Groundwater Discharge from Phreatophyte Vegetation, Humboldt River Basin, Nevada

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February 2022

Publication No. 41288

Prepared by

Division of Hydrologic Sciences, Desert Research Institute

Prepared for

Nevada Department of Conservation and Natural Resources,
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ABSTRACT

Groundwater evapotranspiration (ETg) from phreatophyte vegetation is the primary component of natural groundwater discharge within the Humboldt River Basin. This report summarizes previous study estimates of ETg, and details methods and results of updated groundwater discharge areas, ETg rates, and ETg volume estimates developed in this study. Estimates derived in this study are summarized for the period of 1985-2015 and were based on a consistent place-based approach that relies on Geographic Information System and groundwater level data and a least-squares regression model that relates Landsat vegetation indices with evaporative demand, precipitation, and in-situ estimates of phreatophyte ET. Median annual ETg rates and volumes reported in this study are representative of pre-development conditions. Where irrigated areas were identified, ETg rates were adjusted to reflect the phreatophyte vegetation that likely occupied irrigated areas prior to cultivation. Results from this study were used to inform groundwater modeling studies by the U.S. Geological Survey and the Desert Research Institute, in cooperation with Nevada Division of Water Resources, to support conjunctive water management.

Results and datasets are summarized and documented in the form of maps, graphs, tables, geodatabases, and metadata following Federal Geographic Data Committee standards and are available at www.dri.edu/humboldt-etg. Estimated pre-development total annual ETg volumes for the upper, middle, and lower Humboldt River basin are 158,500, 361,600, 55,900 ac-ft/yr, and 85,700, 248,400, and 46,100 ac-ft/yr when riparian lands are excluded, respectively. Discharge areas and median annual ETg rates and volumes were compared to previous estimates for respective ET Units and Hydrographic Areas. Results reported for the upper Humboldt River Basin indicate that potential areas of groundwater discharge are generally lower, and ETg rates and volumes are generally less than one half of the ETg rates and volumes reported by Plume and Smith (2013). Results reported for the middle Humboldt River Basin indicate that ETg volumes are higher in six, and lower in seven HAs when compared to previous estimates reported in Water Resource Bulletin and Reconnaissance Series reports. ETg rates and volumes in the middle Humboldt River Basin are also generally less than one half when compared to those reported by Berger (2000). Differences in ETg volumes are primarily due to differences in ETg rates and differences in groundwater discharge areas.

This study used place-based satellite remote sensing, climate and GIS datasets, groundwater levels, and in-situ based phreatophyte ET empirical regression models to estimate potential areas of groundwater discharge, and ETg rates and volumes within the Humboldt River Basin. Future study estimates of ETg within the Humboldt River Basin could be improved by refining delineation of groundwater discharge areas, variability in ETg with respect to climate and land use change, and collection of in-situ ET estimates in areas where large uncertainty exists.

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LIST OF ACRONYMS

Ac	Acres
ASCE	American Society of Civil engineers
BARCAS	Basin and Range Carbonate-Rock Aquifer System
CI	Confidence Interval
DEM	Digital Elevation Model
DOY	Day of Year
DRI	Desert Research Institute
E	Evaporation
Eg	Groundwater Evaporation
ET	Evapotranspiration
ET*	Water Year Normalized Evapotranspiration
ETg	Groundwater Evapotranspiration
ETo	Grass Reference Evapotranspiration
ETM+	Enhanced Thematic Mapper Plus
EVI	Enhanced Vegetation Index
EWRI	Environmental and Water Resources Institute
FGDC	Federal Geographic Data Committee
Ft	Feet
GEE	Google Earth Engine
GIS	Geographic Information System
GPS	Global Positioning System
gSSURGO	Gridded Soil Survey Geographic Database
HA	Hydrographic Area
In/yr	Inches per year
LaSRC	Landsat Surface Reflectance Code

LCI	Lower Confidence Interval
LEDAPS	Landsat Ecosystem Disturbance Adaptive Processing System
MSAVI	Modified Soil Adjusted Vegetation Index
NAIP	National Agricultural Imagery Program
NDWR	Nevada Division of Water Resources
NIR	Near Infrared
NIWR	Net Irrigation Water Requirement
NLDAS	North American Land Data Assimilation System
NLCD	National Land Cover Database
NWIS	National Water Information System
OLI	Operational Land Imager
PI	Prediction Interval
PLSS	Public Land Survey System
POU	Place of Use
PM	Penman-Monteith
PPT	Water Year Precipitation
PRISM	Precipitation-Elevation Regressions on Independent Slopes Model
QAQC	Quality Assurance and Quality Control
RIB	Rapid Infiltration Basin
RAWS	Remote Automated Weather Stations
Rs	Solar Radiation
SEB	Surface Energy Balance
SNOTEL	Snow Telemetry
TM	Thematic Mapper
Tdew	Average Dewpoint Temperature
Tmax	Maximum Temperature
Tmin	Minimum Temperature
u10	Wind Speed at 10 m height
UCI	Upper Confidence Interval
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

INTRODUCTION

The Humboldt River Basin is located in north central Nevada and includes 36 unique Hydrographic Areas (HAs) (Figure 1). The Humboldt River, its tributaries, and groundwater aquifers provide water for beneficial uses of irrigation, mining and milling, municipal, livestock watering, and domestic uses. In 2015, the Desert Research Institute (DRI) and U.S. Geological Survey (USGS), in cooperation with Nevada Division of Water Resources (NDWR), began an evaluation of groundwater flow and surface and groundwater interactions along the Humboldt River and its tributaries to support conjunctive water management. Results from this study were used to inform companion groundwater modeling studies of the USGS and DRI (Davis *et al.*, in prep; Carroll *et al.*, in prep; Nadler *et al.*, in prep) and develop new estimates of groundwater discharge for water budgets within the Humboldt River Basin.

Evapotranspiration from phreatophyte vegetation is the primary component of groundwater discharge within the Humboldt River Basin (Eakin and Lamke, 1966). Evapotranspiration (ET) is the process by which water is converted into vapor by evaporation from soil, leaf interception, and transpiration through the stomata of plants (Brutsaert, 1982). Phreatophytes are plants that consume groundwater from the zone of saturation or capillary fringe (Robinson, 1958). Groundwater models require estimates of groundwater recharge and discharge, preferably independent estimates of both to constrain the groundwater budget for more accurate calibration of aquifer properties. Within the Great Basin, and other regions where groundwater discharge primarily occurs as groundwater ET (ETg), groundwater discharge is considered the most reliable and more easily quantified groundwater budget component since estimates of ETg from phreatophyte vegetation can be made much more reliably than estimates of groundwater recharge (Bredehoeft, 2007).

PURPOSE AND SCOPE

The purpose of this study was to develop and summarize new groundwater discharge areas, ETg rates, and ETg volume estimates within the Humboldt River Basin using place-based satellite and climate datasets and best available science. Estimates of ETg rates made in this report are based on a least squares regression model that relates place-based satellite-derived vegetation indices, evaporative demand, and precipitation to in-situ based estimates of annual ET and ETg. Spatial distributions of annual ETg rates are summarized over potential areas of groundwater discharge within each HA, and spatial summaries are temporally summarized from 1985 through 2015 to develop median annual ETg volumes for each HA within the Humboldt River Basin. Revised estimates are compared to previous estimates of groundwater discharge areas, and ETg rates and volumes for each HA. Results are summarized and documented as maps, graphs, tables, geodatabases, and metadata following Federal Geographic Data Committee (FGDC) standards and are available at www.dri.edu/project/humboldt-etg.

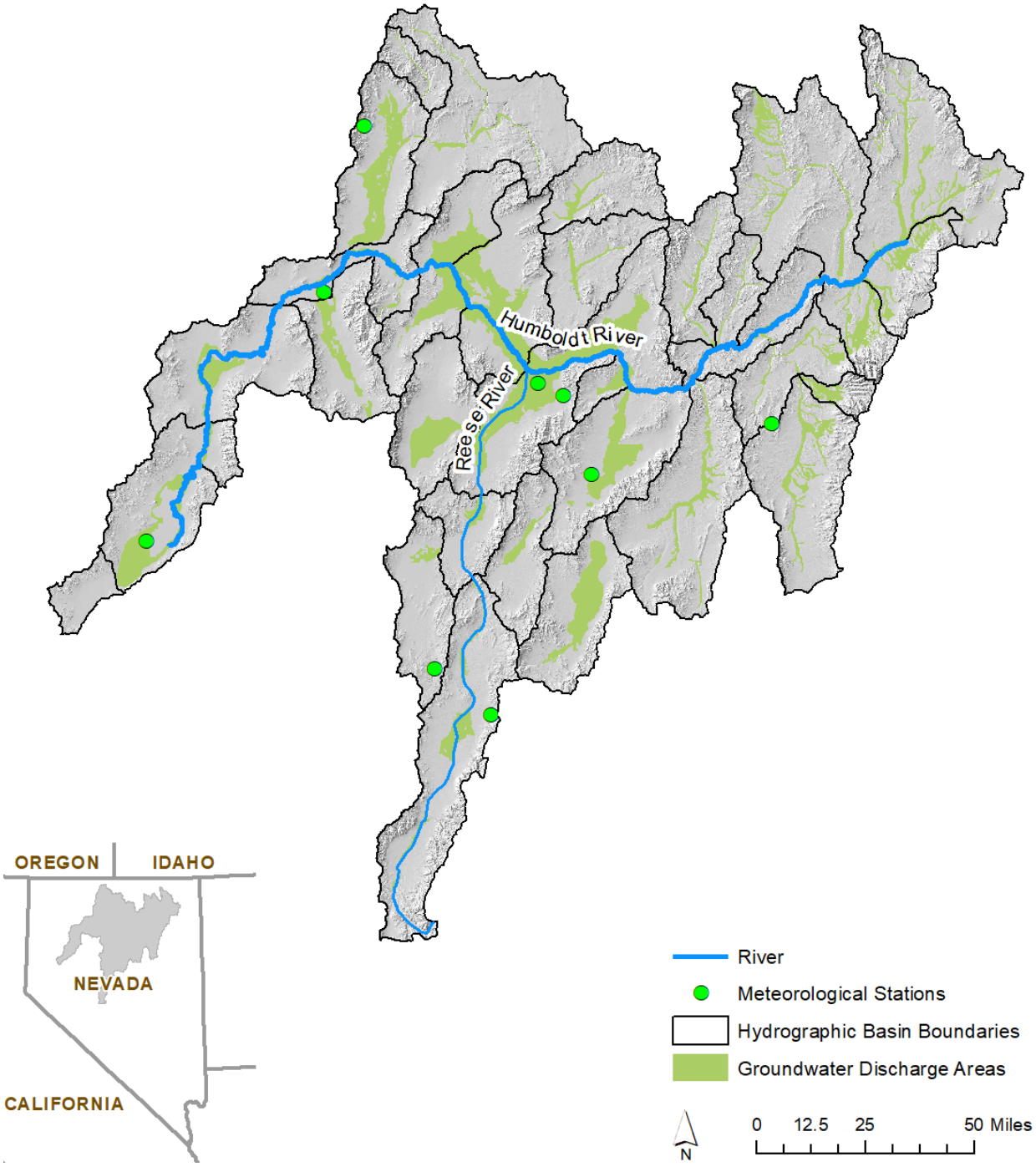


Figure 1. Study area of the Humboldt River Basin, delineated potential areas of groundwater discharge, and meteorological stations used for assessing gridded weather data.

STUDY AREA

The Humboldt River Basin is a terminal basin that is entirely within the state of Nevada that covers an area of approximately 16,600 mi^2. It is comprised of three general landforms: valley lowlands, piedmont slopes, and mountain blocks. The climate of the study area is classified as arid to semi-arid with a dry warm season, and wet cool season. Mean annual precipitation ranges from 5 to 12 inches per year (in/yr) in lowlands, and 16 to 46 in/yr in high elevation areas and mean annual evaporative demand ranges from 45 to 55 in/yr in lowlands, and 40 to 50 in/yr in high elevation areas (Abatzoglou, 2013; Huntington *et al.*, 2017).

Phreatophyte vegetation within the Humboldt River Basin primarily consists of shrubland, riparian, and meadow communities. Shrubland communities are dominated by greasewood (*Sarcobatus vermiculatus*), rabbitbrush (*Ericameria nauseous*), shadscale (*Atriplex confertifolia*, saltbush (*Atriplex canescens*), and big sagebrush (*Artemisia tridentata*), with understory phreatophytic perennial grasses and forbs such as saltgrass (*Distichlis spicata*), alkali sacaton (*Sporobolus airoides*) wild rye (*Leymus cinereus*), seepweed (*Suaeda torreyana*), and pickleweed (*Salicornia*). Phreatophyte shrublands typically occupy areas where the depth to groundwater is less than 35 feet (ft), however, greasewood has been found growing in areas where the depth to groundwater is as much as 60 ft (Robinson, 1958; Garcia *et al.*, 2015). While ETg rates from phreatophyte shrublands are generally low, the volume of ETg is often large because of large areal extents of phreatophyte shrublands. Riparian communities primarily occupy areas along stream and river channels, and include cottonwood trees (*Populus fremontii*), saltcedar (genus *Tamarix*), willows (genus *Salix*), and marsh vegetation such as rushes and reeds, where depth to groundwater typically is 20 ft or less. Meadow communities include a mixture of saltgrass, perennial meadow grass, and some phreatophyte shrubs, where depth to groundwater typically ranges from 1 to 10 ft (Plume and Smith, 2013).

PREVIOUS STUDIES

Numerous estimates of groundwater discharge from phreatophyte vegetation within the Humboldt River Basin have been reported, primarily from Water Resources Bulletin and Reconnaissance Series studies and reports (Eakin, 1961; Zones, 1961; Eakin, 1962; Cohen, 1964; Eakin *et al.*, 1965; Everett and Rush, 1965, 1966; Eakin and Lamke, 1966; Rush and Everett, 1966; Harrill and Moore, 1970). These studies estimated phreatophyte ETg rates that were originally derived from lysimeter and groundwater level fluctuation experiments conducted by Lee (1912) and Young and Blaney (1942) in Owens Valley, California, and White (1932) in Escalante Valley, Utah. Eakin and Lamke (1966) compiled and applied ETg rates from many of these previous Bulletin and Reconnaissance Series studies and reports to develop groundwater discharge estimates for the upper, middle, and lower Humboldt River Basin. Eakin and Lamke (1966) applied average ETg rates of 0.5 ft/yr to meadowlands and lowland irrigated pasture areas, 0.4 ft/yr where depth to groundwater was approximately 10 feet or less, and 0.1 ft/yr for other lowlands where depth to groundwater is greater than 10 ft. Phreatophyte ETg rates were

ultimately multiplied by respective phreatophyte areas to estimate groundwater discharge volumes. Phreatophyte areas were estimated using maps of depth to groundwater and field reconnaissance in which different phreatophyte communities and total extents were "roughly outlined" and respective ETg rates were applied (Eakin, 1961, p. 21).

More recent studies by Berger (2000) and Plume and Smith (2013) revised previous phreatophyte groundwater discharge estimates to update water budgets for portions of the middle and upper Humboldt River Basin, respectively. These studies used in-situ based micrometeorological data, Geographic Information System (GIS) data, Landsat satellite data, spatial climate data, and field mapping and verification to delineate groundwater discharge areas, estimate spatial extents of different phreatophyte communities and respective ETg rates, and ultimately estimated groundwater discharge volumes from phreatophyte areas. Berger (2000) delineated lowland areas using geological maps and a digital elevation model, estimated phreatophyte areas within delineated valley lowlands, and grouped phreatophyte areas into percent plant cover categories of less than 10, at least 10 but less than 20, at least 20 but less than 35, and at least 35, but less than 50, and at least 50. Rates of ETg for each of these zones were estimated following the Nichols (2000) approach in which ETg rates are estimated from application of two statistical relationships; (1) a relationship between the Modified Soil Adjusted Vegetation Index (MSAVI) and fraction of plant cover for cotton grown in Maricopa, Arizona (Qi *et al.*, 1994, p. 124) and measured plant cover in Little Fish Lake and Railroad Valleys, Nevada (Nichols 2000, p B6; Figure B2); and (2) a relationship between measured phreatophyte plant cover and phreatophyte ETg rates derived from micrometeorological data primarily collected in Owens Valley, California, Railroad Valley, Nevada, and Ash Meadows, Nevada (Nichols 2000, p. A6; Figure A4; Table A1). Berger (2000) adopted the relationships of Nichols (2000) for application in the Humboldt River Basin, however no adjustments were made to account for differences in study area vegetation, evaporative demand, or precipitation in application of the Nichols (2000) relationships. Berger (2000) used two Landsat images acquired in June 1989 and June 1995 to calculate MSAVI, phreatophyte plant cover, and estimate ETg rates using the Nichols (2000) approach. The use of two different Landsat images to estimate ETg resulted in a fairly large range of phreatophyte ETg rates in many HAs. For example, Berger (2000) reported the Boulder Flat phreatophyte acreages and ETg volumes to range from 96,410 to 96,290 acres, and 92,100 to 147,400 ac-ft/yr for years 1989 and 1995, respectively. No details were given on identification of croplands with discharge areas or if ET from croplands was considered in developing water budgets in the study of Berger (2000), therefore it is assumed that croplands were not masked from satellite imagery and were included when estimating ETg using the Nichols (2000) approach. Berger (2000) assumed approximate equilibrium conditions and no long-term average annual net change in groundwater storage.

Plume and Smith (2013) estimated annual ET and net ET (i.e. annual ET minus annual precipitation) from phreatophyte vegetation in the upper Humboldt River Basin. Rates of ET were estimated by assuming ET rates derived from micrometeorological data collected from phreatophyte communities in eastern Nevada (Snake Valley, Spring Valley, White River Valley)

by Moreo *et al.* (2007) and reported by Welch *et al.* (2007) could be applied to similar vegetation community classes, termed ET Units, in the Humboldt River Basin. Discharge areas were delineated using a combination of National Agricultural Imagery Program (NAIP) imagery, digital elevation model, field mapping and verification at 59 locations. Classification of ET Units within discharge areas were estimated based on three Landsat images acquired on June 9, July 11, and September 13, 2008 using MSAVI (Qi *et al.*, 1994). Ranges of MSAVI values were used to group ET Units within the discharge area into 5 classes: (1) less than 0.025 for open water; (2) between 0.025 and less than 0.115 for xerophytes; (3) between 0.115 and less than 0.165 for xerophytes; (4) between 0.165 and less than 0.315 for riparian areas; and (5) 0.315 or greater for meadows and croplands. Net ET rates for ET Units in the upper Humboldt River basin were assumed from similar ET Units of the eastern Nevada Basin and Range Carbonate-Rock Aquifer System (BARCAS) study (Welch *et al.*, 2007, Appendix A). Plume and Smith (2013) assumed ET Units in the upper Humboldt River Basin correspond to similar units of the BARCAS study as: phreatophyte shrublands correspond with moderately dense desert shrubland; riparian areas correspond with marshland; meadows correspond with meadowlands. Net ET rates for each ET Unit in the upper Humboldt were assumed to be 0.3 ft/yr for phreatophytic shrublands, 3.3 ft/yr for riparian areas, 1.7 ft/yr for meadows, and 4.2 ft/yr for open water. Estimates of mean annual net ET volumes (i.e. ETg volumes) were estimated for each ET Unit as the product of the assumed net ET rate and respective ET Unit area. Net ET rates for irrigated lands within the upper Humboldt River Basin for each HA were estimated as the average Net Irrigation Water Requirement (NIWR) for alfalfa and highly managed pasture grass reported by Huntington and Allen (2010), and ranged from 2.2 to 2.8 ft/yr.

Previously reported groundwater discharge areas, ETg rates, ETg volumes, and study source information are summarized in Appendix A, and are compared to new estimates developed in this study. Early phreatophyte ET studies, Water Resource Bulletins, and Reconnaissance Series reports, and more recent studies of Nichols (2000), Berger (2000), and Plume and Smith (2013) were foundational for developing and revising water budgets in the Humboldt River Basin and other basins in Nevada. Now, new in-situ micrometeorological datasets, gridded climate datasets, freely available Landsat archive, new cloud computing capabilities, and new approaches for estimating ETg rates and volumes that consider the spatial and temporal variability of climate and phreatophyte vegetation vigor, have created opportunities to further revise and improve water budgets within the Great Basin using best available science. It is well-known that temperature, solar radiation, humidity, wind speed (i.e. evaporative demand), depth to groundwater, and precipitation controls the rate of ET from phreatophytes (Robinson, 1958). Therefore, accounting for spatial and temporal variations in these variables is warranted when revising estimating ETg estimates.

Recent advances in remote sensing, climate modeling, and cloud computing have enabled new large spatial and temporal scale estimation of field scale ET and ETg using methods that differ from previously applied approaches in that they consider vegetation and climate conditions in the area of interest and for recent time periods of interest. One of the primary reasons previous

studies did not consider place-based climate and Landsat-based vegetation conditions over longer periods of time was due to data availability, computational capabilities and digital storage requirements, and costs at that time. Prior to 2009, Landsat images were costly, ranging from $600 to thousands of dollars per image date, with a single Landsat scene covering approximately 115 by 110 miles, at spatial resolution of 0.22 acres (i.e. 30 x 30 meter pixels). Since 2009, the USGS made the Landsat archive freely available, which has enabled numerous science and water resource applications that were previously not possible (Wulder *et al.*, 2012; Serbina and Miller, 2014). Landsat images are nominally available every 16 days from Landsat 5 Thematic Mapper (TM), and every 8 days when combined with Landsat 7 Enhanced Thematic Mapper Plus (ETM+) and Landsat 8 Operational Land Imager (OLI). For the 1985 to 2015 period of study, the combination of Landsat 5, 7, and 8 results in thousands of images for potential analyses. Free access to the entire Landsat archive and gridded climate reanalysis archives on the Google Earth Engine (GEE), a powerful new parallelized cloud computing and environmental monitoring platform (Gorelick *et al.*, 2017). This platform, combined with advanced micrometeorological data and energy balance closure methods, has enabled the ability to assess ETg over large areas and time scales (i.e. decades) to develop long-term estimates of ETg using more current, complete, and consistent place-based datasets and approaches.

METHODS

GROUNDWATER EVAPOTRANSPIRATION

Groundwater discharge via ETg from phreatophyte vegetation was estimated in this study using a combination of decades of Landsat satellite imagery, gridded climate data, in-situ ET estimates, GIS data, and field investigations. Annual groundwater ETg rates were estimated from 1985-2015 using the approach of Beamer *et al.* (2013) and Groeneveld *et al.* (2007). Groeneveld *et al.* (2007) first integrated Landsat vegetation indices, precipitation, evaporative demand, and in-situ estimates of ET based on micrometeorological data collected in California, Colorado, and New Mexico, into a statistical model for estimating phreatophyte ETg. Beamer *et al.* (2013) later extended this approach with energy balance closure adjusted micrometeorological station-based ETg estimates acquired in within phreatophyte areas Great Salt Lake, Death Valley, Colorado River, Walker River, and Carson River basins, and simplified the calculation Landsat-based vegetation indices. Beamer *et al.* (2013) compiled and analyzed water year total ET, ETg, precipitation, and evaporative demand using data collected from previous micrometeorological, energy balance, and remote sensing studies in the Great Basin (Reiner *et al.*, 2002; Maurer *et al.*, 2006; Moreo *et al.*, 2007; Arnone *et al.*, 2008; DeMeo *et al.*, 2008; Allander *et al.*, 2009) totaling 26 sites (40 site-years), and developed a least-squares regression model between normalized ET (dependent variable) and respective atmospherically corrected Landsat derived vegetation indices around each micrometeorological station (independent variable). In both the development and application of the vegetation index – normalized ET approach of Groeneveld *et al.* (2007) and Beamer *et al.* (2013), precipitation and evaporative demand in the area of interest is considered so that the regression model is applicable for other areas of interest, as opposed to

assuming and applying ETg rates from one study area to another study area with similar vegetation without consideration of the drivers of ETg in the study area of interest. This approach is useful for application in phreatophyte areas where no observations of ET or ETg exist since it explicitly accounts for vegetation and climate conditions in the area of interest using place-based vegetation indices, precipitation, and evaporative demand, thereby constraining estimates of ETg to local conditions.

Vegetation indices derived from satellite imagery are commonly used to describe vegetation biomass and physiological status as they are directly related to the photosynthetic capacity and energy absorption of plant canopies (Rouse *et al.*, 1974). Plant chlorophyll pigments absorb red light, while mesophyll tissue (i.e., middle leaf) reflects near infrared (NIR) light, therefore, vegetation indices are formulated using these spectral bands. For this study, Landsat image products of the USGS (USGS, 2018a) were used to compute the Enhanced Vegetation Index (EVI) (Nagler *et al.*, 2005) as:

$$EVI = \frac{2.5 * (NIR - RED)}{(NIR + 6 * RED - 7.5 * BLUE + 1)} \quad (1)$$

where NIR is the near infrared at-surface reflectance band, RED is the red at-surface reflectance band, and BLUE is the blue at-surface reflectance band that is included to mitigate atmospheric effects. The USGS converts Landsat TM, ETM+, and OLI top-of-atmosphere reflectance to at-surface reflectance using the Landsat ecosystem disturbance adaptive processing system (LEDAPS) (for Landsat TM and ETM+) and Landsat Surface Reflectance Code (LaSRC) (for Landsat OLI) atmospheric correction algorithms (Schmidt *et al.*, 2013; USGS, 2018b). EVI ranges from -1 to 1, however, over land values typically range from ~0.05 to 0.9, where higher vegetation index values indicate greater vegetation vigor. Due to small differences in Landsat sensor bandwidths (primarily in the NIR waveband), cross-sensor calibration was applied for continuous time series analysis of EVI. Cross-sensor calibration between Landsat TM, ETM+, and OLI at-surface reflectance red and NIR bands was performed using equations developed by Huntington *et al.* (2016) that are based on Landsat images acquired over Arizona, California, Nevada, and Utah.

Landsat images used in this study were limited to the period of July 15 to September 15 (DOY 196-258, non-leap year) to include the most representative period of peak health and vigor of phreatophyte vegetation while minimizing potential influence on EVI from non-phreatophytic understory vegetation such as cheat grass (*Bromus tectorum*) (Groeneveld *et al.*, 2007; Smith *et al.*, 2007; Beamer *et al.*, 2013; Garcia *et al.*, 2015). Images that were affected by cloud cover were removed from the analysis using Landsat CFmask products (Foga *et al*., 2017). Images of normalized difference water index, albedo, and surface temperature were also computed and used in quality assurance and quality control (QAQC) of EVI time series.

Once cloud screening and QAQC of Landsat images was complete, water year normalized ET (ET*), defined as:

$$ET^* = \frac{ET - PPT}{ETo - PPT} \quad (2)$$

was estimated following the regression equation of Beamer *et al.* (2013), where:

$$ET^* = \beta_0 + \beta_1 EVI + \beta_2 EVI^2 \quad (3)$$

and ET is water year total ET in millimeters per year (mm/yr), ETo is water year total grass reference ET (i.e. evaporative demand) (mm/yr), PPT is water year total precipitation (mm/yr), and β_0, β_1, β_2 are best fit regression coefficients of -0.196, 2.904, and -1.592, respectively (Figure 2; Table 1). *ET** was estimated based on application of Equation 2 to EVI images with coefficients for the mean, upper, and lower 90 percentile confidence intervals (Table 1). The confidence interval (CI) represents the degree of confidence in the mean ET*, whereas the prediction interval (PI) indicates the degree of confidence for a new EVI and ET* measurement pair to fall within the specified interval, at the 0.10 (i.e. 90%) significance level. ET was estimated following the approach of Groeneveld *et al.* (2007) as:

$$ET = (ET_o - PPT)ET^* + PPT. \quad (4)$$

Annual water year total PPT was estimated using gridMET gridded climate data (Abatzoglou, 2013), which is a 4 km spatial resolution hybrid dataset of the North American Land Data Assimilation System and (NLDAS; Mitchell *et al.*, 2004) and Precipitation-elevation Regressions on Independent Slopes Model (PRISM; Daly *et al.*, 2008). Water year total ETo was estimated using gridMET daily weather data of solar radiation (Rs), maximum temperature (Tmax), minimum temperature (Tmin), average dewpoint temperature (Tdew), and wind speed at 10 m height (u10) that was transformed to 2 m height equivalent following ASCE-EWRI (2005). Daily gridMET data were used to compute ETo with the ASCE-EWRI Standardized Penman-Monteith reference ET equation (ASCE-EWRI, 2005) for a short grass reference surface. Subtracting the water year total PPT, water year total groundwater ET, ETg, was estimated as:

$$ET_g = (ET_o - PPT)ET^*. \quad (5)$$

For sparse vegetation density and bare soil areas within phreatophyte discharge areas, Equation 3 was limited to a minimum EVI value of 0.075, since at an EVI value of approximately 0.070, ET* and therefore ETg is negative. At extremely low vegetation cover, the vegetation signal to noise ratio is low, causing the EVI value to have relatively large uncertainty. Therefore, EVI was set to a minimum value of 0.075, which resulted in ET_g rates of near zero to approximately 0.05 ft/yr. This range of values compares well with ETg rates for low density phreatophyte

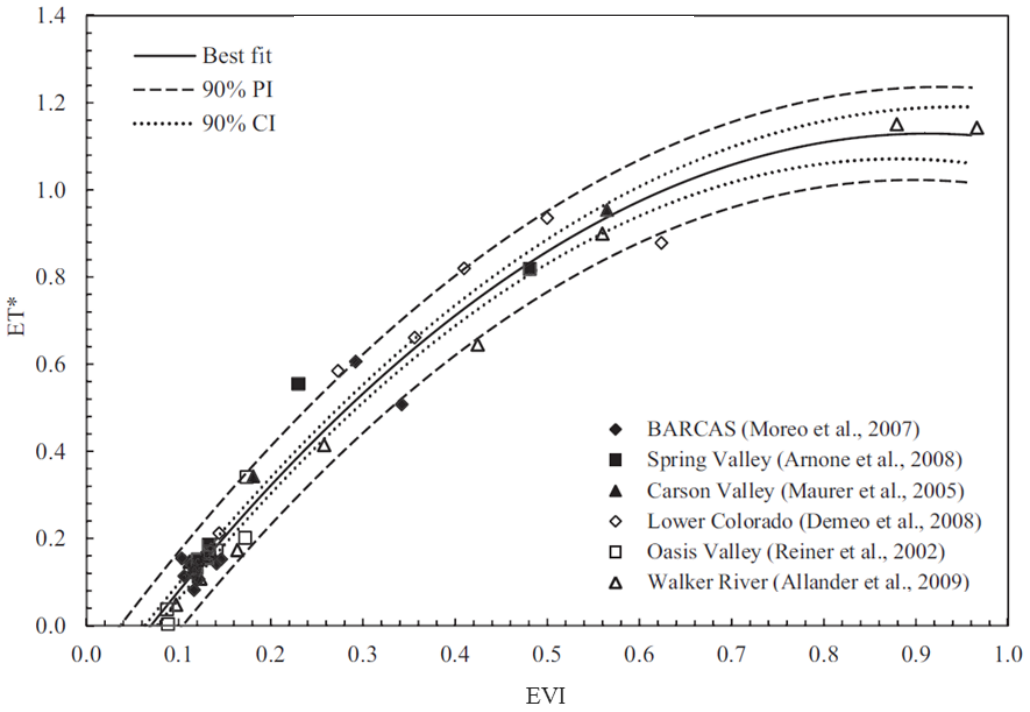


Figure 2. Enhanced Vegetation Index (EVI) and normalized ET (ET*) data pairs and polynomial least squares regression with upper and lower 90 percentile confidence and prediction intervals. Modified from Beamer *et al.* (2013).

Table 1. Regression coefficients for estimating ET* (Equation 2). Modified from Beamer *et al.* (2013).

Equation	β_0	β_1	β_2
Polynomial curve (model)	−0.196	2.904	−1.592
Upper 90% CI band	−0.177	2.891	−1.528
Lower 90% CI band	−0.214	2.918	−1.655
Upper 90% PI band	−0.104	2.889	−1.557
Lower 90% PI band	−0.287	2.919	−1.626

vegetation, bare soil, and playa areas assumed by Harrill (1970) and estimated by Garcia *et al.* (2015). Annual groundwater evaporation (Eg) from playa areas within the Humboldt River Basin was assumed to be 0.05 ft/yr. This estimate was derived from Dixie Valley, north-central Nevada (Garcia *et al.*, 2015) and based on micrometeorological methods to estimate evaporation (E), and measured PPT to estimate Eg as E minus PPT. Without a remote sensing approach or detailed measurements available, only an approximation of Eg based on recent research and advanced micrometeorological measurements from nearby study areas could be applied in this work. There is considerable debate whether Eg of 0.05 ft/yr is possible for playas consisting of thick sequences of highly impermeable clay, so this Eg rate is considered a potential high-end member estimate.

Equations 1-5 were used to estimate water year ETg from 1985-2015 for potential areas of groundwater discharge within each HA according to the following steps: (1) estimating spatially averaged annual water year ETo and PPT for phreatophyte areas within each HA; (2) computing spatially distributed EVI using Landsat at-surface reflectance data; (3) computing spatially distributed ET*, ET, and ETg rates within each HA; (4) spatially averaging ETg rates for each HA; and (5) estimating ETg volumes for each HA by multiplying spatially averaged ETg rates by respective phreatophyte areas for each HA (phreatophyte area delineations detailed in the following section). These steps were applied each year for each valid Landsat image acquired from July 15 through September 15 (DOY196 through 258), and temporal median values of EVI, ET, and ETg were computed for each year resulting in annual time series of median EVI, and water year ET, ETg, ETo, and PPT estimates from 1985-2015. Lastly, temporal median annual EVI, ETg, ET, ETo, and PPT estimates were computed using the 1985-2015 annual time series for each HA.

Prior to using gridMET ETo in Equations 4 and 5, gridMET ETo was compared to ETo computed using measured weather station variables of solar radiation, air temperature, humidity, and wind speed at 12 weather stations located within shrublands of Humboldt River Basin that experience ambient weather conditions. Weather data was quality assured and quality controlled through visualization, filtering, and making necessary corrections according to the recommendations and guidelines of Allen (1996) and ASCE-EWRI (2005). For example, solar radiation was compared to theoretical limits of clear sky solar radiation, and humidity was compared to 100 percent relative humidity and expected differences in dew point depression. Solar radiation corrections were the most common and are typical due to possible debris on the pyranometer window, non-level base plate, sensor miscalibration or drift, or obstructions (Allen, 1996). Figure 3 illustrates a comparison of station mean annual ETo and coincident gridMET mean annual ETo for all 12 stations. Appendix B lists mean annual station to gridMET ETo ratios, where the average ratio of station to gridMET annual ETo across all 12 stations is 1.03, with a range 0.93 and 1.14. Given that there is uncertainty in both the station and gridMET ETo, mean annual ratios for all stations with one exception were within +/- 10 percent, and the mean ratio across all stations was 1.03, bias-correction of annual gridMET ETo estimates was not performed prior to use in Equations 4 and 5 for estimating ET and ETg.

Assessment of potential bias in gridMET PPT was not performed given that PPT data collected within the Humboldt River Basin at National Weather Service stations, Remote Automated Weather Stations (RAWS), USGS and NDWR high elevation PPT gauge network stations, and USDA SNOTEL stations are used in developing PRISM and gridMET PPT estimates and are therefore not independent. However, an assessment of gridMET PPT using independent PPT measurements collected in eastern Nevada found that gridMET PPT was within 20 percent of PPT measurements at valley floor station locations (McEvoy *et al.*, 2014). McEvoy *et al* (2014) noted the many uncertainties in measured PPT due to under catch and inadequate gauge siting and instrumentation (e.g. wind blocking, non-heated tipping buckets, lack of alter shields, gauge orifice screens). A more recent study comparing independent precipitation storage gauge data to PRISM precipitation estimates in Washoe County, Nevada found that percent differences between storage gauge and PRISM precipitation totals during the wet season were mostly less than 20 percent (McEvoy *et al.*, 2018). Given the lack of independent PPT measurements in the Humboldt River Basin, and the fact that there are many uncertainties in PPT measurements that need to be assessed prior to assessment of gridded PPT products, no assessment on the accuracy of gridMET PPT was conducted and gridMET PPT estimates were assumed to be reasonable.

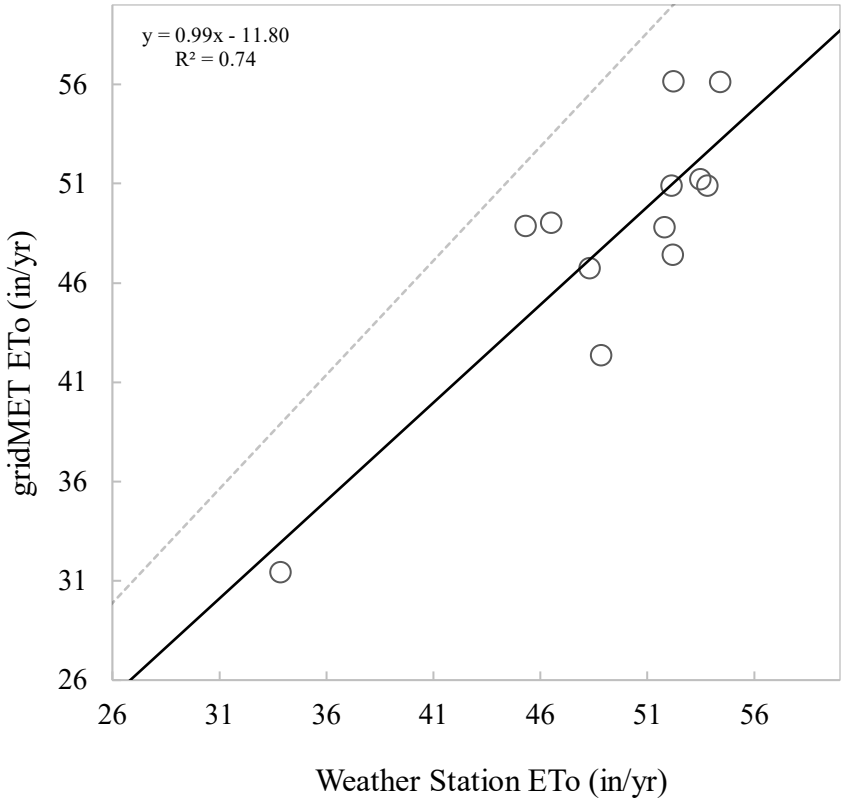


Figure 3. Mean annual weather station calculated mean annual ASCE reference ET (ETo) compared gridMET ETo at 12 weather stations within and near the Humboldt River Basin.

POTENTIAL AREAS OF GROUNDWATER DISCHARGE

Potential areas of groundwater discharge by phreatophyte vegetation were delineated based on a combination of previously published phreatophyte boundary maps and datasets, digital elevation model (DEM), gSSURGO soils data (USDA, 2017), high resolution aerial imagery of the NAIP, Landsat land surface temperature and vegetation indices, USGS and NDWR groundwater level data, and field investigations. The boundary that defines the potential area of groundwater discharge represents the maximum spatial extent of groundwater discharge by phreatophyte vegetation, and areas within this boundary may discharge little to no groundwater where bare soil or sparse vegetation is the primary land cover.

Numerous Reconnaissance Series and Water Resource Bulletin reports and USGS Humboldt River Basin water budget studies were used for updating and comparing reported phreatophyte and groundwater discharge distributions. Scanned Plate maps from nine Reconnaissance Series Reports and Water Resource Bulletins of the Humboldt River Basin (Eakin, 1961; Zones, 1961; Eakin, 1962; Cohen, 1964; Eakin *et al.*, 1965; Everett and Rush, 1965, 1966; Rush and Everett, 1966; Harrill and Moore, 1970) that illustrate the distribution of phreatophytes and groundwater discharge areas, were obtained from NDWR. These maps were georectified within ArcGIS using latitude and longitude coordinate tick marks and Public Land Survey System (PLSS) attributes. After georectification, phreatophyte and groundwater discharge boundaries were digitized and attributed according to original map attributes. Additional datasets used to delineate the spatial extent of phreatophyte and groundwater discharge areas were obtained from: 1) published reports and GIS datasets of groundwater discharge areas for 14 HAs in the middle Humboldt River Basin (Berger, 2000; Smith *et al.*, 2017), 2) ET Units for the upper Humboldt River Basin (Plume and Smith 2013; Smith *et al.*, 2017), 3) hydrogeology and hydrologic landscape regions of Nevada (Maurer *et al.*, 2004), 4) phreatophyte distributions in the Great Basin (Edwards *et al.*, 1996; Mathie *et al.*, 2011), and 5) depth to groundwater distributions for Nevada (Rush, 1974; Harrill *et al.*, 1988; Lopes *et al.*, 2006). These datasets were compiled and georeferenced into a common projection and used in combination with DEMs, gSSURGO soils data, Landsat and NAIP imagery, and depth to groundwater data from well logs and monitoring wells, all of which were used and visualized during field investigations to develop initial GIS boundaries that represent potential areas of groundwater discharge.

Depth to groundwater datasets from well logs and monitoring wells were acquired from NDWR and the USGS National Water Information System (NWIS) databases and were used in conjunction with previously published depth to groundwater distributions (Rush, 1974; Harrill *et al.*, 1988; Lopes *et al.*, 2006). Depth to groundwater information was combined with previously published groundwater discharge, phreatophyte distributions, and NAIP and Landsat imagery to delineate and constrain phreatophyte extents to lowland areas where depth to groundwater was less than 50 feet (Nichols, 1994) and areas that exhibited relatively cool surface temperature and higher vegetation vigor compared to adjacent xerophyte vegetation that commonly occupy piedmont slope areas.

Field investigations were conducted in 13 HAs during the summers of 2016, 2017, and 2018 to identify the presence or absence of phreatophytes within delineated boundaries, and boundaries and methods were modified accordingly. Field investigations could not be performed in all HAs within the Humboldt River Basin due to project timeline and cost constraints, therefore HAs selected for field investigations were those with limited information and where large discrepancies in previously published phreatophyte distributions were found (Figure 4). Discharge boundaries were modified in the field using ArcGIS and real-time GPS tracking software to assess GIS data at specific field locations versus observed vegetation and transitions between phreatophytes and xerophytes. Interpretations and interpolations of groundwater discharge boundaries were made based on field observations of transitions between xerophyte to phreatophyte communities, and the degree such transitions corresponded to changes in depth to groundwater, soil type, Landsat land surface temperature and vegetation indices, NAIP imagery, and land surface elevation. Landsat land surface temperature images acquired from August-October were developed following Allen *et al.* (2007) and were especially useful in modifying and interpolating discharge boundaries during field investigations. For example, during late summer when soil moisture derived from precipitation has largely been evaporated or transpired by vegetation, a large contrast in surface temperature between phreatophyte and xerophyte vegetation was evident since phreatophytes are located in areas of shallow groundwater and have relatively higher transpiration rates, and therefore have cooler surface and plant canopy temperature due to the process of evaporative cooling (Figure 5).

Once potential areas of groundwater discharge were delineated, they were further refined and divided into ET Units consisting of playa/bare soil, phreatophyte shrubland, meadow, riparian, and cropland. Numerous GIS datasets were used to discretize and attribute ET Units within potential areas of groundwater discharge, including geologic and hydrologic landscape datasets (Stewart and Carlson, 1978; Maurer *et al.*, 2004), USGS National Land Cover Database (NLCD) (Dewitz, 2019), LANDFIRE (LANDFIRE, 2013), water right place of use (POU) boundaries obtained from NDWR, historical Landsat imagery, and ET Units of Plume and Smith (2013) and (Smith *et al.*, 2017). Potential areas of groundwater discharge boundaries and delineated ET Units were reviewed by study team members and staff, and suggested edits were incorporated into the final GIS polygon dataset (Figures 6a-c).

REPRESENTING PRE-DEVELOPMENT CONDITIONS

Pre-development estimates of groundwater discharge required accounting for irrigated croplands within groundwater discharge boundaries and assessing long term changes in shallow groundwater levels and phreatophyte vegetation vigor. Irrigated cropland areas within groundwater discharge areas that were determined to be irrigated with groundwater based on POU boundaries and location, such as center pivot irrigation systems, were delineated and masked to remove ETg estimates based on the Beamer *et al.* (2013) approach. A 120 m buffer around each delineated polygon was used to remove ETg estimates due to more vigorous phreatophyte vegetation that was observed growing near irrigated cropland areas.

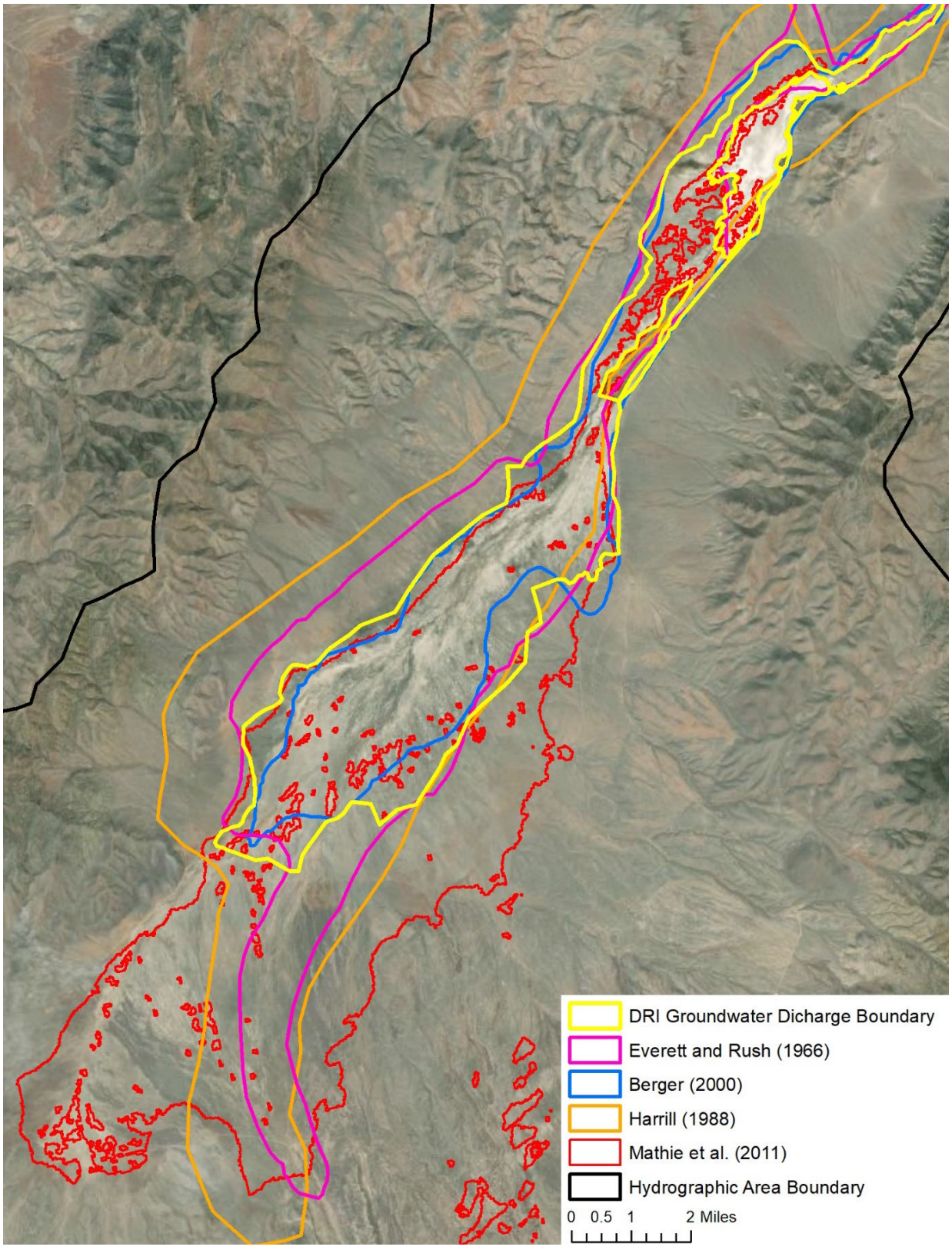


Figure 4. Carico Lake Valley potential areas of groundwater discharge derived in this study as compared to previous studies.

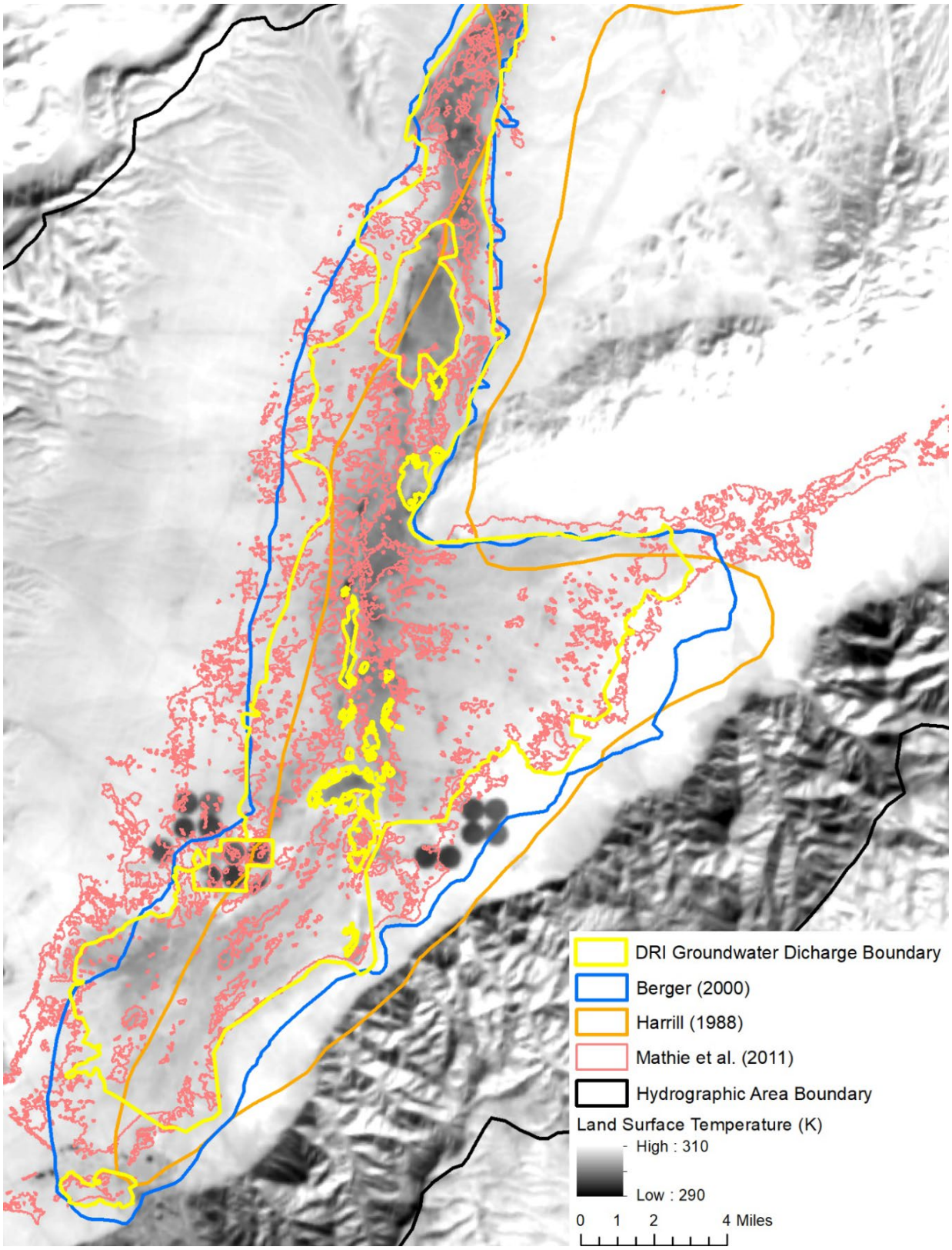


Figure 5. Crescent Valley Landsat land surface temperature distribution. Landsat image acquired on October 10, 2015.

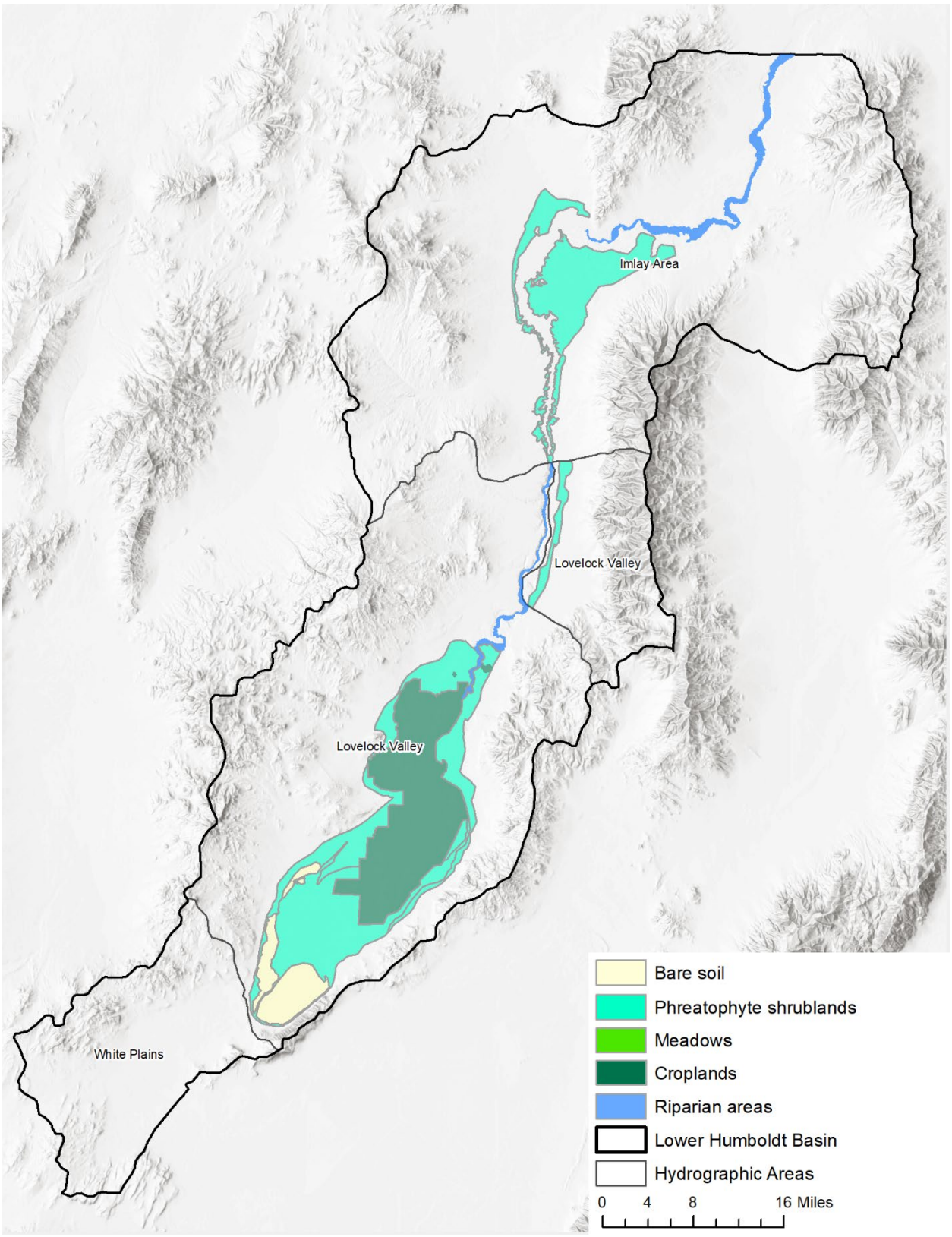


Figure 6a. Potential areas of groundwater discharge and classified ET Units for the lower Humboldt River Basin.

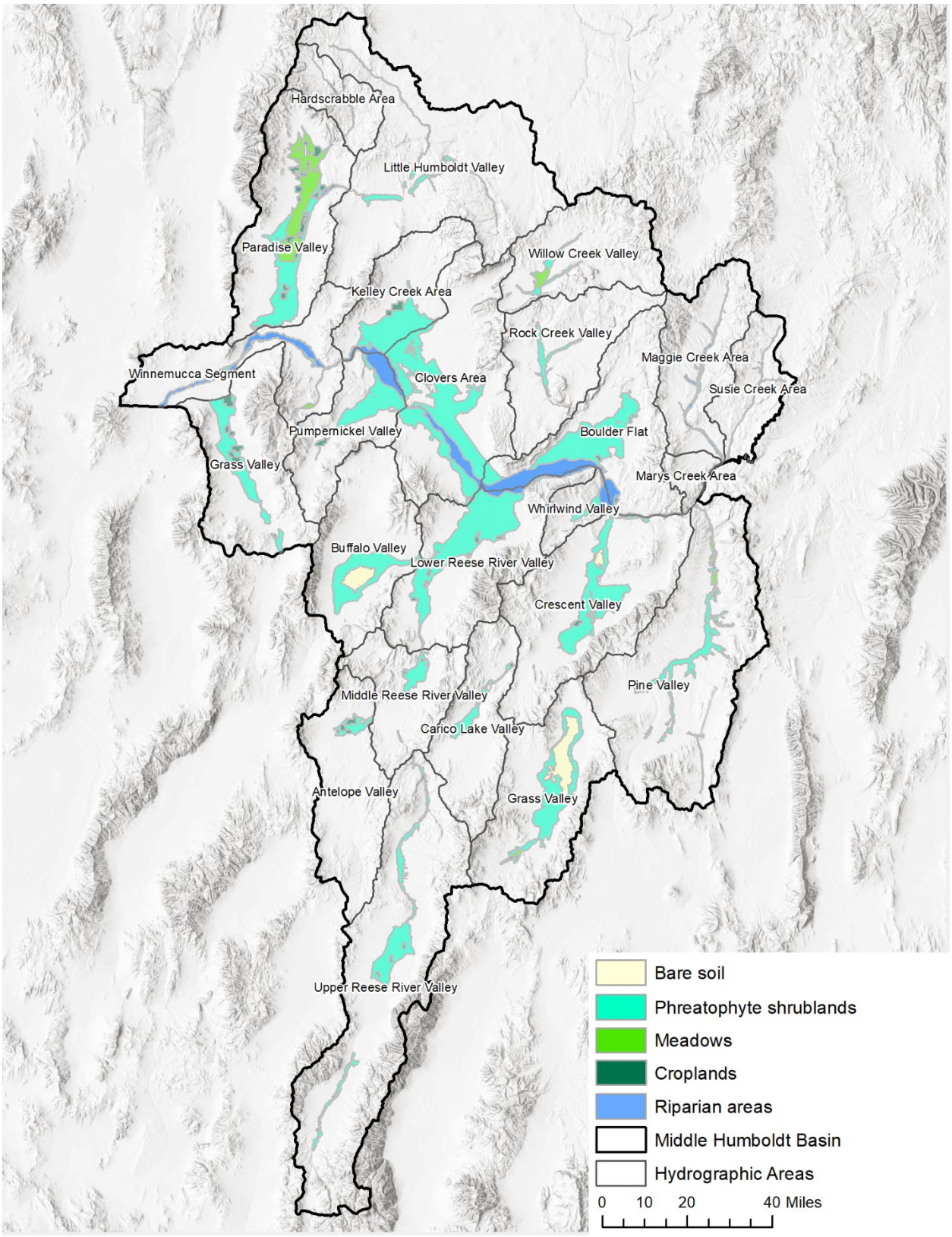


Figure 6b. Potential areas of groundwater discharge and classified ET Units for the middle Humboldt River Basin.

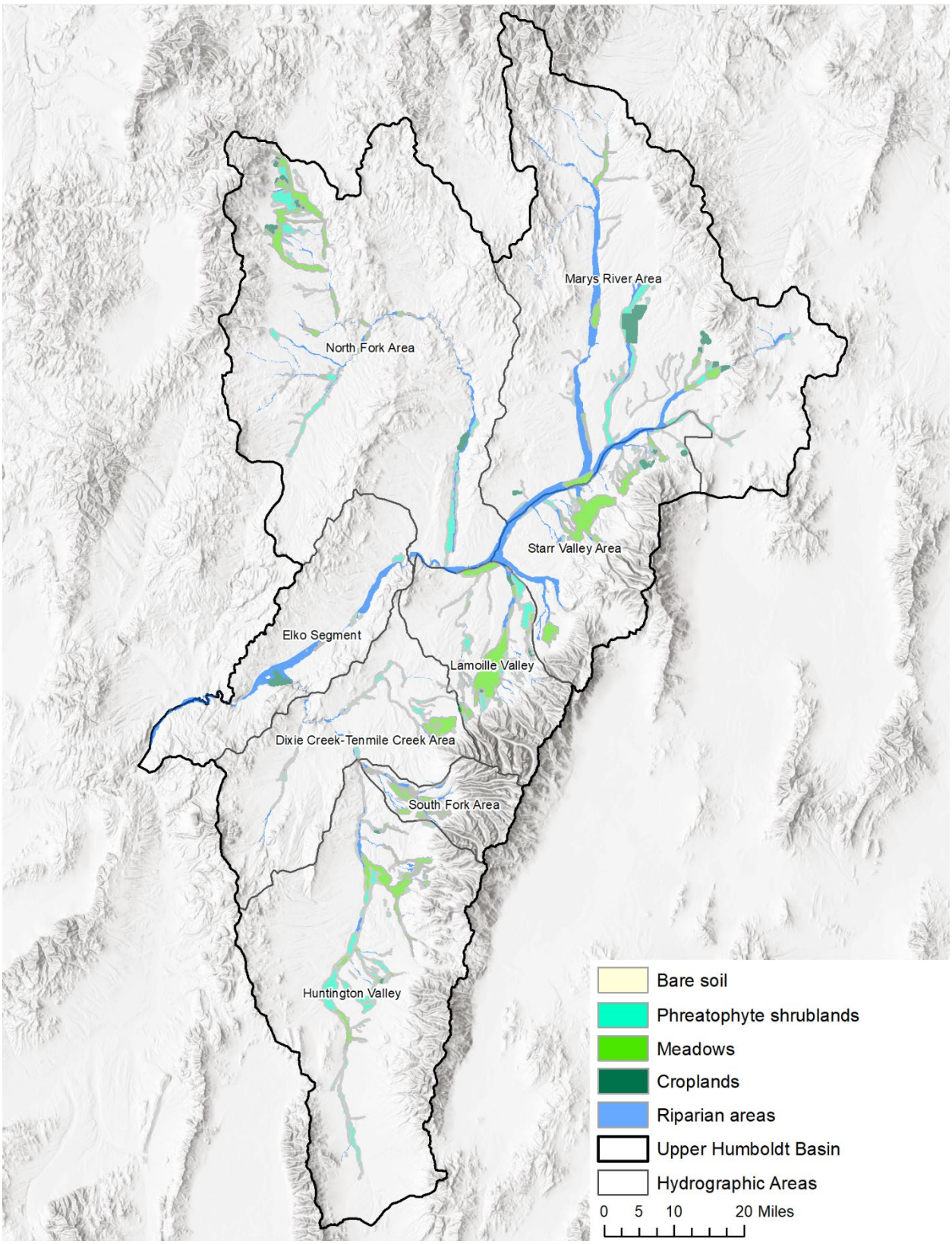


Figure 6c. Potential areas of groundwater discharge and classified ET Units for the upper Humboldt River Basin.

