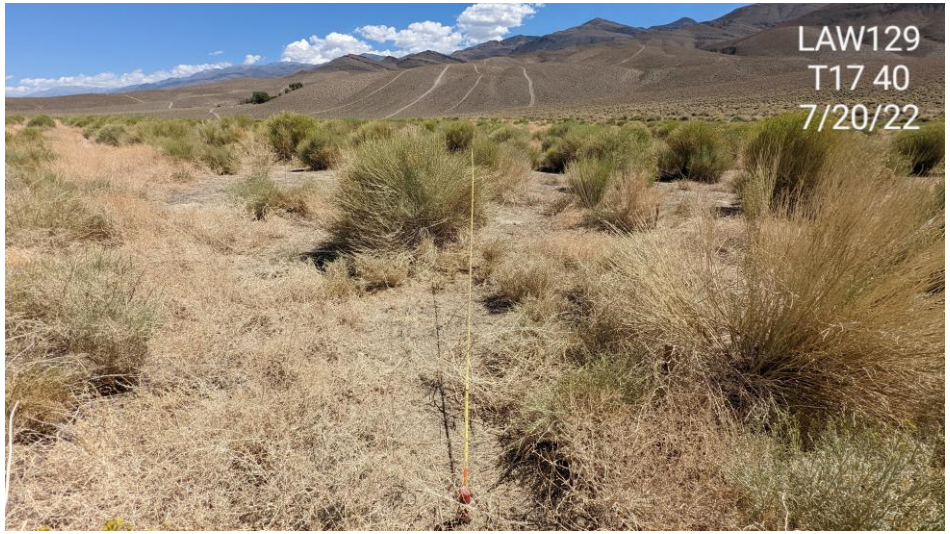
LAW129_13



LAW129_14

LAW129_15

LAW129_16



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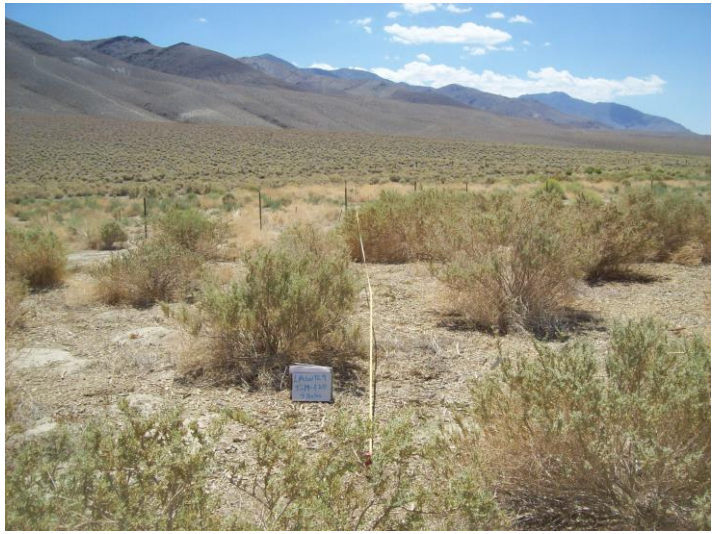
LAW129_18



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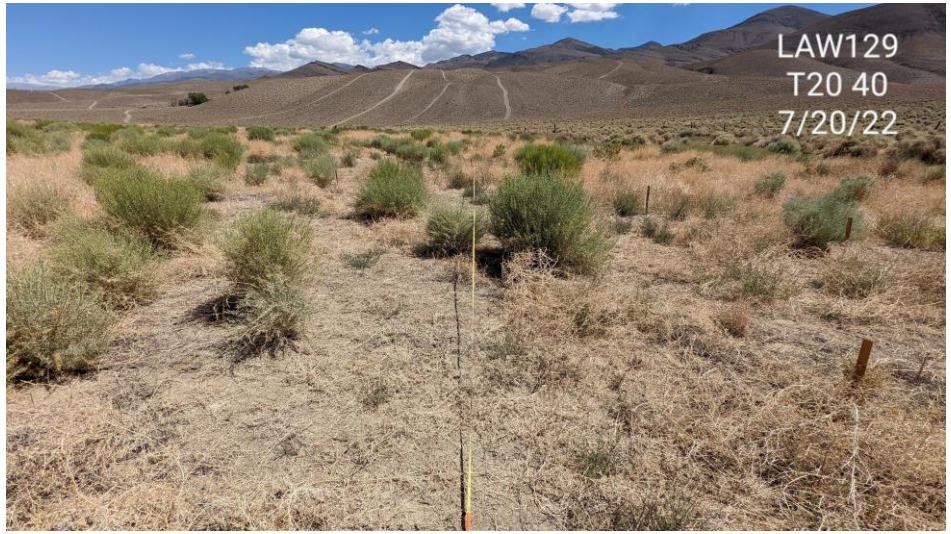
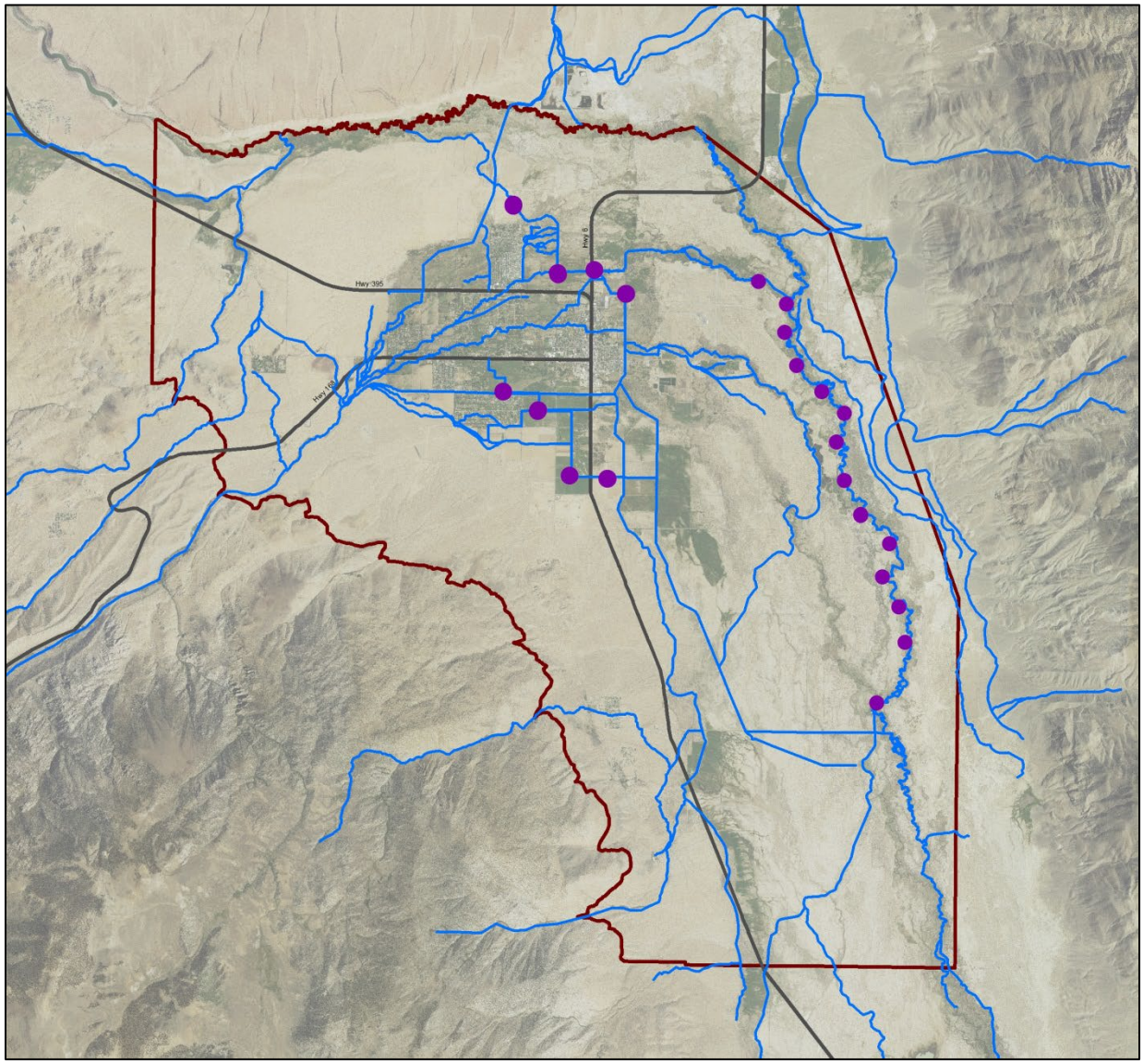


LAW129_20

THE BISHOP CONE AUDIT
FOR THE 2022-23 RUNOFF YEAR



Inyo County Water Department
Final
October 2023

4.0. APPENDICES

Appendix *A*. *Bishop Cone Audit 2022-23 RY*

THE BISHOP CONE AUDIT
FOR THE 2022-23 RUNOFF YEAR

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FIGURES & MAP

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THE BISHOP CONE AUDIT
FOR THE 2022-23 RUNOFF YEAR

1.0 INTRODUCTION

The Bishop Cone Audit (Audit or BCA) is an annual comparison between Los Angeles Department of Water and Power's (LADWP) water usage on Los Angeles-owned lands on the Bishop Cone and its amount of groundwater extraction from wells on the Bishop Cone (Cone). The Bishop Cone Audit is required by the Inyo County/Los Angeles Long-Term Water Agreement (Water Agreement). The "Bishop Cone" is a reference to the legally defined area in the 1940 Hillside Decree which incorporates most of the Bishop Creek alluvial fan along with a portion of the northern Owens Valley from Bishop south towards Big Pine (Map 1). The Water Agreement and the Green Book (the technical appendix to the Water Agreement) define the terms, conditions, and procedures of the Bishop Cone Audit. Inyo County Water Department (ICWD) staff compiles the Bishop Cone Audit from data provided by LADWP. The Audit sums pumping and flowing well amounts and compares those totals to water use on Los Angeles-owned land during a given runoff year (April 1 to March 31) to determine whether LADWP's groundwater extractions exceed its surface water uses on the Bishop Cone.

