Evans Flat Water Project

ENVIRONMENTAL ASSESSMENT

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BLM
NEVADA – Elko District, Tuscarora Field Office

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1 INTRODUCTION

The Tuscarora Field Office, Bureau of Land Management (BLM) is proposing to authorize the installation of a water project to provide livestock water on Evans Flat bench in the Evans Flat Pasture of the Pine Mountain Allotment. Evans Flat is located about 16 miles south of Carlin, Nevada (Map 1).

The Proposed Action is for the installation of a water system connected to a natural surface water source in Lee Canyon. Alternatives to the Proposed Action are also analyzed in this document and include a Well and Pipeline Alternative, a Haul Water Alternative, Reduced Cattle Numbers Alternative, and a No Change Alternative.

The interdisciplinary team's post-analysis review for the Proposed Action and alternatives suggests that significant impacts[1] would not occur, thus suggesting an environmental impact statement (EIS) is not required. The Tuscarora Field Manager will make the determination as to whether or not there would be significant impacts.

In further considering the Council on Environmental Quality (CEQ) guidelines for preparing an environmental assessment (EA)[2], and to present as concise a document as possible (i.e. reducing redundancy and bulk without losing understanding), tiering[3] and incorporation by reference are used throughout this EA. Details for cited and referenced materials are provided in the References Section.

The decision to be made by the Tuscarora Field Manager is whether or not to authorize the installation of a water project on Evans Flat bench and, if so, by what means, or implement a reduction in cattle numbers in the Trout Creek area in the summer/fall, or continue the current situation with no changes.

1.1 Purpose and Need

There is no water available on Evans Flat bench. Cattle currently travel off the bench and down to lower elevations to get water. Providing water on the bench would give cattle easier access to water while grazing the broad Evans Flat bench. In addition, providing

[1] Significant impacts: Determining significance involves consideration of both context and intensity. Please refer to CEQ Section 1508.27 for further explanation which can be found at http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm

[2] Environmental Assessment: CEQ Section 1508.9: as interpreted for this document identifies a concise document prepared for the public which serves to briefly provide sufficient evidence and analysis (using brief discussions for purpose, need, alternatives, proposed action, and impacts that could occur) along with listing of agencies and persons consulted.

[3] Tiering: CEQ Section 1508.28: as interpreted for this document identifies other sources a reader can refer to for more information (i.e. policy, program, plan, EIS, etc.) or discussion, thus allowing focus for an analysis on the current proposed action.

water on Evans Flat in the northern part of the pasture would help shift some of the cattle use away from the Trout Creek area in the southern part of the pasture in order to reduce use on bitterbrush which is also an important forage shrub for mule deer. A majority of the cattle now tend to water along Trout Creek where there is abundant water that cattle can access from seven water gaps along 5+ miles of the stream. The development of more stockwater away from the Trout Creek area would not only improve livestock distribution but would offer additional flexibility in designing grazing management plans for the area in the future.

Providing water on Evans Flat for grazing livestock also allows BLM to continue to provide for multiple-use within the area, as well as promote some of the objectives noted in C.F.R. 43§ 4100.0-2(a), which states in part that BLM should:

- provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.

Other objectives within C.F.R. 43§ 4100.0-2(a), could (with time) also be achieved:

- promote healthy sustainable rangeland ecosystems;
- accelerate restoration and improvement of rangelands to properly functioning conditions;
- promote the orderly use, improvement and development of BLM lands.

The proposed activities within this EA are not intended to address other potential issues with cattle grazing and resource management in the Evans Flat Pasture such as a detailed analysis of the livestock grazing capacity, replacement of crested wheatgrass with native species or other restoration activities, or development of an allotment management plan. The BLM intends to address other issues of interest regarding livestock grazing and resource management under a separate process.

1.2 Compliance with Laws, Policies and Land Use Plans

This environmental assessment (EA) has been prepared for compliance with the National Environmental Policy Act (NEPA) of 1969.

The Proposed Action and alternatives are in conformance with the Elko RMP, and they are also consistent with other federal, state, local and tribal policies to the maximum extent possible, with one exception. The 2010 Elko County Public Land Use and Resource Management Plan, Directive 12-2, opposes granting certificates of water rights to federal land management agencies for any purpose.

Appendix 1 lists the objectives and management actions from the Elko Resource Management Plan Record of Decision (RMP) that pertain to the purpose and need, and proposed management actions. Appendix 1 also lists other pertinent laws, policies, and plans including policy statements/directives from the Elko County plans for public lands.

BLM Nevada Water Rights Policy (Instruction memorandum No. NV2005-007) (Appendix 4) states “In a case where a non-BLM entity is granted a permit and constructs

a water development on public lands for the purpose of stockwater only, BLM in Nevada will not expend public funds for construction unless BLM holds a second water right for a different beneficial use(s)[4], or if an exception is granted by the State Director". Under the Proposed Action (Spring and Pipeline System), the livestock permittee would be requesting approval from the Nevada Division of Water Resources (NDWR) to divert a portion of the surface water in Lee Canyon into a pipeline under their vested interest in those waters for livestock use. Under Alternative 1 (Well and Pipeline System), the livestock permittee would also apply for a water right from NDWR, if this alternative were selected for implementation. The BLM is proposing to expend public funds on project construction (either the Spring and Pipeline Project or Well and Pipeline Project); therefore, in accordance with BLM Nevada Water Rights Policy, the Proposed Action and Alternative 1 state the BLM would apply for wildlife water rights.

BLM Nevada Water Rights Policy also requires Field Managers to review and consider the general public's best interest in the decision to approve or disapprove any proposed water development projects. A Commitment of Resources Review Form NV 7250-1 (June 2005) will be completed by the appropriate Field Office and approved by the Field Manager or Assistant Field Manager. A Commitment of Resources Review Form has been prepared and can be found at Appendix 5. The Tuscarora Field Manager's signature on this form is pending completion of public review of this environmental assessment.

In addition, BLM Nevada Water Rights Policy requires approval of the BLM Nevada State Director when an office is proposing to expend public funds on a water project in excess of the BLM's commensurate share of the water right. Under the Spring and Pipeline System proposal (Proposed Action) and Well and Pipeline Alternative, BLM would be filing for a wildlife water right that would equate to about 5% or less of the water rights when the estimated water rights for both wildlife and livestock are combined. However, BLM is proposing to expend public funds (approx. $40,000) that would cover about 57 – 67% of the construction costs which would be in excess of BLM's commensurate share of the water rights. As such, the Tuscarora Field Office requested and has received concurrence from the Nevada State Director to expend public funds on the water project, if a project is approved by BLM, in excess of the BLM's commensurate share of the water rights. See Appendix 6 for the memorandum requesting a waiver to expend public funds which includes the State Director's concurrence.

