

EXHIBIT 118

**Development of GIS data and Water
Rights Information for the Walker
River Decision Support Tool
(version 2.0):
NSE Application 80700**

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Data Inputs and Comparative Data for the DST

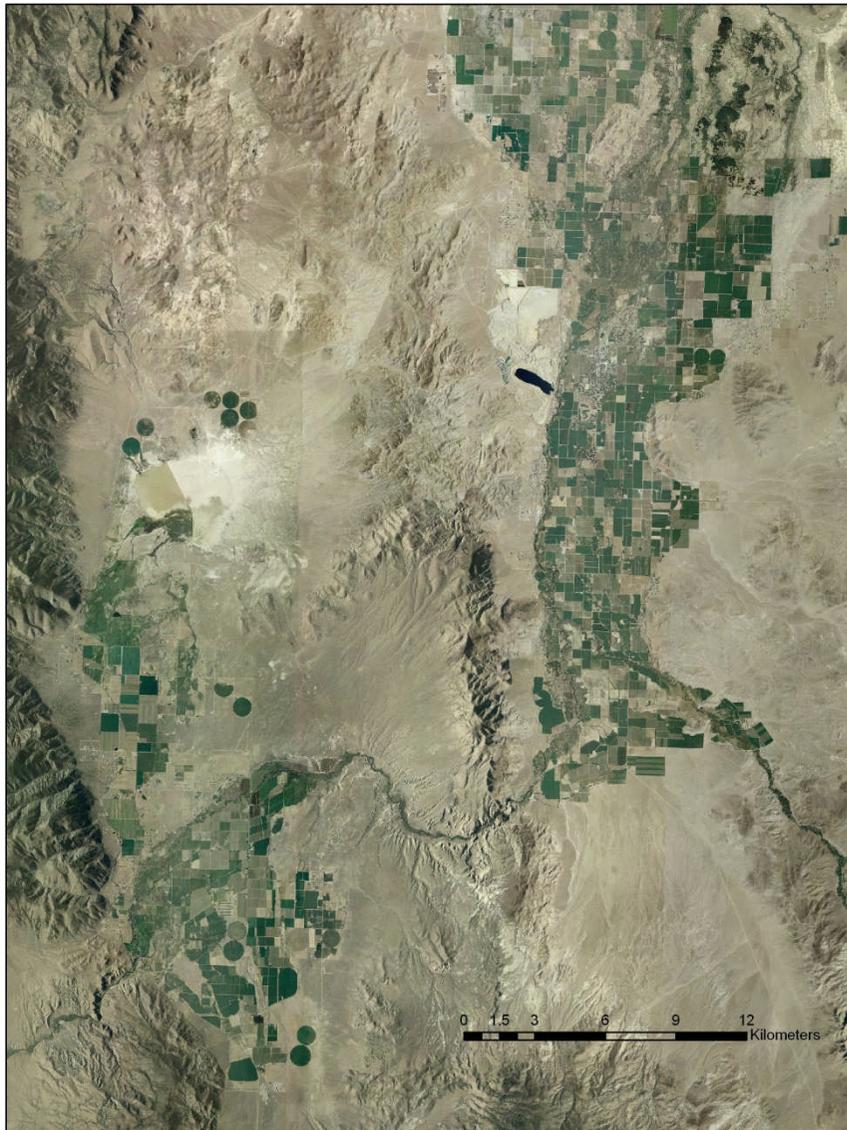
Objective

Provide spatial and water rights information as both inputs and comparative data for the DST. The spatial extent focuses on Mason and Smith valleys, with some data sets covering all of Walker Basin.

Base Geographic Information Systems (GIS) Data

- Aerial Photography
 - One foot aerials (2007)
 - One meter aerials (2005, 2006, 2010)
- Parcel, PLSS, and Administrative Data
 - Parcels and associated attributes
 - Public Land Survey System (PLSS) (Township, Range, Sec.)
 - County, City, WRID boundaries
- Agricultural Fields
 - Updated USDA Farm Service Agency field boundaries
 - Crop types identified using imagery and field observations

