

2019 EUREKA CONSERVATION DISTRICT RESOURCE NEEDS ASSESSMENT



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Developed in cooperation with the Eureka County Conservation District and partnering local governing entities and non-governmental organizations & individuals supporting sustained multiple-use resource management initiatives on private and public lands.

TABLE OF CONTENTS

Executive Summary

Identified Resource Concerns

Focus Group Discussions and Summary - Prioritized Resource Concerns in Eureka County

Soil

Water

Air

Plants

Animal

Human Interface

Discussion Items Relative to Resource Concerns Not Directly Associated with SWAPA + H

Resource Concerns Modeling Tool - NRCS Conservation Practice Physical Effects Matrix

Irrigated Cropland

Rangeland

Riparian Rangeland

Local Partners and Focus Group Initiative, 2018 & 2019 Meeting & Group Sessions

Eureka County Rural & Urban Community Setting and Culture

Economy

Recreation

Resource Discussion Initiative, Protocols and Resource Areas of Concern

MLRA 28B - Central Nevada Basin & Range

MLRA 25 - Owyhee High Plateau

Resource Needs Assessment Survey Poll - Department of Economic and Cooperative Extension - Reserved

Eureka CD Ground Water Basin Management Initiative Water Quantity

Water Resources

Groundwater Wells and Groundwater Depth

Historic Water-Level Changes

Surface Water

Eureka County Water Resource Management Efforts to Date

Diamond Valley Groundwater Management Plan

Eureka County Weed Management & Control Initiatives

Bureau of Land Management/Eureka County Resource Management Planning Initiatives

Herd Management Areas

Fire Management/Fuel Breaks Initiative

Greater Sage-Grouse Habitat Conservation

Riparian Management

Pinion-Juniper Management Initiative - Eureka County/BLM/NDOW

Cultural Resources

Resource Needs Assessment Bibliography

Appendix I - Eureka CD Resource Maps

TABLES AND FIGURES LISTING EUREKA CD RNA

- Table 1. Eureka CD Contributors Listing
- Table 1-1. Land Management and Ownership in Eureka County.
- Table 2-7. Table 2-7 Eureka County Industrial Employment 2002-2009, 2016
- Table 2-7A. Fishing and Hunting Licenses: 1995 to 2015
- Table 2-8. Eureka CD Resource Concerns and Conservation Practice & Management Alternatives
- Table 2-9. Standard Conservation Practices for Irrigated Pasture, Irrigated Hayland, Irrigated Cropland, and Rangelands in Major Land Resource Areas 24, 25, 28A & 28B.
- Table 3-1. Eureka County Ground Water Rights - 2018 (in acre feet)
- Table 3-2. Ground Water Use in Eureka County: Selected Basins: 2018
- Table 3-3. Nevada Noxious Weed List and Species That Have Been Identified and Mapped in Eureka County
- Table 3-4. Eureka County Herd Management Area Statistics as of March 2017
- Table 3-5. Conservation Partners and Program('s) Summary - Northern Nevada
- Figure 1-1. Eureka County Location Map
- Figure 2-1. Existing Mines In and Near Eureka
- Figure 2-2. Eureka County Military Operating Areas
- Figure 2-3. Eureka County Hay Production Acres Harvested and Production (in tons): 2000-2017
- Figure 2-4. Annual Deer Harvest in Eureka County Hunt Units: 2005-2017
- Figure 2-5A. Conservation Practice Physical Effects Tool Analysis - Irrigated Cropland
- Figure 2-5B. Conservation Practice Physical Effects Tool Analysis - Rangeland.
- Figure 2-5C. Conservation Practice Physical Effects Tool Analysis - Riparian Pasture Rangeland.
- Figure 2-6. Water Depth to Surface, Diamond Valley, N21 E53 12CCBC
- Figure 2-7. Humboldt Watershed Cooperative Weed Management Area

Figure 2-8. Fuel Breaks Alternative C Potential Treatment Areas: Nevada

Figure 2-9. Eureka CD P-J Thinning Project Areas

Appendix

Figure 3-1. Eureka County Land Status

Figure 3-2. Eureka County Hydro Basin Land Status

Figure 3-3. Eureka County Hydro Basins

Figure 3-4. Eureka County Herd Management Areas

Figure 3-5. Eureka County Fire Zone Data

Figure 3-6. Sage-Grouse Habitat Regimens in Eureka County

Figure 3-7. Lahontan Cutthroat Trout Streams in Eureka County

Figure 3-8. Eureka County Mule Deer Migration Corridors

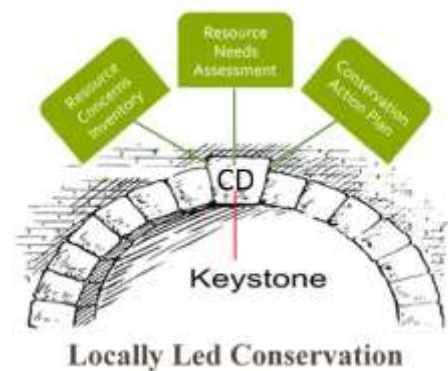
Figure 3-9. Eureka County Soil Survey Areas

Executive Summary

Conservation Districts (CD's) were founded in 1937 during the Dust Bowl with the philosophy that conservation decisions should be made at the local level and based on voluntary, incentive-based actions. They are governmental entities directed by locally elected Supervisors that derive their authority from NRS 548 and serve all residents within their District. They are a vital link to connect private and public land interests in Nevada. They were initiated nationwide because in the 1930s people understood - if you want the government to help; it will work much better if local people guide it!

Conservation Districts (CD) work for the conservation and proper development of the state's natural resources by taking available technical, financial and educational resources, and coordinating them to meet the needs of landowners and land users. CD's develop and implement programs to protect and conserve soil, water, prime and unique farmland, rangeland, woodland, wildlife, energy and other renewable resources. CD's help to stabilize local economies and resolve land use conflicts. CD's work in cooperation with counties, the USDA Natural Resources Conservation Service, as well as other public and private agencies.

Locally led conservation begins with the community itself, working through the local conservation district. It is based on the principle that community stakeholders are best suited to deal with local resource problems. Locally led conservation must be driven by natural resource conservation concerns rather than by programs. Its primary focus should be to identify natural resource concerns, along with related economic and social concerns. The products of the locally led process will provide USDA and the Conservation District with community stakeholders' conservation needs, resource concerns, priorities, and recommendations regarding programs that can be used as tools to address those needs. The delivery process for USDA conservation programs is conducted at the local, State, and national levels based on the conservation needs assessment and the conservation action plans developed by community stakeholders as part of the locally led process.



Purpose of the Resource Needs Assessment

(1) The purpose of the needs assessment is to ensure that conservation efforts address the most important local resource needs. The assessment is the basis for selecting the type and extent of needed conservation systems and practices. It will also be the basis for making recommendations on funding priorities and priority areas to be addressed by the various conservation programs available.

(2) The needs assessment and Conservation Action Plan are the foundation for carrying out Federal programs such as the USDA Environmental Quality Incentives Program (EQIP) and establish USDA program delivery priorities. From a resource concern identification standpoint, the needs assessment may also be used to assist localities in implementing the many State, Tribal, and local programs that provide assistance to private land owners and managers.

Abbreviated RNA process:

District: Comprehensive stakeholder input & and participation

- 1) Identify, Analyze, Map - Resource Concerns
- 2) Identify stakeholder conservation priorities & objectives (Survey Instrument)
- 3) Identify and analyze potential conservation practices (CPPE)

District: Board of Supervisors

- 4) Develop Conservation Action Plan
- 5) Implement Conservation Action Plan, and Inform STAC process for NRCS funding and project priorities
- 6) Review and adjust as necessary (3-5 years)

In 2019 Eureka CD contracted the services of Jim Evans (Basin and Range Resources) to provide technical support complete a Resource Needs Assessment (RNA). Specific deliverables included the following:

1. Compile applicable data and information from agency and local sources,
2. Complete the NRCS Resource Concerns Checklist by means best suited to that CD; explanation of terms to laymen participating, compilation of information gathered, providing any training needed of the process to the CD to obtain the best information,
3. Run the results through the Conservation Practice Physical Effects matrix (CPPE), and
4. Aggregate the data, results, and analyses obtained from the Checklist, CPPE, survey, public meetings and any other information obtained by the CD into a completed RNA document.

The Eureka CD held several meetings involving CD board members, stakeholder's, municipal/county commissions and planning boards, NRCS conservation planning teams, and regional partnering regulatory/public lands conservationists with the intent of identifying resource concerns within the district boundaries. A group facilitation process was utilized to explain the resource needs assessment process, goals and objectives and reporting procedures. The following Resource Concerns were identified.

Priority concerns and issues:

Insufficient Water – Inefficient moisture management

Insufficient Water – Inefficient use of irrigation water

- Improve irrigation efficiency and soil management to maintain underground water aquifer and maintain producer economic viability

Soil Erosion – Sheet, rill, and wind erosion

Soil Quality Degradation – Crop, Pasture and Rangeland

- Improve upland ecological condition to better capture and maintain precipitation, and provide livestock, wildlife, and recreational needs

Degraded Plant Condition - Plant Pests

- Increased effort and efficacy in combating annual noxious and invasive species and associated wildfires. This includes active vegetation management to restore resistance and resilience of rangelands from fire and improve wildlife habitat.

Livestock Production Limitation - Feed and Forage

- Increase distribution of water sources and increase flexibility of grazing management on federal lands to enhance rangeland ecological conditions

- Manage wild horse populations at AML or ecologically sustainable level in conjunction with all other recognized multiple uses

Soil Quality Degradation – Crop, Pasture and Rangeland

- Increased focus on soils as the foundation to resolve many resource concerns/issues.

Human – Capacity

- Educate and empower entities to actively participate and fund conservation; especially entities that are affected by natural resource use and conservation.

- Ensure capacity to implement and follow through with action plans; Implement don't just plan.

- More holistic management across jurisdictional boundaries – landscape ecological processes and system health.

A complete list of identified resource concerns utilizing NRCS SWAPA+H categories (Soil, Water, Air, Plant, Animal plus Human) are provided in the body of the report.

Conservation Practice Physical Effects (CPPE)

This looks at every concern: soil, water, air, plant, animal, and adds in what modifies it: energy and human, and considers it against every conservation practice (see Definitions in the Handbook, page 600-A.10) developed by NRCS to give a suite of practices that if implemented will have a positive effect on the resource concern. The CPPE results help the CD, Local Work Group (LWG), and the local NRCS District Conservationist know how to direct NRCS funding to alleviate the identified resource concerns. These results provide information that will assist in seeking funding outside of NRCS. The CPPE results are reported in tabular form in the appendix.

The Resource Needs Assessment document identifies what the specific problems are, and what available tools and opportunities exist to address the problems. In conjunction with the human factors; the process elevates from simple recognition of the existing situation, to identifying what it could be within the confines and capabilities of existing and potential resources and funding. Given the stakeholder input, CPPE analysis, and additional references included in this Resource Needs Assessment, it is anticipated that the Conservation District will have the necessary information required to develop a Conservation Action Plan. This plan will

- set measurable conservation goals and objectives;
- identify conservation systems and practices needed to achieve these goals and objectives;
- identify federal, state, local and non-government programs and services that are available to address specific conservation needs.

The conservation action plan will form a foundation upon which all local conservation efforts should be based.

Resource Concerns: Identified by stakeholders (2019)

Note: This is a total list of resource concerns. This list is not prioritized

Soils:

- Soil Erosion – Sheet, rill, and wind erosion
Area – County wide
Rangelands -
 - PJ and brush encroachment decreasing herbaceous understory and root stabilization of soils. Cheatgrass and weed invasion post fire and decreasing soil stability.Crop lands – periodic lack of protective cover on the soil (fallow), and decreased infiltration by compaction.
- Soil Erosion – Concentrated flow erosion
Area – Steep terrain, and Northern Eureka County
 - Untreated gullies progressively enlarging by head cutting and/or lateral widening. This includes concentrated flow erosion caused by runoff from rainfall, and snowmelt
 - Inadequate infiltration of precipitation due to decreased upland health. PJ and brush encroachment decreasing herbaceous understory and root stabilization. Cheatgrass and weed invasion after rangeland fires decreasing soil stability.
- Soil Quality Degradation – Crop, Pasture and Rangeland
Area – County wide
Organic matter depletion
 - Soil disturbance; Intensive tillage systems; Low crop biomass (surface and subsurface); Burning; harvesting or otherwise removing crop residues. Excessive grazing by feral horses. Improper grazing management due to restrictive grazing schedules on BLM and lack of adequately distributed water sources.

Water:

- Insufficient Water – Inefficient moisture management
Area: County wide, but especially Diamond Valley
Cropland
 - Excess soil tillage and disturbance destroys soil organic matter and structureRangeland
 - Unchecked brush and tree growth creating potential for less available moisture for desired plants. Degraded rangeland condition post fire with invasive species encroachment
- Insufficient Water – Inefficient use of irrigation water
Area: County wide, but especially Diamond Valley
Cropland
 - Losses due to improper system design, installation, irrigation scheduling or maintenance
- QUALITY
 - Currently NDEP has identified Pine Creek and the Humboldt River on the 303d list.

Air:

- Air Quality Impacts - Particulate Matter
Area County wide
 - Unpaved roads; Bare/exposed agricultural fields, Operations on agricultural fields, Wildfire

Plants:

- Degraded Plant Condition - Structure and Composition
Area – County wide
Rangelands
 - Stress, disease and/or mismanagement reduces and/or eliminates key components of plant community

- Plant community is allowed to grow to late succession stage and fails to produce desired habitat for wildlife and/or insects that depend on early succession habitat
 - Invasive species outcompete desired plants creating a monoculture
 - Loss of fire regime
- Degraded Plant Condition - Wildfire Hazard
 - Area – County wide
 - Rangelands
 - Unbroken expanses of flammable biomass increase the risk of the spread of fire
 - Lack of a plan, or implementation of an effective plan to respond to fire increases risk to life and property
- Degraded Plant Condition - Plant Pests
 - Area – County wide, especially Pine Valley and north of I-80
 - Rangelands
 - Weeds or invasive plants out compete desired native plants
 - Inadequate weed control
 - Unbroken expanses of flammable biomass increase the risk of the spread of fire

Animal:

- Livestock Production Limitation - Feed and Forage
 - Area – County wide
 - Rangelands
 - Inadequate distribution of livestock grazing: Lack of water distribution and lack of grazing management flexibility due to overly restrictive grazing schedules
 - Poor feed quality: Excessive woody encroachment and decreased herbaceous understory
 - Invasive and noxious weed encroachment
 - Excessive wild horse populations in and out of HMA's
 - Inadequate management of wild horses by BLM and USFS
- Livestock Production Limitation - Livestock Water
 - Area – County wide
 - Rangelands
 - Water availability is limited
 - Spring area trampled by wild horses
- INADEQUATE HABITAT FOR FISH AND WILDLIFE – Habitat degradation
 - Area – County wide
 - Rangelands
 - Loss of habitat due to fire and invasive species encroachment (Cheatgrass and PJ)
 - Bitter brush protection and loss
 - Proper function and condition of riparian zones, perennial streams and drainages becomes extremely difficult in unstable watersheds impacted by degraded soil and plant community conditions i.e. incised channels.
 - T&E/Candidate species of Concern: Sage Grouse, Lahontan Cutthroat Trout

Human:

- CROPLAND PRODUCTIVITY/SUSTAINABILITY
 - Area – County wide, especially Diamond Valley
 - Limited alternative crops are adapted to our climate and distance to markets and cost of equipment limits potential economic viability of many alternative crops.
 - Decreased irrigation water will require different crop species or cropping/grazing systems in order to remain viable.
- ABANDONED AGRICULTURAL LANDS
 - Area - Diamond Valley

- This concern is very limited in scope in Diamond Valley at the time of this Resource Needs Assessment. The concern is that if the Groundwater Management Plan (GMP) is successfully defeated through litigation there could be upwards of 60 percent of currently irrigated lands losing irrigation water. Over the long term, even with the remaining in place, the lack of irrigation water will require some currently irrigated land to be removed from irrigation completely or have minimal irrigation capability. The desire is for abandoned crop lands to be converted to desired plant species requiring minimal water and providing economic benefit and rodent control.
- Habitat loss and fragmentation for wildlife
 - Land use can negatively affect wild life migration corridors. In the case for migratory game, thermal protection combined with optimal forage habitats are prime considerations.
- Land use Planning & Development:
 - Desires for economic/community expansion are sometimes not based on available resources for growth (e.g., water). Some outside special interests (NGOs) have ideals counter to local conservation and sustainability (i.e. preservation vs. conservation).
 - Most fires in areas start with the human interface. Human interface and fires cannot be separated.
 - With a growing recreational populous protective measures must be considered to sustain sensitive habitats and provide opportunities for quality experiences on public and municipal lands.
- Capacity:
 - Lack of human and financial capacity to implement plans and projects to address conservation issues.
 - Lack of capacity to search for and acquire funding for planning and implementation for both existing and new planning initiatives.
 - Lack of technical expertise to utilize NRCS programs.
 - Lack of collaborative and cooperative conservation due to inadequate capacity of local groups and lack of state and federal agency recognition and inclusion of local input in state and federal projects.

Resource Concern Discussion Notes

SOILS:

➤ HEALTH, MICROBIAL MGT., PEST MGT., SOIL FERTILITY, CROP/PASTURE/RANGELAND MGT.

Active vegetation management must be deployed through planting adapted species and thinning/controlling invasive species. Primary concerns in our current environment include the spread of cheat grass, noxious/invasive weed species propagation and Utah Juniper expansion and invasion on rangelands. Soil stabilization through vegetative management is integral relative to minimizing critical top-soil loss on both crop land and rangelands. Pest management on cropland (rodents, weeds) has a direct link to soil health and requires sustained monitoring and treatment to stabilize both the agricultural land base and adjacent public lands.

➤ SHEET/RILL/GULLY EROSION

These impacts/effects would elevate in areas where cover has been reduced due to fire or other disturbance and higher slopes. Critical soil loss impairs both native plant succession and germination & production of introduced species for stabilization. Proper function & condition of riparian areas and drainages cannot be achieved when impacted by de-stabilized soil horizons.

➤ WIND EROSION

Wind erosion is a significant concern relative to human health impacts and potential effects on infrastructure and habitats. Vegetative cover management and re-hab practices are essential practice application and management considerations to stabilize top soil. A priority concern throughout north eastern Nevada.