[4] Beneficial uses recognized by the State of Nevada include: wildlife (including wild horses and burros), the establishment and maintenance of wetlands, fisheries and other wildlife habitats, recreation, quasi-municipal, irrigation, domestic, environmental, and storage. See N.R.S. Sections*: 533.023 533.030, 533.035, 533.040, 533.055, 533.070, 533.075, 533.367, 533.437, 533.490 for limitations and exceptions as well as various State Engineer and Court Decisions.
*(N.R.S. 533.330 provided that individual domestic use may be included in an application with the other use names.)

2 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action and other alternatives that are being considered to accomplish the purpose and need.

2.1 Proposed Action – Spring Development and Pipeline System

Approval (if granted) by BLM to install and operate the proposed water project would result in installation of a water pipeline system originating from a spring in Lee Canyon to troughs that would be located on Evans Flat bench. There would be up to four trough locations on the bench. The pipeline would be buried. Water storage tanks would also be installed on Evans Flat as a reserve of water when extra water needs to flow to the troughs. The storage tank(s) would hold a total of about 5,000 gallons of water and be buried. Total length of the pipeline would be approximately 3 miles (Map 2). If approved, installation would most likely be initiated in 2012. Environmental design/resource protection measures specifically designed to comply with BLM regulations and policies and to reduce potential impacts from proposed activities, are included in the Proposed Action and listed in section 2.1.1.

Water for the pipeline system would come from one of two water sources. One water source is a relatively low flow spring located on the north side of the canyon bottom in upper Lee Canyon in T30N, R53E, Section 8, NW1/4NW1/4. If the water collection box were to be installed at the low flow spring, the water collection box would be installed about 40 feet north of the main drainage channel, at the lower end of this spring that rises from a fault at the base of the north slope of Lee Canyon. The low flow spring emerges at the lower end of an aspen stand. The second water source is a moderate flow of water that rises in the main channel of upper Lee Canyon adjacent to the low flow spring described above. The differences in impacts related to development and water use from each source are described where appropriate.

Using a water source in Lee Canyon to supply water via a pipeline to Evans Flat was initially proposed by the permittees thinking there would be more certainty in utilizing a known quantity of surface water in Lee Canyon compared to less certainty about finding an adequate amount of water by drilling a well on Evans Flat. In addition, the operation of a water system that relies on surface water flowing downhill by gravity flow to the troughs would be more reliable compared to a system that relies on a pump and power generator that would have more operation and maintenance needs. Potential water sources in Lee Canyon were initially identified on topographic maps, and then BLM personnel along with one of the permittees walked Lee Canyon to further assess the locations and amounts of surface water flows. The locations of the water sources proposed for development were selected because they were the water sources nearest to Evans Flat that were at elevations that would allow the water to gravity feed in the pipeline to Evans Flat.

The pipeline would be constructed with high density polyethylene (HDPE) pipe. The use

of HDPE pipe eliminates breakage due to freezing pipes, and does not rust, rot, or corrode. The pipe joints are heat fused to eliminate leaks and separation of joints. HDPE is also flexible and able to move without damage in shifting soils and during earthquakes. From the water collection box, the pipe would be buried and run about 50 to 200 feet to an old abandoned mining road and then be buried in the abandoned mining road for about ½ mile running in a southwesterly direction across Section 7 and into Section 12 of T30N, R52E on the upper end of Evans Flat. Once the pipeline reaches the upper part of Evans Flat bench, the storage tanks would be installed and the pipeline would split with the northern leg crossing into Section 11, and the southern leg crossing into Section 13. The pipeline would cross both public and private lands. The private lands are owned by the livestock permittees.

An excavator/backhoe (excavator) along with some shovel and hand work would be used to install the water collection system and to trench and bury the pipeline within Lee Canyon. An excavator uses a bucket to scoop out soil and deposit it in piles to the side of the hole/trench. An excavator would maneuver between the larger aspen trees in the aspen stand where the water collection box (water box) would be installed, and then dig a hole about three to four feet wide and three to four feet deep at the lower end of the water source. Ground disturbance during installation of the water collection system would be kept to a minimum to impact as few aspen as possible. The size of the metal water box (section of culvert pipe) would be two to three feet in diameter and three to four feet long. The water box would be set vertically into the hole with filter fabric placed under and around the outside of the box to filter out soil and vegetative particles that might otherwise clog the water inlet ports or fill-in the water collection box. The water box would have an on/off valve installed inside which would be connected to the outflow pipe to control the flow of water from the water box into the pipeline. A metal lid would be placed on top of the water box to prevent small animals from getting in the box where they could drown and possibly plug the pipeline. The top lid would also prevent soil and vegetative matter from falling into the water box and possibly plugging or reducing the flow of water in the pipeline.

If the low flow spring is developed, water collection pipe would be installed to capture the water that gathers in a patch at the bottom of the source. If the water box is installed in the main channel, the amount of water is such that water collection pipes may not be needed, with water entering the water box through small slots cut into the water box. The water collection pipes would be installed in shallow channels that would be dug in the soil of the water source above the water box. The channels would be wide and deep enough to install and cover the collection pipes which would be 3-6 inches in diameter and 6 – 12 feet long. The collection pipes would be installed horizontally and have small holes/slots in them to allow water to enter the sides of the pipe. The ends of the collection pipes would be inserted into the side of the water box so that water entering the collection pipes would flow into the water box.

The excavator would dig a trench from the water box to the old mining road, and then dig a trench in the mining road that would extend about ½ mile to the upper part of Evans Flat bench. The trench would be up to two feet wide and up to three feet deep. The

pipeline would then be placed in the bottom of the trench and covered with the soil material that had been excavated from the trench. The excavator, along with shovel and hand work, would scoop up the soil that had been excavated for the water box and collection pipes, and deposit it on top of the collection pipes and around the water box so that all but the top of the water box is covered with soil. The area between the water collection box and mining road, and trenched area in the mining road would be seeded with native species such as sagebrush, bluebunch wheatgrass, thickspike wheatgrass, and basin wildrye to reduce the chances of weeds dominating the disturbed area.

If the water box were to be installed where water rises in the main channel, the same kinds of installation techniques as described above would apply. The water box would be installed in the main channel at the lower end of the aspen stand.

An excavator and/or bulldozer with a ripper bar would be used to open the pipeline trench and install the pipeline on Evans Flat bench. If an excavator were used to dig the trench, the trench would be up to three feet deep and up to two feet wide. If a dozer with ripper bar were used to open the trench, the trench would be up to three feet deep and up to two feet wide. A dozer with ripper bar uses a large cutting bar attached to the rear of a bulldozer to slice open a trench as it moves over the pipeline route. The trench is opened during the first pass of the dozer over the pipeline route, and soil from the trench is lifted and deposited on the soil surface along each side of the trench. During the second pass of the dozer over the pipeline route, the pipe is routed through a tube at the rear of the dozer and laid in the trench. The dozer then uses the dozer blade to push the excavated soil back into the trench and cover the pipeline. The covered trench would then be seeded with sagebrush and perennial grass seeds such as crested wheatgrass and/or thickspike wheatgrass which are already present in the area.

