

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

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BUENA VISTA VALLEY
HYDROGRAPHIC BASIN 10-129

CROP INVENTORY

2015

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ABSTRACT

This inventory represents the status and usage of all groundwater rights for irrigation purposes located within Buena Vista Valley, Hydrographic Basin 10-129, for the 2015 calendar year. **Only those groundwater rights associated with irrigation purposes are represented in this report.** For a listing and summary of all other manners of use within the basin please refer to the [Nevada Division of Water Resources Hydrographic Basin Summary](#).

The data presented are valid for the time period of this report and may vary from previously published figures as water rights within the basin are subject to administrative actions, such as certification, cancellation, forfeiture or withdrawal on a continuing basis.

For the year 2015, the permitted and certificated groundwater rights for irrigation purposes totaled **5,328 acres** with a total permitted, supplementally adjusted duty of 21,311 acre-feet within Buena Vista Valley. An estimated **2,948 acres** were irrigated and 8,445 acre-feet were pumped during 2015.

HYDROGRAPHIC BASIN SUMMARY

HYDROGRAPHIC BASIN NUMBER	129, REGION 10
HYDROGRAPHIC BASIN NAME	BUENA VISTA VALLEY
COUNTIES	CHURCHILL, PERSHING
MAJOR COMMUNITIES	UNIONVILLE
DESIGNATED BASIN DESIGNATED	
DENIALS BASED UPON WATER AVAILABILITY	2741 , IRR DEN, 1/29/1982 2757 , IRR DEN, 4/9/1982 2782 , IRR DEN, 11/5/1982 2984 , IRR DEN, 7/13/1984 2998 , IRR DEN, 8/8/1984 3169 , IRR DEN, 4/4/1985 4710 , IRR, DEN, 3/23/1999 5362 , IRR DEN, 6/4/2004
ESTIMATED IRRIGATION PUMPAGE 2015 (ACRE-FEET)	8,445*
STATE ENGINEER'S ORDERS	
NO. 732 – DESIGNATION OF BASIN	OCTOBER 2, 1979
NO. 1244 – ADJUDICATION	NOVEMBER 13, 2014
NO 1245 – ADJUDICATION	NOVEMBER 13, 2014
NO. 1248 – ADJUDICATION	JANUARY 12, 2015

COMMITTED GROUNDWATER RESOURCE FOR IRRIGATION PURPOSES: 21,311 ACRE-FEET
DATE: DECEMBER 2015

NOTE: Committed groundwater resource data are accurate for the end of December 2015. Rights may be subject to change applications, certification, withdrawals, forfeiture and cancellations; each of these circumstances could impact the duty, diversion rate and acreage associated with a given right. Be advised this report acknowledges that other manner of uses may be present in the basin; however, only those groundwater rights associated with irrigation purposes are represented in this report.

* Acreage represented in this report may have surface water rights appurtenant. This report acknowledges those acres with surface water rights but is not intended to quantify, nor present any definitive use of those surface water rights. The data represent only the pumping of groundwater and the acreage to which it is applied.

PURPOSE AND SCOPE

The purpose of this report is to inventory all of the groundwater resources allocated to irrigation and described by the Office of the State Engineer, Nevada Division of Water Resources (NDWR), and to estimate the amount of groundwater pumped for irrigation purposes within the Buena Vista Valley Hydrographic Basin (10-129) for the year 2015.

DESCRIPTION OF THE STUDY AREA

The Buena Vista Valley Hydrographic Basin is located in west-central Nevada (Figure 1). Buena Vista Valley occupies approximately 742 square miles¹ in Pershing and Churchill Counties. The adjacent hydrographic basins are: Grass Valley (4-071) to the northeast, Pleasant Valley (10-130) to the east, Dixie Valley (10-128) to the southeast, Carson Desert (8-101) to the southwest, Carson Desert Packard Valley Subarea (8-101A) and Lovelock Valley Oreana Subarea (4-073A) to the west, and Imlay Area (4-072) to the northwest.

The Humboldt Range lies to the west of the valley floor; the East and Stillwater Ranges lie on the east side of the valley. The valley has no towns; however, Unionville in Big Canyon (once a thriving mining camp) is located on the east side of the Humboldt Range. Irrigation occurs primarily in the north portion of the basin² (Figure 2).