2.0 BACKGROUND

The City of Los Angeles owns prior appropriative surface water rights in the Bishop area. Los Angeles also owns groundwater rights on the Bishop Cone as a consequence of its ownership of overlying land. A system of ditches and canals exists to convey surface water from Bishop Creek and the Owens River, as well as groundwater pumped from LADWP wells, to irrigated land throughout the Bishop Cone, with some water exiting the Cone. In 1930 and 1931, Los Angeles extracted groundwater from wells on the Bishop Cone for the purpose of export to Los Angeles. This export of groundwater was challenged by local residents, and in the 1940 Hillside Decree, Los Angeles agreed not to pump groundwater for the purpose of export off the Bishop Cone.

Relevant language of the 1940 Hillside Decree is presented below (a link to the entire decree can be found at the ICWD's website at www.inyowater.org/documents/hillside-decree-1940/):

XI

That the defendants [LADWP]*, their servants, agents, employees, and assigns, and each of them, be, and they are hereby, enjoined, prohibited, and restrained from in any manner whatsoever pumping, extracting, taking, or transporting out of the Bishop Cone area any subterranean waters from beneath said area: provided, however, that nothing in this judgment contained shall in any manner enjoin, prohibit, or restrain the defendants, their servants, agents, employees, assigns, or any of them, from maintaining or operating their presently–existing drainage ditches to the full extent of their present normal capacity, or from taking artesian water that may arise to the surface of said area outside the casings of any of defendants' capped wells, or from pumping, extracting, taking, or using any such water as may be reasonably necessary for beneficial use upon any lands belonging to the defendants, …..*

In 1972, Inyo County filed a California Environmental Quality Act suit claiming that increased groundwater pumping by LADWP was harming the environment of the Owens Valley and demanding that an Environmental Impact Report (EIR) be completed to analyze the effects of this increased pumping. After numerous legal challenges and negotiations, in 1991 an EIR was approved for LADWP's groundwater pumping, and a long-term groundwater management plan was agreed upon by Inyo County and LADWP. Section VII.A of the 1991 Water Agreement addresses the Bishop Cone and Hillside Decree with relevant language quoted below (full text of the 1991 EIR, the Water Agreement and the Greenbook can be found at the ICWD's website at http://www.inyowater.org/documents/governing-documents/):

"*Before the Department* [LADWP] *may increase groundwater pumping above present levels, or construct any new wells on the* [Bishop] *Cone, the Technical Group must agree on a method for determining the exact amount of water annually used on Los Angeles-owned lands on the Cone. The agreed upon method shall be based on a jointly conducted audit of such water uses. The Department's annual groundwater extractions from the Cone shall be limited to an amount not greater than the total amount of water used on Los Angeles-owned lands on the cone during that year*." (Water Agreement Section VII.A, Appendix A)

At its October 17, 1995, meeting, the Technical Group agreed to recommend to the Inyo County/Los Angeles Standing Committee the description of a Bishop Cone Audit procedure to be incorporated into the Green Book. The Standing Committee adopted the agreed-upon Bishop Cone Audit procedure on November 7, 1996, as Section IV.D of the Green Book.

Section IV.D.1.a. of the Green Book (Appendix B) states: *"For the purposes of the Bishop Cone audit, water usage on Los Angeles-owned land on the Bishop Cone is defined as the quantity of water supplied to such land, including conveyance losses, less any return flow to the aqueduct system. Water usage is documented on a runoff-year basis and is compiled by LADWP each May in the Bishop Area Water Use Report* [Bishop Cone Audit Uses Report]*."*

In theory, compliance with the Water Agreement and the Green Book is simple: LADWP can only extract groundwater to be used on its lands and leases on the Bishop Cone with no flow leaving the system. In a simplified, hypothetical situation, LADWP would have groundwater extraction wells at the "top" of the cone which would provide surface water to ditches running downhill to its lands and leases. Upon reaching the "lowest" land, no surface water would leave. However, there are many practical factors that dictate and complicate how the Bishop Cone Audit accounts for LADWP extractions and uses. Some of these factors are: the Bishop Cone topography (generally sloping west to east in the Bishop area, and north to south from Bishop towards Big Pine), the location of LADWP-owned lands throughout the Bishop Cone area, the location of LADWP's groundwater extraction wells (in central Bishop), the location of LADWP's flowing wells (east of Bishop adjacent to the Owens River), the location of the various ditch and canal systems used to convey water in the Bishop Cone, and operational necessities for conveying surface water both on and off the Bishop Cone.

To illustrate further, the primary source of water available for use on LADWP lands in the topographically higher west Bishop area of the cone is LADWP surface water from Bishop Creek that is diverted into various ditches for irrigation (use) on LADWP-owned land. Groundwater pumped from LADWP wells in central Bishop supplements the remaining Bishop

Creek surface water. The now commingled surface and groundwater flows east and south and is used on LADWP land in the central and southern portions of the Cone. Groundwater extracted from flowing wells provides water to the Owens River for export and/or downstream uses in the Owens Valley. Some mixture of surface and groundwater also leaves the Bishop Cone either in canals or the Owens River.

Prior to the adoption of the Water Agreement, several methods were researched to determine the best procedure for tracking LADWP's uses and extractions on the Bishop Cone. A final method was selected which compares the sum of pumped groundwater from production wells and flowing groundwater from artesian wells (extractions) to surface water applied to LADWP-owned lands on the Cone (uses). To determine the total uses, a lease-wise approach was selected which tracks the difference between water coming onto a given LADWP lease and the water (if any) that exits that lease to return to the conveyance system (ditch, canal, creek, or river). LADWP supplies a listing of surface water uses by each individual lease account in its annual Bishop Cone Audit Uses Report (Use Report). Credit for a use is granted on accounts that have been agreed to and inspected by ICWD staff. A combination of monitoring devices is used to track extractions and uses on the Bishop Cone, including flumes, weirs, and propeller meters. Flow measurements are taken either manually or continuously using data-logging devices at these sites.

It is important to note that the Bishop Cone Audit does not attempt to compute a complete surface or groundwater budget. Its purpose is to monitor compliance with the dictates of the Water Agreement, the Green Book, and the legal interpretations of the Hillside Decree. The Audit compares LADWP's total water uses to groundwater extractions during a given runoff year. ICWD staff gave a presentation on the Bishop Cone Audit to the Inyo County Water Commission on December 7, 2016, explaining the principles of the BCA in detail. A copy of the PowerPoint presented at the ICWC meeting can be found on the ICWD website: http://www.inyowater.org/wp-content/uploads/2016/12/Bishop-Cone-Audit-12_7_16.pdf

3.0 WATER USES ON LADWP-OWNED LAND ON THE BISHOP CONE

The location of the Bishop Cone and the pumping and flowing wells on the Bishop Cone are shown in Map 1. Also shown on Map 1 are the general locations of the LADWP-owned lease accounts used in the Bishop Cone Audit Uses Report (Appendix C).

Table 1 is a compilation of water usage by account number in acre-feet (AF) on LADWP-owned land on the Bishop Cone for the runoff years of 2021-22 and 2022-23. These water-usage amounts are a yearly total of the surface water (and commingled pumped groundwater) coming onto a given lease minus the surface water leaving the lease. Overall, there was an increase in total water use on the Bishop Cone of 1,080 AF from 2021-22 (26,259 AF) to 2022-23 (27,339 AF). Runoff in 2021-22 was severely below average (45%) and, due to low flows in Bishop Creek, many parcels were unable to have full irrigation amounts supplied. Runoff in 2022-23 was 57% of average, and water uses were closer to their long-term averages.

