

2024 Annual Report Vegetation Conditions

Every summer, ICWD staff and LADWP staff measure vegetation cover and composition on approximately 140 parcels in the Owens Valley using the line point intercept method. In the summer of 2024, staff read 1,788 transects in 145 wellfield and control parcels.

Valley wide conditions

2024 marked the second year of generally wet conditions after the short drought period of 2020-2022. As a result, water levels and vegetation cover continued to increase in many vegetation parcels, adding to valley wide increases in water levels and vegetation cover seen in 2023. Overall vegetation cover in 2024 was higher by a statistically significant margin compared to baseline vegetation conditions in both control and wellfield parcels (Figure 1). In control parcels, grass cover was significantly higher than baseline while shrub cover showed no significant difference from baseline. In wellfield parcels, shrub cover was significantly higher than baseline while grass cover showed no significant difference from baseline (Figure 1).

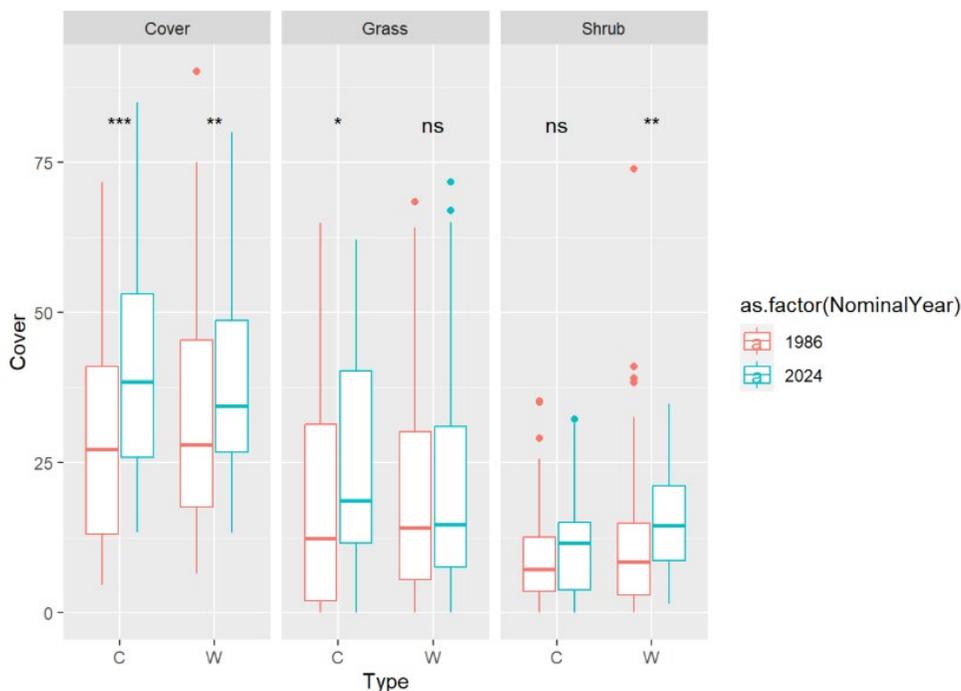


Figure 1: Baseline (1986) compared to current year for control and wellfield parcels sampled every year since 1992. Total perennial cover, grass cover, and shrub cover are shown separately.

Looking at vegetation cover trends since the baseline period, control parcels show no statistically significant trends over time while wellfield parcels show a statistically significant upward trend in shrub cover, but no statistically significant change in grass

cover (Figure 2). This indicates that control parcels, which are not affected by pumping, have not changed significantly over time; while wellfield parcels, which are affected by pumping, have had an increase in shrub cover over time.