Pre-development estimates of ETg for masked irrigated cropland areas were estimated based on ETg estimates from adjacent representative areas of phreatophyte vegetation that likely occupied irrigated areas prior to cultivation. This approach builds on the more simplified approach of Welborn and Moreo (2007) and Smith *et al.* (2007) as part of the BARCAS study (Welch *et al.*, 2007) in which replacement ETg rates were assigned to irrigated areas based on area-weighted averages of ETg for all other phreatophyte ET Units within each HA. Rather than assigning a single area-weighted average replacement ETg rate based on all phreatophyte ET Units within each HA, detailed GIS queries of phreatophyte ETg pixels adjacent to each irrigated area was performed, and place-based ETg rates for respective areas were estimated and attributed within the phreatophyte GIS geodatabase.

For surface water flood irrigated cropland and meadow areas, Harrill and Moore (1970, p 67-68) estimated that the ETg and ET for "Irrigated hay and meadows" in Paradise Valley and Little Humboldt Valley was 0.5 and 1.5 ft/yr, respectively, where ETg was assumed to be one third of total ET. In areas defined as "Meadows and pasture, partly subirrigated" Harrill and Moore (1970) estimated ETg and ET to be 0.5 and 1.1 ft/yr, respectively, where ETg is approximately one half of total ET. These factors were applied by Harrill and Moore (1970) to account for increased groundwater levels within flood irrigated areas, and that a portion of ETg in these areas is derived from surface water irrigation, and therefore should be removed from the estimated groundwater discharge. Following the approach of Harrill and Moore (1970), delineated cropland and meadow ET Unit areas that were determined to be irrigated with surface water based on POU boundaries and location (e.g. flood irrigated fields located within or near riparian areas) were identified and respective Beamer *et al.* (2013) ETg rates were adjusted based on respective ETg to ET ratios of 0.33 to 0.50 reported by Harrill and Moore (1970, p 67-68). Where the influence of surface water and or sub-irrigation appeared to be greatest, an ETg scaling factor of 0.33 was applied, and where the influence of surface water and or sub-irrigation appeared to be less, a scaling factor of 0.50 was applied. Assigned ETg rates and scaling factors for irrigated areas within potential areas of groundwater discharge were attributed to respective polygons within GIS, converted to raster data, and then integrated into pre-development ETg raster datasets used for summarizing ETg for each HA.

Potential changes in ETg due to hydrologic and land cover changes during the study period of 1985-2015 were evaluated based on groundwater level hydrographs, EVI and ETg time series trends, and changes in irrigated area. Groundwater level data from USGS and NDWR, groundwater level change summaries for the Carlin Trend (Plume, 2005), and EVI and ETg trends and anomaly maps were used to identify HAs and "break years" where changes were observed. Break years were further refined based on observed changes in irrigated area using the GEE time lapse web application (https://earthengine.google.com/timelapse/). For select HAs, identified break years were used to exclude subsequent years of analysis, based on the observed timing and magnitude of changes in groundwater levels, EVI and ETg, and irrigated area. A confidence ranking of low, moderate, and high was assigned to each HA to indicate the confidence in the break year and potential impact on estimated ETg. Of the 29 HAs assessed, 13 were identified as

having sufficiently high confidence in break years, ranging from 1987 to 2001 (Appendix C). To assess the impact of excluding years for high confidence HAs, the percent change in median ETg was computed based on the full 1985-2015 period, and period prior to the break year. Results indicate that percent changes between 1985-2015 and 1985-break year median ETg rates are within +/- 10 percent with exception of Boulder Flat (-28%) and Pumpernickel Valley (-13%). Most percent change values for each HA are negative, meaning that ETg was greater for the full period of 1985-2015 than for 1985-break period year range. For example, in Boulder Flat the median ETg for the period of 1985-1992 (1993 being the break year) is 28 percent less than the median ETg for the full period due to cessation of groundwater pumping and use of excess mine water for irrigation, and beginning in 1991 the installation and operation of Rapid Infiltration Basins (RIBs) to recharge excess mine water. Reduced pumping and recharge in volcanic rocks caused groundwater levels to rise in overlying basin fill deposits, and in 1992 three down gradient spring discharge areas were created (Plume, 2005) resulting in increased EVI and ETg after this period (Huntington *et al.*, 2014).

There are numerous factors that can impact the magnitude of phreatophyte vegetation change over time, including but not limited to phreatophyte type, precipitation amount and timing, air temperature, groundwater conditions, fire, flooding, irrigation, grazing, restoration, and soil type. Given the complexities in identifying phreatophyte change agents over the entire study area, relatively small percent differences between the full and limited period for HAs in question, and the relatively large range of ETg for upper- and lower-90 percent CIs (presented in Results Section), long-term annual ETg for all HAs was estimated as the median annual value for the full period of 1985-2015.

RESULTS AND DISCUSSION

Results are summarized as a series of tables, figures, and GIS datasets and are available at www.dri.edu/humboldt-etg. Potential areas of groundwater discharge, median annual estimates of mean ETg, and upper- and lower-90 percent confidence intervals of ETg, are listed and summarized by ET Unit and HA in Appendix D, and both include and exclude riparian areas to support assessing volumes of ET derived from surface water versus groundwater. For figure summaries of discharge areas, ETg rates, ET volumes, and comparisons to previous studies, riparian areas are included unless otherwise noted. Figures 7a-c illustrate spatial distributions of median annual ETg rates, and Figure 8 illustrates median annual ETg volumes for each HA. Annual time series of median ETg, ET, ETo, and PPT rates from 1985-2015 for discharge areas that both include and exclude riparian areas are listed in Appendix E, respectively. Table 2 summarizes groundwater discharge areas and ETg volumes for upper, middle, and lower subbasins of the Humboldt River basin.

Discharge areas and median annual ETg rates and volumes estimated this study were compared with previous estimates for respective HAs and are illustrated in Appendix F. Figures 9a-c illustrate ETg volumes estimated for each HA and compares with estimates reported in

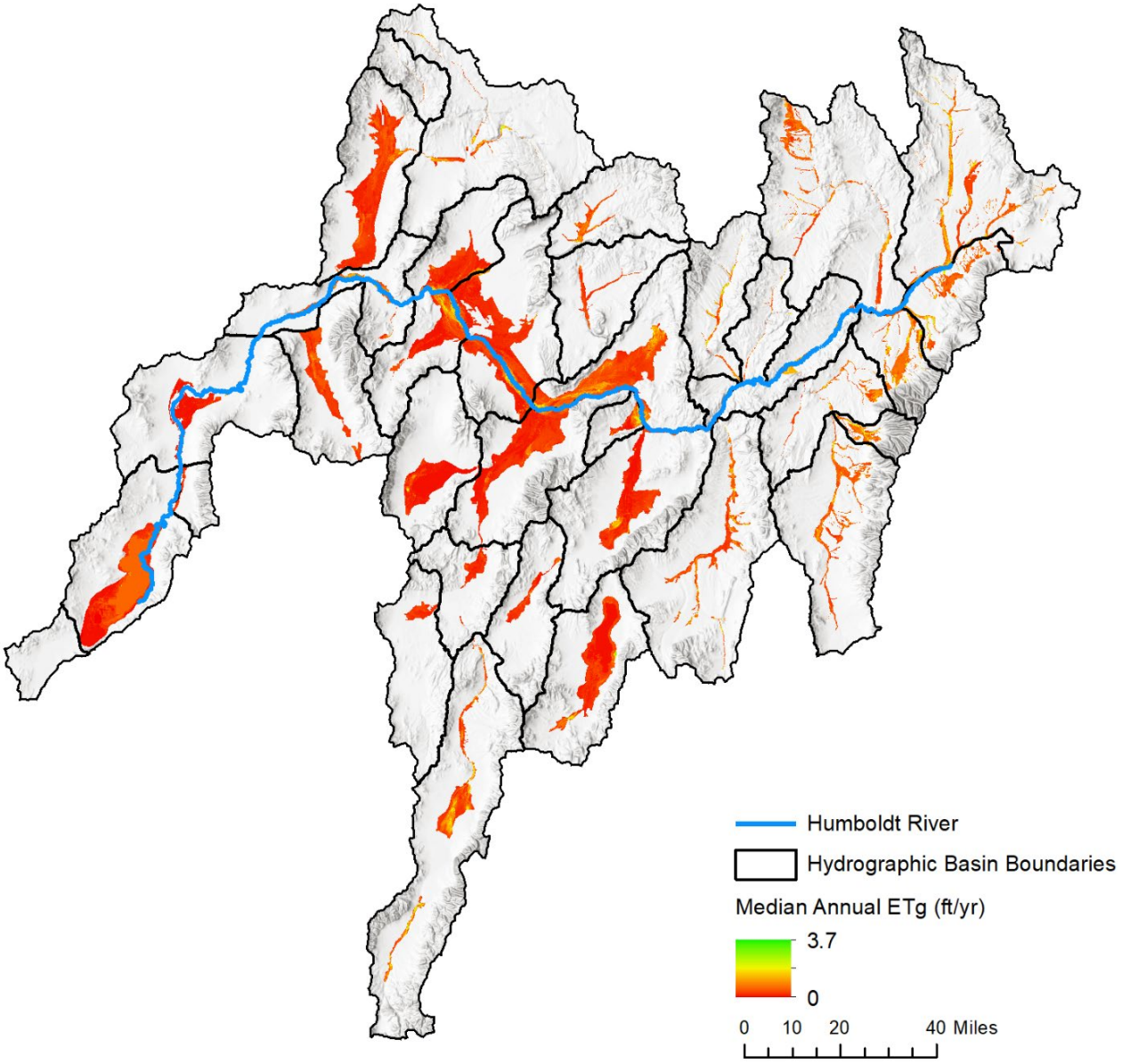


Figure 7a. Spatial distribution of 1985-2015 median annual ETg rates.

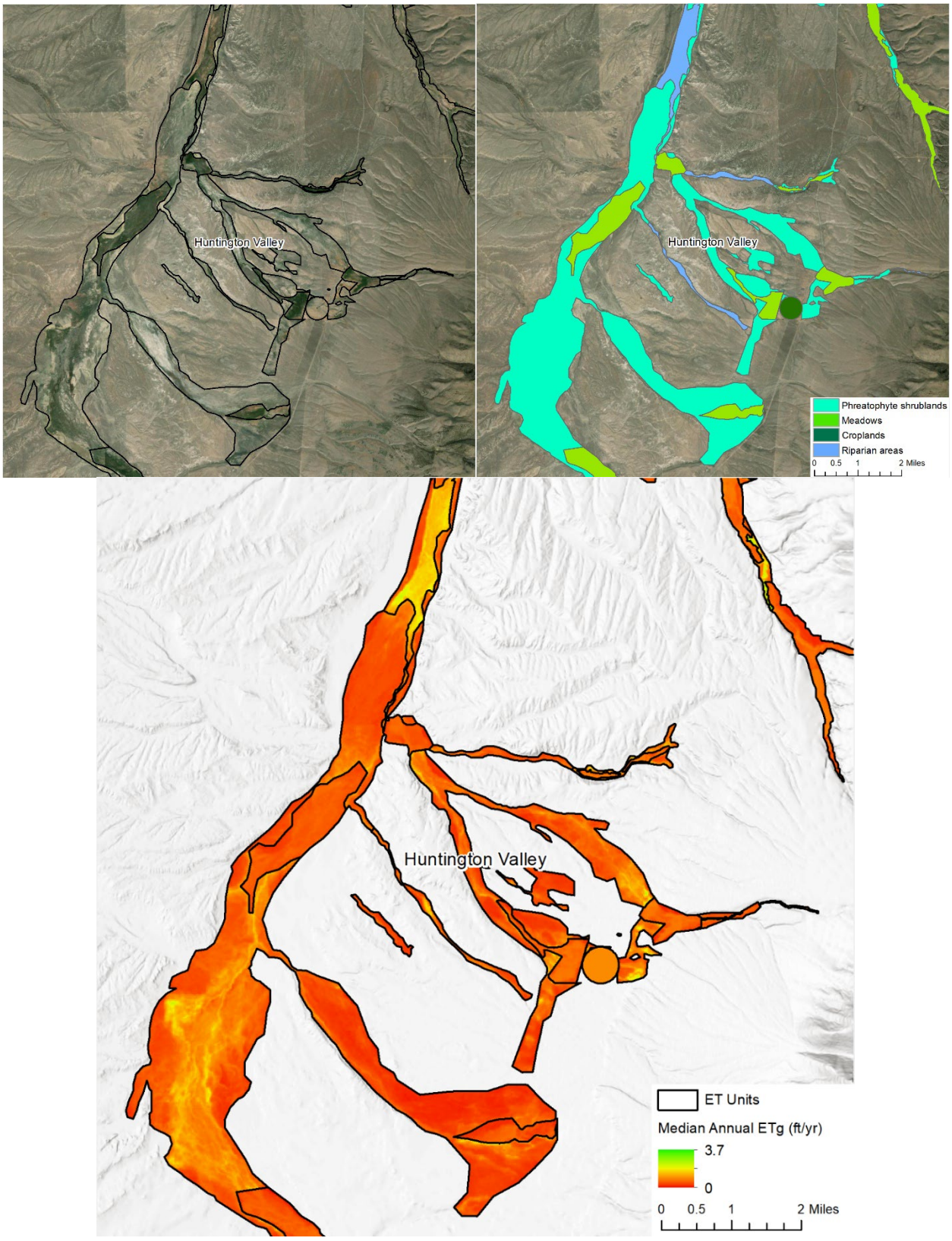


Figure 7b. Spatial distribution of ET Units and 1985-2015 median annual ETg rates for Huntington Valley, upper Humboldt River Basin.

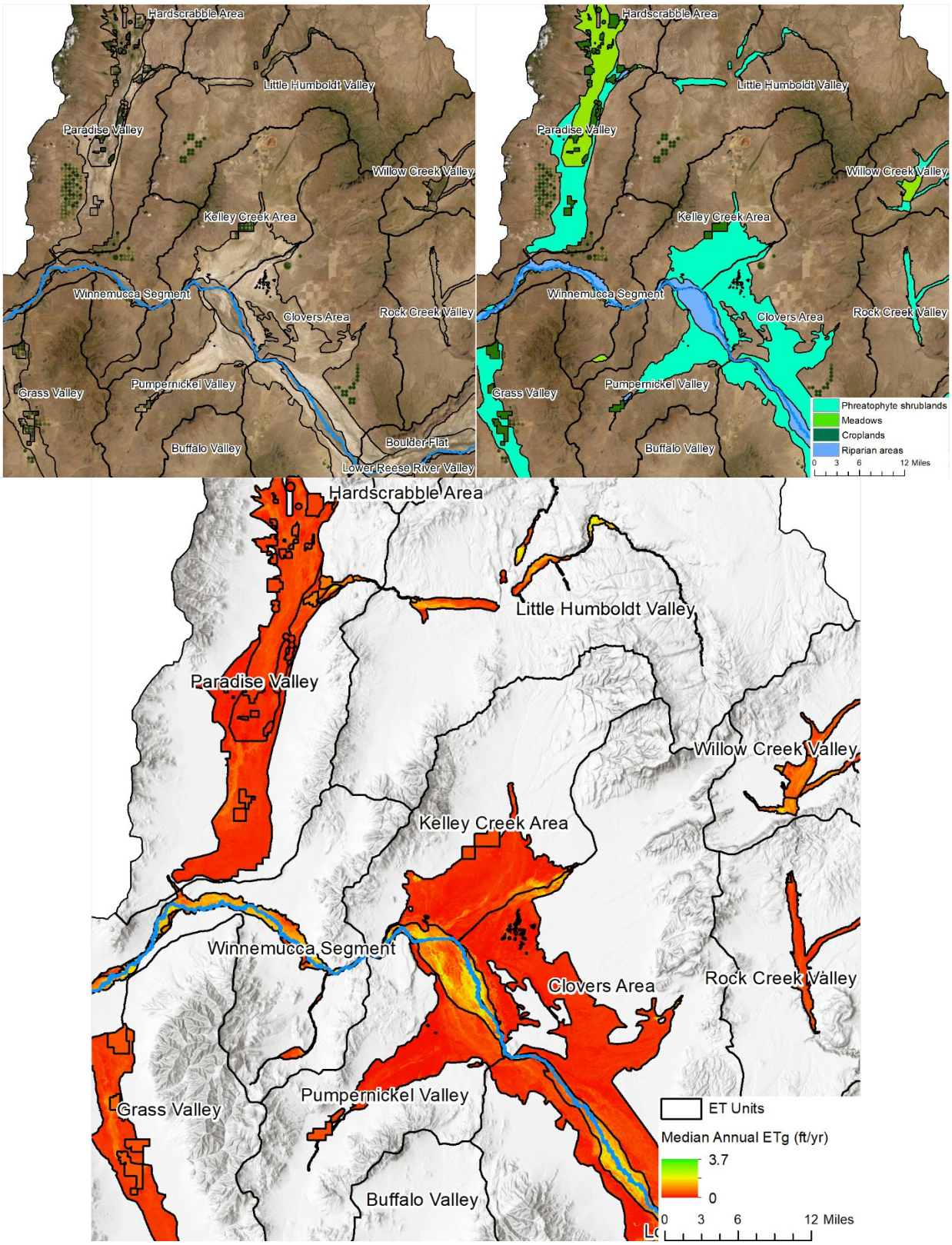


Figure 7c. Spatial distribution of ET Units and 1985-2015 median annual ETg rates for select HAs in the middle Humboldt River Basin.

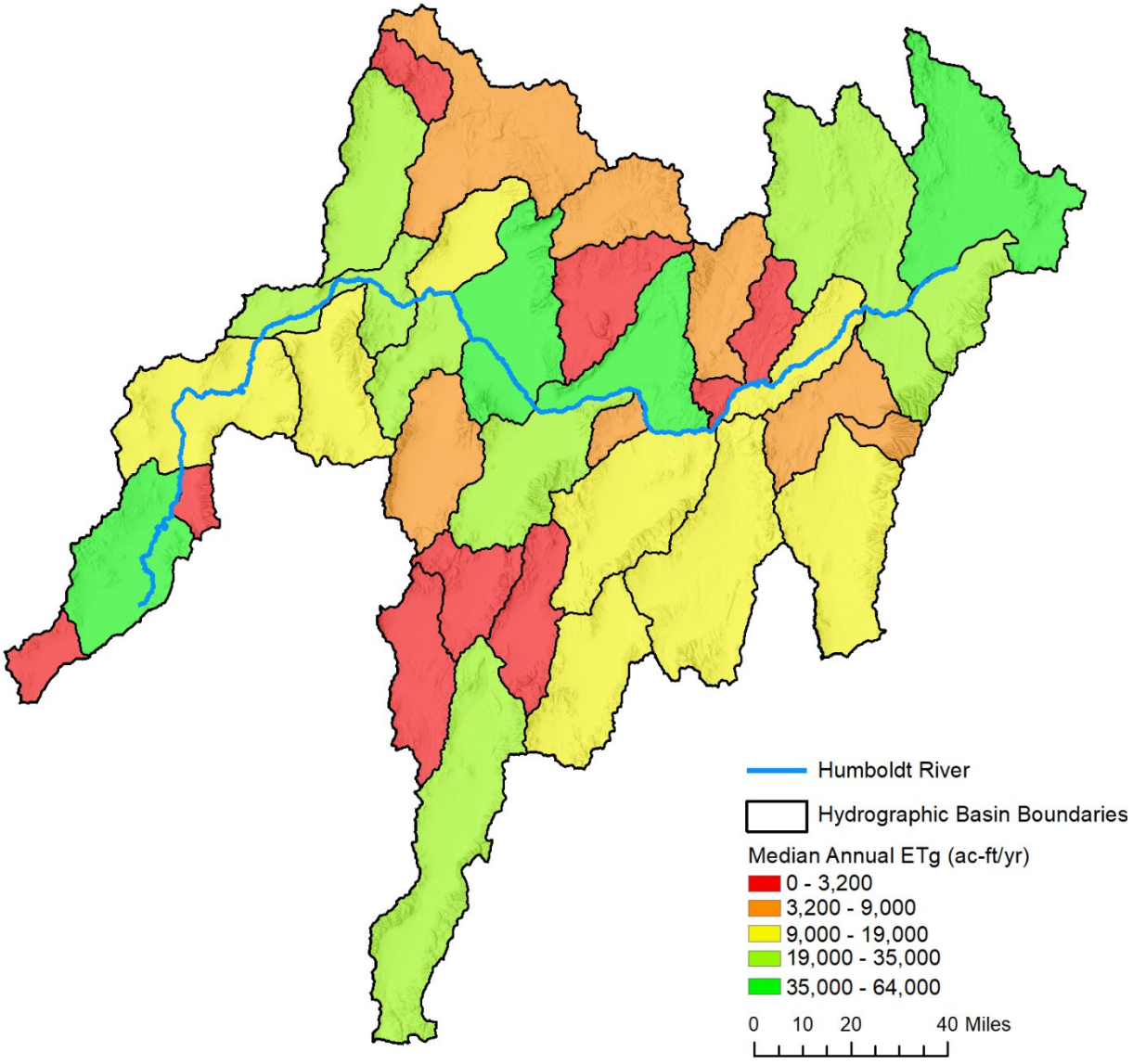


Figure 8. Spatial distribution of 1985-2015 median annual ETg volumes summarized for each HA.

Table 2. Groundwater discharge area and ETg volume totals for upper, middle, and lower subareas of the Humboldt River basin, with (a) and without (b) riparian areas.

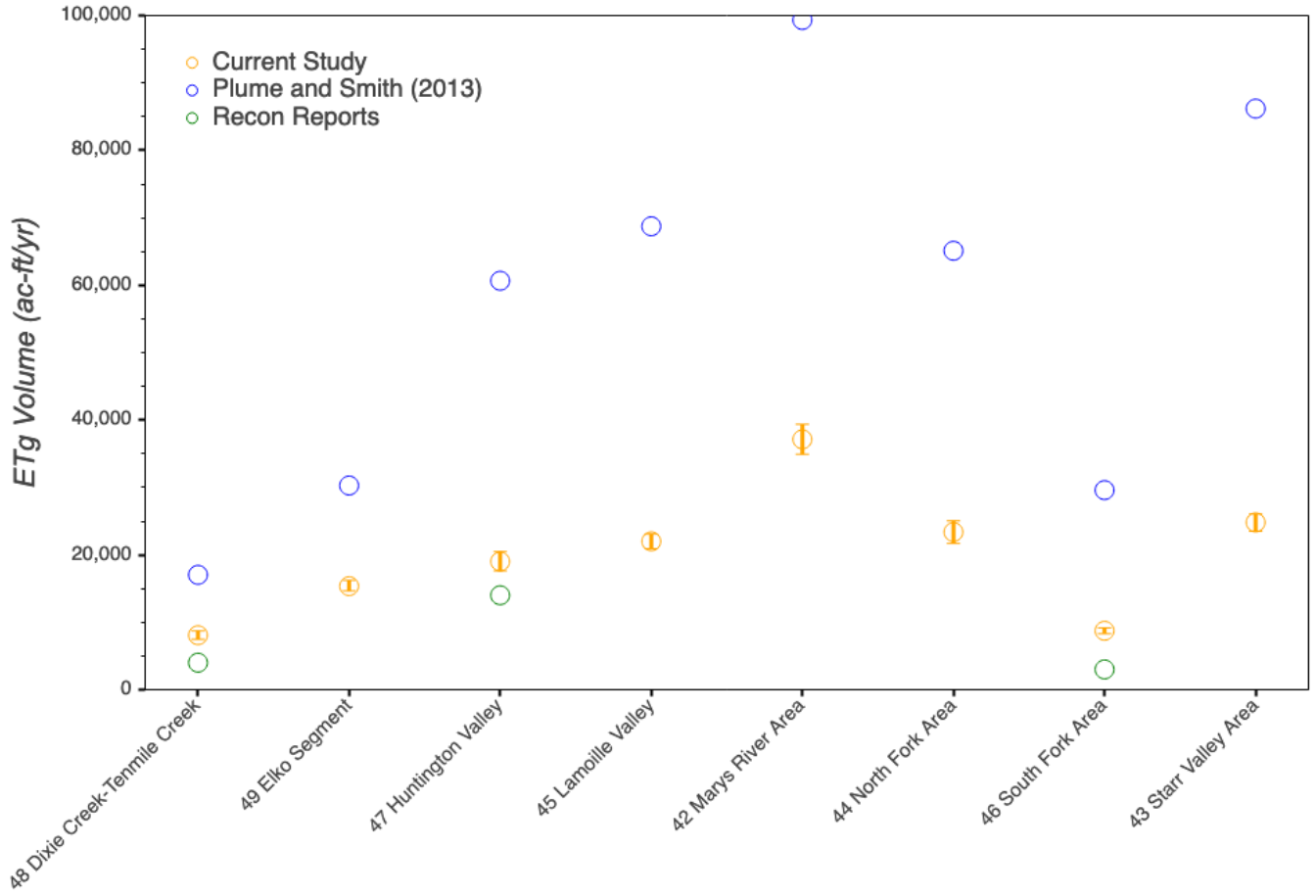
a.

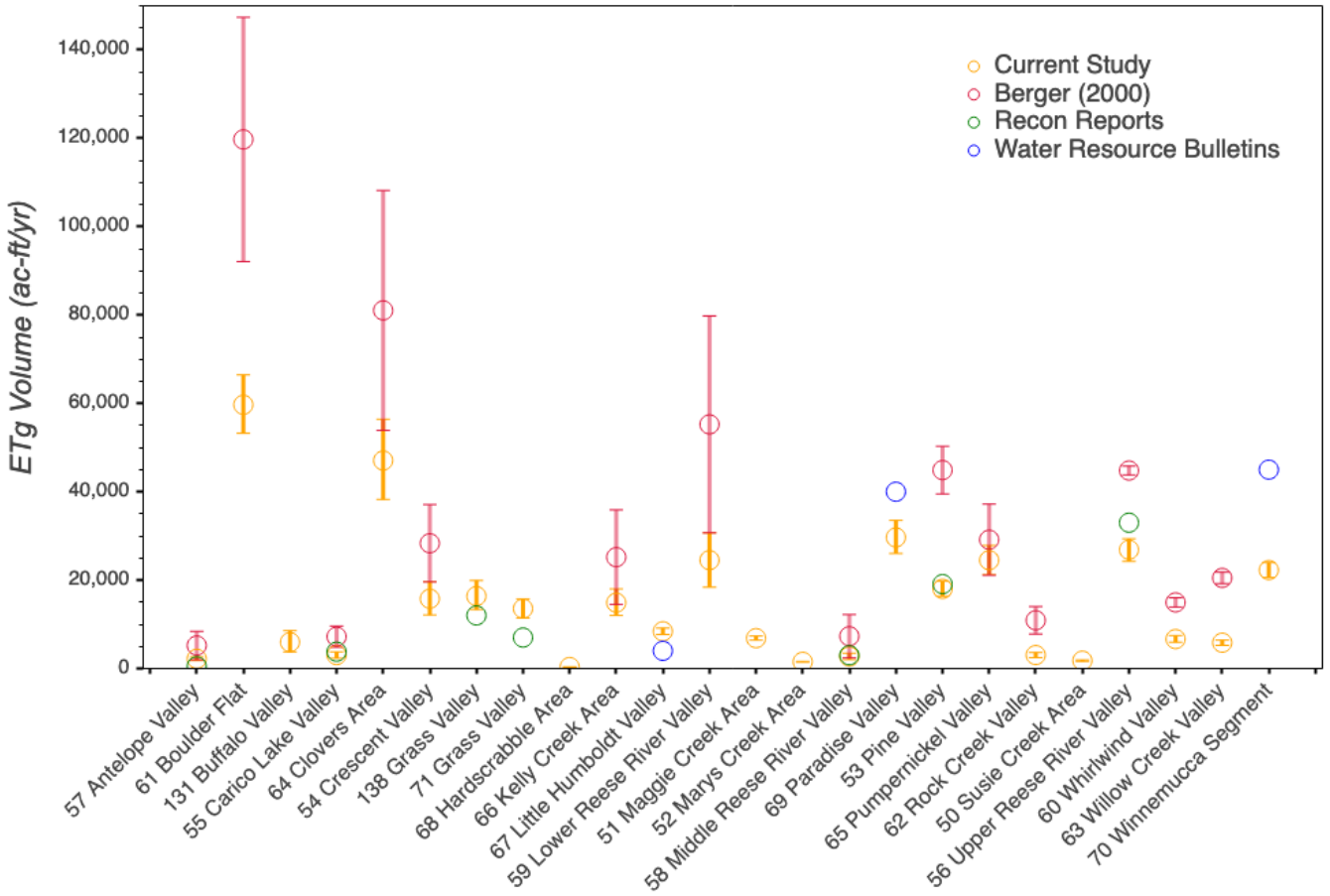
Subarea	ETg (ac-ft/yr)	ETg LCI (ac-ft/yr)	ETg UCI (ac-ft/yr)	Area (acres)
Upper	158,500	149,000	238,000	209,000
Middle	361,600	308,300	309,600	901,000
Lower	55,900	50,600	99,600	151,700
Total	**576,000**	**507,900**	**647,200**	**1,261,700**

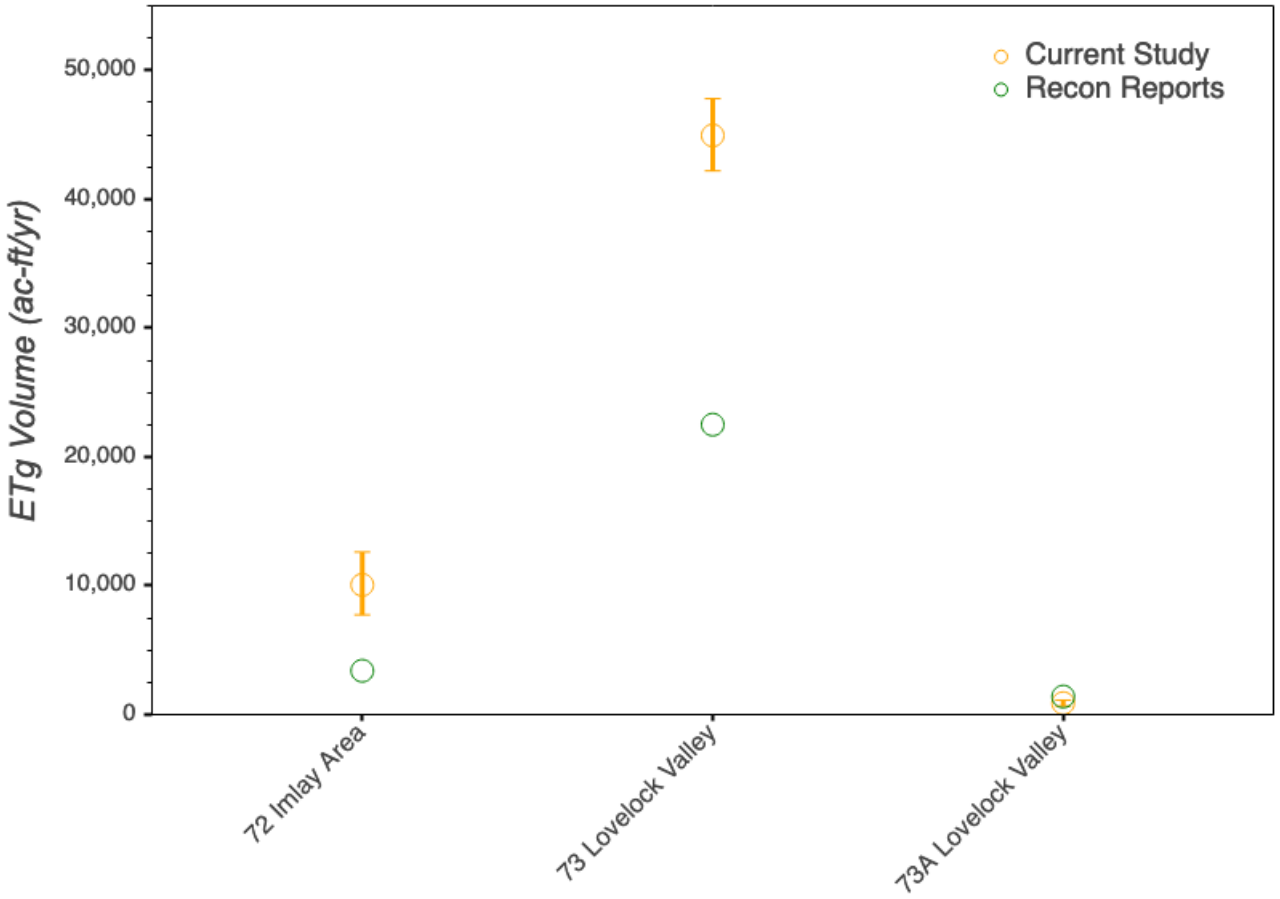
b.

Subarea	ETg (ac-ft/yr)	ETg LCI (ac-ft/yr)	ETg UCI (ac-ft/yr)	Area (acres)
Upper	85,700	80,300	171,300	141,900
Middle	248,400	203,500	199,800	789,800
Lower	46,100	41,500	67,200	142,000
Total	**380,200**	**325,300**	**438,300**	**1,073,700**

Water Resource Bulletin and Reconnaissance Series reports, Berger (2000), and Plume and Smith (2013). Vertical whiskers represent the range of previously reported estimates, and upper- and lower-90 percent confidence intervals around median ETg estimates of this study. Bar charts illustrating estimated discharge areas, ETg rates, and ETg volumes for select HAs of Imlay Area, Grass Valley, Paradise Valley, Carico Lake Valley, Pine Valley, Lower Reese River Valley, Marys River Area, North Fork, and Huntington Valley are shown in Figures 10a-c to illustrate differences and similarities of areas, rates, and volumes to previous studies. Comparison to Water Resource Bulletin and Reconnaissance Series report estimates indicate that ETg volumes estimated this study are higher in six, and lower in seven HAs. ETg volumes estimated in this study are substantially lower for all HAs in the middle and upper Humboldt River Basin when compared to those reported by Berger (2000) and Plume and Smith (2013), respectively. Differences in ETg volumes are primarily due to differences in ETg rates, however, differences in groundwater discharge areas also result in large differences in ET volumes in some HAs. For example, Imlay Area and Grass Valley HAs were estimated to have larger groundwater discharge areas and ETg rates than previously reported by Eakin (1962) and Cohen (1964), resulting in substantially higher ETg volumes (Figure 10a). In Paradise Valley, the discharge area and ETg rate estimated in this study was lower than previously reported by Harrill and Moore (1970), which resulted in lower estimated ETg volume.

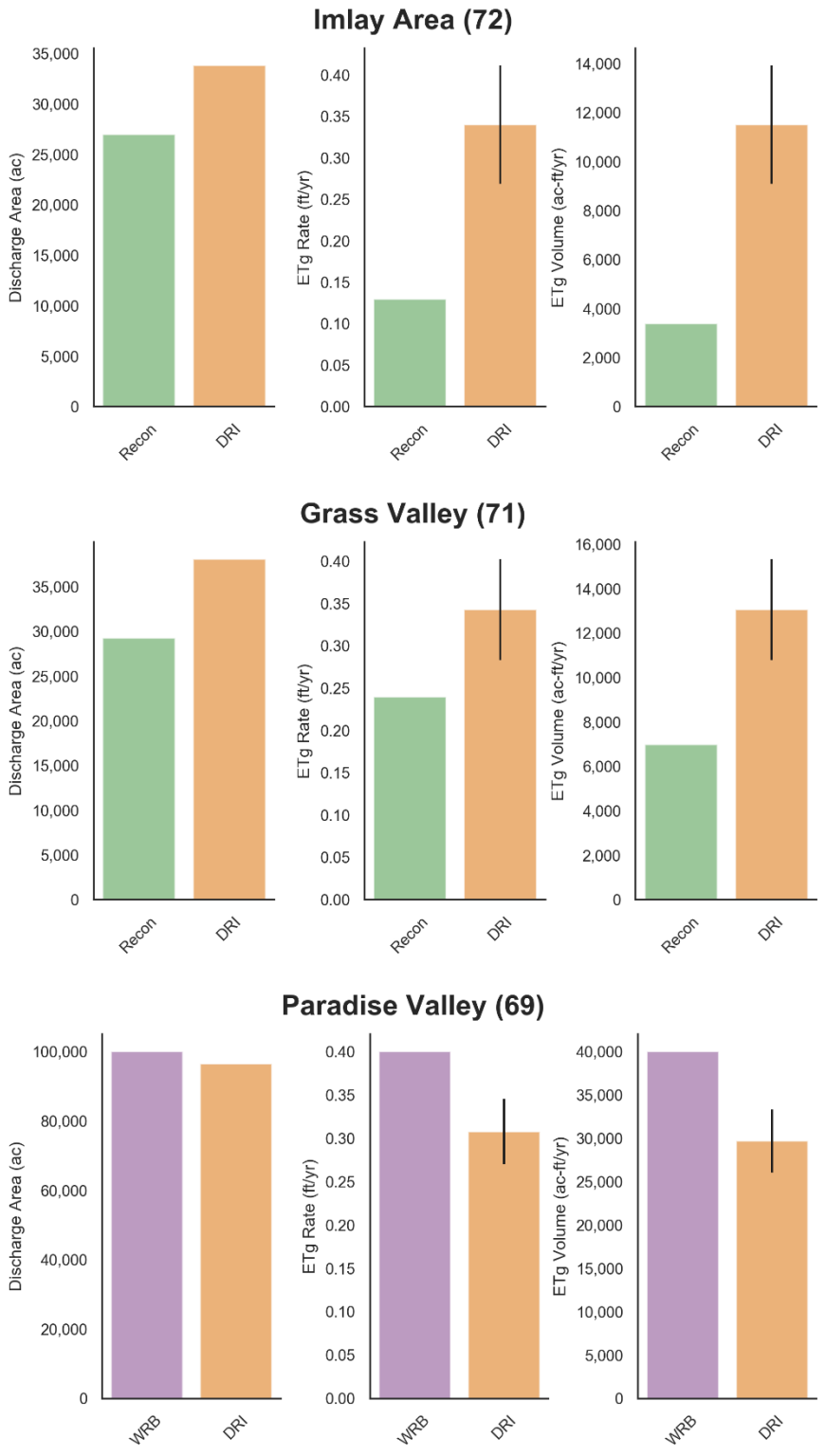

Current Study
Plume and Smith (2013)
Recon Reports
ETg Volume (ac-ft/yr)
100,000
80,000
60,000
40,000
20,000
0
48 Dixie Creek-Tenmile Creek
49 Elko Segment
47 Huntington Valley
45 Lamoille Valley
42 Marys River Area
44 North Fork Area
46 South Fork Area
43 Starr Valley Area


ETg Volume (ac-ft/yr)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Current Study
Berger (2000)
Recon Reports
Water Resource Bulletins
57 Antelope Valley
61 Boulder Flat
131 Buffalo Valley
55 Carico Lake Valley
64 Clovers Area
54 Crescent Valley
138 Grass Valley
71 Grass Valley
68 Hardscrabble Area
66 Kelly Creek Area
67 Little Humboldt Valley
59 Lower Reese River Valley
51 Maggie Creek Area
52 Marys Creek Area
58 Middle Reese River Valley
69 Paradise Valley
53 Pine Valley
65 Pumpernickel Valley
62 Rock Creek Valley
50 Susie Creek Area
56 Upper Reese River Valley
60 Whirlwind Valley
63 Willow Creek Valley
70 Winnemucca Segment

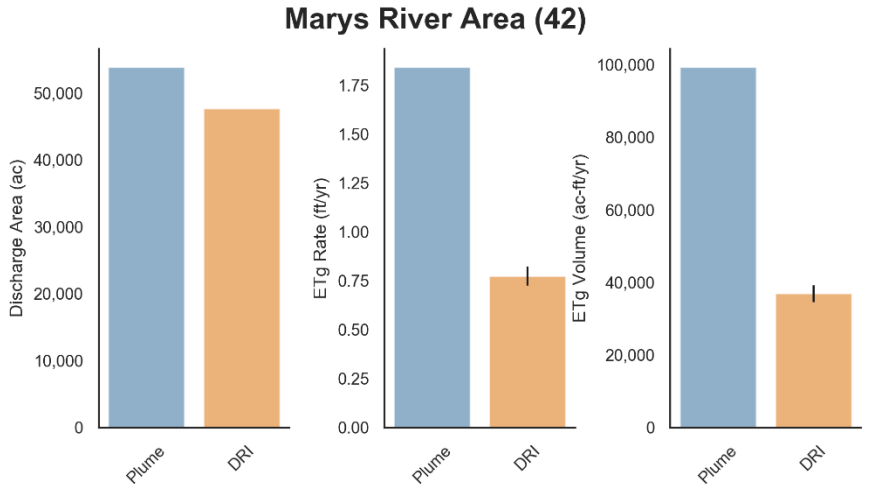

Current Study
Recon Reports
ETg Volume (ac-ft/yr)
50,000
40,000
30,000
20,000
10,000
0
72 Imlay Area
73 Lovelock Valley
73A Lovelock Valley

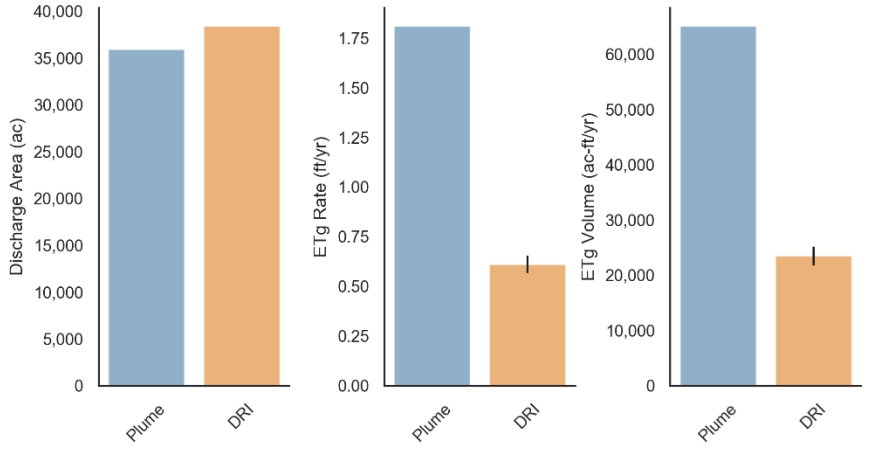
Estimated ETg volumes for the middle Humboldt River Basin reported in this study are generally lower than those reported in Water Resource Bulletin and Reconnaissance Series reports, and substantially lower than ETg volumes reported by Berger (2000) (Figure 9b; Appendix F). Differences are due to differences in discharge areas and ETg rates. For example, in Carico Lake Valley the groundwater discharge area estimated in this study was similar to the area reported by Berger (2000), but substantially lower than the area reported by Everett and Rush (1966). However, the ETg rate estimated in this study was only slightly higher than the rate reported by Everett and Rush (1966), but substantially lower than the ETg rate reported by Berger (2000) (Figure 10b). These differences resulted in the estimated ETg volume reported in this study to be approximately 20 percent lower than the reported ETg volume of Everett and Rush (1966) (3,100 vs. 3,800 ac-ft/yr), but substantially lower than the ETg volume reported by Berger (2000) (3,100 vs. 7,200 ac-ft/yr) (Figure 10b). In general, discharge areas estimated in this study are similar to those reported by Berger (2000), however, ETg rates substantially lower than reported by Berger (2000) resulting in substantially lower estimated ET volumes. For example, discharge areas for Crescent Valley and Pine Valley are similar, however, ETg rates are substantially lower resulting in differences that exceed 50 percent (Figure 10b). ETg rates reported by Berger (2000) are most likely biased high because data used to develop the Nichols (2000) empirical relationship between plant cover and ETg were primarily derived from hotter and drier study areas located in central and southern Nevada and southern California, and no adjustments were made to account for differences in climate. Additionally, Berger (2000) only relied on two Landsat images acquired during mid-summer following near normal and above 120 percent of normal precipitation to estimate the average annual ETg due to Landsat data costs and processing limitations at the time of study. It is presumed that agricultural areas were not masked from Landsat images when estimating ETg given no details were reported. The approach used in the current study used the full freely available Landsat archive and cloud computing resources that now enables rapid and efficient estimation of ETg over long time periods and spatial scales. Additionally, the approach used in the current study accounts for differences in climate by accounting for both evaporative demand, (i.e. ETo) and PPT in the development and application of the Beamer *et al.* (2013) vegetation index-normalized ET function, making the estimates reported in this study more representative of local climate and vegetation conditions.

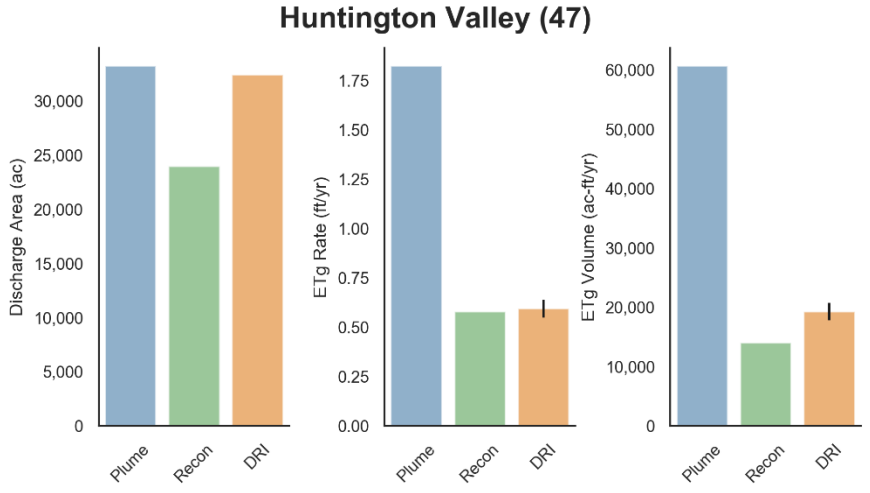
Results for the upper Humboldt River Basin indicate that potential areas of groundwater discharge estimated in this study are similar but generally lower than those reported by Plume and Smith (2013). However, ETg rates estimated in this study are generally less than one half of the ETg rates reported by Plume and Smith (2013) (Figure 10c; Appendix F). For example, in the Marys River Area HA the groundwater discharge area estimated in this study is 47,700 as compared to 53,900 acres reported by Plume and Smith (2013). The average ETg rate reported by Plume and Smith (2013) is 1.84 ft/yr, and the average ETg rate estimated in this study is 0.77 ft/yr. The large difference in estimated ETg is primarily because Plume and Smith (2013) assumed a spatially uniform and constant ETg rate of 3.3 ft/yr (termed net ET in Plume and Smith) for the riparian ET Unit, which accounts for approximately 32 percent of the reported total discharge area (17,100 of 54,000 acres). The riparian ET Unit ETg rate of 3.3 ft/yr was


Imlay Area (72)
Discharge Area (ac)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Recon
DRI
ETg Rate (ft/yr)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Recon
DRI
ETg Volume (ac-ft/yr)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Recon
DRI
Grass Valley (71)
Discharge Area (ac)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Recon
DRI
ETg Rate (ft/yr)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Recon
DRI
ETg Volume (ac-ft/yr)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Recon
DRI
Paradise Valley (69)
Discharge Area (ac)
100,000
80,000
60,000
40,000
20,000
0
WRB
DRI
ETg Rate (ft/yr)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
WRB
DRI
ETg Volume (ac-ft/yr)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
WRB
DRI


Carico Lake Valley (55)
Discharge Area (ac)
17,500
15,000
12,500
10,000
7,500
5,000
2,500
0
Berger
Recon
DRI
ETg Rate (ft/yr)
1.0
0.8
0.6
0.4
0.2
0.0
ETg Volume (ac-ft/yr)
10,000
8,000
6,000
4,000
2,000
Crescent Valley (54)
60,000
50,000
40,000
30,000
20,000
10,000
0.5
0.3
0.1
35,000
25,000
15,000
5,000
Pine Valley (53)
1.6
1.4
1.2
50,000


Marys River Area (42)
Discharge Area (ac)
50,000
40,000
30,000
20,000
10,000
0
Plume
DRI
ETg Rate (ft/yr)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Plume
DRI
ETg Volume (ac-ft/yr)
100,000
80,000
60,000
40,000
20,000
0
Plume
DRI


North Fork Area (44)
Discharge Area (ac)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Plume
DRI
ETg Rate (ft/yr)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Plume
DRI
ETg Volume (ac-ft/yr)
60,000
50,000
40,000
30,000
20,000
10,000
0
Plume
DRI


Huntington Valley (47)
Discharge Area (ac)
30,000
25,000
20,000
15,000
10,000
5,000
0
Plume
Recon
DRI
ETg Rate (ft/yr)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Plume
Recon
DRI
ETg Volume (ac-ft/yr)
60,000
50,000
40,000
30,000
20,000
10,000
0
Plume
Recon
DRI

assumed to be spatially uniform and temporally constant for all HAs in the upper Humboldt River Basin, most likely resulting in biased high ETg volumes. For example, given that the net ET rate is defined as the annual ET rate less the annual PPT rate (Plume and Smith, 2013), the total ET rate for the riparian ET Unit would include an additional 1 to 1.2 ft/yr of PPT making the total ET to range from 4.3 to 4.5 ft/yr, yet the total ET from a well-watered stress-free crop of alfalfa in this region is only estimated to range from 3.1 to 3.4 ft/yr, and the NIWR (ET less effective PPT) is estimated to range from 2.2 to 2.8 ft/yr (Huntington and Allen, 2010). It is acknowledged that riparian and wetland ET rates can approach or be greater than well-watered reference crop ET rates (Allen *et al.*, 1998a,b), however, not all riparian areas within the upper Humboldt River basin are consistently well-watered based on historical Landsat data and computed vegetation and water indices that indicate high spatial and temporal variability. In assessing the spatial distribution of riparian area ETg rates immediately adjacent to streams in the upper Humboldt River Basin, ETg rates commonly ranged from 1.2 to 2.5 ft/yr (Figure 7). Adding PPT to these ETg estimates would yield ET rates at or above the well-watered stress-free alfalfa ET estimates reported for the region. Given these comparisons and known water and energy limits on ET, the assumption of a uniform and constant ETg rate of 3.3 ft/yr across all riparian lands, which was 27 percent of the reported discharge area, most likely resulted in biased high ETg rates and volumes reported by Plume and Smith (2013). Other ETg rates reported by Plume and Smith (2013) are also likely biased high because fixed rates were borrowed from similarly defined ET Units in Eastern Nevada (Welch *et al.*, 2007) without accounting for differences in vegetation density, vigor, or influence of local climate. Application of the Beamer *et al.* (2013) approach results in estimates of ETg that are at 0.22 acre spatial resolution and that vary in both time and space according to vegetation vigor, ETo, and PPT. Given these considerations and factors, phreatophyte ETg estimates reported in this study are more representative of local vegetation and climate conditions than those reported by Plume and Smith (2013).

Differences in reported ETg volumes in the upper Humboldt River Basin are also due to assumptions of ETg (i.e. net ET) for irrigated areas. In this study, irrigated croplands were identified and masked, and representative ETg rates based on surrounding ETg rates from nearby phreatophyte vegetation were assigned to masked areas. Plume and Smith (2013) estimated the net ET for croplands to range from 2.2 to 2.8 ft/yr based on the NIWR rate reported by Huntington and Allen (2010), and 33 percent of the total reported discharge area was classified as croplands, however, in this study much of the cropland area classified by Plume and Smith (2013) was classified as meadows (Figure 6c). ETg estimates for meadow areas were based on application of the Beamer *et al.* (2013) approach using Landsat and climate data rather than specifying constant NIWR rates. The combination of large differences in areas and ETg rates for riparian and cropland ET Units are primary factors causing large differences in estimated ETg volumes reported in this study when compared to estimates reported in Plume and Smith (2013).

Spatial datasets associated with this study are available at www.dri.edu/humboldt-etg. Spatial datasets include: 1) ArcGIS shape file of potential areas of groundwater discharge, with attributes of area, ET Unit classification, ETg rate, and pre-development scaling factors for sub-

irrigated cropland and meadow areas, 2) 1985-2015 median annual raster of ETg rates at 30m spatial resolution and 3) discharge boundaries digitized from Water Resource Bulletin and Reconnaissance Series reports. Metadata is provided for each dataset following FGDC guidelines.

LIMITATIONS OF METHODOLOGY

Groundwater discharge estimates produced from this study are subject to numerous limitations and uncertainties, including those associated with 1) empirical data and statistical models used in this study, 2) climate datasets used in application of statistical models, 3) accuracy of Landsat at-surface reflectance, and representativeness of vegetation indices to characterize phreatophyte vegetation vigor, and 4) accuracy in derived groundwater discharge areas. The empirical model of Beamer *et al.* (2013) (Equation 3) is based on 40 site years of in-situ ET estimates derived from advanced micrometeorological methods in which uncertainty for many of the ET datasets has been characterized as +/- 10 to 12 percent (Maurer *et al.*, 2006; Moreo *et al.*, 2007; Allander *et al.*, 2009). Beamer *et al.* (2013) aimed to reduce this uncertainty prior to developing the empirical model by performing energy balance closure corrections to in-situ micrometeorological data following the approach of Twine *et al.* (2000). However, energy balance closure corrections do not eliminate in-situ ET measurement uncertainty. In-situ measurements of incoming solar radiation, air temperature, humidity, wind speed, and precipitation were used to estimate ETo, PPT, and normalized ET (Equation 2). Of these variables, precipitation is likely the most uncertain since accurate measurement is dependent on several factors, including type of gauge, alter shielding, wind speed, form of precipitation (i.e. snow vs. rain), and potential obstructions. Uncertainty in measured precipitation was not quantified in the previous studies that Beamer *et al.* (2013) relied on to estimate site specific ET* estimates. However, most studies relied on National Weather Service approved 8-in diameter volumetric precipitation gauges and are considered a standard (Gordon, 2002). Snow accumulation was minimal during most study periods, therefore inaccuracies due to snow overtopping the precipitation collection funnel were considered by previous study authors to be minimal.

Accuracy of the gridMET ETo used for estimating ETg (Equation 5) was assessed by comparing gridMET annual ETo to annual ETo computed at weather stations within the study area. Results indicated that gridMET estimated ETo was within 15 percent across all sites with an average across all sites of 3 percent (Figure 3; Appendix B). While the accuracy of gridMET precipitation was not assessed in this study in large part due to inadequate independent observations within the study area, previous studies have compared gridMET to independent observations of precipitation in Nevada and found gridMET to be relatively accurate within lowland areas with the caveat that measurements of PPT also had unknown uncertainty (McEvoy *et al.*, 2014; McEvoy and McCurdy, 2018). Additional study is required using independent measurements of PPT to further assess potential gridMET biases.

Landsat is considered the "gold standard" for radiometric and geometric calibration and accuracy (NGAC, 2020). This study used recently standardized atmospheric correction procedures of the USGS that have been in development over the last decade to estimate at-surface reflectance (USGS, 2018a). While numerous factors affect atmospheric correction (e.g. aerosols, haze, clouds, water vapor), the approach applied in this study considers these factors using state-of-the-art weather model outputs and ancillary satellite data. At-surface reflectance estimates of NIR, Red, and Blue reflectance were used to compute EVI as an indicator of vegetation vigor. EVI has been widely used for estimating ET by the USGS and others, and shown to perform well for predicting ET when drivers of ET such as ETo and PPT are considered (Nagler *et al.*, 2009; Murray *et al.*, 2009; Glenn *et al.*, 2010).

All images acquired from July 15 to September 15 (DOY 196-258) each year that passed QAQC screening were used to compute EVI, ET*, and ETg. These results were used to produce a single estimate each year to characterize annual phreatophyte vegetation conditions and ETg. While the use of single or composite values within a target season may not adequately characterize conditions for the entire year, studies have shown the utility in single- and composite satellite-based ET approaches for estimating annual ET and ETg from phreatophyte areas in the Great Basin (Groeneveld *et al.*, 2007; Devitt *et al.*, 2011; Beamer, *et al.*, 2013; Minor, 2019), and shown that such estimates compare well to riparian ET estimates based on advanced surface energy balance (SEB) and time integration models that require iterative processing (Khand *et al.*, 2017). Challenges in accurately estimating ET in arid environments with relatively low to moderate vegetation cover using SEB and time integration methods (e.g. Allen *et al.*, 2007; Senay 2018) are centered around 1) the need to accurately account for PPT and subsequent ET events that occur prior to and after image acquisitions, ideally using daily soil water balance models, but have their own set of uncertainties and application challenges, and 2) the fact that estimates of net radiation and sensible heat flux are both large quantities in areas of low ET, and because ET is solved as a residual of the energy balance, this leads to errors in ET that may exceed the actual ET (i.e. differencing two large numbers, net radiation and sensible heat flux, to solve for ET). This is particularly a problem when estimating annual ETg (annual ET less annual PPT) from phreatophyte shrublands where annual ETg is typically a small fraction of annual ET. An empirical single or seasonal composite approach that is based on in-situ measurements of annual ET, PPT, and ETo, such as applied in this study, constrains annual ETg estimates to in-situ measurements of ET and ETg, avoids challenges and associated errors with time integration in between image dates, and can provide an estimate of uncertainty based on confidence intervals around the mean of least-squares regression models.

Given the many issues and assumptions that are required when estimating and scaling ETg rates from point station locations to the basin scale, relying on the regression model of Beamer *et al.* (2013), or similar approach, is attractive since it is based on over 40 site-years of in-situ ET estimates and Landsat vegetation indices for phreatophyte areas in Nevada, and accounts for temporal and spatial variations in evaporative demand and precipitation, two primary factors that drive ET. Additionally, gridded climate data used in this study adhere to

well-known complementary theory describing land surface-atmospheric feedbacks (Hobbins and Huntington, 2016; Huntington *et al.*, 2011). In sum, when all these factors and limitations are considered, single scene or composite approaches such as Beamer *et al.* (2013) are more robust and likely more accurate than advanced SEB models or simple ET Unit approaches where previous study ET rates are assumed to be constant in time and space and are applied across similar ET Units for study areas of interest. While the Beamer *et al.* (2013) approach overcomes many challenges in estimating ETg over large areas and time periods, it does have limitations that are common with empirical regression models in addition to limited accuracy for estimating low rates of ETg in areas of sparse vegetation due to low signal to noise and uncertainty in bare soil contributions to ETg.

A significant source of uncertainty in estimating ETg volumes is the estimation of potential areas of groundwater discharge (Zhu and Young, 2009). Delineations of potential areas of groundwater discharge were based on a combination of field investigations, aerial and satellite imagery, groundwater levels, GIS datasets of topography, soils, and vegetation, and phreatophyte delineations from previous studies. Field investigations generally agreed well with initial delineations based on imagery, GIS, and groundwater levels, giving confidence to delineations where field investigations could not be performed. While actual areas of groundwater discharge may be smaller than the potential areas delineated in this study, areas of little to no ETg typically have exceptionally low EVI values, therefore predicted ETg for these areas will be negligible using the Beamer *et al.* (2013) approach. Detailed hyper-spectral remote sensing, aerial surveys, and additional field investigations could aid and improve future delineations of potential areas of groundwater discharge.

Assumptions made in estimating pre-development conditions include 1) assignment of ETg rates for cropland areas based on estimated ETg rates from nearby phreatophyte vegetation, 2) reducing estimated ETg rates by assumed factors of 0.33 to 0.50 where surface water and or sub-irrigation was believed to contribute to ETg, and 3) assuming the full period of study of 1985-2015 is representative of the long-term pre-development groundwater discharge. While these assumptions have uncertainty, they build on and advance approaches of Welborn and Moreo (2007) and Smith *et al.* (2007) as part of the BARCAS study in which replacement ETg rates were assigned to cropland areas based on area-weighted averages of ETg for all phreatophyte ET Units within each HA. More refined and detailed assessments are required before alternative and potentially more accurate approaches can be developed to estimate long-term estimates of ETg for pre-development periods. However, the uncertainty of estimated pre-development ETg reported in this study is likely substantially less uncertain than estimating recharge using empirical or distributed water balance models as suggested by Bredehoeft (2007). The approaches applied in this study to estimate ETg are based on state-of-the-art satellite remote sensing, climate modeling, GIS datasets, groundwater levels, and in-situ ET estimates from phreatophyte vegetation in the Great Basin. Future studies focused on obtaining in-situ ET estimates from different phreatophyte vegetation communities within the Humboldt River Basin could be used to improve estimates and assess uncertainty in ETg rates and volumes derived from this study and others.

CONCLUSIONS

The primary component of groundwater discharge within the Humboldt River Basin is groundwater evapotranspiration (ETg) from phreatophyte vegetation. This report summarizes estimates of ETg rates and volumes derived using a consistent place-based approach that relies on Landsat satellite imagery, gridded climate, GIS, and groundwater level data. Results from this study were compared to previously reported estimates within the Humboldt River Basin. Groundwater discharge areas, and ETg rates and volumes reported in this study were used for groundwater modeling studies of the USGS and DRI (Allander *et al.*, in prep; Carroll *et al.*, in prep; Nadler *et al.*, in prep), in cooperation with NDWR, to support conjunctive water management within the Humboldt River Basin.