Map 1. Bishop Cone Audit Features

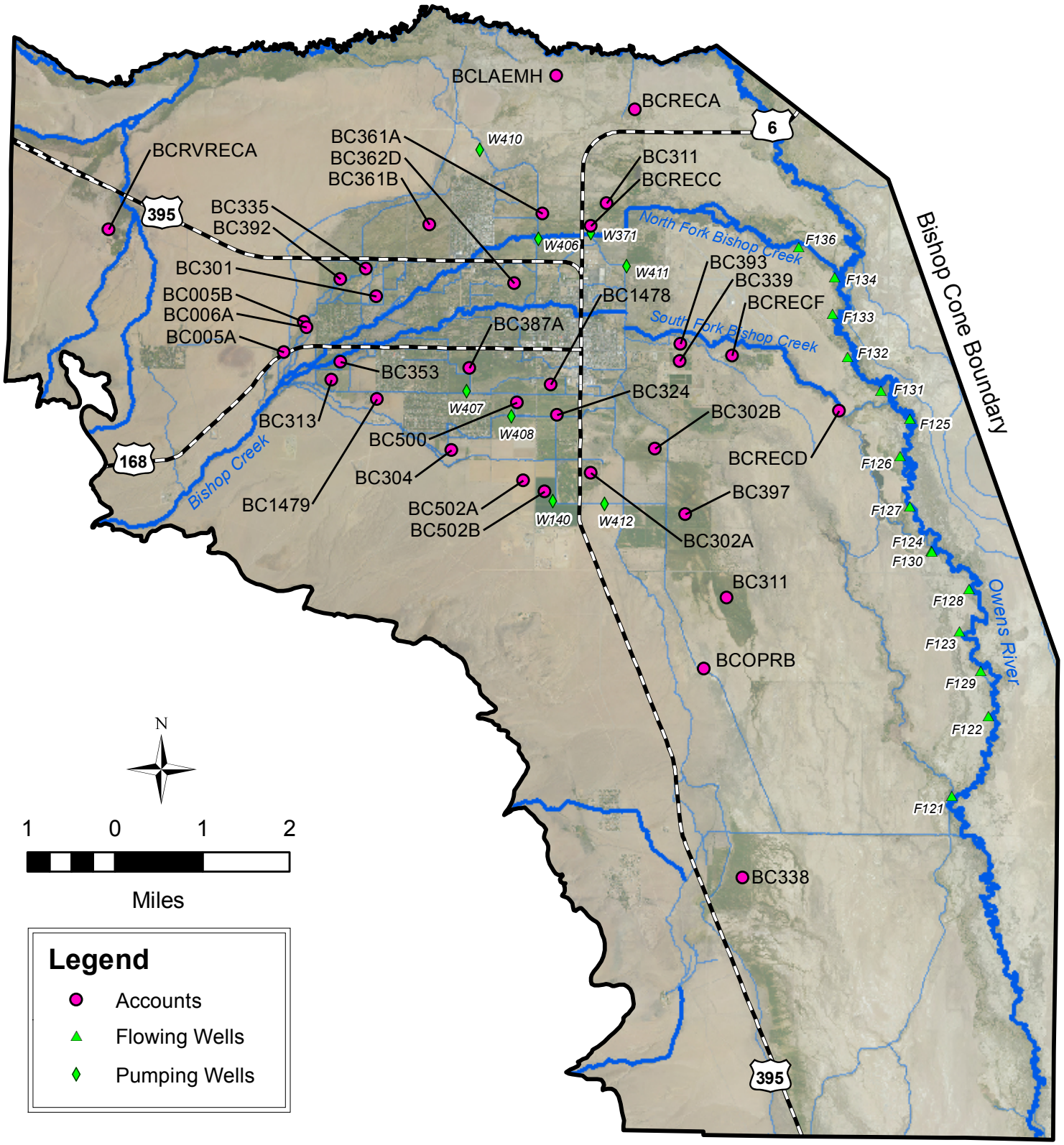


TABLE 1
WATER USES ON LOS ANGELES-OWNED LAND ON THE BISHOP CONE

LADWP ACCOUNT NUMBER*2	RUNOFF YEAR*1 2021-2022 (AF)	RUNOFF YEAR*1 2022-2023 (AF)
BC502B (BA354B or BA362B)	631	828
BC302A	144	203
BC302B	1296	1598
BC311	3331	3867
BC313	821	894
BC324	1464	1175
BC1478 (BAICR) *2	439	442
BC387A	428	687
BCRECF	591	567
BC339	275	352
BC393	106	101
BC362D	(No Credit) *3	(No Credit) *3
BC304	232	198
BC500	818	638
BC397 (BA387B) *2	3143	4000
BC361A	1224	696
BC361B	2671	1696
BC502A (BA354A or 362A) *2	955	479
BCRECA	342	942
BCRECC	0	3
BCRECD	2559	2250
BC338	3085	3660
BCOPRB	0	436
BCLAEMH	353	482
BC353	337	391
BC005A	54	39
BC005B	49	88
BC006A	141	102
BC1479 (BA342) *2	58	35
BC392	(No Credit) *3	(No Credit) *3
BC301	579	438
BC335	133	53
BCRVRECA	(No Credit) *3	(No Credit) *3
TOTAL	**26,259**	**27,339**

*1 - A runoff year is defined as starting April 1 and ending March 31 of the following year.

*2 - Former account names listed in parenthesis; in 2015/16 “BA” prefix was changed to “BC”

*3 - Accounts need additional monitoring or diversion infrastructure to establish credit.

During fall 2016 through winter 2017, joint field visits to the active BCA accounts were conducted by ICWD and LADWP staff. Based on these visits, and as a result of observations and discussion of past infrastructure workings, several accounts were either granted or denied credit for the 2016/17 Audit. The accounts denied credit for 2016/17 were: BC362D, BC392, and BCRVRECA. At these three sites, ICWD staff deemed there to be insufficient flow monitoring, potentially allowing unmetered water to affect the accounts without proper quantification. ICWD staff visited these BCA accounts in 2023, and no additional flow monitoring devices have been installed at these accounts. Therefore, BC362D, BC392, and BCRVRECA were not granted credit in the current year.

Also based on the 2016/17 field inspections, the method for calculating use on a given account for the purpose of the BCA was changed. Prior to 2015/16, LADWP used Stockwater and Ditch Loss as credits to its lessees to distinguish between surface water used for irrigation and not used for irrigation. However, the Audit's water balance is to determine the total amount of water used on the Bishop Cone between metering devices. The defined scope of the Audit does not differentiate how the water is used (stockwater or irrigation). Stockwater for the purpose of this Audit is simply surface water supplied to a parcel during the year for stock instead of irrigation to grow plants; it is a distinction made by LADWP for the lessees but is a "use" for the purpose of the Audit with properly metered water flowing through diversions onto an account and not exiting the account. Ditch Loss is a similar accounting distinction made by LADWP and its lessees; it is an estimation of the water that seeps into the ground from the Account's metering device location prior to arriving at the actual surface water diversion point on the lease (these are sometimes large distances apart). The Ditch Losses are credited to the lessee to reflect water that cannot be used for irrigation. This water, however, is a use for purposes of the BCA. The Stockwater and Ditch Loss estimates from previous BCA's (prior to 2015/16) have been replaced with the more rigorous and accurate calculation of subtracting flow onto each account from flow off of that account.

The data reporting format used by LADWP for the BCA has also been updated with approval from ICWD staff. The updated Use Report contained in Appendix C has been simplified by removing LADWP's internal, lessee-related notations. The new Use Report now contains totals of water entering and leaving a lease (the pertinent information for conducting the Audit). All flow monitoring stations were inspected during the 2016/17 field campaign.

Finally, ICWD staff continues to receive the previous LADWP version of the Use Report to check for historic consistency. The changes in adding Stockwater and Ditch Loss credits for BCA reporting are the primary reason 2015-16 uses were substantially greater than 2014-15 uses. The additional increase in use between 2015-16 and 2016-17 is primarily due to increased surface water availability due to a moderately wet runoff year combined with operational spreading in early 2017. The increase in use from 2016-17 to 2017-18 is due to heavy runoff following the historic winter (appx. 200% of long-term average). As noted previously, LADWP actively spread surface water throughout the Owens Valley; and a significant amount of surface water was spread throughout the Bishop Cone.