➤ ABANDONED AGRICULTURAL LANDS

This is an important issue as many previously irrigated ag lands are being converted and are no longer irrigated. Potential for invasive species and soil erosion are significant. This will present a measurable problem relative to resource degradation as water rights are adjudicated and large tracts of agricultural lands are dried up and or water rights are transferred from ag to other uses. These abandoned fields may potentially be converted to reclamation seed croplands for wildfire and critical area re-hab plant materials.

WATER:

➤ QUANTITY

- ✓ Quantity is a primary and integral issue. Nevada Water Law does not promote conservation (i.e. use it or lose it). Lack of well distributed stock water sources inhibits proper grazing management and utilization. Regulatory agency policy hampers water development and management on public lands. Surface flows, springs and ground water recharge are impaired by excessive woody vegetation encroachment/expansion crossing ecological thresholds and impacting riparian habitats (i.e. Utah Juniper invasion).
 - ✓ Adoption of cutting edge irrigation systems using the best management technology is generally low or a slow transition (i.e. nozzle technology advancements and soil moisture management through monitoring systems). Farm Programs ranking does not always prioritize the best suited and or optimal conservation practices for conservation program participation (i.e. irrigation well & pumping plant re-hab combined with advanced nozzling systems).
 - ✓ Out of basin water transfers should not be considered or permitted without or until addressing all dynamics and needs of supply within the basin. Currently the protocols to evaluate local and regional drought designations are inaccurate and can be misleading relative to county wide and or regional classifications. Many basins have concern about the numerous unregulated parcels that could drill a domestic well and use 2 acre feet of water for each parcel. In Eureka County local ordinance requires water to be dedicated for new parcel development. The State Engineer must employ due diligence and extremely conservative when evaluating desert land entry applications.
- **QUALITY** Quality is important for municipal & domestic supply (i.e. elevated arsenic), agriculture and watershed (riparian & wetlands). Currently NDEP has identified Pine Creek and the Humboldt River on the 303d list.

AIR:

➤ QUALITY

Vegetative cover to inhibit cropland, rangeland and municipal lands wind erosion is integral to sustain air quality standards. Critical area rehabilitation (range & municipal) and cover crops & permanent vegetative cover are essential practices to protect and stabilize the soil resource base.

PLANTS:

➤ RANGELAND/RIPARIAN CONDITION - STATE & TRANSITION

Loss of the herbaceous component (native grass & forb community) is a primary concern, i.e. woody expansion, infill, and dominance associated with Utah Juniper invasion. Fire impacts in multiple ways. It is associated with post-fire annual grass expansion and woody/PJ dominance. Fire suppression has catalyzed expansion of woody vegetation throughout northern Nevada. Current management practices associated with grazing plans and post fire management may not recognize ecological site potential and modeling relative to the life cycle of the ecological site or vegetative community.

➤ CROPLAND PRODUCTIVITY/SUSTAINABILITY

Limited alternative crops are adapted to our climate. At this point there is very little work with research & development support for testing new and alternative crops/cropping systems including infrastructure such as livestock facilities and grain/cereal process facilities. In example hemp, oil crops and row crops in hoop house production facilities.

➤ NOXIOUS/INVASIVE SPECIES - CHEAT GRASS/PJ/WEED

Right-Of-Way pest management is integral to controlling the spread of noxious/invasive weeds on private and public lands. Post fire treatment methodologies need to prioritize control of noxious/invasive weeds in addition to evaluating options for cheat grass control on sites targeted for re-seeding.

➤ ABANDONED AGRICULTURAL LANDS

Incentivizing other land uses should be considered in addition to using best management practices (BMP's) in order to minimize negative impacts. This initiative may require adoption of innovative conservation programs in addition to advanced master planning concepts to support. Establishing veg/cover is difficult after water removed.

ANIMALS:

➤ DOMESTIC LIVESTOCK FORAGE QUANTITY & QUALITY

Forage quantity and quality on public lands can be directly associated with rangeland/riparian condition and state & transition as described for plant resource concerns. Rangelands are not managed, in many cases, based on ESD (ecological site potential and current state or phase in relative to the plant community life cycle).

➤ FERAL/WILD HORSE MANAGEMENT

Presently the regulatory agencies having responsibility to manage feral/wild horses are constrained by political impetus and limited tools to manage population dynamics as influenced by current legal constraints. At this point only numbers are managed on public lands as a whole, HMA's, and not by timing or duration, as an example on or within an allotment boundary. This creates an extreme managerial challenge with no ability to effectively control utilization and impacts on critical rangelands and associated riparian zones.

➤ WATER QUANTITY & QUALITY - WATER SUPPLY

Limited distribution of water concentrates animal use impacting not only animal health but effecting forage quantity & quality on over-utilized watering sites. This concern relates directly to crop, pastureland and rangeland productivity described for water resource prioritizations.

➤ UPLAND WILDLIFE HABITAT CONDITION - STATE & TRANSITION

Wild land fire leading to annual grassland conversion (cheat grass) is a priority issue as described for plants - rangeland/riparian condition. Fire cuts in multiple ways – it is tied to annual grass expansion and woody/PJ dominance. Optimal habitat conditions relative to the life cycle of the desirable plant community may not be achieved for some fifty to seventy-five years' post-fire. Habitat structure relative to soil stability can be severely impacted through vegetative type conversion to annuals. Throughout big game migratory corridors emphasis must be placed on eco-sites conducive to bitterbrush re-introduction. On upland game eco-sites forb re-seeding is integral in an attempt to enhance critical sage grouse habitat regimens.

Land use can negatively affect wild life migration corridors. In the case for migratory game, thermal protection combined with optimal forage habitats are prime considerations.

➤ FISHERIES/WETLANDS/RIPARIAN HABITAT CONDITION - STATE & TRANSITION

Proper function and condition of riparian zones, perennial streams and drainages becomes extremely difficult in unstable watersheds impacted by degraded soil and plant community conditions i.e. incised channels.

➤ T&E/CANDIDATE AND SPECIES OF CONCERN

Sage grouse management has been described as the “canary in the coal mine” for general sagebrush ecosystem health and function. LCT, Lahontan Cutthroat Trout, management imposes constraints relative to land uses, primarily grazing. Innovative, state of the art grazing management initiatives to protect habitats while providing sustainable agricultural practices are integral to rangeland/habitat management protocols.

HUMAN INTERFACE:

➤ LAND USE PLANNING & DEVELOPMENT - MUNICIPAL/COMMERCIAL & INDUSTRIAL - LANDS

- ✓ Desires for economic/community expansion are sometimes not based on available resources for growth (e.g., water). Some outside special interests (NGOs) have ideals counter to local conservation and sustainability (i.e. preservation vs. conservation).
- ✓ Most fires in areas start with the human interface. Human interface and fires cannot be separated.
- ✓ Mining infrastructure in north eastern Nevada is often permitted and managed with reclamation bonds (BLM RMPs) which may create additional land disturbance for new industrial sites that could have been located on abandoned sites. There are many opportunities with mining relative to mitigation programs. This is often for public relations and social license.

➤ RECREATION - MUNICIPAL/COUNTY/PUBLIC LANDS

With a growing recreational populous protective measures must be considered to sustain sensitive habitats and provide opportunities for quality experiences on public and municipal lands. The Eureka County Commission and County Advisory Board to Manage Wildlife recently supported the 'no action' alternative for the Silver State ATV Trail EA which proposes extension to the Eureka County eastern border.

➤ CULTURAL RESOURCES - HISTORIC PRESERVATION

➤ CAPACITY

Lack of human and financial capacity to implement plans and projects to address conservation issues. Lack of capacity to search for and acquire funding for planning and implementation for both existing and new planning initiatives.

DISCUSSION ITEMS RELEVANT TO RESOURCE CONCERNS NOT DIRECTLY ASSOCIATED WITH SWAPA + H

Ensure all important issues and concerns are identified, even if not in the above list, to establish a foundation for work with all relevant agencies/entities.

Main priority issues/concerns and thoughts from Eureka CD & partners.

- Lack of human and financial capacity to implement plans and projects to address conservation issues. Lack of capacity to search for and acquire funding for planning and implementation for both existing and new planning initiatives.
- To ensure capacity to implement and follow through with action plans; don't just plan. This includes legal defense of plans and projects.
- Hard to get local issues implemented or even recognized at higher levels; navigating the bureaucratic, regulatory process.
- More progress needs to be made on combating annual invasive grasses and associated wildfires.
- Focus on soils as the foundation to most resource concerns/issues.

- More holistic management across jurisdictional boundaries – landscape ecological processes and system health.
- Educate and empower entities to actively participate and fund conservation; especially entities that are affected by natural resource use and conservation. It's not that they don't care, they just don't understand or know.

Conservation and Physical Effects

The following table (2-8) lists conservation practice and management considerations addressing the primary concerns identified by the RNA focus groups. The table references hydrologic basins within the conservation district where these management initiatives may be considered and prioritized.

TABLE 2-8. EUREKA CD RESOURCE CONCERNS AND CONSERVATION PRACTICE & MANAGEMENT ALTERNATIVES

NATURAL RES	RES CONCERN	CONS PRACTICE/MGT ALTS	HYDRO BASIN
SOIL	SOIL HEALTH, MICROBIAL MGT., PEST MGT., SOIL	CROPPING SYSTEMS	ALL
	CROP/PASTURE/RANGELAND MGT	CONS CROPPING SYSTEMS, RANGE MGT.	ALL
	SHEET/RILL/GULLY EROSION	RANGELAND/CRITICAL AREA MGT.	ALL
	WIND EROSION	RANGELAND/CRITICAL AREA MGT.	ALL
	ABANDONED AGRICULTURAL LANDS	RANGELAND/CRITICAL AREA MGT.	BOULDER, DIAMOND
WATER	BASIN WATER MGT., QUANTITY & QUALITY	BASIN WATER BUDGET & MODELING	ALL
	IRRIGATION/MINING/COMMERCIAL & DOMESTIC WATER MGT. & WATER SUPPLY	BASIN WATER BUDGET & MODELING	ALL
	WATER QUALITY - PESTICIDE MGT.	SURFACE/GROUND WATER MONITORING	ALL
	RANGELAND/RIPARIAN WATERSHED/FISHERIES	RANGELAND MANAGEMENT	ALL
	FLOOD WATER MGT. - MUNICIPAL	WATERSHED ANALYSIS & MANAGEMENT CONSIDERATIONS	ALL
	LAND USE & DEVELOPMENT - PRIVATE/COMMERCIAL	BASIN WATER BUDGET & MODELING	ALL
	CROPLAND, PASTURELAND, & RANGELAND	IRRIGATION WATER MGT., RANGELAND/RIPARIAN MGT.	ALL
	MUNICIPAL/COMMERCIAL-INDUSTRIAL AIR QUALITY	MASTER PLAN DEVELOPOMENT & MGT	CRESCENT, DIAMOND
AIR	CROPLAND,RANGELAND WIND EROSION, DUST MGT.	SUSTAINED CROPPING SYSTEMS (COVER) & RANGELAND MANAGEMENT - GRAZING SYSTGEMS	ALL

	RANGELAND REHABILITATION/RECLAMATION MGT. (FIRE REHAB),	RANGELAND CRITICAL AREA PLANTING/RECLAMATION PLAN	ALL
	PRIVATE/COMMERCIAL LAND DEVELOPMENT, DUST MGT.	MASTER PLAN DEVELOPMENT &	ALL
PLANTS	RANGELAND/RIPARIAN/HABITAT/WATERSHED/MUNICIPAL WATERSHED PRODUCTIVITY & SUSTAINABILITY	GRAZING MGT., WILDLIFE MGT., FISHERIES/WETLANDS MGT.	ALL
	RANGELAND/RIPARIAN CONDITION - STATE & TRANSITION	GRAZING MGT., WILDLIFE MGT., FISHERIES/WETLANDS MGT	ALL
	CROPLAND PRODUCTIVITY/SUSTAINABILITY	CROPPING SYSTEM MGT., IRRIGATION WATER MGT.	A,B,C,D,G,K,LS,M,MY,P ⁱ
	NOXIOUS/INVASIVE SPECIES - CHEAT GRASS/PJ/WEED	PEST MGT., GRAZING MGT., RANGELAND/WATERSHED	ALL
	ECO-TYPE CONVERSIONS - ANNUAL SUCCESSION	PEST MGT., GRAZING MGT., RANGELAND RECLAMATION	ALL
	ABANDONED AGRICULTURAL LANDS	RANGELAND/CRITICAL AREA MGT. REHABILITATION	BOULDER, DIAMOND
	T&E/CANDIDATE AND SPECIES OF CONCERN	GRAZING MGT. & HABITAT RECOGNITION	ALL
ANIMAL	FORAGE & HABITAT QUANTITY/QUALITY - RANGELAND & CROPLAND	RANGELAND MGT., CROPLAND MGT. SYSTEMS	ALL
	FERAL/WILD HORSE MANAGEMENT	RANGELAND MGT., POPULATION CONTROL - AML	A,D,K,LS,P,S ⁱⁱ
	DOMESTIC LIVESTOCK FORAGE QUANTITY & QUALITY	RANGELAND/RIPARIAN MGT.	ALL
	UPLAND WILDLIFE HABITAT CONDITION - STATE & TRANSITION	RANGELAND/RIPARIAN MGT.	ALL
	FISHERIES/WETLANDS/RIPARIAN HABITAT CONDITION - STATE & TRANSITION	RANGELAND/RIPARIAN MGT.	ALL
	WATER QUANTITY & QUALITY - WATER SUPPLY	BASIN WATER MGT., SURFACE & GROUND WATER MODELLING	ALL
	INVASIVE SPECIES MGT., CROPLAND/RANGELAND (HABITAT)	PEST MGT., WEED CONTROL, ANNUAL INVASION MGT, PJ	ALL
	T&E/CANDIDATE AND SPECIES OF CONCERN	GRAZING MGT., WILDLIFE MGT., FISHERIES/WETLANDS MGT.	ALL
HUMAN INTERFACE	MUNICIPAL/AGRICULTURAL/COMMERCIAL WATER SUPPLY -DOMESTIC	BASIN WATER MGT., SURFACE & GROUND WATER MODELLING	CRESCENT, DIAMOND
	CULTURAL RESOURCES - HISTORIC PRESERVATION	LAND USE DEVELOPMENT PLANNING - MASTER PLAN &	ALL
	RECREATION - MUNICIPAL/COUNTY/PUBLIC LANDS	LAND USE DEVELOPMENT PLANNING - MASTER PLAN,	ALL

		PUBLIC LANDS RECREATIONAL DEVELOPMENT PLAN (BLM RMP & USFS FOREST PLAN, NV STATE PARKS, NDOW/USFWS WILDLIFE MGT. AREAS).	
	LAND USE PLANNING & DEVELOPMENT - MUNICIPAL/COMMERCIAL & INDUSTRIAL LANDS	MASTER PLAN	ALL
	INFRASTRUCTURE - UTILITARIAN	MASTER PLAN, BLM RMP, USFS FOREST PLAN	ALL

' ANTELOPE VALLEY, BOULDER FLAT, CRESCENT VALLEY, DIAMOND VALLEY, GRASS VALLEY, KOBEH VALLEY, LITTLE SMOKEY, MAGGIE CREEK, MARY'S RIVER AREA, PINEVALLEY.

" ANTELOPE VALLEY, DIAMOND VALLEY, KOBEH VALLEY, LITTLE SMOKEY, PINE VALLEY, STEVENS BASIN.

RESOURCE CONCERN MODELING TOOL - NRCS CONSERVATION PRACTICE PHYSICAL EFFECTS MATRIX

The Natural Resources Conservation Service currently utilizes a modeling tool matrix, the conservation practice physical effects analysis, to evaluate long term effects relative to implementing a host of conservation management and or structural conservation practices to address resource concerns associated with a variety of land uses (NHCP, 2019). As an example to address soil health and water quantity problems for irrigated cropland the standard conservation practices considered may include irrigation system improvements, a modification of the cropping system rotational sequence and potentially implementing pest management strategies to curtail or minimize invasive weed impacts. The following NRCS conservation practice listing identifies standard localized practices utilized to address primary resource concerns within major land resource areas 24, 25, and 28A&B.

Table 2-9. Standard Conservation Practices for Irrigated Pasture, Irrigated Hayland, Irrigated Cropland, and Rangelands in Major Land Resource Areas 24, 25, 28A & 28B.

Cons Practice	ID	Cons Practice	ID	Cons Practice	ID	Cons Practice	ID	Cons Practice	ID	Cons Practice	ID
Brush Management	314	Early Successional Habitat Development/Mgt.	647	Integrated Pest Management	595	Land Reclamation, Landslide Treatment	453	Precision Land Forming	462	Sediment Basin	350
Channel Bed Stabilization	584	Farmstead Energy Improvement	374	Irrigation Canal or Lateral	320	Land Smoothing	466	Prescribed Burning	338	Spring Development	574
Clearing & Snagging	326	Fence	382	Irrigation Ditch Lining	428	Lined Waterway or Outlet	468	Prescribed Grazing	528	Sprinkler System	442
Conservation Cover	327	Firebreak	394	Irrigation Field Ditch	388	Livestock Pipeline	516	Pumping Plant	533	Stormwater Runoff Control	570
Conservation Crop Rotation	328	Forage and Biomass Planting	512	Irrigation Land Leveling	464	Livestock Shelter Structure	576	Range Planting	550	Stream Crossing	578
Constructed Wetland	656	Forage Harvest Management	511	Irrigation Pipeline	430	Nutrient Management	590	Residue and Tillage Management, No Till	329	Stream Habitat Improvement and Management	395

Cover Crop	340	Fuel Break	383	Irrigation Reservoir	436	Open Channel	582	Residue and Tillage Management, Reduced Till	345	Streambank and Shoreline Protection	580
Critical Area Planting	342	Grazing Land Mechanical Treatment	548	Irrigation System, Microirrigation	441	Pond	378	Restoration and Management of Rare or Declining Habitats	643	Structure for Water Control	587
Dam	402	Groundwater Testing	355	Irrigation System, Surface & Subsurface	443	Pond Sealing or Lining, Compacted Soil Treatment	520	Riparian Forest Buffer	391	Structures for Wildlife	649
Dam, Diversion	348	Herbaceous Weed Control	315	Irrigation System, Tailwater Recovery	447	Pond Sealing or Lining, Concrete	522	Riparian Herbaceous Cover	390	Subsurface Drain	606
Diversion	362	Herbaceous Wind Barriers	603	Irrigation Water Management	449	Pond Sealing or Lining, Flexible Membrane	521A	Salinity and Sodic Soil Management	610	Surface Drainage, Field Ditch	607
Surface Drainage, Main or Lateral	608	Tree/Shrub Pruning	660	Upland Wildlife Habitat Management	645	Water Harvesting Catchment	636	Watering Facility	614	Well Decommissioning	351
Tree/Shrub Establishment	612	Tree/Shrub Site Preparation	490	Water and Sediment Control Basin	638	Water Well	642	Water spreading	640	Wetland Creation	658
Wetland Enhancement	659	Wetland Restoration	657	Wetland Wildlife Habitat Management	644	Windbreak/Shelterbelt Establishment	380	Windbreak/Shelterbelt Renovation	650	Woody Residue Treatment	384

Figure 2-5A. Conservation Practice Physical Effects Tool Analysis - Irrigated Cropland.