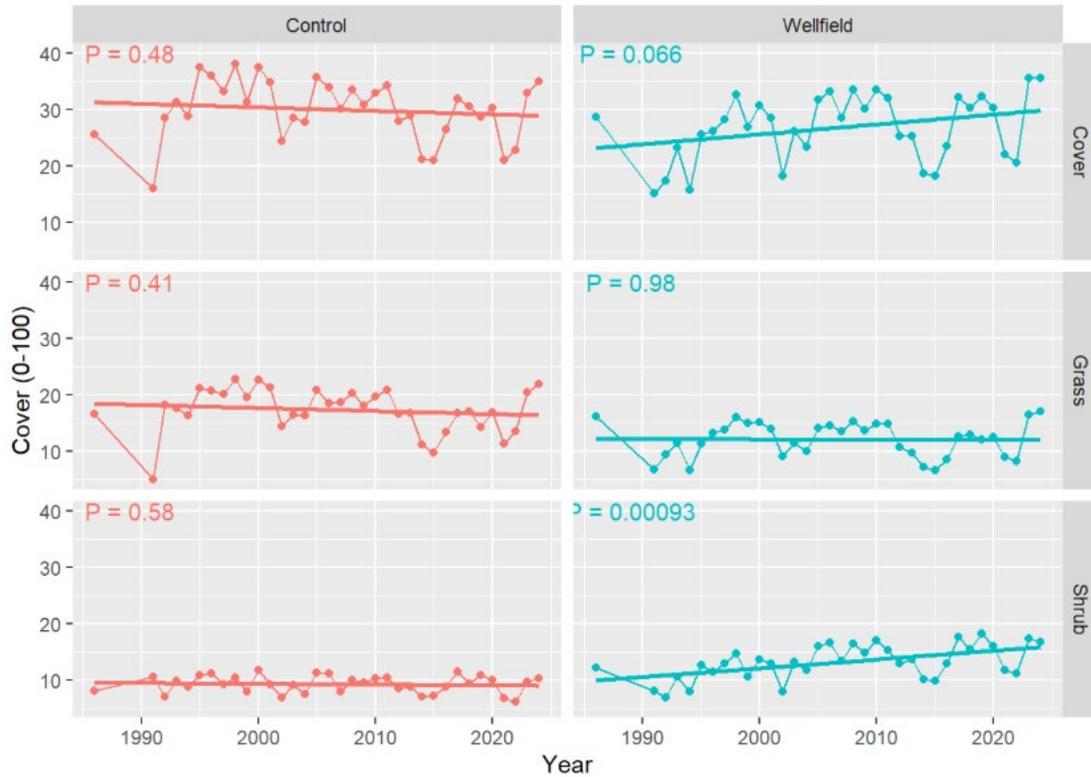


Figure 2: Mean total perennial cover (Cover), perennial grass (Grass), shrub (Shrub) aggregated to parcel groups (wellfield and control) and plotted over the baseline and reinventory period. The baseline year is plotted at the nominal year 1986 for brevity. P-values less than 0.05 denote slopes statistically different from zero.

Parcels Chronically Below Baseline

While overall vegetation conditions are consistent with or above baseline valley wide, many individual parcels are currently below baseline. In 2024, 23 parcels were below baseline vegetation cover and of those, 15 have been significantly below baseline cover for the past five years or more. Of parcels chronically below baseline (below baseline for more than five years), three are below baseline depth to water, five are below baseline total cover, and 14 are below baseline grass cover.

In parcels that are below baseline grass cover but are not below baseline total cover, shrub cover has increased in these parcels enough to balance out grass cover declines.

In nine of the 15 parcels that are chronically below baseline, initial impacts manifested just after the baseline conditions were recorded when depths to water reached record lows in the early 1990s. The remainder of these parcels were impacted in the early 2010s.

Of the 15 current chronically below baseline parcels, six are in Taboose-Aberdeen, five are in Laws, two are in Thibaut-Sawmill, one is in Big Pine, and one is in Independence-Oak. Of these, ten parcels are of Type C vegetation, two are of Type A, and there is one each of Type B, Type D, and Type E vegetation.

Parcel	Wellfield	Vegetation Type	Cover Type Below Baseline	Last at Baseline
LAW043	Laws	E	Grass/Total	1987/1987
LAW052	Laws	C	Grass/Total	1987/1987
LAW082	Laws	C	Grass	1987
FSL044	Laws	C	Grass/Total	1987/2010
FSL054	Laws	D	Shrub/Total	1987/1987
FSP006	BP	AC	Grass	1986
TIN050	TA	C	Grass	2008
TIN053	TA	A	Grass	2011
TIN064	TA	C	Grass	1986
BLK021	TA	B	Grass	1998
BLK075	TA	C	Grass	2017
BLK142	TA	C	Grass	2010
IND026	TS	C	Grass/Total	1985/1985
IND029	TS	C	Grass	1985
IND021	IO	C	Grass/Shrub/Total	2013/2019/2011

Table 1: Tabulated parcels that have been below baseline cover values for five or more years.

Three parcels in the Laws Wellfield, LAW070, LAW072, and LAW085, recovered to within baseline in 2024 after being below baseline for a number of years: LAW070 since 2019, LAW072 since 2020, and LAW085 since 2010. Grass cover in LAW072 never had been recorded above baseline until 2024.

Notes on Chronically Below Baseline Parcels

LAW043 – Laws Wellfield, vegetation type E, grass and total cover is below baseline, impact from the ‘80s; DTW has fluctuated around and below baseline, increasing shrubs in recent years

LAW052 – Laws Wellfield, vegetation type C, grass and total cover is below baseline, impact from the ‘80s, high invasive cover, DTW has fluctuated around and below baseline, increasing shrubs in recent years

LAW082 – Laws Wellfield, vegetation type C, grass cover is below baseline but was already low percentage (<10% cover) in baseline, impact from the '80s, DTW fluctuating around and below baseline

FSL044 – Laws Wellfield, vegetation type C, grass cover has been below baseline since re-inventory period, total cover is below baseline even though shrub cover has increased, total cover last above baseline in 2010, DTW above baseline since 2003

FSL054 – Laws Wellfield, vegetation type D, total cover is slightly below baseline from a large grass cover increase and riparian shrub cover decrease, impact from before re-inventory started in 2006, DTW above baseline since 1990