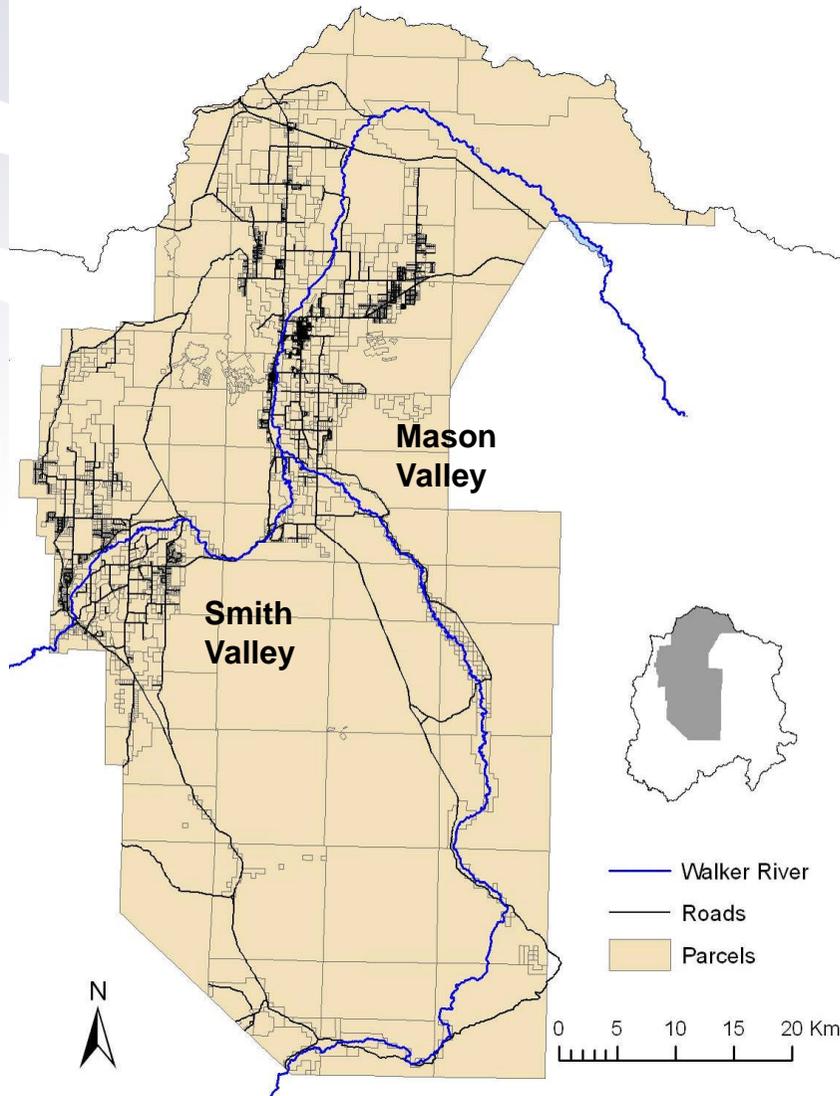
Aerial Photography



One foot aerial photography collected in Spring, 2007. Data collected by vendor for Lyon County. DRI purchased the licensed data for the Walker Basin Project.

Also used USDA one meter photography collected in 2010, 2006, and 2005.

Parcel Data



Originally acquired parcel data for all counties in the Walker Basin in 2007: Douglas; Lyon, Mineral and Mono.

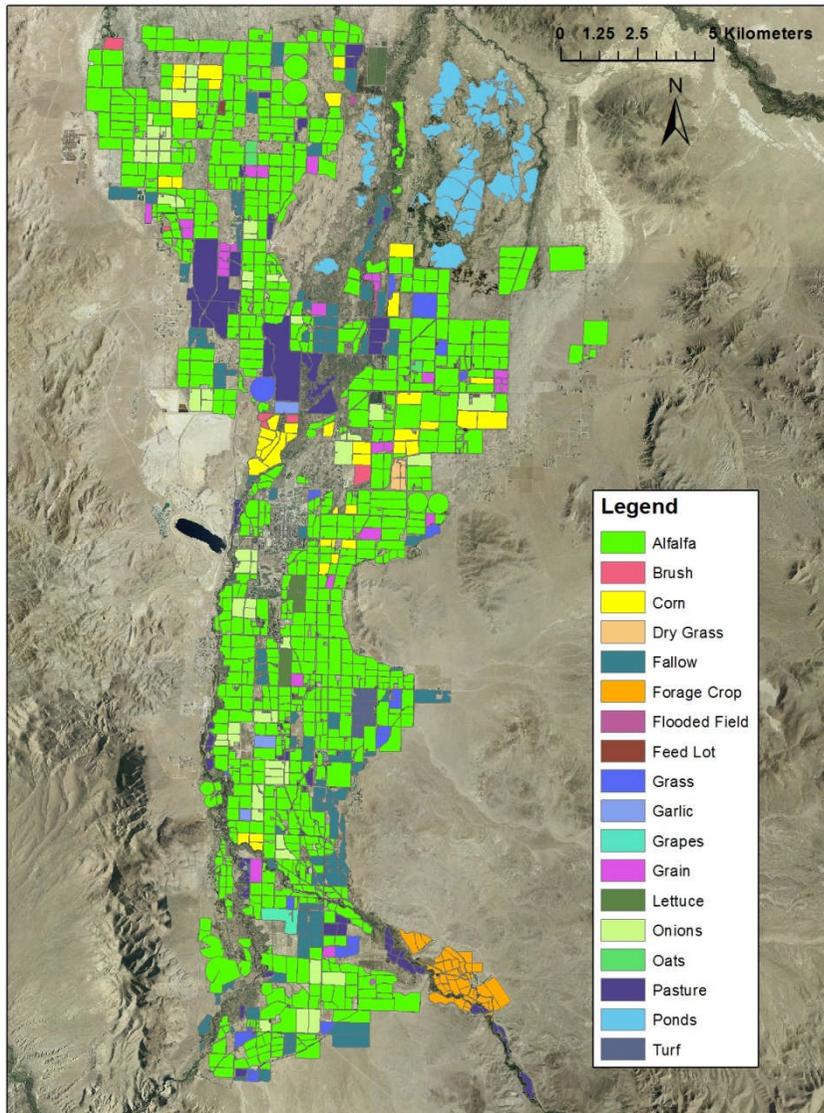
Continued to receive updates to Lyon County parcel data from County Assessor's office, latest version obtained August, 2012.