The pipeline system would normally be turned-off and drained in the fall to reduce the potential for freeze damage. If insufficient water is available to supply all the troughs at one time, the number of troughs may be reduced and/or valves would be installed to direct water to only a portion of the troughs at one time.

Fencing the spring development is not proposed at this time because there is little evidence that livestock access this area; however, if future observations indicate that cattle use will likely damage the water development and/or cause a downward trend in the condition of the riparian area, fencing or other options (e.g. blocking the old mining road to reduce cattle access down into the canyon) may be proposed separately.

BLM Manual Handbook 1741-2 “Water Developments” provided guidance regarding water system design and installation.

2.1.1 Environmental Design/Resource Protection

A. The livestock permittees will apply to the Nevada Department of Water Resources for permission to divert water from the water source for use on Evans Flat. The BLM will apply for water rights for wildlife use.

B. The livestock permittees will provide an easement to the BLM for those portions of the project located on the permittee's private lands.

C. Prior to authorizing the initiation of project construction, a cultural resources inventory will be completed. The location of the pipeline system shall be redesigned, if necessary, to avoid any historic properties (i.e. cultural resources that are eligible for inclusion on the National Register of Historic Places).

D. Surveys will be conducted to look for special status species prior to project implementation. The project will be designed to avoid areas occupied by special status species such as areas around burrows used by burrowing owls, and areas around burrow systems used by pygmy rabbits. If special status species are found nesting in Lee Canyon, such as in the trees, and the construction activities could not avoid disturbing these species, the construction activities will be delayed until after the young birds have fledged. The construction crew will be instructed to avoid disturbing these areas, and these areas may be flagged prior to project construction, where appropriate.

E. During construction, vehicles and equipment will be cleaned prior to entering and leaving the project area, including undercarriages where seeds may be present, so as not to introduce the seeds of invasive nonnative species.

F. Should cultural resources be discovered that could be adversely affected by project-related activities, the contractor or construction crew leader must immediately cease work and immediately inform the Tuscarora Field Manager.

G. Water control valves (on/off valves), drain valves, air relief valves, and float valves (shut-off valves) will be installed and maintained so that the water system operates as intended, and water does not overflow at the troughs or storage tank(s).

H. The excavator and/or bulldozer will be allowed to clear vegetation as necessary to properly excavate and install the water system including the water collection box, pipeline, water holding tank(s), and troughs. After cleanup is complete, the portion of the pipeline from the water box to the mining road and mining road trench would be seeded with native perennial grass seed such as bluebunch wheatgrass, thickspike wheatgrass, and basin wildrye, and the portion of the pipeline on Evans Flat would be seeded with crested wheatgrass and/or thickspike wheatgrass that are already present in the area. Any shrubs removed will be returned to the line to help with erosion.

I. Pipe will be buried approximately 24 - 36 inches below the ground surface where conditions allow.

J. Surface disturbance for the leveling/placement of troughs and the storage tank locations will be kept to a maximum of 50' x 50' for each one.

K. The troughs will be made of a material that is of a color, or painted a subdued color of brown or green, that does not dominate the area when viewed from a distance.

L. The troughs will be installed with the rims no higher than 20" from the ground. All water troughs will have a small-animal escape ladder and float valves. Troughs will be cleaned as needed to remove debris and algal growth.

M. All trash and excess materials will be removed from the project site on completion of construction and disposed of in a manner, and at a location, approved by an Authorized BLM officer within 10 days of construction completion.

N. The livestock permittees will allow emergency access to the water system for wildland fire protection, and maintain wildlife access to the water troughs.

O. The costs associated with installing the pipeline system would be shared between the BLM and permittee.

P. Long-term operation and maintenance will be the responsibility of the livestock permittees.

Q. Utilization of the key forage grasses will be managed in the following manner:

1. BLM will establish key areas based on ecological site and use pattern mapping, using BLM Technical Reference 1734-3, once the project is installed. Upon operation of the pipeline, utilization of crested wheatgrass and thickspike wheatgrass will be managed so that average use on each of the species does not exceed 50% of current year's growth.
2. Should the utilization levels be exceeded, future grazing authorizations will be adjusted as warranted based on the degree of use, period of use, and duration of use relative to past use and future plans for grazing use, and the effects of the utilization on rangeland health and other multiple use objectives.

2.2 Alternative 1 - Well and Pipeline System

This alternative involves drilling a well on Evans Flat, installing solar panels and a well pump, water holding tanks, and distributing the well water via a buried pipeline from the well to three troughs to be located on Evans Flat. Total length of the pipeline would be approximately1.5 miles (Map 3).

The well would be located on the upper part of the bench at an elevation of about 6,130 feet. The proposed location of the well was based on one of the permittees walking around the upper Evans Flat area and water witching to detect the presence of underground water. Because there are no operating wells on or near Evans Flat, depth to groundwater is uncertain; however, the presence of water in drainage bottoms near Evans Flat indicates that groundwater would likely be between 250 and 550 ft. below the land surface. Wells drilled at and near the valley floor indicate that groundwater levels are about 100 ft. below the surface.

The water storage tanks and first trough would be located within 300 feet of the well. The storage tank(s) would have a total capacity of about 5,000 gallons of water (e.g. two tanks with 2,500 gallon capacity) and would be buried. A solar array would be set-up next to the wellhead and would supply power to a submersible pump in the well. The solar array would be about 10 feet tall and have perch deterrents installed to prevent raptors and other birds from perching on the solar array structure. The pipeline would run south from the well with two additional troughs installed about ½ to1 mile apart as shown on Map 3.

The private lands are owned by the livestock permittee who would provide an easement to the BLM for those portions of the project located on their private lands. The costs associated with installing the pipeline system would be shared between the BLM and permittees. Operation and maintenance would be the responsibility of the livestock permittees.

A well drilling company certified to drill water wells in Nevada would drill and case the well. A well drilling rig would be used to drill the hole. A water haul truck and several other pick-up sized trucks would also accompany the drill rig to provide supplies and repairs. The well rig would drill up to a 9 inch diameter well hole into the water aquifer. The well hole is then cased with metal pipe to create a six inch cased well hole from the surface of the ground into the water aquifer. The well casing usually has slots cut through it to let the water into the sides of the pipe. The space between the drill hole and the casing would be filled with fine rock and concrete to prevent the chance of polluted surface water migrating downward to the water aquifer and contaminating the water. A submersible pump attached to a drop pipe would be lowered into the water column in the well. Wires running from the pump to the top of the well (well head) are then connected to a power source, such as a solar array, to operate the pump. The pump then pushes the water up the pipe connected to the pump and into the pipe at the well head which directs the flow of water into the pipeline. Water from the well would flow to the storage tanks and then to the troughs. When the storage tanks are full, an automatic switch would turn off power to the pump.