FSP006 – Big Pine Wellfield, vegetation type AC, grass cover is below baseline and shrub cover is greater than baseline (total cover at baseline), impact from the '80s, DTW has increased since the 2010s drought

TIN050 – Taboose-Aberdeen Wellfield, vegetation type C, grass cover is below baseline and shrub cover is greater than baseline (total cover at baseline), impacts from before the late '90s but grass cover was at baseline in 2008, DTW just below baseline until 2024

TIN053 – Taboose-Aberdeen Wellfield, vegetation type A, grass cover is below baseline and shrub cover is greater than baseline (total cover at baseline), grass cover last at baseline in 2011, DTW above baseline since 2001

TIN064 – Taboose-Aberdeen Wellfield, vegetation type C, grass cover is below baseline and shrub cover is greater than baseline (total cover at baseline), impact from the '80s, DTW has been around or above baseline since 1999

BLK021 – Taboose-Aberdeen Wellfield, vegetation type B, grass cover has been lower than baseline, except in 1998 when cover was not statistically different from baseline, currently total cover is at baseline, DTW was below baseline until 2024

BLK075 - Taboose-Aberdeen Wellfield, vegetation type C, grass cover is below baseline and shrub cover is greater than baseline (total cover at baseline), impact from '80s, grass last at baseline in 2017, DTW above baseline since 2015

BLK142 – Taboose-Aberdeen Wellfield, vegetation type C, grass cover is below baseline and shrub cover is greater than baseline (total cover at baseline), grass last at baseline in 2010, DTW is above baseline before and after 2010s drought

IND021 – Independence-Oak Wellfield, vegetation type C, both grass and shrub cover are slightly below baseline, grass cover last at baseline in 2013, shrub cover last at baseline in 2019, DTW is around baseline but was depressed during recent droughts

IND026 – Thibaut-Sawmill Wellfield, vegetation type C, grass cover is below baseline and shrub cover is greater than baseline (total cover is below baseline), impact from before data was collected in 2005, DTW has been consistently below baseline even into 2024

IND029 – Thibaut-Sawmill Wellfield, vegetation type C, grass cover is below baseline and shrub cover is greater than baseline (total cover at baseline), initial impact before 2000 but also impacted around 2011, DTW has been consistently below baseline even into 2024

Notes on Parcels Below Baseline in 2024

LAW035 - Laws Wellfield, vegetation type C, grass cover is lower than baseline while total cover is at baseline, impact from before re-inventory, DTW fluctuation and grass increase in recent years

PLC007 – Bishop, vegetation type B, total cover has been below baseline since 2020 but cover increasing in recent years, DTW has been below baseline since 2019

BGP154 – Big Pine Wellfield, vegetation type C, grass cover is below baseline despite DTW being above baseline since 2017, grass cover was at baseline in 2023

BGP162 – Big Pine Wellfield, vegetation type B, all three cover types are below baseline, total cover and shrub cover were last at baseline in 2019, grass cover was last at baseline in 2000, DTW was consistently below baseline until 2024

BLK009 – Taboose-Aberdeen Wellfield, vegetation type C, grass cover is lower than baseline but was at baseline in 2023, total cover and DTW are at baseline

IND019 – Independence-Oak Wellfield, vegetation type C, total cover is slightly below baseline, last at baseline in 2023, high *Astragalus lentiginosus* (freckled milkvetch) cover in baseline but increased shrub cover has nearly matched *Astragalus lentiginosus* (freckled milkvetch) cover decrease

IND035 – Independence-Oak Wellfield, vegetation type C, grass cover is below baseline but total cover is at baseline, grass was at baseline in 2023, DTW at baseline

IND139 – Symmes-Shepard Wellfield, vegetation type C, grass cover is below baseline, impacts from the '80s, grass cover was nearly at baseline in 2023, DTW is consistently below baseline but grass has stayed consistent or increased in wet years since

Notes on Parcels Recently Above Baseline in 2024

LAW070 – Laws Wellfield, vegetation type E, grass cover and total cover have been at baseline only in 2019 and now 2024, shrub cover has increased since baseline, impacts from before re-inventory in 2003, DTW fluctuation reflecting drought periods

LAW072 – Laws Wellfield, vegetation type C, grass cover was below baseline until 2024, total cover was last at baseline in 2020, DTW has dropped well below baseline during drought periods, increased shrub cover since baseline

LAW085 – Laws Wellfield, vegetation type C, total cover last at baseline in 2010, grass cover close to baseline in 2010 but impacted since the '80s, DTW fluctuating above and below baseline with drought periods, reflected in all vegetation cover types

More Info

The Water Department is developing public-facing tools and applications for exploring these data. The first of these is a Green Book Vegetation Monitoring app (<https://inyo.shinyapps.io/inyoShiny/>), which allows the user to view various types of data for each parcel measured. This is an interactive version of the static parcel-level PDF plots the Water Department produces each year (which can still be accessed at <https://www.inyowater.org/documents/reports/inycounty-water-dept-annual-report/>). More tools and informational sites will be rolled out as they are developed, and they will be available on the ICWD website.