PLSS Data



Public Land Survey System (PLSS) (Township, Range, Section, Q/Q) from BLM. Latest update obtained from BLM 02/15/12.

Crop Types

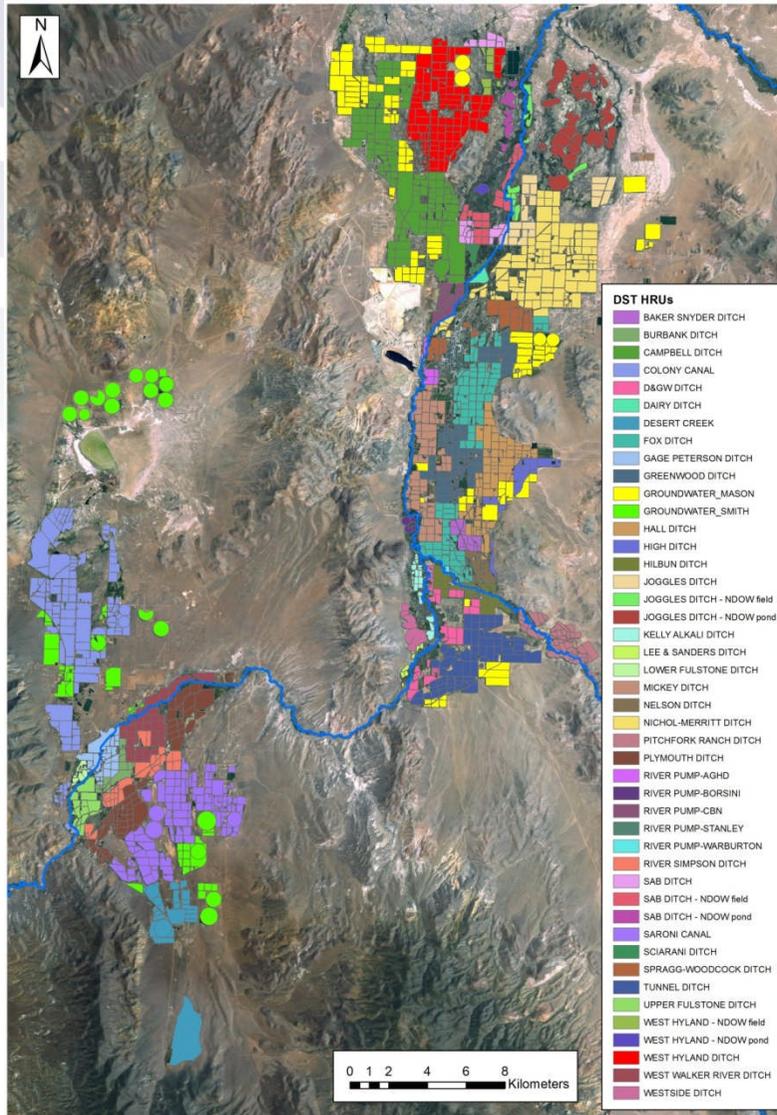


Crop types identified in Mason Valley - 2007 (John Snyder/UNR field survey; 2006 and 2007 aerial photography; Google Earth).

Hydrologic Data

- Hydrologic Response Units (HRUs)
 - Constructed from agricultural field boundaries
 - Fields share a common diversion source
 - Tied to historic water diversions
- Stream and Irrigation Network
 - River centerlines
 - Delivery (ditch, river pump) and drain systems
 - Diversions