Irrigated cropland conservation practice selection at management level 4, moderate to substantial improvement addressing primary resource concerns insufficient water/inefficient use of irrigation water and degraded plant condition - undesirable plant productivity and health.

<h2 style="text-align: center; margin: 0;">Conservation Practice Selection Tool - Irrigated Cropland CPPE Level 4 - Moderate to Substantial Improvement</h2> <p style="text-align: center; margin: 0;">MLRA'S 24, 25, 28A & 28B</p>	<p>Land uses alfalfa hay, alfalfa-grass hay, grass hay, and small grains in rotation. Enhancements include well rehab or new construction, sprinkler system installation, noxious weed control, and management practices irrigation water mgt., nutrient mgt., and conservation crop rotation.</p>																											
<p>Use the CPPE to recommend practices that address the resource concerns:</p> <p>Enter the CPPE minimum acceptable "effect" value (1-5): 4</p> <p>Select the "Run" button to view recommended practices for each resource concern (equal to or greater than the minimum acceptable value)</p> <p>Place an "x" to the left of the practice that may be included in the conservation plan.</p> <p>Select the "Sort" button to list selected practices at top of column, and "Results" for final report.</p>																												
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Figure 2-5B. Conservation Practice Physical Effects Tool Analysis - Rangeland. Rangeland conservation practice selection at management level 4, moderate to substantial improvement addressing primary resource concerns degraded plant condition - excessive pest pressure, livestock production limitation - inadequate feed & forage, and livestock production limitation - inadequate water.

<h2 style="text-align: center; margin: 0;">Conservation Practice Selection Tool - Rangeland CPPE Level 4 - Moderate to Substantial Improvement</h2> <p style="text-align: center; margin: 5px 0;">MLRA'S 24, 25, 28A&28B</p>	<p>Land use rangeland pasture. Enhancements include brush mgt., range planting, spring development, livestock pipeline, watering facility, noxious weed control, and management practice prescribed grazing.</p>																														
<p>Use the CPPE to recommend practices that address the resource concerns:</p> <p>Enter the CPPE minimum acceptable "effect" value (1-5): 4</p> <p>Select the "Run" button to view recommended practices for each resource concern (equal to or greater than the minimum acceptable value)</p> <p>Place an "x" to the left of the practice that may be included in the conservation plan.</p> <p>Select the "Sort" button to list selected practices at top of column, and "Results" for final report.</p>																															
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Local Partners and Focus Group Initiative, 2018 & 2019 Meeting & Group Sessions

Eureka Conservation District RNA Meeting Overview/Highlights - 2018/2019

RNA meetings were held in conjunction with the Eureka Conservation District and partnering entities on 9/25/18, 12/18/2018, 1/29/2019, 5/28/2019 and 6/3/2019.

- 9/25/18; The RNA process, goals and objectives, were presented at this regularly scheduled meeting in addition to apprising the board members of the partnering entities that could become part of the localized focus group to assist with the RNA process as it relates to resource concerns on private, public and municipal lands throughout the district.
- 12/18/2018; The RNA meeting held on 12/18 comprised the primary constituents involved with the RNA process. This was a formal information gathering setting designed to introduce the constituents to the SWAPA+H protocol and get feedback relative to primary natural resource concerns within the district. It was at this meeting when the primary natural resource concerns were evaluated by the group and prioritized to reflect the most significant issues both present and well into Eureka County's future. As a result the template for the RNA evaluation was now in place.
- 1/29/2019; The information compiled highlighting/summarizing the CD's resource concerns on 12/18 was presented to the board members and partners in attendance. This information, prioritized resource concerns, was now formatted in such a manner to be utilized in the formal description of resource issues relative to SWAPA+H.
- 5/28/2019; The 5/28 meeting (CD) provided an opportunity to introduce the group to Alec Bowman from UNR Ag Resource Economics/CES Dept. who will be assisting with the RNA survey. Alec gave a short presentation on the survey design and how the information can be utilized as support documentation for the Resource Needs Assessment in Eureka County.
- 6/3/2019; The 6/3 public meeting was well attended and provided an opportunity for additional partnering entities to provide input relative to the RNA process. This meeting was attended by members from Eureka County's volunteer boards that serve the Eureka County Commission, Conservation District members and supervisors, local mining interests and regulatory agency representatives. At this time we feel that the information gathering component of the RNA process will have been completed to such an extent that a formal document can be prepared. The execution of assessment initiatives can then be deployed by providing the focus group the opportunity to assist the conservation district and eventually the local work group move this process forward. Preparing a draft outline for the Conservation District Action Plan should enhance the overall process once the RNA assessments are complete.

The following table (1-1) lists the Eureka CD RNA process contributors/participants that were actively involved in the polling and planning process that led to the formulation of a local focus group to move forward with development of a District Conservation Action Plan.

CD	ENTITY/ AFFIL	CONTACT/ IND/ENTITY	TECH/ADMIN/ SERVICE PROVISION	PHONE	E-MAIL	MAILING ADDRESS
Eureka	CD	Vicki Buchanan	CD Chair	775-237-6010 (O)	vckbuchanan@gmail.com	Eureka Conservation District PO Box 323 Eureka, NV 89316
Eureka	CD	Denise Moyle	CD Supervisor	775-237-6010 (O)		Eureka Conservation District PO Box 323 Eureka, NV 89316
Eureka	CD	Jim Gallagher	CD Supervisor	775-237-6010 (O)		Eureka Conservation District PO Box 323 Eureka, NV 89316
Eureka	CD	Jessica Santoyo	CD Secretary	775-237-6010 (O)	JSantoyo@EurekaCountyNV.gov	Eureka Conservation District PO Box 323 Eureka, NV 89316
Eureka	Eureka County	Jake Tibbitts	Eureka County Liaison	775-237-6010 (O)	JTibbitts@EurekaCountyNV.gov	Eureka Conservation District PO Box 323 Eureka, NV 89316
Eureka	Eureka County	Jim Evans Wildlife Advisory Board	ECABMW Chairman	775-237-6010 (O)	jim.evans@att.net	ECABMW PO Box 323 Eureka, NV 89316
Eureka	Eureka County	Jim Baumann	NRAC Chairman	775-237-6010 (O)	Simpsoncreekranch@gmail.com	NRAC PO Box 682 Eureka, NV 89316
Eureka	Eureka County	Rich McKay	Eureka County Commission Chair	(775) 237-7211	RMckay@EurekaCountyNV.gov	BOCC P.O. Box 964 Eureka, NV 89316
Eureka	BLM Battle Mtn. District	Doug Furtado	Battle Mtn. District Manager	(775) 635-4000 (O)	dfurtado@blm.gov	BLM Battle Mountain District 50 Bastian Rd. Battle Mountain, NV 89820
Eureka	BLM Battle Mtn. District	John Sherve	Battle Mtn. District Mt. Lewis Field Office Manager	775-635-4000 (O)	jsherve@blm.gov	BLM Battle Mountain District 50 Bastian Rd. Battle Mountain, NV 89820
Eureka	BLM Battle Mtn. District	Robert Burdick	Battle Mtn. District Range Conservationist	775-635-4000 (O)	bburdick@blm.gov	BLM Battle Mountain District 50 Bastian Rd.

						Battle Mountain, NV 89820
Eureka	BLM Battle Mtn. District	Brock Uhlig	Battle Mtn. District Fire Management Officer	775-635-4000 (O)	buhlig@blm.gov	BLM Battle Mountain District 50 Bastian Rd. Battle Mountain, NV 89820
Eureka	BLM Battle Mtn. District	Joe Moskiewicz	Battle Mtn. District Minerals/Mining Lead	775-635-4000 (O)		BLM Battle Mountain District 50 Bastian Rd. Battle Mountain, NV 89820
Eureka	NDOW	Clint Garrett	Regional Game Biologist	775-237-5276 (O)	ctgarrett@ndow.org	Nevada Dept. Of Wildlife P.O. Box 592 Eureka, NV 89316
Eureka	NDOW	Caleb McAdoo	Regional Game Biologist	775-777-2300 (O)	cmcadoo@ndow.org	NDOW 60 Youth Center Elko, NV 89801
Eureka	USFWS	William Kutosky	Partners for Fish and Wildlife Program	775-777-2370 (O)	william_kutosky@fws.gov	U.S. Fish & Wildlife Service 60 Youth Center Road Elko, Nevada 89801
Eureka	UNCE	Gary McCuin	Extension Educator	775-237-5326 (O)	mccuing@unce.unr.edu	Cooperative Extension 701 South Main St., PO Box 613 Eureka, NV 89316
Eureka	NVDCNR	Gerry Miller	CD's Program Conservation Staff Specialist	(775) 461-6569	gerald.miller@dcnr.nv.gov	901 South Stewart Street Carson City, NV 89701
Eureka	NRCS	Jaime Jasmine	District Conservationist	775-738-8431 (O)	Jaime.Jasmine@nv.usda.gov	555 West Silver Street Elko, NV 89801
Eureka	NV DIV Forestry					
Eureka	Newmont Mining	Chris Jasmine	Rangeland Ecologist	775-778-4107	chris.jasmine@newmont.com	Newmont Mining Corporation 1655 Mountain City Highway Elko, NV 89801
Eureka	Barrick Gold	Brian Taylor	Barrick Cortez Ranches Mitigation Project Manager	775-299-8016	bdtaylor@barrick.com	HC62 Box 52 Carlin, NV 89822

Eureka	Prophecy Development Corporation	Ron Espell Mike Doolin	VP, Environment Interim CEO			
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EUREKA COUNTY RURAL & URBAN COMMUNITY SETTING AND CULTURE

Few areas of Nevada can boast the diversity of natural, historic, and economic resources which characterize Eureka County. From alpine mountain peaks to irrigated valley floors, County residents enjoy a diverse physiography which supports important natural resources and economic activities. Eureka County is one of few Nevada counties which are traversed by Interstate 80, U.S. Highway 50, and the mainline Union Pacific rail lines. Eureka County is rich in commercial quality geothermal, oil, and mineral resources. North America's largest gold mines are currently located in Eureka County. Figure 1-1 illustrates the strategic location of Eureka County within Nevada. The growing demand for natural resources produced in the intermountain region of the United States has brought both prosperity and concern to Eureka County. The demand for energy and precious metals has bolstered economic activity related to production of oil and gold. In recent years, Eureka County has experienced significant levels of immigration by workers and their families. Population growth requires the County to consider efficient uses of land as well as provision of public facilities and services. At the same time, urbanization of the intermountain West has brought heightened interest about the management of federal or state administered lands and increased restriction of traditional uses such as domestic livestock grazing or mining. As a consequence, agriculture in Eureka County, long considered an important stabilizing factor, is facing escalating costs of operation and limitations in access to forage resources. Collectively, these issues have galvanized residents and their elected representatives to seek mechanisms to manage growth and influence resource management. These actions are viewed as necessary to maintain and enhance local economic security and the rural quality of life which has typified Eureka County. In 1973, Eureka County developed and worked to implement a comprehensive County Master Plan. In the following 25 years, dramatic changes in many characteristics of the County occurred. From 1970 to 1995, the County's population increased by nearly 70 percent. The 1973 Eureka County Master Plan projected the population of the County in the year 2010 would be 1,400. In 1995 the Nevada State Demographer indicated that the County's population had already reached 1,580 persons and estimated that by the year 2010 it would grow to nearly 2,100 persons. The 2010 census data report accounted for some 1,987 inhabitants (Census). Because of the changes in growth as well as other changes in the community, Eureka County developed and adopted a new Master Plan in 2000 (Commission, 2010).

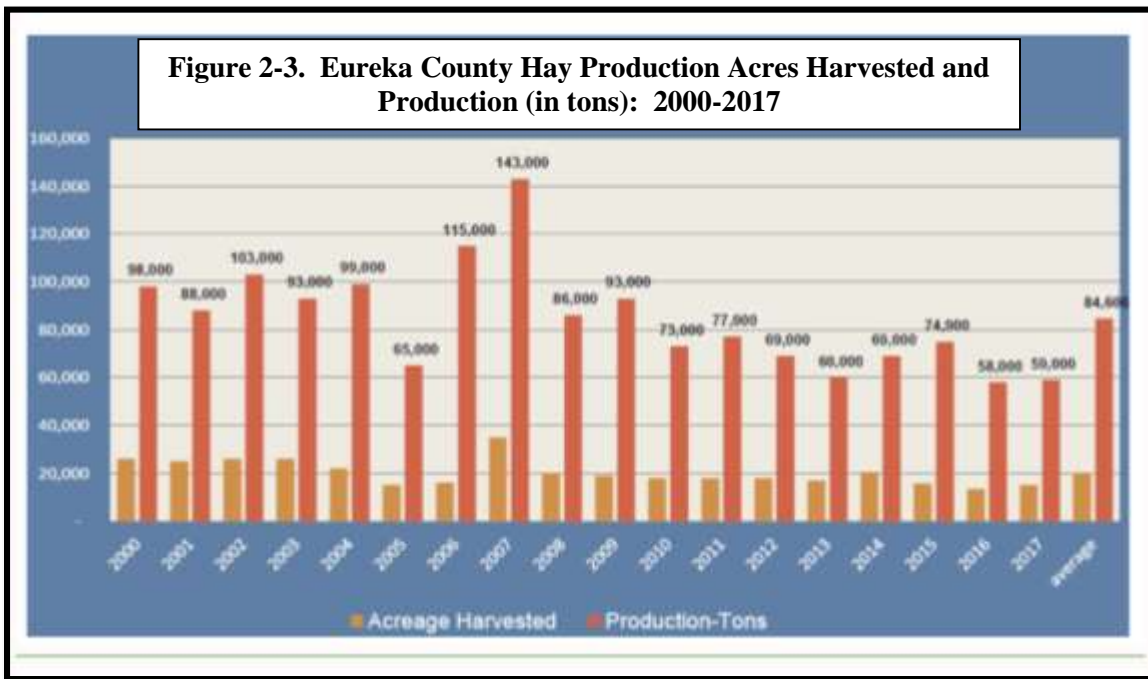
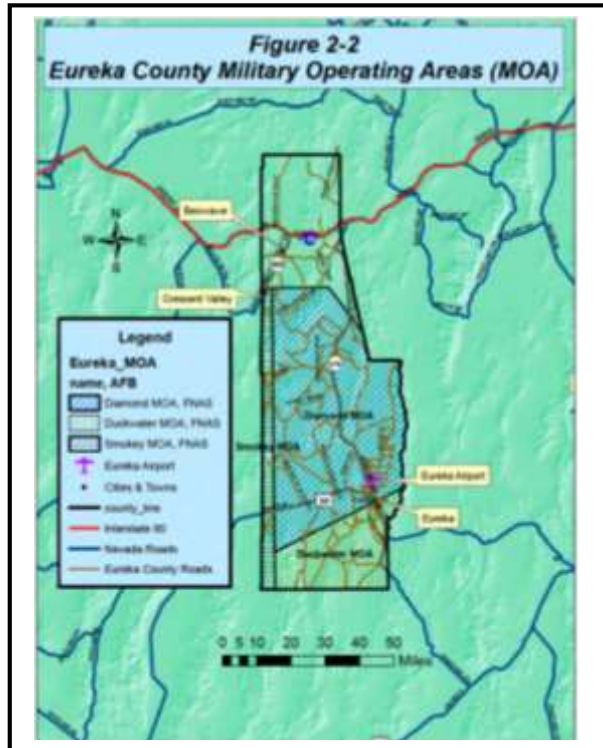
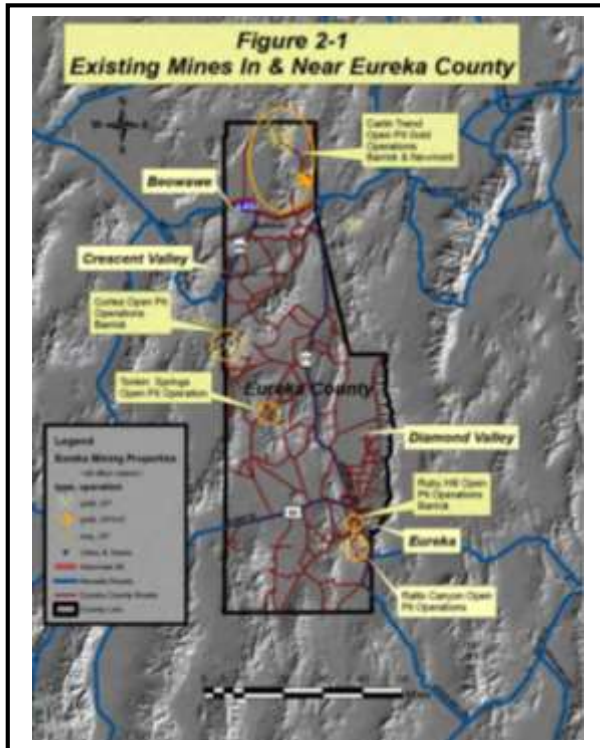
Eureka County contains an area of approximately 4,179.96 square miles. The population is concentrated in three unincorporated communities, Eureka Town, Crescent Valley, and Beowawe. Approximately 79 percent of the 2,668,251 acres of land in Eureka County is managed by federal agencies (Bureau of Land Management and U.S. Forest Service). This land is primarily used for livestock grazing, mining, geothermal energy production, and outdoor recreation. Land ownership/management status is summarized in Table 1-1 and displayed in Figure 3-1, Appendix I. The single greatest land use within the County is open space agricultural, comprised of a series of designated grazing allotments. Approximately 2.4 million acres (90 percent of Eureka county land) is used for cattle and sheep grazing and pasture and for crops such as hay or grass. Also interspersed throughout the County is all or part of 23 mining districts. Mining represents the next-largest land use within the County.