4.0 TOTAL LADWP GROUNDWATER EXTRACTION ON LADWP-OWNED LAND ON THE BISHOP CONE FOR RUNOFF YEARS 2021-22 AND 2022-23

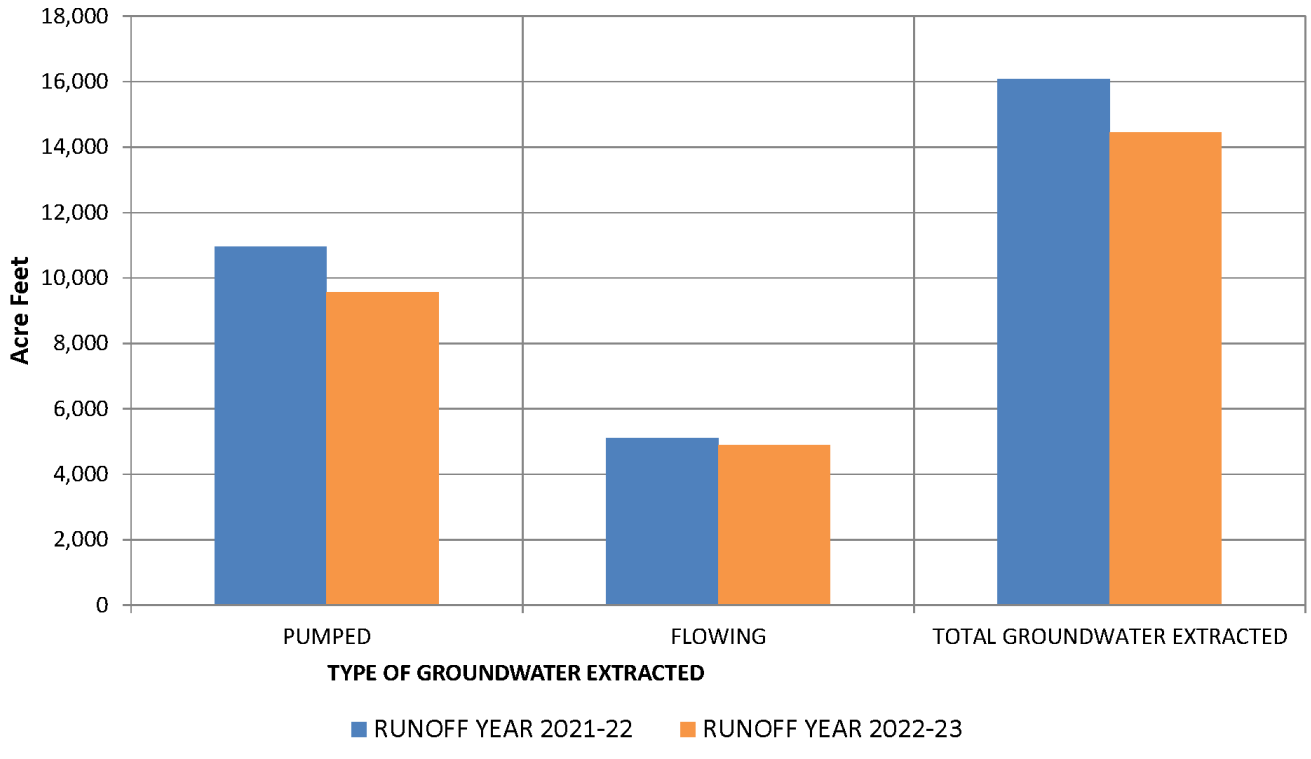
Section IV.D.1.d of the Green Book (Appendix B) states: "*Total groundwater extraction by LADWP will be compared with corrected water usage on the Bishop Cone for the runoff year. Total groundwater extraction is defined as the sum of all groundwater pumped by LADWP plus the amount of artesian water that flowed out of LADWP uncapped wells on the Bishop Cone during the runoff year*."

Figure 1 presents the total amount of LADWP groundwater extraction and the groundwater extraction classified as flowing and pumped groundwater on the Bishop Cone in acre-feet for runoff years of 2021-22 and 2022-23.

For runoff year 2021-22, LADWP extracted 16,081 AF of groundwater (10,969 AF from pumped wells and 5,112 AF from flowing wells). For runoff year 2022-23, LADWP extracted 14,453 AF of groundwater (9,566 AF from pumped wells and 4,887 AF from flowing wells).

LADWP groundwater extractions on the Bishop Cone for the 2022-23 runoff year decreased by 1,628 AF compared to the previous year. Both years were below average runoff.

FIGURE 1. TYPE OF LADWP GROUNDWATER AND TOTAL GROUNDWATER EXTRACTION ON THE BISHOP CONE FOR RUNOFF YEARS 2021-22 AND 2022-2023



Flowing and pumped groundwater on the Bishop Cone are broken into detail by each well in Table 2.

TABLE 2
FLOWING AND PUMPED GROUNDWATER BY WELL ON THE BISHOP CONE IN RUNOFF YEAR 2022-23

WELL	FLOWING GROUNDWATER (AF)	PUMPED GROUNDWATER (AF)
F121	36	NA
F122	71	NA
F123	151	NA
F124	0	NA
F125	1,049	NA
F126	370	NA
F127	413	NA
F128	263	NA
F129	103	NA
F130	357	NA
F131	819	NA
F132	320	NA
F133	250	NA
F134	603	NA
F136	81	NA
W140	NA	1,394
W371	NA	904
W406	NA	1,095
W407	NA	955
W408	NA	834
W410	NA	1,584
W411	NA	1,466
W412	NA	1,334
TOTAL	**4,887**	**9,566**

5.0 COMPLIANCE WITH THE INYO COUNTY/LOS ANGELES LONG-TERM WATER AGREEMENT

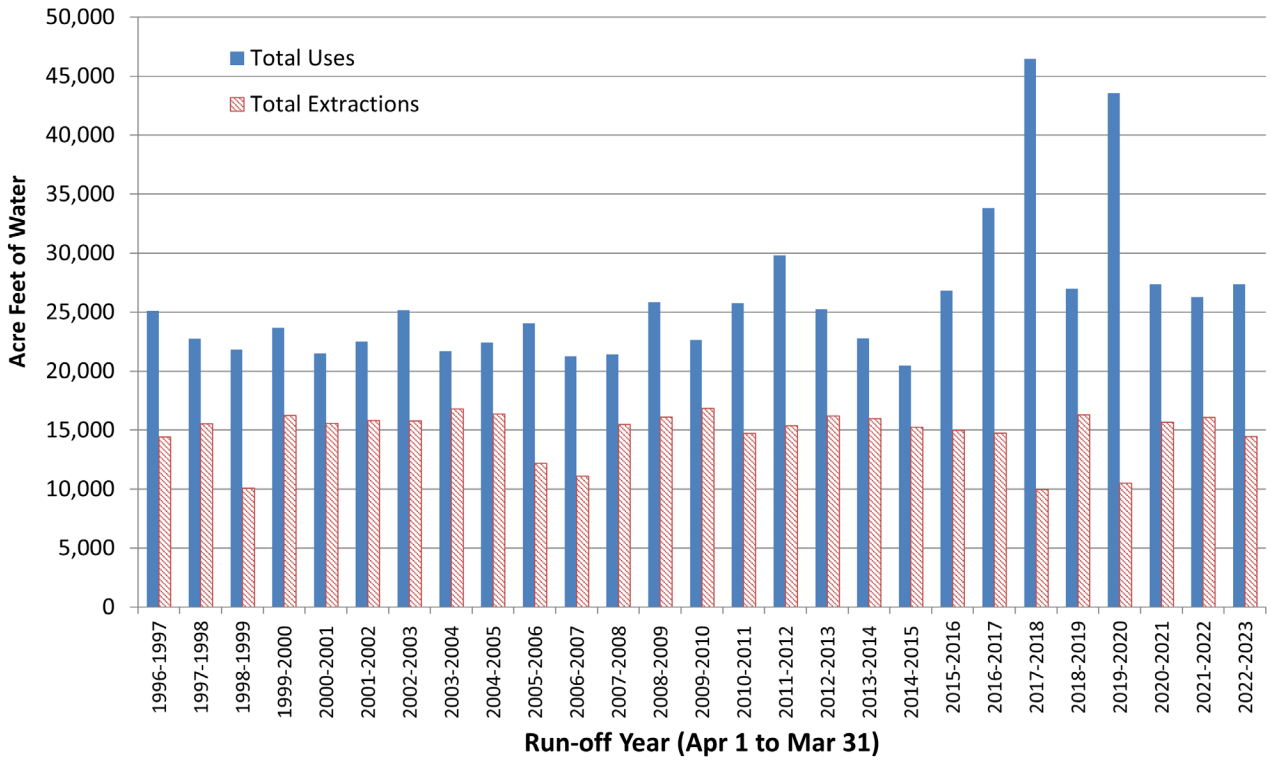
The Water Agreement provides that, during any runoff year, total groundwater extraction by LADWP on the Bishop Cone shall not exceed water usage on Los Angeles-owned land on the Cone. Table 3 shows that LADWP was in compliance with the above provision for runoff years 2021-22 and 2022-23 as the total uses on the Bishop Cone exceeded the total groundwater extractions for each year.

TABLE 3
LADWP USES IN COMPARISON TO LADWP GROUNDWATER EXTRACTION ON THE BISHOP CONE

	RUNOFF YEAR 2021-22 (AF)	RUNOFF YEAR 2022-23 (AF)
TOTAL USES	**26,259**	**27,339**
TOTAL GROUNDWATER EXTRACTION	**16,081**	**14,453**
USES MINUS EXTRACTIONS	**10,178**	**12,886**
Hillside Decree Compliance?	**YES**	**YES**

Figure 2 presents LADWP's water uses versus extractions since runoff year 1996-97. Uses have exceeded extractions throughout the data period; therefore, LADWP has been in compliance with Section IV.D.1.a. of the Green Book and the Water Agreement.