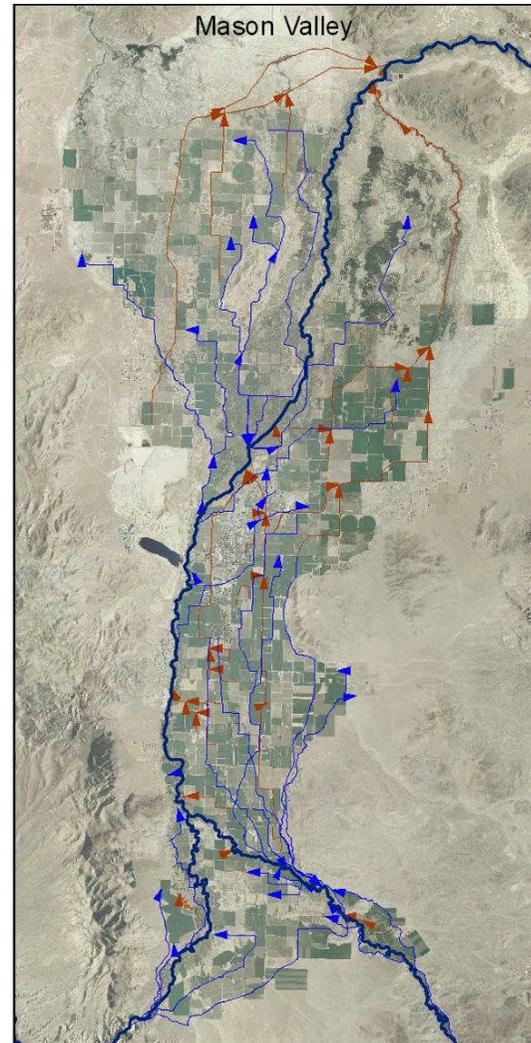
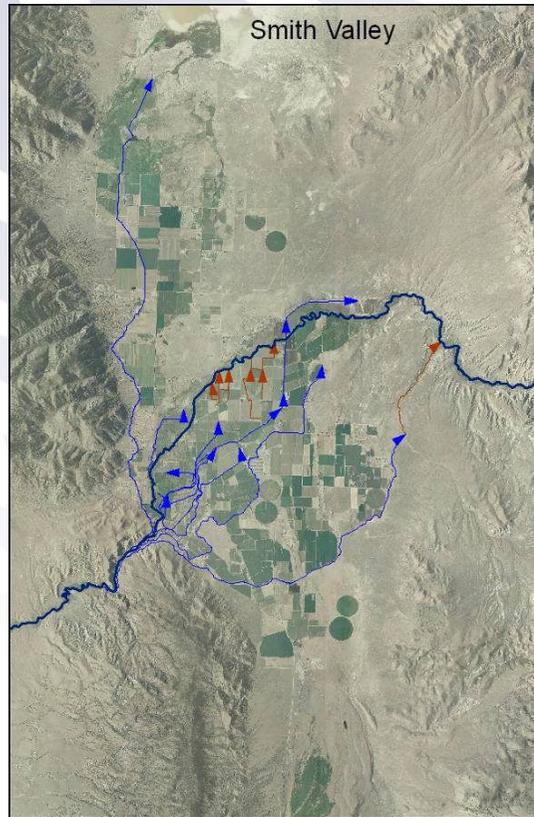
Hydrologic Response Units (HRUs)



DST HRUs in Mason Valley. Data constructed using aerial photography, field reconnaissance, and input from property owners and ditch companies.

Irrigated fields, pastures and ponds serviced by common diversion (ditch or river pump) or primary groundwater.

Ditches, River Pumps, and Drains



Ditches and drains of lower Mason Valley with flow directions.

Line work digitized from one-foot and one meter aerial photography, and verified with field work where possible.

Only primary ditches and drains were used for input to DST.

DST Diversions



Diversions off the Main Stem, West Fork and East Fork of the Walker River in Mason and Smith valleys used in the DST.

GPS'd locations obtained in April 2007 with assistance from WRID. Additional diversions identified with aerial photography, historical documents, and subsequent field visits.

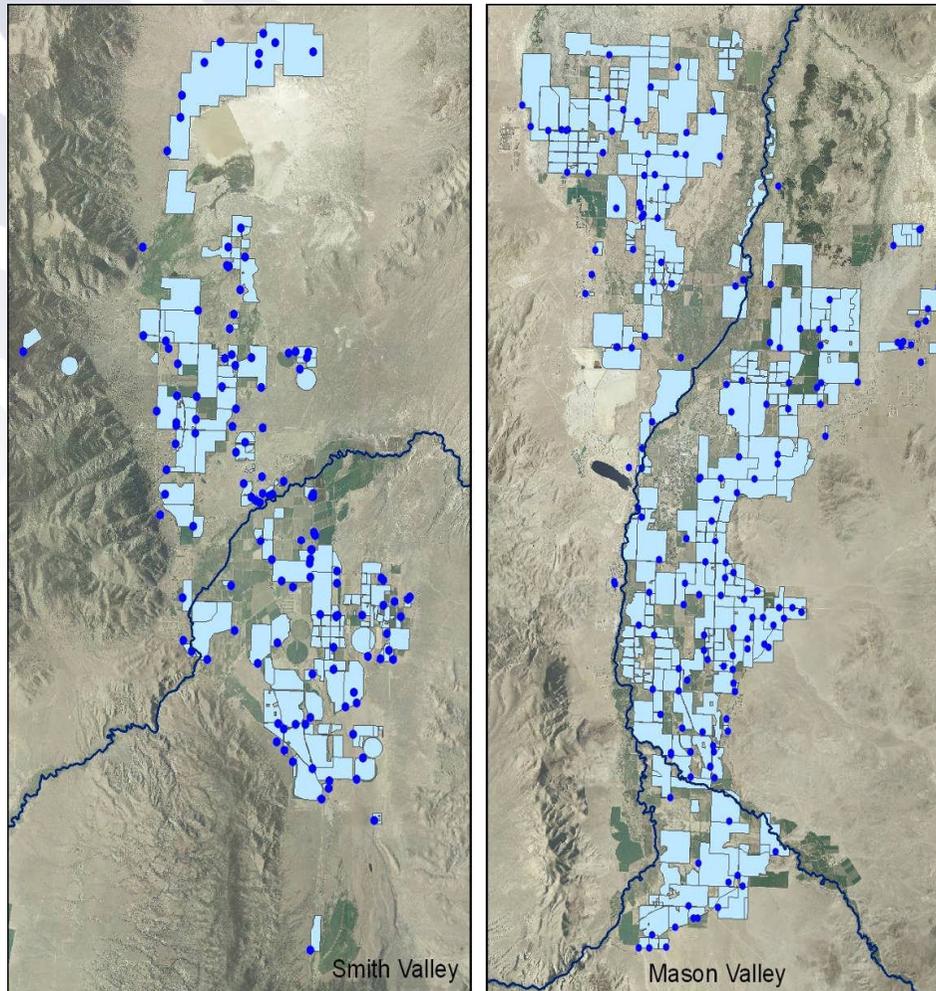
Hydrologic Data (cont.)