GROUNDWATER LEVELS

Depths to groundwater in Buena Vista Valley are measured by NDWR on a semi-annual basis. Active measurement site names and links to their data include:

129 N26 E35 04BBBA1	129 N26 E35 22CBCD1	129 N26 E35 34CDBA1
129 N26 E35 34CDBA2	129 N26 E36 19CCC 1	129 N29 E35 21BBBB1
129 N29 E35 22ABDB1	129 N29 E35 22BABB1	129 N29 E36 16BBBB1
129 N30 E35 04CBBD1	129 N30 E35 05DDAD1	129 N30 E35 09BBBB2
129 N30 E35 16BCBB1	129 N30 E35 16CBCC1	129 N30 E35 16CCCC2
129 N30 E35 25BD 1	129 N30 E35 28BBBB1	129 N30 E35 28CBBB1
129 N30 E35 29DDB 1	129 N30 E35 32DCDD2	129 N30 E35 36BCBA1
129 N31 E35 15CAAD1	129 N31 E35 27CBCB1	129 N31 E35 28BA 1
129 N31 E35 28BADD1		

Groundwater level data have also been collected by the U.S. Geological Survey (USGS) and can be accessed through their website (<http://nevada.usgs.gov>).

¹ NDWR, Hydrographic Area Summary, April 27, 2016.

² O.J. Loeltz, et al., Geology and Ground-water Resources of Buena Vista Valley, Pershing County, NV, Water Resources Bulletin No. 13, (State of Nevada, Office of the State Engineer and United States Geological Survey), p. 9-10, 45-46, 1955.

METHODS TO ESTIMATE IRRIGATED ACREAGE

This report estimates the number of acres irrigated by the groundwater pumped under permits and certificates issued by the State Engineer. Vested claims within Buena Vista Valley are outside the scope of this report because the vested claims are filed for surface water (stream) sources only. The following methods were used to arrive at the estimated acreage:

- Field inspection of the place of use was conducted to estimate the number of acres under cultivation.
- In cases where field inspection of the place of use was not practical, aerial and/or satellite imagery are analyzed to determine acreages. This method was not used in the 2015 report.

METHODS TO ESTIMATE PUMPAGE

This report estimates the amount of groundwater pumped under water rights issued by the State Engineer. The following methods were used to arrive at the estimated use:

- Where totalizing meters were in place, meter readings were taken and compared with previous data (if available).
- Where meters were not in place, the place of use was inspected to estimate the amount of acreage under cultivation. The number of acres was then multiplied by the certificated or permitted duty associated with that acreage.
- Where there were no flow meters or other reliable options for estimating pumping and the use was irrigation, pumping was estimated by dividing the Net Irrigation Water Requirement (NIWR) for the crop grown by the efficiency of the irrigation method used, then multiplying by the number of acres irrigated. Efficiencies associated with three types of irrigation methods are as follows: pivot at 85%; wheel line or other hand moved sprinklers at 75%; and flood at 60%. The pumpage amount estimated by this method was limited by the duty of the permit. For places where the groundwater rights are supplemental to surface water, groundwater use is estimated using the NIWR method above, but is adjusted based on available surface water for the year. Evapotranspiration and NIWR data by basin can be found on the NDWR website at: http://water.nv.gov/mapping/et/et_general.cfm. This approach using the NIWR to estimate pumping was used starting in 2014; estimates for 2014 and subsequent years may differ significantly from the estimates of previous years.
- Where lands were irrigated by both surface water and groundwater, the surface water supply was considered when estimating groundwater pumpage.

Appendix A contains the estimated irrigated acres and pumping for the 2015 calendar year. Table 1 lists the estimated irrigated acres and pumping for the calendar years 2009 through 2015. Figure 3 shows the same information graphically.

TABLE

Table 1. Buena Vista Valley historical irrigated acreage and pumpage data. 2013 and previous historical data reported herein are consistent with those published in 2013, and differ from previously published data.