FIGURE 2
WATER USES VERSUS EXTRACTIONS ON THE BISHOP CONE



Note: starting in 2015-16, Total Use computation was clarified and simplfied (see full explanation in Section 3) and some Uses that were denied credit in previous Bishop Cone Audits were effectively granted credit

APPENDIX A

Section VII.A of the Inyo County/Los Angeles Long-Term Groundwater Management Agreement

Section VII of the Agreement

VII. GROUNDWATER PUMPING ON THE BISHOP CONE

A. Any groundwater pumping by the Department on the "Bishop Cone" (Cone) shall be in strict adherence to the provisions of the Stipulation and Order filed on the 26th day of August, 1940, in Inyo County Superior Court in the case of Hillside Water Company, a corporation, et al. vs. The City of Los Angeles, a Municipal Corporation, et al., ("Hillside Decree").

Before the Department may increase groundwater pumping above present levels, or construct any new wells on the Cone, the Technical Group must agree on a method for determining the exact amount of water annually used on Los Angeles-owned lands on the Cone. The agreed upon method shall be based on a jointly conducted audit of such water uses.

The Department's annual groundwater extractions from the Cone shall be limited to an amount not greater than the total amount of water used on Los Angeles-owned lands on the Cone during that year. Annual groundwater extractions by the Department shall be the total of all groundwater pumped by the Department on the Cone, plus the amount of artesian water that flowed out of the casing of uncapped wells on the Cone during the year. Water used on Los Angeles-owned lands on the Cone, shall be the quantity of water supplied to such lands, including conveyance losses, less any return flow to the aqueduct system.

B. The overall management goals and principles and the specific goals and principles for each vegetation classification of this Stipulation and Order apply to vegetation on the Cone.

APPENDIX B

Section IV.D of the Green Book

COPY FOR YOUR INFORMATION

AGENDA ITEM 4

MEMORANDUM

7 November 1996

TO: Inyo County/Los Angeles Standing Committee
FROM: Inyo County/Los Angeles Technical Group

CONSIDERATION OF GREEN BOOK SECTION DESCRIBING THE BISHOP CONE AUDIT

Background

Section VII.A of the Inyo County/Los Angeles long-term water management agreement provides that "before the Department may increase groundwater pumping above present levels, or construct any new wells on the [Bishop] Cone, the Technical Group must agree on a method for determining the exact amount of water annually used on Los Angeles-owned lands on the Cone. The agreed upon method shall be based on a jointly conducted audit of such water uses."

At its 17 October 1995 meeting, the Technical Group agreed to recommend to the Inyo County/Los Angeles Standing Committee the attached description of a Bishop Cone audit to be incorporated into the Green Book (the technical appendix to the long-term agreement).

Request

The Technical Group requests that the Standing Committee adopt the attached description as section IV.D of the Green Book.

D. Bishop Cone Audit

This sub-section describes the procedures for conducting the Bishop Cone audit in accordance with Section VII.A of the Agreement. The Bishop Cone audit is an annual accounting of LADWP groundwater extraction and water usage on Los Angeles-owned land on the Bishop Cone. The Agreement provides that, during any runoff year, total groundwater extraction by LADWP on the Bishop Cone shall not exceed water usage on Los Angeles-owned land on the Cone. The area defined as the Bishop Cone is shown as Figure IV.D.1.

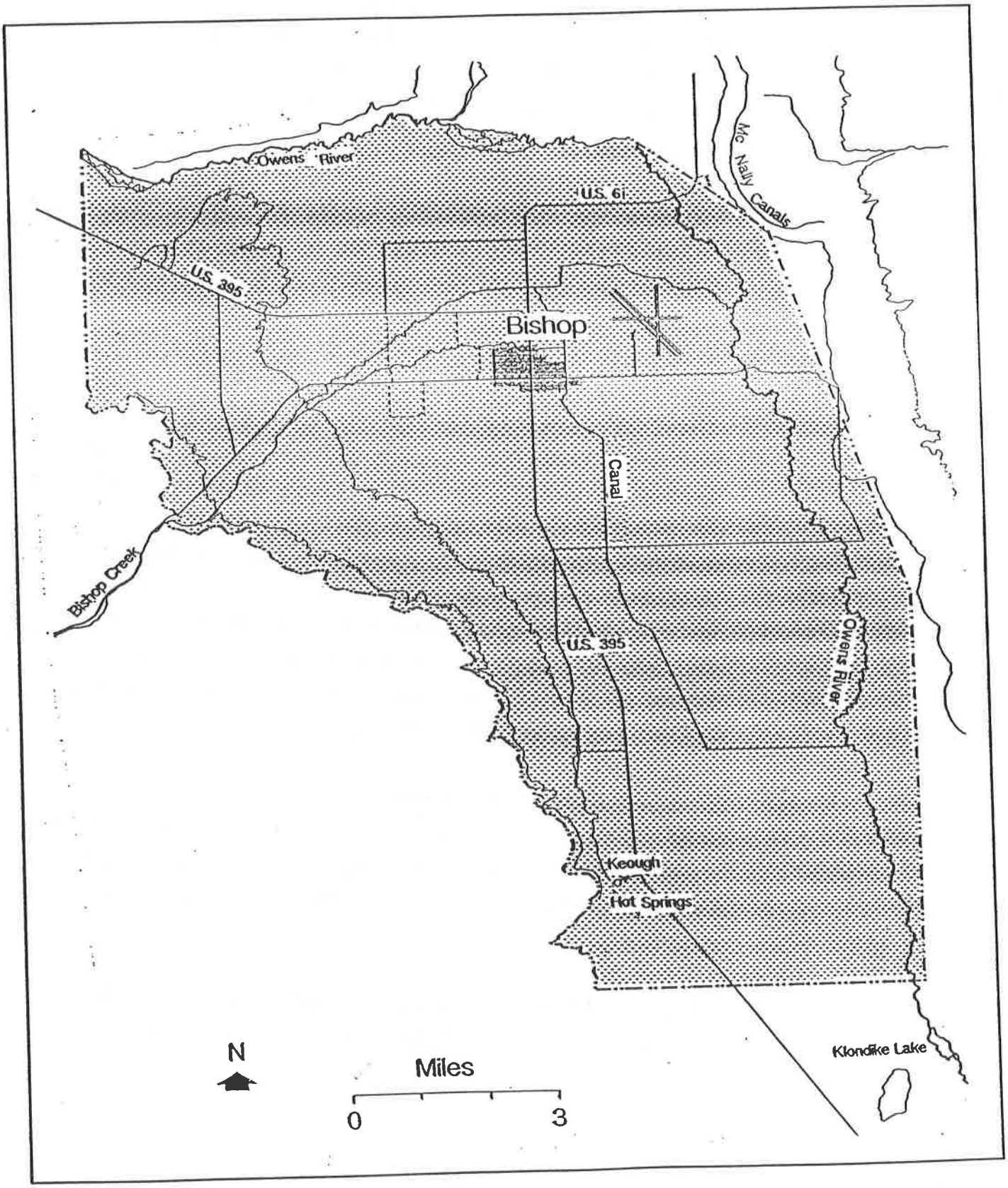
1. Procedures for Conducting the Bishop Cone Audit

a. For the purposes of the Bishop Cone audit, water usage on Los Angeles-owned land on the Bishop Cone is defined as the quantity of water supplied to such land, including conveyance losses, less any return flow to the aqueduct system. Water usage is documented on a runoff-year basis and is compiled by LADWP each May in the Bishop Area Water Use Report. At the conclusion of each runoff year, LADWP will forward the final water use report for the runoff year to Inyo County.

b. The final water use report will be compared for consistency with the previous year's report. If measuring stations have been added or removed from the water-use report during the year, or if a significant change in the pattern of water usage occurs (for example, an account that has not received water for one year receives a

FIGURE IV.D.1

Bishop Cone Boundary



considerable amount the next year), the location will be field-checked. The field-check will evaluate whether changes in water usage warrant the changes noted in the report. If a change is made in the method of delivery to or return from an account that results in an overestimation of uses on the Bishop Cone, water usage for that account will not be credited to the total uses for the audit.

c. Water usage for accounts BAIND (Bishop Indian Reservation), BA391 (outside of Bishop Cone boundary), and BAWEST (West Bishop private uses) will be subtracted from the total reported water usage.

d. Total groundwater extraction by LADWP will be compared with the corrected water usage on the Bishop Cone for the runoff year. Total groundwater extraction is defined as the sum of all groundwater pumped by LADWP plus the amount of artesian water that flowed out of uncapped wells on the Bishop Cone during the runoff year. During any runoff year, total groundwater extraction by LADWP on the Bishop Cone shall not exceed water usage on Los Angeles-owned land on the Cone.

e. A draft report summarizing the results of the Bishop Cone audit will be prepared annually as an Inyo County Water Department report and will be submitted to the Technical Group in June for a 30-day review.

f. A final Bishop Cone audit report will be submitted in July to the Technical Group, the Standing

Committee, the Inyo County Board of Supervisors, and the Inyo County Water Commission.