- Historical Surface Water Diversions
 - Walker River Irrigation District (WRID) data
 - Monthly decree, storage, and permit (flood) data
 - Time series: 1996 to 2011
 - Nevada Department of Wildlife (NDOW) data for the Mason Valley Wildlife Management Area (MVWMA)
 - Daily and monthly decree, storage, and permit data
 - Time series: 1996 to 2011

Hydrologic Data (cont.)

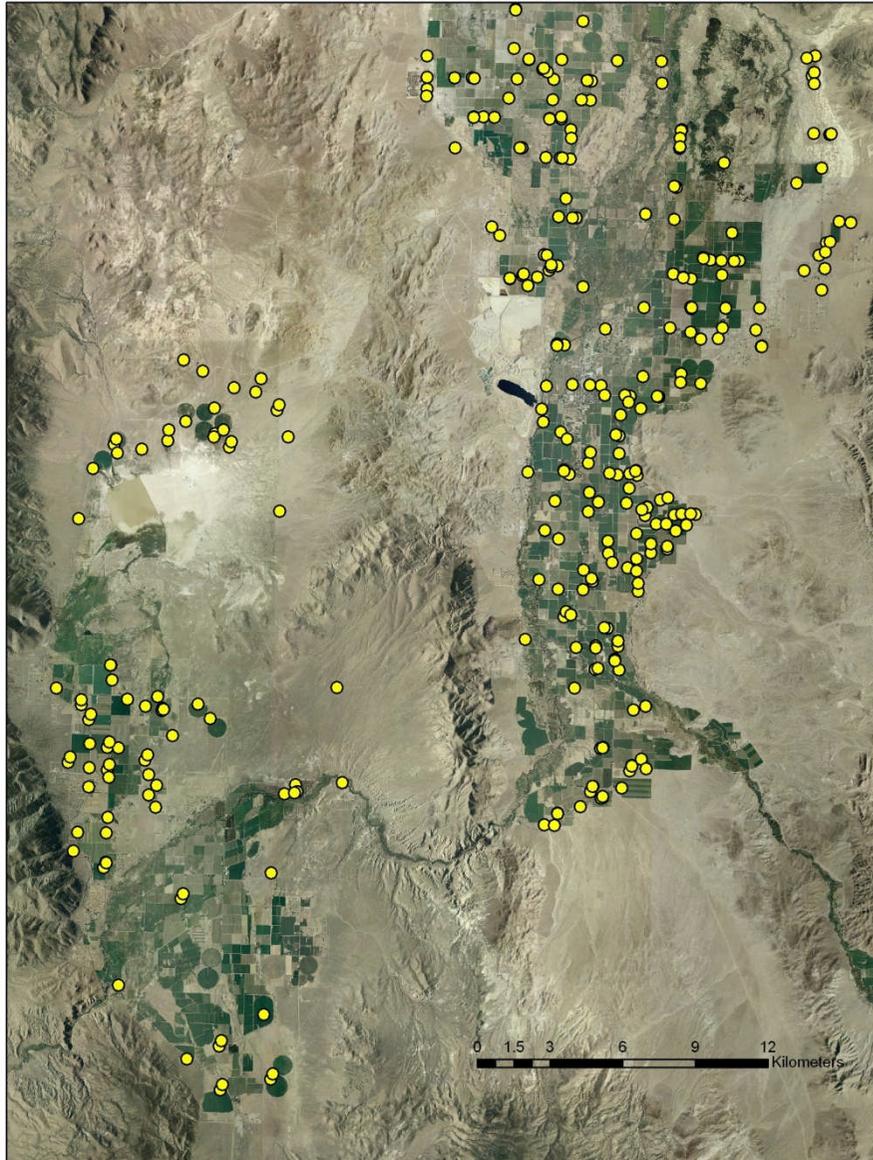
- Groundwater Points of Diversion and Places of Use
 - Nevada Division of Water Resources (NDWR) data
 - Database developed by NDWR and DRI for Mason and Smith valleys
 - Permitted and certificated PODs and POUs irrigation groundwater data
- Wells
 - NDWR water levels, pumping inventories (annual), well locations, and permit numbers
 - 112 wells in Mason and Smith valleys
 - Time series: 1994 to 2004

Groundwater PODs and POUs



Points of Diversion (PODs) and Places of Use (POUs) digitized from NDWR scanned maps based on PLSS. Attributes developed by DRI using permit and certificate information for irrigation groundwater from the NDWR database.