The pipeline material, valves, troughs, and storage tanks would be the same as described in the Proposed Action, and would be installed in a manner the same as that described in the Proposed Action.

The pipeline system would normally be turned-off and drained in the fall to reduce damage from freezing.

The amount of water available from the well won't be known until the well is drilled and tested; however, the amount of water drawn from the well would depend on the amount of water that can be drawn from the well and the demand for water by livestock and wildlife. The water storage tanks would provide a reserve of water when consumption exceeds the amount of water being pumped.

If insufficient water is available to supply all the troughs at one time, the number of troughs may be reduced and/or valves will be installed to direct water to only a portion of the troughs at one time.

BLM Manual Handbook 1741-2 "Water Developments" provided guidance regarding water system design and installation.

2.2.1 Environmental Design/Resource Protection

The Environmental Design/Resource Protection Stipulations described under the Proposed Action would also apply to this alternative with the exception that seeding in Lee Canyon, which is part of Stipulation H, would not apply because there would be no construction in that area.

2.3 Alternative 2 – Haul Water to Troughs

Under this alternative, water would be hauled to new troughs, installed at the same selected locations on Evans Flat as described under the Proposed Action. The water holding capacity of the troughs at each trough location would be about 900 gallons (two rectangular troughs as described under the Proposed Action) in order to make it efficient for the water haul truck to fill all the troughs during one trip each day. Water would be pumped from a well on private lands near Pine Creek into a water haul truck that could transport up to 4,000 gallons per trip. The water would be hauled six to seven miles from the well to the troughs on Evans Flat. The troughs would be filled every day for three months when the full herd of cattle is grazing the pasture, and then once a week for an additional 3 months after most of the cattle have been moved to other pastures. In addition, about one mile of the lower portion of the road nearest Highway 278 would be graveled with six inches of gravel 10 feet wide (approx. 1,000 cubic yards of gravel), and the road graded to spread the gravel and level the road to make it safe for the water truck to travel. The gravel would be acquired from a local source on private lands within a few miles of the road entrance.

The livestock permittees would be responsible for the costs of hauling water, and for gravelling and grading the road.

BLM Manual Handbook 1741-2 "Water Developments" provided guidance regarding water system design and installation.

2.3.1 Environmental Design/Resource Protection

The Environmental Design/Resource Protection Measures described under the Proposed Action, except for items A (water rights), B (easement), G (valves), H and I (pipeline installation), and O (cost share), would also apply to this alternative.

2.4 Alternative 3 – Reduced Cattle Numbers

Under this alternative, a new water development would not be constructed but cattle numbers would be reduced from mid-July to the end of the grazing season as a way to lower cattle use in the Trout Creek area to lessen the use on bitterbrush. Bitterbrush is a shrub that is highly preferred by mule deer as browse forage. Cattle commonly make more use of bitterbrush from late July through fall/winter as the forage grasses grow more slowly or stop growing.

In the Trout Creek use area there are 7 watering points/water gaps distributed along 5+ miles of Trout Creek and tends to be the principal use area in the Evans Flat Pasture during the summer when air temperatures are warm. The numbers of cattle that graze in the Evans Flat/Lee Canyon use area to the north are limited by the distribution of water, especially when air temperatures are warm, with the water that flows into the middle part of Lee Canyon providing the main waters for the use area during the summer and fall. It is estimated that about 80 cattle could graze in the Evans Flat use area from mid-July and later.

Table 1 below displays the numbers of cattle, periods of use, and AUMs that would be grazed under this alternative and are based on authorized use in 2009 and 2010.

Table 1.

Pasture	Use Areas	Cattle Numbers	Period of Use	AUMs[1]
Evans Flat	Evans Flat & Trout Creek	180	4/1 – 4/30	178
	Evans Flat & Trout Creek	260	5/1 – 7/15	650
	Evans Flat	80	7/16 – 9/30	203
	Evans Flat	40	10/1 – 11/30	80
				Total 1111

[1] One Animal Unit Month (AUM) = one cow grazing for one month. Each AUM number is a combination of AUMs on both public and intermingled private lands.

2.4.1 Environmental Design/Resource Protection

Environmental Design/Resource Protection Measure Q (management of utilization levels) as described under the Proposed Action would also apply to this alternative.

2.5 Alternative 4 – No Change

Under the No Change Alternative, no water development would be constructed on Evans Flat bench and the cattle grazing on Evans Flat would continue to water primarily in the middle and lower parts of Lee Canyon. There would be no reduction in cattle numbers.

2.5 Alternatives Eliminated from Further Analysis

End Grazing

Under this alternative, no grazing would be authorized in the Evans Flat Pasture. The lost opportunity costs of no grazing over a 50-year period would range from $694,375 based on the lowest level of authorized use in the past 5 years (1,111 AUMs) to $1,171,250 based on the full numbers of AUMs in the pasture (1,874). These costs include the lost opportunity costs associated with the AUMs on both the public and intermingled private lands based on the permittees having to lease other lands on which to graze at a cost of $12.50/AUM. The 2011 private grazing land lease rate calculated for Nevada is $12.50/AUM. (BLM 2011). If other grazing lands weren't available for lease and the permittees had to sell the cattle that would normally graze in the Evans Flat Pasture, the revenues that would be lost from reduced calf sales over 50 years would be about $9,370,000 based on annual calf crop of 250 head valued at $750 each ($1.50/lb. X 500 lb. calf) times 50 years.

The intermingled private lands in the pasture are owned by the livestock permittees and they would likely want to fence most of their private lands so as not to be subject to the elimination of grazing that would affect the public lands. The permittees would probably request a land exchange in order to block up their private lands to reduce fencing and water costs which would take some years to process. There would also be the additional costs to fence the blocked private lands which would be about 4 miles of new fence at a cost of $30,000 plus repair and maintenance costs. If only the public land AUMs were lost to livestock use, the costs to replace those AUMs by leasing other grazing lands would be about $347,000 – 585,000 over 50 years. If other grazing lands weren't available for lease, the permittees would reduce their herd size by about 50% or a reduction in numbers of cattle/calves of 125 head which would translate into a loss of permittee revenues of about $4,685,000 over 50 years.

If there was no land exchange to block the private lands, it would take 20+ miles of new fence to enclose most of their private land sections in the pasture, excluding those private lands in the upper Lee Canyon area that are steep and very difficult to fence. This would cost the permittees at least $150,000 for construction (20 miles X $7,500/mile) with repair/maintenance being additional costs. Several sections of private land do not have water, thus the permittees would need to apply for rights of way across public lands to the

private sections and install pipelines to transport water to these dry sections which would be additional costs for construction and maintenance. The additional waters would provide benefits to a number of wildlife species but the array of new private land fences would also create new obstacles and hazards to wildlife movements. New private land fences would not likely include design features normally incorporated in fences constructed on public lands such as reflective tags attached to the top wire to make the wire fence more visible to flying birds, or lifting the bottom wire to 16 inches above the ground (compared to 12 inches from the ground commonly applied on private fences) and using a smooth bottom wire to prevent cuts to big game going underneath the fencing, or lowering the height of the top wire to 42 inches to make it more easy for deer to jump over the wire. Under this scenario, the permittees would reduce their herd size by about 50% or a reduction in numbers of cattle/calves of 125 head which would translate into a loss of permittee revenues of about $4,685,000 over 50 years.