LADWP will notify Inyo County of any changes in the status, location, or operation of any measuring station used to conduct the Bishop Cone audit at the time the final Bishop Area Water Use Report is submitted to the County. LADWP will also notify the County of any changes in the boundaries of the accounts included in the audit.

Upon request by Inyo County, LADWP will provide measuring station data for accounts included in the audit to assist the County in verifying water usage for individual accounts.

APPENDIX C

Data on Uses and Total Groundwater Extracted on the Bishop Cone
(Supplied by LADWP)

LOS ANGELES DEPARTMENT OF WATER AND POWER
NORTHERN AQUEDUCT OPERATIONS
RUNOFF YEAR 2022-23

BISHOP CONE AUDIT RUNOFF SUMMARY
IN ACRE-FEET

STAID	STATION NAME	+/-	2022 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 JAN	FEB	MAR	TOTAL APR-MAR
3049	#161 OTEY		53	50	57	67	42	25	8	3	3	7	11	65	392
3377	OTEY DITCH RETURN AT MATLICK DITCH	(-)	46	40	47	52	32	21	11	9	11	12	15	58	354
BC005A			**7**	**10**	**11**	**15**	**10**	**4**	**-2**	**-6**	**-8**	**-5**	**-4**	**7**	**39**
3378	OTEY DITCH DIV. ABOVE MATLICK DITCH		5	10	9	6	5	6	0	0	0	0	0	47	88
BC005B			**5**	**10**	**9**	**6**	**5**	**6**	**0**	**0**	**0**	**0**	**0**	**47**	**88**
3048	#61-A FRANK ROUFF		44	32	37	43	61	53	36	15	16	27	21	51	436
3063	DUGGAN DITCH FLOW THROUGH	(-)	27	22	27	36	51	45	32	9	9	20	15	41	335
BC006A			**17**	**10**	**11**	**8**	**10**	**8**	**4**	**6**	**6**	**7**	**6**	**9**	**102**
3002	GEORGE DITCH W. OF SUNLAND AVENUE		35	35	31	50	35	49	33	33	24	14	12	18	368
3264	NORTH INDIAN DITCH BELOW A-1 DRAIN B3A		92	41	73	120	159	179	154	81	25	73	67	97	1160
3068	GEORGE DITCH C-3	(-)	18	23	20	33	22	23	23	24	17	9	6	7	226
3370	NORTH INDIAN DIVERSION W/O SUNLAND	(-)	9	3	10	11	10	3	1	0	1	2	0	0	50
3364	NORTH INDIAN DITCH W/O HWY 395	(-)	44	14	19	66	115	143	127	57	11	78	49	88	809
BC1478			**56**	**35**	**55**	**60**	**47**	**59**	**36**	**33**	**19**	**-2**	**24**	**20**	**442**
3025	SOUTH INDIAN DITCH DIVERSION #3		4	5	5	7	7	5	1	0	0	0	0	0	35
BC1479			**4**	**5**	**5**	**7**	**7**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**35**
3396	NELLIGAN DIV. #1		61	32	22	28	50	100	70	73	70	70	31	77	683
3397	NELLIGAN BELOW DIV. #1		67	95	105	96	100	65	43	44	24	24	29	44	735
3401	YOUNG DITCH #2		49	62	56	58	83	91	23	37	23	21	25	70	598
3421	TOM KEY DITCH ABOVE DIVERSION		32	51	46	48	54	49	46	40	32	19	13	10	439
3050	HOLLAND #63-B	(-)	17	21	21	24	23	24	28	22	17	16	15	18	247
3404	NELLIGAN DITCH #2	(-)	74	76	75	67	84	87	78	76	73	69	59	43	863
3402	YOUNG DITCH #3	(-)	30	35	39	45	57	72	34	60	33	26	45	38	514
3407	YOUNG DITCH #4	(-)	0	0	0	0	0	0	0	0	0	0	0	1	1
3422	TOM KEY DITCH BELOW DIVERSION	(-)	27	44	39	41	50	44	45	38	30	16	11	6	392
BC301			**60**	**64**	**53**	**53**	**73**	**78**	**-3**	**-3**	**-3**	**7**	**-33**	**93**	**438**

STAID	STATION NAME	+/-	2022 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 JAN	FEB	MAR	TOTAL APR-MAR
3006	HALL DITCH @ GOLF COURSE RETURN		0	38	42	35	30	54	3	0	0	0	0	0	203
BC302A			**0**	**38**	**42**	**35**	**30**	**54**	**3**	**0**	**0**	**0**	**0**	**0**	**203**
3161	BISHOP CK DITCH #16		47	69	46	61	42	34	36	36	30	87	33	139	660
3162	BISHOP CK DITCH #17		111	46	53	44	31	0	0	0	0	0	0	0	285
3164	BISHOP CK DITCH #20		19	42	48	58	61	28	30	22	15	85	17	113	539
3165	BISHOP CK DITCH #21		0	0	0	0	0	0	0	0	0	0	0	115	115
BC302B			**177**	**156**	**147**	**164**	**135**	**62**	**66**	**57**	**46**	**172**	**50**	**367**	**1598**
3026	NEWLON DITCH BOYD PUMP PLANT		33	55	36	35	35	4	0	0	0	0	0	0	198
BC304			**33**	**55**	**36**	**35**	**35**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**198**
3166	BISHOP CK DITCH #5		102	75	51	46	60	58	0	0	0	0	0	122	514
3022	BISHOP CK DITCH #5-A		49	59	82	62	42	48	0	0	0	2	0	40	386
3167	BISHOP CK DITCH #9		48	75	79	90	57	47	0	0	0	47	0	267	708
3168	BISHOP CK DITCH #30		310	250	236	231	292	300	55	49	50	148	63	257	2240
3392	FORD RAWSON-DIV 1A		3	1	3	6	4	2	0	0	0	0	0	0	20
BC311			**512**	**461**	**450**	**435**	**454**	**456**	**55**	**49**	**50**	**197**	**63**	**686**	**3867**
3016	NORTH INDIAN DITCH ABOVE MUMY LANE #58-E		286	394	556	547	539	425	271	260	270	240	296	393	4477
3017	WONACOTT A-2		36	38	60	55	64	42	24	27	33	28	24	62	494
3015	WONACOTT A-1	(-)	70	72	106	89	101	62	33	37	42	37	32	98	778
3054	WONACOTT A-3 RETURN	(-)	11	25	29	17	19	8	1	0	7	9	9	51	186
3051	WONACOTT #58-F	(-)	22	15	15	32	32	29	14	19	20	17	14	11	240
3018	NORTH INDIAN B-2	(-)	148	208	322	330	346	308	199	190	196	174	224	227	2872
BC313			**70**	**112**	**145**	**135**	**105**	**60**	**47**	**40**	**37**	**31**	**42**	**68**	**894**
3370	NORTH INDIAN DIVERSION W/O SUNLAND		9	3	10	11	10	3	1	0	1	2	0	0	50
3270	SOUTH INDIAN D-3		182	237	242	305	404	303	121	92	62	45	73	57	2124
3005	SOUTH INDIAN DITCH D-4	(-)	66	53	58	89	138	240	91	71	45	40	57	50	999
BC324			**125**	**188**	**194**	**226**	**276**	**67**	**30**	**21**	**18**	**8**	**15**	**7**	**1175**
3402	YOUNG DITCH #3		30	35	39	45	57	72	34	60	33	26	45	38	514
3407	YOUNG DITCH #4		0	0	0	0	0	0	0	0	0	0	0	1	1
3403	YOUNG DITCH RETURN TO NELLIGAN	(-)	12	15	16	34	44	78	43	85	46	34	29	27	462
BC335			**18**	**19**	**23**	**11**	**13**	**-6**	**-10**	**-25**	**-13**	**-7**	**17**	**13**	**53**