Wells



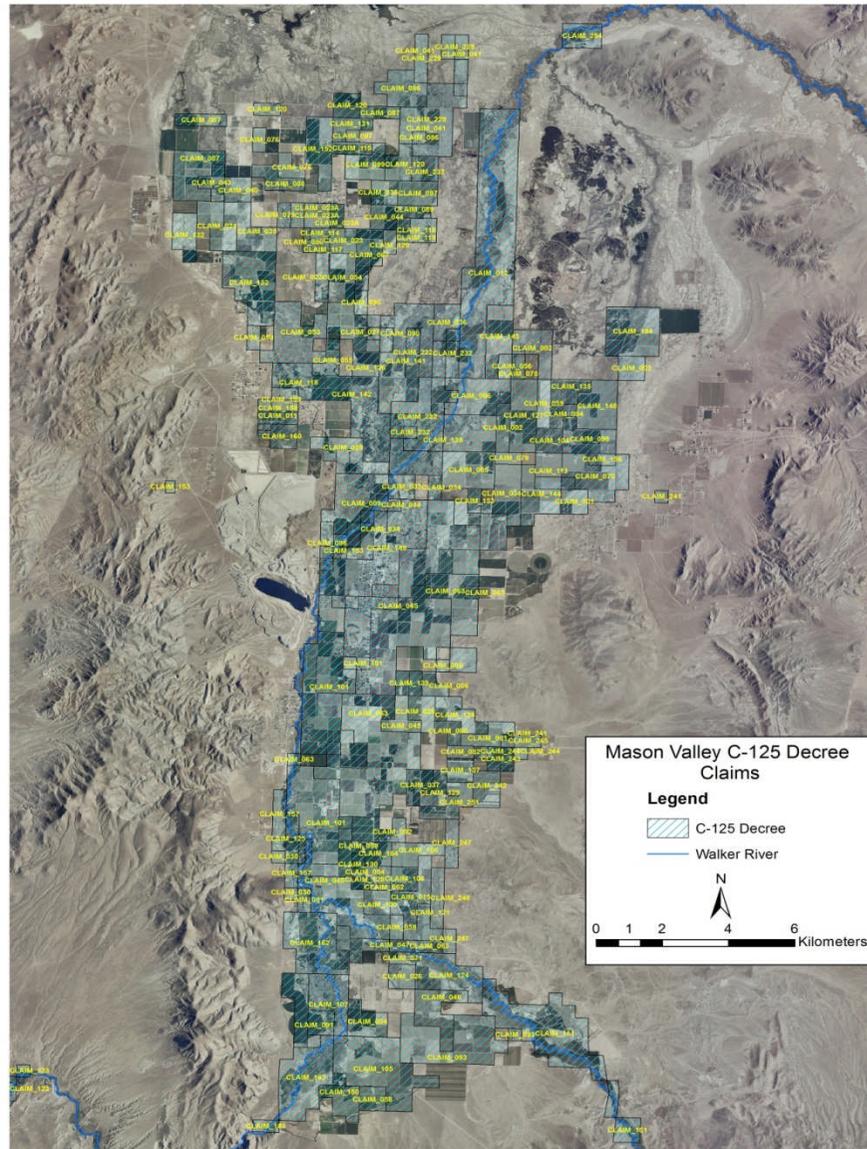
Well data for 1994-2004
obtained from NDWR.
Includes data for 112 wells for
Mason and Smith Valleys.

Data fields included water
levels, pumping inventories
(annual), well locations, and
permit numbers.

Water Rights by HRU

- Locations of C-125 Decree Claims
 - Spatial data layer developed from Decree and PLSS
 - Data layer defined using Decree description and information from the 1997 Nevada Division of Water Planning (NDWP) database (Pahl, 1999) derived from Water Master Abstract
 - To attach each decree right claim to a specific set of irrigated fields, a reasonable estimate was made by comparing the NDWP Abstract database with the C-125 decree data and the 2007 Lyon County parcel data set.

Decree Water Right Claims



C-125 Decree water right claims in Mason Valley (blue) as defined in Decree and by PLSS. Spatial data layer developed using decree description and information from Nevada Division of Water Planning (NDWP) 1997 database (Pahl, 1999).

Water Rights by HRU (cont.)

- Quantified decree rights for Mason and Smith valley HRUs
 - Claims and priority dates given an individual entry related to common diversion.
 - Diversions, priority dates, diversion rates, and irrigated acres arranged to set up calculations for annual volume in acre-feet (AF).
 - Annual duties (high and low) multiplied by irrigated acres to calculate annual volumes.
 - Individual owners totaled by diversion (HRU) and priority date.