Elimination of livestock grazing in the entire pasture, or only on the public land parts, is considered an extreme measure in comparison to other alternatives that can achieve the purpose and need to reduce use on bitterbrush in the Trout Creek area. Continuing to authorize livestock use in the Evans Flat Pasture would also be consistent with the Elko RMP which established, among other things, that the Pine Mountain Allotment is to provide for livestock grazing use, and that livestock grazing use is to be managed so that resource management objectives will be achieved. Therefore, the End Grazing Alternative is not further considered for analysis in this EA.

3 AFFECTED ENVIRONMENT/EFFECTS OF ALTERNATIVES

This chapter characterizes the resources and uses that have the potential to be affected by the Proposed Action and alternatives, with each resource having a comparative analysis of the direct[5], indirect[6] and cumulative impacts[7] of the alternatives.

3.1 Scope of Analysis

The area of the Proposed Action and alternatives is the Evans Flat Pasture in the southern portion of the Pine Mountain Allotment. (Refer to Map 1).

Evans Flat bench encompasses approximately 3,000 acres. About half of the acres are public lands, and half the acres are private lands owned by the livestock operator

[5] Direct Impacts: Effects caused by the proposed action.

[6] Indirect Impacts: Effects (also caused by the action) that occur later in time or are farther from the project activity area, but are still within the reasonably foreseeable future (40 CFR § 1508.8).

[7] Cumulative Impacts: Impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.7).

(permittees). Elevations on Evans Flat bench range from about 5,800 to 6,400 feet. The water sources that would be developed as part of the Proposed Action are located in the upper part of Lee Canyon at an elevation of about 6,465 feet. Topography includes the steep sides of Lee Canyon and the flat to gently rolling terrain on Evans Flat bench. The elevations of the waters in the middle portion of Lee Canyon where the cattle currently obtain most of their water are about 5,750 to 5,800 feet. Average precipitation on Evans Flat is 10 to 12 inches per year with the upper parts of Lee Canyon receiving 14 to 16+ inches per year.

The following photographs show portions of Lee Canyon and Evans Flat.

Figure 1 - Orange colored surface is the bottom end of the low flow spring in Lee Canyon. August 2009.

Figure 2 - Looking down Lee Canyon just below the spring source. The old mining road is hidden behind the big sagebrush plants in the lower right portion of the photo. August 2009.

Figure 3 – Water Source(s) are located under aspen trees in the middle of photo. Sept. 2010.

Figure 4 - Looking up Lee Canyon from the old mining road near the top of Evans Flat. October 2008.

Figure 5 - Old mining road in middle of photo dropping into Lee Canyon from Upper Evans Flat bench. Sept. 2010.

Figure 6 - Looking west across the middle portion of Lee Canyon to Evans Flat Bench which runs across the middle of the photo. November 2009.

Past and existing uses in the Evans Flat Pasture include livestock grazing (currently cattle use), recreation, hunting, mineral exploration, and extraction of minerals. In 1999, the Sadler Fire burned most of the Evans Flat Pasture and other areas to the south.

Evans Flat and Lee Canyon are part of a larger pasture bounded on the north by a pasture fence along the northern edge of Evans Flat bench. The western edge of the pasture is the fence along Highway 278 that runs between Carlin and Eureka, Nevada. The southern boundary of this pasture is the Trout Creek Fence along the northern border of Trout Creek. Partial fencing runs along the eastern portion of the pasture, with non-fenced areas (along the Pinon Mountain range) having high and steep slopes that deter most cattle from crossing over.

Livestock have access to water in the pasture at various locations (see Map 2) which are described as follows:

1) Seven water gaps in the Trout Creek Fence along the southern pasture boundary,
2) A solar well on the permittee's private lands in lower Lee Canyon,
3) A spring development on public lands in lower Lee Canyon,
4) Spring flows from drainages coming into the middle portion of Lee Canyon from the east,
5) Spring flows in Upper Lee Canyon, and

6) A well on the permittee's private lands in the northwest corner of the pasture near Highway 278.

Water in Trout Creek is a secondary water source for the cattle grazing on Evans Flat. Cattle have to walk from Evans Flat down into Lee Canyon, and then either walk to the lower portion of Lee Canyon which is adjacent to the lower section of Trout Creek to water, or walk over mountainous terrain between Lee Canyon and the middle to upper portions of Trout Creek to obtain water at the watergaps. The distance from Evans Flat to water at Trout Creek is about one to three miles.

The solar well in lower Lee Canyon has a relatively low flow that provides some water for cattle grazing in the lower canyon, and for cattle traveling up onto Evans Flat; however, the water level in the well during the summer can drop below the well pump resulting in little to no water production during the summer. Cattle grazing on Evans Flat bench must travel down into lower Lee Canyon to water at this location.

The spring development in lower Lee Canyon is also a relatively low flow water source. During the summer, this spring development provides only enough water to support a few cattle. Cattle grazing on Evans Flat bench must travel down into Lee Canyon to water at this location.

Although surface water exists along the upper part of Lee Canyon during the spring, water flows are substantially reduced during the summer with water only rising to the surface at a few locations. The low flow spring source, which is one of two sources proposed for development, rises from the bottom of a fault in the north slope of upper Lee Canyon. The second source proposed for development is adjacent to the low flow spring and is one of several locations where water rises in the main channel in the summer. To access water in upper Lee Canyon in the summer, cattle travel from the upper bench on Evans Flat and down the old mining road to reach the canyon bottom. Cattle access into the upper canyon is otherwise limited by steep/very steep slopes (60 – 80%) with loose cobbles and gravels, and blocked by a cottonwood stand in a narrow part of the canyon at the lower end of the upper canyon. Few cattle use upper Lee Canyon partly because there is abundant forage on Evans Flat, partly because woody riparian shrubs and trees present obstacles to cattle wanting to move up the canyon after they have reached the bottom of the canyon via the old mining road, and partly because there is little to no water in the summer in the lower part of the upper canyon at locations the cattle can currently gain access.

The primary waters available for cattle grazing Evans Flat are located in the middle part of Lee Canyon just east of Evans Flat. The middle and lower portions of Lee Canyon's main channel are usually dry in the summer with the exception of spring flows from two side canyons on the east (Section 18, T. 30 N., R. 53 E.). These spring flows bring water to the main channel before going underground when they reach the main channel.

The well near Highway 278 in the northwest part of the pasture, west of Evans Flat, is about 1.5 miles from Evans Flat bench. This well provides water for some of the cattle

grazing on Evan Flat but, because of its distance from the bench, most of the cattle watering at this well tend to graze the lower foothills and drainages west of the bench.