Median annual ETg rates were estimated for the period of 1985-2015, with the least-squares regression model of Beamer *et al.* (2013) that relates place-based Landsat satellite vegetation indices, evaporative demand, and precipitation to in-situ estimates of annual phreatophyte ET and ETg. Spatial distributions of estimated annual ETg rates were summarized over potential areas of groundwater discharge within each HA, and spatial summaries are temporally summarized from 1985 through 2015 to develop median annual ETg volumes for each HA within the Humboldt River Basin.

Potential areas of groundwater discharge, which represent the maximum spatial extent of groundwater discharge by phreatophyte vegetation, were estimated based on a combination of previously published phreatophyte boundary maps and datasets, field investigations, USGS and NDWR groundwater level data, DEMs, soils data, high resolution aerial imagery, and Landsat land surface temperature and vegetation indices. Potential areas of groundwater discharge were delineated and attributed by ET Unit of playa/bare soil, phreatophyte shrubland, meadow, riparian, and cropland based on geologic and hydrologic GIS datasets, water right place of use boundaries, Landsat imagery, and ET Units reported in Reconnaissance Series and Water Resource Bulletin reports and USGS studies.

Median annual ETg rates for croplands were adjusted to represent pre-development conditions for croplands within groundwater discharge areas that were determined to be irrigated based on POU boundaries and location. Pre-development rates of ETg for masked irrigated areas were based on ETg estimates from adjacent representative areas of phreatophyte vegetation that likely occupied irrigated areas prior to cultivation, or by scaling the ETg within masked irrigated areas were the influence of surface water and or sub-irrigation appeared to be high or low, respectively. Potential changes in ETg due to hydrologic and land cover changes during the study period of 1985-2015 were evaluated based on groundwater level hydrographs, trends in vegetation indices, and changes in irrigated area. After careful review and observing relatively small changes in estimated ETg over different time periods, and recognizing that there are numerous factors that impact the magnitude of phreatophyte vegetation change over time, long-term annual ETg was estimated for all HAs as the median annual value for the full study period

of 1985-2015. Annual time series of estimated median ETg, ET, ETo, and PPT rates for discharge areas that both include and exclude riparian areas were summarized to support transient groundwater studies and assessment of ET derived from surface water.

Results from this study are summarized and documented in the form of maps, graphs, tables, geodatabases, and metadata following Federal Geographic Data Committee standards and are available at www.dri.edu/humboldt-etg. Estimated pre-development ETg volumes for the upper, middle, and lower Humboldt River basin reported in this study are 158,500, 361,600, 55,900 ac-ft/yr, and 85,700, 248,400, and 46,100 ac-ft/yr excluding riparian lands, respectively. Discharge areas and median annual ETg rates and volumes estimated for this study were compared with previous estimates for respective ET Units and HAs. Results reported for the upper Humboldt River Basin indicate that potential areas of groundwater discharge estimated in this study are generally lower, and ETg rates and volumes are less than one half ETg rates and volumes reported by Plume and Smith (2013). Results reported for the middle Humboldt River Basin indicate that ETg volumes estimated this study are higher in six, and lower in seven HAs when compared to estimates reported in Water Resource Bulletin and Reconnaissance Series reports, and generally less one half those reported by Berger (2000), primarily due to substantially lower ETg rates estimated in this study.

This study compiled and applied state-of-the-art place-based satellite remote sensing approaches in combination with climate and GIS datasets, groundwater levels, and in-situ based phreatophyte ET empirical regression models to estimate potential areas of groundwater discharge, and ETg rates and volumes within the Humboldt River Basin. While estimates reported in this study are substantially lower than relatively recent studies of Berger (2000) and Plume and Smith (2013), many estimates reported in this study are similar to those reported in Water Resource Bulletin and Reconnaissance Series reports. Future studies should focus on delineation of groundwater discharge areas, potential changes in ETg, and use in-situ ET estimates in areas where large uncertainty exists to improve and reduce uncertainty in the ETg estimates reported in this study.

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APPENDIX A: PREVIOUSLY REPORTED GROUNDWATER DISCHARGE AREAS, ETg RATES, ETg VOLUMES, AND STUDY SOURCE INFORMATION

Table A-1. Previously reported groundwater discharge areas, ETg rates, ETg volumes, and study source information.

				Phreatophyte Shrublands		Riparian		Meadows		Irrigated Croplands		Bare Soil		Totals	
Study	Source	HA Name	HA #	Area (acres)	Volume (ac-ft/yr)	Area (acres)	Volume (ac-ft/yr)	Area (acres)	Volume (ac-ft/yr)	Area (acres)	Volume (ac-ft/yr)	Area (acres)	Volume (ac-ft/yr)	Area (acres)	Volume (ac-ft/yr)
Berger[1]	WRI 2000-4168	Antelope Valley	57	7,240	5,195	-	-	-	-	-	-	30	5	7,270	5,200
Berger[1]	WRI 2000-4168	Boulder Flat	61	95,570	119,635	-	-	-	-	-	-	780	115	96,350	119,750
Berger[1]	WRI 2000-4168	Carico Lake Valley	55	9,390	7,150	-	-	-	-	-	-	340	50	9,730	7,200
Berger[1]	WRI 2000-4168	Clovers Area	64	111,730	79,850	-	-	-	-	-	-	8,005	1,200	119,735	81,050
Berger[1]	WRI 2000-4168	Crescent Valley	54	49,695	21,945	-	-	-	-	-	-	6,440	965	56,135	28,350
Berger[1]	WRI 2000-4168	Kelly Creek Area	66	38,710	24,975	-	-	-	-	-	-	1,490	225	40,200	25,200
Berger[1]	WRI 2000-4168	Lower Reese River Valley	59	86,015	54,505	-	-	-	-	-	-	4,980	745	90,995	55,250
Berger[1]	WRI 2000-4168	Middle Reese River Valley	58	950	7,285	-	-	-	-	-	-	130	15	10,080	7,300
Berger[1]	WRI 2000-4168	Pine Valley	53	32,775	44,880	-	-	-	-	-	-	120	20	32,895	44,900
Berger[1]	WRI 2000-4168	Pumpernickel Valley	65	37,310	28,405	-	-	-	-	-	-	4,980	745	42,290	29,150
Berger[1]	WRI 2000-4168	Rock Creek Valley	62	9,830	10,900	-	-	-	-	-	-	5	0	9,835	10,900
Berger[1]	WRI 2000-4168	Upper Reese River Valley	56	34,760	44,730	-	-	-	-	-	-	465	70	35,225	44,800
Berger[1]	WRI 2000-4168	Whirlwind Valley	60	10,785	14,840	-	-	-	-	-	-	735	110	11,520	14,950
Berger[1]	WRI 2000-4168	Willow Creek Valley	63	10,775	20,500	-	-	-	-	-	-	25	0	10,800	20,500
Plume[2]	SIR 2013-5077	Dixie Creek-Tenmile Creek Area	48	3,073	920	1,809	5,970	230	391	3,488	9,770	-	-	10,081	23,400
Plume[2]	SIR 2013-5077	Elko Segment	49	2,633	790	5,080	16,800	1,252	2,128	4,070	10,600	-	-	13,156	30,800
Plume[2]	SIR 2013-5077	Huntington Valley	47	12,343	3,700	8,544	28,200	1,174	1,996	11,172	26,800	-	-	33,245	60,700
Plume[2]	SIR 2013-5077	Lamoille Valley	45	8,685	2,610	7,537	24,900	1,998	3,397	16,450	37,800	-	-	35,106	70,600
Plume[2]	SIR 2013-5077	Marys River Area	42	19,376	5,810	17,091	56,400	6,607	11,232	10,804	25,900	-	-	53,987	99,800
Plume[2]	SIR 2013-5077	North Fork Area	44	11,302	3,390	9,251	30,500	5,266	8,952	10,118	22,300	-	-	36,053	65,600
Plume[2]	SIR 2013-5077	South Fork Area	46	4,357	1,310	4,143	13,700	2,107	3,582	4,383	11,000	-	-	14,991	29,600
Plume[2]	SIR 2013-5077	Starr Valley Area	43	13,164	3,950	10,430	34,400	2,766	4,702	17,976	43,100	-	-	44,339	86,200
Recon[3]	RR 19	Antelope Valley	57	5,000	500	-	-	-	-	-	-	-	-	5,000	500
Recon[3]	RR 37	Carico Lake Valley	55	17,000	3,700	trace	trace	trace	trace	-	-	1,000	100	18,000	3,800
Recon[3]	RR 35	Dixie Creek-Tenmile Creek Area	48	6,790	2,000	-	-	3,240	1,950	-	-	-	-	10,000	4,000
Recon[3]	RR 37	Grass Valley	138	68,500	10,250	-	-	-	-	-	-	17,000	1,700	68,500	12,000
Recon[3]	RR 29	Grass Valley	71	29,250	7,000	-	-	-	-	-	-	-	-	29,250	7,000
Recon[3]	RR 35	Huntington Valley	47	8,770	2,100	-	-	16,100	12,000	-	-	-	-	24,900	14,000
Recon[3]	RR 5	Imlay Area	72	27,000	3,400	-	-	-	-	-	-	-	-	27,000	3,400
Recon[3]	RR 32	Lovelock Valley	73	45,000	22,500	trace	trace	trace	trace	-	42,000	-	-	45,000	66,000
Recon[3]	RR 32	Lovelock Valley (Oreana Subarea)	73A	7,000	1,400	-	-	-	-	-	-	-	-	7,000	1,400
Recon[3]	RR 19	Middle Reese River Valley	58	15,000	3,000	-	-	-	-	-	-	-	-	15,000	3,000
Recon[3]	RR 2	Pine Valley[5]	53	26,600	9,100	-	-	6,850	8,000	-	-	-	-	33,450	19,100
Recon[3]	RR 35	South Fork Area	46	-	-	-	-	4,020	3,000	-	-	-	-	4,020	3,000
Recon[3]	RR 31	Upper Reese River Valley[6]	56	54,000	33,000	-	-	-	-	-	-	-	-	54,000	33,000
WRB[4]	WRB 39	Little Humboldt Valley	67	3,600	2,000	-	-	4,000	2,000	-	-	-	-	7,600	4,000
WRB[4]	WRB 39	Paradise Valley	69	62,900	19,000	-	-	23,000	12,000	11,300	9,000	-	-	100,000	40,000
WRB[4]	WRB 27	Winnemucca Segment	70	19,090	9,800	5,930	22,100	10,020	13,000	-	-	-	-	35,000	45,000

[1]Berger (2000) - Water-Resources Investigations Report 2000-4168. Values presented here are computed as the mean of the range of reported estimates. Values reported were not summarize by ET Unit and instead summarized estimates by ranges of percent plant cover, therefore, all estimates were included in phreatophyte shrublands ET Unit in this summary. No details were given on croplands or if they were included in reported discharge areas and ET estimates.

[2]Plume and Smith (2013) - Scientific Investigations Report 2013-5077. Values summarized here exclude areas and volumes of open water.

[3]Reconnaissance Series Report - See http://water.nv.gov/reconreports.aspx for the list of published Recon Reports.

[4]Water Resource Bulletin - See http://water.nv.gov/bulletins.aspx for a list of published Bulletins.

[5]Total Volume includes an additional 2000 acre-ft/yr because of a "correction" for below average conditions.

[6]Area and Volume for phreatophyte shrublands includes meadow and riparian vegetation since they were grouped in report.

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APPENDIX B: METEOROLOGICAL STATION MEAN ANNUAL RATIOS OF STATION CALCULATED ASCE GRASS REFERENCE ET (ETo) TO ESTIMATED GRIDMET ETo

Table B-1. Meteorological station mean annual ratios of station calculated ASCE grass reference ETo to estimated gridMET ETo.

Station	Station Network	HA Name	HA #	Latitude	Longitude	Station ETo (in/yr)	gridMET ETo (in/yr)	Avg. Ann. Ratio (Station/GridMET)
Austin	RAWS	Upper Reese River Valley	56	39.4967	-117.0717	52.2	50.9	1.03
BattleMountain (gridMET solar)	ISD-Lite	Lower Reese River Valley	59	40.5990	-116.8670	46.6	49.0	0.95
Beacon	RAWS	Lower Reese River Valley	59	40.5583	-116.7583	52.3	56.1	0.93
Crane Springs	RAWS	Dixie Creek-Tenmile Creek Area	48	40.4597	-115.8500	52.2	47.4	1.10
Crescent	Barrick Gold	Crescent Valley	54	40.2955	-116.6353	54.4	56.1	0.97
Dixie Valley	Churchill County	Dixie Valley[1]	128	39.9398	-117.8236	51.8	48.8	1.06
Eureka (Eureka, NV AgriMET solar)	ISD-Lite	Diamond Valley[1]	153	39.6000	-116.0170	48.3	46.7	1.03
Lovelock/Derby Field (Lovelock, NV SCAN Solar)	ISD-Lite	Lovelock Valley	73	40.0660	-118.5650	53.9	50.9	1.06
Morey Creek	RAWS	Paradise Valley	69	41.4558	-117.6333	48.9	42.3	1.14
Red Butte	RAWS	Antelope Valley	57	39.6500	-117.3167	53.5	51.2	1.05
Wildhorse	ISD-Lite	Owyhee River Area[1]	37	41.6660	-115.7840	33.9	31.4	1.07
Winnemucca (Paradise Valley, NV NICENet solar)	ISD-Lite	Winnemucca Segment	70	40.9020	-117.8070	45.4	48.8	0.93

[1]Outside study area

APPENDIX C: PERCENT CHANGE IN MEDIAN ETg FOR SELECT BASINS

Table C-1. Percent change in median ETg computed based on the full 1985-2015 period, and period prior to the break year. The large majority of percent change values for each HA are negative, meaning that ETg was greater for the full period of 1985-2015 than for 1985-break period year range.

				Median (all)			Median (no ag, no rip)		
HA#	HA Name	Break year	Confidence	% change ETg	% change ETg LCI	% change ETg UCI	% change ETg	% change ETg LCI	% change ETg UCI
61	Boulder Flat	1993	High	-28%	-31%	-26%	-28%	-31%	-26%
64	Clovers Area	1993	High	-6%	-9%	-6%	0%	0%	0%
54	Crescent Valley	1995	High	-7%	-8%	-4%	-4%	-7%	-3%
48	Dixie Valley/10-mile Creek	1989	High	-9%	-9%	-9%	-7%	-7%	-7%
71	Grass Valley	2001	High	-7%	-8%	-6%	-10%	-11%	-7%
72	Imlay Area	1987	Moderate	7%	7%	5%	0%	5%	0%
66	Kelley Creek Area	1990	High	-9%	-10%	-8%	-11%	-15%	-9%
59	Lower Reese River Valley	1999	High	0%	0%	0%	0	0	0
51	Maggie Creek Area	1991	High	-5%	-5%	-5%	6%	6%	5%
58	Middle Reese River Valley	1999	High	0%	0%	0%	0%	0%	0%
69	Paradise Valley	2000	High	3%	3%	2%	3%	4%	3%
65	Pumpernickel Valley	1991	High	-13%	-19%	-9%	-22%	-25%	-20%
70	Winnemucca Segment	2000	Moderate	3%	4%	2%	-6%	-7%	-5%

APPENDIX D: GROUNDWATER DISCHARGE AREAS AND MEDIAN ETg VOLUMES FOR EACH ET UNIT AND HA

Table D-1. Groundwater discharge areas and median ETg volumes for each ET Unit and HA.

			Phreatophyte		Riparian		Meadow		Irrigated Cropland		Bare Soil		Total		Total w/o Riparian	
Hydrographic Area	Hydrographic Area Number	Basin	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)
Antelope Valley	57	Middle	6,533	1,499	-	-	-	-	2,285	703	-	-	8,818	2,202	8,818	2,202
Boulder Flat	61	Middle	63,914	28,698	31,352	30,195	-	-	1,541	793	72	4	96,878	59,690	65,526	29,495
Buffalo Valley	131	Middle	35,557	5,460	-	-	-	-	-	-	10,106	506	45,662	5,965	45,662	5,965
Carico Lake Valley	55	Middle	10,020	2,665	-	-	229	153	306	181	771	39	11,326	3,038	11,326	3,038
Clovers Area	64	Middle	107,969	28,959	15,640	17,863	-	-	536	225	409	20	124,554	47,067	108,914	29,205
Crescent Valley	54	Middle	54,774	13,820	1,164	775	-	-	782	995	3,826	191	60,546	15,782	59,382	15,007
Dixie Creek-Tenmile Creek Area	48	Upper	5,423	3,652	2,153	1,620	4,176	2,803	-	-	-	-	11,751	8,075	9,599	6,455
Elko Segment	49	Upper	790	440	11,069	13,297	164	117	1,129	1,503	-	-	13,151	15,356	2,082	2,059
Grass Valley (138)	138	Middle	45,275	14,238	-	-	857	522	754	464	23,055	1,154	69,941	16,377	69,941	16,377
Grass Valley (71)	71	Middle	31,648	10,413	-	-	-	-	6,435	3,136	-	-	38,083	13,549	38,083	13,549
Hardscrabble Area	68	Middle	-	-	532	341	-	-	-	-	-	-	532	341	0	0
Huntington Valley	47	Upper	16,751	9,584	3,705	3,385	11,724	5,802	256	241	-	-	32,436	19,011	28,731	15,626
Imlay Area	72	Lower	27,263	3,420	6,554	6,646	-	-	-	-	-	-	33,817	10,066	27,263	3,420
Kelley Creek Area	66	Middle	38,841	9,694	3,381	4,286	-	-	2,486	905	38	2	44,745	14,887	41,364	10,600
Lamoille Valley	45	Upper	8,368	7,670	2,941	3,718	14,255	9,689	884	923	-	-	26,448	22,000	23,507	18,282
Little Humboldt Valley	67	Middle	8,895	7,166	1,910	1,251	1	1	-	-	-	-	10,806	8,418	8,896	7,167
Lovelock Valley	73	Lower	54,250	13,616	3,062	3,122	-	-	45,524	27,614	11,745	588	114,581	44,940	111,519	41,818
Lovelock Valley (Oreana Subarea)	73A	Lower	3,221	854	74	38	-	-	-	-	-	-	3,294	891	3,221	854
Lower Reese River Valley	59	Middle	85,284	17,313	7,071	5,732	-	-	2,893	1,478	3	0	95,251	24,523	88,180	18,791
Maggie Creek Area	51	Middle	1,735	903	6,316	5,644	-	-	301	316	-	-	8,352	6,862	2,036	1,219
Marys Creek Area	52	Middle	-	-	1,280	1,445	85	69	-	-	-	-	1,365	1,515	85	69
Marys River Area	42	Upper	13,897	7,001	22,833	23,357	6,369	4,956	4,584	1,813	-	-	47,684	37,126	24,851	13,769
Middle Reese River Valley	58	Middle	10,930	2,514	-	-	-	-	434	188	4	0	11,368	2,702	11,368	2,702
North Fork Area	44	Upper	15,288	6,401	8,838	7,887	12,153	7,171	2,154	1,918	-	-	38,433	23,378	29,595	15,490
Paradise Valley	69	Middle	43,114	12,126	744	608	39,685	12,404	13,004	4,530	-	-	96,547	29,668	95,803	29,060
Pine Valley	53	Middle	25,581	13,201	1,436	1,166	3,186	1,700	2,072	1,947	-	-	32,274	18,015	30,838	16,849
Pumpernickel Valley	65	Middle	29,835	7,006	14,375	17,028	-	-	1,170	480	14	1	45,394	24,514	31,019	7,487
Rock Creek Valley	62	Middle	9,006	2,978	-	-	-	-	98	64	-	-	9,104	3,042	9,104	3,042
South Fork Area	46	Upper	520	472	3,600	4,561	5,579	3,703	-	-	-	-	9,698	8,736	6,098	4,175
Starr Valley Area	43	Upper	4,820	3,280	11,889	14,935	11,965	6,231	684	362	-	-	29,358	24,808	17,468	9,873
Susie Creek Area	50	Middle	7	6	2,574	1,756	39	17	-	-	-	-	2,620	1,778	46	23
Upper Reese River Valley	56	Middle	41,595	25,846	-	-	50	72	1,337	961	-	-	42,982	26,879	42,982	26,879
Whirlwind Valley	60	Middle	6,874	2,347	4,084	4,308	-	-	-	-	-	-	10,958	6,655	6,874	2,347
Willow Creek Valley	63	Middle	6,944	3,653	-	-	3,584	2,186	-	-	-	-	10,528	5,839	10,528	5,839
Winnemucca Segment	70	Middle	1,684	749	19,351	20,821	848	310	480	399	-	-	22,362	22,279	3,011	1,457
Totals			**816,604**	**267,641**	**187,925**	**195,784**	**114,946**	**57,907**	**92,127**	**52,138**	**50,042**	**2,504**	**1,261,643**	**575,974**	**1,073,718**	**380,189**

Table D-2. Groundwater discharge areas and upper 90% confidence interval median ETg volumes for each ET Unit and HA.

			Phreatophyte		Riparian		Meadow		Irrigated Cropland		Bare Soil		Total		Total w/o Riparian	
Hydrographic Area	Hydrographic Area Number	Basin	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)
Antelope Valley	57	Middle	6,533	1,922	-	-	-	-	2,285	703	-	-	8,818	2,625	8,818	2,625
Boulder Flat	61	Middle	63,914	33,073	31,352	32,579	-	-	1,541	793	72	4	96,878	66,448	65,526	33,869
Buffalo Valley	131	Middle	35,557	8,051	-	-	-	-	-	-	10,106	506	45,662	8,557	45,662	8,557
Carico Lake Valley	55	Middle	10,020	3,388	-	-	229	163	306	181	771	39	11,326	3,771	11,326	3,771
Clovers Area	64	Middle	107,969	37,105	15,640	19,066	-	-	536	225	409	20	124,554	56,417	108,914	37,351
Crescent Valley	54	Middle	54,774	17,616	1,164	856	-	-	782	995	3,826	191	60,546	19,658	59,382	18,802
Dixie Creek-Tenmile Creek Area	48	Upper	5,423	3,982	2,153	1,753	4,176	2,981	-	-	-	-	11,751	8,716	9,599	6,963
Elko Segment	49	Upper	790	487	11,069	14,112	164	121	1,129	1,503	-	-	13,151	16,223	2,082	2,111
Grass Valley (138)	138	Middle	45,275	17,745	-	-	857	547	754	464	23,055	1,154	69,941	19,909	69,941	19,909
Grass Valley (71)	71	Middle	31,648	12,605	-	-	-	-	6,435	3,136	-	-	38,083	15,741	38,083	15,741
Hardscrabble Area	68	Middle	-	-	532	364	-	-	-	-	-	-	532	364	0	0
Huntington Valley	47	Upper	16,751	10,579	3,705	3,614	11,724	6,039	256	241	-	-	32,436	20,474	28,731	16,860
Imlay Area	72	Lower	27,263	5,439	6,554	7,173	-	-	-	-	-	-	33,817	12,612	27,263	5,439
Kelley Creek Area	66	Middle	38,841	12,522	3,381	4,574	-	-	2,486	905	38	2	44,745	18,003	41,364	13,429
Lamoille Valley	45	Upper	8,368	8,203	2,941	3,873	14,255	10,065	884	923	-	-	26,448	23,065	23,507	19,192
Little Humboldt Valley	67	Middle	8,895	7,799	1,910	1,334	1	1	-	-	-	-	10,806	9,134	8,896	7,800
Lovelock Valley	73	Lower	54,250	16,244	3,062	3,344	-	-	45,524	27,614	11,745	588	114,581	47,790	111,519	44,446
Lovelock Valley (Oreana Subarea)	73A	Lower	3,221	1,081	74	43	-	-	-	-	-	-	3,294	1,125	3,221	1,081
Lower Reese River Valley	59	Middle	85,284	22,958	7,071	6,254	-	-	2,893	1,478	3	0	95,251	30,690	88,180	24,436
Maggie Creek Area	51	Middle	1,735	1,003	6,316	6,026	-	-	301	316	-	-	8,352	7,346	2,036	1,319
Marys Creek Area	52	Middle	-	-	1,280	1,535	85	72	-	-	-	-	1,365	1,607	85	72
Marys River Area	42	Upper	13,897	7,744	22,833	24,640	6,369	5,163	4,584	1,813	-	-	47,684	39,360	24,851	14,720
Middle Reese River Valley	58	Middle	10,930	3,273	-	-	-	-	434	188	4	0	11,368	3,461	11,368	3,461
North Fork Area	44	Upper	15,288	7,196	8,838	8,429	12,153	7,495	2,154	1,918	-	-	38,433	25,038	29,595	16,608
Paradise Valley	69	Middle	43,114	14,967	744	659	39,685	13,367	13,004	4,530	-	-	96,547	33,522	95,803	32,864
Pine Valley	53	Middle	25,581	14,801	1,436	1,258	3,186	1,775	2,072	1,947	-	-	32,274	19,782	30,838	18,523
Pumpernickel Valley	65	Middle	29,835	9,176	14,375	18,208	-	-	1,170	480	14	1	45,394	27,865	31,019	9,656
Rock Creek Valley	62	Middle	9,006	3,553	-	-	-	-	98	64	-	-	9,104	3,617	9,104	3,617
South Fork Area	46	Upper	520	501	3,600	4,765	5,579	3,890	-	-	-	-	9,698	9,156	6,098	4,391
Starr Valley Area	43	Upper	4,820	3,547	11,889	15,640	11,965	6,498	684	362	-	-	29,358	26,047	17,468	10,407
Susie Creek Area	50	Middle	7	6	2,574	1,913	39	18	-	-	-	-	2,620	1,937	46	24
Upper Reese River Valley	56	Middle	41,595	28,335	-	-	50	76	1,337	961	-	-	42,982	29,371	42,982	29,371
Whirlwind Valley	60	Middle	6,874	2,830	4,084	4,621	-	-	-	-	-	-	10,958	7,451	6,874	2,830
Willow Creek Valley	63	Middle	6,944	4,108	-	-	3,584	2,303	-	-	-	-	10,528	6,411	10,528	6,411
Winnemucca Segment	70	Middle	1,684	867	19,351	22,359	848	337	480	399	-	-	22,362	23,962	3,011	1,603
Totals			**816,604**	**322,707**	**187,925**	**208,994**	**114,946**	**60,910**	**92,127**	**52,138**	**50,042**	**2,504**	**1,261,643**	**647,253**	**1,073,718**	**438,259**

Table D-3. Groundwater discharge areas and lower 90% confidence interval median ETg volumes for each ET Unit and HA.

			Phreatophyte		Riparian		Meadow		Irrigated Cropland		Bare Soil		Total		Total w/o Riparian	
Hydrographic Area	Hydrographic Area Number	Basin	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)	Area (acres)	ETg Volume (ac-ft/yr)
Antelope Valley	57	Middle	6,533	1,083	-	-	-	-	2,285	703	-	-	8,818	1,786	8,818	1,786
Boulder Flat	61	Middle	63,914	24,748	31,352	27,694	-	-	1,541	793	72	4	96,878	53,238	65,526	25,544
Buffalo Valley	131	Middle	35,557	3,255	-	-	-	-	-	-	10,106	506	45,662	3,760	45,662	3,760
Carico Lake Valley	55	Middle	10,020	1,963	-	-	229	145	306	181	771	39	11,326	2,327	11,326	2,327
Clovers Area	64	Middle	107,969	21,314	15,640	16,708	-	-	536	225	409	20	124,554	38,268	108,914	21,560
Crescent Valley	54	Middle	54,774	10,223	1,164	699	-	-	782	995	3,826	191	60,546	12,109	59,382	11,410
Dixie Creek-Tenmile Creek Area	48	Upper	5,423	3,343	2,153	1,496	4,176	2,626	-	-	-	-	11,751	7,466	9,599	5,969
Elko Segment	49	Upper	790	392	11,069	12,645	164	112	1,129	1,503	-	-	13,151	14,652	2,082	2,007
Grass Valley (138)	138	Middle	45,275	11,237	-	-	857	498	754	464	23,055	1,154	69,941	13,352	69,941	13,352
Grass Valley (71)	71	Middle	31,648	8,281	-	-	-	-	6,435	3,136	-	-	38,083	11,417	38,083	11,417
Hardscrabble Area	68	Middle	-	-	532	317	-	-	-	-	-	-	532	317	0	0
Huntington Valley	47	Upper	16,751	8,633	3,705	3,175	11,724	5,582	256	241	-	-	32,436	17,631	28,731	14,456
Imlay Area	72	Lower	27,263	1,620	6,554	6,123	-	-	-	-	-	-	33,817	7,743	27,263	1,620
Kelley Creek Area	66	Middle	38,841	7,084	3,381	4,000	-	-	2,486	905	38	2	44,745	11,990	41,364	7,990
Lamoille Valley	45	Upper	8,368	7,140	2,941	3,530	14,255	9,312	884	923	-	-	26,448	20,906	23,507	17,376
Little Humboldt Valley	67	Middle	8,895	6,527	1,910	1,156	1	1	-	-	-	-	10,806	7,684	8,896	6,528
Lovelock Valley	73	Lower	54,250	11,089	3,062	2,899	-	-	45,524	27,614	11,745	588	114,581	42,189	111,519	39,291
Lovelock Valley (Oreana Subarea)	73A	Lower	3,221	631	74	32	-	-	-	-	-	-	3,294	663	3,221	631
Lower Reese River Valley	59	Middle	85,284	11,692	7,071	5,216	-	-	2,893	1,478	3	0	95,251	18,386	88,180	13,170
Maggie Creek Area	51	Middle	1,735	805	6,316	5,287	-	-	301	316	-	-	8,352	6,408	2,036	1,121
Marys Creek Area	52	Middle	-	-	1,280	1,356	85	67	-	-	-	-	1,365	1,423	85	67
Marys River Area	42	Upper	13,897	6,266	22,833	22,090	6,369	4,751	4,584	1,813	-	-	47,684	34,919	24,851	12,829
Middle Reese River Valley	58	Middle	10,930	1,825	-	-	-	-	434	188	4	0	11,368	2,013	11,368	2,013
North Fork Area	44	Upper	15,288	5,600	8,838	7,377	12,153	6,796	2,154	1,918	-	-	38,433	21,691	29,595	14,314
Paradise Valley	69	Middle	43,114	9,484	744	557	39,685	11,466	13,004	4,530	-	-	96,547	26,038	95,803	25,480
Pine Valley	53	Middle	25,581	11,715	1,436	1,085	3,186	1,626	2,072	1,947	-	-	32,274	16,375	30,838	15,289
Pumpernickel Valley	65	Middle	29,835	4,962	14,375	15,855	-	-	1,170	480	14	1	45,394	21,298	31,019	5,443
Rock Creek Valley	62	Middle	9,006	2,408	-	-	-	-	98	64	-	-	9,104	2,472	9,104	2,472
South Fork Area	46	Upper	520	443	3,600	4,322	5,579	3,528	-	-	-	-	9,698	8,294	6,098	3,972
Starr Valley Area	43	Upper	4,820	3,019	11,889	14,162	11,965	5,968	684	362	-	-	29,358	23,511	17,468	9,349
Susie Creek Area	50	Middle	7	5	2,574	1,590	39	17	-	-	-	-	2,620	1,611	46	22
Upper Reese River Valley	56	Middle	41,595	23,220	-	-	50	69	1,337	961	-	-	42,982	24,249	42,982	24,249
Whirlwind Valley	60	Middle	6,874	1,925	4,084	4,022	-	-	-	-	-	-	10,958	5,946	6,874	1,925
Willow Creek Valley	63	Middle	6,944	3,184	-	-	3,584	2,053	-	-	-	-	10,528	5,237	10,528	5,237
Winnemucca Segment	70	Middle	1,684	632	19,351	19,295	848	281	480	399	-	-	22,362	20,608	3,011	1,312
Totals			**816,604**	**215,747**	**187,925**	**182,691**	**114,946**	**54,897**	**92,127**	**52,138**	**50,042**	**2,504**	**1,261,643**	**507,978**	**1,073,718**	**325,286**

APPENDIX E: ANNUAL TIME SERIES OF MEDIAN EVI, ET, ETg, ETo, AND PPT RATES FROM 1985-2015 FOR GROUNDWATER DISCHARGE AREAS THAT BOTH INCLUDE AND EXCLUDE RIPARIAN AREAS

Table E-1. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Antelope Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
AntelopeValley	57	1985	0.09	0.79	0.75	0.84	0.19	0.15	0.24	4.39	0.60
AntelopeValley	57	1986	0.10	0.95	0.90	1.00	0.23	0.18	0.28	4.58	0.72
AntelopeValley	57	1987	0.11	0.85	0.80	0.91	0.24	0.19	0.29	4.62	0.61
AntelopeValley	57	1988	0.10	0.97	0.92	1.02	0.23	0.18	0.28	4.57	0.74
AntelopeValley	57	1989	0.09	0.82	0.77	0.88	0.20	0.15	0.25	4.62	0.62
AntelopeValley	57	1990	0.09	0.76	0.71	0.81	0.16	0.11	0.21	4.50	0.60
AntelopeValley	57	1991	0.09	0.70	0.65	0.75	0.16	0.12	0.22	4.47	0.53
AntelopeValley	57	1992	0.09	0.66	0.62	0.72	0.15	0.10	0.20	4.68	0.51
AntelopeValley	57	1993	0.12	0.99	0.94	1.04	0.32	0.27	0.37	4.40	0.68
AntelopeValley	57	1994	0.10	0.73	0.68	0.78	0.19	0.14	0.25	4.79	0.54
AntelopeValley	57	1995	0.12	1.38	1.34	1.42	0.31	0.27	0.36	4.26	1.07
AntelopeValley	57	1996	0.11	0.89	0.84	0.94	0.24	0.19	0.30	4.84	0.64
AntelopeValley	57	1997	0.13	1.13	1.08	1.17	0.25	0.20	0.30	4.47	0.88
AntelopeValley	57	1998	0.13	1.52	1.48	1.56	0.25	0.22	0.29	4.07	1.26
AntelopeValley	57	1999	0.12	0.84	0.79	0.89	0.21	0.16	0.26	4.48	0.64
AntelopeValley	57	2000	0.12	0.85	0.80	0.91	0.26	0.21	0.32	4.85	0.59
AntelopeValley	57	2001	0.16	0.88	0.83	0.94	0.32	0.27	0.38	4.66	0.55
AntelopeValley	57	2002	0.13	0.83	0.78	0.89	0.31	0.26	0.37	4.76	0.51
AntelopeValley	57	2003	0.14	0.87	0.82	0.92	0.22	0.17	0.27	4.73	0.65
AntelopeValley	57	2004	0.13	0.86	0.82	0.92	0.22	0.17	0.27	4.68	0.65
AntelopeValley	57	2005	0.16	1.25	1.21	1.30	0.33	0.28	0.37	4.41	0.93
AntelopeValley	57	2006	0.16	1.19	1.14	1.25	0.38	0.33	0.44	4.70	0.81
AntelopeValley	57	2007	0.14	0.67	0.61	0.72	0.18	0.13	0.24	4.87	0.48
AntelopeValley	57	2008	0.15	0.73	0.68	0.79	0.22	0.16	0.27	4.79	0.52
AntelopeValley	57	2009	0.15	1.08	1.03	1.13	0.25	0.20	0.30	4.62	0.83
AntelopeValley	57	2010	0.19	0.85	0.79	0.90	0.34	0.29	0.40	4.54	0.50
AntelopeValley	57	2011	0.16	0.98	0.94	1.03	0.25	0.20	0.30	4.38	0.73
AntelopeValley	57	2012	0.16	0.67	0.61	0.73	0.28	0.23	0.35	5.03	0.39
AntelopeValley	57	2013	0.16	0.74	0.69	0.80	0.30	0.24	0.36	4.79	0.45
AntelopeValley	57	2014	0.15	1.05	1.00	1.11	0.27	0.22	0.32	4.83	0.78
AntelopeValley	57	2015	0.15	1.10	1.05	1.15	0.30	0.25	0.36	4.87	0.79

Table E-2. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Boulder Flat.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
BoulderFlat	61	1985	0.12	1.06	1.00	1.13	0.47	0.40	0.53	4.32	0.59
BoulderFlat	61	1986	0.14	1.35	1.29	1.42	0.69	0.62	0.76	4.45	0.66
BoulderFlat	61	1987	0.15	1.36	1.29	1.43	0.71	0.64	0.78	4.49	0.65
BoulderFlat	61	1988	0.12	1.08	1.01	1.15	0.46	0.39	0.53	4.53	0.62
BoulderFlat	61	1989	0.12	1.08	1.01	1.15	0.47	0.40	0.54	4.45	0.61
BoulderFlat	61	1990	0.06	0.90	0.84	0.96	0.21	0.16	0.28	4.36	0.69
BoulderFlat	61	1991	0.13	1.08	1.01	1.15	0.51	0.44	0.57	4.29	0.57
BoulderFlat	61	1992	0.10	0.75	0.68	0.82	0.28	0.21	0.35	4.66	0.47
BoulderFlat	61	1993	0.17	1.57	1.51	1.64	0.79	0.72	0.85	4.17	0.79
BoulderFlat	61	1994	0.12	1.08	1.01	1.15	0.47	0.40	0.54	4.66	0.61
BoulderFlat	61	1995	0.17	1.74	1.68	1.80	0.74	0.68	0.80	4.21	1.00
BoulderFlat	61	1996	0.14	1.44	1.37	1.51	0.72	0.64	0.79	4.68	0.73
BoulderFlat	61	1997	0.17	1.70	1.63	1.76	0.78	0.72	0.84	4.36	0.92
BoulderFlat	61	1998	0.17	1.84	1.79	1.90	0.73	0.67	0.79	4.07	1.11
BoulderFlat	61	1999	0.12	1.16	1.09	1.22	0.50	0.43	0.57	4.44	0.66
BoulderFlat	61	2000	0.14	1.33	1.25	1.40	0.68	0.60	0.75	4.81	0.65
BoulderFlat	61	2001	0.11	0.98	0.91	1.05	0.42	0.35	0.49	4.55	0.56
BoulderFlat	61	2002	0.12	1.07	1.00	1.15	0.49	0.42	0.56	4.62	0.59
BoulderFlat	61	2003	0.12	1.22	1.16	1.29	0.55	0.48	0.62	4.59	0.67
BoulderFlat	61	2004	0.15	1.47	1.41	1.54	0.71	0.64	0.78	4.47	0.76
BoulderFlat	61	2005	0.21	2.01	1.95	2.07	1.02	0.95	1.08	4.24	1.00
BoulderFlat	61	2006	0.17	1.73	1.66	1.80	0.89	0.82	0.96	4.56	0.84
BoulderFlat	61	2007	0.14	1.26	1.19	1.34	0.76	0.69	0.84	4.72	0.50
BoulderFlat	61	2008	0.15	1.23	1.16	1.31	0.76	0.69	0.84	4.64	0.47
BoulderFlat	61	2009	0.14	1.43	1.36	1.49	0.62	0.55	0.68	4.46	0.81
BoulderFlat	61	2010	0.15	1.26	1.19	1.33	0.75	0.68	0.83	4.37	0.50
BoulderFlat	61	2011	0.20	1.80	1.74	1.87	0.99	0.92	1.05	4.24	0.82
BoulderFlat	61	2012	0.13	1.05	0.97	1.13	0.63	0.55	0.71	4.86	0.42
BoulderFlat	61	2013	0.13	1.23	1.16	1.30	0.66	0.59	0.73	4.55	0.57
BoulderFlat	61	2014	0.13	1.41	1.34	1.48	0.58	0.52	0.65	4.56	0.83
BoulderFlat	61	2015	0.11	1.31	1.24	1.38	0.53	0.46	0.60	4.72	0.78

Table E-3. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Buffalo Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
BuffaloValley	131	1985	0.07	0.74	0.70	0.80	0.12	0.08	0.18	4.49	0.62
BuffaloValley	131	1986	0.07	0.86	0.81	0.92	0.13	0.08	0.18	4.67	0.73
BuffaloValley	131	1987	0.07	0.83	0.78	0.89	0.18	0.13	0.23	4.71	0.65
BuffaloValley	131	1988	0.07	0.83	0.78	0.88	0.13	0.08	0.19	4.73	0.69
BuffaloValley	131	1989	0.06	0.77	0.73	0.83	0.11	0.07	0.17	4.71	0.66
BuffaloValley	131	1990	0.05	0.80	0.76	0.86	0.11	0.06	0.16	4.61	0.69
BuffaloValley	131	1991	0.06	0.73	0.69	0.79	0.10	0.06	0.16	4.59	0.63
BuffaloValley	131	1992	0.05	0.57	0.52	0.63	0.08	0.03	0.14	4.91	0.49
BuffaloValley	131	1993	0.07	0.92	0.88	0.98	0.16	0.12	0.21	4.39	0.76
BuffaloValley	131	1994	0.06	0.67	0.62	0.73	0.11	0.06	0.17	4.94	0.56
BuffaloValley	131	1995	0.07	1.18	1.14	1.23	0.15	0.11	0.20	4.39	1.03
BuffaloValley	131	1996	0.06	0.87	0.82	0.93	0.13	0.08	0.19	4.90	0.74
BuffaloValley	131	1997	0.07	1.06	1.02	1.11	0.13	0.09	0.18	4.58	0.93
BuffaloValley	131	1998	0.07	1.42	1.38	1.46	0.14	0.10	0.18	4.18	1.28
BuffaloValley	131	1999	0.08	0.87	0.82	0.93	0.20	0.16	0.26	4.57	0.67
BuffaloValley	131	2000	0.06	0.78	0.73	0.84	0.12	0.07	0.18	4.92	0.67
BuffaloValley	131	2001	0.10	0.92	0.86	0.98	0.34	0.28	0.40	4.73	0.58
BuffaloValley	131	2002	0.05	0.70	0.66	0.76	0.11	0.06	0.17	4.82	0.59
BuffaloValley	131	2003	0.05	0.77	0.73	0.83	0.10	0.05	0.16	4.81	0.67
BuffaloValley	131	2004	0.07	0.90	0.85	0.95	0.19	0.14	0.24	4.72	0.71
BuffaloValley	131	2005	0.07	1.13	1.09	1.18	0.17	0.13	0.22	4.45	0.96
BuffaloValley	131	2006	0.07	1.02	0.97	1.08	0.16	0.11	0.21	4.76	0.86
BuffaloValley	131	2007	0.06	0.66	0.61	0.72	0.13	0.08	0.19	4.95	0.53
BuffaloValley	131	2008	0.06	0.58	0.53	0.64	0.10	0.05	0.16	4.86	0.47
BuffaloValley	131	2009	0.06	0.92	0.88	0.98	0.10	0.05	0.15	4.76	0.82
BuffaloValley	131	2010	0.07	0.63	0.58	0.69	0.19	0.14	0.25	4.58	0.44
BuffaloValley	131	2011	0.10	1.05	1.00	1.10	0.26	0.21	0.31	4.45	0.79
BuffaloValley	131	2012	0.08	0.71	0.65	0.78	0.28	0.22	0.35	5.13	0.43
BuffaloValley	131	2013	0.07	0.73	0.68	0.80	0.17	0.12	0.23	4.85	0.56
BuffaloValley	131	2014	0.05	0.98	0.93	1.04	0.15	0.10	0.21	4.83	0.83
BuffaloValley	131	2015	0.06	0.90	0.85	0.96	0.13	0.08	0.19	4.91	0.77

Table E-4. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Carico Lake Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
CaricoLakeValley	55	1985	0.10	1.02	0.96	1.08	0.35	0.29	0.41	4.29	0.67
CaricoLakeValley	55	1986	0.09	1.02	0.96	1.08	0.28	0.22	0.34	4.45	0.74
CaricoLakeValley	55	1987	0.11	1.05	0.99	1.11	0.37	0.31	0.43	4.45	0.69
CaricoLakeValley	55	1988	0.10	1.09	1.03	1.14	0.25	0.20	0.31	4.43	0.83
CaricoLakeValley	55	1989	0.09	0.89	0.83	0.95	0.21	0.15	0.27	4.48	0.68
CaricoLakeValley	55	1990	0.05	0.82	0.77	0.88	0.11	0.06	0.16	4.39	0.71
CaricoLakeValley	55	1991	0.10	0.93	0.88	0.99	0.26	0.21	0.32	4.35	0.67
CaricoLakeValley	55	1992	0.09	0.72	0.66	0.78	0.16	0.10	0.23	4.61	0.56
CaricoLakeValley	55	1993	0.10	1.04	0.98	1.09	0.28	0.22	0.33	4.26	0.76
CaricoLakeValley	55	1994	0.10	0.90	0.83	0.96	0.24	0.18	0.31	4.70	0.66
CaricoLakeValley	55	1995	0.12	1.41	1.36	1.46	0.31	0.26	0.36	4.20	1.10
CaricoLakeValley	55	1996	0.10	1.01	0.95	1.08	0.28	0.22	0.34	4.76	0.73
CaricoLakeValley	55	1997	0.11	1.23	1.18	1.29	0.29	0.23	0.35	4.40	0.94
CaricoLakeValley	55	1998	0.12	1.63	1.59	1.67	0.37	0.32	0.41	4.01	1.26
CaricoLakeValley	55	1999	0.11	1.06	1.00	1.12	0.34	0.28	0.40	4.44	0.72
CaricoLakeValley	55	2000	0.09	0.84	0.78	0.91	0.20	0.14	0.27	4.85	0.63
CaricoLakeValley	55	2001	0.09	0.85	0.79	0.91	0.20	0.14	0.26	4.61	0.65
CaricoLakeValley	55	2002	0.09	0.82	0.75	0.88	0.23	0.17	0.29	4.70	0.59
CaricoLakeValley	55	2003	0.10	0.95	0.89	1.02	0.23	0.17	0.29	4.69	0.72
CaricoLakeValley	55	2004	0.09	0.99	0.93	1.05	0.21	0.15	0.27	4.58	0.78
CaricoLakeValley	55	2005	0.13	1.46	1.40	1.51	0.39	0.33	0.44	4.34	1.07
CaricoLakeValley	55	2006	0.11	1.21	1.15	1.27	0.33	0.27	0.39	4.67	0.88
CaricoLakeValley	55	2007	0.10	0.85	0.78	0.92	0.27	0.20	0.33	4.79	0.58
CaricoLakeValley	55	2008	0.10	0.80	0.74	0.87	0.28	0.22	0.35	4.68	0.52
CaricoLakeValley	55	2009	0.10	1.35	1.30	1.41	0.21	0.16	0.27	4.54	1.14
CaricoLakeValley	55	2010	0.11	0.78	0.71	0.84	0.27	0.21	0.34	4.42	0.50
CaricoLakeValley	55	2011	0.12	1.22	1.17	1.28	0.32	0.26	0.37	4.27	0.90
CaricoLakeValley	55	2012	0.10	0.73	0.66	0.80	0.25	0.18	0.33	4.98	0.48
CaricoLakeValley	55	2013	0.10	0.92	0.86	0.99	0.28	0.22	0.34	4.69	0.64
CaricoLakeValley	55	2014	0.10	1.08	1.03	1.14	0.22	0.16	0.28	4.64	0.86
CaricoLakeValley	55	2015	0.08	1.08	1.02	1.14	0.25	0.19	0.31	4.75	0.83

Table E-5. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Clovers Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
CloversArea	64	1985	0.10	0.98	0.91	1.05	0.38	0.32	0.45	4.57	0.59
CloversArea	64	1986	0.11	1.16	1.09	1.23	0.46	0.39	0.53	4.71	0.70
CloversArea	64	1987	0.11	1.09	1.02	1.16	0.42	0.35	0.50	4.78	0.67
CloversArea	64	1988	0.10	0.99	0.92	1.07	0.34	0.27	0.41	4.84	0.66
CloversArea	64	1989	0.08	0.88	0.81	0.95	0.26	0.19	0.33	4.78	0.62
CloversArea	64	1990	0.07	0.84	0.78	0.91	0.16	0.10	0.23	4.67	0.67
CloversArea	64	1991	0.09	0.88	0.82	0.96	0.25	0.18	0.32	4.63	0.63
CloversArea	64	1992	0.07	0.63	0.56	0.71	0.16	0.09	0.24	4.98	0.47
CloversArea	64	1993	0.12	1.23	1.17	1.30	0.46	0.40	0.53	4.43	0.77
CloversArea	64	1994	0.09	0.83	0.76	0.91	0.27	0.20	0.35	5.02	0.56
CloversArea	64	1995	0.13	1.50	1.44	1.56	0.49	0.43	0.55	4.47	1.01
CloversArea	64	1996	0.10	1.14	1.07	1.22	0.39	0.32	0.47	4.95	0.75
CloversArea	64	1997	0.12	1.41	1.34	1.47	0.47	0.41	0.54	4.64	0.93
CloversArea	64	1998	0.13	1.70	1.65	1.76	0.46	0.41	0.51	4.25	1.24
CloversArea	64	1999	0.12	1.18	1.11	1.25	0.51	0.44	0.58	4.64	0.67
CloversArea	64	2000	0.09	0.96	0.89	1.04	0.30	0.23	0.38	5.03	0.66
CloversArea	64	2001	0.13	1.04	0.97	1.13	0.49	0.42	0.57	4.79	0.56
CloversArea	64	2002	0.09	0.92	0.85	1.00	0.32	0.25	0.40	4.91	0.59
CloversArea	64	2003	0.09	0.98	0.91	1.06	0.32	0.25	0.39	4.88	0.66
CloversArea	64	2004	0.09	0.99	0.93	1.07	0.30	0.23	0.37	4.78	0.69
CloversArea	64	2005	0.14	1.52	1.46	1.58	0.56	0.50	0.63	4.46	0.96
CloversArea	64	2006	0.12	1.37	1.30	1.44	0.51	0.44	0.58	4.80	0.86
CloversArea	64	2007	0.10	0.86	0.78	0.94	0.35	0.28	0.43	5.03	0.51
CloversArea	64	2008	0.10	0.79	0.72	0.87	0.34	0.26	0.42	4.92	0.45
CloversArea	64	2009	0.10	1.13	1.07	1.20	0.31	0.24	0.38	4.78	0.83
CloversArea	64	2010	0.12	1.00	0.93	1.08	0.48	0.41	0.55	4.65	0.53
CloversArea	64	2011	0.14	1.40	1.34	1.47	0.57	0.50	0.64	4.52	0.83
CloversArea	64	2012	0.10	0.80	0.73	0.89	0.35	0.27	0.44	5.23	0.45
CloversArea	64	2013	0.12	1.11	1.04	1.19	0.51	0.44	0.59	4.88	0.60
CloversArea	64	2014	0.10	1.19	1.12	1.26	0.36	0.29	0.43	4.89	0.83
CloversArea	64	2015	0.10	1.12	1.05	1.20	0.36	0.28	0.43	5.02	0.77

Table E-6. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Crescent Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
CrescentValley	54	1985	0.10	0.92	0.86	0.98	0.28	0.22	0.34	4.47	0.64
CrescentValley	54	1986	0.09	1.00	0.94	1.06	0.26	0.20	0.33	4.60	0.74
CrescentValley	54	1987	0.10	0.96	0.90	1.03	0.31	0.25	0.38	4.64	0.65
CrescentValley	54	1988	0.09	0.95	0.89	1.02	0.25	0.18	0.31	4.65	0.71
CrescentValley	54	1989	0.08	0.85	0.79	0.92	0.19	0.13	0.25	4.61	0.66
CrescentValley	54	1990	0.05	0.80	0.75	0.87	0.10	0.05	0.17	4.52	0.70
CrescentValley	54	1991	0.10	0.92	0.86	0.99	0.29	0.23	0.35	4.45	0.64
CrescentValley	54	1992	0.07	0.65	0.59	0.72	0.13	0.07	0.21	4.80	0.51
CrescentValley	54	1993	0.08	1.03	0.97	1.08	0.22	0.17	0.28	4.33	0.81
CrescentValley	54	1994	0.08	0.81	0.75	0.88	0.17	0.11	0.24	4.86	0.64
CrescentValley	54	1995	0.10	1.31	1.26	1.37	0.27	0.22	0.33	4.37	1.04
CrescentValley	54	1996	0.09	1.02	0.96	1.09	0.27	0.20	0.34	4.92	0.76
CrescentValley	54	1997	0.09	1.22	1.16	1.28	0.25	0.20	0.31	4.54	0.97
CrescentValley	54	1998	0.10	1.43	1.38	1.48	0.28	0.23	0.33	4.18	1.15
CrescentValley	54	1999	0.09	0.97	0.91	1.04	0.29	0.23	0.35	4.58	0.68
CrescentValley	54	2000	0.08	0.85	0.79	0.92	0.19	0.13	0.26	5.02	0.66
CrescentValley	54	2001	0.08	0.76	0.70	0.83	0.17	0.11	0.24	4.73	0.59
CrescentValley	54	2002	0.08	0.79	0.73	0.86	0.18	0.12	0.25	4.79	0.61
CrescentValley	54	2003	0.08	0.89	0.83	0.96	0.19	0.13	0.26	4.80	0.70
CrescentValley	54	2004	0.09	1.07	1.01	1.13	0.26	0.20	0.32	4.63	0.81
CrescentValley	54	2005	0.12	1.43	1.38	1.49	0.40	0.35	0.46	4.38	1.03
CrescentValley	54	2006	0.10	1.13	1.07	1.20	0.32	0.26	0.38	4.73	0.82
CrescentValley	54	2007	0.09	0.85	0.78	0.92	0.28	0.21	0.35	4.91	0.57
CrescentValley	54	2008	0.09	0.77	0.70	0.84	0.27	0.20	0.34	4.84	0.50
CrescentValley	54	2009	0.09	1.17	1.11	1.23	0.23	0.18	0.29	4.63	0.93
CrescentValley	54	2010	0.09	0.72	0.66	0.79	0.25	0.18	0.31	4.54	0.47
CrescentValley	54	2011	0.10	1.12	1.07	1.18	0.28	0.22	0.34	4.37	0.85
CrescentValley	54	2012	0.11	0.87	0.79	0.95	0.44	0.37	0.52	5.10	0.43
CrescentValley	54	2013	0.10	0.97	0.90	1.04	0.35	0.29	0.42	4.77	0.61
CrescentValley	54	2014	0.10	1.14	1.08	1.21	0.28	0.22	0.34	4.76	0.86
CrescentValley	54	2015	0.09	1.06	0.99	1.12	0.23	0.17	0.30	4.91	0.82

Table E-7. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Dixie Creek Tenmile Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
DixieCreekTenmileCreekArea	48	1985	0.18	1.46	1.41	1.51	0.63	0.57	0.68	4.00	0.83
DixieCreekTenmileCreekArea	48	1986	0.19	1.76	1.71	1.81	0.67	0.63	0.73	4.03	1.08
DixieCreekTenmileCreekArea	48	1987	0.17	1.44	1.38	1.49	0.70	0.65	0.76	4.19	0.73
DixieCreekTenmileCreekArea	48	1988	0.15	1.36	1.30	1.41	0.57	0.51	0.62	4.23	0.79
DixieCreekTenmileCreekArea	48	1989	0.14	1.67	1.62	1.72	0.45	0.40	0.50	3.90	1.22
DixieCreekTenmileCreekArea	48	1990	0.15	1.42	1.37	1.47	0.51	0.46	0.56	4.08	0.91
DixieCreekTenmileCreekArea	48	1991	0.18	1.57	1.52	1.63	0.62	0.57	0.68	4.01	0.95
DixieCreekTenmileCreekArea	48	1992	0.14	1.21	1.15	1.27	0.48	0.43	0.54	4.35	0.73
DixieCreekTenmileCreekArea	48	1993	0.19	1.74	1.70	1.79	0.60	0.55	0.64	3.87	1.14
DixieCreekTenmileCreekArea	48	1994	0.17	1.49	1.43	1.55	0.66	0.61	0.72	4.37	0.82
DixieCreekTenmileCreekArea	48	1995	0.26	2.21	2.17	2.26	0.79	0.75	0.83	3.85	1.42
DixieCreekTenmileCreekArea	48	1996	0.22	1.89	1.84	1.95	0.85	0.80	0.91	4.31	1.04
DixieCreekTenmileCreekArea	48	1997	0.23	2.08	2.04	2.13	0.76	0.72	0.81	4.05	1.32
DixieCreekTenmileCreekArea	48	1998	0.25	2.08	2.04	2.12	0.76	0.72	0.80	3.75	1.32
DixieCreekTenmileCreekArea	48	1999	0.20	1.63	1.58	1.68	0.69	0.64	0.75	4.05	0.93
DixieCreekTenmileCreekArea	48	2000	0.19	1.60	1.54	1.66	0.76	0.70	0.82	4.50	0.84
DixieCreekTenmileCreekArea	48	2001	0.18	1.45	1.39	1.51	0.72	0.66	0.78	4.28	0.73
DixieCreekTenmileCreekArea	48	2002	0.18	1.57	1.51	1.63	0.68	0.62	0.74	4.25	0.89
DixieCreekTenmileCreekArea	48	2003	0.19	1.62	1.57	1.68	0.71	0.65	0.76	4.25	0.91
DixieCreekTenmileCreekArea	48	2004	0.19	1.63	1.58	1.68	0.68	0.63	0.73	4.11	0.95
DixieCreekTenmileCreekArea	48	2005	0.26	2.27	2.23	2.31	0.79	0.75	0.83	3.86	1.48
DixieCreekTenmileCreekArea	48	2006	0.21	1.96	1.91	2.01	0.72	0.67	0.77	4.17	1.24
DixieCreekTenmileCreekArea	48	2007	0.15	1.37	1.31	1.43	0.60	0.55	0.66	4.35	0.76
DixieCreekTenmileCreekArea	48	2008	0.21	1.67	1.61	1.73	0.81	0.75	0.86	4.21	0.86
DixieCreekTenmileCreekArea	48	2009	0.23	2.03	1.98	2.08	0.78	0.73	0.83	4.04	1.25
DixieCreekTenmileCreekArea	48	2010	0.20	1.49	1.43	1.54	0.72	0.67	0.78	3.97	0.77
DixieCreekTenmileCreekArea	48	2011	0.25	2.02	1.98	2.07	0.78	0.73	0.82	3.81	1.24
DixieCreekTenmileCreekArea	48	2012	0.16	1.33	1.27	1.40	0.64	0.58	0.70	4.42	0.70
DixieCreekTenmileCreekArea	48	2013	0.21	1.72	1.66	1.78	0.82	0.76	0.88	4.20	0.90
DixieCreekTenmileCreekArea	48	2014	0.19	1.88	1.83	1.93	0.65	0.60	0.70	4.08	1.23
DixieCreekTenmileCreekArea	48	2015	0.19	1.73	1.68	1.79	0.76	0.70	0.81	4.33	0.98

Table E-8. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Elko Segment.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
ElkoSegment	49	1985	0.19	1.66	1.60	1.72	0.99	0.93	1.05	4.19	0.67
ElkoSegment	49	1986	0.21	1.96	1.90	2.02	1.16	1.10	1.22	4.22	0.79
ElkoSegment	49	1987	0.21	1.71	1.64	1.78	1.18	1.11	1.25	4.34	0.53
ElkoSegment	49	1988	0.18	1.59	1.53	1.66	0.99	0.93	1.06	4.39	0.60
ElkoSegment	49	1989	0.22	1.94	1.88	2.00	1.16	1.10	1.22	4.31	0.79
ElkoSegment	49	1990	0.19	1.69	1.63	1.75	0.96	0.90	1.02	4.25	0.73
ElkoSegment	49	1991	0.21	1.79	1.73	1.85	1.15	1.09	1.21	4.15	0.64
ElkoSegment	49	1992	0.16	1.38	1.32	1.45	0.83	0.76	0.89	4.46	0.56
ElkoSegment	49	1993	0.27	2.18	2.12	2.24	1.32	1.27	1.38	3.93	0.86
ElkoSegment	49	1994	0.19	1.68	1.61	1.74	1.05	0.99	1.12	4.45	0.62
ElkoSegment	49	1995	0.28	2.35	2.30	2.41	1.31	1.26	1.37	3.97	1.04
ElkoSegment	49	1996	0.26	2.35	2.28	2.41	1.44	1.37	1.50	4.40	0.91
ElkoSegment	49	1997	0.23	2.19	2.14	2.25	1.12	1.07	1.18	4.12	1.07
ElkoSegment	49	1998	0.26	2.22	2.17	2.28	1.17	1.12	1.22	3.86	1.05
ElkoSegment	49	1999	0.23	1.91	1.85	1.97	1.18	1.12	1.24	4.15	0.73
ElkoSegment	49	2000	0.21	1.83	1.76	1.89	1.17	1.11	1.24	4.58	0.65
ElkoSegment	49	2001	0.20	1.65	1.59	1.72	1.06	1.00	1.13	4.40	0.59
ElkoSegment	49	2002	0.23	1.97	1.90	2.03	1.22	1.16	1.28	4.33	0.75
ElkoSegment	49	2003	0.23	2.01	1.94	2.07	1.22	1.15	1.28	4.34	0.79
ElkoSegment	49	2004	0.24	2.04	1.98	2.10	1.21	1.15	1.27	4.20	0.83
ElkoSegment	49	2005	0.28	2.47	2.42	2.52	1.31	1.26	1.36	3.99	1.16
ElkoSegment	49	2006	0.23	2.27	2.21	2.32	1.14	1.08	1.19	4.31	1.13
ElkoSegment	49	2007	0.18	1.54	1.48	1.61	1.01	0.94	1.08	4.49	0.53
ElkoSegment	49	2008	0.27	2.17	2.10	2.24	1.54	1.47	1.61	4.34	0.63
ElkoSegment	49	2009	0.25	2.25	2.19	2.31	1.25	1.19	1.31	4.18	1.00
ElkoSegment	49	2010	0.23	1.84	1.77	1.90	1.21	1.15	1.28	4.14	0.62
ElkoSegment	49	2011	0.27	2.29	2.23	2.34	1.29	1.23	1.34	3.95	1.00
ElkoSegment	49	2012	0.19	1.60	1.53	1.67	1.07	1.00	1.14	4.54	0.53
ElkoSegment	49	2013	0.25	1.97	1.90	2.04	1.25	1.18	1.32	4.33	0.72
ElkoSegment	49	2014	0.21	1.99	1.93	2.05	1.06	1.00	1.12	4.30	0.93
ElkoSegment	49	2015	0.23	2.09	2.02	2.15	1.26	1.19	1.32	4.51	0.83