West Hyland Decree Water Rights

Type of Use	HRU/Diversion	Priority Date	Irrigated Acres	Annual Duty (AC-FT/AC)	Annual Volume (AF)	Diversion Rate (CFS/AC)
DEC	West Hyland Ditch	1873	250	3.2076	801.9	0.012
DEC	West Hyland Ditch	1874	1761.19	3.2076	5649.19	0.012
DEC	West Hyland Ditch	1877	72	3.2076	230.95	0.012
DEC	West Hyland Ditch	1880	867.54	3.2076	2782.72	0.012
DEC	West Hyland Ditch	1881	40	3.2076	128.3	0.012
DEC	West Hyland Ditch	1887	65	3.2076	208.49	0.012
DEC	West Hyland Ditch	1888	80	3.2076	256.61	0.012
DEC	West Hyland Ditch	1891	138	3.2076	442.65	0.012
DEC	West Hyland Ditch	1894	15	3.2076	48.11	0.012
DEC	West Hyland Ditch	1896	92	3.2076	295.1	0.012
DEC	West Hyland Ditch	1899	12	3.2076	38.49	0.012
DEC	West Hyland Ditch	1900	140	3.2076	449.06	0.012
DEC	West Hyland Ditch	1901	15	3.2076	48.11	0.012
DEC	West Hyland Ditch	1904	26	3.2076	83.4	0.012
DEC	West Hyland Ditch	1905	40	3.2076	128.3	0.012
DEC	West Hyland Ditch	1906	20	0.8316	16.63	0.012

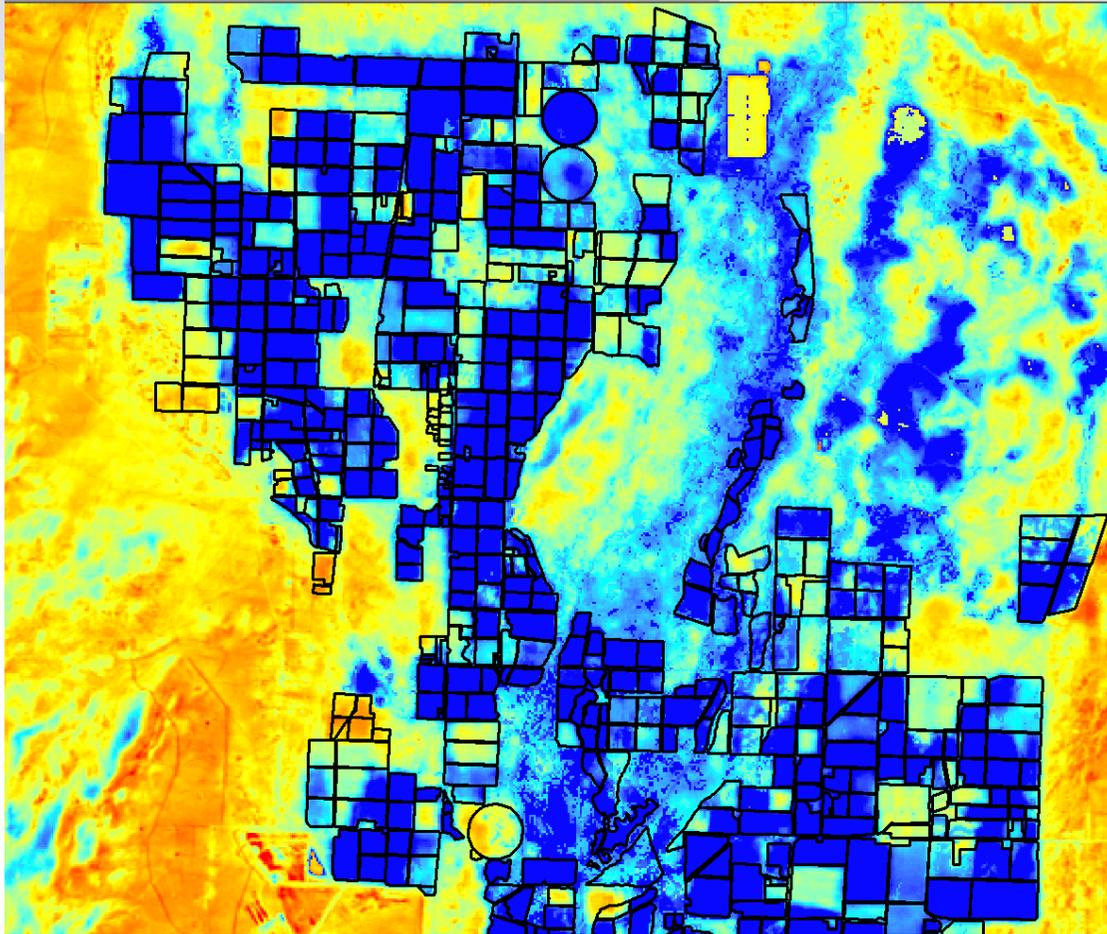
Summarized table of decree water rights by priority date on the West Hyland Ditch.