LAND CLASS MGT. CATEGORY	2009 ACREAGE	2009 PERCENT
Bureau of Land Management	1,969,762	74
U.S. Forest Service	142,923	5
Agricultural Lands - Private	456,100	
Total Private Lands	554,506	21
State of Nevada	19	0.00007
Eureka County	1041	0.00039
Total	2,668,251	

Existing mines located in or near Eureka County in Figure 2-1. Superimposed over these allotments and mining districts, the U.S. Department of Defense has designated certain areas within the County as special use airspace for military training (Figure 2-2) (Commission, 2010). The military operating area is planned to expand with the proposed Fallon range training complex modernization. Air space expansion will expand east into Eureka County and north to Elko County border.

Changes in land uses have occurred since the adoption of the County's last master plan in 2000, but the distribution of land ownership has remained relatively constant. Mining activity has increased in both precious metals, and saleable minerals. Geothermal energy and oil or gas exploration and development have also increased. Agriculture production is the principle land use within the private lands of Eureka County, including both intensive farming practices on irrigated lands and ranching with dispersed livestock grazing from non-irrigated rangelands. According to the 2016 Census of Agriculture there were 101 farms/ranches producing 159,746 tons of alfalfa hay or grass hay on 49,146 acres of cropland. Figure 2-3 displays Eureka County hay production acres harvested and production in tons during 2000 thru 2017. Beef cattle numbers were estimated at 29,000 head at this time.



U.S. Highway 50 bisects the core of the town of Eureka. The Township currently contains approximately 520 acres. A variety of land uses occur within Eureka Town boundaries. The core commercial area of Eureka is located primarily along U.S. Highway 50. Diamond Valley, directly north of town, contains numerous agricultural operations that rely upon groundwater to irrigate the area's principal crop of alfalfa, timothy and grass mix hays. The area is sparsely populated with most residents being associated with agricultural activity. Land use in this area is dominated by open space and agricultural uses, public land and livestock grazing, mining, and outdoor recreation. The unincorporated town of Crescent Valley is located in west-central Eureka County, south of Interstate 80, within Crescent Valley.

A variety of land uses occur in Crescent Valley including, residential, agricultural, mining, and limited commercial and industrial use. Growth and development tends to fluctuate with mining activity in the area. Further to the north, Beowawe is located within the Humboldt River corridor south of Interstate 80. The primary land uses in Beowawe include, residential, agriculture, and industrial. The mainline Union Pacific Railroad passes through the area. There is potential to develop geothermal resources near the community of Beowawe. West of Beowawe in Lander County, the NV Energy Company operates a geothermal power plant with a production capacity of 17.70 megawatts (January 2009, Nevada State Department of Energy). The balance of Eureka County is open space used for agriculture, mining, and recreation. The area is sparsely populated. Most of the residential development is associated with agricultural uses and ranching operations. Lands north of Interstate 80 encompass approximately 530 square miles. Boulder Valley is one of the largest blocks of privately owned land in the County. Lands in this area are primarily used for agriculture, livestock grazing, mining and outdoor recreation. Two of the largest gold mining operations in North America, Barrick Gold Corporation (operating the Goldstrike, and Cortez mines) and Newmont Mining Corporation (operating the Carlin Trend), are located in this area. Ruby Hill Mine, operated by Barrick Gold Corporation, is located in the southern end of the county. Other major private land holdings in the outlying County occur south of Palisade at the northern end of Pine Valley. The majority of lands in the outlying area of the County fall under the management authority of the Bureau of Land Management and the U.S. Forest Service. A variety of land uses occur on these lands. There are two wilderness study areas (WSA) including Simpson Park (49,670 acres) and Roberts Mountain (15,090 acres). At this time neither WSA has been recommended for designation as a wilderness area by the Bureau of Land Management. Mineral, geothermal, oil and gas development potential exist on these lands. Oil production occurs on wells in the Pine Valley area. Livestock grazing, mining and recreational activities occur on these public lands (Commission, 2010).

ECONOMY

The economic fortunes of Eureka County and its residents have been tied to mining since the discovery of silver-lead mineralization near the present site of the Town of Eureka. According to the Eureka County, Nevada Mineral Assessment Report, October 2007, Eureka County was producing about 36 percent of all Nevada gold in 2007. Between the years 1997 and 2003, Eureka County mines annually produced between \$865 million and \$1.08 billion of gold and silver. As seen in Table 2-7, mining employment dropped slightly in 2003 and 2004, but rose again in 2009. By March of 2009, there were 4,100 jobs in mining in Eureka County. Mining pays the highest annual wage of all industries in Eureka County as well as the State of Nevada.

The two largest gold producer's in Nevada, Barrick Gold Company and Newmont Mining Corporation are located in northern Eureka County. Most of the mining services supporting these mines, and most of the employees of these mines, are based outside of Eureka County primarily in nearby Elko County. Government is the second-largest employment category in the county, with 250 jobs reported in March of 2009. Government employment dropped over the four-year period, shown in Table 2-7, from 204 government jobs in 2002 to 192 in 2004 but by March of 2009, increased to 250 jobs. Agriculture plays an important role in the local economy. Over the year's agriculture has provided a stable employment and income base in Eureka County. The 2012 Census of Agriculture indicates gross ag product sales at \$36,020,000 with \$6,774,000 attributed to livestock sales. To maintain the agriculture base, Eureka County must protect the water resource within the County. The majority of livestock producers in the County are cow/calf operations which use range lands managed by the Bureau of Land Management and other federal land management agencies for a part of their grazing needs. Agriculture in Eureka County is an export industry. Because most products are sold outside the County (exported), income flows back (imported) into the area. High quality products are produced in Eureka County (Commission, 2010).

Table 2-7
Eureka County Industrial Employment
2002-2009, 2016

	2002	2003	2004	2009	2016
All Other	41	66	71	-	85
Other Services except public administration	-	8	7	-	-
Trade Transportation and Utilities	33	32	32	140	67
Professional and Business Services	-	-	-	10	-
Accommodation, Food Service, Leisure and Hospitality	25	25	38	40	46
Government	204	188	192	250	190
Mining	3,307	3,180	3,211	4,100	4092

Note: To maintain employer confidentiality some individual industry data are suppressed, but are still part of the total. These numbers are included in "All Other". Owner/Operator statistics are not included.

Source: Nevada Department of Employment Training and Rehabilitation, Nevada Workplace Informer "Quarterly Employment and Wages", Eureka County 2002-2016 and March 2009 Nevada Small County Industrial Employment Summary.

Recreation

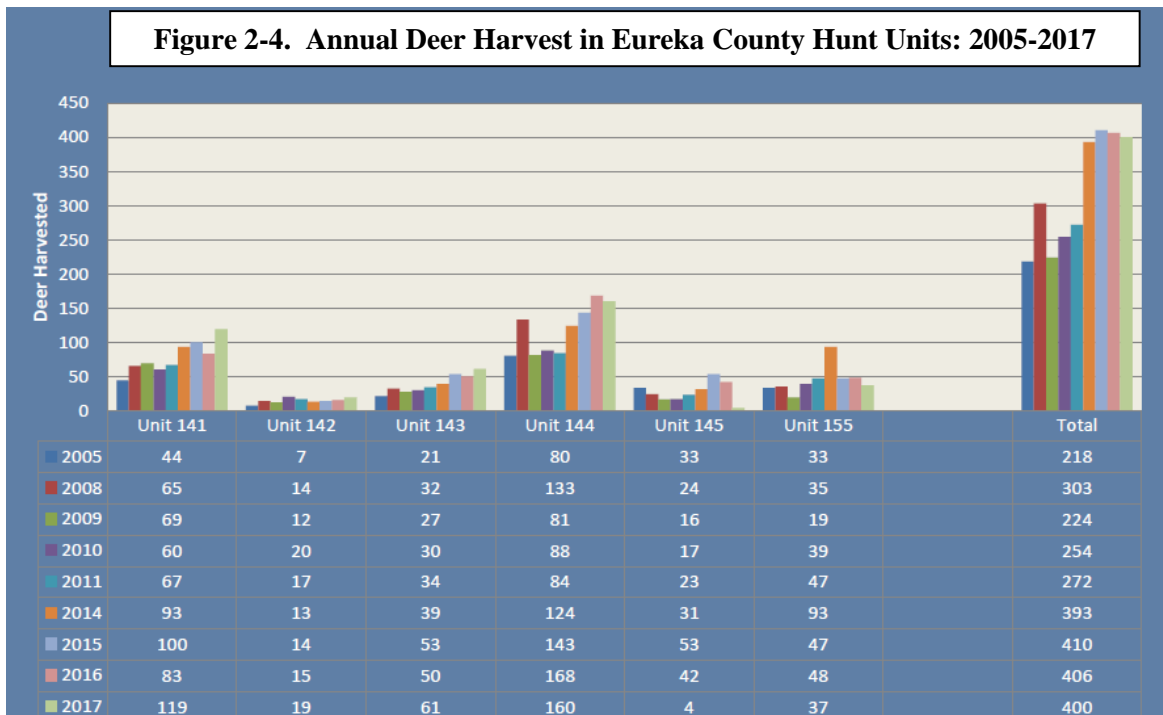
A variety of outdoor recreation is available in Eureka County. The vast areas of public lands are open to uses such as hunting, fishing, camping, day use, hiking, among others. Due to the dispersed nature of outdoor recreation use, there are few available measures to gauge the level of recreation activity in Eureka County. Hunting and fishing license purchases and hunting activity are two reliable measures available. Table 2-7A shows fishing and hunting licenses purchased in Eureka County. Figure 2-4 provides data on annual mule deer in Eureka County hunt units. In recent years, deer and antelope populations in key Eureka County hunt areas have increased (County, 2018).

Table 2-7A. Fishing and Hunting Licenses: 1995 to 2015

Eureka County Fishing and Hunting Licenses	1995	1997	1999	2001	2003	2005	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential Fishing	159	187	264	191	105	120	146	151	152	156	155	173	152	147	135
Non-residential Fishing	28	65	67	44	29	26	27	37	45	47	35	28	24	34	41
Total Fishing Licensing	187	255	331	235	134	146	173	183	119	203	356	356	176	181	176
Residential Hunting	67	73	66	67	60	58	56	42	43	46	42	41	34	30	22
Non-residential Hunting	5	11	10	14	9	15	2	9	6	4	5	6	5	3	0
Total Hunting	72	84	76	81	69	73	58	51	49	50	47	47	39	33	22
Total Hunt/Fishing Combo	153	183	235	183	145	119	122	103	97	106	85	89	93	89	89
Total Licensing	419	537	597	508	366	356	394	359	357	377	342	367	338	325	306

Source: NDOW

Figure 2-4. Annual Deer Harvest in Eureka County Hunt Units: 2005-2017



RESOURCE DISCUSSION INITIATIVE, PROTOCOLS AND RESOURCE AREAS OF CONCERN

The group facilitation process was an integral tool in providing the discussion leaders an orderly and effective presentation mechanism to explain the resource needs assessment process, goals and objectives and reporting protocols. Many of the participants, other than agency resource professionals, were not familiar with the NRCS Resource Concerns Checklist protocol which compartmentalizes environmental considerations into seven primary categories; soil, water, animals, plants, air, energy and the human factor. As the varied discussions relative to local issues progressed the groups became more comfortable with pinpointing and identifying specific impacts/effects relative to the categorical delimiters, SWAPA+H (NHCP, 2019). The groups readily recognized the similarity of localized resource concerns/land use throughout the Northern Great Basin encompassing major land resource areas 24, 25, 28A&28B in Eureka, Elko, Humboldt, Lander and White Pine Counties. A brief summary of the climatic and physiographic characteristics for these zones is described in 'Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean and the Pacific Basin.' (Ag Handbook 296, 2006), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_050898.pdf. Eureka County comprises major land resource area 28B and 25. A brief description of physiographic and climatic features follows:

MLRA 28B - Central Nevada Basin & Range

This area is entirely in Nevada. It makes up about 23,555 square miles (61,035 square kilometers). The town of Ely, Nevada, is in this MLRA. Interstate 80 crosses the 82 Major Land Resource Areas northeastern tip of the area. One of the world's largest open-pit mines, the Ruth Copper Pit, is directly west of Ely. Portions of the Humboldt and Toiyabe National Forests occur in this area. The Odgers Ranch, Goshute, and Duckwater Indian Reservations and the Great Basin National Park also are in this area. This area is in the Great Basin Section of the Basin and Range Province of the Intermontane Plateaus. It is an area of nearly level, aggraded desert basins and valleys between a series of mountain ranges trending north to south. The basins are bordered by long, gently sloping to strongly sloping alluvial fans. The mountains are uplifted fault blocks with steep side slopes. They are not well dissected because of a low amount of rainfall in the area. Many of the valleys in this MLRA are closed basins containing sinks or playas. Elevation ranges from 4,900 to 6,550 feet (1,495 to 1,995 meters) in the valleys and basins and from 6,550 to 11,900 feet (1,995 to 3,630 meters) in the mountains. The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Central Nevada Desert Basins (1606), 82 percent; Black Rock Desert-Humboldt (1604), 7 percent; Lower Colorado-Lake Mead (1501), 6 percent; and Great Salt Lake (1602), 5 percent. The MLRA has no major rivers. The Duck River is north and east of Ely (Ag Handbook 296, 2006).

Climate

The average annual precipitation is 4 to 12 inches (100 to 305 millimeters) in most areas on the valley floors. It is about 8 to 36 inches (205 to 915 millimeters) in the mountains. Most of the rainfall occurs as high-intensity, convective thunderstorms during the growing season. The

driest period is from midsummer to midautumn. The average annual temperature is 34 to 52 degrees F (1 to 11 degrees C). The freeze-free period averages 125 days and ranges from 80 to 170 days, decreasing in length with elevation (Ag Handbook 296, 2006).

MLRA 25 - Owyhee High Plateau

This area is in Nevada (52 percent), Idaho (29 percent), Oregon (16 percent), and Utah (3 percent). It makes up about 28,930 square miles (74,960 square kilometers). The city of Elko, Nevada, which is along Interstate 80, is in this MLRA. The Humboldt-Toiyabe and Sawtooth National Forests and numerous wilderness study areas also occur in this MLRA. Most of the wilderness study areas are in the high desert canyon lands of southern Idaho. The Duck Valley, South Fork, Ruby Valley, and Te-Moak Indian Reservations are in this area. All of this area lies within the Intermontane Plateaus. The southern half is in the Great Basin Section of the Basin and Range Province. This part of the MLRA is characterized by isolated, uplifted fault-block mountain ranges separated by narrow, aggraded desert plains. This geologically older terrain has been dissected by numerous streams draining to the Humboldt River. The northern half of the area lies within the Columbia Plateaus Province. This part of the MLRA forms the southern boundary of the extensive Columbia Plateau basalt flows. Most of the northern half is in the Payette Section, but the northeast corner is in the Snake River Plain Section. Deep, narrow canyons draining into the Snake River have been incised 74 Major Land Resource Areas into this broad basalt plain. Elevation ranges from 3,000 to 7,550 feet (915 to 2,300 meters) on rolling plateaus and in gently sloping basins. It is more than 9,840 feet (3,000 meters) on some steep mountains. The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Middle Snake (1705), 49 percent; Black Rock Desert-Humboldt (1604), 28 percent; Upper Snake (1704), 15 percent; Great Salt Lake (1602), 5 percent; and Central Nevada Desert Basins (1606), 3 percent. The Humboldt River, route of a major western pioneer trail, crosses the southern half of this area. Reaches of the Owyhee River in this area have been designated as National Wild and Scenic Rivers (Ag Handbook 296, 2006).

Climate

The average annual precipitation in most of this area is 7 to 16 inches (180 to 405 millimeters), but it can exceed 50 inches per year (1,270 millimeters) in the mountains. The amount of precipitation is lowest in the eastern part of the area and increases with elevation. Rainfall occurs in spring and sporadically in summer. Precipitation occurs mainly as snow in winter. The precipitation is distributed fairly evenly throughout fall, winter, and spring. The amount of precipitation is lowest from midsummer to early autumn. The average annual temperature is 35 to 53 degrees F (2 to 12 degrees C). The freeze-free period averages 130 days and ranges from 65 to 190 days, decreasing in length with elevation. It is typically less than 70 days in the mountains (Ag Handbook 296, 2006).

Major Land Resource Areas 24, 25, 28A & 28B



The resource concerns throughout these regions, MLRAS's, are measurably or significantly comparable as influenced by similar climate, physiography/geology (basin & range complex) and land use. Primary land uses include agricultural lands, mining/industrial lands (private & public), grazing lands and recreational lands/wildlife habitat (primarily public on BLM, USFS and USFWS administered lands). Municipalities and town-sites comprise only a small percentage of land area throughout the northern Nevada MLRA regions.

RESOURCE NEEDS ASSESSMENT SURVEY POLL - DEPARTMENT OF ECONOMIC AND COOPERATIVE EXTENSION

RESERVED

The purpose of the survey instrument is to gather public input from a broad range of agencies, organizations, businesses, and individuals within conservation districts (CDs) who have an interest in natural resource conditions. This information will inform and assist CD supervisors when working through the CPPE process and completing Conservation Action Plans. It will help supervisors assess natural resource conservation needs and set community conservation goals in context of community conservation goals and priorities.

Completed surveys in each participating District will help ensure that projects, research, and educational priorities meet the conservation needs in each District and across the state (NVACD, 2017).

EUREKA CD GROUND WATER BASIN MANAGEMENT INITIATIVE WATER QUANTITY

Natural resources are an important element of the Eureka County economy and the quality of life enjoyed by local residence. Natural resources support many critical economic sectors, provide for community development, enhance the quality of life by supporting recreational activities enjoyed by residents and visitors. One of the most important natural resources in the County is water. In the arid west, water is precious and limited.