Table E-9. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Grass Valley, HA# 138.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
GrassValley	138	1985	0.08	0.89	0.85	0.94	0.19	0.15	0.23	4.39	0.70
GrassValley	138	1986	0.09	1.05	1.00	1.09	0.26	0.22	0.30	4.56	0.79
GrassValley	138	1987	0.09	1.00	0.95	1.04	0.27	0.23	0.32	4.51	0.73
GrassValley	138	1988	0.09	1.18	1.14	1.22	0.25	0.21	0.29	4.48	0.93
GrassValley	138	1989	0.08	0.89	0.85	0.94	0.20	0.15	0.24	4.61	0.69
GrassValley	138	1990	0.07	0.86	0.82	0.90	0.11	0.07	0.15	4.51	0.75
GrassValley	138	1991	0.09	1.01	0.97	1.06	0.27	0.23	0.31	4.43	0.74
GrassValley	138	1992	0.07	0.71	0.67	0.76	0.14	0.10	0.19	4.67	0.57
GrassValley	138	1993	0.08	1.02	0.98	1.06	0.19	0.15	0.23	4.40	0.83
GrassValley	138	1994	0.08	0.96	0.92	1.01	0.21	0.16	0.26	4.81	0.75
GrassValley	138	1995	0.10	1.42	1.39	1.46	0.25	0.21	0.29	4.32	1.17
GrassValley	138	1996	0.09	1.02	0.97	1.07	0.25	0.20	0.30	4.88	0.77
GrassValley	138	1997	0.09	1.25	1.21	1.29	0.24	0.19	0.28	4.61	1.02
GrassValley	138	1998	0.09	1.54	1.51	1.57	0.22	0.19	0.25	4.13	1.32
GrassValley	138	1999	0.10	1.10	1.05	1.14	0.30	0.25	0.34	4.59	0.80
GrassValley	138	2000	0.07	0.81	0.76	0.86	0.20	0.15	0.25	5.10	0.61
GrassValley	138	2001	0.08	0.88	0.83	0.93	0.20	0.15	0.24	4.71	0.68
GrassValley	138	2002	0.08	0.79	0.75	0.84	0.22	0.17	0.27	4.84	0.57
GrassValley	138	2003	0.08	0.89	0.85	0.94	0.21	0.16	0.25	4.80	0.69
GrassValley	138	2004	0.08	0.95	0.90	0.99	0.20	0.16	0.25	4.67	0.75
GrassValley	138	2005	0.10	1.42	1.38	1.45	0.28	0.24	0.32	4.40	1.13
GrassValley	138	2006	0.09	1.15	1.10	1.19	0.25	0.21	0.30	4.82	0.89
GrassValley	138	2007	0.08	0.86	0.82	0.92	0.24	0.19	0.29	4.97	0.63
GrassValley	138	2008	0.08	0.70	0.65	0.75	0.23	0.19	0.28	4.84	0.47
GrassValley	138	2009	0.08	1.30	1.26	1.34	0.18	0.14	0.22	4.71	1.12
GrassValley	138	2010	0.10	0.79	0.75	0.84	0.31	0.26	0.36	4.64	0.48
GrassValley	138	2011	0.09	1.19	1.15	1.24	0.25	0.21	0.29	4.41	0.94
GrassValley	138	2012	0.09	0.76	0.71	0.81	0.24	0.19	0.30	5.16	0.51
GrassValley	138	2013	0.09	0.91	0.87	0.96	0.29	0.24	0.34	4.89	0.62
GrassValley	138	2014	0.10	1.16	1.12	1.21	0.28	0.23	0.33	4.83	0.88
GrassValley	138	2015	0.06	1.05	1.01	1.10	0.23	0.18	0.28	4.95	0.83

Table E-10. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Grass Valley, HA# 71.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
GrassValley	71	1985	0.11	1.01	0.95	1.06	0.36	0.31	0.42	4.51	0.64
GrassValley	71	1986	0.11	1.12	1.07	1.18	0.35	0.29	0.40	4.66	0.78
GrassValley	71	1987	0.12	1.01	0.95	1.07	0.36	0.30	0.42	4.72	0.65
GrassValley	71	1988	0.10	0.97	0.91	1.04	0.33	0.27	0.39	4.78	0.64
GrassValley	71	1989	0.09	0.90	0.84	0.96	0.26	0.20	0.32	4.72	0.64
GrassValley	71	1990	0.10	0.90	0.84	0.96	0.24	0.18	0.30	4.59	0.66
GrassValley	71	1991	0.12	0.96	0.91	1.02	0.32	0.26	0.38	4.59	0.65
GrassValley	71	1992	0.10	0.69	0.63	0.76	0.23	0.17	0.30	4.91	0.46
GrassValley	71	1993	0.14	1.23	1.18	1.29	0.41	0.36	0.47	4.39	0.82
GrassValley	71	1994	0.12	0.81	0.74	0.87	0.27	0.20	0.33	4.94	0.54
GrassValley	71	1995	0.14	1.41	1.36	1.46	0.40	0.35	0.45	4.33	1.01
GrassValley	71	1996	0.11	1.05	0.99	1.11	0.28	0.22	0.34	4.86	0.77
GrassValley	71	1997	0.13	1.24	1.18	1.29	0.33	0.28	0.38	4.59	0.91
GrassValley	71	1998	0.15	1.69	1.64	1.73	0.40	0.36	0.44	4.12	1.29
GrassValley	71	1999	0.13	1.00	0.95	1.06	0.36	0.31	0.42	4.51	0.64
GrassValley	71	2000	0.12	0.92	0.86	0.98	0.27	0.21	0.33	4.84	0.65
GrassValley	71	2001	0.16	1.00	0.94	1.06	0.45	0.38	0.51	4.65	0.55
GrassValley	71	2002	0.12	0.82	0.77	0.89	0.24	0.18	0.30	4.79	0.59
GrassValley	71	2003	0.12	0.89	0.83	0.95	0.25	0.19	0.31	4.76	0.64
GrassValley	71	2004	0.12	0.94	0.89	1.01	0.32	0.26	0.38	4.75	0.62
GrassValley	71	2005	0.15	1.33	1.28	1.38	0.43	0.37	0.48	4.43	0.90
GrassValley	71	2006	0.14	1.23	1.17	1.29	0.36	0.30	0.41	4.69	0.87
GrassValley	71	2007	0.15	0.87	0.81	0.94	0.39	0.32	0.45	4.96	0.49
GrassValley	71	2008	0.13	0.79	0.73	0.86	0.26	0.20	0.33	4.82	0.53
GrassValley	71	2009	0.13	0.96	0.90	1.02	0.27	0.21	0.33	4.68	0.69
GrassValley	71	2010	0.16	1.00	0.93	1.06	0.44	0.38	0.51	4.52	0.55
GrassValley	71	2011	0.17	1.40	1.35	1.46	0.49	0.44	0.55	4.40	0.91
GrassValley	71	2012	0.14	0.83	0.76	0.90	0.38	0.31	0.45	5.07	0.45
GrassValley	71	2013	0.15	0.93	0.87	0.99	0.37	0.31	0.44	4.85	0.56
GrassValley	71	2014	0.12	1.23	1.17	1.29	0.40	0.35	0.46	4.77	0.83
GrassValley	71	2015	0.15	1.24	1.18	1.30	0.43	0.37	0.49	4.82	0.81

Table E-11. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Hardscrabble Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
HardscrabbleArea	68	1985	0.16	1.99	1.95	2.04	0.56	0.51	0.60	3.93	1.44
HardscrabbleArea	68	1986	0.21	2.65	2.61	2.68	0.65	0.61	0.68	3.97	2.00
HardscrabbleArea	68	1987	0.21	2.15	2.09	2.20	0.94	0.89	1.00	4.10	1.20
HardscrabbleArea	68	1988	0.15	1.74	1.69	1.80	0.65	0.60	0.71	4.23	1.09
HardscrabbleArea	68	1989	0.17	2.38	2.34	2.43	0.64	0.60	0.68	4.07	1.74
HardscrabbleArea	68	1990	0.14	1.77	1.73	1.82	0.45	0.40	0.49	3.80	1.32
HardscrabbleArea	68	1991	0.19	2.10	2.05	2.14	0.67	0.62	0.71	3.80	1.43
HardscrabbleArea	68	1992	0.14	1.53	1.47	1.59	0.58	0.52	0.64	4.19	0.95
HardscrabbleArea	68	1993	0.20	2.46	2.43	2.50	0.53	0.50	0.57	3.64	1.93
HardscrabbleArea	68	1994	0.19	1.96	1.90	2.02	0.89	0.84	0.95	4.25	1.07
HardscrabbleArea	68	1995	0.23	2.60	2.57	2.64	0.62	0.58	0.65	3.62	1.99
HardscrabbleArea	68	1996	0.15	2.24	2.20	2.28	0.47	0.43	0.52	4.01	1.77
HardscrabbleArea	68	1997	0.20	2.54	2.51	2.58	0.60	0.57	0.64	3.91	1.94
HardscrabbleArea	68	1998	0.22	2.68	2.65	2.71	0.49	0.46	0.52	3.59	2.19
HardscrabbleArea	68	1999	0.17	2.09	2.04	2.14	0.63	0.58	0.68	3.97	1.46
HardscrabbleArea	68	2000	0.19	2.23	2.17	2.28	0.87	0.81	0.93	4.36	1.36
HardscrabbleArea	68	2001	0.19	2.04	1.99	2.10	0.88	0.82	0.94	4.17	1.17
HardscrabbleArea	68	2002	0.17	2.13	2.08	2.19	0.71	0.65	0.76	4.24	1.43
HardscrabbleArea	68	2003	0.16	2.01	1.96	2.06	0.64	0.59	0.69	4.16	1.37
HardscrabbleArea	68	2004	0.18	2.24	2.20	2.29	0.69	0.64	0.74	4.13	1.56
HardscrabbleArea	68	2005	0.20	2.36	2.32	2.40	0.64	0.60	0.68	3.78	1.72
HardscrabbleArea	68	2006	0.17	2.52	2.48	2.56	0.54	0.50	0.58	4.13	1.98
HardscrabbleArea	68	2007	0.14	1.79	1.73	1.85	0.62	0.57	0.68	4.39	1.17
HardscrabbleArea	68	2008	0.19	2.25	2.20	2.30	0.80	0.75	0.86	4.14	1.45
HardscrabbleArea	68	2009	0.17	2.17	2.12	2.22	0.60	0.56	0.65	4.02	1.57
HardscrabbleArea	68	2010	0.20	2.04	1.99	2.09	0.81	0.76	0.86	3.81	1.23
HardscrabbleArea	68	2011	0.20	2.69	2.66	2.72	0.48	0.46	0.51	3.74	2.21
HardscrabbleArea	68	2012	0.16	1.85	1.78	1.91	0.77	0.70	0.83	4.49	1.08
HardscrabbleArea	68	2013	0.19	2.17	2.12	2.22	0.76	0.71	0.82	4.15	1.40
HardscrabbleArea	68	2014	0.17	2.08	2.04	2.13	0.63	0.58	0.68	4.05	1.46
HardscrabbleArea	68	2015	0.19	2.31	2.26	2.36	0.76	0.71	0.82	4.25	1.55

Table E-12. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Huntington Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
HuntingtonValley	47	1985	0.19	1.36	1.32	1.41	0.61	0.56	0.65	3.95	0.76
HuntingtonValley	47	1986	0.20	1.61	1.57	1.65	0.58	0.54	0.62	3.98	1.03
HuntingtonValley	47	1987	0.18	1.33	1.28	1.38	0.61	0.56	0.66	4.13	0.72
HuntingtonValley	47	1988	0.18	1.42	1.38	1.47	0.55	0.51	0.60	4.16	0.87
HuntingtonValley	47	1989	0.17	1.35	1.30	1.40	0.49	0.45	0.54	4.16	0.86
HuntingtonValley	47	1990	0.18	1.42	1.38	1.47	0.53	0.48	0.57	4.07	0.89
HuntingtonValley	47	1991	0.19	1.43	1.38	1.47	0.55	0.50	0.59	3.99	0.88
HuntingtonValley	47	1992	0.16	1.18	1.13	1.23	0.46	0.41	0.51	4.30	0.72
HuntingtonValley	47	1993	0.19	1.57	1.53	1.61	0.52	0.48	0.56	3.88	1.05
HuntingtonValley	47	1994	0.18	1.43	1.38	1.48	0.58	0.53	0.63	4.37	0.85
HuntingtonValley	47	1995	0.25	2.01	1.98	2.05	0.64	0.61	0.68	3.80	1.37
HuntingtonValley	47	1996	0.21	1.69	1.64	1.74	0.67	0.62	0.72	4.31	1.02
HuntingtonValley	47	1997	0.22	1.88	1.84	1.92	0.57	0.53	0.61	4.00	1.31
HuntingtonValley	47	1998	0.24	1.90	1.86	1.93	0.57	0.54	0.60	3.66	1.33
HuntingtonValley	47	1999	0.21	1.58	1.54	1.63	0.62	0.57	0.66	3.99	0.97
HuntingtonValley	47	2000	0.19	1.44	1.39	1.50	0.63	0.58	0.68	4.51	0.82
HuntingtonValley	47	2001	0.18	1.25	1.20	1.30	0.56	0.51	0.61	4.22	0.69
HuntingtonValley	47	2002	0.27	1.45	1.42	1.47	0.52	0.50	0.55	4.23	0.92
HuntingtonValley	47	2003	0.16	1.86	1.86	1.86	0.94	0.94	0.94	4.22	0.92
HuntingtonValley	47	2004	0.18	1.37	1.33	1.42	0.44	0.40	0.48	4.10	0.93
HuntingtonValley	47	2005	0.25	2.02	1.99	2.06	0.63	0.59	0.67	3.86	1.39
HuntingtonValley	47	2006	0.20	1.64	1.60	1.69	0.58	0.53	0.62	4.17	1.06
HuntingtonValley	47	2007	0.17	1.29	1.24	1.34	0.54	0.49	0.59	4.35	0.75
HuntingtonValley	47	2008	0.21	1.45	1.40	1.50	0.69	0.64	0.74	4.22	0.76
HuntingtonValley	47	2009	0.22	1.82	1.78	1.86	0.59	0.55	0.63	3.99	1.23
HuntingtonValley	47	2010	0.20	1.33	1.29	1.38	0.61	0.57	0.66	3.92	0.72
HuntingtonValley	47	2011	0.24	1.84	1.80	1.88	0.58	0.54	0.62	3.81	1.26
HuntingtonValley	47	2012	0.17	1.25	1.20	1.31	0.59	0.54	0.65	4.50	0.66
HuntingtonValley	47	2013	0.20	1.52	1.47	1.57	0.64	0.59	0.69	4.20	0.88
HuntingtonValley	47	2014	0.20	1.70	1.66	1.74	0.54	0.50	0.59	4.02	1.15
HuntingtonValley	47	2015	0.21	1.66	1.61	1.70	0.65	0.61	0.70	4.27	1.00

Table E-13. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Imlay Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
ImlayArea	72	1985	0.07	0.85	0.79	0.93	0.32	0.26	0.40	4.64	0.53
ImlayArea	72	1986	0.08	1.07	1.01	1.15	0.36	0.29	0.43	4.81	0.72
ImlayArea	72	1987	-0.03	0.96	0.90	1.04	0.28	0.22	0.36	4.78	0.68
ImlayArea	72	1988	0.08	0.84	0.78	0.92	0.20	0.14	0.28	4.82	0.64
ImlayArea	72	1989	0.06	0.73	0.67	0.81	0.18	0.12	0.25	4.80	0.55
ImlayArea	72	1990	0.07	0.82	0.75	0.89	0.18	0.12	0.26	4.68	0.63
ImlayArea	72	1991	0.08	0.90	0.84	0.97	0.22	0.15	0.29	4.72	0.68
ImlayArea	72	1992	0.06	0.61	0.55	0.69	0.16	0.09	0.24	5.04	0.45
ImlayArea	72	1993	0.10	1.18	1.12	1.25	0.35	0.28	0.41	4.54	0.84
ImlayArea	72	1994	0.08	0.77	0.70	0.86	0.29	0.22	0.37	5.06	0.48
ImlayArea	72	1995	0.09	1.32	1.26	1.39	0.33	0.27	0.40	4.51	0.99
ImlayArea	72	1996	0.07	0.99	0.92	1.06	0.28	0.21	0.35	5.00	0.71
ImlayArea	72	1997	0.06	1.10	1.04	1.18	0.30	0.24	0.37	4.74	0.80
ImlayArea	72	1998	0.08	1.69	1.64	1.74	0.33	0.28	0.38	4.24	1.37
ImlayArea	72	1999	0.10	1.13	1.07	1.21	0.56	0.50	0.64	4.66	0.57
ImlayArea	72	2000	0.07	0.82	0.75	0.90	0.25	0.18	0.33	4.98	0.57
ImlayArea	72	2001	0.11	0.96	0.89	1.04	0.49	0.42	0.57	4.78	0.47
ImlayArea	72	2002	0.08	0.79	0.72	0.87	0.28	0.21	0.36	4.98	0.51
ImlayArea	72	2003	0.08	0.82	0.75	0.89	0.25	0.19	0.33	4.92	0.57
ImlayArea	72	2004	0.11	1.12	1.05	1.20	0.54	0.47	0.62	4.91	0.58
ImlayArea	72	2005	0.10	1.26	1.20	1.33	0.41	0.35	0.48	4.51	0.84
ImlayArea	72	2006	0.09	1.30	1.24	1.37	0.48	0.42	0.56	4.76	0.82
ImlayArea	72	2007	0.08	0.71	0.64	0.80	0.30	0.23	0.39	5.02	0.41
ImlayArea	72	2008	0.08	0.80	0.74	0.88	0.29	0.23	0.38	4.91	0.51
ImlayArea	72	2009	0.08	0.86	0.80	0.94	0.24	0.18	0.32	4.74	0.62
ImlayArea	72	2010	0.14	1.18	1.10	1.26	0.68	0.61	0.76	4.63	0.49
ImlayArea	72	2011	0.15	1.57	1.50	1.65	0.75	0.68	0.83	4.51	0.82
ImlayArea	72	2012	0.09	0.70	0.63	0.79	0.32	0.25	0.41	5.16	0.38
ImlayArea	72	2013	0.07	0.72	0.65	0.80	0.27	0.20	0.35	5.01	0.45
ImlayArea	72	2014	0.08	1.03	0.97	1.11	0.31	0.24	0.39	4.91	0.73
ImlayArea	72	2015	0.10	1.21	1.14	1.28	0.34	0.28	0.42	4.92	0.87

Table E-14. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Kelley Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
KelleyCreekArea	66	1985	0.10	0.90	0.84	0.97	0.31	0.24	0.37	4.50	0.60
KelleyCreekArea	66	1986	0.11	1.14	1.08	1.21	0.40	0.34	0.47	4.59	0.74
KelleyCreekArea	66	1987	0.11	0.96	0.89	1.03	0.33	0.26	0.40	4.67	0.63
KelleyCreekArea	66	1988	0.10	0.92	0.85	0.99	0.30	0.23	0.37	4.77	0.62
KelleyCreekArea	66	1989	0.09	0.90	0.84	0.97	0.26	0.19	0.33	4.69	0.64
KelleyCreekArea	66	1990	0.07	0.82	0.77	0.89	0.16	0.11	0.23	4.55	0.66
KelleyCreekArea	66	1991	0.10	0.89	0.83	0.96	0.25	0.20	0.32	4.53	0.64
KelleyCreekArea	66	1992	0.08	0.59	0.53	0.67	0.15	0.09	0.22	4.89	0.44
KelleyCreekArea	66	1993	0.12	1.13	1.07	1.19	0.39	0.33	0.45	4.30	0.75
KelleyCreekArea	66	1994	0.10	0.79	0.72	0.87	0.28	0.21	0.35	4.89	0.51
KelleyCreekArea	66	1995	0.13	1.43	1.37	1.49	0.44	0.39	0.50	4.33	0.99
KelleyCreekArea	66	1996	0.12	1.17	1.10	1.24	0.40	0.34	0.47	4.76	0.77
KelleyCreekArea	66	1997	0.13	1.34	1.28	1.40	0.41	0.35	0.47	4.51	0.93
KelleyCreekArea	66	1998	0.12	1.59	1.54	1.64	0.35	0.31	0.40	4.11	1.24
KelleyCreekArea	66	1999	0.12	1.09	1.03	1.16	0.45	0.39	0.52	4.47	0.63
KelleyCreekArea	66	2000	0.11	0.94	0.87	1.01	0.29	0.22	0.36	4.81	0.65
KelleyCreekArea	66	2001	0.14	1.01	0.94	1.09	0.48	0.42	0.56	4.59	0.53
KelleyCreekArea	66	2002	0.11	0.94	0.87	1.01	0.35	0.29	0.42	4.74	0.59
KelleyCreekArea	66	2003	0.10	0.85	0.79	0.92	0.21	0.15	0.28	4.71	0.64
KelleyCreekArea	66	2004	0.10	0.86	0.80	0.93	0.25	0.19	0.32	4.63	0.61
KelleyCreekArea	66	2005	0.13	1.28	1.23	1.34	0.42	0.36	0.48	4.34	0.86
KelleyCreekArea	66	2006	0.13	1.26	1.20	1.33	0.44	0.38	0.51	4.63	0.82
KelleyCreekArea	66	2007	0.10	0.79	0.72	0.87	0.33	0.26	0.41	4.88	0.46
KelleyCreekArea	66	2008	0.11	0.80	0.73	0.87	0.29	0.23	0.36	4.73	0.50
KelleyCreekArea	66	2009	0.10	1.03	0.97	1.10	0.26	0.20	0.33	4.64	0.77
KelleyCreekArea	66	2010	0.12	0.89	0.83	0.96	0.36	0.30	0.43	4.44	0.54
KelleyCreekArea	66	2011	0.14	1.37	1.31	1.43	0.49	0.43	0.55	4.32	0.88
KelleyCreekArea	66	2012	0.12	0.90	0.82	0.98	0.42	0.35	0.50	5.06	0.48
KelleyCreekArea	66	2013	0.14	1.12	1.05	1.19	0.49	0.42	0.56	4.73	0.63
KelleyCreekArea	66	2014	0.11	1.11	1.05	1.18	0.29	0.23	0.36	4.70	0.82
KelleyCreekArea	66	2015	0.11	1.11	1.04	1.17	0.31	0.25	0.38	4.81	0.79

Table E-15. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Lamoille Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LamoilleValley	45	1985	0.28	1.71	1.67	1.75	0.82	0.78	0.86	4.01	0.90
LamoilleValley	45	1986	0.27	1.94	1.90	1.97	0.73	0.70	0.77	4.04	1.20
LamoilleValley	45	1987	0.28	1.69	1.64	1.73	0.90	0.86	0.95	4.18	0.78
LamoilleValley	45	1988	0.23	1.58	1.54	1.63	0.74	0.70	0.78	4.24	0.85
LamoilleValley	45	1989	0.30	1.87	1.83	1.91	0.86	0.82	0.91	4.17	1.00
LamoilleValley	45	1990	0.23	1.64	1.60	1.68	0.67	0.63	0.70	4.09	0.98
LamoilleValley	45	1991	0.30	1.81	1.77	1.85	0.82	0.78	0.86	4.02	0.99
LamoilleValley	45	1992	0.24	1.51	1.47	1.55	0.76	0.71	0.80	4.35	0.75
LamoilleValley	45	1993	0.29	1.94	1.90	1.97	0.74	0.70	0.77	3.86	1.20
LamoilleValley	45	1994	0.26	1.69	1.64	1.73	0.85	0.80	0.89	4.39	0.84
LamoilleValley	45	1995	0.35	2.29	2.26	2.32	0.81	0.78	0.85	3.86	1.48
LamoilleValley	45	1996	0.30	2.06	2.01	2.10	0.89	0.85	0.93	4.34	1.16
LamoilleValley	45	1997	0.31	2.15	2.11	2.18	0.78	0.75	0.82	4.07	1.37
LamoilleValley	45	1998	0.32	2.14	2.11	2.18	0.72	0.69	0.75	3.77	1.42
LamoilleValley	45	1999	0.29	1.81	1.77	1.85	0.79	0.76	0.83	4.04	1.01
LamoilleValley	45	2000	0.28	1.82	1.78	1.87	0.90	0.86	0.95	4.52	0.92
LamoilleValley	45	2001	0.28	1.66	1.61	1.70	0.88	0.83	0.92	4.28	0.78
LamoilleValley	45	2002	0.28	1.83	1.79	1.87	0.86	0.82	0.90	4.26	0.97
LamoilleValley	45	2003	0.29	1.88	1.84	1.92	0.87	0.83	0.91	4.26	1.01
LamoilleValley	45	2004	0.30	1.92	1.88	1.96	0.86	0.82	0.90	4.11	1.06
LamoilleValley	45	2005	0.34	2.36	2.33	2.39	0.77	0.73	0.80	3.86	1.59
LamoilleValley	45	2006	0.28	2.08	2.05	2.12	0.76	0.72	0.80	4.19	1.32
LamoilleValley	45	2007	0.23	1.56	1.51	1.60	0.75	0.71	0.80	4.35	0.80
LamoilleValley	45	2008	0.32	1.93	1.89	1.98	0.94	0.90	0.99	4.20	0.99
LamoilleValley	45	2009	0.31	2.09	2.06	2.13	0.82	0.78	0.86	4.01	1.27
LamoilleValley	45	2010	0.32	1.78	1.74	1.82	0.92	0.88	0.96	3.91	0.86
LamoilleValley	45	2011	0.34	2.16	2.12	2.19	0.82	0.79	0.86	3.85	1.34
LamoilleValley	45	2012	0.26	1.66	1.61	1.70	0.89	0.84	0.94	4.48	0.76
LamoilleValley	45	2013	0.33	1.95	1.90	2.00	0.98	0.94	1.03	4.23	0.97
LamoilleValley	45	2014	0.26	2.08	2.05	2.12	0.75	0.71	0.78	4.04	1.34
LamoilleValley	45	2015	0.29	1.99	1.95	2.03	0.88	0.83	0.92	4.32	1.11

Table E-16. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Little Humboldt Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LittleHumboldtValley	67	1985	0.14	1.49	1.43	1.55	0.67	0.61	0.73	4.14	0.82
LittleHumboldtValley	67	1986	0.17	1.95	1.89	2.01	0.87	0.82	0.93	4.20	1.08
LittleHumboldtValley	67	1987	0.17	1.71	1.64	1.78	0.93	0.86	0.99	4.31	0.78
LittleHumboldtValley	67	1988	0.14	1.41	1.34	1.48	0.69	0.62	0.76	4.45	0.72
LittleHumboldtValley	67	1989	0.15	1.64	1.58	1.71	0.73	0.67	0.80	4.30	0.91
LittleHumboldtValley	67	1990	0.14	1.43	1.37	1.49	0.61	0.55	0.67	4.13	0.81
LittleHumboldtValley	67	1991	0.19	1.74	1.68	1.81	0.91	0.85	0.97	4.13	0.83
LittleHumboldtValley	67	1992	0.10	0.95	0.89	1.03	0.39	0.33	0.46	4.47	0.56
LittleHumboldtValley	67	1993	0.18	1.89	1.83	1.94	0.79	0.74	0.85	3.91	1.09
LittleHumboldtValley	67	1994	0.15	1.47	1.40	1.54	0.79	0.72	0.86	4.48	0.68
LittleHumboldtValley	67	1995	0.19	2.04	1.99	2.09	0.81	0.76	0.87	3.93	1.22
LittleHumboldtValley	67	1996	0.17	1.88	1.82	1.95	0.84	0.78	0.90	4.35	1.05
LittleHumboldtValley	67	1997	0.17	1.99	1.93	2.04	0.80	0.75	0.86	4.16	1.19
LittleHumboldtValley	67	1998	0.14	1.97	1.92	2.01	0.51	0.47	0.56	3.82	1.46
LittleHumboldtValley	67	1999	0.15	1.62	1.56	1.68	0.76	0.70	0.83	4.15	0.85
LittleHumboldtValley	67	2000	0.15	1.64	1.57	1.71	0.80	0.73	0.87	4.50	0.84
LittleHumboldtValley	67	2001	0.18	1.60	1.53	1.67	0.89	0.82	0.97	4.28	0.71
LittleHumboldtValley	67	2002	0.16	1.63	1.56	1.70	0.82	0.75	0.89	4.41	0.81
LittleHumboldtValley	67	2003	0.13	1.38	1.32	1.45	0.56	0.50	0.63	4.41	0.82
LittleHumboldtValley	67	2004	0.17	1.73	1.67	1.80	0.81	0.75	0.87	4.32	0.92
LittleHumboldtValley	67	2005	0.19	1.92	1.87	1.98	0.80	0.75	0.85	3.98	1.12
LittleHumboldtValley	67	2006	0.15	1.85	1.79	1.91	0.66	0.61	0.72	4.27	1.19
LittleHumboldtValley	67	2007	0.14	1.38	1.31	1.45	0.72	0.65	0.79	4.53	0.66
LittleHumboldtValley	67	2008	0.18	1.70	1.64	1.77	0.93	0.86	1.00	4.35	0.78
LittleHumboldtValley	67	2009	0.15	1.58	1.52	1.64	0.62	0.56	0.68	4.22	0.96
LittleHumboldtValley	67	2010	0.19	1.61	1.54	1.67	0.92	0.85	0.99	4.07	0.69
LittleHumboldtValley	67	2011	0.19	2.02	1.96	2.07	0.81	0.76	0.87	3.94	1.20
LittleHumboldtValley	67	2012	0.14	1.36	1.29	1.43	0.75	0.68	0.83	4.67	0.61
LittleHumboldtValley	67	2013	0.14	1.44	1.38	1.51	0.64	0.58	0.71	4.36	0.80
LittleHumboldtValley	67	2014	0.14	1.54	1.48	1.60	0.59	0.53	0.66	4.30	0.94
LittleHumboldtValley	67	2015	0.15	1.79	1.73	1.85	0.69	0.63	0.76	4.42	1.10

Table E-17. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Lovelock Valley, HA# 73.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LovelockValley	73	1985	0.18	0.80	0.78	0.83	0.39	0.37	0.42	4.43	0.41
LovelockValley	73	1986	0.19	0.81	0.79	0.84	0.39	0.37	0.42	4.51	0.42
LovelockValley	73	1987	0.21	0.83	0.80	0.85	0.40	0.37	0.42	4.50	0.43
LovelockValley	73	1988	0.19	0.91	0.88	0.93	0.39	0.37	0.42	4.52	0.52
LovelockValley	73	1989	0.17	0.73	0.71	0.75	0.34	0.31	0.36	4.53	0.39
LovelockValley	73	1990	0.18	0.80	0.78	0.83	0.37	0.35	0.39	4.44	0.44
LovelockValley	73	1991	0.15	0.76	0.73	0.78	0.34	0.32	0.37	4.46	0.42
LovelockValley	73	1992	0.12	0.59	0.57	0.62	0.32	0.30	0.35	4.81	0.27
LovelockValley	73	1993	0.19	0.91	0.89	0.94	0.41	0.39	0.44	4.41	0.50
LovelockValley	73	1994	0.18	0.67	0.64	0.69	0.37	0.34	0.39	4.80	0.30
LovelockValley	73	1995	0.22	1.17	1.15	1.19	0.39	0.37	0.41	4.26	0.78
LovelockValley	73	1996	0.19	0.85	0.83	0.88	0.41	0.39	0.44	4.69	0.44
LovelockValley	73	1997	0.16	0.82	0.80	0.85	0.35	0.33	0.38	4.52	0.47
LovelockValley	73	1998	0.19	1.42	1.40	1.44	0.36	0.34	0.38	4.12	1.06
LovelockValley	73	1999	0.20	0.72	0.70	0.75	0.41	0.39	0.44	4.51	0.31
LovelockValley	73	2000	0.20	0.86	0.84	0.89	0.40	0.38	0.43	4.75	0.46
LovelockValley	73	2001	0.22	0.80	0.78	0.83	0.48	0.45	0.50	4.64	0.33
LovelockValley	73	2002	0.19	0.75	0.72	0.77	0.38	0.36	0.41	4.81	0.37
LovelockValley	73	2003	0.16	0.75	0.72	0.78	0.36	0.34	0.39	4.73	0.39
LovelockValley	73	2004	0.16	0.76	0.73	0.79	0.44	0.41	0.47	4.76	0.32
LovelockValley	73	2005	0.19	1.13	1.10	1.15	0.43	0.41	0.46	4.41	0.69
LovelockValley	73	2006	0.17	1.01	0.99	1.04	0.40	0.38	0.43	4.65	0.61
LovelockValley	73	2007	0.20	0.63	0.61	0.66	0.39	0.37	0.42	4.89	0.24
LovelockValley	73	2008	0.22	0.81	0.78	0.83	0.38	0.36	0.41	4.79	0.43
LovelockValley	73	2009	0.19	0.76	0.74	0.79	0.33	0.31	0.36	4.66	0.43
LovelockValley	73	2010	0.23	0.83	0.80	0.86	0.48	0.45	0.51	4.53	0.35
LovelockValley	73	2011	0.23	0.98	0.95	1.00	0.46	0.44	0.49	4.28	0.51
LovelockValley	73	2012	0.20	0.63	0.61	0.66	0.39	0.36	0.42	4.88	0.25
LovelockValley	73	2013	0.14	0.59	0.57	0.62	0.36	0.34	0.39	4.81	0.23
LovelockValley	73	2014	0.14	1.00	0.98	1.03	0.42	0.39	0.45	4.71	0.58
LovelockValley	73	2015	0.13	1.00	0.97	1.02	0.41	0.39	0.44	4.62	0.59

Table E-18. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Lovelock Valley, HA# 73A.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LovelockValley	73A	1985	0.09	0.84	0.77	0.92	0.25	0.18	0.33	4.66	0.59
LovelockValley	73A	1986	0.10	0.97	0.90	1.05	0.28	0.20	0.35	4.77	0.70
LovelockValley	73A	1987	0.11	1.07	1.00	1.15	0.38	0.30	0.45	4.75	0.70
LovelockValley	73A	1988	0.09	0.97	0.90	1.04	0.25	0.18	0.33	4.78	0.72
LovelockValley	73A	1989	0.05	0.69	0.63	0.76	0.10	0.04	0.18	4.73	0.59
LovelockValley	73A	1990	0.10	0.95	0.88	1.02	0.27	0.20	0.34	4.61	0.68
LovelockValley	73A	1991	0.08	0.84	0.77	0.91	0.17	0.10	0.24	4.64	0.67
LovelockValley	73A	1992	0.07	0.57	0.51	0.66	0.08	0.02	0.17	5.03	0.49
LovelockValley	73A	1993	0.12	1.21	1.14	1.28	0.46	0.39	0.53	4.57	0.75
LovelockValley	73A	1994	0.08	0.62	0.55	0.70	0.13	0.06	0.21	5.03	0.49
LovelockValley	73A	1995	0.10	1.30	1.23	1.36	0.28	0.22	0.34	4.52	1.02
LovelockValley	73A	1996	0.08	0.85	0.78	0.92	0.13	0.07	0.21	4.90	0.71
LovelockValley	73A	1997	0.09	1.01	0.95	1.08	0.23	0.16	0.30	4.67	0.79
LovelockValley	73A	1998	0.12	1.80	1.75	1.85	0.37	0.32	0.42	4.19	1.44
LovelockValley	73A	1999	0.11	1.01	0.94	1.09	0.42	0.35	0.50	4.60	0.59
LovelockValley	73A	2000	0.09	0.86	0.79	0.94	0.21	0.14	0.28	4.89	0.65
LovelockValley	73A	2001	0.10	0.87	0.80	0.95	0.37	0.30	0.45	4.80	0.50
LovelockValley	73A	2002	0.08	0.68	0.61	0.76	0.16	0.09	0.24	5.01	0.52
LovelockValley	73A	2003	0.08	0.76	0.69	0.84	0.17	0.10	0.25	4.94	0.59
LovelockValley	73A	2004	0.12	1.07	1.00	1.16	0.48	0.41	0.57	4.89	0.59
LovelockValley	73A	2005	0.13	1.40	1.33	1.46	0.52	0.45	0.59	4.53	0.88
LovelockValley	73A	2006	0.09	1.05	0.99	1.13	0.28	0.22	0.36	4.75	0.77
LovelockValley	73A	2007	0.08	0.53	0.46	0.62	0.14	0.06	0.22	5.06	0.40
LovelockValley	73A	2008	0.08	0.73	0.65	0.81	0.17	0.10	0.25	4.96	0.55
LovelockValley	73A	2009	0.09	0.86	0.79	0.94	0.23	0.16	0.31	4.82	0.63
LovelockValley	73A	2010	0.14	1.10	1.02	1.18	0.62	0.54	0.70	4.65	0.49
LovelockValley	73A	2011	0.11	1.13	1.06	1.20	0.39	0.32	0.46	4.52	0.74
LovelockValley	73A	2012	0.12	0.99	0.91	1.08	0.61	0.53	0.70	5.14	0.39
LovelockValley	73A	2013	0.07	0.63	0.56	0.72	0.20	0.13	0.28	5.04	0.43
LovelockValley	73A	2014	0.12	1.25	1.17	1.33	0.55	0.47	0.62	4.99	0.70
LovelockValley	73A	2015	0.11	1.26	1.19	1.33	0.47	0.40	0.54	4.92	0.79

Table E-19. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Lower Reese River Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LowerReeseRiverValley	59	1985	0.08	0.77	0.72	0.84	0.20	0.14	0.27	4.40	0.57
LowerReeseRiverValley	59	1986	0.10	0.93	0.87	1.00	0.26	0.19	0.33	4.61	0.68
LowerReeseRiverValley	59	1987	0.11	1.04	0.97	1.11	0.33	0.27	0.40	4.66	0.70
LowerReeseRiverValley	59	1988	0.10	0.97	0.91	1.04	0.24	0.18	0.31	4.64	0.73
LowerReeseRiverValley	59	1989	0.08	0.78	0.72	0.86	0.17	0.11	0.24	4.64	0.62
LowerReeseRiverValley	59	1990	0.07	0.84	0.79	0.91	0.13	0.07	0.20	4.57	0.71
LowerReeseRiverValley	59	1991	0.09	0.83	0.77	0.90	0.18	0.12	0.24	4.55	0.66
LowerReeseRiverValley	59	1992	0.07	0.66	0.60	0.74	0.13	0.07	0.21	4.86	0.53
LowerReeseRiverValley	59	1993	0.11	1.17	1.11	1.24	0.36	0.30	0.43	4.35	0.81
LowerReeseRiverValley	59	1994	0.09	0.77	0.70	0.84	0.18	0.12	0.26	4.92	0.58
LowerReeseRiverValley	59	1995	0.11	1.31	1.25	1.37	0.28	0.22	0.34	4.38	1.03
LowerReeseRiverValley	59	1996	0.09	1.03	0.96	1.10	0.27	0.21	0.35	4.91	0.76
LowerReeseRiverValley	59	1997	0.11	1.27	1.21	1.33	0.29	0.23	0.35	4.61	0.98
LowerReeseRiverValley	59	1998	0.12	1.59	1.54	1.65	0.32	0.27	0.38	4.20	1.27
LowerReeseRiverValley	59	1999	0.10	1.02	0.96	1.09	0.31	0.24	0.38	4.60	0.71
LowerReeseRiverValley	59	2000	0.09	0.91	0.84	0.98	0.19	0.12	0.26	5.03	0.72
LowerReeseRiverValley	59	2001	0.12	0.98	0.91	1.06	0.37	0.31	0.45	4.75	0.61
LowerReeseRiverValley	59	2002	0.08	0.76	0.70	0.84	0.17	0.11	0.25	4.85	0.59
LowerReeseRiverValley	59	2003	0.09	0.89	0.83	0.97	0.21	0.15	0.28	4.81	0.69
LowerReeseRiverValley	59	2004	0.10	1.07	1.01	1.14	0.28	0.22	0.35	4.73	0.79
LowerReeseRiverValley	59	2005	0.13	1.46	1.41	1.52	0.41	0.35	0.47	4.44	1.05
LowerReeseRiverValley	59	2006	0.13	1.37	1.31	1.45	0.51	0.45	0.59	4.79	0.86
LowerReeseRiverValley	59	2007	0.09	0.79	0.72	0.87	0.22	0.15	0.29	4.98	0.57
LowerReeseRiverValley	59	2008	0.08	0.61	0.55	0.69	0.18	0.11	0.25	4.91	0.44
LowerReeseRiverValley	59	2009	0.09	1.10	1.04	1.17	0.22	0.16	0.29	4.78	0.88
LowerReeseRiverValley	59	2010	0.11	0.81	0.74	0.88	0.34	0.27	0.41	4.61	0.47
LowerReeseRiverValley	59	2011	0.11	1.13	1.07	1.20	0.33	0.27	0.39	4.45	0.80
LowerReeseRiverValley	59	2012	0.10	0.72	0.64	0.80	0.29	0.22	0.38	5.14	0.42
LowerReeseRiverValley	59	2013	0.11	0.97	0.90	1.05	0.41	0.34	0.49	4.82	0.56
LowerReeseRiverValley	59	2014	0.09	1.04	0.98	1.11	0.25	0.18	0.32	4.84	0.80
LowerReeseRiverValley	59	2015	0.09	1.01	0.94	1.08	0.23	0.17	0.31	4.97	0.77

Table E-20. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Maggie Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MaggieCreekArea	51	1985	0.17	1.55	1.49	1.61	0.77	0.71	0.83	4.03	0.78
MaggieCreekArea	51	1986	0.17	1.66	1.60	1.72	0.76	0.70	0.82	4.10	0.90
MaggieCreekArea	51	1987	0.19	1.66	1.60	1.72	0.94	0.88	1.01	4.24	0.72
MaggieCreekArea	51	1988	0.18	1.50	1.43	1.56	0.85	0.78	0.91	4.26	0.65
MaggieCreekArea	51	1989	0.14	1.46	1.40	1.52	0.59	0.54	0.65	4.18	0.87
MaggieCreekArea	51	1990	0.12	1.30	1.25	1.36	0.46	0.41	0.52	4.06	0.84
MaggieCreekArea	51	1991	0.22	1.77	1.71	1.83	1.06	1.00	1.12	3.97	0.71
MaggieCreekArea	51	1992	0.12	1.09	1.02	1.15	0.50	0.44	0.57	4.33	0.59
MaggieCreekArea	51	1993	0.26	2.17	2.11	2.22	1.15	1.09	1.20	3.84	1.02
MaggieCreekArea	51	1994	0.15	1.40	1.34	1.47	0.70	0.63	0.76	4.36	0.71
MaggieCreekArea	51	1995	0.22	2.09	2.04	2.14	0.90	0.85	0.95	3.86	1.19
MaggieCreekArea	51	1996	0.22	2.05	1.98	2.11	1.10	1.04	1.16	4.31	0.95
MaggieCreekArea	51	1997	0.22	2.11	2.06	2.17	0.96	0.91	1.02	4.01	1.15
MaggieCreekArea	51	1998	0.18	1.89	1.84	1.94	0.70	0.66	0.75	3.76	1.18
MaggieCreekArea	51	1999	0.18	1.65	1.59	1.71	0.81	0.75	0.87	4.04	0.84
MaggieCreekArea	51	2000	0.19	1.73	1.66	1.80	0.99	0.92	1.05	4.43	0.75
MaggieCreekArea	51	2001	0.16	1.42	1.36	1.49	0.79	0.72	0.85	4.25	0.63
MaggieCreekArea	51	2002	0.16	1.57	1.51	1.63	0.75	0.69	0.82	4.20	0.82
MaggieCreekArea	51	2003	0.17	1.66	1.60	1.72	0.79	0.73	0.85	4.18	0.87
MaggieCreekArea	51	2004	0.18	1.76	1.71	1.82	0.82	0.76	0.87	4.06	0.95
MaggieCreekArea	51	2005	0.22	2.16	2.11	2.21	0.89	0.85	0.94	3.86	1.26
MaggieCreekArea	51	2006	0.18	1.97	1.92	2.03	0.81	0.75	0.86	4.14	1.17
MaggieCreekArea	51	2007	0.16	1.46	1.40	1.53	0.78	0.72	0.85	4.33	0.68
MaggieCreekArea	51	2008	0.19	1.65	1.58	1.71	0.93	0.87	0.99	4.18	0.71
MaggieCreekArea	51	2009	0.19	1.83	1.78	1.88	0.81	0.75	0.86	3.98	1.02
MaggieCreekArea	51	2010	0.20	1.64	1.58	1.70	0.97	0.91	1.03	3.95	0.68
MaggieCreekArea	51	2011	0.23	2.06	2.01	2.11	0.97	0.91	1.02	3.82	1.10
MaggieCreekArea	51	2012	0.20	1.68	1.61	1.75	1.09	1.02	1.16	4.42	0.59
MaggieCreekArea	51	2013	0.23	1.94	1.88	2.01	1.15	1.08	1.21	4.17	0.80
MaggieCreekArea	51	2014	0.16	1.71	1.65	1.77	0.69	0.64	0.75	4.16	1.02
MaggieCreekArea	51	2015	0.17	1.74	1.68	1.80	0.80	0.74	0.86	4.34	0.94

Table E-21. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Marys Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MarysCreekArea	52	1985	0.20	1.62	1.56	1.69	0.97	0.91	1.04	4.14	0.65
MarysCreekArea	52	1986	0.23	1.89	1.83	1.95	1.14	1.08	1.20	4.18	0.75
MarysCreekArea	52	1987	0.23	1.83	1.76	1.90	1.25	1.18	1.32	4.28	0.58
MarysCreekArea	52	1988	0.20	1.57	1.50	1.63	0.96	0.89	1.02	4.30	0.61
MarysCreekArea	52	1989	0.17	1.43	1.37	1.50	0.80	0.74	0.87	4.27	0.63
MarysCreekArea	52	1990	0.18	1.52	1.46	1.58	0.82	0.76	0.89	4.13	0.69
MarysCreekArea	52	1991	0.24	1.83	1.77	1.90	1.20	1.14	1.26	4.03	0.63
MarysCreekArea	52	1992	0.16	1.27	1.21	1.34	0.77	0.70	0.84	4.42	0.50
MarysCreekArea	52	1993	0.29	2.23	2.17	2.29	1.40	1.34	1.47	3.97	0.83
MarysCreekArea	52	1994	0.21	1.75	1.68	1.82	1.11	1.04	1.18	4.49	0.64
MarysCreekArea	52	1995	0.27	2.28	2.22	2.34	1.24	1.18	1.30	3.97	1.03
MarysCreekArea	52	1996	0.25	2.17	2.10	2.24	1.40	1.33	1.47	4.45	0.77
MarysCreekArea	52	1997	0.25	2.21	2.15	2.27	1.18	1.12	1.24	4.14	1.03
MarysCreekArea	52	1998	0.21	1.94	1.89	1.99	0.88	0.83	0.94	3.88	1.05
MarysCreekArea	52	1999	0.22	1.75	1.69	1.82	1.11	1.05	1.18	4.23	0.64
MarysCreekArea	52	2000	0.20	1.74	1.67	1.82	1.12	1.05	1.19	4.61	0.62
MarysCreekArea	52	2001	0.21	1.66	1.59	1.73	1.10	1.03	1.18	4.40	0.56
MarysCreekArea	52	2002	0.21	1.72	1.65	1.79	1.08	1.01	1.15	4.37	0.64
MarysCreekArea	52	2003	0.21	1.73	1.66	1.79	1.05	0.98	1.11	4.35	0.68
MarysCreekArea	52	2004	0.21	1.79	1.73	1.86	1.05	0.98	1.11	4.20	0.75
MarysCreekArea	52	2005	0.29	2.34	2.29	2.40	1.27	1.21	1.33	3.99	1.07
MarysCreekArea	52	2006	0.21	1.93	1.87	2.00	1.02	0.96	1.09	4.32	0.91
MarysCreekArea	52	2007	0.20	1.68	1.60	1.75	1.12	1.05	1.19	4.48	0.56
MarysCreekArea	52	2008	0.24	1.92	1.85	1.99	1.35	1.28	1.42	4.39	0.57
MarysCreekArea	52	2009	0.23	2.03	1.97	2.09	1.13	1.07	1.20	4.17	0.89
MarysCreekArea	52	2010	0.22	1.64	1.57	1.70	1.08	1.02	1.15	4.09	0.56
MarysCreekArea	52	2011	0.26	2.07	2.01	2.13	1.20	1.14	1.26	3.93	0.88
MarysCreekArea	52	2012	0.19	1.46	1.39	1.54	0.99	0.92	1.06	4.55	0.47
MarysCreekArea	52	2013	0.28	2.14	2.06	2.21	1.44	1.36	1.51	4.32	0.70
MarysCreekArea	52	2014	0.24	2.08	2.02	2.15	1.17	1.11	1.24	4.28	0.91
MarysCreekArea	52	2015	0.21	1.88	1.81	1.94	1.11	1.04	1.17	4.47	0.77

Table E-22. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Marys River Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MarysRiverArea	42	1985	0.19	1.54	1.49	1.59	0.70	0.65	0.75	3.85	0.84
MarysRiverArea	42	1986	0.20	1.88	1.83	1.92	0.76	0.72	0.81	3.84	1.12
MarysRiverArea	42	1987	0.19	1.47	1.42	1.52	0.75	0.70	0.81	3.91	0.71
MarysRiverArea	42	1988	0.17	1.41	1.36	1.47	0.70	0.65	0.76	4.02	0.71
MarysRiverArea	42	1989	0.19	1.66	1.61	1.71	0.76	0.71	0.81	3.94	0.90
MarysRiverArea	42	1990	0.16	1.39	1.34	1.44	0.53	0.49	0.58	3.87	0.86
MarysRiverArea	42	1991	0.14	1.34	1.29	1.38	0.55	0.51	0.60	3.82	0.78
MarysRiverArea	42	1992	0.17	1.33	1.27	1.38	0.62	0.57	0.68	4.13	0.70
MarysRiverArea	42	1993	0.25	1.95	1.91	2.00	0.90	0.86	0.95	3.66	1.05
MarysRiverArea	42	1994	0.18	1.36	1.30	1.42	0.72	0.67	0.78	4.15	0.64
MarysRiverArea	42	1995	0.27	2.18	2.13	2.22	0.88	0.84	0.92	3.66	1.29
MarysRiverArea	42	1996	0.22	1.89	1.84	1.94	0.91	0.85	0.96	4.06	0.99
MarysRiverArea	42	1997	0.23	2.02	1.97	2.06	0.75	0.70	0.79	3.78	1.27
MarysRiverArea	42	1998	0.24	2.01	1.97	2.05	0.77	0.73	0.81	3.56	1.24
MarysRiverArea	42	1999	0.21	1.76	1.72	1.81	0.86	0.81	0.91	3.80	0.90
MarysRiverArea	42	2000	0.20	1.69	1.63	1.75	0.92	0.86	0.98	4.22	0.77
MarysRiverArea	42	2001	0.18	1.37	1.32	1.42	0.68	0.63	0.73	4.00	0.69
MarysRiverArea	42	2002	0.22	1.76	1.71	1.81	0.91	0.86	0.96	3.97	0.85
MarysRiverArea	42	2003	0.20	1.65	1.60	1.70	0.73	0.68	0.78	3.97	0.92
MarysRiverArea	42	2004	0.21	1.77	1.72	1.82	0.78	0.73	0.83	3.85	0.99
MarysRiverArea	42	2005	0.25	2.19	2.15	2.23	0.81	0.77	0.85	3.63	1.38
MarysRiverArea	42	2006	0.22	2.03	1.99	2.08	0.85	0.80	0.89	3.92	1.18
MarysRiverArea	42	2007	0.16	1.38	1.33	1.44	0.66	0.60	0.71	4.08	0.73
MarysRiverArea	42	2008	0.23	1.80	1.75	1.86	0.95	0.89	1.00	3.94	0.86
MarysRiverArea	42	2009	0.23	1.94	1.90	1.99	0.81	0.77	0.86	3.77	1.13
MarysRiverArea	42	2010	0.23	1.67	1.62	1.72	0.90	0.85	0.95	3.71	0.77
MarysRiverArea	42	2011	0.26	2.14	2.10	2.18	0.89	0.85	0.94	3.67	1.24
MarysRiverArea	42	2012	0.19	1.46	1.40	1.51	0.77	0.71	0.82	4.20	0.69
MarysRiverArea	42	2013	0.18	1.55	1.50	1.60	0.72	0.67	0.77	3.97	0.83
MarysRiverArea	42	2014	0.20	1.82	1.78	1.87	0.70	0.65	0.74	3.87	1.12
MarysRiverArea	42	2015	0.22	1.94	1.89	1.99	0.79	0.74	0.84	3.99	1.15

Table E-23. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Middle Reese River Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MiddleReeseRiverValley	58	1985	0.10	0.83	0.77	0.90	0.24	0.18	0.30	4.36	0.59
MiddleReeseRiverValley	58	1986	0.11	1.00	0.93	1.07	0.31	0.25	0.38	4.54	0.69
MiddleReeseRiverValley	58	1987	0.11	0.95	0.88	1.02	0.31	0.25	0.38	4.54	0.64
MiddleReeseRiverValley	58	1988	0.09	0.93	0.87	1.00	0.19	0.13	0.25	4.52	0.74
MiddleReeseRiverValley	58	1989	0.09	0.83	0.76	0.90	0.18	0.11	0.25	4.54	0.65
MiddleReeseRiverValley	58	1990	0.07	0.77	0.71	0.84	0.12	0.07	0.19	4.45	0.65
MiddleReeseRiverValley	58	1991	0.09	0.77	0.70	0.83	0.19	0.13	0.26	4.42	0.57
MiddleReeseRiverValley	58	1992	0.09	0.72	0.65	0.79	0.20	0.13	0.27	4.69	0.52
MiddleReeseRiverValley	58	1993	0.11	1.02	0.96	1.08	0.32	0.26	0.38	4.31	0.70
MiddleReeseRiverValley	58	1994	0.09	0.74	0.68	0.82	0.18	0.11	0.25	4.78	0.57
MiddleReeseRiverValley	58	1995	0.12	1.38	1.33	1.44	0.36	0.31	0.42	4.23	1.02
MiddleReeseRiverValley	58	1996	0.09	0.92	0.85	0.99	0.23	0.17	0.30	4.79	0.68
MiddleReeseRiverValley	58	1997	0.10	1.11	1.05	1.17	0.24	0.18	0.30	4.44	0.87
MiddleReeseRiverValley	58	1998	0.13	1.55	1.50	1.60	0.35	0.30	0.40	4.05	1.20
MiddleReeseRiverValley	58	1999	0.10	0.93	0.86	0.99	0.28	0.21	0.34	4.46	0.65
MiddleReeseRiverValley	58	2000	0.08	0.75	0.69	0.83	0.15	0.08	0.22	4.84	0.61
MiddleReeseRiverValley	58	2001	0.10	0.87	0.80	0.94	0.29	0.22	0.36	4.65	0.58
MiddleReeseRiverValley	58	2002	0.09	0.76	0.70	0.84	0.22	0.16	0.30	4.74	0.54
MiddleReeseRiverValley	58	2003	0.09	0.85	0.78	0.92	0.17	0.11	0.25	4.72	0.67
MiddleReeseRiverValley	58	2004	0.11	1.01	0.95	1.08	0.30	0.24	0.37	4.61	0.71
MiddleReeseRiverValley	58	2005	0.12	1.29	1.24	1.35	0.34	0.29	0.40	4.34	0.95
MiddleReeseRiverValley	58	2006	0.12	1.27	1.20	1.34	0.43	0.37	0.50	4.68	0.84
MiddleReeseRiverValley	58	2007	0.08	0.67	0.61	0.75	0.16	0.09	0.23	4.82	0.51
MiddleReeseRiverValley	58	2008	0.09	0.60	0.53	0.68	0.18	0.11	0.25	4.74	0.43
MiddleReeseRiverValley	58	2009	0.09	1.02	0.96	1.09	0.19	0.13	0.26	4.60	0.83
MiddleReeseRiverValley	58	2010	0.10	0.68	0.61	0.75	0.26	0.19	0.33	4.48	0.42
MiddleReeseRiverValley	58	2011	0.10	1.03	0.97	1.10	0.27	0.21	0.34	4.33	0.76
MiddleReeseRiverValley	58	2012	0.09	0.63	0.56	0.71	0.21	0.14	0.29	5.01	0.42
MiddleReeseRiverValley	58	2013	0.09	0.78	0.71	0.85	0.25	0.18	0.32	4.73	0.53
MiddleReeseRiverValley	58	2014	0.07	0.98	0.92	1.05	0.15	0.10	0.22	4.73	0.83
MiddleReeseRiverValley	58	2015	0.09	1.12	1.06	1.19	0.26	0.19	0.33	4.83	0.86

Table E-24. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – North Fork Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
NorthForkArea	44	1985	0.16	1.39	1.35	1.43	0.51	0.47	0.56	3.83	0.88
NorthForkArea	44	1986	0.21	1.78	1.74	1.82	0.67	0.63	0.71	3.84	1.11
NorthForkArea	44	1987	0.15	1.31	1.26	1.36	0.56	0.52	0.61	4.00	0.75
NorthForkArea	44	1988	0.16	1.31	1.26	1.36	0.57	0.52	0.61	4.07	0.74
NorthForkArea	44	1989	0.19	1.60	1.55	1.64	0.61	0.57	0.66	3.95	0.99
NorthForkArea	44	1990	0.16	1.40	1.36	1.45	0.51	0.47	0.55	3.87	0.89
NorthForkArea	44	1991	0.17	1.33	1.29	1.38	0.53	0.49	0.58	3.82	0.80
NorthForkArea	44	1992	0.14	1.13	1.08	1.18	0.46	0.41	0.51	4.16	0.67
NorthForkArea	44	1993	0.24	1.83	1.79	1.87	0.70	0.66	0.74	3.69	1.13
NorthForkArea	44	1994	0.15	1.24	1.19	1.29	0.54	0.49	0.59	4.18	0.70
NorthForkArea	44	1995	0.24	1.93	1.89	1.97	0.68	0.65	0.72	3.64	1.24
NorthForkArea	44	1996	0.22	1.79	1.75	1.84	0.74	0.70	0.79	4.09	1.05
NorthForkArea	44	1997	0.20	1.85	1.82	1.89	0.57	0.54	0.61	3.79	1.28
NorthForkArea	44	1998	0.21	1.81	1.78	1.85	0.59	0.55	0.62	3.57	1.23
NorthForkArea	44	1999	0.20	1.54	1.50	1.59	0.65	0.61	0.70	3.81	0.89
NorthForkArea	44	2000	0.18	1.44	1.39	1.49	0.66	0.61	0.71	4.23	0.78
NorthForkArea	44	2001	0.17	1.30	1.25	1.35	0.56	0.52	0.61	4.02	0.74
NorthForkArea	44	2002	0.19	1.58	1.53	1.62	0.66	0.61	0.70	4.01	0.92
NorthForkArea	44	2003	0.16	1.49	1.45	1.54	0.55	0.50	0.59	4.02	0.94
NorthForkArea	44	2004	0.19	1.65	1.61	1.69	0.60	0.55	0.64	3.88	1.06
NorthForkArea	44	2005	0.22	1.97	1.93	2.01	0.63	0.59	0.67	3.68	1.34
NorthForkArea	44	2006	0.20	1.87	1.83	1.91	0.60	0.56	0.64	3.95	1.27
NorthForkArea	44	2007	0.15	1.29	1.24	1.34	0.53	0.48	0.58	4.16	0.76
NorthForkArea	44	2008	0.21	1.57	1.53	1.62	0.74	0.69	0.79	3.95	0.84
NorthForkArea	44	2009	0.22	1.85	1.81	1.89	0.65	0.61	0.69	3.78	1.19
NorthForkArea	44	2010	0.22	1.51	1.46	1.55	0.71	0.67	0.76	3.73	0.79
NorthForkArea	44	2011	0.23	1.92	1.89	1.96	0.64	0.60	0.67	3.65	1.29
NorthForkArea	44	2012	0.17	1.29	1.24	1.34	0.61	0.56	0.66	4.23	0.68
NorthForkArea	44	2013	0.19	1.55	1.51	1.60	0.69	0.64	0.74	3.99	0.87
NorthForkArea	44	2014	0.18	1.69	1.65	1.74	0.58	0.54	0.62	3.93	1.12
NorthForkArea	44	2015	0.19	1.87	1.83	1.92	0.67	0.63	0.71	4.08	1.20

Table E-25. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Paradise Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
ParadiseValley	69	1985	0.17	1.04	1.00	1.08	0.38	0.34	0.42	4.14	0.66
ParadiseValley	69	1986	0.20	1.35	1.31	1.38	0.44	0.40	0.47	4.19	0.91
ParadiseValley	69	1987	0.17	0.99	0.95	1.03	0.33	0.29	0.37	4.26	0.66
ParadiseValley	69	1988	0.12	0.83	0.79	0.87	0.21	0.17	0.25	4.43	0.62
ParadiseValley	69	1989	0.15	1.04	1.00	1.08	0.29	0.26	0.33	4.30	0.74
ParadiseValley	69	1990	0.12	0.84	0.80	0.87	0.19	0.15	0.22	4.13	0.65
ParadiseValley	69	1991	0.16	0.94	0.90	0.97	0.27	0.24	0.31	4.15	0.66
ParadiseValley	69	1992	0.10	0.59	0.56	0.64	0.15	0.11	0.19	4.46	0.44
ParadiseValley	69	1993	0.20	1.23	1.20	1.27	0.36	0.32	0.39	3.95	0.88
ParadiseValley	69	1994	0.14	0.81	0.77	0.86	0.24	0.20	0.28	4.45	0.57
ParadiseValley	69	1995	0.22	1.43	1.40	1.47	0.43	0.40	0.46	3.95	1.00
ParadiseValley	69	1996	0.16	1.19	1.15	1.23	0.30	0.27	0.34	4.32	0.89
ParadiseValley	69	1997	0.19	1.37	1.33	1.40	0.36	0.33	0.39	4.15	1.01
ParadiseValley	69	1998	0.21	1.69	1.67	1.72	0.37	0.34	0.40	3.81	1.32
ParadiseValley	69	1999	0.17	1.06	1.03	1.10	0.38	0.35	0.42	4.12	0.68
ParadiseValley	69	2000	0.16	1.04	1.00	1.08	0.31	0.27	0.35	4.40	0.73
ParadiseValley	69	2001	0.16	0.90	0.87	0.94	0.32	0.28	0.36	4.25	0.58
ParadiseValley	69	2002	0.16	0.99	0.95	1.03	0.32	0.28	0.36	4.37	0.67
ParadiseValley	69	2003	0.14	0.86	0.83	0.90	0.22	0.18	0.26	4.34	0.64
ParadiseValley	69	2004	0.17	1.02	0.98	1.06	0.31	0.28	0.35	4.29	0.70
ParadiseValley	69	2005	0.19	1.27	1.24	1.30	0.35	0.32	0.38	3.99	0.92
ParadiseValley	69	2006	0.19	1.37	1.33	1.40	0.37	0.34	0.41	4.20	0.99
ParadiseValley	69	2007	0.14	0.75	0.71	0.79	0.26	0.22	0.30	4.45	0.49
ParadiseValley	69	2008	0.15	0.89	0.85	0.93	0.26	0.22	0.30	4.30	0.63
ParadiseValley	69	2009	0.14	1.01	0.98	1.05	0.24	0.21	0.28	4.15	0.77
ParadiseValley	69	2010	0.16	0.88	0.84	0.92	0.31	0.27	0.34	4.01	0.57
ParadiseValley	69	2011	0.23	1.48	1.45	1.52	0.48	0.45	0.52	3.89	1.00
ParadiseValley	69	2012	0.15	0.88	0.83	0.92	0.37	0.32	0.41	4.57	0.51
ParadiseValley	69	2013	0.13	0.89	0.86	0.93	0.25	0.21	0.29	4.33	0.65
ParadiseValley	69	2014	0.13	1.05	1.01	1.08	0.22	0.18	0.25	4.28	0.83
ParadiseValley	69	2015	0.14	1.09	1.05	1.13	0.27	0.23	0.31	4.32	0.82