Year	2009	2010	2011	2012	2013	2014	2015
Acres Irrigated	2,520	2,911	3,562	3,326	3,198	3,365	2,948
Acre-Feet Pumped	9,458	10,382	11,829	13,000	9,729	10,587	8,445

FIGURES

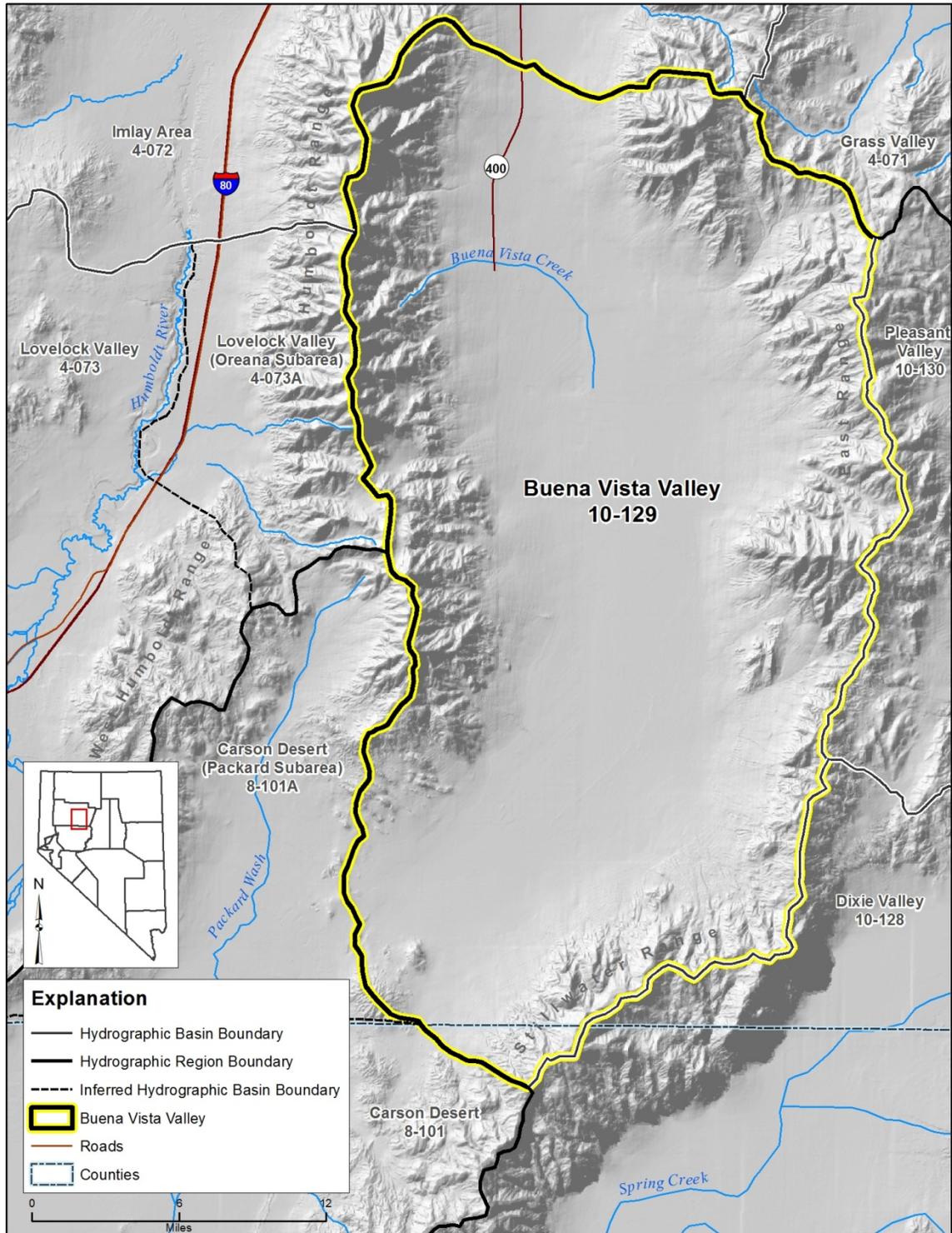


Figure 1. Physiographic map of Buena Vista Valley (Hydrographic Basin 10-129).