WATER RESOURCES

Throughout the region (Appendix I, Figure 3-2 & 3-3, Eureka County Hydro Basin Land Status), precipitation varies widely between seasons and years as well as within elevation. Annual precipitation ranges from 11 to 13 inches and results mostly from winter storms although summer thunderstorms can produce large amounts of precipitation as rain but contribute little to annual precipitation. Higher amounts of precipitation generally occur as elevation increases. Above 6,000 feet it is not uncommon for areas in

central Nevada to receive 14 inches of precipitation or more. Precipitation supports groundwater recharge. Table 3-1 shows major groundwater hydrographic basins in Eureka County including the active duty groundwater rights and perennial yield of each basin. Table 3-2 shows groundwater rights by type of use in Eureka County hydrographic basins. As shown in Table 3-2, agriculture followed by mining and milling account for about 93.4 percent of groundwater right usage in Eureka County (County, 2018).

Basin	Active Duty	Pending	Perennial Yield	Balance
Maggie Creek-51	13,539	21,000	4,000.00	(9,539)
Pine Valley-53	16,527	3,720	20,000.00	(-3,473)
Crescent Valley-54	16,980	807	16,000.00	(980)
Boulder Flat-61	73,256.33	8,491.57	30,000.00	(43,256.33)
Diamond Valley-153	130,536	11,538	30,000.00	(100,536)
Kobeh Valley-139	18,089.25	11,949.52	16,000.00	2,089.25
Steven's Basin-152	100	-	100.00	0
Total	269,027.58	57,430.46	116,100.00	(155,694.75)

Source: Nevada Division of Water Resources.

GROUNDWATER WELLS AND GROUNDWATER DEPTH

There are nearly 2,300 wells in the Eureka County. The largest category of wells is irrigation and mining. The total number of domestic wells has increased from 220 in 2012 to 251 in 2018.

Groundwater in Eureka County also supports municipal and domestic water demands. There are three municipal systems operated by Eureka County. One is in the Town of Eureka, another in Devil's Gate, and a third in the Town of Crescent Valley. The water systems in Eureka County currently meet all drinking water standards. Arsenic treatment was recently added to the Town of

Use	Active Duty	Pending
Commercial	38.16	-
Domestic	33.6	-
Environmental	1,123.22	-
Industrial	9,286.22	-
Irrigation-DLE	17,707.84	-
Irrigation	181,437.50	7,746
Mining & Milling	52,020.20	71,059.24
Municipal	4,296.49	361.98
Quasi-Muni	681.09	300.78
Stock	2,438.24	8.68
Total	269,028.90	44,063.77

Source: Nevada Division of Water Resources.

Crescent Valley water system. Overall, the systems in Eureka County are in excellent condition meeting all municipal operating standards. Since 2010, there has been limited growth in the number of municipal customers served by the systems, although the Town of Eureka is trending higher (County, 2018).

HISTORIC WATER-LEVEL CHANGES

Water levels in the Diamond Valley Flow system have changed over time as a result of withdrawals for irrigation, municipal, domestic, and mining uses and as a result of annual long-term variations in precipitation. Most withdrawals have been for irrigation in southern Diamond Valley where the irrigated area expanded from 3,200 acres in 1961 to 22,200 acres in 1990. Water level declines from the 1960s to 2005 in southern Diamond Valley ranged from 26 to 90 feet at 67 wells. The large area of water-level decline that has been developed in the basin-fill aquifer of southern Diamond Valley underlies an area about 10 miles wide and 20 miles long.

Long-term water level records are available for only a few wells in Kobeh, Monitor, and Antelope Valleys. Kobeh Valley water levels ranged from 35-46 feet below the land surface with minor annual fluctuations generally 2-4 feet. In Monitor Valley water levels ranged from 48 to 56 feet below the land surface with limited annual fluctuations and response to short-term changes in precipitation. In northern Antelope Valley water levels ranged from 94 to 98 feet below the land surface with annual fluctuations of less than 1 foot (USGS Scientific Investigations Report 2006-5249). Figure 2-6 shows changes in depth of groundwater since 1960 for a USGS monitoring well in Diamond Valley. Overall declines of about 100 feet have occurred since 1960.



SURFACE WATER

The major surface water feature in Eureka County is the Humboldt River which has an average annual discharge of approximately 218,000 acre-feet. Other major surface water features include Pine Creek and a series of smaller perennial streams originating in the Roberts Mountains, the Diamond Mountains, Cortez Range, and Monitor Range. Stream flow readings are limited in Eureka County. In recent years the United States Geologic Survey installed gauging stations at streams in the Roberts Mountains. Drought conditions from 2012 to 2016 reduced stream flows (County, 2018).

EUREKA COUNTY WATER RESOURCE MANAGEMENT EFFORTS TO DATE

Over the years, Eureka County has intervened in the water rights appropriation process where the County concluded applications for specific water rights would not be in the public interest, would conflict with existing rights or be contrary to County plans, policies and desires. In these circumstances, the County participated in administrative hearings before the NSE, providing information to fully consider new appropriations. When deemed appropriate, the County has appealed decisions by the NSE to District Court and even to the Nevada Supreme Court.

DIAMOND VALLEY GROUNDWATER MANAGEMENT PLAN

Eureka County is not spearheading, but is actively participating in the development of the Groundwater Management Plan (GMP) as a water rights holder with the desire to protect the socioeconomic base in Diamond Valley. The GMP effort is being primarily led by irrigators that use 95% of the groundwater pumped in the basin. In anticipation of the designation of Diamond Valley as a Critical Management Area, Eureka County supported efforts in Diamond Valley to help address the basin overdraft. These efforts have intensified since the basin's designation as a CMA in August 2015 (Resources M. P., 2016). To date the County has sponsored or been involved with:

1. A study of the feasibility of forming a general improvement district to retire water rights in order to reduce the overdraft in Diamond Valley (HEC, 2013). The study was funded by EUREKA COUNTY WATER RESOURCES MASTER PLAN Management Alternatives 8-16 Eureka County through a grant to the Diamond Natural Resources Protection and Conservation Association (DNRPCA).
2. Research and analysis of a Diamond Valley "set-aside" program to quantify water savings, potential costs of such a program, and whether or not a set-aside program was economically feasible (HEC, 2014). The study was funded by the University of Nevada Cooperative Extension Service in cooperation with Eureka County.
3. Providing a grant to the Eureka County Conservation District to host scoping sessions for an eventual Diamond Valley Groundwater Management Plan. Walker and Associates held three public meetings to identify relevant issues and possible solutions. In addition, individual interviews were held with domestic well owners, irrigators, and commercial interests.
4. Multiple meetings with the staff of the NSE to outline groundwater management options.
5. The Eureka Conservation District (ECD) has hosted and continues to host workshops to work toward developing a Groundwater Management Plan. Eureka County has a role on the ECD through a County appointed supervisor on its Board of Supervisors (Resources M. P., 2016).

EUREKA COUNTY WEED MANAGEMENT & CONTROL INITIATIVES

WEED DISTRICT

The purpose of the Weed District is to help with beneficial eradication of noxious weeds within the district. The Weed District is overseen by the Diamond Valley Weed Control District Board of Directors (Weed Board) and is made up of three members. According to NRS 555.207, the Weed Board exercises any power necessary or proper to effectuate the purposes for which the district exists in addition to receiving and expending any moneys provided by assessment, voluntary contribution or otherwise for the control of weeds in the district.

The management of **noxious weeds** is necessary to conserve and improve natural resources such as cropland, soil, forage, and wildlife habitat and to manage land resources for multiple use values and improve the economic stability within Eureka County (Resources E. C.). Eureka County comprises two Cooperative Weed Management Areas, Humboldt Watershed and Diamond Valley Weed Control District (Eureka County). Weed management planning initiatives and control implementation are administered on public lands by the regulatory agencies, primarily the Bureau of Land Management Battle Mountain /Elko Districts and Humboldt-Toiyabe National Forest.



Whitetop Spraying
Photo courtesy Eureka County Weed District

The purpose of the Humboldt Watershed Noxious Weed Management Plan is to provide an overview of the strategy employed by the Humboldt Watershed Cooperative Weed Management Area (HWCWMA) to assist in the control of targeted noxious weeds within the Humboldt River Watershed. The plan has been constructed to compliment the Nevada Noxious Weed Laws put in place by the Nevada Department of Agriculture. The targeted noxious weeds to be controlled are designated by the Nevada Department of Agriculture. Control is aimed at eradicating, reducing, suppressing or containing populations of non-native, invasive noxious weeds which pose a threat to the environment and economies within the Humboldt River Watershed by reducing wildlife habitat, water quality, agricultural production, property value, threatening the native plant populations unique to Northern Nevada, and increasing the threats and destructivity of wildfire (Plan, 2014). Eureka County and the Nevada Department of Agriculture work jointly in the effort to identify on both private and public lands the areas of infestation, classify categorically the noxious species index, develop treatment and reclamation/rehab plans and monitor both treatment sites and new areas of infestation. Refer to Figure 2-7 identifying the area associated with the Humboldt Watershed Cooperative Weed Management Area (Plan, 2014). Eureka County's Diamond Valley Weed District has Jurisdiction County wide. Table 3-3 lists, alphabetically by common name the Nevada Noxious weed list. Weeds listed in ***bold italics with asterisk (*)*** have been identified in the county and are top priority in the weed management plan. Weeds in **bold print** have been identified, control measures taken, and don't pose a serious threat at this time.

Figure 2-7. Humboldt Watershed Cooperative Weed Management Area

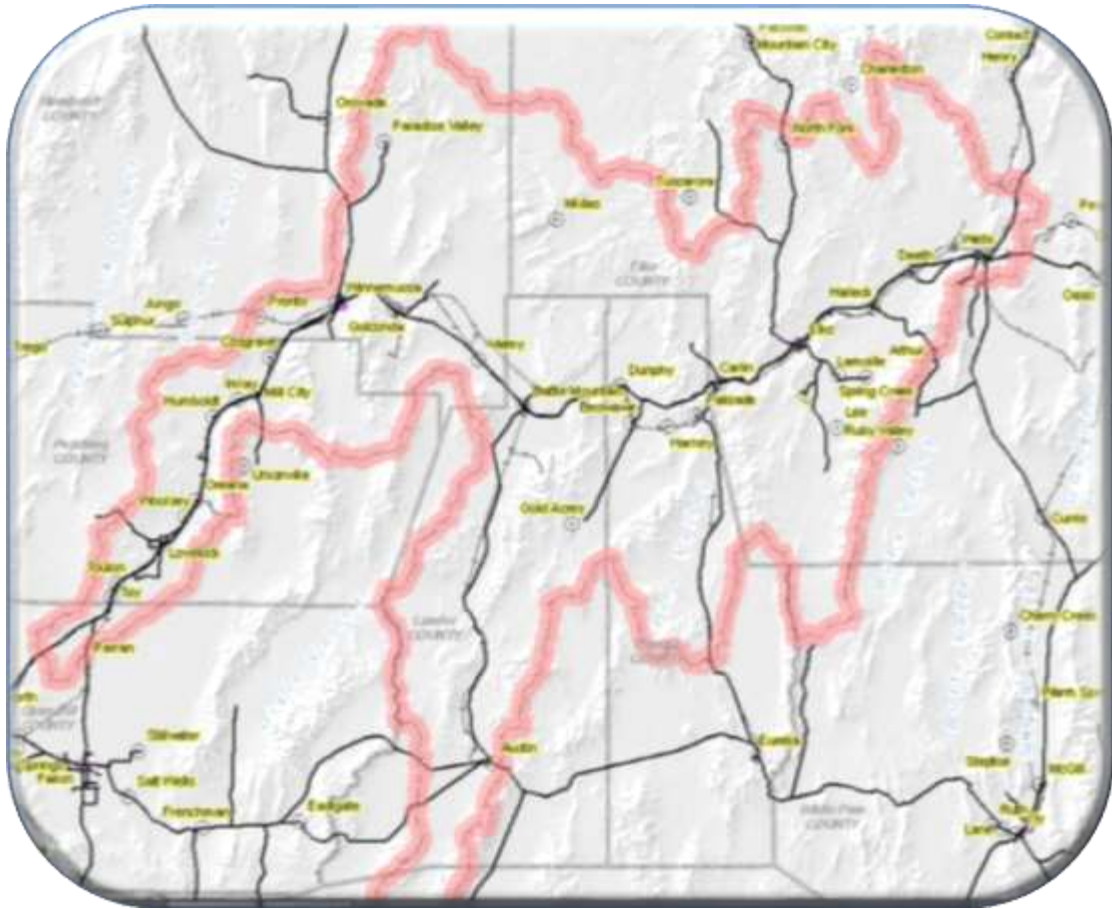


Table 3-3. Nevada Noxious Weed List and Species That Have Been Identified and Mapped in Eureka County (*bold italics with asterisks (*) and bold print*).

African Rue	Giant Salvina	Hydrilla
Austrian fieldcress	Goats rue	Johnson grass
Austrian peaweed	Green fountain grass	Klamath weed
Black Henbane	Hemlock, poison	Knapweed, Diffuse
Camelthorn	Hemlock, water	<i>Knapweed, Russian*</i>
Common crupina	Horse-nettle, Carolina	<i>Knapweed, Spotted*</i>
Dyer's woad	Horse-nettle, White	Knapweed, Squarrose
Eurasian water-milfoil	Houndstongue	Leafy Spurge
Mayweed chamomile	Rush skeletonweed	Thistle, Sow
Mediterranean sage	Saltcedar (tamarisk)	Thistle, Iberian star
Medusahead	Sorghum alum	Thistle, Purple star
<i>Perennial pepperweed*</i>	Sulfur cinquefoil	Thistle, Yellow star
<i>(tall white top)</i>	Syrian bean caper	Thistle, Malta star
Perennial sweet sudan	Thistle, Canadian	Toadflax, Dalmatian
Puncturevine	<i>Thistle, Musk*</i>	Toadflax, yellow
Purple loosestrife	<i>Thistle, Scotch*</i>	<i>Whitetop or Hoary cress*</i>

BUREAU OF LAND MANAGEMENT/EUREKA COUNTY RESOURCE MANAGEMENT PLANNING INITIATIVES

HERD MANAGEMENT AREAS

The Bureau of Land Management oversees 26.9 million acres of land in Nevada used by wild horses, wild burros and other species. Unchecked herds double in size every four years, due to a lack of natural predators and a rapid growth rate. In Eureka County there are nine herd management areas (HMA's) comprising some 988,201 acres (Appendix I, Figure 3-4). Eight of the nine HMA wild and feral horse populations exceeded the appropriate management level (AML's) as designated by the BLM in 2017 (Table 3-4). The Bureau faces overwhelming complications relative to litigation constraints that inhibit timely gathers to reduce population numbers. As a result, with uncontrolled population numbers, over-grazing impacts are extreme throughout all herd management area units in Eureka County.

Western States BLM Herd Management Area Statistics

Herd Area and Herd Management Area Statistics
as of March 1, 2017

	Herd Area			Herd Management Area		Estimated Populations			High AML
	BLM Acres	Total Acres	Acres Transferred from BLM	BLM Acres	Total Acres	Horses	Burros	Total	
AZ	2,019,027	3,643,197	0	1,498,207	2,296,269	364	6,241	6,605	1,676
CA	5,170,931	7,021,651	1,425,649	2,053,082	2,533,722	5,088	3,657	8,745	2,200
CO	723,095	851,275	0	365,988	404,013	1,693	0	1,693	812
ID	420,783	477,300	0	383,894	418,268	563	0	563	617
MT	103,844	230,073	0	27,094	35,640	166	0	166	120
NV	19,741,193	22,890,624	437,436	14,032,947	15,668,201	34,780	2,931	37,711	12,811
NM	88,855	126,530	0	24,506	28,613	168	0	168	83
OR	3,608,660	4,312,356	130,335	2,733,577	2,978,751	4,302	49	4,351	2,715
UT	3,224,891	3,915,667	98,289	2,154,458	2,451,227	5,215	313	5,528	1,956
WY	7,301,975	10,344,424	0	3,633,879	4,768,682	7,144	0	7,144	3,725
TOTAL	42,403,054	53,613,117	2,091,709	26,907,632	31,583,386	59,483	13,191	72,674	26,715

Herd Management Areas (HMA) and Herd Areas (HA) have been placed in separate tables by state. The population estimation method used on most of BLM's 177 HMAs is the simultaneous double count method. Ground counts are still done on smaller areas where animals are easier to identify. As is true for any estimates of wildlife abundance or herd size, there is always some level of uncertainty about the exact numbers of wild horses or wild burros in any HA/HMA or non-HMA area. The estimates shown here reflect the most likely number of wild horses and burros, based on the best information available to the BLM and may not account for every animal within the HA/HMA. BLM strives to conduct aerial surveys in each HMA once every three years. These surveys result in estimates that statistically account for animals that are not detected by any observer on the flights. In years without surveys, herd size estimates rely on additional information, including known numbers of animals removed and estimated annual population growth rates. Populations do not reflect any changes after March 1, 2017 (i.e. foal crops or gathers). BLM policy is to establish Appropriate Management Levels (AML) as a range with upper and lower levels (BLMNVA, 2019).