Table E-26. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Pine Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
PineValley	53	1985	0.14	1.28	1.23	1.33	0.52	0.47	0.58	4.16	0.76
PineValley	53	1986	0.14	1.45	1.40	1.51	0.56	0.51	0.61	4.26	0.89
PineValley	53	1987	0.16	1.41	1.35	1.47	0.70	0.64	0.76	4.34	0.71
PineValley	53	1988	0.14	1.38	1.33	1.44	0.54	0.49	0.60	4.33	0.84
PineValley	53	1989	0.12	1.20	1.15	1.26	0.41	0.36	0.47	4.36	0.79
PineValley	53	1990	0.13	1.26	1.21	1.32	0.45	0.40	0.50	4.27	0.81
PineValley	53	1991	0.15	1.35	1.30	1.41	0.58	0.52	0.63	4.17	0.77
PineValley	53	1992	0.13	1.03	0.97	1.09	0.42	0.36	0.48	4.48	0.61
PineValley	53	1993	0.16	1.48	1.43	1.53	0.55	0.50	0.60	4.07	0.93
PineValley	53	1994	0.15	1.32	1.26	1.38	0.57	0.51	0.63	4.59	0.75
PineValley	53	1995	0.18	1.83	1.78	1.88	0.60	0.55	0.65	4.07	1.23
PineValley	53	1996	0.16	1.47	1.41	1.53	0.61	0.55	0.67	4.58	0.86
PineValley	53	1997	0.16	1.70	1.65	1.75	0.53	0.49	0.58	4.24	1.17
PineValley	53	1998	0.18	1.84	1.80	1.89	0.57	0.53	0.61	3.92	1.27
PineValley	53	1999	0.16	1.42	1.36	1.47	0.61	0.56	0.67	4.28	0.80
PineValley	53	2000	0.15	1.28	1.22	1.34	0.57	0.50	0.63	4.74	0.71
PineValley	53	2001	0.14	1.14	1.08	1.20	0.49	0.43	0.55	4.44	0.65
PineValley	53	2002	0.16	1.33	1.27	1.39	0.60	0.55	0.67	4.49	0.72
PineValley	53	2003	0.14	1.30	1.24	1.35	0.51	0.45	0.57	4.52	0.79
PineValley	53	2004	0.15	1.34	1.29	1.40	0.50	0.45	0.56	4.32	0.84
PineValley	53	2005	0.20	1.93	1.88	1.98	0.67	0.62	0.72	4.09	1.26
PineValley	53	2006	0.16	1.60	1.54	1.65	0.62	0.56	0.67	4.43	0.98
PineValley	53	2007	0.14	1.22	1.16	1.28	0.53	0.47	0.59	4.59	0.69
PineValley	53	2008	0.17	1.29	1.23	1.35	0.63	0.57	0.70	4.50	0.66
PineValley	53	2009	0.17	1.69	1.64	1.74	0.53	0.49	0.59	4.27	1.16
PineValley	53	2010	0.16	1.12	1.06	1.18	0.55	0.50	0.61	4.21	0.57
PineValley	53	2011	0.17	1.58	1.53	1.63	0.55	0.50	0.59	4.05	1.03
PineValley	53	2012	0.17	1.31	1.24	1.38	0.73	0.67	0.80	4.77	0.57
PineValley	53	2013	0.19	1.49	1.43	1.55	0.74	0.68	0.81	4.47	0.75
PineValley	53	2014	0.15	1.54	1.49	1.60	0.52	0.46	0.57	4.38	1.03
PineValley	53	2015	0.17	1.57	1.51	1.62	0.67	0.61	0.73	4.56	0.90

Table E-27. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Pumpernickel Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
PumpernickelValley	65	1985	0.10	1.03	0.96	1.10	0.45	0.39	0.52	4.62	0.58
PumpernickelValley	65	1986	0.13	1.32	1.25	1.40	0.62	0.55	0.69	4.76	0.70
PumpernickelValley	65	1987	0.11	1.06	0.99	1.14	0.45	0.38	0.52	4.83	0.61
PumpernickelValley	65	1988	0.11	1.01	0.94	1.09	0.39	0.32	0.47	4.92	0.62
PumpernickelValley	65	1989	0.09	0.95	0.88	1.02	0.33	0.27	0.41	4.85	0.61
PumpernickelValley	65	1990	0.07	0.84	0.78	0.91	0.20	0.14	0.27	4.72	0.64
PumpernickelValley	65	1991	0.10	0.97	0.91	1.04	0.35	0.29	0.42	4.70	0.62
PumpernickelValley	65	1992	0.08	0.67	0.60	0.75	0.24	0.17	0.32	5.05	0.43
PumpernickelValley	65	1993	0.15	1.44	1.37	1.50	0.72	0.66	0.79	4.46	0.71
PumpernickelValley	65	1994	0.11	0.99	0.92	1.07	0.49	0.42	0.57	5.05	0.50
PumpernickelValley	65	1995	0.16	1.65	1.59	1.71	0.69	0.63	0.75	4.47	0.96
PumpernickelValley	65	1996	0.14	1.40	1.33	1.47	0.66	0.59	0.74	4.94	0.74
PumpernickelValley	65	1997	0.15	1.58	1.51	1.65	0.68	0.62	0.75	4.67	0.89
PumpernickelValley	65	1998	0.16	1.86	1.81	1.92	0.65	0.60	0.71	4.24	1.21
PumpernickelValley	65	1999	0.14	1.32	1.25	1.39	0.70	0.63	0.77	4.64	0.62
PumpernickelValley	65	2000	0.12	1.14	1.07	1.22	0.50	0.43	0.57	4.98	0.64
PumpernickelValley	65	2001	0.15	1.21	1.14	1.29	0.68	0.61	0.77	4.75	0.53
PumpernickelValley	65	2002	0.12	1.05	0.98	1.13	0.50	0.43	0.57	4.89	0.56
PumpernickelValley	65	2003	0.11	1.02	0.95	1.09	0.39	0.33	0.47	4.85	0.62
PumpernickelValley	65	2004	0.11	1.02	0.95	1.09	0.44	0.37	0.52	4.79	0.58
PumpernickelValley	65	2005	0.16	1.58	1.52	1.65	0.73	0.67	0.80	4.51	0.85
PumpernickelValley	65	2006	0.15	1.56	1.49	1.64	0.80	0.73	0.87	4.81	0.77
PumpernickelValley	65	2007	0.12	1.03	0.96	1.11	0.56	0.49	0.65	5.06	0.47
PumpernickelValley	65	2008	0.12	0.95	0.88	1.03	0.50	0.43	0.58	4.92	0.44
PumpernickelValley	65	2009	0.11	1.20	1.14	1.28	0.45	0.38	0.52	4.83	0.75
PumpernickelValley	65	2010	0.14	1.17	1.10	1.24	0.66	0.59	0.74	4.64	0.51
PumpernickelValley	65	2011	0.16	1.59	1.52	1.66	0.78	0.71	0.85	4.53	0.81
PumpernickelValley	65	2012	0.11	0.96	0.89	1.05	0.50	0.42	0.58	5.26	0.47
PumpernickelValley	65	2013	0.12	1.11	1.03	1.18	0.51	0.44	0.59	4.93	0.59
PumpernickelValley	65	2014	0.10	1.26	1.19	1.33	0.42	0.35	0.49	4.88	0.84
PumpernickelValley	65	2015	0.11	1.15	1.08	1.22	0.40	0.33	0.48	4.97	0.75

Table E-28. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Rock Creek Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
RockCreekValley	62	1985	0.09	0.98	0.92	1.04	0.25	0.19	0.31	4.12	0.73
RockCreekValley	62	1986	0.11	1.23	1.17	1.29	0.39	0.33	0.45	4.22	0.84
RockCreekValley	62	1987	0.11	1.06	1.00	1.13	0.35	0.28	0.41	4.33	0.72
RockCreekValley	62	1988	0.11	1.01	0.94	1.07	0.32	0.26	0.39	4.37	0.69
RockCreekValley	62	1989	0.11	1.09	1.03	1.15	0.32	0.26	0.39	4.28	0.77
RockCreekValley	62	1990	0.05	0.93	0.87	0.99	0.13	0.08	0.19	4.17	0.80
RockCreekValley	62	1991	0.11	0.98	0.92	1.04	0.29	0.23	0.35	4.12	0.69
RockCreekValley	62	1992	0.09	0.74	0.67	0.81	0.20	0.14	0.27	4.47	0.54
RockCreekValley	62	1993	0.12	1.34	1.29	1.39	0.41	0.36	0.46	3.96	0.93
RockCreekValley	62	1994	0.09	0.91	0.85	0.98	0.24	0.18	0.31	4.48	0.67
RockCreekValley	62	1995	0.13	1.54	1.48	1.59	0.40	0.35	0.46	4.01	1.13
RockCreekValley	62	1996	0.10	1.25	1.19	1.31	0.35	0.29	0.41	4.44	0.90
RockCreekValley	62	1997	0.12	1.47	1.41	1.52	0.40	0.34	0.45	4.15	1.07
RockCreekValley	62	1998	0.10	1.52	1.48	1.57	0.26	0.22	0.31	3.88	1.26
RockCreekValley	62	1999	0.11	1.18	1.12	1.24	0.39	0.33	0.45	4.20	0.79
RockCreekValley	62	2000	0.10	1.06	0.99	1.12	0.32	0.25	0.38	4.57	0.74
RockCreekValley	62	2001	0.10	0.89	0.82	0.95	0.27	0.20	0.34	4.34	0.62
RockCreekValley	62	2002	0.09	1.00	0.93	1.06	0.25	0.19	0.31	4.40	0.75
RockCreekValley	62	2003	0.09	1.03	0.97	1.09	0.25	0.19	0.32	4.37	0.78
RockCreekValley	62	2004	0.12	1.25	1.19	1.31	0.36	0.30	0.43	4.27	0.88
RockCreekValley	62	2005	0.12	1.51	1.45	1.56	0.37	0.32	0.42	4.02	1.13
RockCreekValley	62	2006	0.13	1.51	1.45	1.57	0.44	0.38	0.50	4.31	1.06
RockCreekValley	62	2007	0.10	0.97	0.91	1.04	0.36	0.29	0.43	4.50	0.62
RockCreekValley	62	2008	0.11	0.96	0.89	1.03	0.36	0.29	0.43	4.38	0.60
RockCreekValley	62	2009	0.10	1.19	1.13	1.25	0.29	0.23	0.35	4.22	0.90
RockCreekValley	62	2010	0.11	0.91	0.85	0.98	0.33	0.27	0.40	4.11	0.58
RockCreekValley	62	2011	0.12	1.37	1.32	1.42	0.37	0.32	0.43	4.03	1.00
RockCreekValley	62	2012	0.10	0.80	0.73	0.88	0.28	0.21	0.35	4.66	0.53
RockCreekValley	62	2013	0.12	1.15	1.09	1.21	0.43	0.36	0.49	4.33	0.72
RockCreekValley	62	2014	0.09	1.27	1.22	1.34	0.31	0.26	0.37	4.33	0.96
RockCreekValley	62	2015	0.11	1.33	1.27	1.39	0.35	0.29	0.41	4.49	0.98

Table E-29. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – South Fork Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
SouthForkArea	46	1985	0.24	1.72	1.68	1.76	0.80	0.76	0.85	3.79	0.91
SouthForkArea	46	1986	0.27	2.11	2.07	2.15	0.84	0.81	0.88	3.81	1.26
SouthForkArea	46	1987	0.21	1.60	1.56	1.65	0.77	0.73	0.82	3.99	0.83
SouthForkArea	46	1988	0.24	1.84	1.80	1.89	0.88	0.83	0.92	4.03	0.97
SouthForkArea	46	1989	0.26	1.95	1.90	1.99	0.91	0.86	0.95	4.00	1.04
SouthForkArea	46	1990	0.23	1.84	1.80	1.88	0.80	0.76	0.84	3.90	1.04
SouthForkArea	46	1991	0.28	2.01	1.96	2.05	0.94	0.89	0.98	3.82	1.07
SouthForkArea	46	1992	0.22	1.67	1.62	1.72	0.83	0.78	0.88	4.15	0.84
SouthForkArea	46	1993	0.30	2.17	2.14	2.21	0.88	0.84	0.92	3.72	1.29
SouthForkArea	46	1994	0.24	1.90	1.85	1.94	0.91	0.87	0.96	4.20	0.98
SouthForkArea	46	1995	0.34	2.49	2.45	2.52	0.87	0.83	0.90	3.66	1.62
SouthForkArea	46	1996	0.29	2.26	2.21	2.30	1.03	0.99	1.08	4.14	1.23
SouthForkArea	46	1997	0.29	2.38	2.34	2.41	0.82	0.78	0.86	3.87	1.56
SouthForkArea	46	1998	0.31	2.33	2.30	2.36	0.79	0.75	0.82	3.57	1.54
SouthForkArea	46	1999	0.28	2.05	2.01	2.10	0.92	0.88	0.96	3.86	1.13
SouthForkArea	46	2000	0.26	2.04	1.99	2.09	1.07	1.02	1.12	4.33	0.98
SouthForkArea	46	2001	0.25	1.82	1.77	1.87	0.98	0.93	1.03	4.11	0.85
SouthForkArea	46	2002	0.28	2.07	2.02	2.12	1.05	1.00	1.10	4.10	1.02
SouthForkArea	46	2003	0.26	2.01	1.97	2.06	0.95	0.90	1.00	4.11	1.06
SouthForkArea	46	2004	0.25	1.97	1.92	2.01	0.85	0.81	0.89	3.97	1.12
SouthForkArea	46	2005	0.32	2.46	2.43	2.49	0.83	0.80	0.87	3.74	1.63
SouthForkArea	46	2006	0.26	2.18	2.14	2.22	0.83	0.79	0.87	4.04	1.35
SouthForkArea	46	2007	0.22	1.78	1.73	1.83	0.86	0.82	0.91	4.21	0.92
SouthForkArea	46	2008	0.29	2.07	2.02	2.12	1.10	1.05	1.15	4.06	0.97
SouthForkArea	46	2009	0.30	2.36	2.32	2.40	0.90	0.86	0.94	3.91	1.46
SouthForkArea	46	2010	0.29	1.93	1.89	1.98	1.01	0.96	1.06	3.80	0.93
SouthForkArea	46	2011	0.33	2.31	2.28	2.35	0.88	0.84	0.91	3.63	1.44
SouthForkArea	46	2012	0.23	1.74	1.68	1.79	0.95	0.90	1.00	4.26	0.79
SouthForkArea	46	2013	0.29	2.06	2.01	2.11	1.04	0.99	1.08	4.03	1.03
SouthForkArea	46	2014	0.26	2.12	2.08	2.16	0.79	0.75	0.83	3.88	1.33
SouthForkArea	46	2015	0.29	2.16	2.12	2.21	1.05	1.00	1.09	4.14	1.12

Table E-30. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Starr Valley Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
StarrValleyArea	43	1985	0.23	1.64	1.60	1.68	0.73	0.69	0.78	4.01	0.91
StarrValleyArea	43	1986	0.24	1.97	1.94	2.01	0.72	0.68	0.76	4.03	1.26
StarrValleyArea	43	1987	0.25	1.62	1.58	1.67	0.89	0.85	0.94	4.07	0.73
StarrValleyArea	43	1988	0.21	1.54	1.49	1.59	0.73	0.69	0.78	4.17	0.80
StarrValleyArea	43	1989	0.25	1.79	1.75	1.84	0.84	0.80	0.89	4.08	0.95
StarrValleyArea	43	1990	0.21	1.57	1.53	1.62	0.64	0.60	0.68	4.03	0.94
StarrValleyArea	43	1991	0.21	1.59	1.55	1.63	0.70	0.66	0.74	3.97	0.89
StarrValleyArea	43	1992	0.18	1.33	1.28	1.37	0.57	0.53	0.62	4.27	0.76
StarrValleyArea	43	1993	0.29	1.97	1.93	2.01	0.83	0.79	0.87	3.79	1.14
StarrValleyArea	43	1994	0.22	1.57	1.52	1.62	0.81	0.76	0.86	4.31	0.76
StarrValleyArea	43	1995	0.34	2.37	2.33	2.40	0.91	0.87	0.94	3.81	1.46
StarrValleyArea	43	1996	0.29	2.03	1.98	2.08	1.00	0.96	1.05	4.25	1.02
StarrValleyArea	43	1997	0.28	2.12	2.08	2.16	0.78	0.74	0.82	3.97	1.34
StarrValleyArea	43	1998	0.33	2.23	2.19	2.26	0.84	0.80	0.87	3.71	1.39
StarrValleyArea	43	1999	0.30	2.00	1.96	2.04	0.95	0.90	0.99	3.98	1.05
StarrValleyArea	43	2000	0.27	1.93	1.88	1.98	1.01	0.96	1.07	4.44	0.91
StarrValleyArea	43	2001	0.23	1.54	1.49	1.59	0.82	0.77	0.87	4.19	0.71
StarrValleyArea	43	2002	0.27	1.83	1.78	1.88	0.93	0.88	0.97	4.17	0.90
StarrValleyArea	43	2003	0.25	1.82	1.78	1.86	0.76	0.72	0.81	4.10	1.06
StarrValleyArea	43	2004	0.27	1.94	1.90	1.99	0.86	0.82	0.90	4.03	1.08
StarrValleyArea	43	2005	0.33	2.38	2.34	2.41	0.84	0.80	0.87	3.80	1.54
StarrValleyArea	43	2006	0.28	2.15	2.10	2.19	0.88	0.84	0.93	4.14	1.26
StarrValleyArea	43	2007	0.20	1.51	1.46	1.55	0.73	0.68	0.77	4.28	0.78
StarrValleyArea	43	2008	0.30	1.99	1.94	2.04	1.05	1.00	1.09	4.12	0.94
StarrValleyArea	43	2009	0.29	2.06	2.02	2.11	0.90	0.86	0.94	3.96	1.16
StarrValleyArea	43	2010	0.30	1.89	1.84	1.93	1.01	0.96	1.05	3.87	0.88
StarrValleyArea	43	2011	0.34	2.29	2.25	2.33	0.95	0.91	0.99	3.85	1.34
StarrValleyArea	43	2012	0.22	1.55	1.50	1.60	0.83	0.78	0.88	4.43	0.72
StarrValleyArea	43	2013	0.24	1.72	1.67	1.77	0.80	0.75	0.85	4.18	0.92
StarrValleyArea	43	2014	0.27	2.01	1.97	2.05	0.77	0.73	0.81	3.97	1.24
StarrValleyArea	43	2015	0.26	2.01	1.97	2.06	0.86	0.82	0.90	4.16	1.15

Table E-31. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Susie Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
SusieCreekArea	50	1985	0.15	1.42	1.36	1.48	0.62	0.56	0.67	3.95	0.80
SusieCreekArea	50	1986	0.15	1.62	1.56	1.67	0.62	0.57	0.68	3.97	0.99
SusieCreekArea	50	1987	0.18	1.62	1.56	1.69	0.93	0.87	1.00	4.13	0.69
SusieCreekArea	50	1988	0.14	1.34	1.28	1.41	0.63	0.57	0.70	4.14	0.71
SusieCreekArea	50	1989	0.15	1.49	1.44	1.55	0.59	0.53	0.65	4.07	0.90
SusieCreekArea	50	1990	0.15	1.50	1.44	1.56	0.63	0.58	0.69	3.96	0.87
SusieCreekArea	50	1991	0.15	1.42	1.36	1.47	0.64	0.59	0.70	3.87	0.77
SusieCreekArea	50	1992	0.13	1.19	1.12	1.25	0.55	0.49	0.62	4.24	0.64
SusieCreekArea	50	1993	0.19	1.84	1.79	1.89	0.79	0.74	0.84	3.77	1.05
SusieCreekArea	50	1994	0.15	1.41	1.35	1.48	0.68	0.62	0.74	4.28	0.74
SusieCreekArea	50	1995	0.19	1.97	1.92	2.02	0.73	0.68	0.78	3.75	1.24
SusieCreekArea	50	1996	0.18	1.82	1.76	1.88	0.82	0.76	0.88	4.20	1.01
SusieCreekArea	50	1997	0.20	2.04	1.99	2.09	0.79	0.74	0.84	3.90	1.24
SusieCreekArea	50	1998	0.18	1.84	1.80	1.89	0.62	0.57	0.66	3.64	1.23
SusieCreekArea	50	1999	0.15	1.49	1.43	1.54	0.62	0.56	0.67	3.91	0.87
SusieCreekArea	50	2000	0.15	1.46	1.40	1.53	0.69	0.63	0.76	4.34	0.77
SusieCreekArea	50	2001	0.14	1.32	1.25	1.38	0.64	0.57	0.70	4.20	0.68
SusieCreekArea	50	2002	0.15	1.53	1.47	1.59	0.68	0.62	0.74	4.11	0.85
SusieCreekArea	50	2003	0.16	1.56	1.50	1.61	0.67	0.61	0.72	4.10	0.89
SusieCreekArea	50	2004	0.15	1.54	1.49	1.60	0.58	0.53	0.64	3.98	0.96
SusieCreekArea	50	2005	0.19	2.02	1.98	2.07	0.71	0.66	0.76	3.80	1.31
SusieCreekArea	50	2006	0.14	1.73	1.67	1.78	0.51	0.45	0.56	4.10	1.22
SusieCreekArea	50	2007	0.14	1.35	1.29	1.42	0.64	0.58	0.71	4.29	0.71
SusieCreekArea	50	2008	0.18	1.66	1.59	1.72	0.89	0.83	0.96	4.14	0.76
SusieCreekArea	50	2009	0.18	1.84	1.78	1.89	0.73	0.68	0.79	3.95	1.10
SusieCreekArea	50	2010	0.18	1.54	1.48	1.60	0.82	0.76	0.88	3.89	0.72
SusieCreekArea	50	2011	0.20	1.90	1.85	1.95	0.75	0.70	0.80	3.71	1.15
SusieCreekArea	50	2012	0.17	1.47	1.40	1.54	0.85	0.78	0.92	4.30	0.62
SusieCreekArea	50	2013	0.20	1.82	1.75	1.88	0.98	0.92	1.05	4.09	0.83
SusieCreekArea	50	2014	0.14	1.69	1.64	1.75	0.62	0.56	0.67	4.07	1.08
SusieCreekArea	50	2015	0.18	1.87	1.81	1.94	0.90	0.84	0.96	4.29	0.97

Table E-32. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Upper Reese River Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
UpperReeseRiverValley	56	1985	0.12	1.11	1.05	1.17	0.46	0.40	0.52	4.11	0.65
UpperReeseRiverValley	56	1986	0.14	1.25	1.19	1.32	0.64	0.58	0.71	4.27	0.61
UpperReeseRiverValley	56	1987	0.16	1.46	1.39	1.52	0.80	0.74	0.87	4.27	0.66
UpperReeseRiverValley	56	1988	0.15	1.51	1.45	1.57	0.68	0.62	0.74	4.19	0.83
UpperReeseRiverValley	56	1989	0.14	1.30	1.23	1.36	0.60	0.54	0.66	4.29	0.70
UpperReeseRiverValley	56	1990	0.07	0.96	0.91	1.02	0.25	0.20	0.31	4.21	0.71
UpperReeseRiverValley	56	1991	0.17	1.41	1.35	1.48	0.78	0.72	0.85	4.10	0.63
UpperReeseRiverValley	56	1992	0.13	1.09	1.03	1.16	0.53	0.46	0.59	4.30	0.57
UpperReeseRiverValley	56	1993	0.15	1.29	1.23	1.36	0.65	0.59	0.72	4.12	0.64
UpperReeseRiverValley	56	1994	0.14	1.23	1.16	1.29	0.65	0.58	0.71	4.45	0.58
UpperReeseRiverValley	56	1995	0.19	1.85	1.80	1.90	0.83	0.77	0.88	3.93	1.02
UpperReeseRiverValley	56	1996	0.15	1.39	1.32	1.46	0.76	0.69	0.82	4.42	0.64
UpperReeseRiverValley	56	1997	0.14	1.39	1.33	1.45	0.52	0.46	0.58	4.18	0.87
UpperReeseRiverValley	56	1998	0.17	1.84	1.80	1.89	0.60	0.55	0.65	3.79	1.24
UpperReeseRiverValley	56	1999	0.19	1.64	1.58	1.71	0.93	0.87	0.99	4.14	0.71
UpperReeseRiverValley	56	2000	0.13	1.21	1.14	1.28	0.57	0.50	0.64	4.55	0.64
UpperReeseRiverValley	56	2001	0.14	1.20	1.13	1.27	0.66	0.59	0.73	4.31	0.54
UpperReeseRiverValley	56	2002	0.13	1.17	1.10	1.24	0.64	0.57	0.71	4.43	0.53
UpperReeseRiverValley	56	2003	0.14	1.27	1.20	1.34	0.63	0.56	0.70	4.35	0.64
UpperReeseRiverValley	56	2004	0.12	1.11	1.05	1.18	0.50	0.43	0.56	4.35	0.61
UpperReeseRiverValley	56	2005	0.17	1.62	1.56	1.68	0.75	0.69	0.81	4.05	0.86
UpperReeseRiverValley	56	2006	0.16	1.43	1.36	1.49	0.75	0.68	0.82	4.35	0.68
UpperReeseRiverValley	56	2007	0.13	1.03	0.96	1.10	0.54	0.47	0.61	4.52	0.49
UpperReeseRiverValley	56	2008	0.13	1.09	1.02	1.16	0.60	0.53	0.67	4.38	0.48
UpperReeseRiverValley	56	2009	0.12	1.22	1.17	1.29	0.45	0.39	0.51	4.27	0.78
UpperReeseRiverValley	56	2010	0.13	1.03	0.97	1.10	0.57	0.51	0.64	4.19	0.46
UpperReeseRiverValley	56	2011	0.15	1.42	1.37	1.48	0.63	0.57	0.68	3.99	0.80
UpperReeseRiverValley	56	2012	0.13	1.04	0.97	1.11	0.56	0.49	0.64	4.57	0.48
UpperReeseRiverValley	56	2013	0.13	1.11	1.04	1.18	0.65	0.58	0.72	4.46	0.46
UpperReeseRiverValley	56	2014	0.11	1.35	1.28	1.41	0.54	0.48	0.61	4.37	0.80
UpperReeseRiverValley	56	2015	0.12	1.28	1.22	1.35	0.60	0.54	0.67	4.46	0.68

Table E-33. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Whirlwind Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
WhirlwindValley	60	1985	0.15	1.37	1.30	1.44	0.71	0.65	0.78	4.28	0.66
WhirlwindValley	60	1986	0.18	1.70	1.64	1.77	0.94	0.87	1.01	4.37	0.77
WhirlwindValley	60	1987	0.19	1.71	1.64	1.78	0.98	0.91	1.05	4.37	0.73
WhirlwindValley	60	1988	0.16	1.54	1.47	1.61	0.81	0.74	0.88	4.46	0.73
WhirlwindValley	60	1989	0.16	1.47	1.40	1.54	0.76	0.69	0.83	4.38	0.71
WhirlwindValley	60	1990	0.08	1.09	1.04	1.16	0.35	0.30	0.42	4.28	0.74
WhirlwindValley	60	1991	0.18	1.52	1.45	1.59	0.89	0.82	0.95	4.18	0.63
WhirlwindValley	60	1992	0.12	1.02	0.95	1.09	0.49	0.42	0.57	4.62	0.52
WhirlwindValley	60	1993	0.20	1.81	1.75	1.87	0.97	0.91	1.03	4.11	0.84
WhirlwindValley	60	1994	0.15	1.42	1.36	1.50	0.77	0.70	0.84	4.58	0.66
WhirlwindValley	60	1995	0.19	1.96	1.90	2.02	0.88	0.82	0.94	4.18	1.08
WhirlwindValley	60	1996	0.16	1.67	1.59	1.74	0.88	0.81	0.96	4.66	0.78
WhirlwindValley	60	1997	0.16	1.78	1.72	1.85	0.76	0.70	0.82	4.35	1.03
WhirlwindValley	60	1998	0.16	1.85	1.79	1.90	0.68	0.62	0.73	4.06	1.17
WhirlwindValley	60	1999	0.14	1.36	1.30	1.43	0.66	0.60	0.73	4.49	0.70
WhirlwindValley	60	2000	0.13	1.34	1.26	1.41	0.63	0.56	0.71	4.82	0.70
WhirlwindValley	60	2001	0.12	1.15	1.08	1.22	0.56	0.49	0.63	4.54	0.59
WhirlwindValley	60	2002	0.12	1.22	1.15	1.29	0.59	0.52	0.66	4.60	0.63
WhirlwindValley	60	2003	0.12	1.28	1.22	1.35	0.57	0.51	0.65	4.56	0.71
WhirlwindValley	60	2004	0.13	1.46	1.39	1.52	0.58	0.52	0.64	4.42	0.88
WhirlwindValley	60	2005	0.17	1.84	1.78	1.90	0.78	0.72	0.84	4.21	1.06
WhirlwindValley	60	2006	0.12	1.43	1.37	1.50	0.54	0.48	0.61	4.54	0.89
WhirlwindValley	60	2007	0.10	0.98	0.91	1.05	0.41	0.34	0.48	4.69	0.57
WhirlwindValley	60	2008	0.12	1.10	1.03	1.18	0.55	0.48	0.63	4.62	0.55
WhirlwindValley	60	2009	0.13	1.43	1.37	1.50	0.51	0.45	0.57	4.41	0.92
WhirlwindValley	60	2010	0.11	1.00	0.94	1.07	0.46	0.40	0.53	4.33	0.54
WhirlwindValley	60	2011	0.13	1.38	1.32	1.44	0.53	0.47	0.59	4.20	0.85
WhirlwindValley	60	2012	0.13	1.03	0.96	1.12	0.61	0.54	0.69	4.85	0.42
WhirlwindValley	60	2013	0.12	1.11	1.04	1.18	0.52	0.45	0.59	4.54	0.59
WhirlwindValley	60	2014	0.13	1.41	1.35	1.48	0.55	0.49	0.62	4.55	0.86
WhirlwindValley	60	2015	0.09	1.26	1.20	1.33	0.44	0.37	0.51	4.71	0.82

Table E-34. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Willow Creek Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
WillowCreekValley	63	1985	0.15	1.35	1.30	1.40	0.52	0.47	0.57	4.10	0.83
WillowCreekValley	63	1986	0.19	1.71	1.66	1.76	0.71	0.66	0.76	4.16	1.00
WillowCreekValley	63	1987	0.19	1.54	1.48	1.59	0.75	0.69	0.80	4.29	0.79
WillowCreekValley	63	1988	0.16	1.34	1.28	1.39	0.59	0.53	0.64	4.37	0.75
WillowCreekValley	63	1989	0.18	1.58	1.53	1.63	0.68	0.62	0.73	4.24	0.90
WillowCreekValley	63	1990	0.10	1.16	1.12	1.21	0.28	0.23	0.33	4.14	0.89
WillowCreekValley	63	1991	0.19	1.42	1.37	1.47	0.65	0.60	0.70	4.09	0.77
WillowCreekValley	63	1992	0.14	1.07	1.01	1.13	0.49	0.43	0.54	4.44	0.58
WillowCreekValley	63	1993	0.20	1.74	1.69	1.78	0.67	0.63	0.72	3.89	1.06
WillowCreekValley	63	1994	0.15	1.24	1.18	1.29	0.51	0.46	0.57	4.45	0.73
WillowCreekValley	63	1995	0.22	1.99	1.94	2.03	0.74	0.70	0.78	3.94	1.25
WillowCreekValley	63	1996	0.17	1.64	1.59	1.69	0.62	0.57	0.67	4.38	1.02
WillowCreekValley	63	1997	0.18	1.81	1.76	1.85	0.60	0.55	0.64	4.11	1.21
WillowCreekValley	63	1998	0.17	1.82	1.78	1.86	0.47	0.43	0.50	3.82	1.35
WillowCreekValley	63	1999	0.17	1.52	1.48	1.58	0.62	0.57	0.67	4.14	0.91
WillowCreekValley	63	2000	0.15	1.35	1.29	1.40	0.53	0.48	0.59	4.53	0.82
WillowCreekValley	63	2001	0.16	1.23	1.17	1.28	0.56	0.51	0.62	4.30	0.66
WillowCreekValley	63	2002	0.14	1.33	1.28	1.39	0.49	0.44	0.55	4.35	0.84
WillowCreekValley	63	2003	0.12	1.20	1.15	1.26	0.36	0.31	0.41	4.34	0.84
WillowCreekValley	63	2004	0.15	1.51	1.46	1.56	0.49	0.44	0.54	4.23	1.02
WillowCreekValley	63	2005	0.16	1.63	1.59	1.67	0.43	0.39	0.47	3.97	1.20
WillowCreekValley	63	2006	0.16	1.72	1.67	1.77	0.50	0.45	0.54	4.26	1.22
WillowCreekValley	63	2007	0.14	1.22	1.16	1.27	0.52	0.47	0.58	4.50	0.69
WillowCreekValley	63	2008	0.17	1.38	1.33	1.44	0.65	0.59	0.70	4.32	0.73
WillowCreekValley	63	2009	0.15	1.44	1.39	1.49	0.49	0.44	0.54	4.18	0.95
WillowCreekValley	63	2010	0.19	1.34	1.29	1.40	0.67	0.62	0.72	4.04	0.67
WillowCreekValley	63	2011	0.20	1.81	1.77	1.85	0.65	0.61	0.70	3.97	1.16
WillowCreekValley	63	2012	0.15	1.18	1.12	1.25	0.58	0.52	0.64	4.65	0.61
WillowCreekValley	63	2013	0.18	1.51	1.46	1.57	0.67	0.62	0.73	4.31	0.84
WillowCreekValley	63	2014	0.12	1.50	1.46	1.55	0.44	0.39	0.49	4.31	1.06
WillowCreekValley	63	2015	0.14	1.64	1.59	1.69	0.43	0.38	0.48	4.46	1.21

Table E-35. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for all groundwater discharge areas inclusive of riparian discharge areas – Winnemucca Segment.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
WinnemuccaSegment	70	1985	0.18	1.56	1.49	1.63	0.97	0.90	1.04	4.35	0.59
WinnemuccaSegment	70	1986	0.21	1.92	1.85	1.99	1.20	1.13	1.27	4.45	0.72
WinnemuccaSegment	70	1987	0.19	1.68	1.61	1.75	1.07	1.00	1.14	4.50	0.61
WinnemuccaSegment	70	1988	0.15	1.36	1.29	1.43	0.77	0.70	0.84	4.59	0.59
WinnemuccaSegment	70	1989	0.15	1.46	1.39	1.53	0.86	0.80	0.93	4.53	0.59
WinnemuccaSegment	70	1990	0.13	1.24	1.17	1.30	0.62	0.55	0.68	4.40	0.62
WinnemuccaSegment	70	1991	0.17	1.52	1.45	1.58	0.90	0.83	0.97	4.39	0.61
WinnemuccaSegment	70	1992	0.12	0.93	0.86	1.00	0.53	0.46	0.61	4.71	0.40
WinnemuccaSegment	70	1993	0.23	1.96	1.89	2.02	1.24	1.18	1.31	4.19	0.72
WinnemuccaSegment	70	1994	0.17	1.46	1.39	1.54	0.98	0.91	1.06	4.72	0.48
WinnemuccaSegment	70	1995	0.24	2.18	2.12	2.25	1.24	1.18	1.30	4.17	0.94
WinnemuccaSegment	70	1996	0.21	1.95	1.88	2.02	1.20	1.13	1.27	4.60	0.74
WinnemuccaSegment	70	1997	0.23	2.13	2.07	2.20	1.26	1.19	1.32	4.37	0.88
WinnemuccaSegment	70	1998	0.24	2.28	2.23	2.33	1.06	1.01	1.11	3.97	1.22
WinnemuccaSegment	70	1999	0.20	1.72	1.66	1.79	1.11	1.05	1.18	4.32	0.61
WinnemuccaSegment	70	2000	0.17	1.58	1.51	1.65	0.95	0.88	1.02	4.61	0.63
WinnemuccaSegment	70	2001	0.18	1.43	1.36	1.50	0.93	0.85	1.00	4.43	0.50
WinnemuccaSegment	70	2002	0.18	1.54	1.47	1.61	0.99	0.92	1.06	4.57	0.55
WinnemuccaSegment	70	2003	0.17	1.49	1.43	1.56	0.88	0.81	0.95	4.51	0.62
WinnemuccaSegment	70	2004	0.16	1.38	1.31	1.45	0.84	0.77	0.91	4.49	0.53
WinnemuccaSegment	70	2005	0.26	2.22	2.16	2.29	1.42	1.35	1.49	4.23	0.80
WinnemuccaSegment	70	2006	0.25	2.28	2.21	2.35	1.51	1.44	1.58	4.46	0.77
WinnemuccaSegment	70	2007	0.17	1.46	1.38	1.54	1.01	0.94	1.09	4.71	0.45
WinnemuccaSegment	70	2008	0.19	1.61	1.54	1.69	1.13	1.05	1.20	4.57	0.49
WinnemuccaSegment	70	2009	0.18	1.68	1.61	1.74	0.97	0.90	1.04	4.44	0.71
WinnemuccaSegment	70	2010	0.21	1.74	1.67	1.81	1.18	1.11	1.25	4.29	0.55
WinnemuccaSegment	70	2011	0.29	2.37	2.30	2.44	1.50	1.43	1.57	4.18	0.87
WinnemuccaSegment	70	2012	0.21	1.77	1.69	1.86	1.31	1.23	1.40	4.85	0.46
WinnemuccaSegment	70	2013	0.15	1.34	1.27	1.42	0.76	0.69	0.83	4.61	0.58
WinnemuccaSegment	70	2014	0.14	1.49	1.43	1.56	0.69	0.62	0.75	4.51	0.81
WinnemuccaSegment	70	2015	0.16	1.54	1.48	1.61	0.82	0.75	0.88	4.57	0.73

Table E-36. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Antelope Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
AntelopeValley	57	1985	0.09	0.79	0.75	0.84	0.19	0.15	0.24	4.39	0.60
AntelopeValley	57	1986	0.10	0.95	0.90	1.00	0.23	0.18	0.28	4.58	0.72
AntelopeValley	57	1987	0.11	0.85	0.80	0.91	0.24	0.19	0.29	4.62	0.61
AntelopeValley	57	1988	0.10	0.97	0.92	1.02	0.23	0.18	0.28	4.57	0.74
AntelopeValley	57	1989	0.09	0.82	0.77	0.88	0.20	0.15	0.25	4.62	0.62
AntelopeValley	57	1990	0.09	0.76	0.71	0.81	0.16	0.11	0.21	4.50	0.60
AntelopeValley	57	1991	0.09	0.70	0.65	0.75	0.16	0.12	0.22	4.47	0.53
AntelopeValley	57	1992	0.09	0.66	0.62	0.72	0.15	0.10	0.20	4.68	0.51
AntelopeValley	57	1993	0.12	0.99	0.94	1.04	0.32	0.27	0.37	4.40	0.68
AntelopeValley	57	1994	0.10	0.73	0.68	0.78	0.19	0.14	0.25	4.79	0.54
AntelopeValley	57	1995	0.12	1.38	1.34	1.42	0.31	0.27	0.36	4.26	1.07
AntelopeValley	57	1996	0.11	0.89	0.84	0.94	0.24	0.19	0.30	4.84	0.64
AntelopeValley	57	1997	0.13	1.13	1.08	1.17	0.25	0.20	0.30	4.47	0.88
AntelopeValley	57	1998	0.13	1.52	1.48	1.56	0.25	0.22	0.29	4.07	1.26
AntelopeValley	57	1999	0.12	0.84	0.79	0.89	0.21	0.16	0.26	4.48	0.64
AntelopeValley	57	2000	0.12	0.85	0.80	0.91	0.26	0.21	0.32	4.85	0.59
AntelopeValley	57	2001	0.16	0.88	0.83	0.94	0.32	0.27	0.38	4.66	0.55
AntelopeValley	57	2002	0.13	0.83	0.78	0.89	0.31	0.26	0.37	4.76	0.51
AntelopeValley	57	2003	0.14	0.87	0.82	0.92	0.22	0.17	0.27	4.73	0.65
AntelopeValley	57	2004	0.13	0.86	0.82	0.92	0.22	0.17	0.27	4.68	0.65
AntelopeValley	57	2005	0.16	1.25	1.21	1.30	0.33	0.28	0.37	4.41	0.93
AntelopeValley	57	2006	0.16	1.19	1.14	1.25	0.38	0.33	0.44	4.70	0.81
AntelopeValley	57	2007	0.14	0.67	0.61	0.72	0.18	0.13	0.24	4.87	0.48
AntelopeValley	57	2008	0.15	0.73	0.68	0.79	0.22	0.16	0.27	4.79	0.52
AntelopeValley	57	2009	0.15	1.08	1.03	1.13	0.25	0.20	0.30	4.62	0.83
AntelopeValley	57	2010	0.19	0.85	0.79	0.90	0.34	0.29	0.40	4.54	0.50
AntelopeValley	57	2011	0.16	0.98	0.94	1.03	0.25	0.20	0.30	4.38	0.73
AntelopeValley	57	2012	0.16	0.67	0.61	0.73	0.28	0.23	0.35	5.03	0.39
AntelopeValley	57	2013	0.16	0.74	0.69	0.80	0.30	0.24	0.36	4.79	0.45
AntelopeValley	57	2014	0.15	1.05	1.00	1.11	0.27	0.22	0.32	4.83	0.78
AntelopeValley	57	2015	0.15	1.10	1.05	1.15	0.30	0.25	0.36	4.87	0.79

Table E-37. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Boulder Flat.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
BoulderFlat	61	1985	0.10	0.93	0.87	1.00	0.33	0.27	0.40	4.30	0.60
BoulderFlat	61	1986	0.12	1.14	1.08	1.21	0.49	0.42	0.56	4.42	0.65
BoulderFlat	61	1987	0.12	1.08	1.01	1.15	0.45	0.38	0.52	4.48	0.63
BoulderFlat	61	1988	0.11	0.93	0.86	1.00	0.34	0.27	0.41	4.51	0.59
BoulderFlat	61	1989	0.11	0.91	0.85	0.98	0.31	0.25	0.38	4.44	0.60
BoulderFlat	61	1990	0.05	0.82	0.77	0.89	0.14	0.09	0.20	4.33	0.68
BoulderFlat	61	1991	0.11	0.91	0.85	0.98	0.35	0.29	0.42	4.26	0.56
BoulderFlat	61	1992	0.09	0.63	0.56	0.70	0.17	0.10	0.24	4.63	0.46
BoulderFlat	61	1993	0.14	1.39	1.33	1.45	0.60	0.54	0.66	4.14	0.79
BoulderFlat	61	1994	0.11	0.97	0.90	1.04	0.36	0.29	0.43	4.64	0.61
BoulderFlat	61	1995	0.15	1.58	1.52	1.64	0.59	0.53	0.64	4.18	0.99
BoulderFlat	61	1996	0.13	1.32	1.25	1.39	0.60	0.53	0.67	4.65	0.73
BoulderFlat	61	1997	0.14	1.47	1.41	1.54	0.57	0.51	0.63	4.34	0.91
BoulderFlat	61	1998	0.13	1.54	1.49	1.59	0.45	0.40	0.50	4.05	1.09
BoulderFlat	61	1999	0.11	1.04	0.98	1.11	0.39	0.32	0.45	4.40	0.66
BoulderFlat	61	2000	0.12	1.14	1.07	1.22	0.50	0.43	0.58	4.77	0.64
BoulderFlat	61	2001	0.11	0.90	0.84	0.97	0.35	0.29	0.43	4.52	0.55
BoulderFlat	61	2002	0.11	0.97	0.91	1.04	0.39	0.32	0.46	4.58	0.59
BoulderFlat	61	2003	0.10	1.03	0.97	1.10	0.36	0.29	0.42	4.55	0.68
BoulderFlat	61	2004	0.15	1.39	1.32	1.45	0.63	0.56	0.69	4.43	0.76
BoulderFlat	61	2005	0.18	1.80	1.74	1.86	0.80	0.74	0.86	4.21	1.00
BoulderFlat	61	2006	0.14	1.45	1.39	1.52	0.60	0.54	0.67	4.52	0.85
BoulderFlat	61	2007	0.12	1.02	0.95	1.09	0.52	0.45	0.60	4.68	0.49
BoulderFlat	61	2008	0.12	0.99	0.92	1.07	0.52	0.45	0.59	4.61	0.48
BoulderFlat	61	2009	0.11	1.20	1.13	1.26	0.40	0.34	0.47	4.41	0.79
BoulderFlat	61	2010	0.11	0.92	0.85	0.99	0.41	0.34	0.48	4.32	0.51
BoulderFlat	61	2011	0.14	1.42	1.36	1.48	0.59	0.53	0.66	4.20	0.82
BoulderFlat	61	2012	0.11	0.89	0.82	0.97	0.46	0.39	0.54	4.82	0.43
BoulderFlat	61	2013	0.13	1.16	1.09	1.23	0.59	0.52	0.66	4.52	0.58
BoulderFlat	61	2014	0.12	1.28	1.22	1.35	0.45	0.39	0.52	4.52	0.83
BoulderFlat	61	2015	0.09	1.18	1.11	1.25	0.41	0.35	0.48	4.68	0.77

Table E-38. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Buffalo Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
BuffaloValley	131	1985	0.07	0.74	0.70	0.80	0.12	0.08	0.18	4.49	0.62
BuffaloValley	131	1986	0.07	0.86	0.81	0.92	0.13	0.08	0.18	4.67	0.73
BuffaloValley	131	1987	0.07	0.83	0.78	0.89	0.18	0.13	0.23	4.71	0.65
BuffaloValley	131	1988	0.07	0.83	0.78	0.88	0.13	0.08	0.19	4.73	0.69
BuffaloValley	131	1989	0.06	0.77	0.73	0.83	0.11	0.07	0.17	4.71	0.66
BuffaloValley	131	1990	0.05	0.80	0.76	0.86	0.11	0.06	0.16	4.61	0.69
BuffaloValley	131	1991	0.06	0.73	0.69	0.79	0.10	0.06	0.16	4.59	0.63
BuffaloValley	131	1992	0.05	0.57	0.52	0.63	0.08	0.03	0.14	4.91	0.49
BuffaloValley	131	1993	0.07	0.92	0.88	0.98	0.16	0.12	0.21	4.39	0.76
BuffaloValley	131	1994	0.06	0.67	0.62	0.73	0.11	0.06	0.17	4.94	0.56
BuffaloValley	131	1995	0.07	1.18	1.14	1.23	0.15	0.11	0.20	4.39	1.03
BuffaloValley	131	1996	0.06	0.87	0.82	0.93	0.13	0.08	0.19	4.90	0.74
BuffaloValley	131	1997	0.07	1.06	1.02	1.11	0.13	0.09	0.18	4.58	0.93
BuffaloValley	131	1998	0.07	1.42	1.38	1.46	0.14	0.10	0.18	4.18	1.28
BuffaloValley	131	1999	0.08	0.87	0.82	0.93	0.20	0.16	0.26	4.57	0.67
BuffaloValley	131	2000	0.06	0.78	0.73	0.84	0.12	0.07	0.18	4.92	0.67
BuffaloValley	131	2001	0.10	0.92	0.86	0.98	0.34	0.28	0.40	4.73	0.58
BuffaloValley	131	2002	0.05	0.70	0.66	0.76	0.11	0.06	0.17	4.82	0.59
BuffaloValley	131	2003	0.05	0.77	0.73	0.83	0.10	0.05	0.16	4.81	0.67
BuffaloValley	131	2004	0.07	0.90	0.85	0.95	0.19	0.14	0.24	4.72	0.71
BuffaloValley	131	2005	0.07	1.13	1.09	1.18	0.17	0.13	0.22	4.45	0.96
BuffaloValley	131	2006	0.07	1.02	0.97	1.08	0.16	0.11	0.21	4.76	0.86
BuffaloValley	131	2007	0.06	0.66	0.61	0.72	0.13	0.08	0.19	4.95	0.53
BuffaloValley	131	2008	0.06	0.58	0.53	0.64	0.10	0.05	0.16	4.86	0.47
BuffaloValley	131	2009	0.06	0.92	0.88	0.98	0.10	0.05	0.15	4.76	0.82
BuffaloValley	131	2010	0.07	0.63	0.58	0.69	0.19	0.14	0.25	4.58	0.44
BuffaloValley	131	2011	0.10	1.05	1.00	1.10	0.26	0.21	0.31	4.45	0.79
BuffaloValley	131	2012	0.08	0.71	0.65	0.78	0.28	0.22	0.35	5.13	0.43
BuffaloValley	131	2013	0.07	0.73	0.68	0.80	0.17	0.12	0.23	4.85	0.56
BuffaloValley	131	2014	0.05	0.98	0.93	1.04	0.15	0.10	0.21	4.83	0.83
BuffaloValley	131	2015	0.06	0.90	0.85	0.96	0.13	0.08	0.19	4.91	0.77

Table E-39. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Carico Lake Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
CaricoLakeValley	55	1985	0.10	1.02	0.96	1.08	0.35	0.29	0.41	4.29	0.67
CaricoLakeValley	55	1986	0.09	1.02	0.96	1.08	0.28	0.22	0.34	4.45	0.74
CaricoLakeValley	55	1987	0.11	1.05	0.99	1.11	0.37	0.31	0.43	4.45	0.69
CaricoLakeValley	55	1988	0.10	1.09	1.03	1.14	0.25	0.20	0.31	4.43	0.83
CaricoLakeValley	55	1989	0.09	0.89	0.83	0.95	0.21	0.15	0.27	4.48	0.68
CaricoLakeValley	55	1990	0.05	0.82	0.77	0.88	0.11	0.06	0.16	4.39	0.71
CaricoLakeValley	55	1991	0.10	0.93	0.88	0.99	0.26	0.21	0.32	4.35	0.67
CaricoLakeValley	55	1992	0.09	0.72	0.66	0.78	0.16	0.10	0.23	4.61	0.56
CaricoLakeValley	55	1993	0.10	1.04	0.98	1.09	0.28	0.22	0.33	4.26	0.76
CaricoLakeValley	55	1994	0.10	0.90	0.83	0.96	0.24	0.18	0.31	4.70	0.66
CaricoLakeValley	55	1995	0.12	1.41	1.36	1.46	0.31	0.26	0.36	4.20	1.10
CaricoLakeValley	55	1996	0.10	1.01	0.95	1.08	0.28	0.22	0.34	4.76	0.73
CaricoLakeValley	55	1997	0.11	1.23	1.18	1.29	0.29	0.23	0.35	4.40	0.94
CaricoLakeValley	55	1998	0.12	1.63	1.59	1.67	0.37	0.32	0.41	4.01	1.26
CaricoLakeValley	55	1999	0.11	1.06	1.00	1.12	0.34	0.28	0.40	4.44	0.72
CaricoLakeValley	55	2000	0.09	0.84	0.78	0.91	0.20	0.14	0.27	4.85	0.63
CaricoLakeValley	55	2001	0.09	0.85	0.79	0.91	0.20	0.14	0.26	4.61	0.65
CaricoLakeValley	55	2002	0.09	0.82	0.75	0.88	0.23	0.17	0.29	4.70	0.59
CaricoLakeValley	55	2003	0.10	0.95	0.89	1.02	0.23	0.17	0.29	4.69	0.72
CaricoLakeValley	55	2004	0.09	0.99	0.93	1.05	0.21	0.15	0.27	4.58	0.78
CaricoLakeValley	55	2005	0.13	1.46	1.40	1.51	0.39	0.33	0.44	4.34	1.07
CaricoLakeValley	55	2006	0.11	1.21	1.15	1.27	0.33	0.27	0.39	4.67	0.88
CaricoLakeValley	55	2007	0.10	0.85	0.78	0.92	0.27	0.20	0.33	4.79	0.58
CaricoLakeValley	55	2008	0.10	0.80	0.74	0.87	0.28	0.22	0.35	4.68	0.52
CaricoLakeValley	55	2009	0.10	1.35	1.30	1.41	0.21	0.16	0.27	4.54	1.14
CaricoLakeValley	55	2010	0.11	0.78	0.71	0.84	0.27	0.21	0.34	4.42	0.50
CaricoLakeValley	55	2011	0.12	1.22	1.17	1.28	0.32	0.26	0.37	4.27	0.90
CaricoLakeValley	55	2012	0.10	0.73	0.66	0.80	0.25	0.18	0.33	4.98	0.48
CaricoLakeValley	55	2013	0.10	0.92	0.86	0.99	0.28	0.22	0.34	4.69	0.64
CaricoLakeValley	55	2014	0.10	1.08	1.03	1.14	0.22	0.16	0.28	4.64	0.86
CaricoLakeValley	55	2015	0.08	1.08	1.02	1.14	0.25	0.19	0.31	4.75	0.83

Table E-40. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Clovers Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
CloversArea	64	1985	0.09	0.87	0.80	0.94	0.27	0.21	0.35	4.56	0.59
CloversArea	64	1986	0.10	1.00	0.93	1.07	0.30	0.23	0.37	4.70	0.70
CloversArea	64	1987	0.10	0.96	0.89	1.03	0.29	0.22	0.37	4.77	0.66
CloversArea	64	1988	0.09	0.92	0.85	1.00	0.27	0.20	0.34	4.83	0.65
CloversArea	64	1989	0.07	0.79	0.72	0.86	0.16	0.10	0.24	4.78	0.62
CloversArea	64	1990	0.06	0.78	0.73	0.86	0.11	0.05	0.19	4.66	0.67
CloversArea	64	1991	0.08	0.80	0.73	0.87	0.16	0.10	0.24	4.62	0.63
CloversArea	64	1992	0.07	0.58	0.51	0.66	0.11	0.04	0.19	4.98	0.47
CloversArea	64	1993	0.10	1.06	1.00	1.13	0.29	0.23	0.36	4.43	0.77
CloversArea	64	1994	0.08	0.73	0.66	0.81	0.17	0.10	0.25	5.01	0.56
CloversArea	64	1995	0.11	1.34	1.28	1.40	0.33	0.27	0.39	4.46	1.01
CloversArea	64	1996	0.09	1.00	0.93	1.07	0.25	0.18	0.32	4.94	0.75
CloversArea	64	1997	0.10	1.25	1.18	1.31	0.31	0.25	0.38	4.63	0.93
CloversArea	64	1998	0.11	1.54	1.49	1.60	0.31	0.25	0.36	4.24	1.24
CloversArea	64	1999	0.10	1.02	0.95	1.09	0.35	0.29	0.42	4.63	0.66
CloversArea	64	2000	0.08	0.82	0.75	0.90	0.16	0.09	0.24	5.03	0.66
CloversArea	64	2001	0.12	0.97	0.90	1.06	0.42	0.35	0.50	4.79	0.55
CloversArea	64	2002	0.08	0.81	0.75	0.89	0.22	0.15	0.30	4.90	0.59
CloversArea	64	2003	0.08	0.87	0.81	0.95	0.21	0.14	0.28	4.88	0.66
CloversArea	64	2004	0.08	0.89	0.82	0.96	0.20	0.13	0.27	4.77	0.69
CloversArea	64	2005	0.11	1.33	1.26	1.39	0.37	0.31	0.43	4.45	0.95
CloversArea	64	2006	0.10	1.20	1.13	1.27	0.33	0.27	0.40	4.79	0.86
CloversArea	64	2007	0.09	0.74	0.67	0.83	0.24	0.17	0.32	5.02	0.50
CloversArea	64	2008	0.08	0.66	0.59	0.74	0.21	0.14	0.29	4.91	0.45
CloversArea	64	2009	0.08	1.01	0.94	1.08	0.18	0.12	0.25	4.77	0.82
CloversArea	64	2010	0.10	0.84	0.77	0.91	0.31	0.24	0.38	4.64	0.53
CloversArea	64	2011	0.11	1.21	1.15	1.28	0.38	0.31	0.44	4.51	0.84
CloversArea	64	2012	0.09	0.70	0.63	0.79	0.25	0.17	0.33	5.22	0.45
CloversArea	64	2013	0.11	1.04	0.97	1.12	0.43	0.36	0.51	4.88	0.61
CloversArea	64	2014	0.09	1.11	1.05	1.19	0.28	0.21	0.35	4.88	0.83
CloversArea	64	2015	0.09	1.03	0.96	1.10	0.26	0.19	0.33	5.01	0.77

Table E-41. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Crescent Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
CrescentValley	54	1985	0.10	0.91	0.85	0.98	0.27	0.21	0.33	4.47	0.64
CrescentValley	54	1986	0.09	0.99	0.93	1.06	0.25	0.19	0.32	4.60	0.74
CrescentValley	54	1987	0.10	0.95	0.89	1.02	0.30	0.24	0.37	4.64	0.65
CrescentValley	54	1988	0.09	0.95	0.89	1.02	0.24	0.18	0.31	4.65	0.71
CrescentValley	54	1989	0.08	0.84	0.78	0.91	0.18	0.12	0.24	4.61	0.66
CrescentValley	54	1990	0.05	0.80	0.75	0.86	0.10	0.05	0.16	4.52	0.70
CrescentValley	54	1991	0.10	0.91	0.85	0.97	0.27	0.21	0.34	4.45	0.64
CrescentValley	54	1992	0.07	0.64	0.58	0.71	0.13	0.07	0.20	4.80	0.51
CrescentValley	54	1993	0.08	1.01	0.95	1.06	0.20	0.15	0.26	4.34	0.81
CrescentValley	54	1994	0.08	0.80	0.74	0.87	0.16	0.10	0.23	4.86	0.64
CrescentValley	54	1995	0.10	1.30	1.25	1.35	0.26	0.20	0.31	4.37	1.04
CrescentValley	54	1996	0.09	1.01	0.94	1.08	0.25	0.19	0.32	4.92	0.76
CrescentValley	54	1997	0.09	1.21	1.15	1.27	0.24	0.18	0.30	4.54	0.97
CrescentValley	54	1998	0.10	1.42	1.37	1.47	0.27	0.22	0.32	4.18	1.15
CrescentValley	54	1999	0.09	0.96	0.91	1.03	0.28	0.22	0.35	4.58	0.68
CrescentValley	54	2000	0.08	0.84	0.78	0.91	0.18	0.11	0.25	5.02	0.66
CrescentValley	54	2001	0.08	0.75	0.69	0.82	0.16	0.10	0.23	4.73	0.59
CrescentValley	54	2002	0.08	0.79	0.73	0.85	0.18	0.12	0.25	4.79	0.61
CrescentValley	54	2003	0.08	0.88	0.82	0.95	0.18	0.12	0.25	4.80	0.70
CrescentValley	54	2004	0.09	1.06	1.00	1.12	0.25	0.19	0.32	4.63	0.80
CrescentValley	54	2005	0.12	1.43	1.37	1.48	0.40	0.34	0.45	4.39	1.03
CrescentValley	54	2006	0.10	1.13	1.07	1.19	0.31	0.25	0.38	4.73	0.82
CrescentValley	54	2007	0.09	0.84	0.78	0.91	0.27	0.20	0.34	4.91	0.57
CrescentValley	54	2008	0.09	0.76	0.69	0.83	0.26	0.19	0.33	4.84	0.50
CrescentValley	54	2009	0.09	1.16	1.10	1.22	0.22	0.17	0.28	4.63	0.93
CrescentValley	54	2010	0.09	0.71	0.65	0.78	0.24	0.18	0.31	4.55	0.47
CrescentValley	54	2011	0.10	1.12	1.06	1.17	0.27	0.21	0.33	4.37	0.85
CrescentValley	54	2012	0.11	0.86	0.79	0.94	0.44	0.36	0.52	5.10	0.43
CrescentValley	54	2013	0.10	0.96	0.90	1.03	0.35	0.28	0.42	4.77	0.62
CrescentValley	54	2014	0.09	1.14	1.08	1.20	0.27	0.21	0.34	4.76	0.86
CrescentValley	54	2015	0.08	1.05	0.99	1.12	0.23	0.17	0.29	4.91	0.82