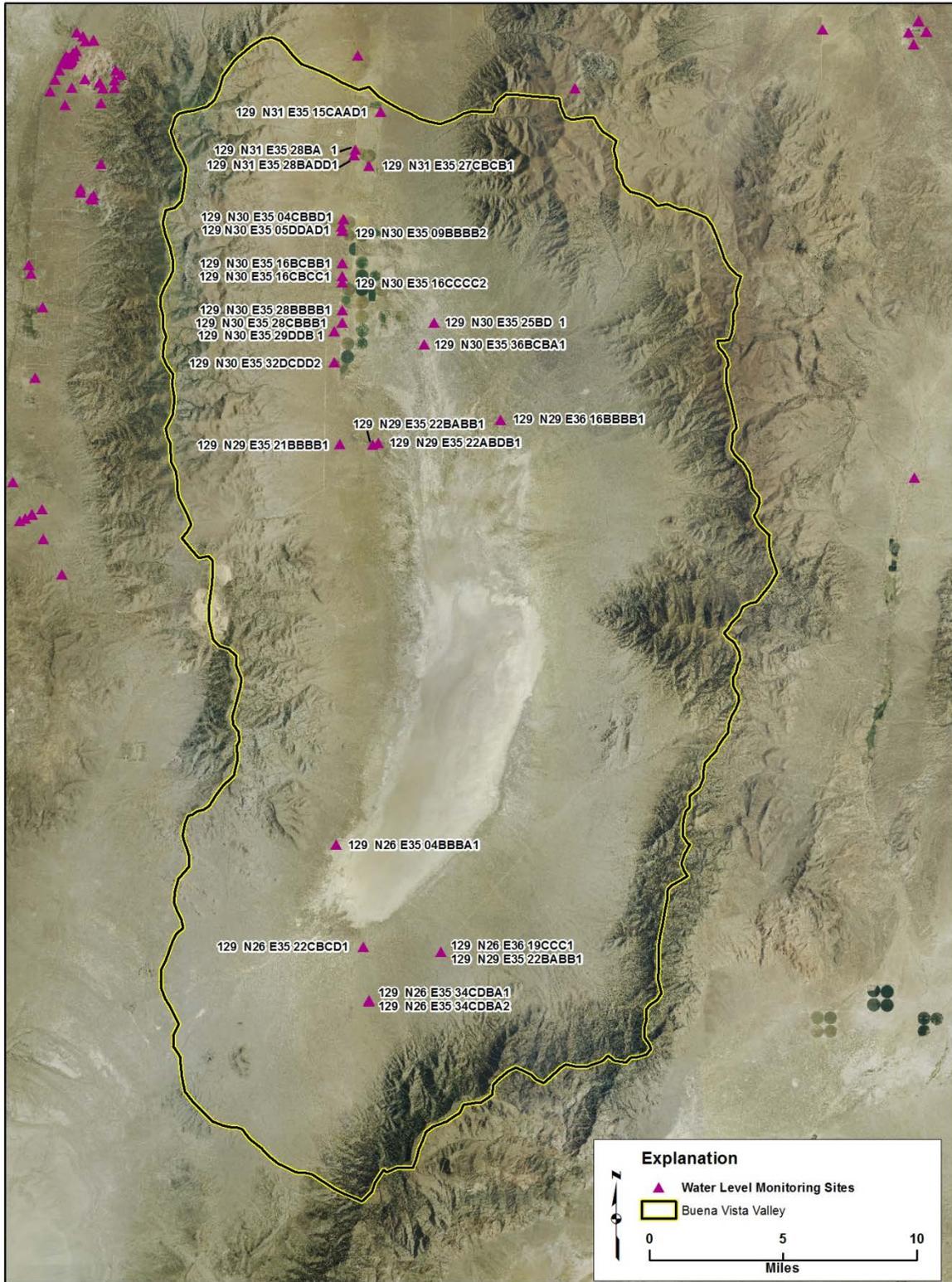


Figure 2. Map showing Buena Vista Valley irrigated acreage and water level monitoring sites.