Roads in the area are shown on Map 4. One of the roads starts on the north end of the pasture from Highway 278 and travels up onto the northern part of Evans Flat where it joins an old mining road which turns south traversing the upper bench and then turns east as it travels down into Lee Canyon. The old mining road runs across a south slope and down to the bottom of Lee Canyon. The old mining road then runs up the bottom of Lee Canyon to an abandoned mine near the top of the canyon and then travels over the top of the canyon to connect with other roads in the Bullion Mine area to the north. Active mining in Lee Canyon has not occurred for some decades. The old mining road in the middle portion of Lee Canyon is now impassable by vehicular travel because patches of aspen trees, willows, chokecherry, and serviceberry shrubs have grown across the road at various locations which now block access. The portion of the old mining road that runs from the upper part of Evans Flat down into Lee Canyon grows bitterbrush, rabbitbrush, sagebrush, and some grasses. Part of the side-slope above this portion of the road has sluffed resulting in a narrowing of the road but can be traveled by ATVs, on horseback, or walking. Evans Flat bench is relatively flat to gently sloping to the west where two and four wheel drive vehicles, and all-terrain vehicles (ATVs), can drive across all parts of the bench. There is also a two-track road that starts from the old mining road near the entrance into upper Lee Canyon that travels south along the eastern edge of Evans Flat for about ½ mile and then drops down the eastern slope of Evans Flat into the middle part of Lee Canyon. There is also a two-track road that takes-off from the old mining road on upper Evans Flat and travels about 1.5 miles up along the mountain ridge to the east between Lee Canyon and Mill Creek Canyon. There is a road that starts from Highway 278 near the south end of the pasture and runs along the bottom of Lee Canyon; however, this road becomes very rocky and rough as it enters the middle portion of the canyon, making it difficult to drive a truck into the middle portion of the canyon but is readily accessible by ATVs. There is also a two-track road that spurs off the Lee Canyon road in lower Lee Canyon that travels northeast up a drainage towards Evans Flat. There is also a spur in the middle part of Lee Canyon that makes a loop around the mountainous area to the east that may have been related to mineral exploration. There is also a gravel road that branches off the lower portion of the Lee Canyon road to travel along the northern edge of Trout Creek and includes a segment that traverses an area above the North Fork of Trout Creek. ATVs are able to access most of the pasture from existing roads, and extend off-road by driving around the benches and through the connected drainageways and canyons below, and upper basins of the North Fork of Trout Creek. The mountainous area east of Evans Flat between the area north of Lee Canyon and south to the area north of the upper Trout Creek basins are steep/very steep canyons where four wheel drive trucks and ATV access is more limited to the ridges. The Ravens Nest area on the east side of the pasture is generally inaccessible by vehicles due to steep slopes, trees, and rocks.

Potentially Affected Resources and Uses

The following table identifies elements of the human environment that would be affected and are analyzed below including those elements regulated by a statutory or regulatory authority, as well as those that BLM determined would not be affected.

Table 2: Review of Statutory Authorities

ELEMENT/ RESOURCE	Possible Concerns	Present ?	Affected ?
Area of Critical Environmental Concern (ACEC)	Landscapes designated as an ACEC	No	No
Cultural Resources	Historic or pre-historic sites	Yes	No
Environmental Justice	Low income, Native American or minority populations	No	No
Farm Land -Prime/Unique	Farmlands having high agricultural value	No	No
Floodplains	Within designated flood prone areas	No	No
Forests / Rangelands	Healthy Forests Restoration Act	No	No
Human Health and Safety	Herbicide products	No	No
Invasive Non-Native Species	Potential to increase and spread	Yes	Yes
Livestock Grazing	Changes in management, and costs	Yes	Yes
Native American Religious Concerns	Sites with traditional, cultural, and spiritual practices	No	No
Recreation	Changes in recreation opportunities	Yes	No
Riparian Areas, Water Quality and Aquatic Macroinvertebrates	Riparian habitat loss or changes in water quality, quantity, and/or water aquifer	Yes	Yes
Soil Resources and Air Quality	Alteration or loss of soils; Air pollution	Yes	Yes
Special Status Species, Migratory Birds, and other Wildlife	Changes in habitat; disturbances	Yes	Yes
Threatened/ Endangered Species	Changes in habitat; disturbances	No	No
Vegetation	Plant health and changes in plant assemblages	Yes	Yes
Visual Resource Management	Changes to the natural look of the landscape	Yes	Yes
Wastes, Hazardous/Solid	Presence of hazardous materials	No	No
Wild & Scenic Rivers	Potential to alter naturalness	No	No
Wilderness	Potential to alter naturalness	No	No

3.2 Effects of the Alternatives

The degrees to which resources/uses may be affected by the proposed activities are discussed in the following subsections. Each subsection includes discussion of the:

(1) Affected Environment (current condition) of the resource or use,
(2) Effects (direct and indirect) of each alternative, and
(3) Cumulative impacts, if identified.

Table 2 below provides summary ratings of the impacts from the Proposed Action and alternatives for each element/resource affected. Impacts to each of the elements/resources affected are more specifically described following Table 2.

Table 3 - Summary of Impacts

Elements/Resources Affected		Proposed Action and Alternatives			
	Proposed Action Spring/ Pipeline	**Alternative 1 Well/ Pipeline**	**Alternative 2 Haul Water**	**Alternative 3 Reduced Numbers**	**Alternative 4 No Change**
Invasive Non-Native Species	Neutral to Negative	Neutral to Negative	Neutral to Negative	Neutral	Neutral
Livestock Grazing (non-costs)	Positive	Positive	Positive	Neutral	Neutral
Total Cost/50 years BLM Permittees	 $ 40,000 $102,500	 $ 40,000 $188,900	 $ 0 $663,400	 $0 $112,812	 $ 0 $ 0
Riparian Areas,Water Quality and Quantity, Aquatic Macroinvertebrates	Negative	Neutral	Neutral	Neutral	Neutral
Soil Resources/Air Quality	Neutral	Neutral	Neutral	Neutral	Neutral
Special Status Species					
Yellow-billed Cuckoo Habitat	Negative	Neutral	Neutral	Neutral	Neutral
Sage Grouse	Neutral	Neutral to Positive	Neutral to Positive	Neutral to Positive	Neutral
Pygmy rabbits	Neutral to Negative	Neutral to Negative	Neutral	Neutral	Neutral
Raptors	Neutral	Positive	Positive	Neutral to Positive	Neutral
Songbirds	Neutral	Positive	Positive	Neutral	Neutral

Elements/Resources Affected		Proposed Action and Alternatives			
	Proposed Action Spring/ Pipeline	Alternative 1 Well/ Pipeline	Alternative 2 Haul Water	Alternative 3 Reduced Numbers	Alternative 4 No Change
Bats	Positive	Positive	Positive	Neutral	Neutral
Wildlife/Big Game	Positive	Positive	Positive	Positive	Neutral
Vegetation	Neutral to Negative	Neutral to Negative	Neutral to Negative	Positive	Neutral
Visual Resources	Acceptable	Acceptable	Acceptable	Neutral	Neutral

Neutral = Impacts would be avoided, or conditions would be similar to existing conditions.
Positive = Conditions would be more favorable for the affected element.
Negative= Conditions would deteriorate/regress or be less favorable for the affected element.
Acceptable = Activity would fall within the standard for the area.