Table E-42. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Dixie Creek Tenmile Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
DixieCreekTenmileCreekArea	48	1985	0.18	1.49	1.44	1.54	0.64	0.59	0.69	3.98	0.85
DixieCreekTenmileCreekArea	48	1986	0.20	1.79	1.74	1.84	0.69	0.64	0.73	4.02	1.10
DixieCreekTenmileCreekArea	48	1987	0.18	1.44	1.39	1.50	0.69	0.64	0.75	4.17	0.75
DixieCreekTenmileCreekArea	48	1988	0.15	1.37	1.31	1.42	0.56	0.51	0.62	4.22	0.80
DixieCreekTenmileCreekArea	48	1989	0.14	1.67	1.62	1.72	0.45	0.40	0.50	3.90	1.22
DixieCreekTenmileCreekArea	48	1990	0.16	1.42	1.37	1.47	0.50	0.45	0.55	4.07	0.92
DixieCreekTenmileCreekArea	48	1991	0.19	1.59	1.54	1.64	0.62	0.57	0.67	4.00	0.97
DixieCreekTenmileCreekArea	48	1992	0.14	1.20	1.15	1.26	0.46	0.41	0.52	4.34	0.74
DixieCreekTenmileCreekArea	48	1993	0.20	1.77	1.73	1.81	0.60	0.55	0.64	3.86	1.17
DixieCreekTenmileCreekArea	48	1994	0.17	1.49	1.43	1.54	0.65	0.60	0.71	4.36	0.83
DixieCreekTenmileCreekArea	48	1995	0.28	2.25	2.21	2.29	0.80	0.76	0.84	3.84	1.45
DixieCreekTenmileCreekArea	48	1996	0.23	1.92	1.87	1.97	0.86	0.80	0.91	4.30	1.06
DixieCreekTenmileCreekArea	48	1997	0.25	2.11	2.06	2.15	0.77	0.73	0.82	4.04	1.34
DixieCreekTenmileCreekArea	48	1998	0.27	2.12	2.08	2.16	0.77	0.73	0.82	3.74	1.35
DixieCreekTenmileCreekArea	48	1999	0.21	1.65	1.60	1.70	0.70	0.65	0.75	4.04	0.95
DixieCreekTenmileCreekArea	48	2000	0.20	1.60	1.54	1.66	0.75	0.69	0.81	4.50	0.85
DixieCreekTenmileCreekArea	48	2001	0.18	1.43	1.37	1.48	0.68	0.63	0.74	4.28	0.74
DixieCreekTenmileCreekArea	48	2002	0.18	1.56	1.50	1.61	0.65	0.59	0.70	4.24	0.91
DixieCreekTenmileCreekArea	48	2003	0.19	1.61	1.56	1.67	0.68	0.62	0.73	4.24	0.94
DixieCreekTenmileCreekArea	48	2004	0.19	1.63	1.58	1.68	0.66	0.61	0.71	4.10	0.97
DixieCreekTenmileCreekArea	48	2005	0.28	2.30	2.25	2.34	0.79	0.75	0.83	3.85	1.51
DixieCreekTenmileCreekArea	48	2006	0.22	1.98	1.93	2.03	0.72	0.67	0.77	4.16	1.26
DixieCreekTenmileCreekArea	48	2007	0.16	1.36	1.30	1.41	0.58	0.52	0.63	4.34	0.78
DixieCreekTenmileCreekArea	48	2008	0.22	1.66	1.61	1.72	0.77	0.72	0.83	4.20	0.89
DixieCreekTenmileCreekArea	48	2009	0.24	2.03	1.99	2.08	0.76	0.71	0.81	4.03	1.27
DixieCreekTenmileCreekArea	48	2010	0.21	1.49	1.44	1.54	0.70	0.65	0.75	3.95	0.79
DixieCreekTenmileCreekArea	48	2011	0.27	2.04	2.00	2.09	0.78	0.73	0.82	3.80	1.27
DixieCreekTenmileCreekArea	48	2012	0.16	1.31	1.25	1.36	0.59	0.53	0.65	4.41	0.72
DixieCreekTenmileCreekArea	48	2013	0.21	1.69	1.64	1.75	0.77	0.72	0.83	4.19	0.92
DixieCreekTenmileCreekArea	48	2014	0.19	1.88	1.83	1.92	0.63	0.59	0.68	4.06	1.24
DixieCreekTenmileCreekArea	48	2015	0.19	1.71	1.66	1.77	0.72	0.66	0.77	4.32	0.99

Table E-43. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Elko Segment.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
ElkoSegment	49	1985	0.20	1.70	1.68	1.73	0.96	0.93	0.99	4.13	0.74
ElkoSegment	49	1986	0.19	1.88	1.86	1.91	0.96	0.93	0.98	4.15	0.93
ElkoSegment	49	1987	0.23	1.57	1.54	1.60	0.96	0.93	0.98	4.28	0.61
ElkoSegment	49	1988	0.22	1.64	1.62	1.67	0.97	0.95	1.00	4.33	0.67
ElkoSegment	49	1989	0.27	1.85	1.82	1.87	0.98	0.96	1.01	4.25	0.86
ElkoSegment	49	1990	0.23	1.74	1.72	1.77	0.94	0.91	0.96	4.17	0.81
ElkoSegment	49	1991	0.21	1.65	1.63	1.68	0.91	0.89	0.94	4.08	0.74
ElkoSegment	49	1992	0.18	1.54	1.51	1.57	0.92	0.90	0.95	4.41	0.62
ElkoSegment	49	1993	0.28	2.03	2.01	2.06	1.06	1.04	1.09	3.90	0.97
ElkoSegment	49	1994	0.20	1.64	1.61	1.67	0.95	0.92	0.98	4.41	0.69
ElkoSegment	49	1995	0.30	2.19	2.17	2.22	1.03	1.00	1.05	3.91	1.17
ElkoSegment	49	1996	0.27	2.02	2.00	2.05	1.06	1.03	1.09	4.36	0.96
ElkoSegment	49	1997	0.25	2.17	2.14	2.19	0.99	0.97	1.01	4.07	1.18
ElkoSegment	49	1998	0.27	2.16	2.14	2.18	1.01	0.99	1.04	3.81	1.14
ElkoSegment	49	1999	0.26	1.80	1.78	1.83	0.98	0.96	1.01	4.08	0.82
ElkoSegment	49	2000	0.25	1.75	1.72	1.78	1.03	1.00	1.07	4.53	0.71
ElkoSegment	49	2001	0.25	1.62	1.60	1.65	1.00	0.97	1.03	4.34	0.62
ElkoSegment	49	2002	0.27	1.83	1.80	1.86	1.01	0.98	1.04	4.29	0.82
ElkoSegment	49	2003	0.26	1.79	1.76	1.82	0.95	0.93	0.98	4.28	0.84
ElkoSegment	49	2004	0.29	1.91	1.89	1.94	1.03	1.00	1.05	4.15	0.89
ElkoSegment	49	2005	0.25	2.29	2.27	2.31	1.02	1.00	1.04	3.94	1.27
ElkoSegment	49	2006	0.25	2.18	2.16	2.20	0.99	0.97	1.02	4.27	1.19
ElkoSegment	49	2007	0.22	1.59	1.56	1.62	0.98	0.95	1.01	4.45	0.62
ElkoSegment	49	2008	0.30	1.76	1.73	1.79	1.05	1.02	1.08	4.29	0.70
ElkoSegment	49	2009	0.27	2.09	2.06	2.11	0.99	0.97	1.01	4.11	1.10
ElkoSegment	49	2010	0.26	1.60	1.58	1.63	0.92	0.90	0.95	4.10	0.68
ElkoSegment	49	2011	0.29	2.09	2.07	2.11	0.97	0.95	0.99	3.90	1.12
ElkoSegment	49	2012	0.21	1.54	1.51	1.57	0.95	0.92	0.98	4.48	0.59
ElkoSegment	49	2013	0.34	1.87	1.84	1.90	1.08	1.05	1.11	4.27	0.79
ElkoSegment	49	2014	0.24	2.08	2.05	2.11	1.01	0.99	1.04	4.27	1.07
ElkoSegment	49	2015	0.29	1.99	1.97	2.02	1.07	1.04	1.09	4.46	0.93

Table E-44. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Grass Valley, HA# 138.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
GrassValley	138	1985	0.08	0.89	0.85	0.94	0.19	0.15	0.23	4.39	0.70
GrassValley	138	1986	0.09	1.05	1.00	1.09	0.26	0.22	0.30	4.56	0.79
GrassValley	138	1987	0.09	1.00	0.95	1.04	0.27	0.23	0.32	4.51	0.73
GrassValley	138	1988	0.09	1.18	1.14	1.22	0.25	0.21	0.29	4.48	0.93
GrassValley	138	1989	0.08	0.89	0.85	0.94	0.20	0.15	0.24	4.61	0.69
GrassValley	138	1990	0.07	0.86	0.82	0.90	0.11	0.07	0.15	4.51	0.75
GrassValley	138	1991	0.09	1.01	0.97	1.06	0.27	0.23	0.31	4.43	0.74
GrassValley	138	1992	0.07	0.71	0.67	0.76	0.14	0.10	0.19	4.67	0.57
GrassValley	138	1993	0.08	1.02	0.98	1.06	0.19	0.15	0.23	4.40	0.83
GrassValley	138	1994	0.08	0.96	0.92	1.01	0.21	0.16	0.26	4.81	0.75
GrassValley	138	1995	0.10	1.42	1.39	1.46	0.25	0.21	0.29	4.32	1.17
GrassValley	138	1996	0.09	1.02	0.97	1.07	0.25	0.20	0.30	4.88	0.77
GrassValley	138	1997	0.09	1.25	1.21	1.29	0.24	0.19	0.28	4.61	1.02
GrassValley	138	1998	0.09	1.54	1.51	1.57	0.22	0.19	0.25	4.13	1.32
GrassValley	138	1999	0.10	1.10	1.05	1.14	0.30	0.25	0.34	4.59	0.80
GrassValley	138	2000	0.07	0.81	0.76	0.86	0.20	0.15	0.25	5.10	0.61
GrassValley	138	2001	0.08	0.88	0.83	0.93	0.20	0.15	0.24	4.71	0.68
GrassValley	138	2002	0.08	0.79	0.75	0.84	0.22	0.17	0.27	4.84	0.57
GrassValley	138	2003	0.08	0.89	0.85	0.94	0.21	0.16	0.25	4.80	0.69
GrassValley	138	2004	0.08	0.95	0.90	0.99	0.20	0.16	0.25	4.67	0.75
GrassValley	138	2005	0.10	1.42	1.38	1.45	0.28	0.24	0.32	4.40	1.13
GrassValley	138	2006	0.09	1.15	1.10	1.19	0.25	0.21	0.30	4.82	0.89
GrassValley	138	2007	0.08	0.86	0.82	0.92	0.24	0.19	0.29	4.97	0.63
GrassValley	138	2008	0.08	0.70	0.65	0.75	0.23	0.19	0.28	4.84	0.47
GrassValley	138	2009	0.08	1.30	1.26	1.34	0.18	0.14	0.22	4.71	1.12
GrassValley	138	2010	0.10	0.79	0.75	0.84	0.31	0.26	0.36	4.64	0.48
GrassValley	138	2011	0.09	1.19	1.15	1.24	0.25	0.21	0.29	4.41	0.94
GrassValley	138	2012	0.09	0.76	0.71	0.81	0.24	0.19	0.30	5.16	0.51
GrassValley	138	2013	0.09	0.91	0.87	0.96	0.29	0.24	0.34	4.89	0.62
GrassValley	138	2014	0.10	1.16	1.12	1.21	0.28	0.23	0.33	4.83	0.88
GrassValley	138	2015	0.06	1.05	1.01	1.10	0.23	0.18	0.28	4.95	0.83

Table E-45. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Grass Valley, HA# 71.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
GrassValley	71	1985	0.11	1.01	0.95	1.06	0.36	0.31	0.42	4.51	0.64
GrassValley	71	1986	0.11	1.12	1.07	1.18	0.35	0.29	0.40	4.66	0.78
GrassValley	71	1987	0.12	1.01	0.95	1.07	0.36	0.30	0.42	4.72	0.65
GrassValley	71	1988	0.10	0.97	0.91	1.04	0.33	0.27	0.39	4.78	0.64
GrassValley	71	1989	0.09	0.90	0.84	0.96	0.26	0.20	0.32	4.72	0.64
GrassValley	71	1990	0.10	0.90	0.84	0.96	0.24	0.18	0.30	4.59	0.66
GrassValley	71	1991	0.12	0.96	0.91	1.02	0.32	0.26	0.38	4.59	0.65
GrassValley	71	1992	0.10	0.69	0.63	0.76	0.23	0.17	0.30	4.91	0.46
GrassValley	71	1993	0.14	1.23	1.18	1.29	0.41	0.36	0.47	4.39	0.82
GrassValley	71	1994	0.12	0.81	0.74	0.87	0.27	0.20	0.33	4.94	0.54
GrassValley	71	1995	0.14	1.41	1.36	1.46	0.40	0.35	0.45	4.33	1.01
GrassValley	71	1996	0.11	1.05	0.99	1.11	0.28	0.22	0.34	4.86	0.77
GrassValley	71	1997	0.13	1.24	1.18	1.29	0.33	0.28	0.38	4.59	0.91
GrassValley	71	1998	0.15	1.69	1.64	1.73	0.40	0.36	0.44	4.12	1.29
GrassValley	71	1999	0.13	1.00	0.95	1.06	0.36	0.31	0.42	4.51	0.64
GrassValley	71	2000	0.12	0.92	0.86	0.98	0.27	0.21	0.33	4.84	0.65
GrassValley	71	2001	0.16	1.00	0.94	1.06	0.45	0.38	0.51	4.65	0.55
GrassValley	71	2002	0.12	0.82	0.77	0.89	0.24	0.18	0.30	4.79	0.59
GrassValley	71	2003	0.12	0.89	0.83	0.95	0.25	0.19	0.31	4.76	0.64
GrassValley	71	2004	0.12	0.94	0.89	1.01	0.32	0.26	0.38	4.75	0.62
GrassValley	71	2005	0.15	1.33	1.28	1.38	0.43	0.37	0.48	4.43	0.90
GrassValley	71	2006	0.14	1.23	1.17	1.29	0.36	0.30	0.41	4.69	0.87
GrassValley	71	2007	0.15	0.87	0.81	0.94	0.39	0.32	0.45	4.96	0.49
GrassValley	71	2008	0.13	0.79	0.73	0.86	0.26	0.20	0.33	4.82	0.53
GrassValley	71	2009	0.13	0.96	0.90	1.02	0.27	0.21	0.33	4.68	0.69
GrassValley	71	2010	0.16	1.00	0.93	1.06	0.44	0.38	0.51	4.52	0.55
GrassValley	71	2011	0.17	1.40	1.35	1.46	0.49	0.44	0.55	4.40	0.91
GrassValley	71	2012	0.14	0.83	0.76	0.90	0.38	0.31	0.45	5.07	0.45
GrassValley	71	2013	0.15	0.93	0.87	0.99	0.37	0.31	0.44	4.85	0.56
GrassValley	71	2014	0.12	1.23	1.17	1.29	0.40	0.35	0.46	4.77	0.83
GrassValley	71	2015	0.15	1.24	1.18	1.30	0.43	0.37	0.49	4.82	0.81

Table E-46. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Huntington Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
HuntingtonValley	47	1985	0.19	1.32	1.28	1.37	0.57	0.53	0.61	3.95	0.76
HuntingtonValley	47	1986	0.20	1.56	1.52	1.60	0.54	0.50	0.58	3.98	1.02
HuntingtonValley	47	1987	0.18	1.28	1.24	1.33	0.56	0.52	0.61	4.13	0.72
HuntingtonValley	47	1988	0.18	1.38	1.34	1.43	0.52	0.47	0.56	4.15	0.87
HuntingtonValley	47	1989	0.17	1.32	1.27	1.36	0.46	0.42	0.51	4.16	0.85
HuntingtonValley	47	1990	0.18	1.38	1.34	1.43	0.49	0.45	0.54	4.07	0.89
HuntingtonValley	47	1991	0.19	1.38	1.34	1.43	0.51	0.46	0.55	3.99	0.88
HuntingtonValley	47	1992	0.16	1.14	1.09	1.19	0.42	0.37	0.47	4.30	0.72
HuntingtonValley	47	1993	0.19	1.54	1.50	1.58	0.49	0.45	0.53	3.88	1.05
HuntingtonValley	47	1994	0.18	1.38	1.34	1.43	0.54	0.49	0.58	4.37	0.85
HuntingtonValley	47	1995	0.25	1.97	1.94	2.01	0.60	0.57	0.64	3.80	1.37
HuntingtonValley	47	1996	0.21	1.64	1.60	1.69	0.63	0.58	0.67	4.31	1.01
HuntingtonValley	47	1997	0.22	1.84	1.80	1.88	0.53	0.50	0.57	3.99	1.31
HuntingtonValley	47	1998	0.24	1.86	1.83	1.89	0.53	0.50	0.57	3.66	1.33
HuntingtonValley	47	1999	0.21	1.54	1.50	1.58	0.58	0.54	0.62	3.99	0.96
HuntingtonValley	47	2000	0.19	1.39	1.34	1.44	0.58	0.53	0.63	4.51	0.82
HuntingtonValley	47	2001	0.18	1.20	1.16	1.25	0.52	0.47	0.57	4.21	0.69
HuntingtonValley	47	2002	0.27	1.45	1.42	1.47	0.52	0.50	0.55	4.23	0.92
HuntingtonValley	47	2003	0.16	1.86	1.86	1.86	0.94	0.94	0.94	4.22	0.92
HuntingtonValley	48	2004	0.17	1.37	1.33	1.42	0.44	0.40	0.48	4.10	0.93
HuntingtonValley	47	2005	0.25	1.97	1.94	2.01	0.58	0.55	0.62	3.86	1.39
HuntingtonValley	47	2006	0.20	1.61	1.56	1.65	0.55	0.50	0.59	4.17	1.06
HuntingtonValley	47	2007	0.17	1.24	1.19	1.29	0.49	0.44	0.54	4.35	0.75
HuntingtonValley	47	2008	0.21	1.39	1.34	1.44	0.63	0.58	0.68	4.21	0.76
HuntingtonValley	47	2009	0.22	1.77	1.73	1.81	0.54	0.50	0.58	3.99	1.22
HuntingtonValley	47	2010	0.20	1.28	1.23	1.32	0.56	0.52	0.60	3.91	0.72
HuntingtonValley	47	2011	0.24	1.79	1.75	1.82	0.53	0.49	0.56	3.81	1.26
HuntingtonValley	47	2012	0.17	1.20	1.15	1.25	0.54	0.49	0.60	4.51	0.66
HuntingtonValley	47	2013	0.21	1.47	1.42	1.52	0.59	0.55	0.64	4.20	0.88
HuntingtonValley	47	2014	0.20	1.66	1.62	1.70	0.51	0.47	0.55	4.02	1.15
HuntingtonValley	47	2015	0.21	1.60	1.55	1.64	0.60	0.55	0.64	4.27	1.00

Table E-47. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Imlay Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
ImlayArea	72	1985	0.05	0.65	0.59	0.73	0.13	0.06	0.20	4.66	0.53
ImlayArea	72	1986	0.05	0.84	0.78	0.91	0.13	0.06	0.20	4.84	0.71
ImlayArea	72	1987	-0.08	0.80	0.73	0.87	0.11	0.05	0.19	4.81	0.68
ImlayArea	72	1988	0.06	0.74	0.68	0.82	0.10	0.04	0.18	4.85	0.64
ImlayArea	72	1989	0.04	0.63	0.57	0.71	0.08	0.02	0.15	4.83	0.55
ImlayArea	72	1990	0.06	0.71	0.66	0.79	0.09	0.03	0.16	4.71	0.63
ImlayArea	72	1991	0.07	0.77	0.71	0.85	0.09	0.03	0.17	4.75	0.68
ImlayArea	72	1992	0.05	0.52	0.46	0.60	0.07	0.01	0.15	5.07	0.45
ImlayArea	72	1993	0.08	1.00	0.94	1.07	0.17	0.11	0.23	4.57	0.83
ImlayArea	72	1994	0.06	0.58	0.51	0.66	0.09	0.03	0.18	5.09	0.48
ImlayArea	72	1995	0.07	1.15	1.09	1.21	0.16	0.10	0.22	4.53	0.99
ImlayArea	72	1996	0.04	0.81	0.74	0.88	0.10	0.03	0.17	5.03	0.71
ImlayArea	72	1997	0.03	0.90	0.84	0.97	0.10	0.04	0.17	4.76	0.80
ImlayArea	72	1998	0.04	1.51	1.47	1.57	0.15	0.10	0.20	4.26	1.37
ImlayArea	72	1999	0.08	0.98	0.92	1.06	0.41	0.35	0.49	4.68	0.57
ImlayArea	72	2000	0.06	0.68	0.61	0.76	0.11	0.05	0.19	5.01	0.57
ImlayArea	72	2001	0.10	0.84	0.77	0.92	0.37	0.30	0.45	4.81	0.47
ImlayArea	72	2002	0.06	0.61	0.54	0.69	0.10	0.04	0.18	5.01	0.50
ImlayArea	72	2003	0.06	0.67	0.61	0.75	0.11	0.04	0.18	4.95	0.57
ImlayArea	72	2004	0.10	1.04	0.97	1.13	0.46	0.39	0.55	4.94	0.58
ImlayArea	72	2005	0.07	1.05	0.99	1.12	0.21	0.15	0.27	4.54	0.84
ImlayArea	72	2006	0.06	1.05	0.98	1.12	0.23	0.17	0.30	4.79	0.82
ImlayArea	72	2007	0.06	0.54	0.47	0.62	0.13	0.07	0.22	5.05	0.41
ImlayArea	72	2008	0.06	0.61	0.55	0.69	0.10	0.04	0.18	4.94	0.51
ImlayArea	72	2009	0.06	0.71	0.65	0.79	0.09	0.03	0.17	4.77	0.62
ImlayArea	72	2010	0.12	1.01	0.94	1.09	0.52	0.45	0.60	4.66	0.49
ImlayArea	72	2011	0.13	1.43	1.36	1.51	0.61	0.54	0.69	4.54	0.82
ImlayArea	72	2012	0.06	0.48	0.41	0.57	0.11	0.04	0.19	5.20	0.38
ImlayArea	72	2013	0.05	0.57	0.50	0.65	0.13	0.06	0.21	5.04	0.44
ImlayArea	72	2014	0.07	0.93	0.86	1.01	0.21	0.14	0.29	4.94	0.72
ImlayArea	72	2015	0.08	1.06	0.99	1.13	0.19	0.13	0.26	4.95	0.87

Table E-48. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Kelley Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
KelleyCreekArea	66	1985	0.10	0.83	0.77	0.90	0.23	0.17	0.30	4.49	0.60
KelleyCreekArea	66	1986	0.10	1.04	0.98	1.11	0.31	0.24	0.37	4.59	0.74
KelleyCreekArea	66	1987	0.10	0.87	0.81	0.94	0.24	0.17	0.31	4.67	0.63
KelleyCreekArea	66	1988	0.09	0.85	0.79	0.93	0.23	0.16	0.30	4.77	0.63
KelleyCreekArea	66	1989	0.08	0.82	0.76	0.89	0.17	0.11	0.24	4.68	0.65
KelleyCreekArea	66	1990	0.07	0.78	0.72	0.84	0.12	0.06	0.18	4.54	0.66
KelleyCreekArea	66	1991	0.09	0.82	0.76	0.88	0.18	0.12	0.24	4.52	0.64
KelleyCreekArea	66	1992	0.07	0.56	0.50	0.63	0.11	0.05	0.19	4.88	0.44
KelleyCreekArea	66	1993	0.11	1.02	0.96	1.08	0.27	0.21	0.33	4.30	0.75
KelleyCreekArea	66	1994	0.09	0.71	0.64	0.78	0.19	0.13	0.27	4.88	0.52
KelleyCreekArea	66	1995	0.12	1.33	1.27	1.39	0.34	0.28	0.40	4.32	0.99
KelleyCreekArea	66	1996	0.11	1.05	0.99	1.12	0.28	0.22	0.35	4.75	0.77
KelleyCreekArea	66	1997	0.11	1.22	1.16	1.28	0.28	0.22	0.34	4.50	0.94
KelleyCreekArea	66	1998	0.10	1.50	1.45	1.55	0.26	0.21	0.31	4.10	1.24
KelleyCreekArea	66	1999	0.11	1.00	0.94	1.07	0.36	0.30	0.43	4.47	0.64
KelleyCreekArea	66	2000	0.10	0.86	0.79	0.93	0.21	0.14	0.28	4.80	0.65
KelleyCreekArea	66	2001	0.14	0.96	0.89	1.04	0.43	0.36	0.51	4.59	0.53
KelleyCreekArea	66	2002	0.10	0.88	0.82	0.95	0.29	0.22	0.36	4.73	0.59
KelleyCreekArea	66	2003	0.09	0.80	0.75	0.87	0.16	0.10	0.23	4.70	0.64
KelleyCreekArea	66	2004	0.09	0.80	0.74	0.87	0.19	0.13	0.26	4.62	0.61
KelleyCreekArea	66	2005	0.12	1.18	1.12	1.24	0.31	0.26	0.37	4.34	0.87
KelleyCreekArea	66	2006	0.11	1.14	1.07	1.20	0.31	0.25	0.38	4.62	0.82
KelleyCreekArea	66	2007	0.10	0.72	0.65	0.79	0.25	0.19	0.33	4.87	0.46
KelleyCreekArea	66	2008	0.10	0.72	0.65	0.79	0.21	0.15	0.28	4.72	0.51
KelleyCreekArea	66	2009	0.09	0.97	0.91	1.03	0.19	0.13	0.26	4.63	0.77
KelleyCreekArea	66	2010	0.11	0.81	0.75	0.88	0.28	0.22	0.34	4.44	0.54
KelleyCreekArea	66	2011	0.13	1.26	1.20	1.32	0.38	0.32	0.44	4.31	0.88
KelleyCreekArea	66	2012	0.11	0.84	0.77	0.92	0.36	0.29	0.44	5.05	0.48
KelleyCreekArea	66	2013	0.13	1.07	1.00	1.14	0.44	0.37	0.51	4.72	0.63
KelleyCreekArea	66	2014	0.10	1.07	1.01	1.13	0.25	0.19	0.31	4.69	0.82
KelleyCreekArea	66	2015	0.10	1.05	0.99	1.12	0.26	0.19	0.32	4.81	0.79

Table E-49. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Lamoille Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LamoilleValley	45	1985	0.29	1.68	1.64	1.72	0.78	0.74	0.81	4.00	0.90
LamoilleValley	45	1986	0.27	1.89	1.86	1.92	0.68	0.65	0.71	4.03	1.21
LamoilleValley	45	1987	0.29	1.64	1.60	1.68	0.85	0.81	0.89	4.17	0.79
LamoilleValley	45	1988	0.24	1.55	1.51	1.59	0.69	0.66	0.73	4.24	0.85
LamoilleValley	45	1989	0.31	1.83	1.79	1.87	0.82	0.78	0.86	4.16	1.01
LamoilleValley	45	1990	0.23	1.60	1.56	1.63	0.62	0.58	0.65	4.09	0.98
LamoilleValley	45	1991	0.30	1.77	1.73	1.80	0.77	0.73	0.81	4.02	1.00
LamoilleValley	45	1992	0.25	1.46	1.42	1.50	0.70	0.66	0.75	4.35	0.76
LamoilleValley	45	1993	0.30	1.90	1.86	1.93	0.69	0.65	0.72	3.86	1.21
LamoilleValley	45	1994	0.26	1.64	1.60	1.68	0.80	0.76	0.84	4.38	0.84
LamoilleValley	45	1995	0.35	2.24	2.21	2.27	0.76	0.72	0.79	3.86	1.49
LamoilleValley	45	1996	0.30	2.01	1.97	2.05	0.83	0.79	0.87	4.33	1.17
LamoilleValley	45	1997	0.31	2.10	2.07	2.14	0.73	0.70	0.76	4.06	1.37
LamoilleValley	45	1998	0.32	2.10	2.07	2.13	0.67	0.64	0.70	3.76	1.43
LamoilleValley	45	1999	0.29	1.75	1.72	1.79	0.74	0.70	0.78	4.04	1.02
LamoilleValley	45	2000	0.28	1.76	1.72	1.80	0.83	0.79	0.88	4.51	0.93
LamoilleValley	45	2001	0.28	1.59	1.55	1.64	0.81	0.77	0.85	4.28	0.78
LamoilleValley	45	2002	0.29	1.77	1.73	1.81	0.79	0.75	0.83	4.25	0.98
LamoilleValley	45	2003	0.30	1.82	1.78	1.86	0.81	0.77	0.85	4.25	1.01
LamoilleValley	45	2004	0.30	1.86	1.83	1.90	0.79	0.76	0.83	4.11	1.07
LamoilleValley	45	2005	0.35	2.31	2.28	2.34	0.71	0.68	0.74	3.86	1.60
LamoilleValley	45	2006	0.28	2.04	2.00	2.07	0.71	0.67	0.74	4.18	1.33
LamoilleValley	45	2007	0.23	1.51	1.47	1.55	0.70	0.66	0.74	4.35	0.81
LamoilleValley	45	2008	0.32	1.86	1.82	1.90	0.86	0.82	0.91	4.20	1.00
LamoilleValley	45	2009	0.32	2.03	2.00	2.07	0.75	0.72	0.79	4.01	1.28
LamoilleValley	45	2010	0.32	1.71	1.67	1.75	0.84	0.81	0.88	3.90	0.86
LamoilleValley	45	2011	0.34	2.10	2.07	2.13	0.76	0.73	0.79	3.85	1.34
LamoilleValley	45	2012	0.26	1.59	1.55	1.63	0.82	0.78	0.86	4.48	0.77
LamoilleValley	45	2013	0.33	1.88	1.84	1.92	0.91	0.86	0.95	4.22	0.97
LamoilleValley	45	2014	0.29	2.03	2.00	2.06	0.69	0.66	0.72	4.03	1.34
LamoilleValley	45	2015	0.30	1.93	1.89	1.96	0.81	0.77	0.85	4.32	1.12

Table E-50. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Little Humboldt Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LittleHumboldtValley	67	1985	0.14	1.41	1.34	1.47	0.70	0.64	0.77	4.18	0.70
LittleHumboldtValley	67	1986	0.17	1.86	1.80	1.92	0.94	0.88	1.00	4.24	0.92
LittleHumboldtValley	67	1987	0.17	1.69	1.63	1.76	0.98	0.91	1.05	4.35	0.71
LittleHumboldtValley	67	1988	0.14	1.38	1.31	1.45	0.73	0.66	0.80	4.49	0.65
LittleHumboldtValley	67	1989	0.15	1.54	1.47	1.60	0.77	0.70	0.83	4.34	0.77
LittleHumboldtValley	67	1990	0.15	1.37	1.31	1.44	0.65	0.59	0.72	4.18	0.72
LittleHumboldtValley	67	1991	0.19	1.68	1.62	1.75	0.96	0.89	1.02	4.19	0.73
LittleHumboldtValley	67	1992	0.10	0.87	0.80	0.94	0.38	0.31	0.45	4.52	0.49
LittleHumboldtValley	67	1993	0.19	1.81	1.75	1.86	0.86	0.80	0.92	3.95	0.95
LittleHumboldtValley	67	1994	0.15	1.42	1.35	1.49	0.81	0.73	0.88	4.52	0.61
LittleHumboldtValley	67	1995	0.19	1.94	1.89	2.00	0.85	0.80	0.91	3.98	1.09
LittleHumboldtValley	67	1996	0.17	1.83	1.76	1.89	0.90	0.84	0.97	4.41	0.92
LittleHumboldtValley	67	1997	0.17	1.90	1.84	1.96	0.85	0.79	0.91	4.21	1.05
LittleHumboldtValley	67	1998	0.14	1.87	1.83	1.92	0.54	0.49	0.59	3.86	1.33
LittleHumboldtValley	67	1999	0.15	1.54	1.48	1.60	0.79	0.73	0.86	4.19	0.75
LittleHumboldtValley	67	2000	0.15	1.56	1.49	1.63	0.81	0.74	0.88	4.53	0.75
LittleHumboldtValley	67	2001	0.18	1.53	1.46	1.60	0.90	0.83	0.98	4.31	0.63
LittleHumboldtValley	67	2002	0.16	1.54	1.47	1.61	0.83	0.76	0.91	4.45	0.70
LittleHumboldtValley	67	2003	0.13	1.27	1.21	1.34	0.55	0.49	0.62	4.45	0.72
LittleHumboldtValley	67	2004	0.17	1.64	1.58	1.71	0.83	0.77	0.90	4.35	0.81
LittleHumboldtValley	67	2005	0.18	1.83	1.77	1.89	0.82	0.76	0.88	4.02	1.01
LittleHumboldtValley	67	2006	0.14	1.72	1.66	1.78	0.67	0.62	0.73	4.30	1.05
LittleHumboldtValley	67	2007	0.13	1.29	1.22	1.36	0.72	0.65	0.79	4.57	0.57
LittleHumboldtValley	67	2008	0.17	1.60	1.53	1.67	0.93	0.86	1.00	4.40	0.67
LittleHumboldtValley	67	2009	0.14	1.47	1.41	1.54	0.62	0.56	0.69	4.26	0.85
LittleHumboldtValley	67	2010	0.19	1.51	1.44	1.58	0.92	0.85	0.99	4.11	0.59
LittleHumboldtValley	67	2011	0.18	1.88	1.83	1.94	0.85	0.79	0.90	3.97	1.04
LittleHumboldtValley	67	2012	0.14	1.26	1.18	1.33	0.73	0.65	0.80	4.70	0.53
LittleHumboldtValley	67	2013	0.13	1.32	1.25	1.39	0.62	0.55	0.69	4.40	0.70
LittleHumboldtValley	67	2014	0.13	1.43	1.37	1.50	0.58	0.52	0.65	4.35	0.85
LittleHumboldtValley	67	2015	0.15	1.69	1.62	1.75	0.67	0.61	0.74	4.46	1.01

Table E-51. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Lovelock Valley, HA# 73.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LovelockValley	73	1985	0.18	0.78	0.76	0.81	0.37	0.35	0.40	4.43	0.41
LovelockValley	73	1986	0.19	0.79	0.77	0.82	0.37	0.35	0.40	4.50	0.42
LovelockValley	73	1987	0.21	0.80	0.78	0.83	0.38	0.36	0.40	4.50	0.43
LovelockValley	73	1988	0.19	0.89	0.87	0.92	0.38	0.36	0.40	4.52	0.51
LovelockValley	73	1989	0.17	0.72	0.70	0.74	0.33	0.31	0.35	4.53	0.39
LovelockValley	73	1990	0.18	0.79	0.77	0.81	0.36	0.34	0.38	4.44	0.43
LovelockValley	73	1991	0.15	0.74	0.72	0.76	0.33	0.31	0.35	4.45	0.41
LovelockValley	73	1992	0.12	0.58	0.56	0.61	0.31	0.29	0.34	4.80	0.27
LovelockValley	73	1993	0.19	0.89	0.87	0.92	0.39	0.37	0.42	4.40	0.50
LovelockValley	73	1994	0.18	0.65	0.62	0.67	0.35	0.32	0.38	4.80	0.30
LovelockValley	73	1995	0.22	1.15	1.13	1.17	0.38	0.36	0.40	4.26	0.78
LovelockValley	73	1996	0.20	0.83	0.81	0.86	0.40	0.37	0.42	4.68	0.44
LovelockValley	73	1997	0.16	0.80	0.78	0.82	0.33	0.31	0.36	4.52	0.46
LovelockValley	73	1998	0.19	1.40	1.38	1.42	0.34	0.33	0.36	4.12	1.06
LovelockValley	73	1999	0.20	0.70	0.68	0.72	0.39	0.37	0.42	4.51	0.31
LovelockValley	73	2000	0.21	0.85	0.82	0.87	0.39	0.36	0.41	4.74	0.46
LovelockValley	73	2001	0.22	0.78	0.76	0.81	0.46	0.44	0.49	4.63	0.32
LovelockValley	73	2002	0.19	0.72	0.70	0.75	0.36	0.34	0.39	4.80	0.36
LovelockValley	73	2003	0.16	0.73	0.70	0.75	0.34	0.32	0.37	4.73	0.38
LovelockValley	73	2004	0.16	0.73	0.71	0.76	0.41	0.39	0.44	4.76	0.32
LovelockValley	73	2005	0.18	1.10	1.08	1.13	0.41	0.39	0.43	4.40	0.69
LovelockValley	73	2006	0.17	0.99	0.97	1.02	0.38	0.36	0.41	4.65	0.61
LovelockValley	73	2007	0.20	0.61	0.59	0.64	0.37	0.35	0.40	4.89	0.24
LovelockValley	73	2008	0.22	0.78	0.76	0.81	0.36	0.34	0.39	4.79	0.42
LovelockValley	73	2009	0.19	0.74	0.72	0.77	0.32	0.30	0.34	4.66	0.43
LovelockValley	73	2010	0.23	0.81	0.78	0.83	0.46	0.43	0.48	4.52	0.35
LovelockValley	73	2011	0.23	0.95	0.93	0.98	0.44	0.42	0.47	4.28	0.51
LovelockValley	73	2012	0.20	0.61	0.58	0.64	0.36	0.34	0.39	4.87	0.24
LovelockValley	73	2013	0.14	0.57	0.55	0.60	0.35	0.32	0.37	4.80	0.23
LovelockValley	73	2014	0.14	0.99	0.96	1.01	0.40	0.38	0.43	4.71	0.58
LovelockValley	73	2015	0.13	0.98	0.96	1.01	0.40	0.38	0.42	4.61	0.58

Table E-52. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Lovelock Valley, HA# 73A.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LovelockValley	73A	1985	0.09	0.84	0.77	0.91	0.25	0.18	0.32	4.66	0.59
LovelockValley	73A	1986	0.10	0.97	0.90	1.04	0.27	0.20	0.35	4.77	0.70
LovelockValley	73A	1987	0.10	1.07	1.00	1.14	0.37	0.30	0.44	4.75	0.70
LovelockValley	73A	1988	0.09	0.97	0.90	1.04	0.25	0.18	0.32	4.78	0.72
LovelockValley	73A	1989	0.05	0.68	0.62	0.76	0.10	0.04	0.17	4.73	0.59
LovelockValley	73A	1990	0.10	0.95	0.88	1.02	0.27	0.20	0.34	4.61	0.69
LovelockValley	73A	1991	0.08	0.83	0.77	0.90	0.16	0.09	0.23	4.64	0.67
LovelockValley	73A	1992	0.07	0.57	0.51	0.66	0.08	0.02	0.16	5.03	0.49
LovelockValley	73A	1993	0.12	1.21	1.14	1.28	0.46	0.39	0.53	4.57	0.75
LovelockValley	73A	1994	0.07	0.61	0.54	0.69	0.12	0.05	0.20	5.03	0.49
LovelockValley	73A	1995	0.10	1.29	1.23	1.35	0.27	0.21	0.34	4.52	1.02
LovelockValley	73A	1996	0.08	0.84	0.78	0.92	0.13	0.06	0.20	4.90	0.72
LovelockValley	73A	1997	0.09	1.01	0.94	1.08	0.22	0.15	0.29	4.67	0.79
LovelockValley	73A	1998	0.12	1.80	1.75	1.85	0.36	0.31	0.41	4.19	1.44
LovelockValley	73A	1999	0.11	1.01	0.94	1.08	0.42	0.35	0.49	4.60	0.59
LovelockValley	73A	2000	0.09	0.86	0.79	0.93	0.20	0.13	0.28	4.89	0.66
LovelockValley	73A	2001	0.10	0.86	0.79	0.94	0.37	0.30	0.45	4.80	0.50
LovelockValley	73A	2002	0.08	0.68	0.60	0.76	0.15	0.08	0.23	5.01	0.52
LovelockValley	73A	2003	0.08	0.76	0.69	0.84	0.16	0.09	0.24	4.94	0.60
LovelockValley	73A	2004	0.12	1.07	1.00	1.16	0.48	0.41	0.57	4.89	0.59
LovelockValley	73A	2005	0.12	1.39	1.33	1.46	0.52	0.45	0.58	4.53	0.88
LovelockValley	73A	2006	0.09	1.05	0.98	1.12	0.28	0.21	0.35	4.75	0.77
LovelockValley	73A	2007	0.08	0.52	0.45	0.61	0.12	0.05	0.21	5.06	0.40
LovelockValley	73A	2008	0.08	0.72	0.65	0.80	0.17	0.09	0.24	4.96	0.55
LovelockValley	73A	2009	0.09	0.86	0.79	0.93	0.23	0.16	0.31	4.82	0.63
LovelockValley	73A	2010	0.14	1.10	1.02	1.18	0.61	0.53	0.69	4.65	0.49
LovelockValley	73A	2011	0.11	1.12	1.06	1.19	0.38	0.31	0.45	4.52	0.74
LovelockValley	73A	2012	0.12	0.99	0.91	1.08	0.60	0.52	0.69	5.15	0.39
LovelockValley	73A	2013	0.07	0.63	0.56	0.71	0.19	0.12	0.28	5.04	0.44
LovelockValley	73A	2014	0.12	1.24	1.17	1.32	0.54	0.47	0.62	4.99	0.70
LovelockValley	73A	2015	0.10	1.26	1.19	1.33	0.47	0.39	0.54	4.92	0.79

Table E-53. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Lower Reese River Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
LowerReeseRiverValley	59	1985	0.08	0.73	0.67	0.80	0.16	0.10	0.23	4.42	0.57
LowerReeseRiverValley	59	1986	0.09	0.86	0.79	0.93	0.19	0.13	0.26	4.64	0.67
LowerReeseRiverValley	59	1987	0.10	0.97	0.91	1.04	0.27	0.21	0.34	4.68	0.70
LowerReeseRiverValley	59	1988	0.09	0.93	0.87	1.00	0.21	0.15	0.28	4.66	0.72
LowerReeseRiverValley	59	1989	0.08	0.74	0.68	0.81	0.13	0.07	0.20	4.66	0.61
LowerReeseRiverValley	59	1990	0.07	0.82	0.76	0.89	0.11	0.06	0.18	4.59	0.71
LowerReeseRiverValley	59	1991	0.08	0.78	0.72	0.85	0.13	0.07	0.20	4.57	0.65
LowerReeseRiverValley	59	1992	0.07	0.63	0.57	0.71	0.11	0.05	0.18	4.89	0.52
LowerReeseRiverValley	59	1993	0.11	1.11	1.05	1.17	0.31	0.25	0.37	4.37	0.80
LowerReeseRiverValley	59	1994	0.08	0.72	0.66	0.80	0.15	0.08	0.23	4.94	0.57
LowerReeseRiverValley	59	1995	0.10	1.24	1.19	1.30	0.22	0.17	0.28	4.40	1.02
LowerReeseRiverValley	59	1996	0.09	0.96	0.90	1.04	0.22	0.15	0.29	4.94	0.75
LowerReeseRiverValley	59	1997	0.10	1.18	1.12	1.24	0.21	0.15	0.28	4.63	0.97
LowerReeseRiverValley	59	1998	0.11	1.51	1.46	1.56	0.25	0.20	0.30	4.22	1.27
LowerReeseRiverValley	59	1999	0.10	0.98	0.91	1.04	0.27	0.21	0.34	4.62	0.70
LowerReeseRiverValley	59	2000	0.08	0.85	0.79	0.93	0.13	0.07	0.21	5.05	0.72
LowerReeseRiverValley	59	2001	0.12	0.97	0.90	1.04	0.36	0.30	0.44	4.77	0.60
LowerReeseRiverValley	59	2002	0.08	0.72	0.66	0.79	0.14	0.08	0.21	4.88	0.58
LowerReeseRiverValley	59	2003	0.08	0.83	0.77	0.90	0.15	0.09	0.23	4.83	0.68
LowerReeseRiverValley	59	2004	0.10	1.03	0.97	1.10	0.24	0.18	0.31	4.75	0.79
LowerReeseRiverValley	59	2005	0.12	1.39	1.33	1.45	0.35	0.29	0.41	4.45	1.04
LowerReeseRiverValley	59	2006	0.12	1.29	1.22	1.36	0.44	0.37	0.51	4.82	0.85
LowerReeseRiverValley	59	2007	0.08	0.72	0.66	0.80	0.16	0.09	0.24	5.00	0.57
LowerReeseRiverValley	59	2008	0.08	0.56	0.49	0.64	0.13	0.06	0.21	4.93	0.43
LowerReeseRiverValley	59	2009	0.08	1.04	0.98	1.11	0.17	0.11	0.24	4.81	0.87
LowerReeseRiverValley	59	2010	0.10	0.71	0.64	0.78	0.25	0.18	0.32	4.63	0.46
LowerReeseRiverValley	59	2011	0.10	1.02	0.96	1.08	0.23	0.17	0.29	4.47	0.79
LowerReeseRiverValley	59	2012	0.09	0.66	0.59	0.75	0.24	0.17	0.33	5.16	0.42
LowerReeseRiverValley	59	2013	0.11	0.94	0.87	1.02	0.38	0.31	0.46	4.84	0.55
LowerReeseRiverValley	59	2014	0.08	0.99	0.93	1.06	0.20	0.14	0.28	4.86	0.79
LowerReeseRiverValley	59	2015	0.09	0.96	0.90	1.04	0.20	0.13	0.27	4.99	0.77

Table E-54. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Maggie Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MaggieCreekArea	51	1985	0.15	1.39	1.34	1.44	0.62	0.57	0.67	4.04	0.77
MaggieCreekArea	51	1986	0.15	1.48	1.44	1.53	0.59	0.54	0.64	4.11	0.90
MaggieCreekArea	51	1987	0.18	1.37	1.32	1.43	0.67	0.61	0.72	4.25	0.70
MaggieCreekArea	51	1988	0.17	1.19	1.14	1.25	0.54	0.49	0.60	4.27	0.65
MaggieCreekArea	51	1989	0.15	1.52	1.47	1.57	0.67	0.62	0.72	4.19	0.85
MaggieCreekArea	51	1990	0.13	1.20	1.16	1.25	0.37	0.33	0.42	4.07	0.83
MaggieCreekArea	51	1991	0.18	1.38	1.33	1.43	0.67	0.62	0.72	3.98	0.70
MaggieCreekArea	51	1992	0.12	1.02	0.96	1.07	0.43	0.38	0.49	4.34	0.58
MaggieCreekArea	51	1993	0.24	1.87	1.82	1.91	0.86	0.81	0.90	3.85	1.01
MaggieCreekArea	51	1994	0.15	1.26	1.20	1.31	0.55	0.50	0.61	4.38	0.70
MaggieCreekArea	51	1995	0.21	1.92	1.87	1.96	0.74	0.69	0.78	3.88	1.18
MaggieCreekArea	51	1996	0.18	1.69	1.64	1.74	0.75	0.70	0.80	4.33	0.94
MaggieCreekArea	51	1997	0.18	1.80	1.75	1.84	0.66	0.61	0.70	4.03	1.14
MaggieCreekArea	51	1998	0.15	1.73	1.69	1.77	0.56	0.52	0.60	3.77	1.17
MaggieCreekArea	51	1999	0.16	1.42	1.38	1.47	0.60	0.55	0.65	4.06	0.83
MaggieCreekArea	51	2000	0.17	1.36	1.31	1.42	0.62	0.57	0.68	4.45	0.74
MaggieCreekArea	51	2001	0.14	1.13	1.07	1.18	0.49	0.44	0.55	4.27	0.63
MaggieCreekArea	51	2002	0.14	1.37	1.32	1.42	0.57	0.51	0.62	4.22	0.80
MaggieCreekArea	51	2003	0.13	1.36	1.31	1.41	0.51	0.46	0.56	4.20	0.85
MaggieCreekArea	51	2004	0.14	1.49	1.44	1.54	0.55	0.50	0.60	4.08	0.94
MaggieCreekArea	51	2005	0.18	1.96	1.92	2.00	0.71	0.67	0.75	3.88	1.25
MaggieCreekArea	51	2006	0.15	1.68	1.64	1.73	0.53	0.49	0.58	4.16	1.15
MaggieCreekArea	51	2007	0.13	1.13	1.08	1.19	0.46	0.41	0.52	4.35	0.67
MaggieCreekArea	51	2008	0.17	1.39	1.34	1.44	0.69	0.63	0.74	4.19	0.70
MaggieCreekArea	51	2009	0.16	1.57	1.53	1.62	0.56	0.52	0.61	4.00	1.01
MaggieCreekArea	51	2010	0.17	1.32	1.27	1.38	0.66	0.61	0.71	3.96	0.67
MaggieCreekArea	51	2011	0.20	1.77	1.73	1.81	0.68	0.64	0.73	3.83	1.09
MaggieCreekArea	51	2012	0.16	1.25	1.19	1.31	0.66	0.61	0.72	4.43	0.58
MaggieCreekArea	51	2013	0.21	1.61	1.56	1.67	0.82	0.77	0.88	4.19	0.79
MaggieCreekArea	51	2014	0.16	1.56	1.51	1.61	0.54	0.50	0.59	4.17	1.01
MaggieCreekArea	51	2015	0.16	1.50	1.45	1.55	0.57	0.52	0.62	4.35	0.93

Table E-55. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Marys Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MarysCreekArea	52	1985	0.34	1.29	1.26	1.32	0.64	0.62	0.67	4.19	0.64
MarysCreekArea	52	1986	0.45	1.55	1.52	1.59	0.81	0.78	0.85	4.24	0.74
MarysCreekArea	52	1987	0.46	1.53	1.49	1.56	0.95	0.92	0.99	4.34	0.57
MarysCreekArea	52	1988	0.46	1.55	1.51	1.58	0.95	0.92	0.99	4.37	0.60
MarysCreekArea	52	1989	0.32	1.24	1.21	1.27	0.60	0.57	0.63	4.33	0.64
MarysCreekArea	52	1990	0.33	1.34	1.31	1.36	0.65	0.63	0.68	4.20	0.69
MarysCreekArea	52	1991	0.46	1.52	1.49	1.55	0.89	0.86	0.92	4.10	0.63
MarysCreekArea	52	1992	0.34	1.25	1.22	1.28	0.75	0.72	0.78	4.47	0.50
MarysCreekArea	52	1993	0.43	1.59	1.57	1.62	0.78	0.75	0.80	4.01	0.82
MarysCreekArea	52	1994	0.41	1.54	1.50	1.57	0.91	0.88	0.94	4.53	0.63
MarysCreekArea	52	1995	0.37	1.64	1.61	1.66	0.62	0.60	0.64	4.03	1.02
MarysCreekArea	52	1996	0.35	1.50	1.48	1.53	0.74	0.72	0.77	4.51	0.76
MarysCreekArea	52	1997	0.39	1.65	1.62	1.68	0.65	0.62	0.68	4.19	1.00
MarysCreekArea	52	1998	0.18	1.28	1.26	1.30	0.25	0.23	0.27	3.93	1.03
MarysCreekArea	52	1999	0.42	1.49	1.46	1.52	0.84	0.81	0.88	4.28	0.65
MarysCreekArea	52	2000	0.43	1.55	1.51	1.58	0.92	0.89	0.96	4.66	0.63
MarysCreekArea	52	2001	0.48	1.54	1.50	1.57	0.99	0.95	1.03	4.45	0.55
MarysCreekArea	52	2002	0.47	1.56	1.52	1.59	0.91	0.87	0.95	4.42	0.65
MarysCreekArea	52	2003	0.45	1.59	1.56	1.63	0.90	0.87	0.94	4.40	0.69
MarysCreekArea	52	2004	0.38	1.43	1.40	1.46	0.69	0.66	0.72	4.24	0.75
MarysCreekArea	52	2005	0.53	1.88	1.85	1.91	0.80	0.77	0.83	4.03	1.08
MarysCreekArea	52	2006	0.42	1.67	1.64	1.70	0.76	0.73	0.79	4.35	0.91
MarysCreekArea	52	2007	0.46	1.48	1.44	1.52	0.94	0.90	0.98	4.51	0.53
MarysCreekArea	52	2008	0.46	1.50	1.46	1.53	0.95	0.91	0.98	4.42	0.55
MarysCreekArea	52	2009	0.40	1.60	1.57	1.63	0.72	0.69	0.75	4.21	0.88
MarysCreekArea	52	2010	0.45	1.39	1.36	1.42	0.84	0.81	0.87	4.15	0.55
MarysCreekArea	52	2011	0.46	1.63	1.60	1.66	0.74	0.71	0.77	3.98	0.89
MarysCreekArea	52	2012	0.49	1.53	1.48	1.57	1.05	1.01	1.09	4.59	0.47
MarysCreekArea	52	2013	0.61	1.82	1.78	1.87	1.12	1.08	1.17	4.37	0.70
MarysCreekArea	52	2014	0.47	1.76	1.72	1.79	0.83	0.79	0.86	4.33	0.93
MarysCreekArea	52	2015	0.39	1.55	1.52	1.58	0.77	0.74	0.80	4.52	0.78

Table E-56. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Marys River Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MarysRiverArea	42	1985	0.18	1.40	1.36	1.44	0.53	0.49	0.58	3.85	0.86
MarysRiverArea	42	1986	0.18	1.68	1.65	1.72	0.52	0.48	0.55	3.84	1.16
MarysRiverArea	42	1987	0.18	1.30	1.26	1.35	0.57	0.53	0.62	3.90	0.73
MarysRiverArea	42	1988	0.16	1.21	1.17	1.26	0.48	0.44	0.52	4.01	0.73
MarysRiverArea	42	1989	0.18	1.47	1.43	1.51	0.54	0.50	0.58	3.94	0.93
MarysRiverArea	42	1990	0.16	1.30	1.26	1.34	0.42	0.38	0.46	3.88	0.87
MarysRiverArea	42	1991	0.11	1.15	1.12	1.19	0.33	0.30	0.38	3.83	0.82
MarysRiverArea	42	1992	0.16	1.15	1.10	1.19	0.43	0.38	0.47	4.13	0.72
MarysRiverArea	42	1993	0.24	1.74	1.71	1.78	0.66	0.63	0.70	3.67	1.08
MarysRiverArea	42	1994	0.18	1.18	1.14	1.23	0.52	0.47	0.57	4.15	0.66
MarysRiverArea	42	1995	0.25	1.96	1.93	2.00	0.62	0.59	0.65	3.66	1.34
MarysRiverArea	42	1996	0.21	1.67	1.63	1.71	0.66	0.62	0.70	4.06	1.01
MarysRiverArea	42	1997	0.21	1.83	1.80	1.87	0.52	0.49	0.56	3.77	1.31
MarysRiverArea	42	1998	0.24	1.86	1.83	1.89	0.57	0.54	0.60	3.56	1.29
MarysRiverArea	42	1999	0.19	1.57	1.53	1.61	0.63	0.59	0.67	3.80	0.94
MarysRiverArea	42	2000	0.18	1.47	1.42	1.52	0.68	0.63	0.73	4.22	0.80
MarysRiverArea	42	2001	0.17	1.18	1.13	1.22	0.46	0.42	0.51	4.00	0.71
MarysRiverArea	42	2002	0.20	1.53	1.48	1.57	0.66	0.62	0.70	3.97	0.87
MarysRiverArea	42	2003	0.19	1.44	1.40	1.48	0.50	0.45	0.54	3.98	0.94
MarysRiverArea	42	2004	0.19	1.55	1.51	1.59	0.53	0.49	0.57	3.87	1.02
MarysRiverArea	42	2005	0.23	2.01	1.98	2.04	0.59	0.56	0.62	3.64	1.42
MarysRiverArea	42	2006	0.20	1.81	1.77	1.84	0.60	0.56	0.63	3.93	1.21
MarysRiverArea	42	2007	0.15	1.21	1.17	1.26	0.45	0.41	0.49	4.09	0.77
MarysRiverArea	42	2008	0.22	1.54	1.50	1.59	0.63	0.59	0.68	3.94	0.91
MarysRiverArea	42	2009	0.21	1.71	1.67	1.74	0.54	0.51	0.58	3.77	1.16
MarysRiverArea	42	2010	0.20	1.40	1.36	1.44	0.59	0.55	0.63	3.71	0.81
MarysRiverArea	42	2011	0.23	1.89	1.85	1.92	0.61	0.57	0.64	3.68	1.28
MarysRiverArea	42	2012	0.18	1.19	1.15	1.24	0.49	0.44	0.54	4.22	0.71
MarysRiverArea	42	2013	0.16	1.31	1.27	1.36	0.46	0.42	0.51	3.97	0.85
MarysRiverArea	42	2014	0.20	1.66	1.63	1.70	0.54	0.50	0.57	3.85	1.13
MarysRiverArea	42	2015	0.21	1.73	1.69	1.77	0.57	0.53	0.61	3.98	1.16

Table E-57. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Middle Reese River Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
MiddleReeseRiverValley	58	1985	0.10	0.83	0.77	0.90	0.24	0.18	0.30	4.36	0.59
MiddleReeseRiverValley	58	1986	0.11	1.00	0.93	1.07	0.31	0.25	0.38	4.54	0.69
MiddleReeseRiverValley	58	1987	0.11	0.95	0.88	1.02	0.31	0.25	0.38	4.54	0.64
MiddleReeseRiverValley	58	1988	0.09	0.93	0.87	1.00	0.19	0.13	0.25	4.52	0.74
MiddleReeseRiverValley	58	1989	0.09	0.83	0.76	0.90	0.18	0.11	0.25	4.54	0.65
MiddleReeseRiverValley	58	1990	0.07	0.77	0.71	0.84	0.12	0.07	0.19	4.45	0.65
MiddleReeseRiverValley	58	1991	0.09	0.77	0.70	0.83	0.19	0.13	0.26	4.42	0.57
MiddleReeseRiverValley	58	1992	0.09	0.72	0.65	0.79	0.20	0.13	0.27	4.69	0.52
MiddleReeseRiverValley	58	1993	0.11	1.02	0.96	1.08	0.32	0.26	0.38	4.31	0.70
MiddleReeseRiverValley	58	1994	0.09	0.74	0.68	0.82	0.18	0.11	0.25	4.78	0.57
MiddleReeseRiverValley	58	1995	0.12	1.38	1.33	1.44	0.36	0.31	0.42	4.23	1.02
MiddleReeseRiverValley	58	1996	0.09	0.92	0.85	0.99	0.23	0.17	0.30	4.79	0.68
MiddleReeseRiverValley	58	1997	0.10	1.11	1.05	1.17	0.24	0.18	0.30	4.44	0.87
MiddleReeseRiverValley	58	1998	0.13	1.55	1.50	1.60	0.35	0.30	0.40	4.05	1.20
MiddleReeseRiverValley	58	1999	0.10	0.93	0.86	0.99	0.28	0.21	0.34	4.46	0.65
MiddleReeseRiverValley	58	2000	0.08	0.75	0.69	0.83	0.15	0.08	0.22	4.84	0.61
MiddleReeseRiverValley	58	2001	0.10	0.87	0.80	0.94	0.29	0.22	0.36	4.65	0.58
MiddleReeseRiverValley	58	2002	0.09	0.76	0.70	0.84	0.22	0.16	0.30	4.74	0.54
MiddleReeseRiverValley	58	2003	0.09	0.85	0.78	0.92	0.17	0.11	0.25	4.72	0.67
MiddleReeseRiverValley	58	2004	0.11	1.01	0.95	1.08	0.30	0.24	0.37	4.61	0.71
MiddleReeseRiverValley	58	2005	0.12	1.29	1.24	1.35	0.34	0.29	0.40	4.34	0.95
MiddleReeseRiverValley	58	2006	0.12	1.27	1.20	1.34	0.43	0.37	0.50	4.68	0.84
MiddleReeseRiverValley	58	2007	0.08	0.67	0.61	0.75	0.16	0.09	0.23	4.82	0.51
MiddleReeseRiverValley	58	2008	0.09	0.60	0.53	0.68	0.18	0.11	0.25	4.74	0.43
MiddleReeseRiverValley	58	2009	0.09	1.02	0.96	1.09	0.19	0.13	0.26	4.60	0.83
MiddleReeseRiverValley	58	2010	0.10	0.68	0.61	0.75	0.26	0.19	0.33	4.48	0.42
MiddleReeseRiverValley	58	2011	0.10	1.03	0.97	1.10	0.27	0.21	0.34	4.33	0.76
MiddleReeseRiverValley	58	2012	0.09	0.63	0.56	0.71	0.21	0.14	0.29	5.01	0.42
MiddleReeseRiverValley	58	2013	0.09	0.78	0.71	0.85	0.25	0.18	0.32	4.73	0.53
MiddleReeseRiverValley	58	2014	0.07	0.98	0.92	1.05	0.15	0.10	0.22	4.73	0.83
MiddleReeseRiverValley	58	2015	0.09	1.12	1.06	1.19	0.26	0.19	0.33	4.83	0.86

Table E-58. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – North Fork Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
NorthForkArea	44	1985	0.15	1.34	1.30	1.38	0.43	0.40	0.47	3.79	0.90
NorthForkArea	44	1986	0.22	1.72	1.68	1.76	0.59	0.55	0.62	3.81	1.14
NorthForkArea	44	1987	0.15	1.23	1.19	1.28	0.47	0.43	0.51	3.98	0.76
NorthForkArea	44	1988	0.16	1.26	1.21	1.30	0.50	0.45	0.54	4.05	0.76
NorthForkArea	44	1989	0.19	1.54	1.51	1.58	0.53	0.49	0.57	3.92	1.01
NorthForkArea	44	1990	0.16	1.35	1.31	1.39	0.43	0.40	0.47	3.84	0.92
NorthForkArea	44	1991	0.17	1.28	1.24	1.32	0.46	0.42	0.50	3.79	0.82
NorthForkArea	44	1992	0.14	1.08	1.04	1.13	0.40	0.35	0.44	4.14	0.68
NorthForkArea	44	1993	0.24	1.79	1.75	1.82	0.63	0.59	0.67	3.67	1.16
NorthForkArea	44	1994	0.15	1.17	1.13	1.22	0.45	0.41	0.50	4.16	0.72
NorthForkArea	44	1995	0.25	1.86	1.83	1.89	0.60	0.56	0.63	3.61	1.27
NorthForkArea	44	1996	0.22	1.73	1.69	1.77	0.66	0.62	0.70	4.06	1.07
NorthForkArea	44	1997	0.20	1.81	1.78	1.85	0.51	0.47	0.54	3.76	1.30
NorthForkArea	44	1998	0.21	1.76	1.72	1.79	0.51	0.48	0.54	3.54	1.25
NorthForkArea	44	1999	0.20	1.47	1.43	1.51	0.57	0.53	0.61	3.78	0.91
NorthForkArea	44	2000	0.18	1.38	1.33	1.42	0.58	0.53	0.63	4.20	0.80
NorthForkArea	44	2001	0.16	1.25	1.20	1.29	0.49	0.44	0.53	3.99	0.76
NorthForkArea	44	2002	0.19	1.50	1.46	1.55	0.57	0.52	0.61	3.99	0.94
NorthForkArea	44	2003	0.16	1.41	1.37	1.45	0.44	0.40	0.49	4.00	0.96
NorthForkArea	44	2004	0.19	1.59	1.56	1.63	0.51	0.47	0.55	3.85	1.08
NorthForkArea	44	2005	0.22	1.89	1.85	1.92	0.54	0.50	0.57	3.65	1.35
NorthForkArea	44	2006	0.20	1.81	1.77	1.85	0.52	0.48	0.55	3.92	1.29
NorthForkArea	44	2007	0.15	1.25	1.21	1.30	0.46	0.42	0.51	4.15	0.79
NorthForkArea	44	2008	0.21	1.47	1.43	1.51	0.61	0.57	0.65	3.93	0.86
NorthForkArea	44	2009	0.22	1.78	1.74	1.81	0.55	0.52	0.59	3.75	1.22
NorthForkArea	44	2010	0.22	1.42	1.38	1.46	0.61	0.57	0.65	3.69	0.81
NorthForkArea	44	2011	0.23	1.85	1.82	1.88	0.53	0.50	0.57	3.62	1.31
NorthForkArea	44	2012	0.17	1.22	1.17	1.26	0.52	0.47	0.57	4.21	0.70
NorthForkArea	44	2013	0.19	1.45	1.41	1.50	0.57	0.53	0.61	3.96	0.89
NorthForkArea	44	2014	0.18	1.64	1.60	1.67	0.51	0.47	0.54	3.90	1.13
NorthForkArea	44	2015	0.19	1.78	1.75	1.82	0.54	0.50	0.58	4.06	1.24