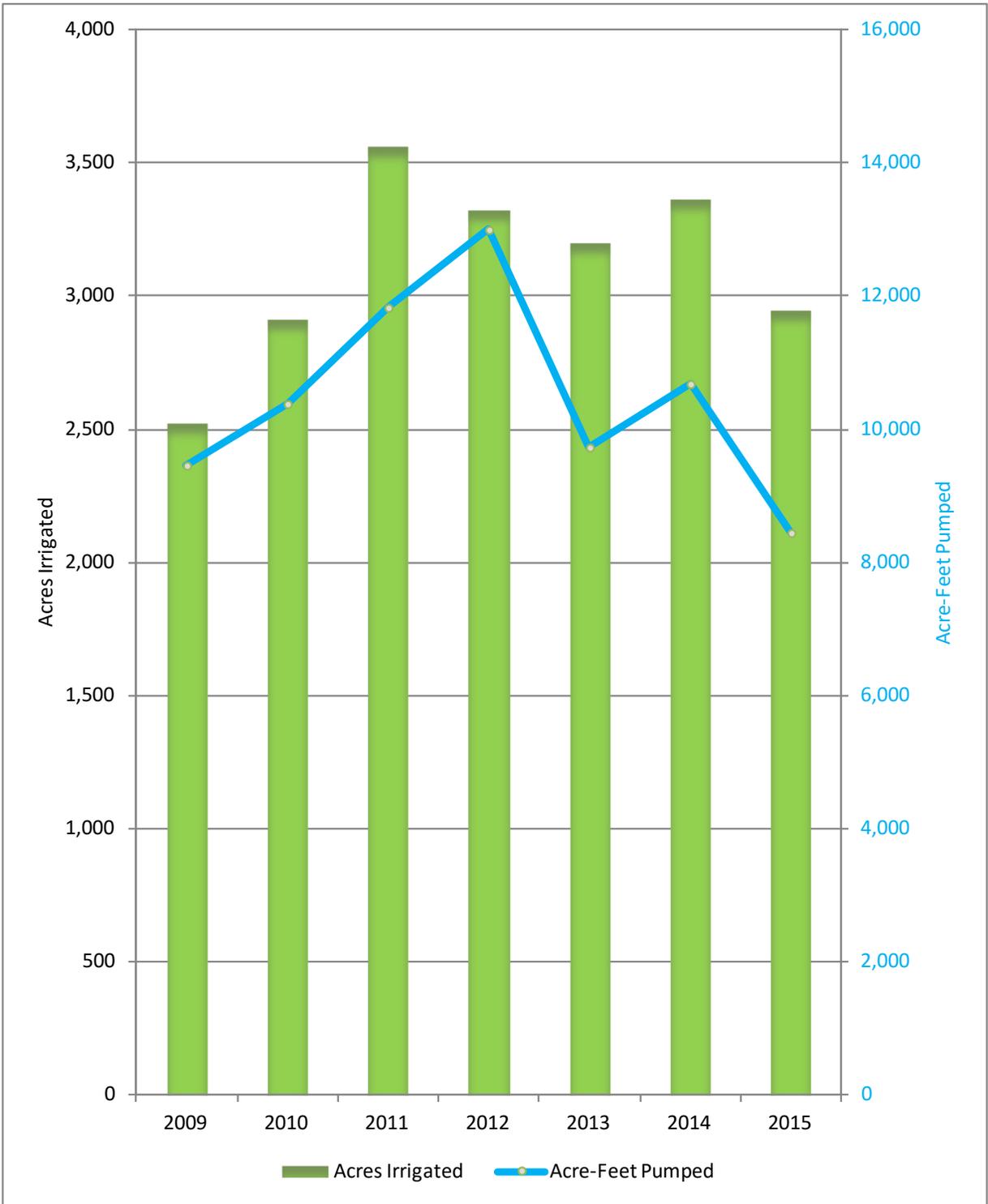


Figure 3. Graph showing Buena Vista Valley historical irrigated acreage and pumpage. 2013 and previous historical data reported herein are consistent with those published in 2013, and differ from previously published data.

APPENDIX A. 2015 BUENA VISTA VALLEY CROP INVENTORY.