Net Irrigation Water Requirement Data

- NIWR data files for Mason and Smith Valley obtained from the NDWR website.
- Mean monthly NIWR obtained for specific crop types and converted to feet/month.
- NIWR crop types reconciled with the crop types developed in the 2007 crop survey by matching the most appropriate crop categories:

Crop Types from 2007 field mapping (Snyder/Minor)	Key Code	NDWR NIWR
Alfalfa	A	Alfalfa Hay
Brush	B	Bare Soil
Corn	C	Field Corn
Dry Grass	DG	Grass Pasture (Low)
Fallow	F	Bare Soil
Feed Lot	FL	Bare Soil
Flooded Field	FF	Open Water
Forage Crop	FC	Grass Hay
Garlic	Ga	Garlic
Grain	Gr	Spring Grain
Grapes	Gp	Fallon Grapes
Grass	G	Grass Hay
Lettuce	L	Garden Vegetables
Oat	Oa	Spring Grain
Onion	O	Onion
Pasture	P	Grass Hay
Pond	PO	Open Water
Turf	T	TurfGrass Lawns

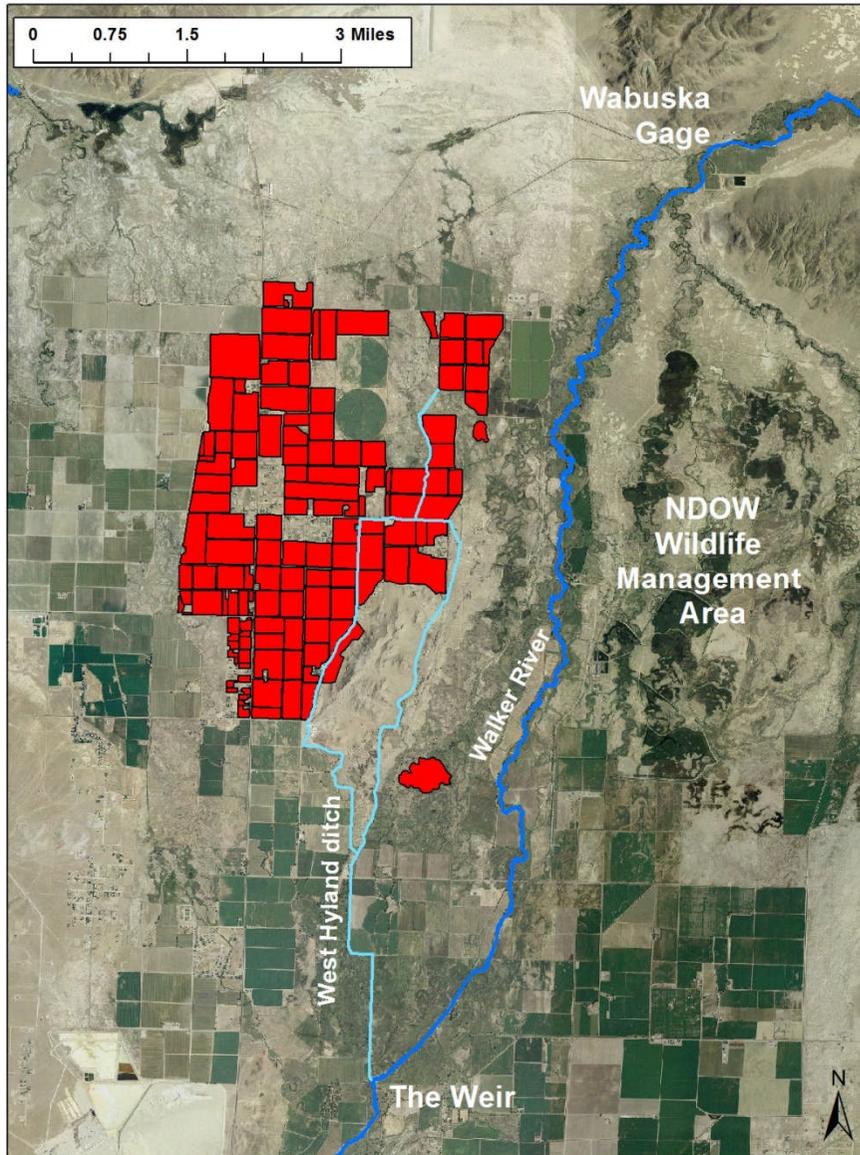
METRIC-derived Evapotranspiration



Satellite derived, internally calibrated EvapoTranspiration (ET) values (mm/day) for northern Mason Valley in 2007. Blue represents high ET, yellow/orange low ET.

Monthly and seasonal METRIC ET results were used for comparison with NIWR values and HRU water balance results.

West Hyland HRU



West Hyland HRU: ditch system and associated agricultural fields in proximity to Walker River, The Weir and the Wabuska Gage.

Change Application 80700



Change Application 80700
existing Places of Use
within the West Hyland
HRU. Total proposed area
of water rights transfer is
646.16 acres.