STAID	STATION NAME	+/-	2022 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 JAN	FEB	MAR	TOTAL APR-MAR
2026	FORD RAWSON CANAL BELOW BISHOP CK CANAL		355	465	622	786	985	185	0	0	0	248	0	853	4499
3368	RAWSON & KEOUGH DITCH E/O HWY 395		14	13	13	14	14	11	11	10	11	6	11	25	155
2004	FORD RAWSON CANAL DIV. #7	(-)	0	125	168	249	350	0	0	0	0	4	0	74	971
2043	YRIBARREN RETURN #2	(-)	0	0	0	0	0	0	0	0	0	0	0	--	0
3369	RAWSON & KEOUGH DITCH RETURN AT A-DRAIN	(-)	0	0	0	0	0	0	0	0	0	1	2	20	22
BC338			**369**	**354**	**467**	**551**	**649**	**196**	**11**	**10**	**11**	**249**	**9**	**784**	**3660**
3170	KINGSLEY C-1		42	55	28	49	84	37	11	8	8	7	9	14	352
BC339			**42**	**55**	**28**	**49**	**84**	**37**	**11**	**8**	**8**	**7**	**9**	**14**	**352**
3015	WONACOTT A-1		70	72	106	89	101	62	33	37	42	37	32	98	778
3053	TOMMY SMITH DITCH #162-A		10	11	17	11	11	0	0	0	0	0	0	48	107
3017	WONACOTT A-2	(-)	36	38	60	55	64	42	24	27	33	28	24	62	494
BC353			**43**	**45**	**63**	**45**	**47**	**19**	**9**	**10**	**9**	**9**	**7**	**84**	**391**
3036	NORTH FORK BISHOP CREEK I-1(#155 STANLEY MATLICK)		20	54	60	31	24	49	22	32	7	0	0	1	301
3004	BISHOP CK N. FORK I-2		0	0	0	0	0	0	0	0	0	0	0	146	146
3316	IRRIGATION FROM WELL #406		106	78	92	140	147	122	0	0	0	0	0	0	685
3042	TATUM RETURN AT HIGHWAY 6	(-)	6	8	3	6	6	15	0	0	0	3	0	3	51
3039	TATUM RETURN AT BISHOP CK CANAL	(-)	22	18	14	11	11	24	39	41	40	53	38	73	385
BC361A			**97**	**106**	**135**	**153**	**154**	**133**	**-17**	**-9**	**-34**	**-56**	**-37**	**70**	**696**
3009	MATLICK DITCH F-10		34	48	159	177	133	187	82	53	62	43	43	73	1093
3040	MATLICK DITCH F-13 N		53	47	66	53	60	59	97	114	86	95	89	78	897
3008	MATLICK DITCH F-13 E		4	11	7	15	9	6	7	16	27	10	1	10	121
3007	MATLICK DITCH F-14		16	28	24	19	20	26	30	22	15	14	11	8	235
3035	MATLICK DITCH #154		42	76	101	107	105	98	34	16	13	6	7	57	663
3154	SCHILDER RETURN G-2	(-)	6	2	15	17	18	10	8	7	7	51	26	71	238
3037	MATLICK DITCH #63-A	(-)	20	35	27	25	30	51	88	94	47	38	19	21	494
3038	TATUM RETURN H-1	(-)	2	15	8	4	2	25	1	7	6	22	0	6	99
3003	MATLICK DITCH RETURN @ B-1 DRAIN	(-)	0	2	0	0	0	0	4	0	0	2	0	5	14
3010	MATLICK RETURN TO "C" DRAIN	(-)	16	5	3	0	0	2	76	76	83	82	64	59	467
BC361B			**105**	**148**	**303**	**325**	**277**	**287**	**74**	**36**	**59**	**-27**	**42**	**65**	**1696**
3388	INDIAN S. RETURN ON SEE-VEE LANE		34	53	140	145	174	99	26	16	20	26	23	26	782
3389	INDIAN MIDDLE RETURN ON SEE-VEE LANE		0	0	0	0	0	0	0	0	0	0	0	0	0
3390	INDIAN N. RETURN ON SEE-VEE LANE		23	38	20	6	4	12	13	16	12	12	15	6	177
BC362D			**57**	**90**	**161**	**151**	**178**	**112**	**39**	**31**	**32**	**38**	**38**	**33**	**959**

STAID	STATION NAME	+/-	2022 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 JAN	FEB	MAR	TOTAL APR-MAR
3043	NORTH INDIAN DITCH B-3		19	37	76	65	107	96	0	0	0	0	1	174	576
3011	WEST LINE L-2		9	10	9	13	13	12	11	11	13	11	1	0	111
BC387A			**28**	**47**	**85**	**78**	**120**	**108**	**11**	**11**	**13**	**11**	**2**	**174**	**687**
3387	MATLICK DITCH TO THE N.		99	165	198	192	159	131	58	55	60	36	34	169	1356
3398	MATLICK DITCH #1		94	121	231	320	370	343	184	152	156	111	108	230	2422
3399	REINHACKLE #1		59	73	124	124	107	106	136	180	212	107	79	121	1428
3400	YOUNG DITCH #1		42	71	57	81	83	76	7	0	0	1	0	60	479
3424	MCLAREN TAILWATER		51	50	52	45	53	44	47	39	32	47	38	58	557
3401	YOUNG DITCH #2	(-)	49	62	56	58	83	91	23	37	23	21	25	70	598
3406	C-DRAIN AT INTAKE	(-)	143	190	272	362	427	356	294	339	368	227	172	426	3576
3009	MATLICK DITCH F-10	(-)	34	48	159	177	133	187	82	53	62	43	43	73	1093
BC392			**119**	**181**	**176**	**166**	**129**	**67**	**32**	**-4**	**8**	**12**	**19**	**70**	**974**
3061	KINGSLEY DITCH PUMP DIV. AT DIV. #2		3	5	1	5	5	0	0	0	0	0	0	0	20
3171	BISHOP CK DITCH #11		26	0	24	0	0	0	0	0	0	22	0	9	81
BC393			**30**	**5**	**25**	**5**	**5**	**0**	**0**	**0**	**0**	**22**	**0**	**9**	**101**
3163	BISHOP CK DITCH #19		125	36	45	52	0	0	0	0	0	58	0	294	611
3174	BISHOP CK DITCH #22		69	133	66	71	0	0	0	0	0	15	0	167	520
3019	BISHOP CK CANAL DIV. #24		99	131	123	127	0	0	39	42	28	101	26	207	922
3020	BISHOP CK CANAL DIV. #25		0	0	33	31	0	0	0	0	0	0	0	0	64
3177	BISHOP CK DITCH #26		98	123	122	152	0	0	0	0	0	2	0	231	729
3178	BISHOP CK DITCH #27		7	8	13	7	0	0	0	0	0	0	0	0	35
3179	BISHOP CK DITCH #28		22	25	55	38	0	0	0	0	0	0	0	0	140
3024	BISHOP CK CANAL DIV. #29		91	83	101	149	0	0	44	96	65	60	40	251	979
BC397			**512**	**539**	**557**	**627**	**0**	**0**	**83**	**138**	**93**	**236**	**66**	**1150**	**4000**
3012	GEORGE DITCH C-1		63	48	76	77	81	99	24	24	19	13	10	13	548
3365	PARK W. RETURN S/O A-DRAIN		53	97	107	130	119	84	27	31	10	4	2	45	708
3047	4 X - 58D		61	63	108	118	173	148	93	129	182	165	201	239	1681
3366	SOUTH INDIAN DITCH DIVERSION #1 N/O SCHOBER LANE		4	0	8	3	4	10	0	0	0	3	0	7	39
3367	SOUTH INDIAN DITCH DIVERSION #2 N/O SCHOBER LANE		0	0	30	48	84	15	0	0	0	0	0	24	202
W408	WELL 408		128	127	103	126	180	169	0	0	0	0	0	0	834
3002	GEORGE DITCH W. OF SUNLAND AVENUE	(-)	35	35	31	50	35	49	33	33	24	14	12	18	368
3046	SOUTH INDIAN RETURN AT A-1 DRAIN	(-)	24	14	23	20	2	21	0	77	144	137	225	195	883
3270	SOUTH INDIAN D-3	(-)	182	237	242	305	404	303	121	92	62	45	73	57	2124
BC500			**67**	**48**	**137**	**128**	**202**	**152**	**-9**	**-19**	**-18**	**-11**	**-96**	**57**	**638**

STAID	STATION NAME	+/-	2022 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 JAN	FEB	MAR	TOTAL APR-MAR
3027	HALL DITCH PUMP PLANT #2@DON TATUM LEASE(KOCH)		3	20	5	2	3	1	0	0	0	0	0	0	34
3028	HALL DITCH PUMP PLANT #4 AT DON TATUM LEASE		40	89	59	77	70	69	35	6	0	0	0	0	445
BC502A			**43**	**109**	**64**	**79**	**72**	**70**	**35**	**6**	**0**	**0**	**0**	**0**	**479**
3031	A-1 DRAIN PUMP PLANT #1 S/O HALL DITCH		0	0	0	0	0	0	0	0	0	0	0	--	0
3032	A-1 DRAIN PUMP PLANT #3 AT WELL #140		145	143	97	119	109	117	82	15	0	0	0	0	828
BC502B			**145**	**143**	**97**	**119**	**109**	**117**	**82**	**15**	**0**	**0**	**0**	**0**	**828**
2086	A-DRAIN DIV. TO ARKANSAS FLATS		0	0	0	0	0	0	0	0	0	0	0	436	436
BCOPRB			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**436**	**436**
3155	BISHOP CK DITCH #5-B		0	0	0	0	0	0	115	113	106	193	108	307	942
BCRECA			**0**	**0**	**0**	**0**	**0**	**0**	**115**	**113**	**106**	**193**	**108**	**307**	**942**
3021	BISHOP CK CANAL DIV. #67		0	0	0	0	0	0	0	0	0	3	0	0	3
BCRECC			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**3**
3194	SOUTH FORK BISHOP CREEK BELOW BISHOP CREEK CANAL		414	460	485	691	637	560	440	355	354	330	254	892	5872
3193	SANDERS POND RETURN AT OWENS RIVER	(-)	156	140	87	108	176	127	86	173	148	258	169	456	2083
3066	RAWSON POND #3 RETURN TO OWENS RIVER	(-)	134	108	98	184	156	155	157	76	139	88	45	198	1538
BCRECD			**125**	**212**	**301**	**399**	**305**	**278**	**197**	**105**	**68**	**-16**	**40**	**239**	**2250**
3023	KINGSLEY DITCH DIV. C-4		121	75	69	77	98	78	76	44	36	44	43	198	959
3183	CEMETERY DITCH AT E. LINE ST.	(-)	73	42	39	37	58	54	68	18	0	0	0	4	392
BCRECF			**48**	**33**	**30**	**40**	**40**	**24**	**8**	**25**	**36**	**44**	**43**	**193**	**567**
3242	BISHOP CK CANAL DIV. TO 5 BRIDGES #2		44	22	0	0	0	0	0	0	0	19	26	59	170
3317	BISHOP CK CANAL DIV. TO 5 BRIDGES #6		15	21	19	26	23	19	12	9	7	22	10	129	312
BCLAEMH			**59**	**43**	**19**	**26**	**23**	**19**	**12**	**9**	**7**	**41**	**36**	**188**	**482**
3185	MCGEE CK AT ABERLOUR RANCH		206	210	163	159	156	150	163	172	218	291	185	433	2506
3235	MILL POND RETURN	(-)	60	110	80	13	76	31	66	60	61	63	80	106	805
BCRVRECA			**147**	**100**	**82**	**147**	**80**	**119**	**97**	**113**	**156**	**228**	**105**	**328**	**1702**