3.2.1 Impacts Common to All Alternatives

This subsection discusses the impacts of climate change, wildfire, and threats of disease (i.e. West Nile Virus) in general. Specific effects/impacts are described within the analysis for each affected element.

Events that can impact rangeland health, such as wildfire and climate change, can be difficult to predict and may appear speculative. However, BLM acknowledges direction in Secretarial Order 3226 to consider activities that could have long-term impacts.

For this EA, "long-term" projects are defined as those where impacts (positive[8] or negative[9]) are expected to last beyond ten years. One decade has been selected for reasons that include, but are not limited to:

- Observations made by specialists with regards to their professional experience and understanding of cause and effect relationships for their respective resources in the BLM Elko District.
- Depending upon the species, native vegetation can take more than ten years to become totally established in arid environments where water is a growth limiting factor.
- Soils exposed to both fire severity (duration) and intensity (temperature) (not uncommon where drought resistant vegetation exists) can remove viable seed sources, as well as result in the mortality of biological activity in the upper 3 inches of a soil horizon, resulting in delayed decomposition and nutrient cycling necessary for plant growth.
- Some grazing permits are reviewed every ten years.

[8] Positive impacts: Impacts expected to improve rangeland conditions beyond the existing status.
[9] Negative impacts: Impacts expected to reduce rangeland conditions to or below the minimum standards and guidelines as stated in the Wells RMP (1985).

- Document life for many reviews and revisions within BLM (RMP, Standards and Guidelines, etc.) toggle between five and 15 years.

Climate Change

Predictions[10] associated with climate change, identified during a 2011 literature review for impacts that could occur within the BLM-Elko District include:

Temperature increase predicted of 1 to 2 degrees F (Karl et al. 2009) between now and 2020, leading to:

- earlier snow melt and onset of spring (Stewart et al. 2005; Mote 2005; ; Bernstein 2007; Feng 2007; Barnett 2008)
- longer growing season for forage production (Bernstein 2007), but potentially lower quality forage (Karl et al. 2009),
- an increase in evapotranspiration (Hamlet 2006),
- threat of an increase for diseases, insects, and non-native and noxious species (Chambers et al. 2009),
- reduction in soil moisture for plants (Izaurralde et al. 2011)
- increase in drought frequency and severity (Bernstein 2007),
- likely increase to stream temperature in non-shaded riparian areas, and
- an increase in wildfires resulting from a combination of the above factors (Ehrenfeld 2003, Norton 2003).

Precipitation could vary from **no change** to as much as **15% less** than present (Timmerman et al. 1999; Meehl 2006; Karl et al. 2009) suggesting the:

- potential for species shifting geographically to adapt to changing conditions (Crozier 2003, 2004; Inouye et al. 2000),
- mortality of species unable to adapt to changing conditions (Beever et al. 2003; Galbreath et al. 2009),
- increase of storm intensity (Bernstein 2007),
- higher potential for floods and subsequent erosion on soils with high clay content (CCSP 2008; Furniss 2010), and
- higher demand for water in urban, rural, and agricultural areas, as well as from increasing demands for diverted flow to areas like Las Vegas, Nevada (Deacon et al. 2007).

Two of the predicted events expected to occur as a result of climate change, an increase of wildfire and shifts or increases for insects/disease, are considered further.

[10] Predictions: In addition to compliance with Secretarial Order No. 3226 to consider impacts of climate change, CEQ advises agencies to recognize the *scientific limits of their ability to accurately predict climate change effects*, especially of a short-term nature, and not devote effort to analyzing wholly speculative effects. BLM (2008) further states that disseminated information based on non-agency reports/studies (i.e. third party scientific reports in credible publications) should be up-to-date, have integrity (based on accurate science and technology), useful to management for planning, and objective (BLM 2008, OMB 2002, DOI 2002).

Anthropogenic Induced Fire(s) and Wildfire(s)

Fire impacts affect resource conditions and wildlife. Repopulation of native species can require as many as (or more than) ten years in areas where restoration is left to natural recovery and water is a limiting factor. As a result of 1999 Sadler Fire, substantial portions of the sagebrush plant communities have been converted to areas dominated by perennial grasses and annual grasses, including invasive species (i.e. cheatgrass).

Fire is possible under all alternatives from a variety of ignition sources, including humans (manual or mechanical) or climatic events (i.e. lightning). Proactive measures by BLM-Elko to minimize impacts by fire include: annual enlistment and support for Hot Shot Crews[11] throughout predicted fire season months, monitoring of weather conditions by BLM fire crews, and communicating with other agencies when fires occur in surrounding areas. BLM also assigns roles/responsibilities to qualified emergency assessment team members (advisors within fire impacted resources such as soils, range, wildlife, and botanists). Once a fire is considered both contained and controlled by a Fire Incident Commander, the advisors are among the first to examine and determine fire severity to provide reclamation recommendations.

Spread of Insects and Disease

Insect populations (some of which can carry infectious disease) expected to increase because of geographic shifting and adaptation to increasing temperatures could impact the BLM-Elko District. Through previous scoping (for another project) a concern was identified about possible sage-grouse mortality because of West Nile Virus from infected mosquitoes breeding in manmade water sources.

West Nile Virus (WNV) is a mosquito-borne flavivirus[12] that can cause debilitating or fatal neuroinvasive[13] disease in humans and animals. The virus attacks the brain causing inflammation and swelling. The virus persists largely within a mosquito-bird-mosquito infection cycle. Mosquitos get the virus by feeding on infected birds and can then pass it on to other birds, and occasionally to other animals and people. The virus is not spread from person-to-person. (Walker 2009). Mosquito season in northeastern Nevada is typically May to October.

[11] Hot Shot Crews: an interagency national resource, usually comprised of 20 (+/-) members prepared (i.e. on call) to respond to any fire emergency. Required of a hot shot member is: a high level of physical fitness, special training in wildland fire suppression tactics, a commitment to accept assignments lasting several weeks at a time, working an average of 16 hrs a day during fire conditions, and be able to endure primitive (i.e. wilderness) and extreme conditions (i.e. fire/heat/weather, smoke, poison oak). Teams include medics, helicopter members, fallers, saw teams, firefighters, spotters, and various chains of command.

[12] Flavivirus: a virus that is capable of reproducing within its arthropod (jointed leg) vector, and that can cause a number of serious human diseases.