Table 3-4. Eureka County Herd Management Area Statistics as of March 2017

HMA	AML LOW	AML HIGH	ESTIMATED POPULATION	% OF AML
DIAMOND	91	151	363	240%
DIAMOND HILLS NORTH	22	37	189	511%
DIAMOND HILLS SOUTH	10	22	150	682%
FISH CREEK	107	180	476	264%
ROBERT'S MTN.	90	150	596	397%
ROCKY HILLS	90	143	132	Within AML
SAND SPRINGS EAST	29	49	213	435%
SEVEN MILE	30	50	257	514%

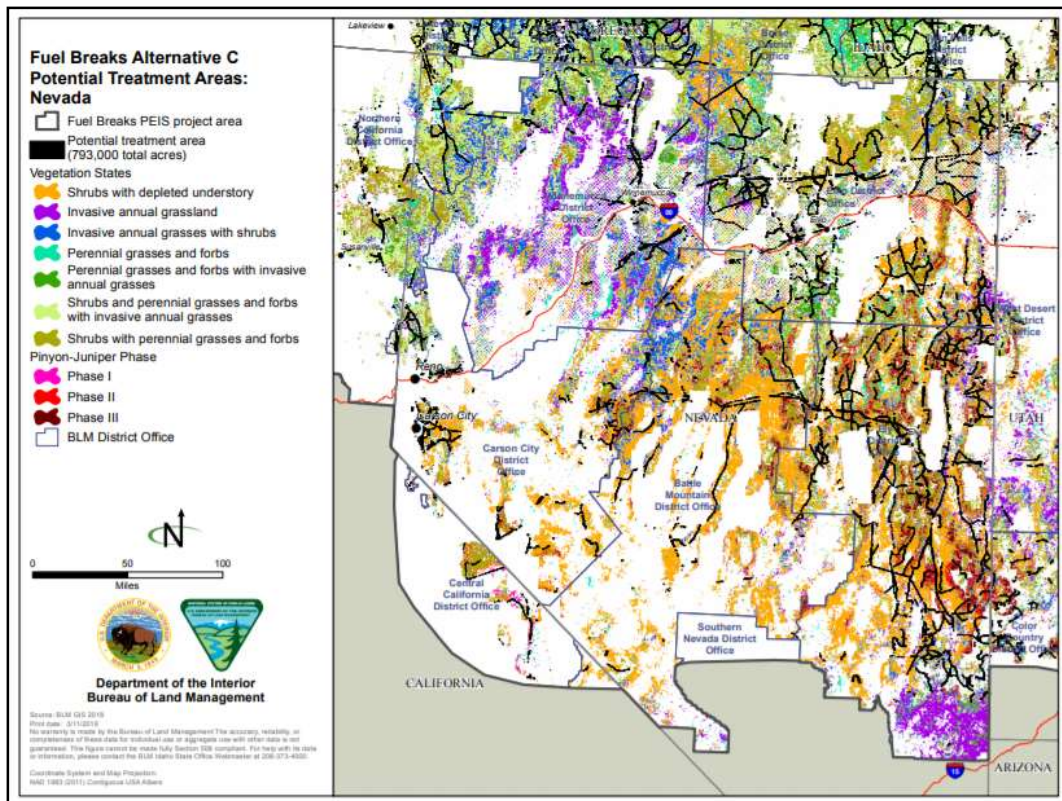
WHISTLER MTN	14	24	30	125%
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FIRE MANAGEMENT/FUEL BREAKS INITIATIVE

Large, unbroken swaths of grasses, brush and other vegetation have provided a continuous supply of fuel for the recent catastrophic rangeland wildfires that have burned across the Great Basin states. The concept behind fuel breaks is to break up or fragment continuous fuels by reducing vegetation in key locations. When a wildfire burns into a fuel break, the flame lengths decrease and its progress slows, making it safer and easier for firefighters to control. The fuel breaks would be strategically placed along roads and rights-of-way on BLM-administered lands. On June 21, 2019 the Department of the Interior’s (DOI) Bureau of Land Management (BLM) released the Draft Programmatic Environmental Impact Statement (EIS) for Fuel Breaks in the Great Basin for a 45-day public comment period. This Draft Programmatic EIS analyzes a system of up to 11,000 miles of strategically placed fuel breaks to control wildfires within a 223 million-acre area that includes portions of Idaho, Oregon, Washington, California, Nevada (Figure 2-8) and Utah (BLMNV, 2019). Eureka County has sustained significant impacts from large scale fire over several decades which has led to vegetative type conversions effecting critical habitat regimens and watershed stability (Appendix I, Figure 3-5).

Tools used to create fuel breaks could include brown strips - areas where all vegetation has been removed; green strips - areas where vegetation that is more flammable has been replaced with less flammable vegetation; and mowing or targeted grazing depending on the locations and vegetation.

Figure 2-8. Fuel Breaks Alternative C Potential Treatment Areas: Nevada



A system of strategically placed fuel breaks in the Great Basin region would slow the spread of wildfires; thereby reducing wildfire size, improving firefighter safety and providing an anchor point for fire suppression activities, providing opportunities to control catastrophic wildfire, and creating buffers for maintaining important habitats. Fuel breaks would also offer greater protection to human life and property, sagebrush communities, and ongoing/pending habitat restoration investments, and reduce invasive plant species expansion. Wildfires continue to increase in size and frequency throughout the western United States in recent years. Further, the number of areas that burn repeatedly before habitats can be re-established has increased. These fires negatively impact healthy rangelands, sagebrush communities, and the general productivity of the lands. In the last decade (2009-2018), 21 fires have exceeded 100,000 acres. During this same timeframe, the total number of acres burned in the project area was over 13.5 million acres. Efforts to suppress wildfires on BLM-administered lands in Utah, Nevada, and Idaho (for which data are available) have cost approximately \$373 million dollars between 2009 and 2018. These wildfires result in increased destruction of private property, degradation and loss of rangelands, loss of recreational opportunities, and habitat loss for a variety of species, including the conversion of native habitats to invasive annual grasses. The conversion of rangeland habitats to invasive annual grasslands further impedes rangeland health and productivity by slowing or preventing recovery of sagebrush communities (BLMNV, 2019).

GREATER SAGE-GROUSE HABITAT CONSERVATION

Greater Sage-Grouse is a state-managed wildlife species that depends on sagebrush-steppe ecosystems managed in partnership by federal, state and local authorities. Shared responsibilities mean that it makes sense for the BLM as the largest land manager to align its

strategies with the state agencies responsible for managing the species. The BLM has better aligned its resource management plans with respective state wildlife management plans through amendments developed in collaboration with governors, state wildlife managers and other stakeholders. Records of Decision (RODs) signed on March 14 and 15, 2019, adopt these amendments and position state-level coalitions to move forward toward improved outcomes for the Greater Sage-Grouse (BLMSG, 2019)

The State's goal for the conservation of sage-grouse in the State of Nevada is to provide for the long term conservation of sage-grouse by protecting the sagebrush ecosystem upon which the species depends. Redundant, representative, and resilient populations of sage-grouse will be maintained through amelioration of threats; conservation of key habitats; mitigation for loss of habitat due to anthropogenic disturbances; and restoration or rehabilitation of habitat degraded or lost due to Acts of Nature. Achieving the State's goal for the conservation of sage-grouse will provide benefits for the sagebrush ecosystem and for many other sagebrush obligate species. Sage-grouse are known to be an "umbrella species" for many sagebrush obligate and associated species (Hanser and Knick 2011). The enhancement and restoration measures that bring resiliency and restore ecological functions to sagebrush ecosystems will also serve to ensure quality habitat for sage thrasher, sage sparrow, Brewer's sparrow, sagebrush vole, pygmy rabbit, pronghorn antelope, mule deer, and many other species (Team, 2014). Significant habitat regimens, sagebrush-steppe, comprise major land resource areas 24, 25 and 28B within Eureka County (Appendix I, Figure 3-6). Diversified seasonal habitats occur on private agricultural which are integral for the long term stability of the population segments throughout Eureka County.

The Greater Sage-grouse Advisory Committee, using the best available science, identified fire and invasive plant species, principally cheatgrass (*Bromus tectorum*), as the primary threat to sage-grouse and their habitat in the State of Nevada. The State acknowledges these threats must be adequately addressed in order to achieve the conservation goal for sage-grouse within the State of Nevada; however, it is not economically or ecologically feasible to restore all fire damaged or invasive species dominated landscapes at this point, nor is it possible to prevent all fires (NVSETT, 2014). Upland seasonal habitat regimens, summer brood, spring-fall, winter and breeding (leks), require sound land use and management initiatives and practices to insure habitat propagation and stability into the future.

Fire and the subsequent reestablishment of plant species (native or not) is a natural process, and consequently this threat is extremely challenging across the western United States as humans are still limited in our ability to directly control this cycle. However, scientific understanding of ecological processes and resource management techniques continues to improve. Adaptive management approaches, committed to by the State, will provide an opportunity to continue to gain a greater understanding of the ecological mechanisms that drive these processes and will subsequently lead to improvements in resource management practices that reduce the occurrence of catastrophic wildfire and minimize the risk of crossing ecological thresholds due to the invasion and subsequent potential domination by invasive annual grasses (NVSETT, 2014).

The following summarizes the preferred alternative identified in the Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region in March of 2019:

Alternative D was identified as the preferred alternative in the Draft EISs. This alternative balanced opportunities to use and develop the Planning Area, as well as conserving, maintaining, and enhancing GRSG (Greater Sage-Grouse) and its habitat. Protective measures were applied to GRSG habitat, while allowing for human disturbances with stringent mitigation measures. This alternative represents the mix and variety of management actions, based on the BLM's analysis and judgment, which best resolve the resource issues and management concerns while meeting laws, regulations, and policies pertaining to BLM management. As a result of public scoping comments, internal review, and cooperating agency coordination on the Draft RMPAs/EISs, this alternative was modified to become the Proposed RMPAs (Resource Management Planning Areas) and was analyzed in the Final EISs. The preferred alternatives, with slight variations, became the proposed plans in the Final EISs. In PHMAs (Planned Habitat Management Areas) under Alternative D, disturbance in GRSG habitat would be limited by excluding wind and solar energy development (except for certain counties in Southeastern Oregon, where avoidance is applied), avoiding most ROW (Right-Of-Way) development (subject to certain conditions), applying NSO stipulations to fluid mineral development, and closing PHMAs to non-energy leasable mineral development and mineral material sales. These management actions would protect GRSG habitat, while allowing other activities, subject to conditions. In GHMAs (General Habitat Management Areas) under Alternative D, allocations are less stringent but still aim to protect GRSG habitat (for example, applying moderate constraints and stipulations to fluid minerals in GHMAs). Under Alternative D, the BLM management would support sagebrush/perennial grass ecosystem restoration, would increase fire suppression in PHMAs and GHMAs, and would manage livestock grazing to maintain or enhance sagebrush and perennial grass ecosystems (BLMSG, 2019).

RIPARIAN MANAGEMENT

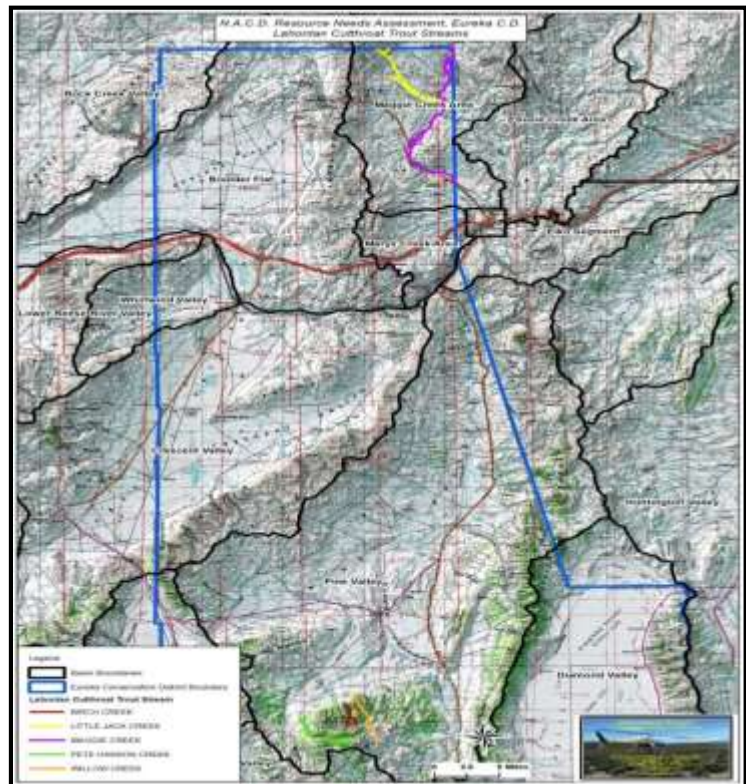
Riparian Proper Functioning Condition (PFC) describes assessing on-the-ground conditions of a riparian area. A healthy riparian area is resilient. PFC gauges a riparian area's resiliency, or ability to hold together, during high stream flows. They are among the first landscape features to reflect damage from improper management or natural events, such as a flood or drought. Yet, water can also create opportunities for restoration and recovery including re-establishing native vegetation or improving fish and wildlife habitat. When riparian areas are not in PFC, they are not in a sustainable condition. To create a sustainable riparian area, cooperative restoration and management at a landscape level are key to bringing about desired conditions in water on public lands. Landscape-scale restoration is a priority because public land managers face increasing demand for water resources. Reliable supplies of water for domestic, agricultural, and industrial consumption are essential to community wellbeing and economic stability. Restoration can help balance human needs with those of fish and wildlife by increasing the quality and quantity of water resources (BLM).

In northern and central Eureka County there are five watersheds that are managed as Lahontan Cutthroat Trout recovery streams. Presently the Lahontan Cutthroat is classified as a

'threatened and endangered' species requiring special regulatory management guidelines relative to grazing management systems. During most years 'hot season' use is avoided in order to promote rapid recovery of the herbaceous riparian component and allow woody vegetation an optimal window for shoot and leader production. These types of grazing systems require more intensified herd management in order to achieve optimal utilization levels within the riparian pasture. Typically the grazing systems are designed with either rest-rotational and or deferred rotation pasture use during spring, early summer and late fall. These zones are also important sage-grouse summer brood habitats.

Specific habitat requirements for cutthroat trout are described in Hickman and Raleigh (1982, pp. 3-7). Optimal stream habitat is characterized by clear, cold water with silt-free substrate and a 1:1 pool-riffle ratio. Streams should have a variety of habitats including areas with slow deep water, abundant instream cover (i.e., large woody debris, boulders, undercut banks), and relatively stable streamflow and temperature regimes. Streambanks should be well vegetated to provide cover, shade, and bank stabilization. Lacustrine LCT populations have adapted to a wide variety of lake habitats from oligotrophic (with low nutrient levels and primary productivity) alpine lakes (e.g., Independence Lake) to large, productive desert terminal lakes (e.g., Pyramid Lake). Unlike most freshwater fish species, LCT have been reported to tolerate alkalinity and total dissolved solid levels as high as 3,000 milligrams/liter (mg/L) (3,000 parts per million (ppm)) and 10,000 mg/L (10,000 ppm), respectively (Dickerson and Vinyard 1999a, pp. 510-514). (ECOS_USFWS)

Figure 3-7. Lahontan Cutthroat Streams in Eureka County



PINION-JUNIPER MANAGEMENT INITIATIVE - EUREKA COUNTY/BLM/NDOW

Much research has been done documenting the negative ecological impacts related to the expansion and infill of PJ woodlands outside of native areas and encroachment of these woodlands into sagebrush steppe (Baker and Shinneman, 2004; Blackburn and Tueller, 1970; Burkhardt and Tisdale, 1976; Rowland, et al., 2008; Soule and Knapp, 1999; Wall, et al., 2001; Wilcox and Davenport, 1995). Negative impacts associated with this expansion and encroachment includes, but is not limited to, loss of wildlife habitat, increased erosion, loss of

herbaceous species, increase in conditions conducive to weed invasion, and decrease in water quantity and quality (ECDNR-Tibbitts, 2012).

The Eureka Conservation District (ECD) in conjunction with the Eureka County Wildlife Advisory Board to Manage Wildlife (ECABMW) and Eureka County Department of Natural Resources (ECDNR) (collectively, EC) in 2012 initiated serious efforts to take a more active role in managing and removing PJ in targeted areas of high value habitat primarily for mule deer and sage grouse. All of the target areas identified were primarily springs, seeps and streams and associated riparian habitats, and habitat connectivity corridors on mountain ranges. The EC partners initially approached the BLM to move forward with hand thinning of PJ around select springs on BLM administered land. However, approvals have yet to come and are still in the works. However, in this process, it became apparent that thousands of acres of PJ existed on private lands with the bulk of these private lands having the target habitat characteristics identified that would benefit from PJ removal. EC started pursuing building relationships and gaining approvals with landowners and building funding to hire hand-crews with chainsaws to reduce the density of and selectively remove PJ from over 4,500 acres on private land on Roberts Mountain, the Diamond Range, and the Monitor Range in southern Eureka County. In 2016, BLM found a way to let EC move forward with removal of about 500 acres of PJ on public land in an area previously treated through chaining in the late 1960s (ECDNR-Tibbitts, 2012).

The following Best Management Practices and treatment prescriptions were identified for the PJ cutting: Pre-cutting assessment & inventory (prioritization of phase I & II stands), native American traditional values & cultural resources, raptor nesting habitat, old growth trees, shade trees, timing of treatments, areas of slope and potential effect/impact on deer migratory Corridors as identified by NDOW. To date some 5,151 acres have been treated with \$439,728.00 contributed from Eureka County, the Eureka Conservation District, NDOW Wildlife Heritage Trust Fund, the NDOW Habitat Conservation Fund, the NDOW Dream TAg Charitable Fund, the NDOW Landowner Incentive Program, and the Nevada Sage-Grouse Habitat Grant Program. In-kind contribution funds exceed \$439,000.00 at this point. The following figures (2-9 &3-8) show the project location relative to sage-grouse habitat regimens and mule deer migratory corridors.

Figure 2-9. Eureka CD P-J Thinning Project Areas

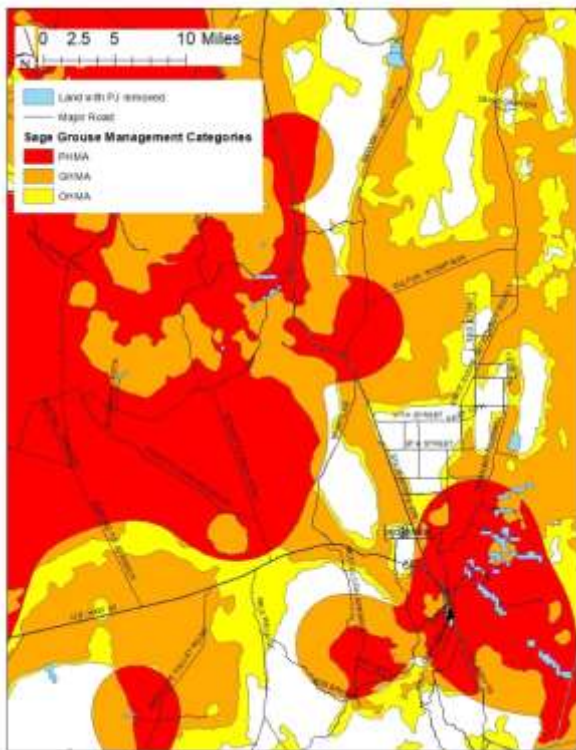


Figure 3-8. Eureka County Mule Deer Migration Corridors

NvACD Resource Needs Assessment, Eureka C.D., Mule Deer Migratory Corridors (P.J. Thermal)



Photography of Pinion-Juniper Thinning Pre and Post Treatment on Simpson Creek



Photography courtesy of Eureka County Department of Natural Resources

CULTURAL RESOURCES

Created in 1979 by the Nevada Legislature, the Nevada State Register (or NVSRHP) is an official list kept by the Nevada State Historic Preservation Office of places and resources worthy of preservation (NRS 383.085). These resources reflect history, architecture, archaeology, and culture that are important to Nevadans. The Nevada State Register recognizes those places in the state that have significance to the past in a local, state, or national context, and possess good physical integrity to the period during which they were important. To be eligible, a resource can be a building, structure, site, or object. They can also be a larger landscape, or a collection of resources known as an historic district. Check out the links and documents below for more information about what the State Register does, how it works, and the benefits of listing a resource in the State Register (NVSHPO, 1979)

Within Eureka County several historical sites and historical districts have been identified by public lands regulatory agencies (BLM, USFS) and the Nevada State Preservation Officer. In example in the northern portion of the county the Cortez Mining District and the Pine Valley anthropological zone comprise extensive areas with significant historical and pre-historical significance. The south central portion, the Eureka Mining District, comprises a vast area associated with the Western Shoshoni tribe occupancy and eventually the discovery and historical transition of the Eureka area settlement. The significance and value of cultural resources has long been recognized as an integral component of Eureka's dynamic history.