Table E-59. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Paradise Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
ParadiseValley	69	1985	0.17	1.03	1.00	1.07	0.37	0.34	0.41	4.14	0.66
ParadiseValley	69	1986	0.20	1.34	1.30	1.38	0.43	0.39	0.47	4.19	0.91
ParadiseValley	69	1987	0.17	0.98	0.95	1.02	0.32	0.28	0.36	4.26	0.66
ParadiseValley	69	1988	0.12	0.82	0.78	0.86	0.20	0.17	0.24	4.43	0.62
ParadiseValley	69	1989	0.15	1.03	1.00	1.07	0.29	0.26	0.33	4.30	0.74
ParadiseValley	69	1990	0.12	0.83	0.80	0.87	0.19	0.15	0.22	4.13	0.65
ParadiseValley	69	1991	0.16	0.93	0.90	0.97	0.27	0.23	0.31	4.15	0.66
ParadiseValley	69	1992	0.10	0.59	0.55	0.63	0.15	0.11	0.19	4.46	0.44
ParadiseValley	69	1993	0.20	1.23	1.20	1.26	0.35	0.32	0.39	3.95	0.88
ParadiseValley	69	1994	0.14	0.81	0.77	0.85	0.24	0.20	0.28	4.46	0.57
ParadiseValley	69	1995	0.22	1.43	1.39	1.46	0.43	0.39	0.46	3.95	1.00
ParadiseValley	69	1996	0.16	1.18	1.15	1.22	0.30	0.26	0.33	4.32	0.89
ParadiseValley	69	1997	0.19	1.36	1.33	1.40	0.36	0.32	0.39	4.15	1.01
ParadiseValley	69	1998	0.21	1.69	1.66	1.72	0.37	0.34	0.40	3.81	1.32
ParadiseValley	69	1999	0.17	1.06	1.02	1.10	0.38	0.34	0.42	4.12	0.68
ParadiseValley	69	2000	0.16	1.03	1.00	1.07	0.30	0.27	0.34	4.40	0.73
ParadiseValley	69	2001	0.16	0.90	0.86	0.94	0.32	0.28	0.36	4.25	0.58
ParadiseValley	69	2002	0.16	0.99	0.95	1.03	0.31	0.28	0.35	4.37	0.67
ParadiseValley	69	2003	0.14	0.86	0.82	0.90	0.21	0.18	0.25	4.34	0.64
ParadiseValley	69	2004	0.17	1.01	0.98	1.05	0.31	0.27	0.35	4.29	0.70
ParadiseValley	69	2005	0.19	1.26	1.23	1.30	0.34	0.31	0.38	3.99	0.92
ParadiseValley	69	2006	0.19	1.36	1.33	1.40	0.37	0.33	0.40	4.20	0.99
ParadiseValley	69	2007	0.14	0.74	0.70	0.78	0.26	0.21	0.30	4.45	0.49
ParadiseValley	69	2008	0.15	0.88	0.85	0.92	0.25	0.21	0.29	4.30	0.63
ParadiseValley	69	2009	0.14	1.01	0.97	1.04	0.24	0.20	0.27	4.15	0.77
ParadiseValley	69	2010	0.16	0.87	0.84	0.91	0.30	0.26	0.34	4.01	0.57
ParadiseValley	69	2011	0.23	1.48	1.44	1.51	0.48	0.45	0.51	3.89	1.00
ParadiseValley	69	2012	0.15	0.87	0.83	0.91	0.36	0.32	0.40	4.57	0.51
ParadiseValley	69	2013	0.13	0.89	0.85	0.93	0.25	0.21	0.29	4.33	0.65
ParadiseValley	69	2014	0.13	1.04	1.01	1.08	0.21	0.18	0.25	4.28	0.83
ParadiseValley	69	2015	0.14	1.09	1.05	1.13	0.27	0.23	0.31	4.32	0.82

Table E-60. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Pine Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
PineValley	53	1985	0.14	1.27	1.22	1.33	0.52	0.46	0.57	4.17	0.76
PineValley	53	1986	0.14	1.44	1.39	1.50	0.55	0.50	0.60	4.27	0.90
PineValley	53	1987	0.16	1.40	1.34	1.45	0.69	0.63	0.75	4.34	0.71
PineValley	53	1988	0.14	1.37	1.31	1.42	0.53	0.48	0.59	4.34	0.84
PineValley	53	1989	0.12	1.19	1.14	1.25	0.40	0.35	0.46	4.37	0.79
PineValley	53	1990	0.13	1.25	1.20	1.31	0.44	0.39	0.49	4.28	0.81
PineValley	53	1991	0.15	1.34	1.29	1.39	0.57	0.52	0.62	4.17	0.77
PineValley	53	1992	0.13	1.02	0.96	1.08	0.41	0.35	0.47	4.49	0.61
PineValley	53	1993	0.16	1.47	1.42	1.52	0.54	0.49	0.59	4.07	0.94
PineValley	53	1994	0.15	1.31	1.25	1.37	0.56	0.50	0.62	4.59	0.75
PineValley	53	1995	0.18	1.82	1.77	1.86	0.59	0.54	0.63	4.08	1.23
PineValley	53	1996	0.16	1.46	1.40	1.52	0.60	0.54	0.66	4.58	0.86
PineValley	53	1997	0.16	1.69	1.64	1.74	0.52	0.47	0.57	4.24	1.17
PineValley	53	1998	0.18	1.83	1.79	1.87	0.56	0.52	0.60	3.92	1.27
PineValley	53	1999	0.16	1.40	1.35	1.46	0.60	0.55	0.65	4.29	0.80
PineValley	53	2000	0.15	1.26	1.20	1.32	0.55	0.49	0.61	4.74	0.71
PineValley	53	2001	0.14	1.12	1.06	1.18	0.47	0.42	0.53	4.45	0.65
PineValley	53	2002	0.16	1.32	1.26	1.38	0.59	0.54	0.65	4.50	0.73
PineValley	53	2003	0.14	1.29	1.24	1.35	0.50	0.44	0.56	4.52	0.79
PineValley	53	2004	0.15	1.34	1.29	1.40	0.50	0.44	0.55	4.32	0.84
PineValley	53	2005	0.19	1.92	1.87	1.97	0.66	0.61	0.71	4.09	1.26
PineValley	53	2006	0.16	1.59	1.54	1.65	0.61	0.55	0.66	4.43	0.99
PineValley	53	2007	0.14	1.21	1.15	1.27	0.51	0.46	0.58	4.59	0.69
PineValley	53	2008	0.17	1.28	1.22	1.34	0.62	0.56	0.68	4.50	0.66
PineValley	53	2009	0.16	1.68	1.63	1.73	0.52	0.47	0.57	4.27	1.16
PineValley	53	2010	0.15	1.10	1.05	1.16	0.54	0.48	0.59	4.22	0.57
PineValley	53	2011	0.17	1.57	1.52	1.61	0.53	0.49	0.58	4.05	1.03
PineValley	53	2012	0.17	1.30	1.24	1.37	0.74	0.67	0.80	4.78	0.57
PineValley	53	2013	0.19	1.49	1.43	1.55	0.74	0.67	0.80	4.47	0.75
PineValley	53	2014	0.15	1.54	1.49	1.60	0.51	0.46	0.57	4.38	1.03
PineValley	53	2015	0.17	1.56	1.50	1.62	0.66	0.60	0.72	4.57	0.90

Table E-61. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Pumpernickel Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
PumpernickelValley	65	1985	0.08	0.82	0.76	0.89	0.24	0.18	0.31	4.62	0.58
PumpernickelValley	65	1986	0.09	0.98	0.91	1.05	0.28	0.21	0.35	4.77	0.70
PumpernickelValley	65	1987	0.09	0.83	0.76	0.90	0.21	0.14	0.28	4.84	0.62
PumpernickelValley	65	1988	0.09	0.84	0.78	0.92	0.22	0.15	0.30	4.92	0.62
PumpernickelValley	65	1989	0.06	0.74	0.67	0.81	0.13	0.06	0.20	4.86	0.61
PumpernickelValley	65	1990	0.05	0.73	0.68	0.80	0.09	0.04	0.16	4.73	0.64
PumpernickelValley	65	1991	0.08	0.75	0.69	0.82	0.13	0.07	0.20	4.70	0.62
PumpernickelValley	65	1992	0.07	0.58	0.51	0.66	0.15	0.08	0.23	5.06	0.43
PumpernickelValley	65	1993	0.11	1.08	1.02	1.14	0.36	0.30	0.43	4.47	0.72
PumpernickelValley	65	1994	0.09	0.73	0.67	0.81	0.23	0.16	0.31	5.06	0.50
PumpernickelValley	65	1995	0.11	1.28	1.22	1.34	0.32	0.26	0.38	4.48	0.96
PumpernickelValley	65	1996	0.09	0.98	0.91	1.05	0.24	0.18	0.31	4.95	0.74
PumpernickelValley	65	1997	0.10	1.15	1.09	1.21	0.26	0.20	0.32	4.67	0.89
PumpernickelValley	65	1998	0.10	1.46	1.41	1.51	0.24	0.19	0.30	4.24	1.21
PumpernickelValley	65	1999	0.10	0.94	0.87	1.01	0.31	0.25	0.38	4.64	0.62
PumpernickelValley	65	2000	0.09	0.82	0.76	0.90	0.18	0.11	0.25	4.98	0.64
PumpernickelValley	65	2001	0.13	0.98	0.91	1.06	0.45	0.38	0.53	4.76	0.53
PumpernickelValley	65	2002	0.09	0.76	0.70	0.84	0.20	0.14	0.28	4.90	0.56
PumpernickelValley	65	2003	0.08	0.79	0.73	0.86	0.16	0.10	0.24	4.85	0.62
PumpernickelValley	65	2004	0.08	0.77	0.71	0.85	0.19	0.13	0.27	4.79	0.58
PumpernickelValley	65	2005	0.10	1.14	1.08	1.21	0.28	0.23	0.35	4.52	0.86
PumpernickelValley	65	2006	0.10	1.10	1.04	1.17	0.34	0.27	0.41	4.82	0.77
PumpernickelValley	65	2007	0.09	0.73	0.66	0.81	0.26	0.19	0.34	5.07	0.47
PumpernickelValley	65	2008	0.08	0.61	0.54	0.68	0.16	0.10	0.24	4.92	0.44
PumpernickelValley	65	2009	0.08	0.93	0.86	1.00	0.17	0.11	0.24	4.84	0.75
PumpernickelValley	65	2010	0.10	0.79	0.73	0.87	0.29	0.23	0.37	4.65	0.50
PumpernickelValley	65	2011	0.10	1.07	1.01	1.13	0.26	0.21	0.33	4.54	0.80
PumpernickelValley	65	2012	0.08	0.64	0.57	0.72	0.17	0.10	0.26	5.26	0.46
PumpernickelValley	65	2013	0.10	0.88	0.82	0.96	0.30	0.23	0.37	4.94	0.59
PumpernickelValley	65	2014	0.09	1.14	1.08	1.21	0.30	0.24	0.37	4.88	0.84
PumpernickelValley	65	2015	0.08	0.93	0.86	1.00	0.19	0.12	0.26	4.97	0.74

Table E-62. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Rock Creek Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
RockCreekValley	62	1985	0.09	0.98	0.92	1.04	0.25	0.19	0.31	4.12	0.73
RockCreekValley	62	1986	0.11	1.23	1.17	1.29	0.39	0.33	0.45	4.22	0.84
RockCreekValley	62	1987	0.11	1.06	1.00	1.13	0.35	0.28	0.41	4.33	0.72
RockCreekValley	62	1988	0.11	1.01	0.94	1.07	0.32	0.26	0.39	4.37	0.69
RockCreekValley	62	1989	0.11	1.09	1.03	1.15	0.32	0.26	0.39	4.28	0.77
RockCreekValley	62	1990	0.05	0.93	0.87	0.99	0.13	0.08	0.19	4.17	0.80
RockCreekValley	62	1991	0.11	0.98	0.92	1.04	0.29	0.23	0.35	4.12	0.69
RockCreekValley	62	1992	0.09	0.74	0.67	0.81	0.20	0.14	0.27	4.47	0.54
RockCreekValley	62	1993	0.12	1.34	1.29	1.39	0.41	0.36	0.46	3.96	0.93
RockCreekValley	62	1994	0.09	0.91	0.85	0.98	0.24	0.18	0.31	4.48	0.67
RockCreekValley	62	1995	0.13	1.54	1.48	1.59	0.40	0.35	0.46	4.01	1.13
RockCreekValley	62	1996	0.10	1.25	1.19	1.31	0.35	0.29	0.41	4.44	0.90
RockCreekValley	62	1997	0.12	1.47	1.41	1.52	0.40	0.34	0.45	4.15	1.07
RockCreekValley	62	1998	0.10	1.52	1.48	1.57	0.26	0.22	0.31	3.88	1.26
RockCreekValley	62	1999	0.11	1.18	1.12	1.24	0.39	0.33	0.45	4.20	0.79
RockCreekValley	62	2000	0.10	1.06	0.99	1.12	0.32	0.25	0.38	4.57	0.74
RockCreekValley	62	2001	0.10	0.89	0.82	0.95	0.27	0.20	0.34	4.34	0.62
RockCreekValley	62	2002	0.09	1.00	0.93	1.06	0.25	0.19	0.31	4.40	0.75
RockCreekValley	62	2003	0.09	1.03	0.97	1.09	0.25	0.19	0.32	4.37	0.78
RockCreekValley	62	2004	0.12	1.25	1.19	1.31	0.36	0.30	0.43	4.27	0.88
RockCreekValley	62	2005	0.12	1.51	1.45	1.56	0.37	0.32	0.42	4.02	1.13
RockCreekValley	62	2006	0.13	1.51	1.45	1.57	0.44	0.38	0.50	4.31	1.06
RockCreekValley	62	2007	0.10	0.97	0.91	1.04	0.36	0.29	0.43	4.50	0.62
RockCreekValley	62	2008	0.11	0.96	0.89	1.03	0.36	0.29	0.43	4.38	0.60
RockCreekValley	62	2009	0.10	1.19	1.13	1.25	0.29	0.23	0.35	4.22	0.90
RockCreekValley	62	2010	0.11	0.91	0.85	0.98	0.33	0.27	0.40	4.11	0.58
RockCreekValley	62	2011	0.12	1.37	1.32	1.42	0.37	0.32	0.43	4.03	1.00
RockCreekValley	62	2012	0.10	0.80	0.73	0.88	0.28	0.21	0.35	4.66	0.53
RockCreekValley	62	2013	0.12	1.15	1.09	1.21	0.43	0.36	0.49	4.33	0.72
RockCreekValley	62	2014	0.09	1.27	1.22	1.34	0.31	0.26	0.37	4.33	0.96
RockCreekValley	62	2015	0.11	1.33	1.27	1.39	0.35	0.29	0.41	4.49	0.98

Table E-63. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – South Fork Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
SouthForkArea	46	1985	0.23	1.54	1.50	1.57	0.62	0.58	0.65	3.79	0.92
SouthForkArea	46	1986	0.27	1.94	1.91	1.97	0.67	0.64	0.70	3.80	1.27
SouthForkArea	46	1987	0.21	1.41	1.37	1.44	0.57	0.53	0.61	3.98	0.84
SouthForkArea	46	1988	0.24	1.65	1.61	1.68	0.67	0.63	0.71	4.03	0.98
SouthForkArea	46	1989	0.26	1.74	1.71	1.78	0.70	0.66	0.73	3.99	1.05
SouthForkArea	46	1990	0.23	1.64	1.61	1.67	0.59	0.55	0.62	3.89	1.05
SouthForkArea	46	1991	0.27	1.78	1.75	1.82	0.71	0.67	0.74	3.82	1.08
SouthForkArea	46	1992	0.21	1.44	1.40	1.48	0.59	0.55	0.63	4.15	0.85
SouthForkArea	46	1993	0.30	2.01	1.98	2.04	0.71	0.68	0.74	3.72	1.30
SouthForkArea	46	1994	0.23	1.66	1.63	1.70	0.67	0.63	0.71	4.20	0.99
SouthForkArea	46	1995	0.35	2.33	2.31	2.36	0.70	0.67	0.73	3.66	1.63
SouthForkArea	46	1996	0.28	2.04	2.00	2.07	0.80	0.76	0.83	4.14	1.24
SouthForkArea	46	1997	0.29	2.20	2.18	2.23	0.63	0.60	0.66	3.86	1.57
SouthForkArea	46	1998	0.31	2.17	2.14	2.19	0.61	0.59	0.64	3.56	1.55
SouthForkArea	46	1999	0.28	1.86	1.82	1.89	0.71	0.68	0.75	3.85	1.15
SouthForkArea	46	2000	0.25	1.78	1.74	1.82	0.80	0.76	0.84	4.32	0.99
SouthForkArea	46	2001	0.24	1.56	1.52	1.60	0.70	0.67	0.74	4.11	0.86
SouthForkArea	46	2002	0.28	1.83	1.79	1.87	0.80	0.76	0.83	4.10	1.04
SouthForkArea	46	2003	0.25	1.78	1.75	1.82	0.71	0.67	0.75	4.11	1.08
SouthForkArea	46	2004	0.25	1.77	1.74	1.81	0.64	0.61	0.68	3.96	1.13
SouthForkArea	46	2005	0.31	2.29	2.26	2.31	0.64	0.62	0.67	3.74	1.64
SouthForkArea	46	2006	0.25	2.00	1.97	2.03	0.64	0.60	0.67	4.04	1.36
SouthForkArea	46	2007	0.21	1.55	1.51	1.59	0.63	0.59	0.66	4.21	0.93
SouthForkArea	46	2008	0.29	1.83	1.79	1.87	0.84	0.80	0.88	4.06	0.99
SouthForkArea	46	2009	0.29	2.15	2.12	2.18	0.68	0.65	0.71	3.91	1.47
SouthForkArea	46	2010	0.28	1.71	1.68	1.75	0.78	0.74	0.81	3.80	0.94
SouthForkArea	46	2011	0.33	2.15	2.12	2.18	0.69	0.66	0.72	3.63	1.46
SouthForkArea	46	2012	0.23	1.49	1.45	1.53	0.69	0.65	0.73	4.26	0.80
SouthForkArea	46	2013	0.28	1.80	1.76	1.84	0.77	0.73	0.80	4.03	1.04
SouthForkArea	46	2014	0.26	1.95	1.92	1.98	0.62	0.58	0.65	3.88	1.34
SouthForkArea	46	2015	0.28	1.91	1.87	1.95	0.78	0.74	0.82	4.13	1.13

Table E-64. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Starr Valley Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
StarrValleyArea	43	1985	0.25	1.46	1.43	1.49	0.53	0.50	0.56	3.97	0.93
StarrValleyArea	43	1986	0.25	1.78	1.75	1.80	0.49	0.46	0.52	3.98	1.29
StarrValleyArea	43	1987	0.26	1.34	1.31	1.38	0.59	0.56	0.63	4.02	0.75
StarrValleyArea	43	1988	0.21	1.30	1.26	1.33	0.47	0.44	0.51	4.12	0.82
StarrValleyArea	43	1989	0.27	1.53	1.50	1.56	0.57	0.54	0.60	4.04	0.96
StarrValleyArea	43	1990	0.22	1.40	1.37	1.43	0.45	0.42	0.48	3.98	0.95
StarrValleyArea	43	1991	0.21	1.29	1.27	1.32	0.40	0.37	0.43	3.92	0.89
StarrValleyArea	43	1992	0.21	1.25	1.21	1.28	0.47	0.44	0.50	4.22	0.78
StarrValleyArea	43	1993	0.30	1.71	1.68	1.73	0.55	0.53	0.58	3.75	1.15
StarrValleyArea	43	1994	0.23	1.33	1.29	1.36	0.55	0.52	0.58	4.26	0.78
StarrValleyArea	43	1995	0.35	2.08	2.05	2.10	0.59	0.57	0.62	3.77	1.48
StarrValleyArea	43	1996	0.30	1.71	1.68	1.75	0.68	0.65	0.72	4.20	1.03
StarrValleyArea	43	1997	0.29	1.88	1.85	1.91	0.51	0.49	0.54	3.92	1.37
StarrValleyArea	43	1998	0.35	1.99	1.96	2.01	0.58	0.55	0.60	3.67	1.41
StarrValleyArea	43	1999	0.31	1.70	1.67	1.73	0.63	0.60	0.66	3.93	1.07
StarrValleyArea	43	2000	0.28	1.61	1.57	1.65	0.68	0.64	0.72	4.38	0.93
StarrValleyArea	43	2001	0.23	1.25	1.22	1.28	0.52	0.49	0.55	4.15	0.73
StarrValleyArea	43	2002	0.28	1.55	1.52	1.58	0.64	0.61	0.68	4.13	0.91
StarrValleyArea	43	2003	0.25	1.82	1.78	1.86	0.76	0.72	0.81	4.10	1.06
StarrValleyArea	43	2004	0.28	1.68	1.65	1.71	0.57	0.54	0.60	3.99	1.11
StarrValleyArea	43	2005	0.34	2.10	2.07	2.12	0.55	0.53	0.58	3.77	1.55
StarrValleyArea	43	2006	0.30	1.88	1.85	1.91	0.61	0.58	0.64	4.10	1.28
StarrValleyArea	43	2007	0.20	1.29	1.25	1.32	0.48	0.44	0.51	4.23	0.81
StarrValleyArea	43	2008	0.32	1.65	1.62	1.68	0.67	0.64	0.71	4.08	0.98
StarrValleyArea	43	2009	0.31	1.77	1.74	1.80	0.60	0.57	0.62	3.91	1.17
StarrValleyArea	43	2010	0.31	1.56	1.52	1.59	0.65	0.62	0.68	3.83	0.90
StarrValleyArea	43	2011	0.35	1.99	1.96	2.02	0.61	0.59	0.64	3.81	1.37
StarrValleyArea	43	2012	0.23	1.28	1.25	1.32	0.55	0.51	0.58	4.39	0.74
StarrValleyArea	43	2013	0.24	1.45	1.42	1.48	0.51	0.48	0.54	4.13	0.94
StarrValleyArea	43	2014	0.28	1.78	1.76	1.81	0.54	0.51	0.57	3.91	1.25
StarrValleyArea	43	2015	0.28	1.74	1.71	1.77	0.56	0.53	0.59	4.09	1.18

Table E-65. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Susie Creek Area.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
SusieCreekArea	50	1985	0.25	1.32	1.29	1.34	0.53	0.50	0.55	3.95	0.79
SusieCreekArea	50	1986	0.27	1.51	1.48	1.53	0.54	0.51	0.57	3.98	0.97
SusieCreekArea	50	1987	0.31	1.33	1.30	1.37	0.67	0.64	0.70	4.14	0.67
SusieCreekArea	50	1988	0.25	1.21	1.18	1.24	0.52	0.49	0.55	4.16	0.69
SusieCreekArea	50	1989	0.30	1.46	1.43	1.49	0.58	0.55	0.61	4.07	0.88
SusieCreekArea	50	1990	0.20	1.28	1.25	1.31	0.42	0.40	0.45	3.99	0.86
SusieCreekArea	50	1991	0.24	1.28	1.25	1.31	0.51	0.48	0.54	3.90	0.77
SusieCreekArea	50	1992	0.20	1.07	1.04	1.10	0.44	0.41	0.47	4.24	0.63
SusieCreekArea	50	1993	0.32	1.62	1.59	1.64	0.58	0.56	0.61	3.77	1.03
SusieCreekArea	50	1994	0.23	1.24	1.21	1.27	0.53	0.50	0.56	4.27	0.72
SusieCreekArea	50	1995	0.32	1.76	1.74	1.78	0.52	0.50	0.55	3.76	1.23
SusieCreekArea	50	1996	0.29	1.62	1.59	1.65	0.63	0.60	0.66	4.20	0.99
SusieCreekArea	50	1997	0.29	1.73	1.70	1.75	0.50	0.47	0.52	3.92	1.23
SusieCreekArea	50	1998	0.25	1.58	1.56	1.60	0.37	0.35	0.39	3.66	1.21
SusieCreekArea	50	1999	0.23	1.25	1.22	1.28	0.39	0.36	0.42	3.93	0.86
SusieCreekArea	50	2000	0.21	1.22	1.19	1.25	0.46	0.43	0.49	4.34	0.76
SusieCreekArea	50	2001	0.19	1.08	1.05	1.11	0.42	0.39	0.45	4.18	0.66
SusieCreekArea	50	2002	0.24	1.33	1.30	1.35	0.49	0.46	0.52	4.11	0.83
SusieCreekArea	50	2003	0.23	1.34	1.31	1.37	0.46	0.43	0.49	4.09	0.88
SusieCreekArea	50	2004	0.22	1.35	1.32	1.37	0.41	0.38	0.43	3.98	0.94
SusieCreekArea	50	2005	0.30	1.80	1.78	1.82	0.49	0.47	0.52	3.78	1.31
SusieCreekArea	50	2006	0.24	1.60	1.58	1.63	0.40	0.37	0.42	4.06	1.21
SusieCreekArea	50	2007	0.18	1.09	1.07	1.13	0.40	0.37	0.43	4.26	0.70
SusieCreekArea	50	2008	0.29	1.39	1.36	1.42	0.64	0.61	0.67	4.11	0.75
SusieCreekArea	50	2009	0.29	1.61	1.58	1.64	0.52	0.49	0.55	3.92	1.09
SusieCreekArea	50	2010	0.27	1.24	1.21	1.27	0.52	0.49	0.55	3.89	0.72
SusieCreekArea	50	2011	0.30	1.63	1.60	1.65	0.48	0.46	0.51	3.72	1.15
SusieCreekArea	50	2012	0.23	1.18	1.15	1.21	0.57	0.54	0.60	4.30	0.61
SusieCreekArea	50	2013	0.28	1.41	1.38	1.44	0.60	0.57	0.63	4.08	0.81
SusieCreekArea	50	2014	0.17	1.44	1.41	1.46	0.38	0.35	0.41	4.07	1.06
SusieCreekArea	50	2015	0.26	1.53	1.50	1.56	0.57	0.54	0.60	4.28	0.96

Table E-66. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Upper Reese River Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
UpperReeseRiverValley	56	1985	0.12	1.11	1.05	1.17	0.46	0.40	0.52	4.11	0.65
UpperReeseRiverValley	56	1986	0.14	1.25	1.19	1.32	0.64	0.58	0.71	4.27	0.61
UpperReeseRiverValley	56	1987	0.16	1.46	1.39	1.52	0.80	0.74	0.87	4.27	0.66
UpperReeseRiverValley	56	1988	0.15	1.51	1.45	1.57	0.68	0.62	0.74	4.19	0.83
UpperReeseRiverValley	56	1989	0.14	1.30	1.23	1.36	0.60	0.54	0.66	4.29	0.70
UpperReeseRiverValley	56	1990	0.07	0.96	0.91	1.02	0.25	0.20	0.31	4.21	0.71
UpperReeseRiverValley	56	1991	0.17	1.41	1.35	1.48	0.78	0.72	0.85	4.10	0.63
UpperReeseRiverValley	56	1992	0.13	1.09	1.03	1.16	0.53	0.46	0.59	4.30	0.57
UpperReeseRiverValley	56	1993	0.15	1.29	1.23	1.36	0.65	0.59	0.72	4.12	0.64
UpperReeseRiverValley	56	1994	0.14	1.23	1.16	1.29	0.65	0.58	0.71	4.45	0.58
UpperReeseRiverValley	56	1995	0.19	1.85	1.80	1.90	0.83	0.77	0.88	3.93	1.02
UpperReeseRiverValley	56	1996	0.15	1.39	1.32	1.46	0.76	0.69	0.82	4.42	0.64
UpperReeseRiverValley	56	1997	0.14	1.39	1.33	1.45	0.52	0.46	0.58	4.18	0.87
UpperReeseRiverValley	56	1998	0.17	1.84	1.80	1.89	0.60	0.55	0.65	3.79	1.24
UpperReeseRiverValley	56	1999	0.19	1.64	1.58	1.71	0.93	0.87	0.99	4.14	0.71
UpperReeseRiverValley	56	2000	0.13	1.21	1.14	1.28	0.57	0.50	0.64	4.55	0.64
UpperReeseRiverValley	56	2001	0.14	1.20	1.13	1.27	0.66	0.59	0.73	4.31	0.54
UpperReeseRiverValley	56	2002	0.13	1.17	1.10	1.24	0.64	0.57	0.71	4.43	0.53
UpperReeseRiverValley	56	2003	0.14	1.27	1.20	1.34	0.63	0.56	0.70	4.35	0.64
UpperReeseRiverValley	56	2004	0.12	1.11	1.05	1.18	0.50	0.43	0.56	4.35	0.61
UpperReeseRiverValley	56	2005	0.17	1.62	1.56	1.68	0.75	0.69	0.81	4.05	0.86
UpperReeseRiverValley	56	2006	0.16	1.43	1.36	1.49	0.75	0.68	0.82	4.35	0.68
UpperReeseRiverValley	56	2007	0.13	1.03	0.96	1.10	0.54	0.47	0.61	4.52	0.49
UpperReeseRiverValley	56	2008	0.13	1.09	1.02	1.16	0.60	0.53	0.67	4.38	0.48
UpperReeseRiverValley	56	2009	0.12	1.22	1.17	1.29	0.45	0.39	0.51	4.27	0.78
UpperReeseRiverValley	56	2010	0.13	1.03	0.97	1.10	0.57	0.51	0.64	4.19	0.46
UpperReeseRiverValley	56	2011	0.15	1.42	1.37	1.48	0.63	0.57	0.68	3.99	0.80
UpperReeseRiverValley	56	2012	0.13	1.04	0.97	1.11	0.56	0.49	0.64	4.57	0.48
UpperReeseRiverValley	56	2013	0.13	1.11	1.04	1.18	0.65	0.58	0.72	4.46	0.46
UpperReeseRiverValley	56	2014	0.11	1.35	1.28	1.41	0.54	0.48	0.61	4.37	0.80
UpperReeseRiverValley	56	2015	0.12	1.28	1.22	1.35	0.60	0.54	0.67	4.46	0.68

Table E-67. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Whirlwind Valley.

Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
WhirlwindValley	60	1985	0.12	1.12	1.06	1.19	0.46	0.40	0.53	4.27	0.66
WhirlwindValley	60	1986	0.14	1.34	1.28	1.41	0.58	0.51	0.65	4.36	0.77
WhirlwindValley	60	1987	0.15	1.40	1.33	1.47	0.66	0.60	0.73	4.36	0.74
WhirlwindValley	60	1988	0.13	1.27	1.21	1.34	0.53	0.47	0.60	4.45	0.74
WhirlwindValley	60	1989	0.12	1.19	1.12	1.26	0.47	0.40	0.54	4.37	0.72
WhirlwindValley	60	1990	0.06	0.97	0.91	1.03	0.23	0.17	0.29	4.28	0.74
WhirlwindValley	60	1991	0.14	1.20	1.14	1.27	0.56	0.50	0.63	4.18	0.64
WhirlwindValley	60	1992	0.10	0.86	0.79	0.94	0.34	0.27	0.41	4.62	0.52
WhirlwindValley	60	1993	0.14	1.42	1.36	1.48	0.58	0.52	0.64	4.11	0.84
WhirlwindValley	60	1994	0.12	1.16	1.09	1.23	0.50	0.43	0.57	4.58	0.66
WhirlwindValley	60	1995	0.14	1.62	1.57	1.68	0.53	0.48	0.59	4.18	1.09
WhirlwindValley	60	1996	0.12	1.31	1.24	1.38	0.53	0.46	0.60	4.66	0.78
WhirlwindValley	60	1997	0.12	1.49	1.43	1.55	0.46	0.40	0.52	4.35	1.03
WhirlwindValley	60	1998	0.12	1.56	1.51	1.62	0.39	0.34	0.44	4.06	1.17
WhirlwindValley	60	1999	0.11	1.14	1.08	1.21	0.43	0.37	0.50	4.50	0.71
WhirlwindValley	60	2000	0.10	1.09	1.03	1.17	0.39	0.32	0.46	4.82	0.71
WhirlwindValley	60	2001	0.10	0.91	0.85	0.99	0.32	0.26	0.39	4.54	0.59
WhirlwindValley	60	2002	0.09	0.96	0.89	1.03	0.32	0.26	0.39	4.60	0.64
WhirlwindValley	60	2003	0.09	1.02	0.96	1.09	0.31	0.25	0.38	4.56	0.71
WhirlwindValley	60	2004	0.09	1.16	1.10	1.23	0.28	0.22	0.35	4.42	0.88
WhirlwindValley	60	2005	0.13	1.56	1.50	1.62	0.49	0.43	0.55	4.21	1.07
WhirlwindValley	60	2006	0.10	1.24	1.18	1.30	0.34	0.28	0.41	4.54	0.90
WhirlwindValley	60	2007	0.08	0.81	0.75	0.89	0.24	0.17	0.31	4.69	0.58
WhirlwindValley	60	2008	0.09	0.81	0.74	0.88	0.26	0.19	0.33	4.62	0.55
WhirlwindValley	60	2009	0.09	1.19	1.14	1.26	0.26	0.20	0.32	4.41	0.93
WhirlwindValley	60	2010	0.09	0.76	0.70	0.83	0.22	0.16	0.29	4.34	0.54
WhirlwindValley	60	2011	0.09	1.08	1.03	1.15	0.23	0.18	0.29	4.20	0.85
WhirlwindValley	60	2012	0.08	0.64	0.56	0.72	0.21	0.14	0.29	4.86	0.42
WhirlwindValley	60	2013	0.09	0.85	0.78	0.92	0.26	0.20	0.33	4.54	0.59
WhirlwindValley	60	2014	0.09	1.10	1.04	1.17	0.26	0.20	0.32	4.55	0.85
WhirlwindValley	60	2015	0.07	1.04	0.98	1.11	0.21	0.15	0.28	4.72	0.83

Table E-68. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Willow Creek Valley.

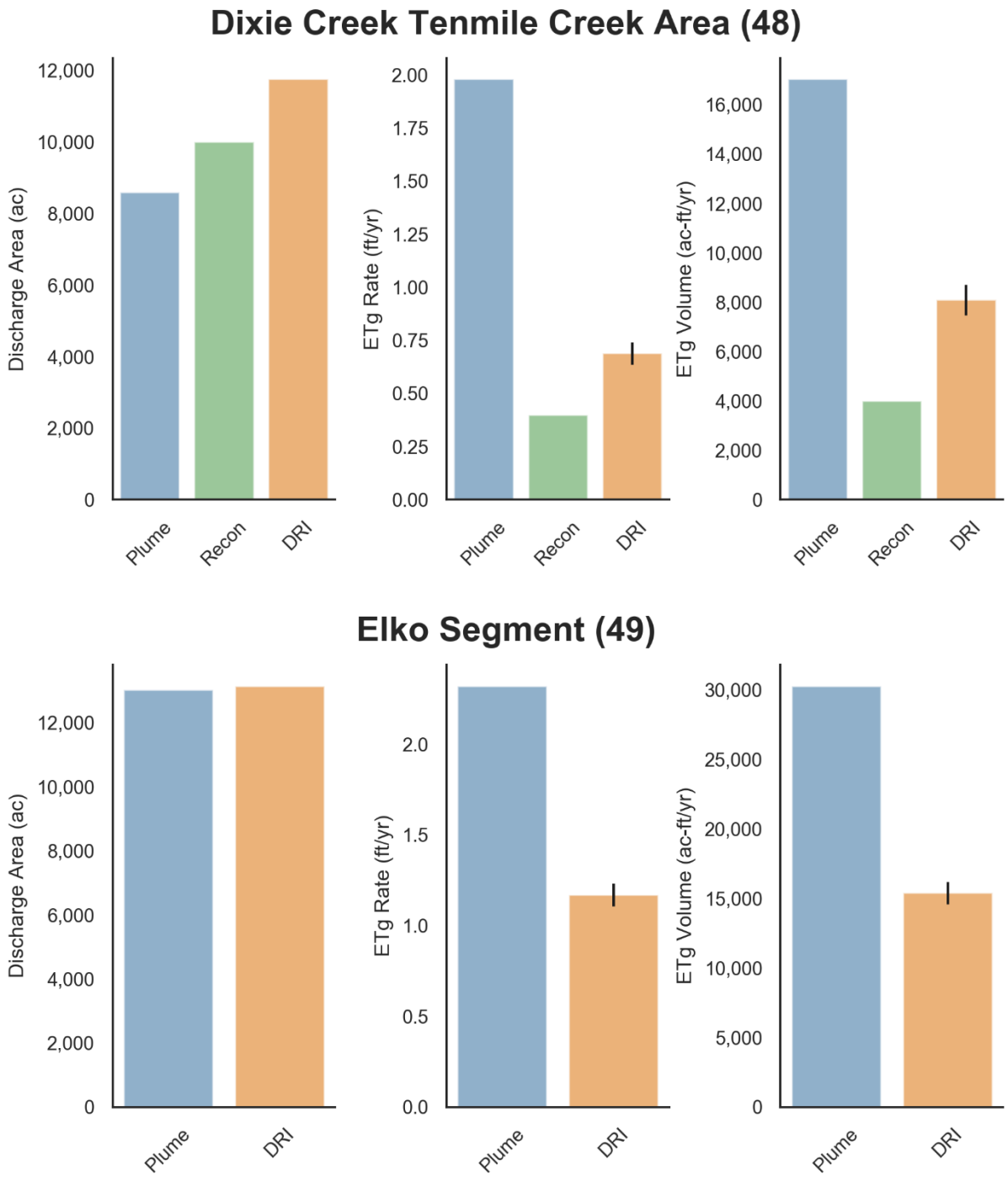
Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
WillowCreekValley	63	1985	0.15	1.35	1.30	1.40	0.52	0.47	0.57	4.10	0.83
WillowCreekValley	63	1986	0.19	1.71	1.66	1.76	0.71	0.66	0.76	4.16	1.00
WillowCreekValley	63	1987	0.19	1.54	1.48	1.59	0.75	0.69	0.80	4.29	0.79
WillowCreekValley	63	1988	0.16	1.34	1.28	1.39	0.59	0.53	0.64	4.37	0.75
WillowCreekValley	63	1989	0.18	1.58	1.53	1.63	0.68	0.62	0.73	4.24	0.90
WillowCreekValley	63	1990	0.10	1.16	1.12	1.21	0.28	0.23	0.33	4.14	0.89
WillowCreekValley	63	1991	0.19	1.42	1.37	1.47	0.65	0.60	0.70	4.09	0.77
WillowCreekValley	63	1992	0.14	1.07	1.01	1.13	0.49	0.43	0.54	4.44	0.58
WillowCreekValley	63	1993	0.20	1.74	1.69	1.78	0.67	0.63	0.72	3.89	1.06
WillowCreekValley	63	1994	0.15	1.24	1.18	1.29	0.51	0.46	0.57	4.45	0.73
WillowCreekValley	63	1995	0.22	1.99	1.94	2.03	0.74	0.70	0.78	3.94	1.25
WillowCreekValley	63	1996	0.17	1.64	1.59	1.69	0.62	0.57	0.67	4.38	1.02
WillowCreekValley	63	1997	0.18	1.81	1.76	1.85	0.60	0.55	0.64	4.11	1.21
WillowCreekValley	63	1998	0.17	1.82	1.78	1.86	0.47	0.43	0.50	3.82	1.35
WillowCreekValley	63	1999	0.17	1.52	1.48	1.58	0.62	0.57	0.67	4.14	0.91
WillowCreekValley	63	2000	0.15	1.35	1.29	1.40	0.53	0.48	0.59	4.53	0.82
WillowCreekValley	63	2001	0.16	1.23	1.17	1.28	0.56	0.51	0.62	4.30	0.66
WillowCreekValley	63	2002	0.14	1.33	1.28	1.39	0.49	0.44	0.55	4.35	0.84
WillowCreekValley	63	2003	0.12	1.20	1.15	1.26	0.36	0.31	0.41	4.34	0.84
WillowCreekValley	63	2004	0.15	1.51	1.46	1.56	0.49	0.44	0.54	4.23	1.02
WillowCreekValley	63	2005	0.16	1.63	1.59	1.67	0.43	0.39	0.47	3.97	1.20
WillowCreekValley	63	2006	0.16	1.72	1.67	1.77	0.50	0.45	0.54	4.26	1.22
WillowCreekValley	63	2007	0.14	1.22	1.16	1.27	0.52	0.47	0.58	4.50	0.69
WillowCreekValley	63	2008	0.17	1.38	1.33	1.44	0.65	0.59	0.70	4.32	0.73
WillowCreekValley	63	2009	0.15	1.44	1.39	1.49	0.49	0.44	0.54	4.18	0.95
WillowCreekValley	63	2010	0.19	1.34	1.29	1.40	0.67	0.62	0.72	4.04	0.67
WillowCreekValley	63	2011	0.20	1.81	1.77	1.85	0.65	0.61	0.70	3.97	1.16
WillowCreekValley	63	2012	0.15	1.18	1.12	1.25	0.58	0.52	0.64	4.65	0.61
WillowCreekValley	63	2013	0.18	1.51	1.46	1.57	0.67	0.62	0.73	4.31	0.84
WillowCreekValley	63	2014	0.12	1.50	1.46	1.55	0.44	0.39	0.49	4.31	1.06
WillowCreekValley	63	2015	0.14	1.64	1.59	1.69	0.43	0.38	0.48	4.46	1.21

Table E-69. Annual time series of median EVI, ET, ETg, ETo, and PPT rates from 1985-2015 for groundwater discharge areas excluding riparian discharge areas – Winnemucca Segment.

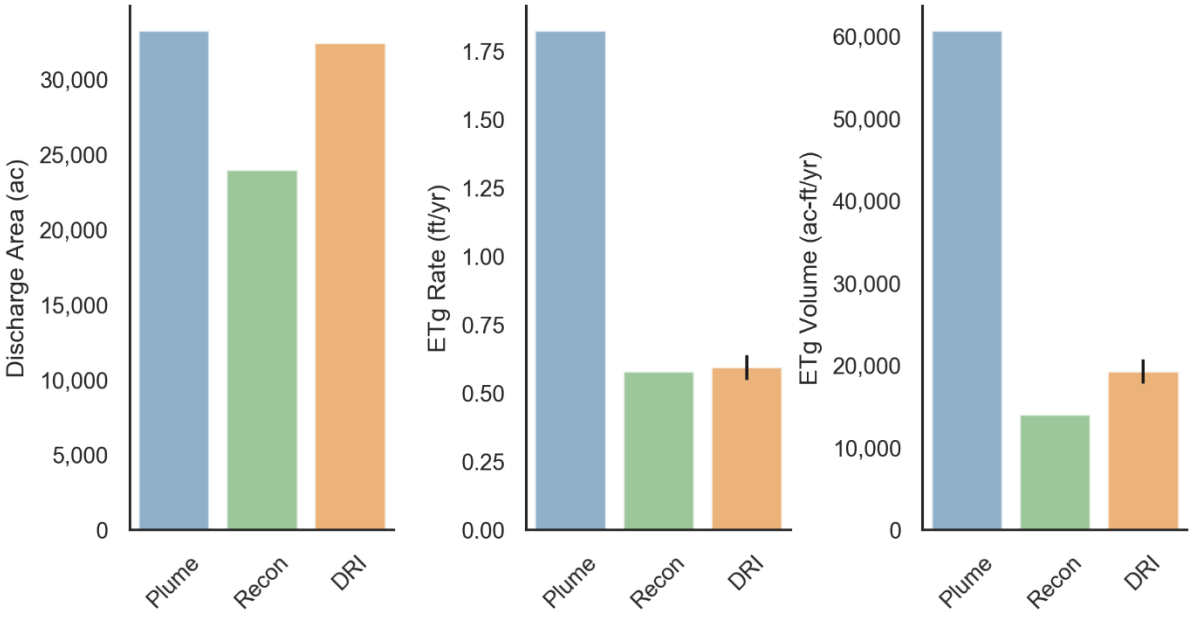
Basin	HA #	Year	EVI	ET (ft/yr)	ET-LCI (ft/yr)	ET-UCI (ft/yr)	ETg (ft/yr)	ETg-LCI (ft/yr)	ETg-UCI (ft/yr)	ETo (ft/water year)	Precip. (ft/water year)
WinnemuccaSegment	70	1985	0.15	1.13	1.08	1.18	0.46	0.41	0.50	4.30	0.67
WinnemuccaSegment	70	1986	0.16	1.31	1.27	1.36	0.50	0.45	0.54	4.38	0.82
WinnemuccaSegment	70	1987	0.16	1.15	1.11	1.20	0.49	0.44	0.54	4.43	0.67
WinnemuccaSegment	70	1988	0.13	0.97	0.92	1.02	0.32	0.28	0.37	4.51	0.65
WinnemuccaSegment	70	1989	0.12	1.07	1.02	1.11	0.39	0.34	0.44	4.46	0.68
WinnemuccaSegment	70	1990	0.12	1.04	0.99	1.08	0.35	0.30	0.39	4.32	0.69
WinnemuccaSegment	70	1991	0.16	1.14	1.09	1.18	0.44	0.40	0.49	4.30	0.69
WinnemuccaSegment	70	1992	0.11	0.73	0.68	0.78	0.27	0.22	0.32	4.64	0.46
WinnemuccaSegment	70	1993	0.18	1.37	1.33	1.42	0.55	0.50	0.59	4.13	0.83
WinnemuccaSegment	70	1994	0.14	0.92	0.87	0.97	0.37	0.32	0.43	4.65	0.54
WinnemuccaSegment	70	1995	0.19	1.59	1.55	1.63	0.55	0.51	0.59	4.10	1.04
WinnemuccaSegment	70	1996	0.16	1.32	1.27	1.36	0.49	0.44	0.54	4.52	0.83
WinnemuccaSegment	70	1997	0.19	1.51	1.47	1.56	0.54	0.50	0.58	4.32	0.97
WinnemuccaSegment	70	1998	0.20	1.83	1.80	1.86	0.51	0.48	0.54	3.92	1.32
WinnemuccaSegment	70	1999	0.18	1.26	1.21	1.31	0.57	0.52	0.62	4.29	0.69
WinnemuccaSegment	70	2000	0.15	1.14	1.09	1.19	0.45	0.40	0.50	4.58	0.69
WinnemuccaSegment	70	2001	0.17	1.08	1.03	1.13	0.51	0.46	0.56	4.41	0.57
WinnemuccaSegment	70	2002	0.19	1.19	1.14	1.24	0.56	0.51	0.62	4.52	0.62
WinnemuccaSegment	70	2003	0.16	1.10	1.05	1.14	0.42	0.37	0.47	4.46	0.68
WinnemuccaSegment	70	2004	0.15	1.05	1.00	1.10	0.43	0.38	0.48	4.45	0.62
WinnemuccaSegment	70	2005	0.19	1.51	1.46	1.55	0.61	0.56	0.65	4.18	0.90
WinnemuccaSegment	70	2006	0.19	1.50	1.46	1.55	0.64	0.59	0.69	4.42	0.86
WinnemuccaSegment	70	2007	0.16	1.03	0.97	1.08	0.51	0.46	0.56	4.66	0.52
WinnemuccaSegment	70	2008	0.17	1.08	1.03	1.13	0.52	0.47	0.57	4.51	0.56
WinnemuccaSegment	70	2009	0.14	1.27	1.22	1.32	0.48	0.43	0.52	4.37	0.79
WinnemuccaSegment	70	2010	0.19	1.20	1.15	1.25	0.61	0.56	0.66	4.23	0.59
WinnemuccaSegment	70	2011	0.23	1.75	1.70	1.79	0.79	0.74	0.83	4.11	0.96
WinnemuccaSegment	70	2012	0.17	1.21	1.16	1.27	0.70	0.64	0.75	4.78	0.52
WinnemuccaSegment	70	2013	0.15	1.15	1.10	1.20	0.50	0.45	0.55	4.55	0.65
WinnemuccaSegment	70	2014	0.14	1.34	1.30	1.39	0.47	0.43	0.52	4.45	0.87
WinnemuccaSegment	70	2015	0.15	1.24	1.19	1.29	0.42	0.38	0.47	4.52	0.82

APPENDIX F: BAR CHARTS ILLUSTRATING ESTIMATED DISCHARGE AREAS, ETg RATES, AND ETg VOLUMES

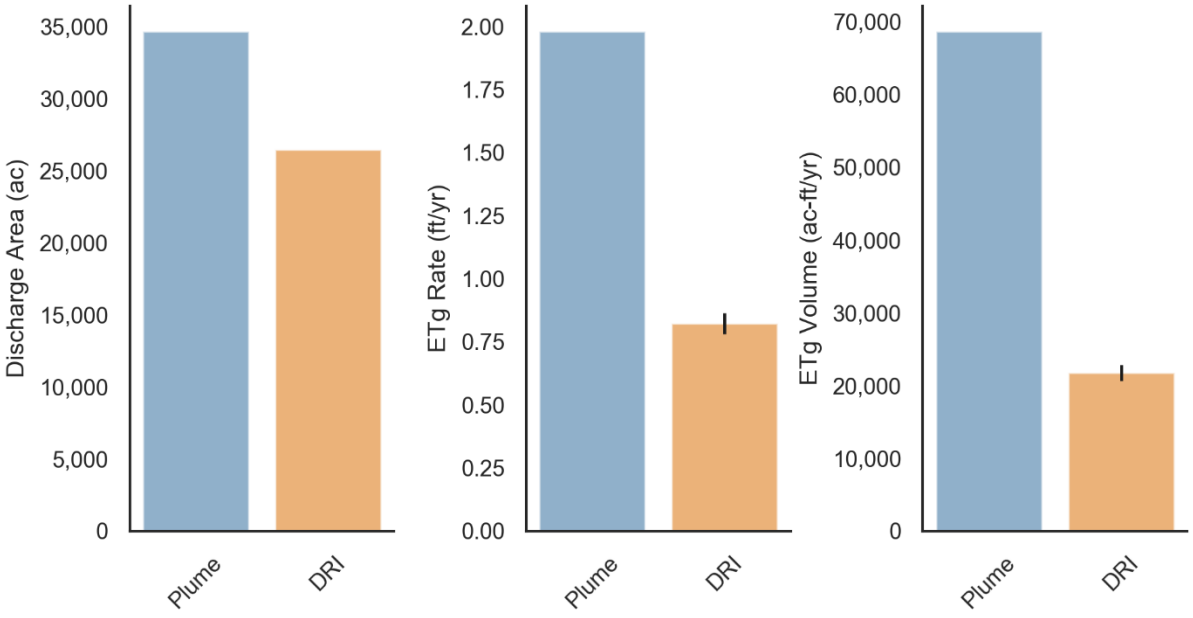
Bar charts illustrating estimated discharge areas, ETg rates, and ETg volumes reported in this study and previous studies for each HA. Vertical whiskers represent the range of previously reported estimates, and upper- and lower-90 percent confidence intervals reported in this study.

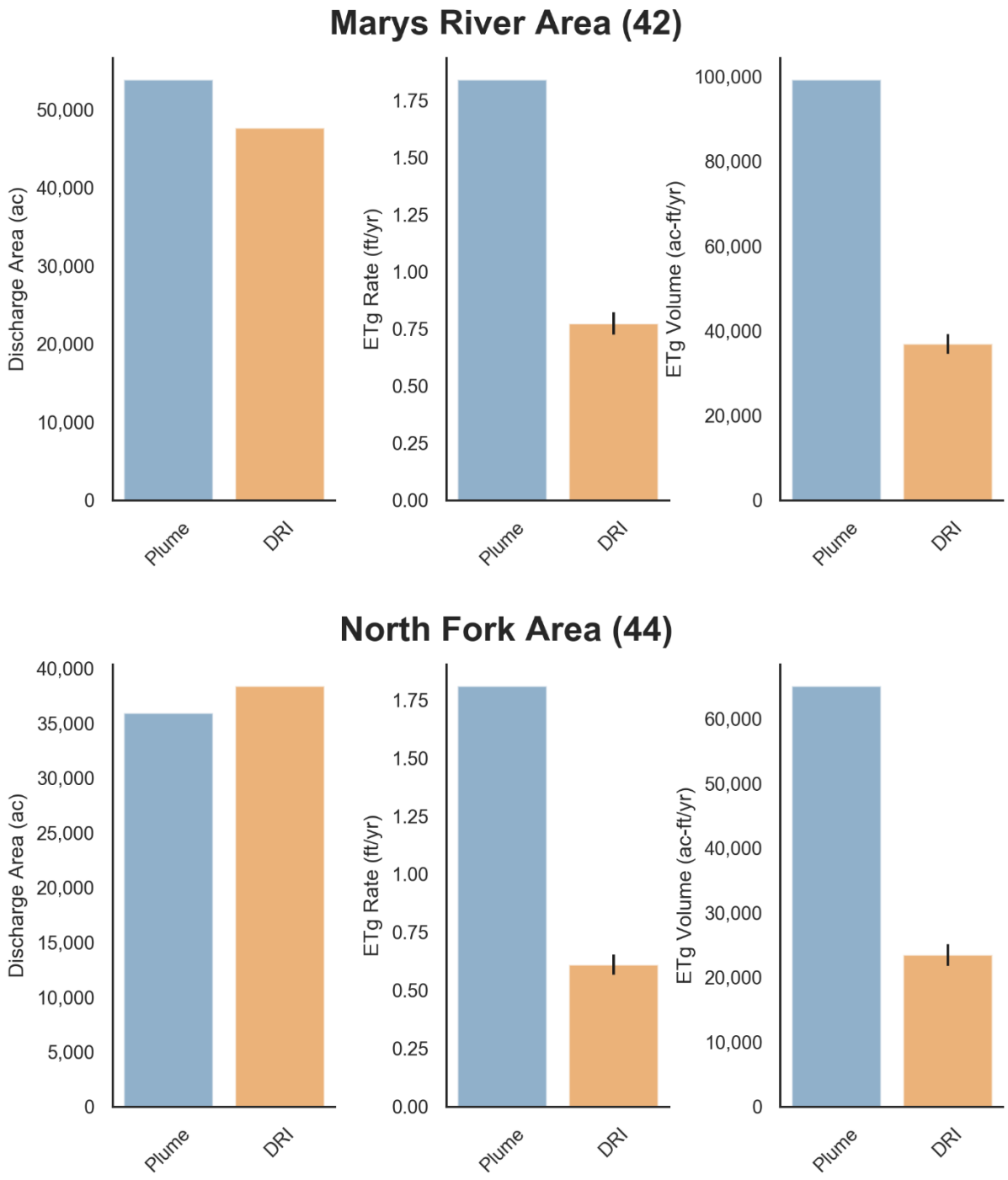

Dixie Creek Tenmile Creek Area (48)
Discharge Area (ac)
12,000
10,000
8,000
6,000
4,000
2,000
0
Plume
Recon
DRI
ETg Rate (ft/yr)
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
ETg Volume (ac-ft/yr)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
Elko Segment (49)
30,000
25,000
20,000
15,000
5,000
2.0
1.5
1.0
0.5
0.0

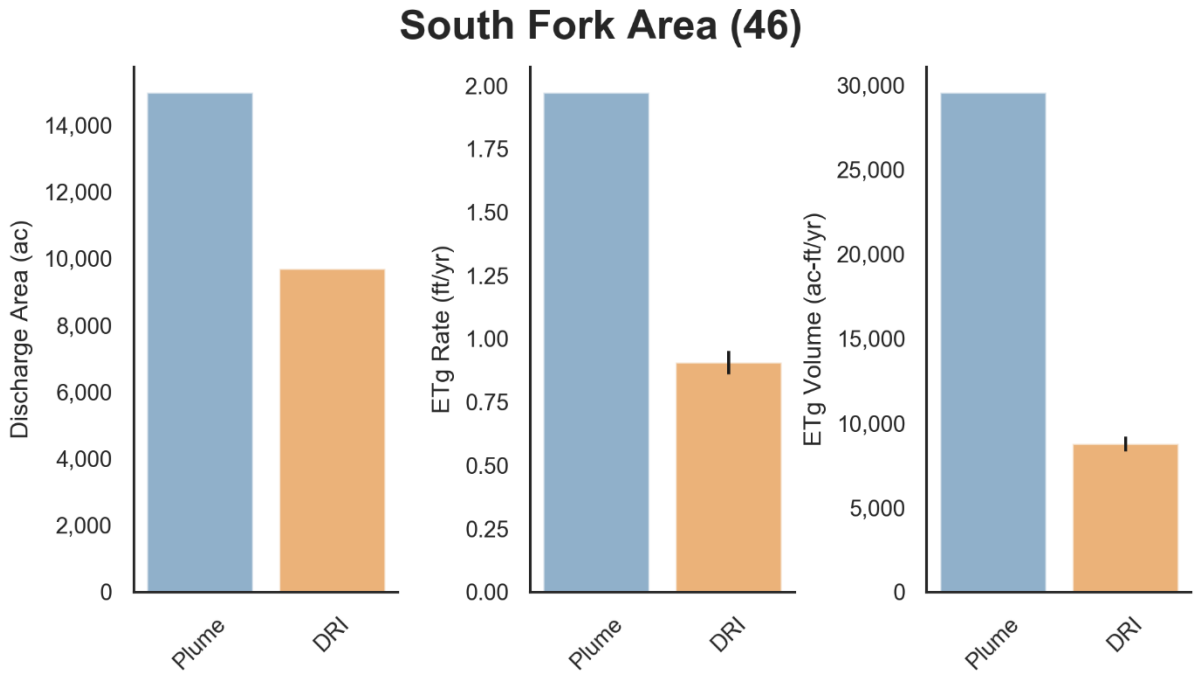
Huntington Valley (47)