EXPLANATION OF COLUMN HEADINGS

App No	The file number of the Application to Appropriate/Change Water or the Claim of Vested Right.
Status	Indicates the status of an application: Permit (PER), Certificated (CER), or a Claim of Vested Right (VST).
QQ	The quarter-quarter of the Section in which the point of diversion is located.
Q	The quarter of the Section in which the point of diversion is located.
Sec	The Section in which the point of diversion is located.
Twn	The Township in which the point of diversion is located.
Rng	The Range in which the point of diversion is located.
Sup	Indicates whether the groundwater right is part of a group of groundwater rights used to irrigate all or a portion of the same acreage (supplemental). A “Y” in this column signifies the groundwater right is supplemental to other groundwater rights.
Supplemental Application Number	The application number(s) of the water right(s) that are supplemental to one another.
Permitted Acres	The number of acres defined by the permit or certificate that is eligible to be irrigated.
Supplementally Adjusted Permitted Acres	The supplementally adjusted, total number of acres that is eligible to be irrigated under a supplemental group of water rights.
Permitted Duty Acre-Feet	The amount of water that may be pumped in a given year, or season, as defined by the permit, certificate, or claim of vested right. If there is a supplemental group, the total combined duty is listed as a supplementally adjusted duty.
Supplementally Adjusted Duty Acre-Feet	The supplementally adjusted, total combined duty that may be pumped in a given year, or season, for a supplemental group of water rights, expressed in acre-feet. The supplementally adjusted, total combined duty is listed at the end of a supplemental group in bold .
Owner of Record	The owner of the water right as recorded in the records of the State Engineer. A water right may have more than one owner of record. Only the first, alphabetically, is listed in this table.
Crop Type	Indicates whether or not a crop was in production during the water year. If a crop was in production, the common name description of the plants under cultivation if given (e.g. alfalfa).

NIWR (ft)	Net Irrigation Water Requirement, defined to be equal to the annual crop evapotranspiration less the effective precipitation entering the root zone that is available for evaporation or transpiration.
Irrigation Method	The method by which the water is applied to the crop and ground (e.g. pivot).
Irrigation Efficiency	The estimated efficiency of the desired irrigation method used.
Irrigated Acreage	The estimate of the number of acres irrigated associated with a particular water right.
Acreage Estimation Method	The method by which the number of acres irrigated was determined. F – Field inspection. I – Aerial or satellite imagery.
Acre-Feet Pumped	The estimate of the amount of water pumped under a particular water right, expressed in acre-feet. One acre-foot equals 325,851 gallons.
Pumpage Estimation Method	The method used to estimate the amount of water pumped. M – Totalizing meter readings; N – NIWR; D – Duty.
Remarks	Additional information. Numbers in this column correspond to footnotes at the end of the table.

Crop Inventory and Groundwater Pumpage for Irrigation - Buena Vista Valley - Basin 129, 2015