Table 3-5. Conservation Partners and Program ('s) summary - Northern Nevada in the following:

Conservation Objective	Conservation Tool or Action	USFWS	NRCS	FSA	DOD	NDOW	Nevada CD Program	SETT	NFWF	WBC	Trout Unlimited	Pheasants Forever	The Nature Conservancy	Rocky Mountain Elk Foundation	Ducks Unlimited
Land Protection/Acquisition	Conservation Easements	NAWCA	ACEP		REPI, Easement Program	Q1, HCF, Technical Assistance			DTLRF*			Forever Land Trust	Easement holder	Easement holder	Easement Holder
	Other		ALE			Sentinel Landscapes			Acres for America, DTLRF*				Bank Enabling Agreements	Land Protections	
	Fee-title acquisition				REPI	Q1, HCF			DTLRF*, WBRP	WBRP		Build a Wildlife Area program, Forever Land Trust	TNC NV	Land Protections	Acquisition
	Conservation leases		WRE						DTLRF*				TNC NV	Land Protections	Management Agreements
Range improvements	Grazing management plans	PFW	EQIP				SG Grant	CCS	CPP				Bank Enabling Agreements Easements		
	Ranch infrastructure	PFW	EQIP					CCS	CPP						
	Native species plantings	PFW, ES	EQIP	CRP		Wildlife Heritage, HCF, PCD, UGB	SG Grant	CCS	CPP			Native/Food Plot Seed Purchase	TNC NV	Habitat Stewardship	Conservation Opportunities
	Conifer and invasive species	PFW	EQIP			Wildlife Heritage, HCF, PCD, UGB	SG Grant	CCS	CPP, PTI, SLP						
Wetland and stream creation/restoration	Erosion control	PFW, NAWCA	EQIP			Wildlife Heritage, HCF, PCD		CCS	FSUWRGP, SLP				TNC NV		Conservation Opportunities
	In-stream enhancements	PFW, National Fish Habitat Action Plan	EQIP			Wildlife Heritage, HCF, PCD	SG Grant	CCS	AfA?, Bring Back the Natives?, FSUWRGP, LCT		Grant program		TNC NV		Conservation Opportunities
	Dikes/dams, water control	PFW, NAWCA	EQIP			HCF, DS									
	Invasive species control/native	PFW, NAWCA	EQIP			Wildlife Heritage, HCF, PCD, UGB, DS	SG Grant	CCS	LCT, PTI, SLP		Grant program		TNC NV		
	Watershed Protection	PFW				HCF			ESC, FSUWRGP, LCT	WBRP?	Grant program		TNC NV		Conservation Opportunities
	Wetland Mitigation														DU Wetland Mitigation Program
	Riparian fencing	PFW	EQIP			Wildlife Heritage, HCF, PCD, UGB	SG Grant	CCS	SLP		Grant program				
Landowner Assurances		CCA, HCP, Safe Harbor	WLW		Easement Program	HCF		CCS					Easements	Land Protections	Conservation Easements, Management Agreements
Special Initiatives			SGI, RCPP			PL4W			AfA, CPP, DNGC, LCT, PTI, SLP						

Table 3-5. Conservation Partners Program Listing

Conservation Programs	Conservation Programs
PFW: Partners for Fish and Wildlife	SG Grant: Sage Grouse Grant
NAWCA: North American Wetlands Conservation Act	CCS: Conservation Credits System
EQIP: Environmental Quality Incentives Program	AfA: Acres for America
WLW: Working Lands for Wildlife	CPP: Conservation Partners Program
SGI: Sage Grouse Initiative	DTLRF*: Desert Terminal Lakes Restoration Fund. Must meet specific requirements within Great Basin
RCPP: Regional Conservation Partners Program	DNGC: Developing the Next Generation of Conservationists
HCF: Habitat Conservation Fee	ESC: Environmental Solutions for Communities
PCD: Partners for Conservation and Development	FSUWRGP: Five Star and Urban Waters Restoration Grant Program
UGB-DS: Upland Game Bird-Duck Stamp	PTI: Pulling Together Initiative
PL4W: Private Lands 4 Wildlife	SLP: Sagebrush Landscapes Program
REPI: Readiness and Environmental Integration Program	WBRP: Walker Basin Restoration Program
PFW: Partners for Fish and Wildlife	SG Grant: Sage Grouse Grant

RESOURCE NEEDS ASSESSMENT BIBLIOGRAPHY

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APPENDIX I - EUREKA CD RESOURCE MAPS