STAID	STATION NAME	+/-	2022 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 JAN	FEB	MAR	TOTAL APR-MAR
BC005A	ONEY - OTEY DITCH		7	10	11	15	10	4	-2	-6	-8	-5	-4	7	39
BC005B	SAFSTROM - MATLICK DITCH		5	10	9	6	5	6	0	0	0	0	0	47	88
BC006A	BARTON - MATLICK DITCH		17	10	11	8	10	8	4	6	6	7	6	9	102
BC1478	INDIAN CREEK RANCH - GEORGE AND N. INDIAN DITCH		56	35	55	60	47	59	36	33	19	-2	24	20	442
BC1479	HIDDEN CREEKS RANCH - SOUTH INDIAN DITCH		4	5	5	7	7	5	1	0	0	0	0	0	35
BC301	AUBREY AND MOXLEY - NELLIGAN AND YOUNG DITCHES		60	64	53	53	73	78	-3	-3	-3	7	-33	93	438
BC302A	BOOTHE - HALL DITCH		0	38	42	35	30	54	3	0	0	0	0	0	203
BC302B	BOOTH - BISHOP CREEK CANAL		177	156	147	164	135	62	66	57	46	172	50	367	1598
BC304	ANDREW AND DAN BOYD - NEWLON DITCH		33	55	36	35	35	4	0	0	0	0	0	0	198
BC311	J.W. CASHBAUGH, ET AL - BISHOP CREEK CANAL		512	461	450	435	454	456	55	49	50	197	63	686	3867
BC313	BOYD AND ONEY - NORTH INDIAN DITCH		70	112	145	135	105	60	47	40	37	31	42	68	894
BC324	DANIELS, ROSSI, HANNON - N. AND S. INDIAN DITCH		125	188	194	226	276	67	30	21	18	8	15	7	1175
BC335	PARTRIDGE AND JOHNSON - YOUNG DITCH		18	19	23	11	13	-6	-10	-25	-13	-7	17	13	53
BC338	YRIBARREN AND OPS - FORD RAWSON CANAL AND KEOUGH		369	354	467	551	649	196	11	10	11	249	9	784	3660
BC339	DOHNEL - KINGSLEY DITCH		42	55	28	49	84	37	11	8	8	7	9	14	352
BC353	HADELER AND MILORADICH - WONACOTT AND SMITH DITCH		43	45	63	45	47	19	9	10	9	9	7	84	391
BC361A	ST RANCH - NORTH FORK BISHOP CREEK		97	106	135	153	154	133	-17	-9	-34	-56	-37	70	696
BC361B	ST RANCH - MATLICK DITCH		105	148	303	325	277	287	74	36	59	-27	42	65	1696
BC362D	JJ TATUM, LJ TATUM - DAIRY DITCH		57	90	161	151	178	112	39	31	32	38	38	33	959
BC387A	GIACOMINI - NORTH INDIAN DITCH		28	47	85	78	120	108	11	11	13	11	2	174	687
BC392	LACEY LIVESTOCK - YOUNG AND MATLICK DITCHES		119	181	176	166	129	67	32	-4	8	12	19	70	974
BC393	CABALLERO - KINGSLEY DITCH		30	5	25	5	5	0	0	0	0	22	0	9	101
BC397	GIACOMINI - BISHOP CREEK CANAL		512	539	557	627	0	0	83	138	93	236	66	1150	4000
BC500	TALBOT - GEORGE AND S. INDIAN DITCH		67	48	137	128	202	152	-9	-19	-18	-11	-96	57	638
BC502A	SMITH AND STICKELLS - HALL DITCH		43	109	64	79	72	70	35	6	0	0	0	0	479
BC502B	SMITH AND STICKELLS - A-1 DRAIN		145	143	97	119	109	117	82	15	0	0	0	0	828
BCOPRB	A DRAIN - A DRAIN		0	0	0	0	0	0	0	0	0	0	0	436	436
BCRECA	FARMERS PONDS - BISHOP CREEK CANAL		0	0	0	0	0	0	115	113	106	193	108	307	942
BCRECC	SADDLE CLUB - BISHOP CREEK CANAL		0	0	0	0	0	0	0	0	0	3	0	0	3
BCRECD	BUCKLEY PONDS - SOUTH FORK BISHOP CREEK		125	212	301	399	305	278	197	105	68	-16	40	239	2250
BCRECF	FOREST SERVICE - KINGSLEY DITCH		48	33	30	40	40	24	8	25	36	44	43	193	567
BCLAEMH	FIVE BRIDGES RECHARGE - BISHOP CREEK CANAL		59	43	19	26	23	19	12	9	7	41	36	188	482
BCRVRECA	MILL POND - MCGEE CREEK		147	100	82	147	80	119	97	113	156	228	105	328	1702
BC Audit Raw Total			**3121**	**3421**	**3910**	**4276**	**3676**	**2598**	**1018**	**771**	**707**	**1388**	**571**	**5518**	**30974**
Accounts with no ICWD Credit Totals (RVRECA, 362D, 392)		(-)	323	371	419	464	387	298	168	140	196	278	162	431	3635
BC AUDIT ICWD "Use" Total			**2798**	**3050**	**3491**	**3812**	**3289**	**2300**	**850**	**631**	**511**	**1110**	**409**	**5087**	**27339**

2022/23 RUNOFF YEAR BISHOP CONE FLOWING WELL TOTALS

(ACRE-FEET)

	2022									2023			
WELL	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL
F121	3	3	3	3	3	3	3	3	3	3	3	3	36
F122	6	6	6	6	6	6	6	6	6	6	5	6	71
F123	13	10	12	13	12	12	13	13	13	13	12	14	151
F124	0	0	0	0	0	0	0	0	0	0	0	0	0
F125	85	63	77	85	83	82	93	96	103	98	88	97	1049
F126	31	33	32	29	30	27	31	34	31	31	29	32	370
F127	33	33	33	35	34	34	37	35	36	36	32	36	413
F128	23	22	22	22	23	22	21	21	23	22	21	23	263
F129	6	8	15	12	11	8	7	7	7	8	7	7	103
F130	32	29	30	28	30	26	30	29	31	31	29	33	357
F131	71	73	68	65	65	64	67	66	68	71	66	76	819
F132	24	23	25	26	27	26	31	26	26	30	27	29	320
F133	21	21	23	21	20	20	20	19	21	22	20	23	250
F134	54	46	45	48	45	46	50	48	47	52	57	66	603
F136	5	4	6	5	4	4	7	7	5	9	11	13	81
TOTAL	406	373	397	399	392	380	418	408	419	430	407	458	4887

2022/23 RUNOFF YEAR BISHOP CONE PUMPING WELL TOTALS

(ACRE-FEET)

	2021									2022			
WELL	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL
W140	205	208	199	203	205	197	177	0	0	0	0	0	1394
W371	96	99	97	99	98	94	99	95	99	27	0	0	904
W406	187	189	181	184	183	171	0	0	0	0	0	0	1095
W407	160	166	150	159	164	156	0	0	0	0	0	0	955
W408	128	127	103	126	180	169	0	0	0	0	0	0	834
W410	227	234	225	231	230	221	34	0	118	65	0	0	1584
W411	240	251	242	249	249	235	0	0	0	0	0	0	1466
W412	134	247	237	245	244	228	0	0	0	0	0	0	1334
TOTAL	1376	1520	1433	1497	1554	1472	310	95	218	93	0	0	9566