App. No.	Status	Point of Diversion						Sup.	Supplemental Application Number	Permitted Acres	Supplementally Adjusted Permitted Acres	Permitted Duty (Acre-Feet)	Supplementally Adjusted Duty (Acre-Feet)	Owner of Record	Crop Type	NIWR (ft)	Irrigation Method	Irrigation Efficiency (%)	Irrigated Acreage	Acreage Estimation Method	Volume Pumped (Acre-Feet)	Pumpage Estimation Method	Remarks
		QQ	Q	Sec.	Twn.	Rng.																	
13432	CER	SW	SE	32	30N	35E	Y	13432, 4214, 9694, 11037, 45191, 67237, 67238, V01132	160.87	920.00	643.48	3680.00	McCart <i>et al.</i>	Grain	3.3	Flood	60%	32	F	135.67	M	Surface water from Indian and Cottonwood Creeks - Assumed no use on pivots. Meter read on well entering flood irrigated ditch(es) is an underground source only.	
45191	PER	SE	SE	29	30N	35E	Y		520.00		2080.00												
67237	PER	SE	SE	29	30N	35E	Y		920.00		3680.00												
67238	PER	SE	NW	22	29N	35E	Y		920.00		3680.00												
50920	CER	NW	SW	4	30N	35E	Y	V01322, V03023, 50917, 50919, 50920, 50921, 50922, 50923, 50924	890.60	890.60	396.71	3562.40	Huntsman Ranch, LLC	Alfalfa	3.4	Pivot	85%	128	F	453.95	M	Coyote Creek source. Meter read was from underground well source. 58% of maximum allowable acre-feet/acre equal accounted water; Therefore, excess not included in calculation is surface water.	
50922	CER						Y		890.60		1393.36			Grain	3.3	Pivots	85%	120	F				
50924	CER	Y	890.60	233.84	None	0	0		0		0			F	0.00	N/A							
50921	CER	SE	SE	5	30N	35E	Y		890.60		1094.20			Alfalfa	3.4	Pivots	85%	318	F	834.39	M		
50923	CER	NW	NW	9	30N	35E	Y		890.60		3554.80			Alfalfa	3.4	Pivot	85%	187	F	449.55	M		
47575	CER	SW	NW	16	30N	35E	Y	47575, 47577	515.00	515.00	1664.10	2060.00	Buena Vista Land & Livestock, LLC	Alfalfa	3.4	Pivot	85%	121	F	484.00	N	No surface water.	
47577	CER	NW	SW	16	30N	35E	Y		515.00		2060.00			Grain	3.3	Pivot	85%	122	F	408.00	M		
13264	CER	SW	NW	21	30N	35E	Y	13264, 28267, V00735	322.76	584.16	1291.04	2336.64	Palomino Development, LLC	Grain	3.3	Pivot	85%	253	F	796.90	M	Surface water from Unionville Creek on 87.25 acres - No SW use on pivots.	
28267	CER	NW	NW	21	30N	35E	Y		584.16		2336.64			Grain	3.3	Pivots	85%	179	F	406.41	M		
29524	CER	SW	NW	22	30N	35E	Y	10682, 10698, 13375, 10699, 13376, 13377, 58570, 58571, 58572	124.90	270.38	262.73	1081.52	Harmon <i>et al.</i>	None	0	0	0%	0	F	0.00	N/A	No surface water.	
43403	CER	NW	NW	22	30N	35E	Y		124.90		382.89			Alfalfa	3.4	Sprinklers	75%	98	F	382.89	D		
43404	CER	NE	NW	22	30N	35E	Y		145.48		114.38			None	0	0	0%	0	F	0.00	N/A		
43405	CER	SW	NW	22	30N	35E	Y		124.90		499.60			None	0	0	0%	0	F	0.12	M		
43406	CER	NW	SW	22	30N	35E	Y		145.48		361.99			None	0	0	0%	0	F	0.00	N/A		
47736	CER	SW	NE	22	30N	35E	Y		145.48		361.99			None	0	0	0%	0	F	0.00	N/A		
58570	CER	SW	SW	16	30N	35E	Y		270.38		115.15			Alfalfa	3.4	Pivot	85%	126	F	504.00	N		
58571	CER						Y		270.38		141.98												
58572	CER						Y		270.38		105.70												
58573	CER						Y		270.38		271.07												
29065	PER						NW		NW		28												30N
29066	PER	Y	1920.00	4343.82	29065, 29066, 29067, 31208, 40892, 40893, 40894	1918.03	7672.11	Kendricks <i>et al.</i>	Alfalfa	3.4	Pivot	85%	127	F	426.45	M	No surface water.						
29067	PER	SW	SW	28					30N	35E	Y	1920.00	4343.82	Alfalfa	3.4	Pivots		85%	502	F	1436.66	M	
31208	PER	NE	SW	28					30N	35E	Y	1920.00	4271.42	None	0	0		0%	0	F	0.00	N/A	
40892	PER	NW	NW	27					30N	35E	Y	166.75	661.73	None	0	0		0%	0	F	0.00	N/A	
40893	PER	SW	NW	28					30N	35E	Y	468.00	863.80	None	0	0		0%	0	F	0.00	N/A	
40894	PER	NW	NW	28					30N	35E	Y	468.00	1872.00	None	0	0		0%	0	F	0.00	N/A	
23425	CER	NE	NW	28					31N	35E	Y	190.52	762.08	Alfalfa	3.4	Flood		60%	53	F	135.67	M	Partially supplemental to Santa Clara and Star Creek surface waters. No surface water adjustment to metered water since meter is from a well/underground source.
79700	PER	NE	NW	28	31N	35E	Y	80.29	229.50	321.16	918.00	Pruitt Revocable Living Trust	Alfalfa	3.4	Pivot	85%	129	F	806.90	M			
79701	PER						Y	76.59	306.36	Alfalfa	3.4	Flood	60%	64									

Permitted Area (Acres) = 5,328

Total Supplementally Adjusted Duty (Acre-Feet) = 21,311

Total Irrigated Area (Acres) = 2,948

Total Volume Pumped (Acre-Feet) = 8,436