Figure 3-1. Eureka County Land Status

Figure 3-2. Eureka County Hydro Basin Land Status

Figure 3-3. Eureka County Hydro Basins

Figure 3-4. Eureka County Herd Management Areas

Figure 3-5. Eureka County Fire Zone Data

Figure 3-6. Sage-Grouse Habitat Regimens in Eureka County

Figure 3-7. Lahontan Cutthroat Trout Streams in Eureka County

Figure 3-8. Eureka County Mule Deer Migration Corridors

Figure 3-9. Eureka County Soil Survey Areas

Figure 3-1. Eureka County Land Ownership Status

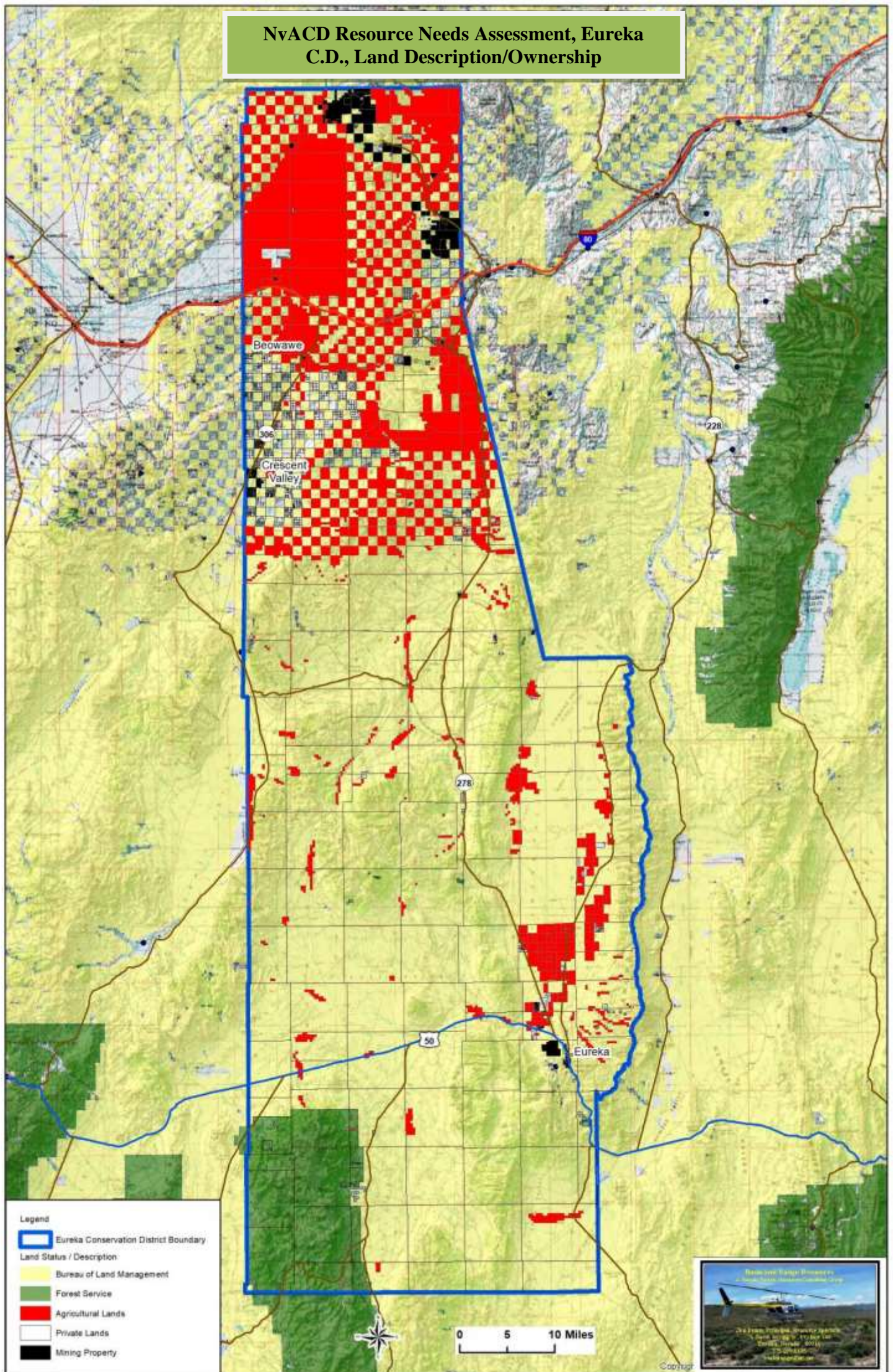


Figure 3-2. Eureka County Hydro Basin Land Status

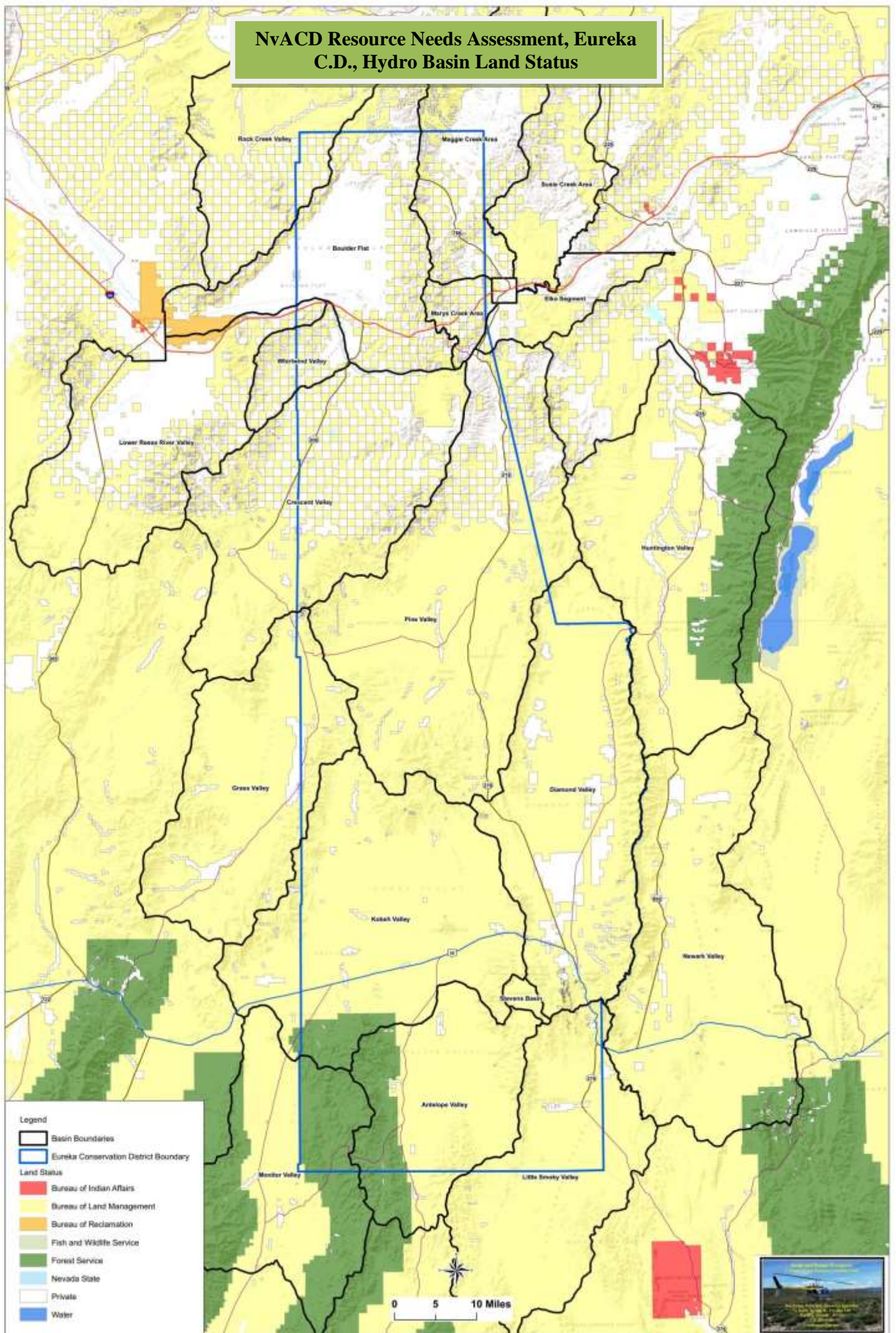


Figure 3-3. Eureka County Hydrologic Basins

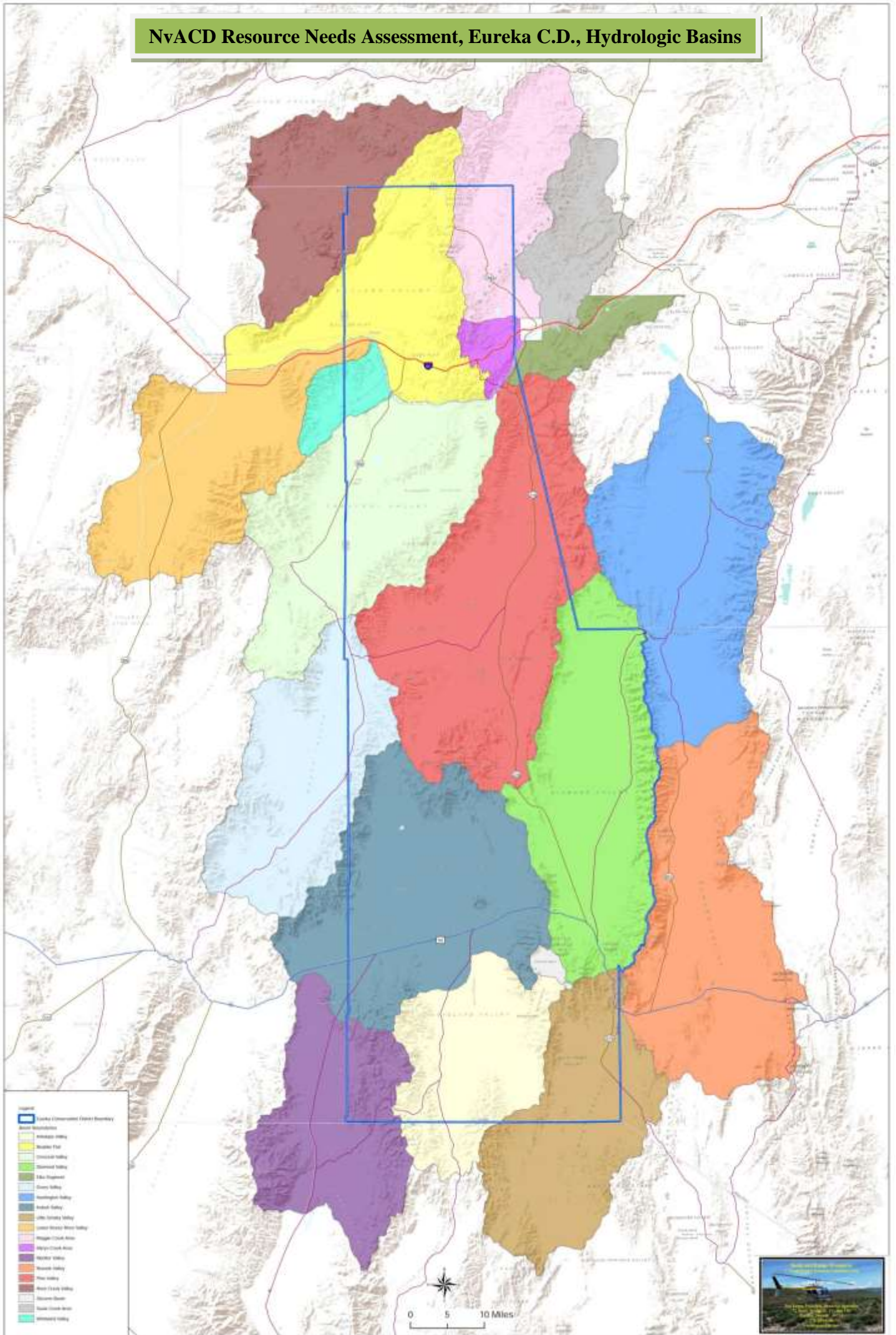


Figure 3-4. Eureka County Herd Management Areas

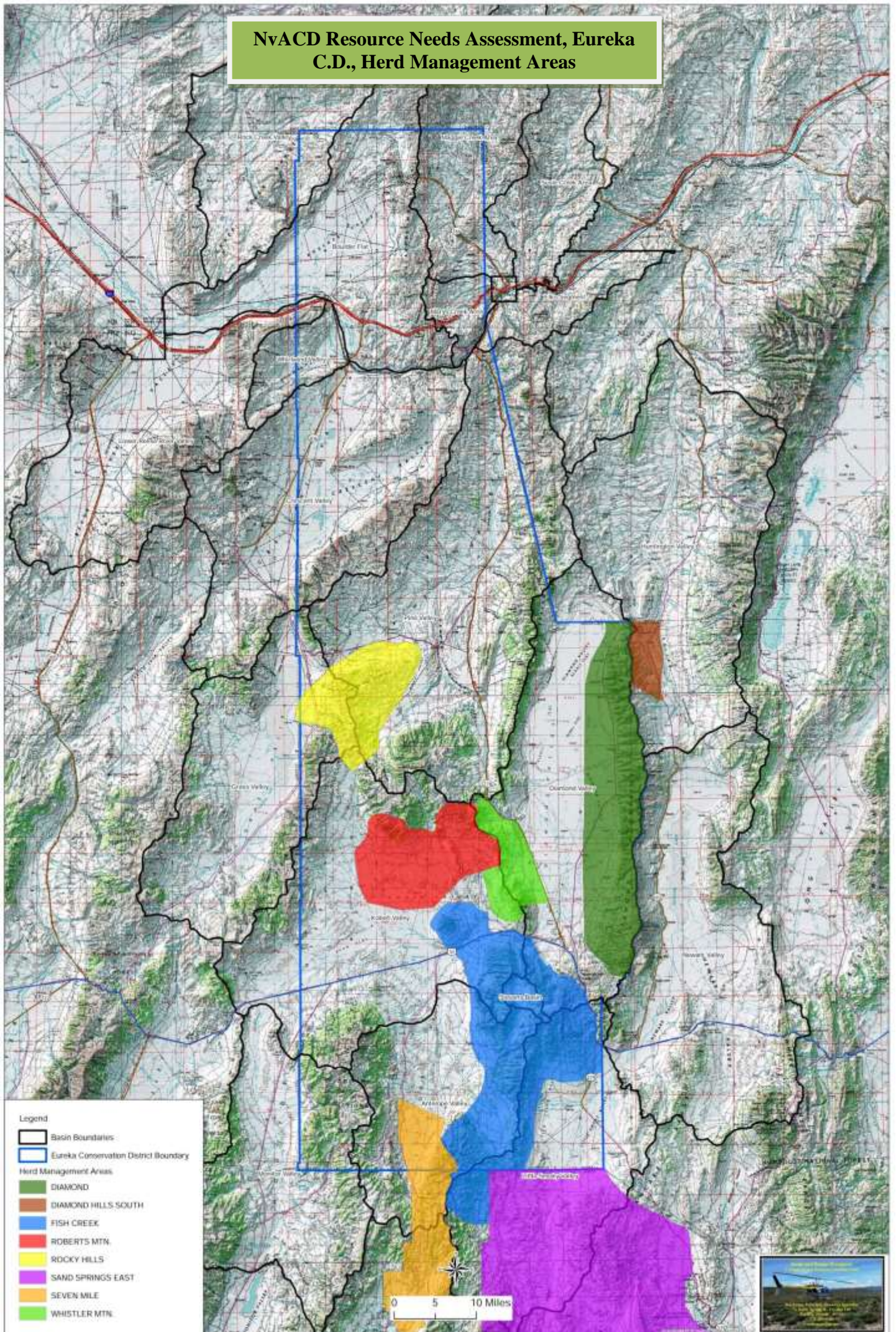


Figure 3-5. Eureka County Fire Zone Data

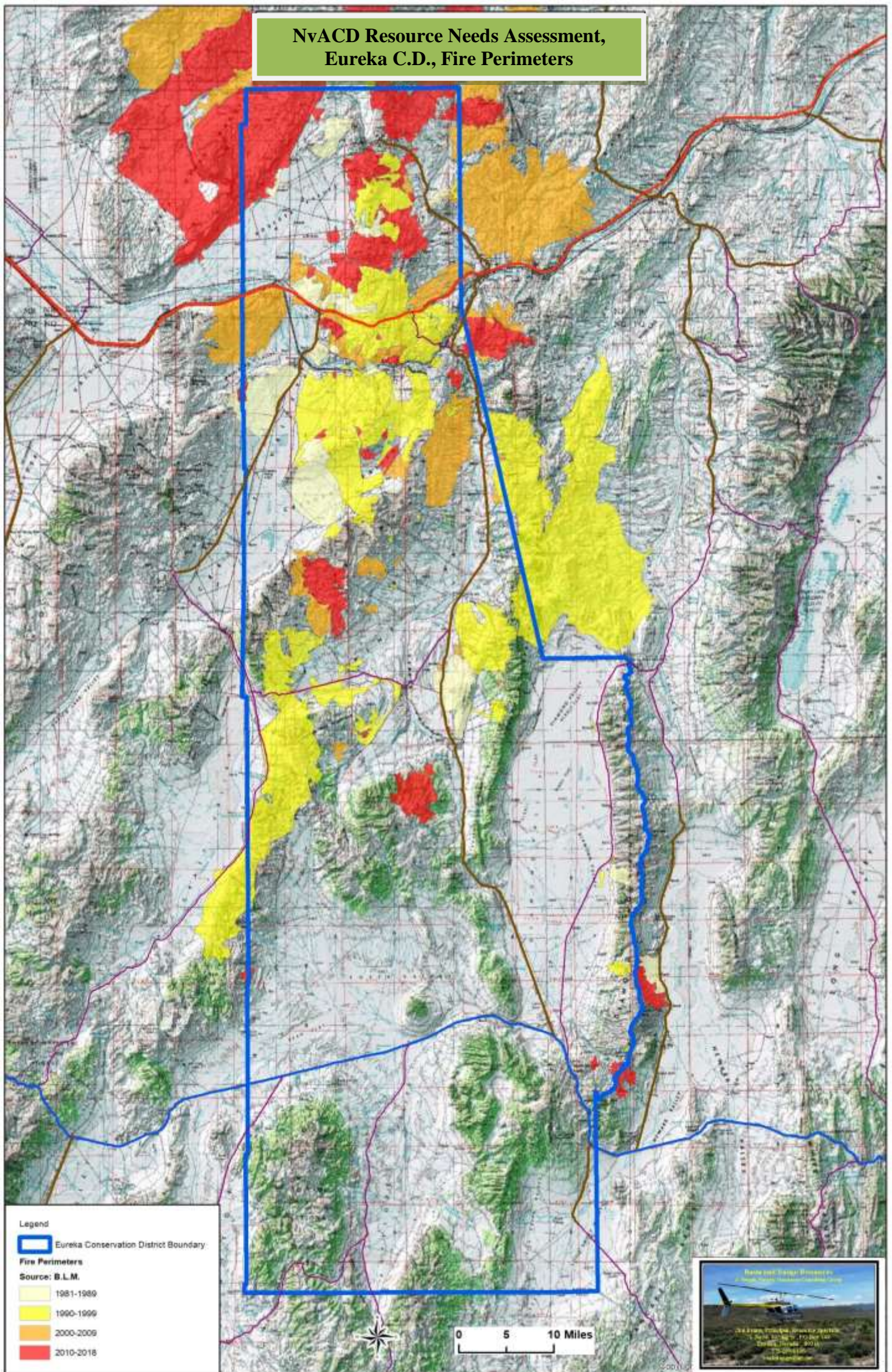


Figure 3-6. Sage-Grouse Habitat Regimens in Eureka County

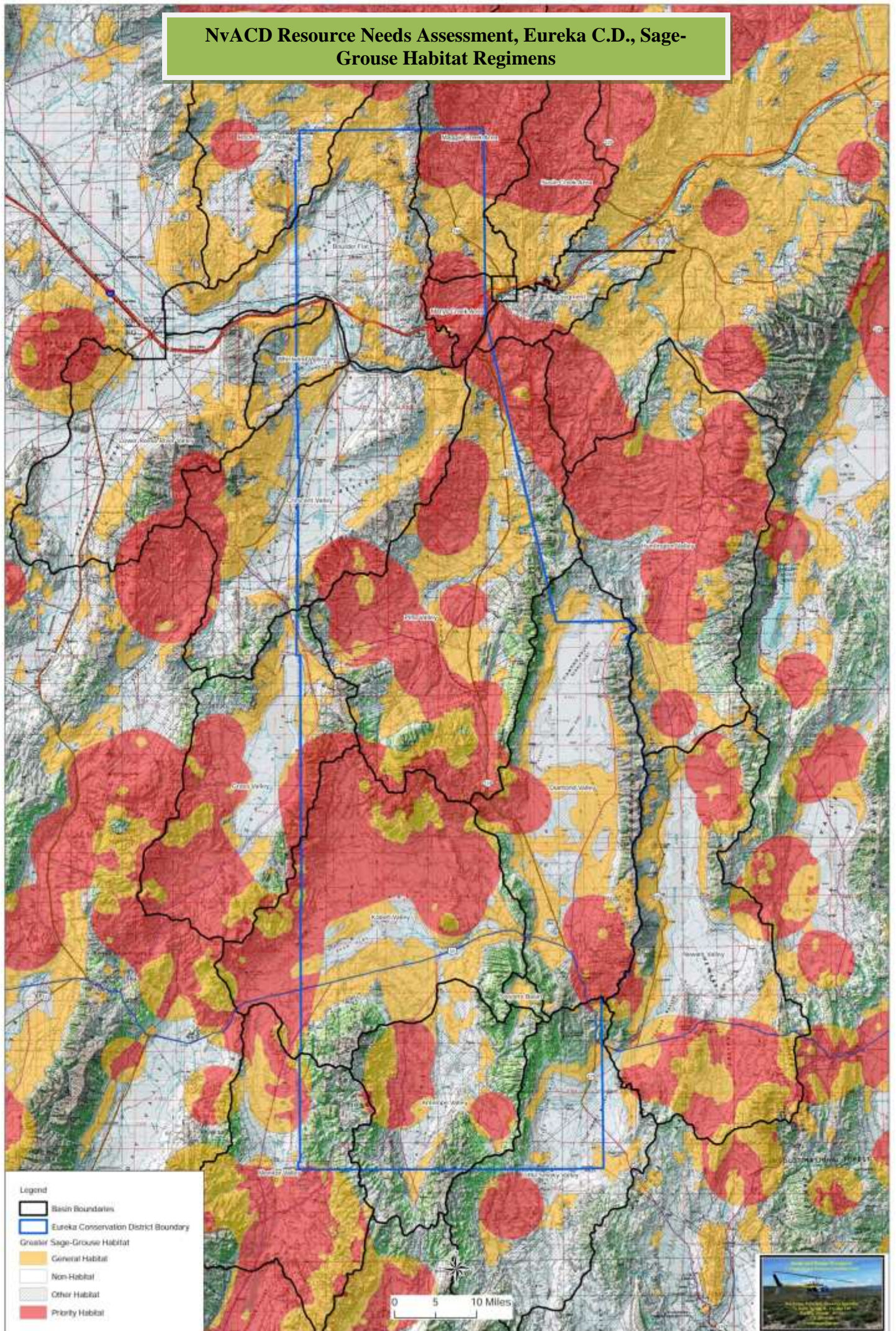


Figure 3-7. Lahontan Cutthroat Trout Streams in Eureka County

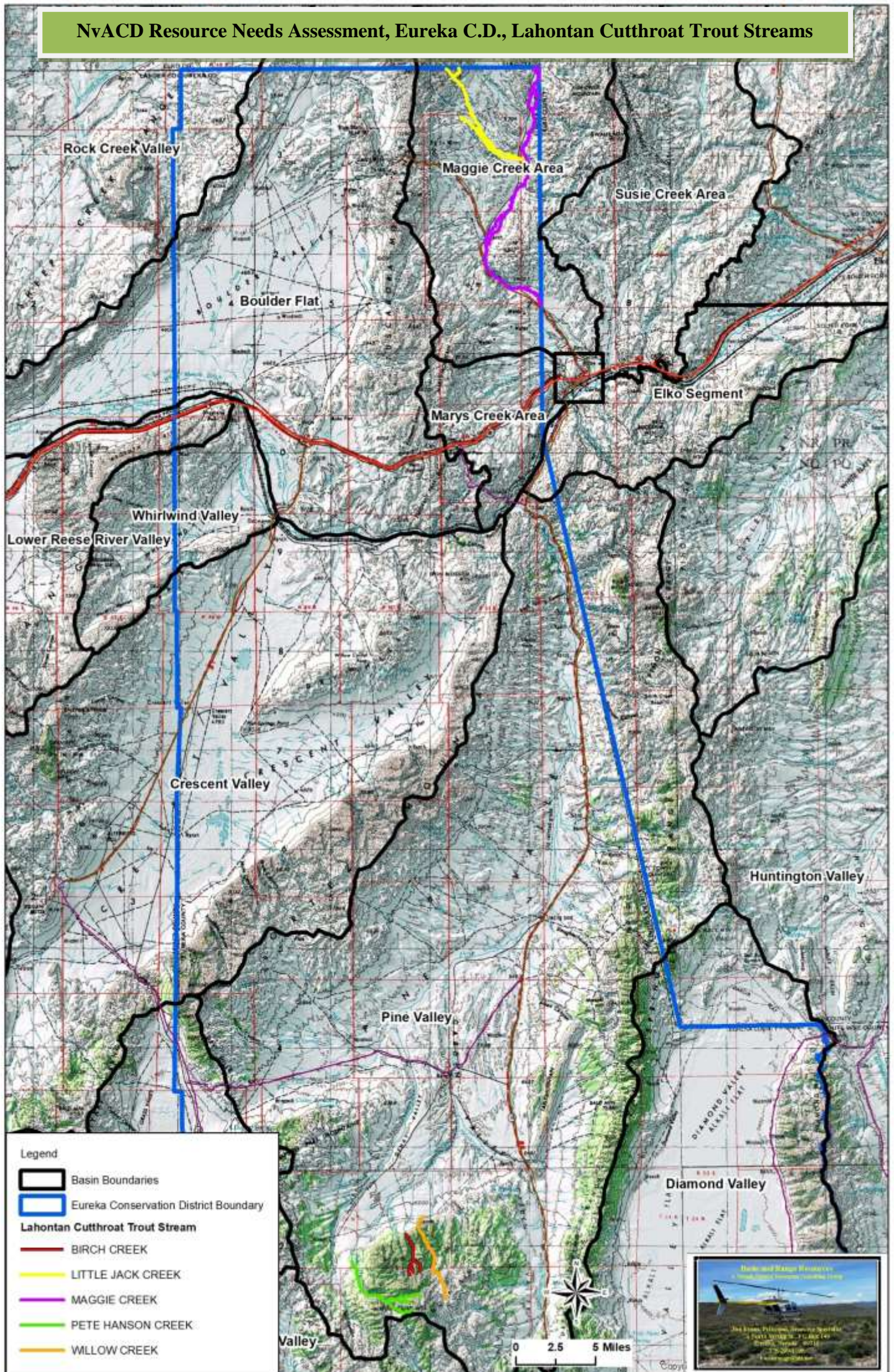


Figure 3-8. Eureka County Mule Deer Migration Corridors

NvACD Resource Needs Assessment, Eureka C.D., Mule Deer Migration Corridors (P.J. Thermal)

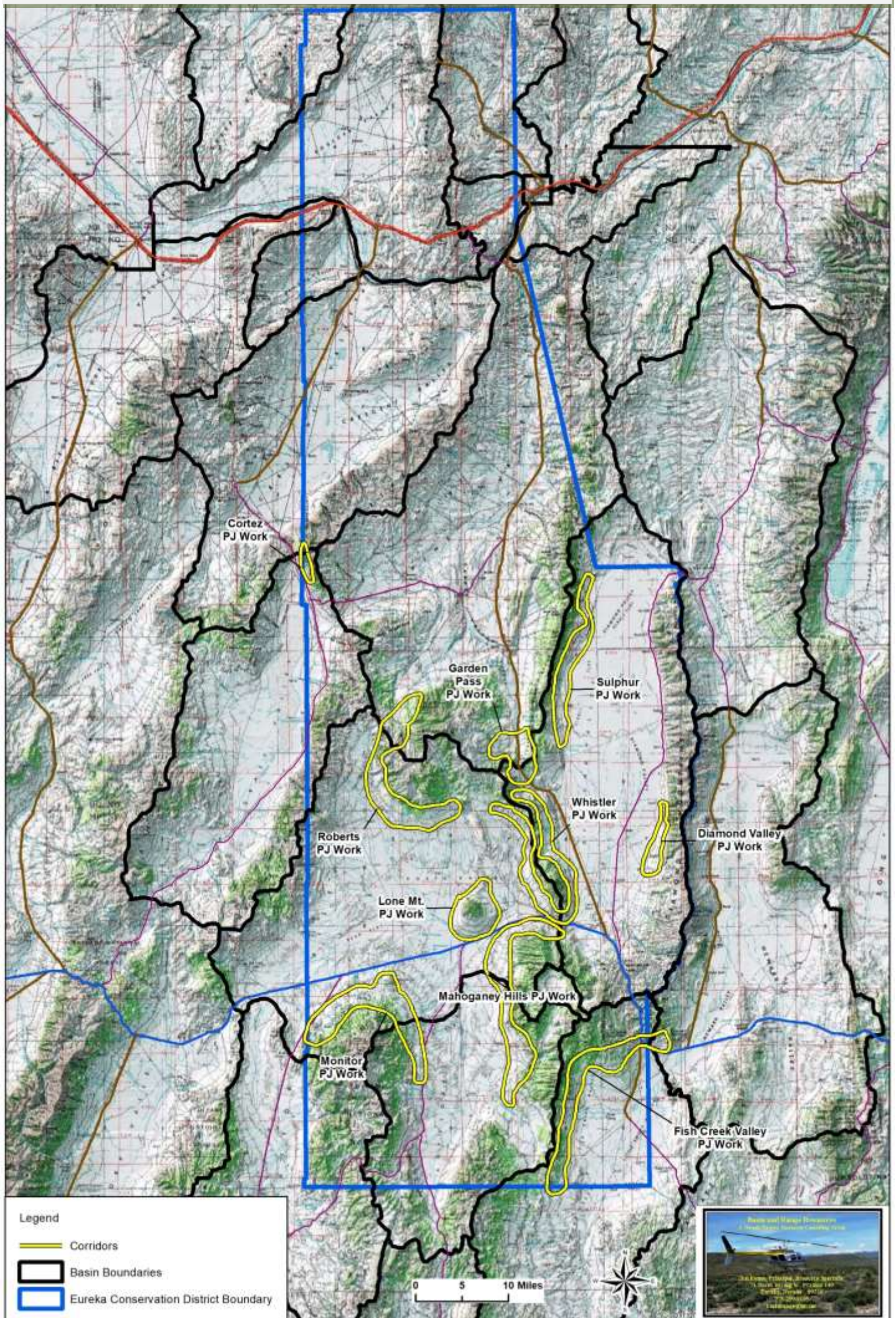


Figure 3-9. Eureka County Soil Survey Areas