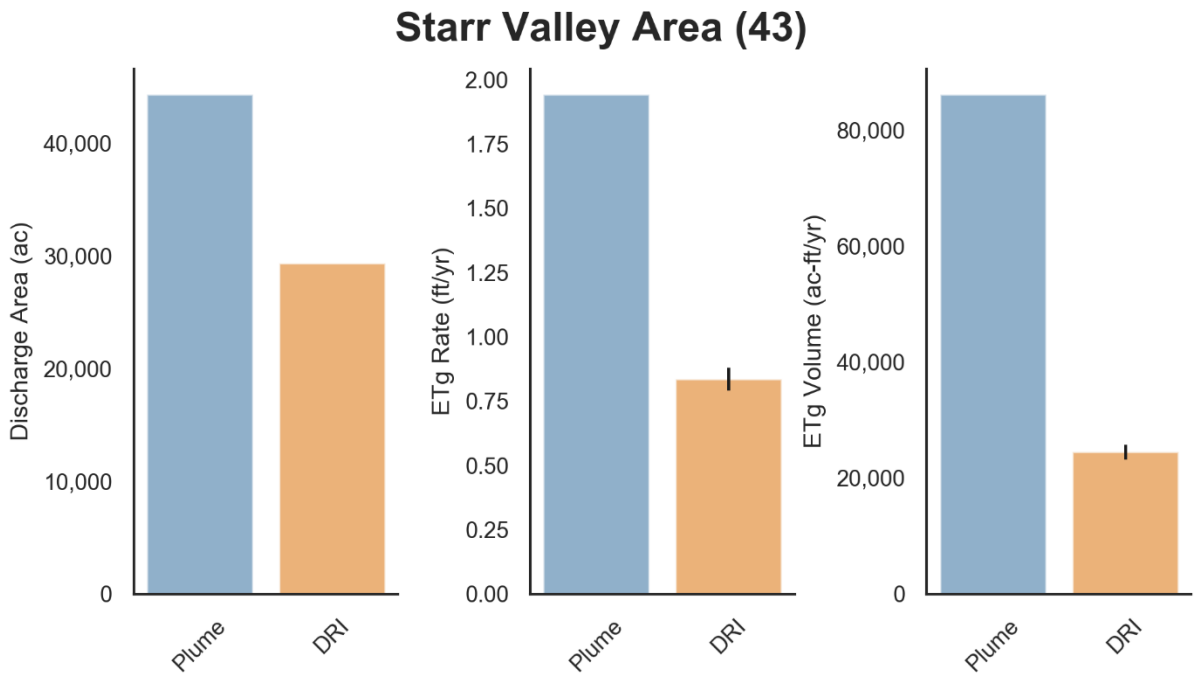


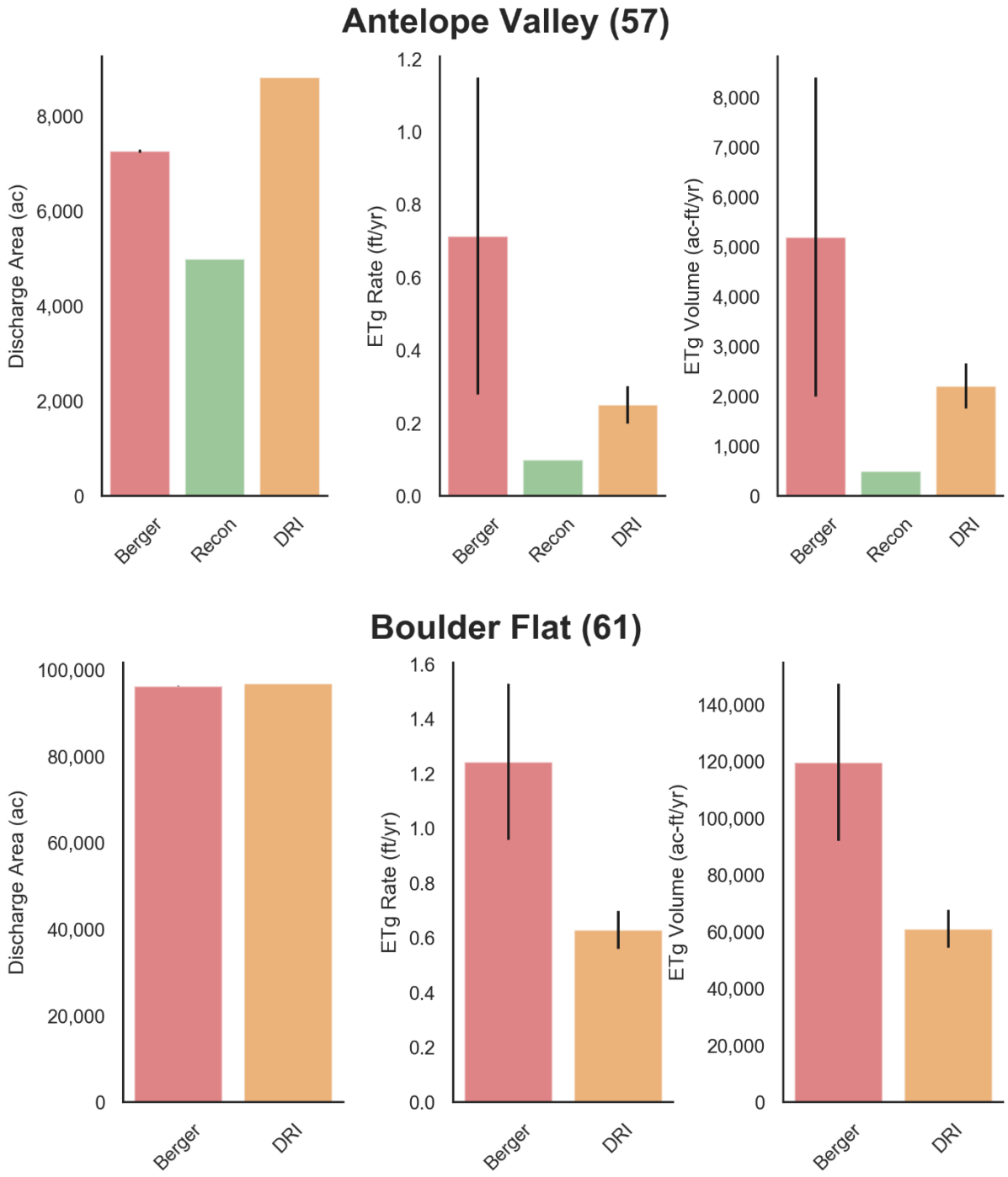
Lamoille Valley (45)

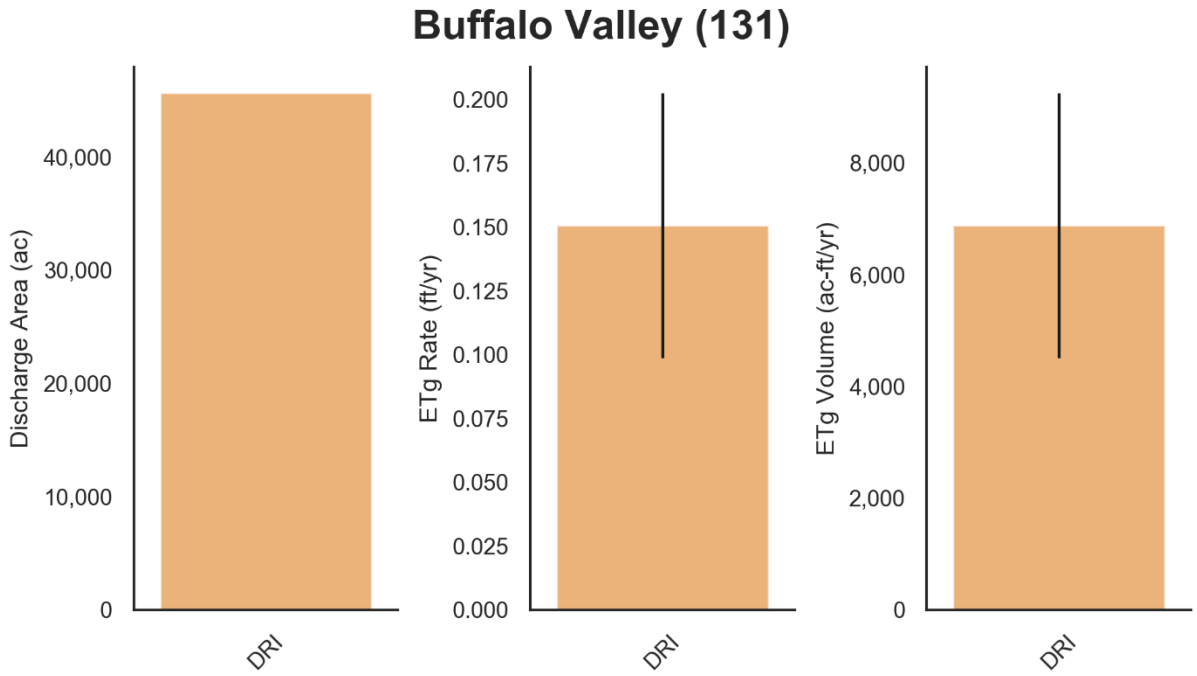


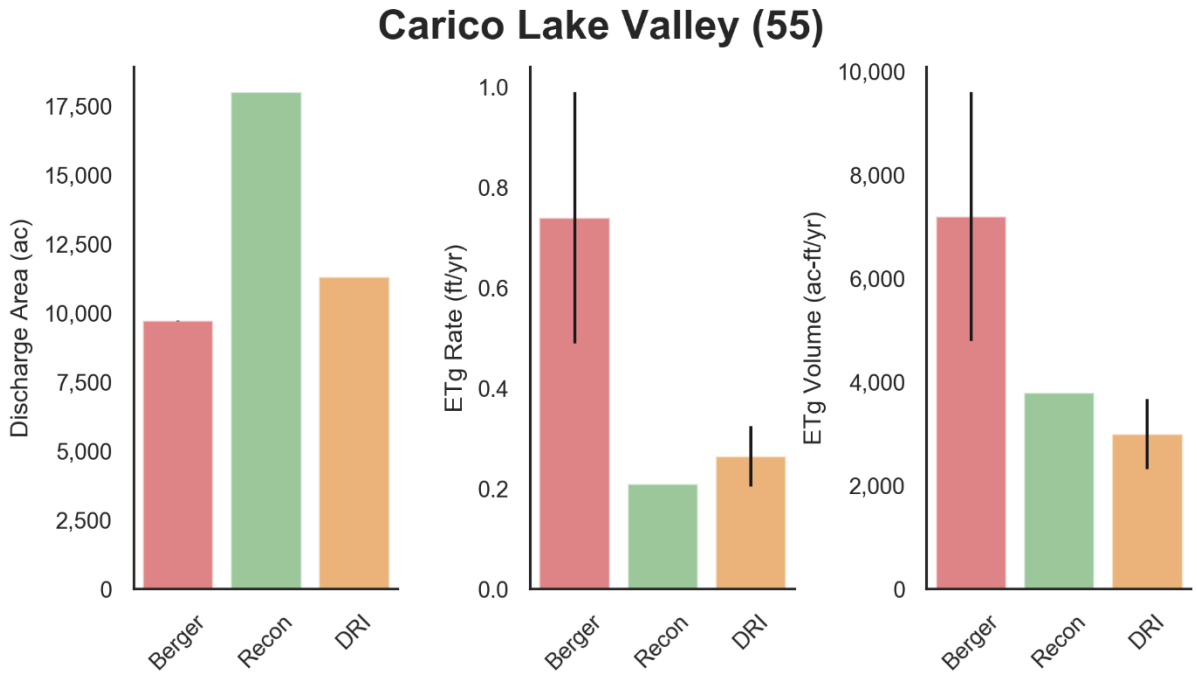

Marys River Area (42)
Discharge Area (ac)
50,000
40,000
30,000
20,000
10,000
0
Plume
DRI
ETg Rate (ft/yr)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Plume
DRI
ETg Volume (ac-ft/yr)
100,000
80,000
60,000
40,000
20,000
0
Plume
DRI
North Fork Area (44)
Discharge Area (ac)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Plume
DRI
ETg Rate (ft/yr)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Plume
DRI
ETg Volume (ac-ft/yr)
60,000
50,000
40,000
30,000
20,000
10,000
0
Plume
DRI


South Fork Area (46)
Discharge Area (ac)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Plume
DRI
ETg Rate (ft/yr)
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Plume
DRI
ETg Volume (ac-ft/yr)
30,000
25,000
20,000
15,000
10,000
5,000
0
Plume
DRI

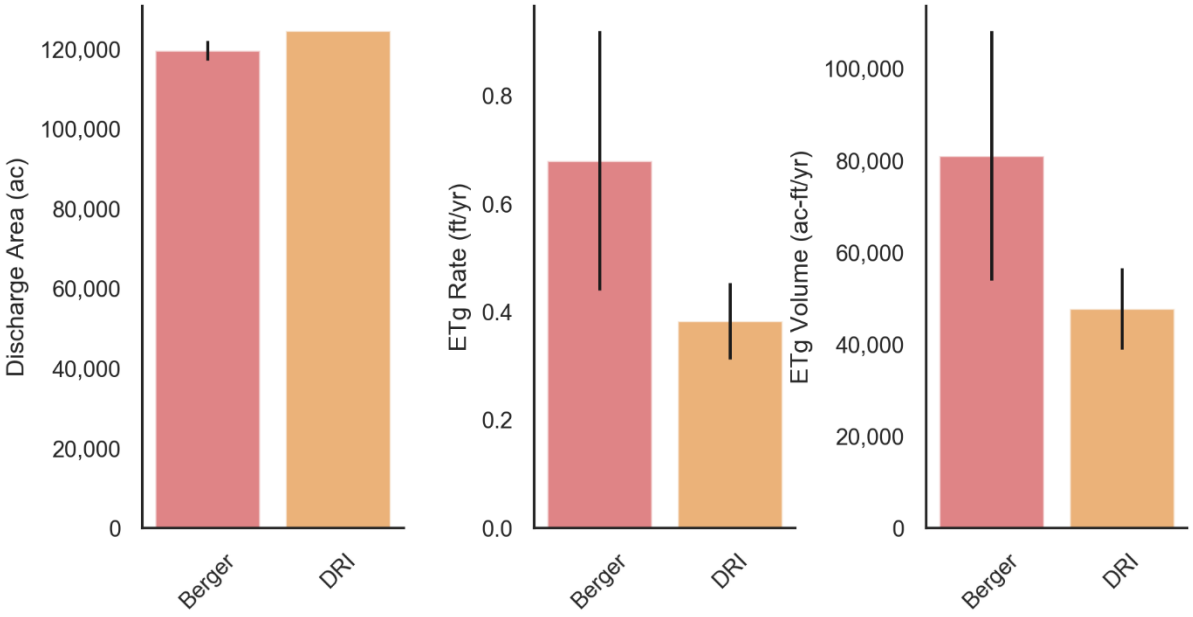

Starr Valley Area (43)
Discharge Area (ac)
40,000
30,000
20,000
10,000
0
Plume
DRI
ETg Rate (ft/yr)
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Plume
DRI
ETg Volume (ac-ft/yr)
80,000
60,000
40,000
20,000
0
Plume
DRI


Antelope Valley (57)
Discharge Area (ac)
8,000
6,000
4,000
2,000
0
Berger
Recon
DRI
ETg Rate (ft/yr)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Berger
Recon
DRI
ETg Volume (ac-ft/yr)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Berger
Recon
DRI
Boulder Flat (61)
Discharge Area (ac)
100,000
80,000
60,000
40,000
20,000
0
Berger
DRI
ETg Rate (ft/yr)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Berger
DRI
ETg Volume (ac-ft/yr)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Berger
DRI

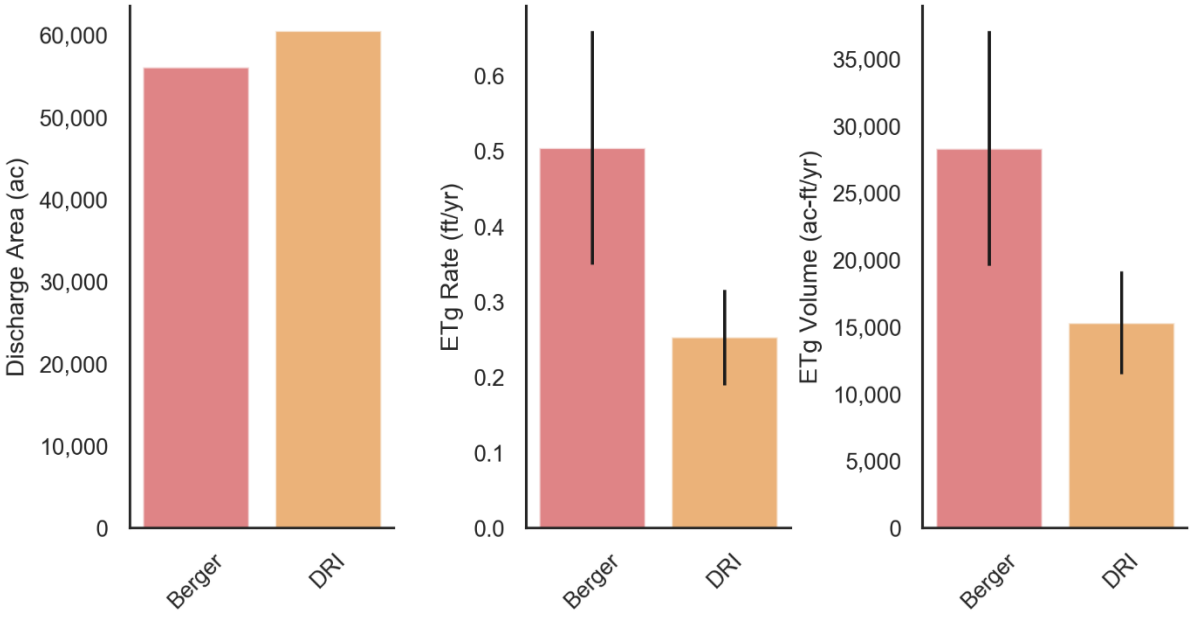

Buffalo Valley (131)
Discharge Area (ac)
40,000
30,000
20,000
10,000
0
DRI
ETg Rate (ft/yr)
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
DRI
ETg Volume (ac-ft/yr)
8,000
6,000
4,000
2,000
0
DRI

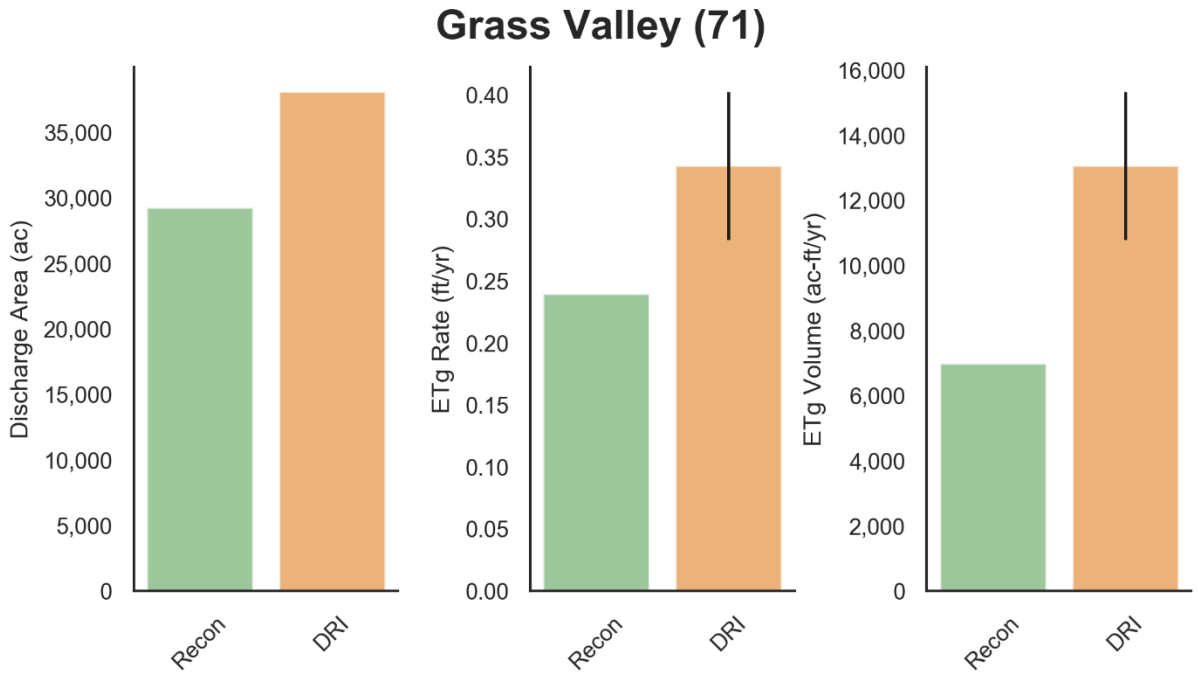

Carico Lake Valley (55)
Discharge Area (ac)
17,500
15,000
12,500
10,000
7,500
5,000
2,500
0
Berger
Recon
DRI
ETg Rate (ft/yr)
1.0
0.8
0.6
0.4
0.2
0.0
Berger
Recon
DRI
ETg Volume (ac-ft/yr)
10,000
8,000
6,000
4,000
2,000
0
Berger
Recon
DRI

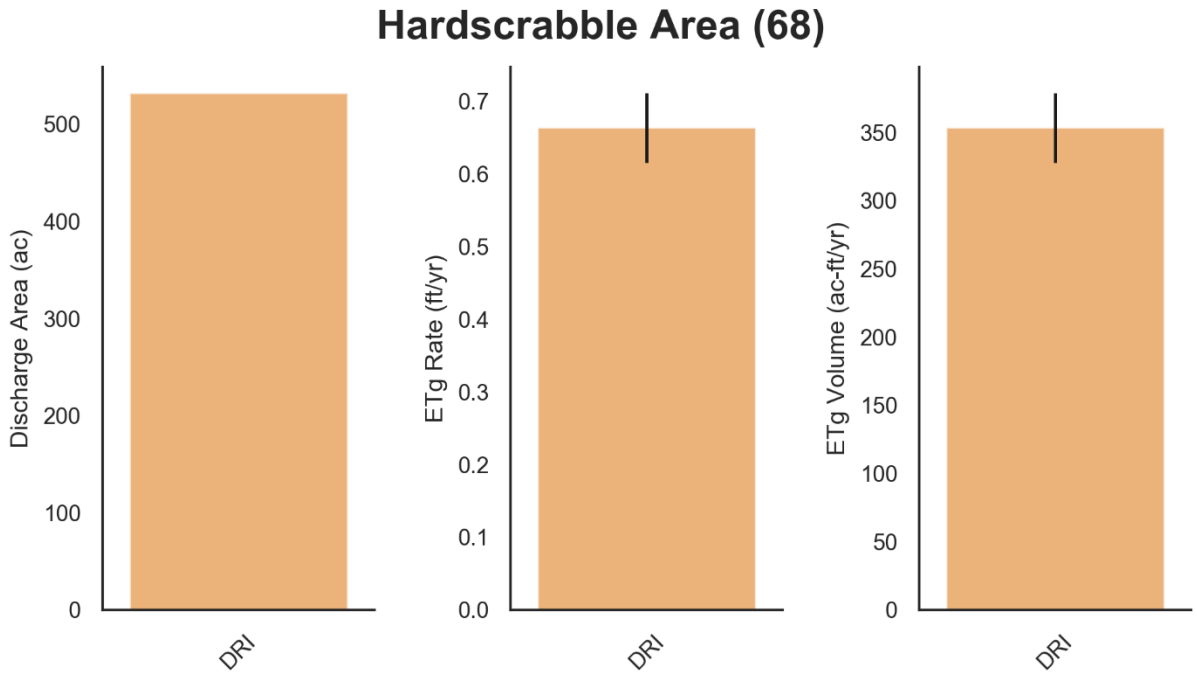
Clovers Area (64)

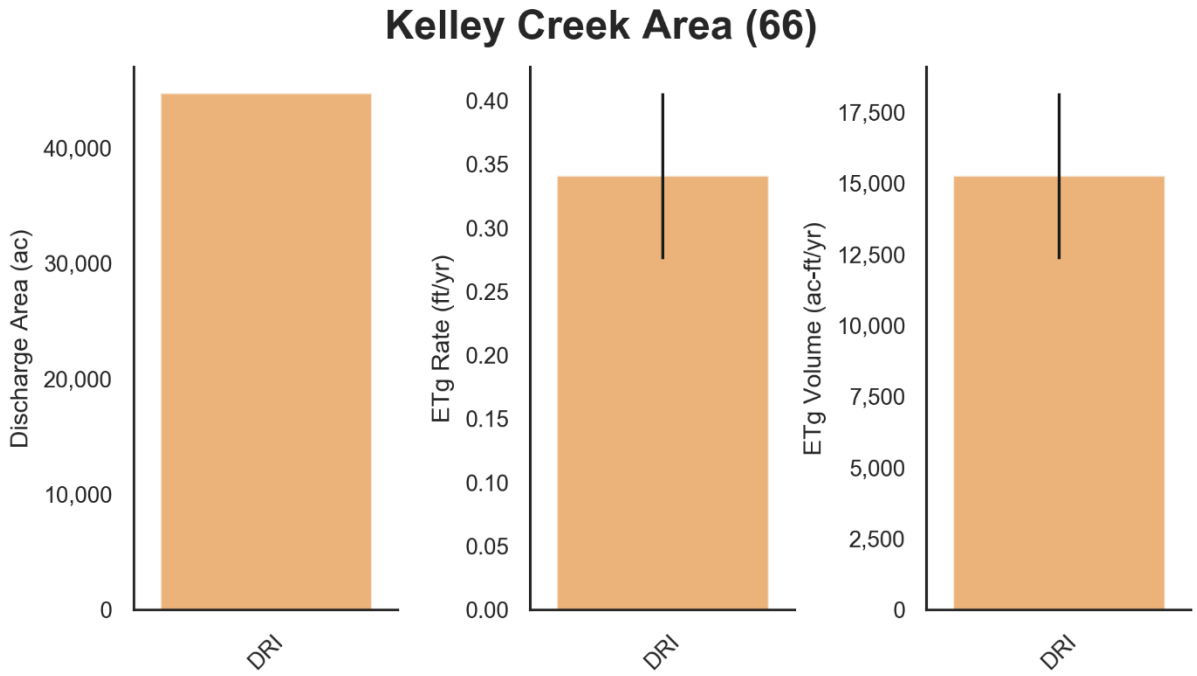


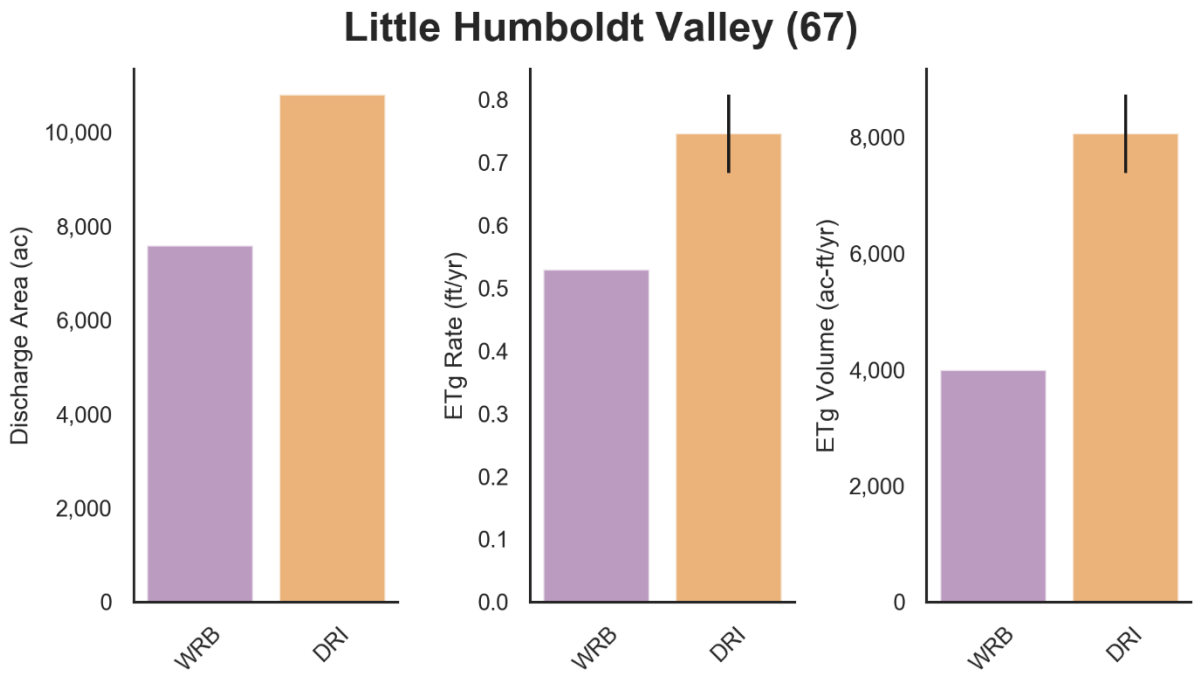
Crescent Valley (54)

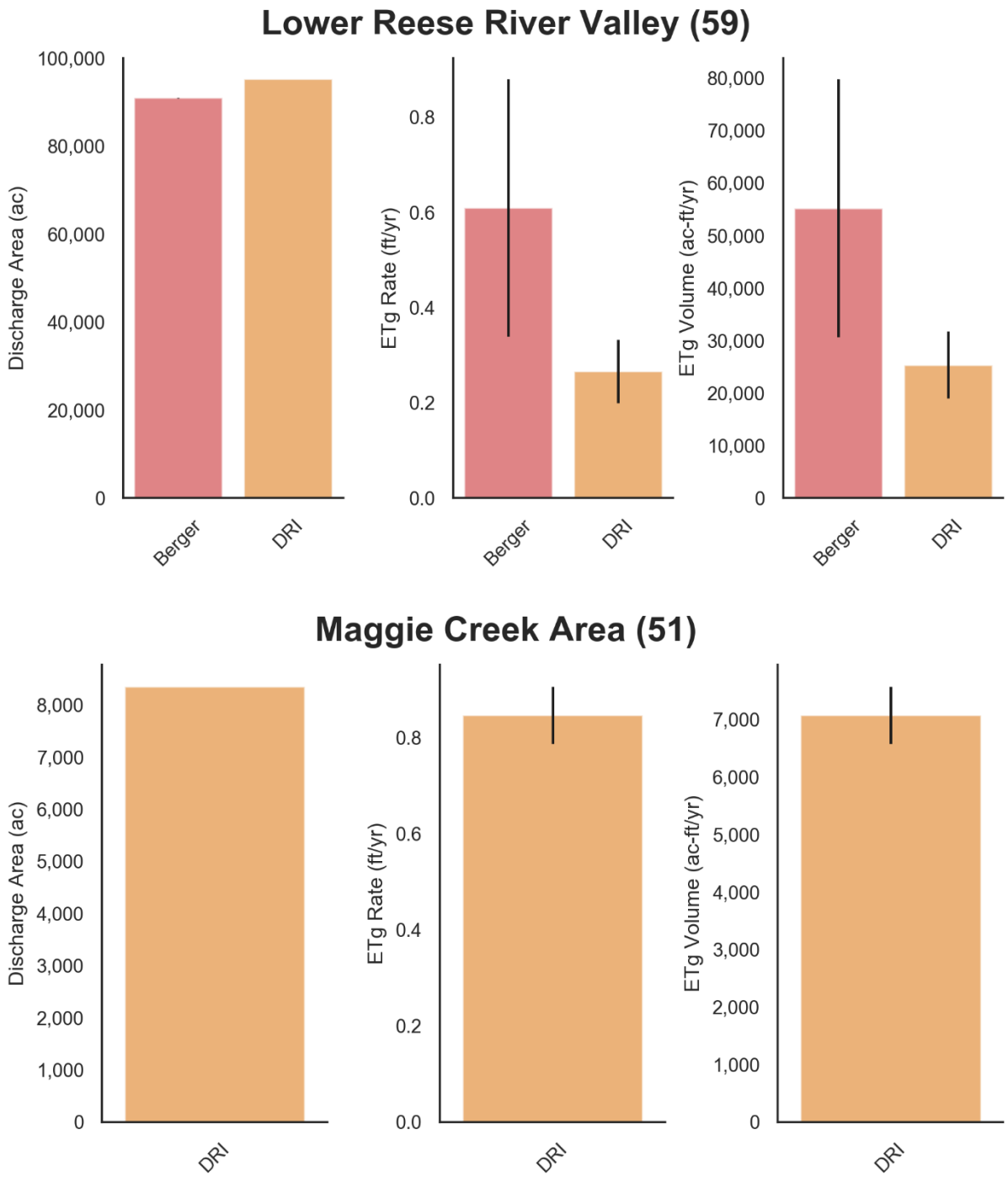



Grass Valley (71)
Discharge Area (ac)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Recon
DRI
ETg Rate (ft/yr)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Recon
DRI
ETg Volume (ac-ft/yr)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Recon
DRI

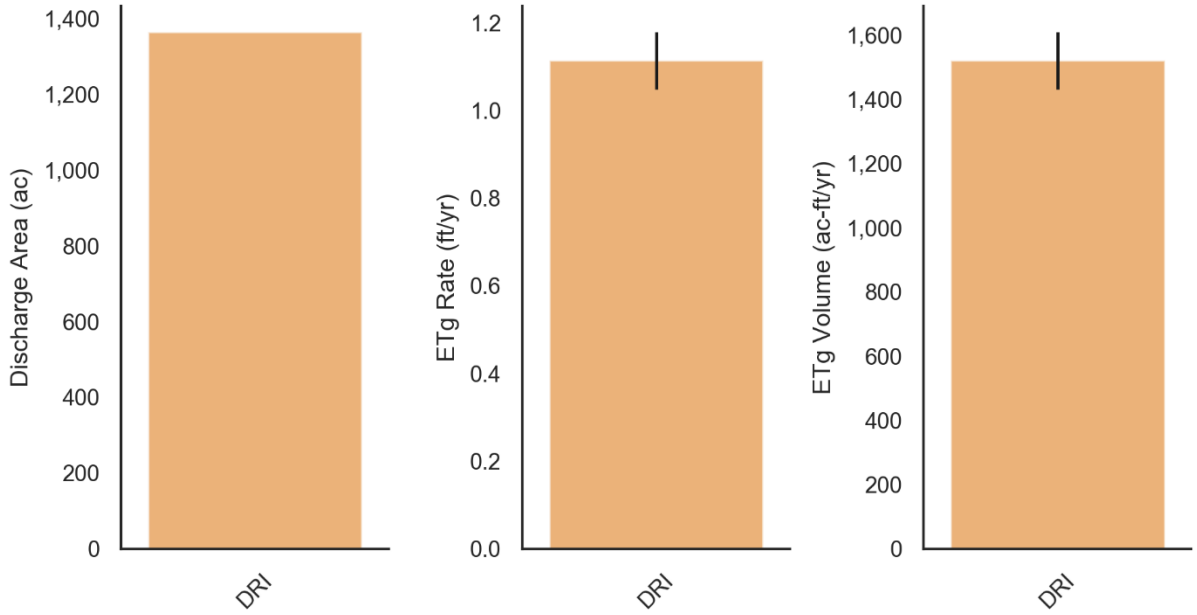

Hardscrabble Area (68)
Discharge Area (ac)
500
400
300
200
100
0
DRI
ETg Rate (ft/yr)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
DRI
ETg Volume (ac-ft/yr)
350
300
250
200
150
100
50
0
DRI


Kelley Creek Area (66)
Discharge Area (ac)
40,000
30,000
20,000
10,000
0
DRI
ETg Rate (ft/yr)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
DRI
ETg Volume (ac-ft/yr)
17,500
15,000
12,500
10,000
7,500
5,000
2,500
0
DRI

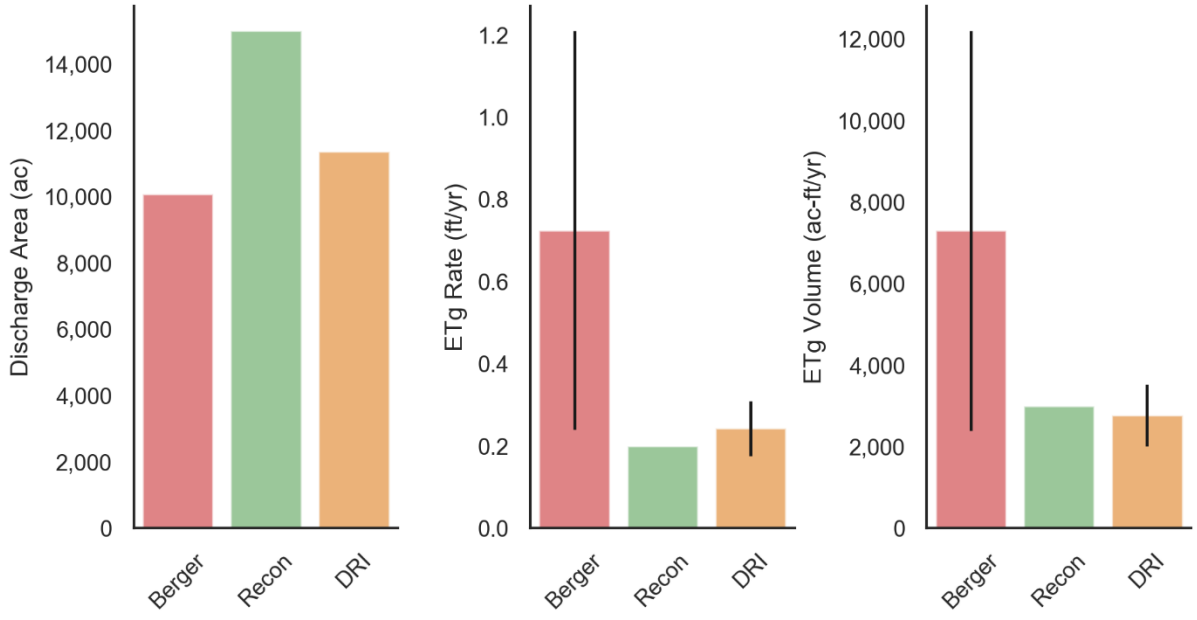

Little Humboldt Valley (67)
Discharge Area (ac)
10,000
8,000
6,000
4,000
2,000
0
WRB
DRI
ETg Rate (ft/yr)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
WRB
DRI
ETg Volume (ac-ft/yr)
8,000
6,000
4,000
2,000
0
WRB
DRI

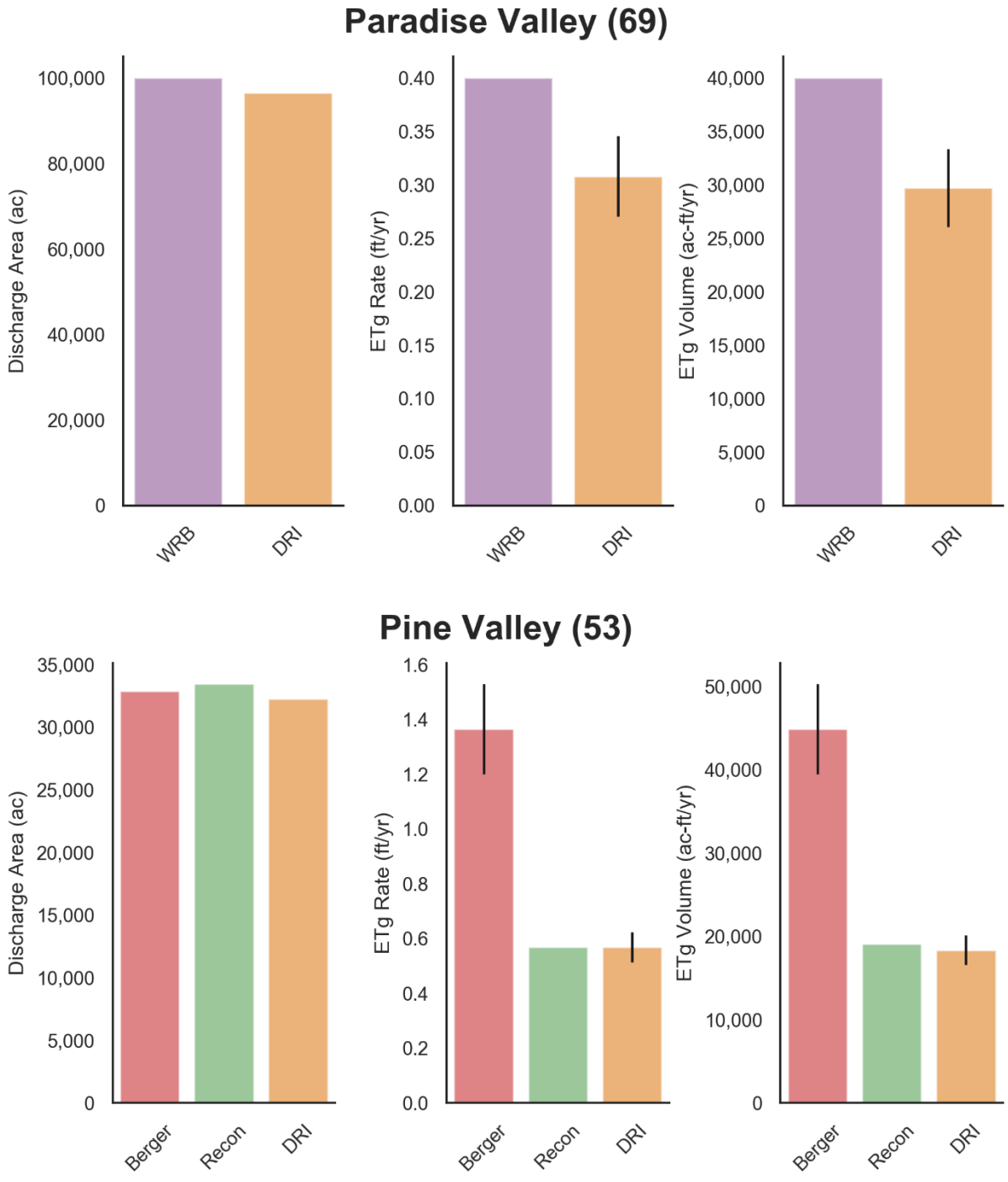

Lower Reese River Valley (59)
Discharge Area (ac)
100,000
80,000
60,000
40,000
20,000
0
Berger
DRI
ETg Rate (ft/yr)
0.8
0.6
0.4
0.2
0.0
Berger
DRI
ETg Volume (ac-ft/yr)
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Berger
DRI
Maggie Creek Area (51)
Discharge Area (ac)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
DRI
ETg Rate (ft/yr)
0.8
0.6
0.4
0.2
0.0
DRI
ETg Volume (ac-ft/yr)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
DRI

Marys Creek Area (52)

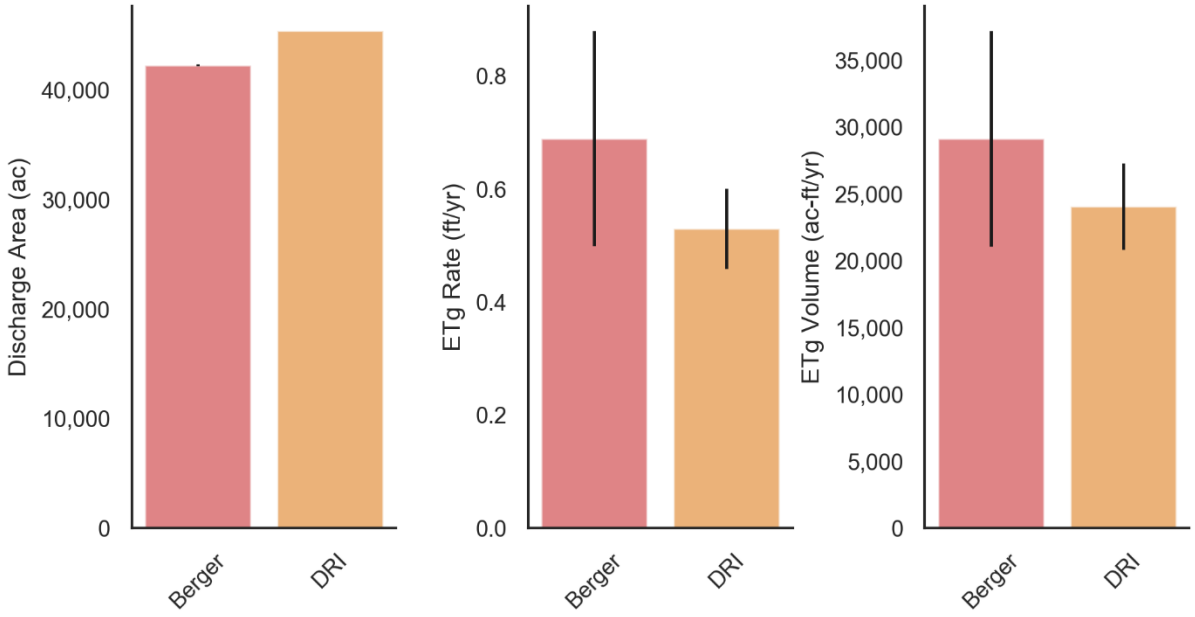


Middle Reese River Valley (58)

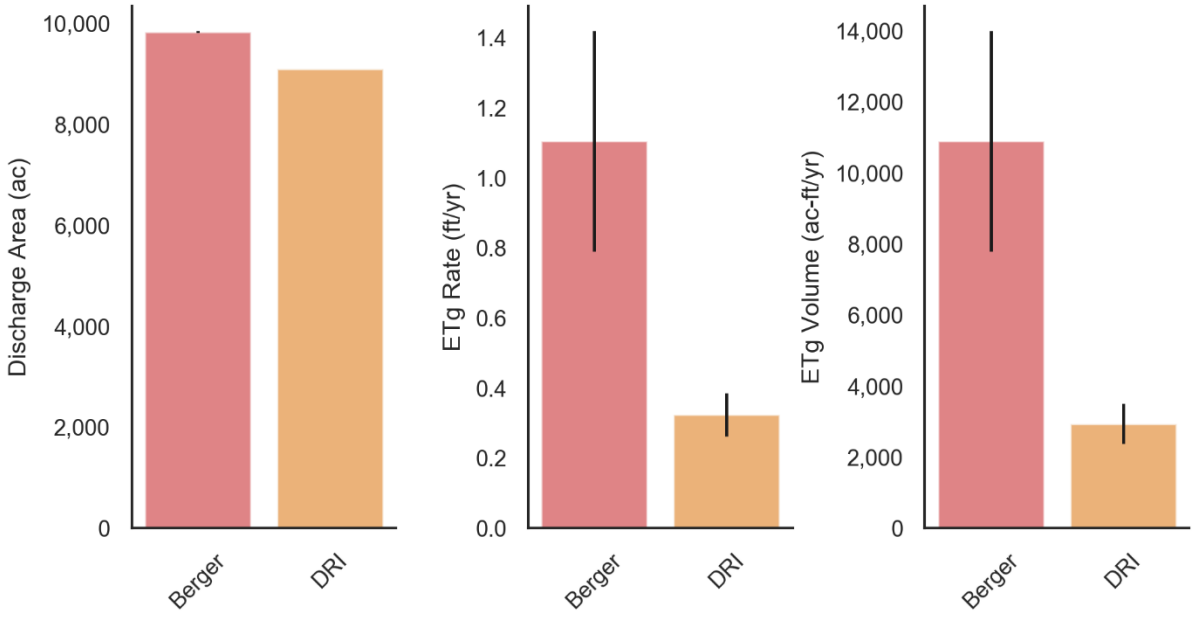


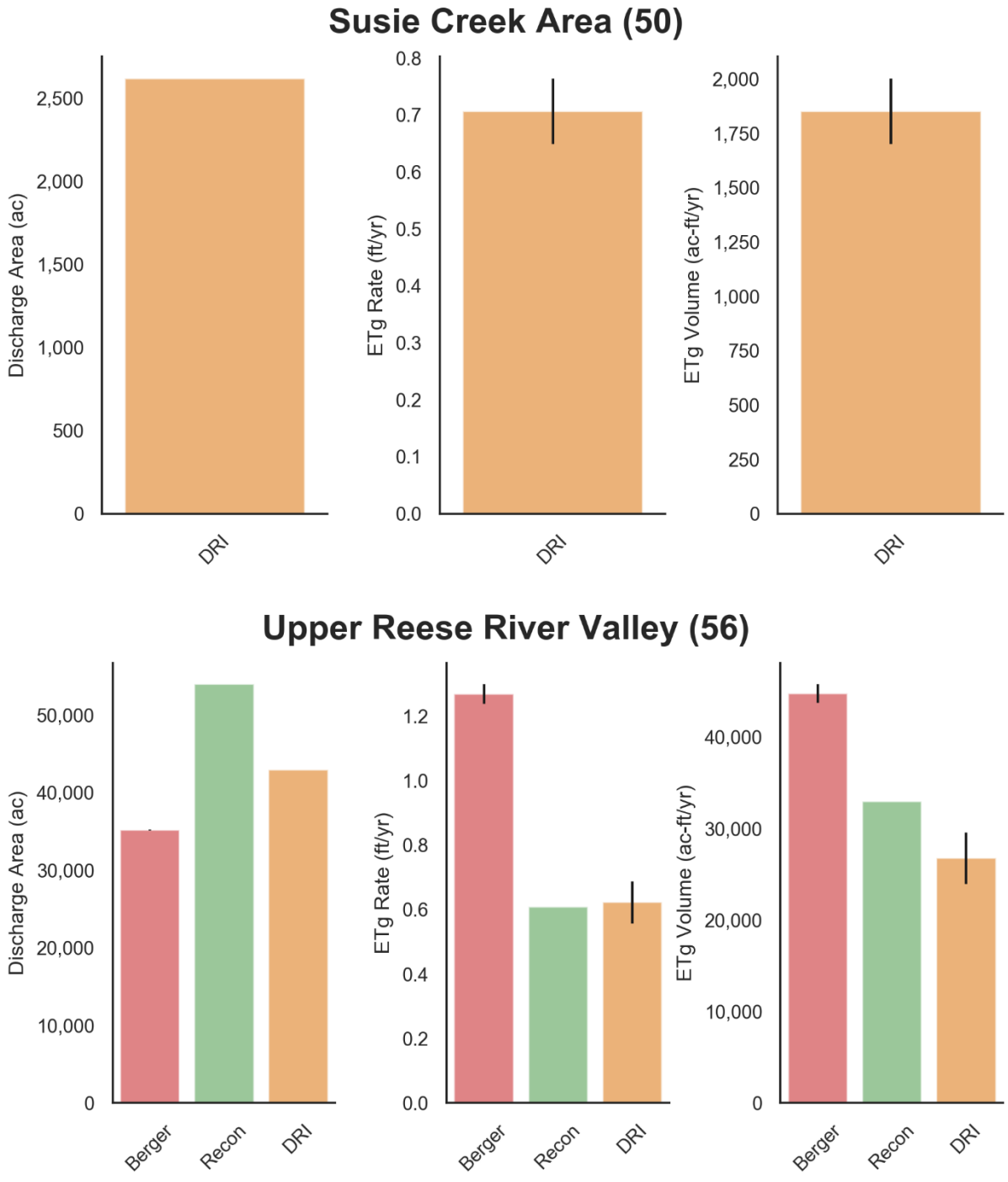

Paradise Valley (69)
Discharge Area (ac)
100,000
80,000
60,000
40,000
20,000
0
WRB
DRI
ETg Rate (ft/yr)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
WRB
DRI
ETg Volume (ac-ft/yr)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
WRB
DRI
Pine Valley (53)
Discharge Area (ac)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Berger
Recon
DRI
ETg Rate (ft/yr)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Berger
Recon
DRI
ETg Volume (ac-ft/yr)
50,000
40,000
30,000
20,000
10,000
0
Berger
Recon
DRI

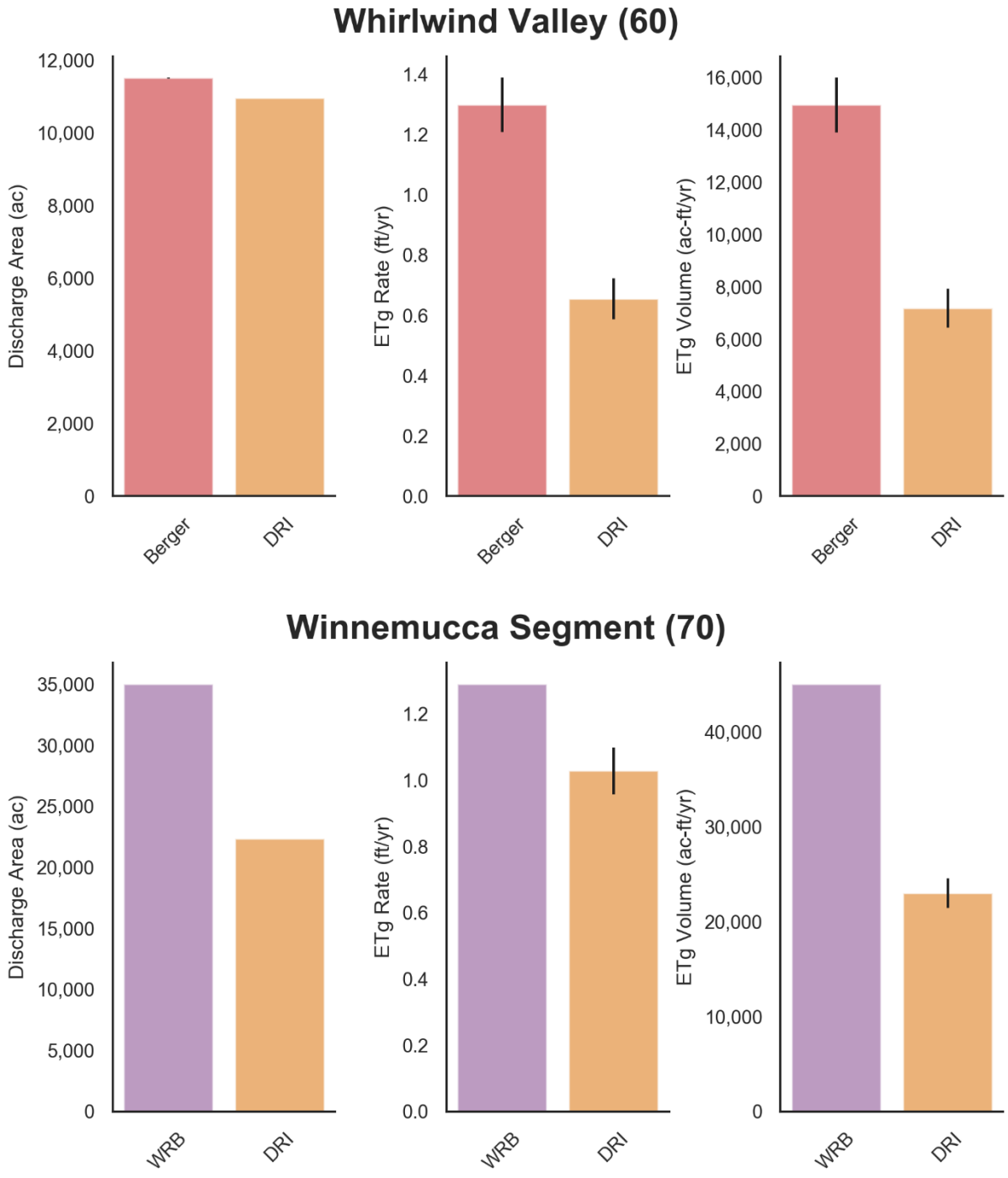
Pumpernickel Valley (65)

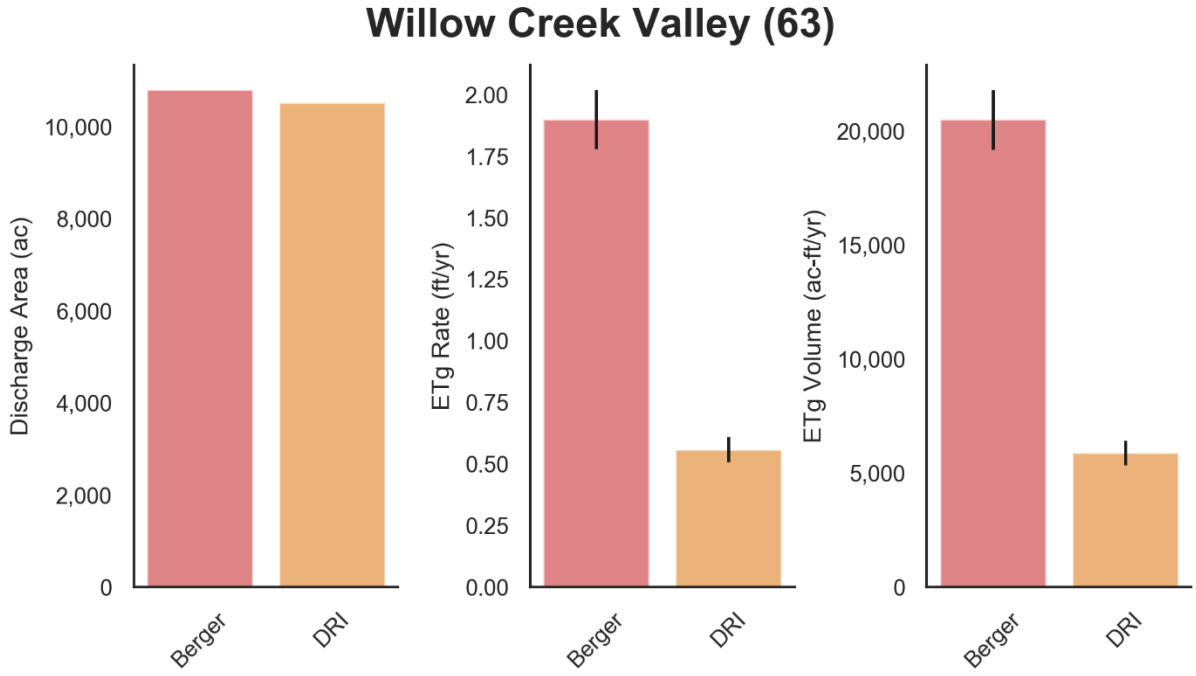


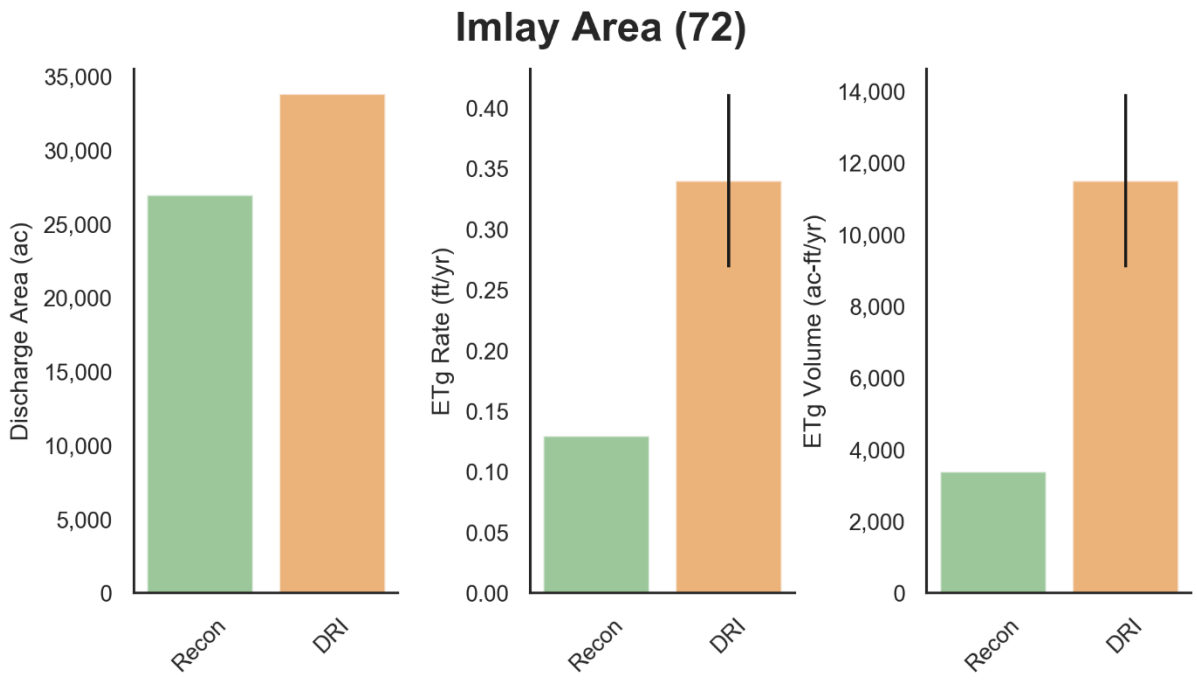
Rock Creek Valley (62)

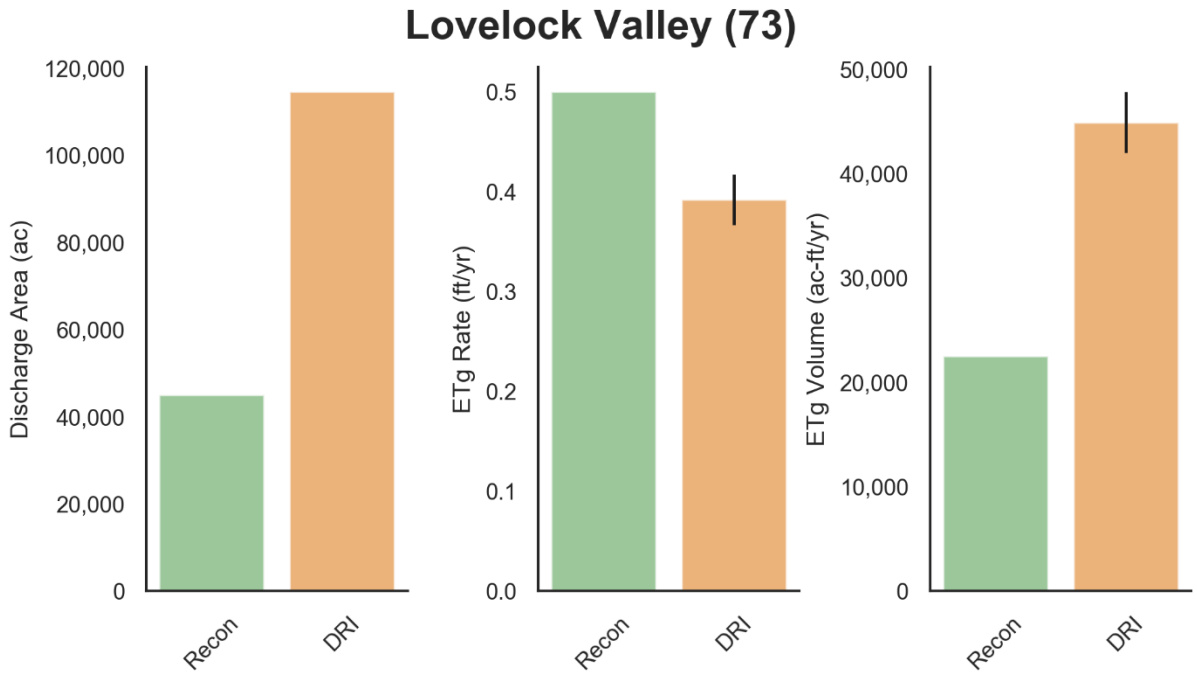



Susie Creek Area (50)
Discharge Area (ac)
2,500
2,000
1,500
1,000
500
0
DRI
ETg Rate (ft/yr)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
DRI
ETg Volume (ac-ft/yr)
2,000
1,750
1,500
1,250
1,000
750
500
250
0
DRI
Upper Reese River Valley (56)
Discharge Area (ac)
50,000
40,000
30,000
20,000
10,000
0
Berger
Recon
DRI
ETg Rate (ft/yr)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Berger
Recon
DRI
ETg Volume (ac-ft/yr)
40,000
30,000
20,000
10,000
0
Berger
Recon
DRI


Whirlwind Valley (60)
Discharge Area (ac)
12,000
10,000
8,000
6,000
4,000
2,000
0
Berger
DRI
ETg Rate (ft/yr)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Berger
DRI
ETg Volume (ac-ft/yr)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Berger
DRI
Winnemucca Segment (70)
Discharge Area (ac)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
WRB
DRI
ETg Rate (ft/yr)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
WRB
DRI
ETg Volume (ac-ft/yr)
40,000
30,000
20,000
10,000
0
WRB
DRI


Willow Creek Valley (63)
Discharge Area (ac)
10,000
8,000
6,000
4,000
2,000
0
Berger
DRI
ETg Rate (ft/yr)
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Berger
DRI
ETg Volume (ac-ft/yr)
20,000
15,000
10,000
5,000
0
Berger
DRI


Imlay Area (72)
Discharge Area (ac)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Recon
DRI
ETg Rate (ft/yr)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Recon
DRI
ETg Volume (ac-ft/yr)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Recon
DRI


Lovelock Valley (73)
Discharge Area (ac)
120,000
100,000
80,000
60,000
40,000
20,000
0
Recon
DRI
ETg Rate (ft/yr)
0.5
0.4
0.3
0.2
0.1
0.0
Recon
DRI
ETg Volume (ac-ft/yr)
50,000
40,000
30,000
20,000
10,000
0
Recon
DRI