[13] Neuroinvasive: a disease agent capable of entering or infecting the central nervous system.

Today, WNV has been reported in every county in Nevada. The number of WNV cases reported in humans in Nevada between 2005 and 2010 totaled 196 cases with 26 of those cases reported for Elko County. (Nevada Dept. of Health and Human Services 2011). Less than 1% of humans infected with WNV develop a serious neurological infection (MayoClinic.com). Vaccines for humans are in clinical trials but not yet available. (Nevada Dept. of Agriculture 2009).

Horses also appear sensitive to the virus; however, there is no evidence that WNV causes disease in cattle. Some bird species have experienced population declines attributed to WNV including the American crow, Western scrub-jay, blue jay, yellow-billed magpie, Steller's jay, American robin, tufted titmouse, house wren, and sage grouse.

The dominant vector of WNV in sagebrush habitats is the mosquito (*Culex tarsalis*). This species prefers sites with submerged vegetation on which to oviposit[14], and warm standing water that promotes rapid larval development, including ephemeral[15] puddles, vegetated pond edges, and surface water held in slow draining formations such as in hummocky areas (hoof prints), and road-side trenches. The larvae mature from 7 days to 4 weeks to become full-fledged mosquitos, depending on temperature and food availability. *Culex tarsalis* mosquitos are most active the first few hours after sunset. (Walker 2009).

Collaborative efforts continue between Federal, state, and other organizations (i.e. academia, Institute of Medicine, the Centers for Disease Control and Prevention and the National Institutes of Health) to meet and examine issues of shared concern regarding research, prevention, detection, and management of emerging or reemerging infectious diseases. Within the Great Basin, efforts for research also include NV Dept. of Wildlife; NV Dept. of Agriculture; NV State Health Dept.; USGS; Animal and Plant Health Inspection Service and US Fish and Wildlife Service.

Methods suggested from the above agencies, supported by BLM, for recommendations regarding past and emerging threats of disease include using pesticides, posting public statements and using media/internet to inform the public about areas where reports have identified possible outbreaks, and stating what the public can do to both protect themselves and how to minimize infestations.

3.2.2 Invasive Non-native Species

Affected Environment

BLM field surveys have not identified noxious weeds being present on Evans Flat bench. There are small numbers of non-native thistles present in Lee Canyon. Cheatgrass, a

[14] Oviposit: to deposit or lay eggs.

[15] Ephemeral: drainage area receiving only seasonal precipitation or during high rainfall events (then subject to gullying and erosion) that are able to support a variety of wildlife and plant species that often cannot not grow on other sites.

non-native annual grass, is present in very minor amounts in Lee Canyon. Cheatgrass is also intermingled among the perennial grasses and rabbitbrush on Evans Flat bench in minor amounts, with some patches of higher densities in the southwestern portion of the bench that wasn't seeded with perennial grasses after the 1999 Sadler Fire. An invasive sunflower (annual) is present along the dirt road between Highway 278 and Evans Flat and there are a few patches on the old mining road on the upper bench. No non-native thistles have been observed in the middle or lower parts of Lee Canyon; however, there is a large patch of little sunflowers located mostly on private land just above the solar well. Cheatgrass is common in the bottom of Lee Canyon and on the south facing slopes. In the areas adjacent to Trout Creek, there are a few Scotch thistle plants in a few of the water gaps along the Trout Creek Pasture fenceline, and cheatgrass is common on the lower elevation south facing slopes with modest amounts of cheatgrass in the upper elevations where perennial grasses are common. Although herbicide treatments to control noxious weeds are not proposed or analyzed as a part of the Proposed Action or other alternatives, this control measure would be proposed as a separate action if needed.

Direct and Indirect Effects of Alternatives

***Proposed Action* - Spring Development and Pipeline System:**

Individual and small groups of non-native thistles and cheatgrass that are present in Lee Canyon have the potential to spread or cause new infestations, with and without livestock grazing or project disturbances. Although the Proposed Action has the potential to spread these weeds through construction and maintenance activities, the risk is low because nearly all of the construction disturbances would be reseeded. In addition, if weeds such as the thistles attempt to establish in the disturbed area, they could be controlled by digging them up, or herbicide applications would be proposed. The required environmental design/resource protection measure to clean equipment before entering the project area would minimize the potential to introduce additional weed seeds to the project area.

Cheatgrass intermingles with the perennial grasses and shrubs on Evans Flat bench. The surface disturbance from the trenching, and from storage tank and trough installation, will create opportunities for cheatgrass to invade and dominate the disturbed areas; however, these areas would be reseeded with sagebrush and perennial grasses and, except for the disturbed areas around the troughs, should fill-in within a few years. Areas around the newly installed troughs are expected to experience high levels of surface disturbance each year from livestock use and be areas where cheatgrass and other weeds would most likely dominate. Approximately one acre in total would be substantially degraded around the troughs but cheatgrass and other weeds would be suppressed because they would be grazed and trampled by livestock.

An additional 1.5 miles of two-track roads would develop on the bench as access routes along the pipeline and to the troughs for repair and maintenance activities. These new roads would create about one acre of additional ground disturbance; however vehicle travel and cattle trailing on these pathways would suppress or eliminate most vegetative

growth; therefore there would be little opportunity for cheatgrass or other weeds to increase in the two-track roads. However, seeds from the sunflower that grows along the road leading up to Evans Flat from the highway could "catch a ride" on the vehicles regularly visiting the area to check on and maintain the water system and grow along the edges of the two track roads and around the trough areas. However, these little sunflowers are poor competitors against established perennial vegetation; therefore, the sunflowers which are able to spread away from the roads would be only minor components of the areas especially in the areas on the bench that currently have full stands of perennial grasses where the pipeline and troughs would be installed.

Installing a water development on Evans Flat bench would provide opportunities to shift some of the cattle from the Trout Creek area to the Lee Canyon/Evans Flat area which should help the perennial grasses maintain their health to resist the spread of weeds.

Alternative 1 **- Well and Pipeline System:** The impacts of this alternative would be similar to the Proposed Action; however, since there would be no new disturbances in Lee Canyon, those impacts would not apply. The impacts from development and operation of the well would be similar to the impacts around each trough, and the well would be relatively close to the first trough.

Alternative 2 **– Haul Water:** Impacts would be similar to Alternative 1; however, there would be an increased potential for the seed of invasive species such as the sunflower that grows along the road leading up to Evans Flat to "catch a ride" on the water truck and be distributed along the edges of the two-track roads that would develop from the water truck frequently delivering water to the troughs. However, this kind of sunflower is a poor competitor and would likely be a minor component in the surrounding plant communities that are dominated by perennial grasses.

Alternative 3 **– Reduce Cattle Numbers:** There would be no increased potential for the spread of weeds from new water development because a water development on Evans Flat would not be installed. The reduced use in the Trout Creek area beginning in mid-July to lessen the use on bitterbrush would probably have little effect on either reducing or increasing the potential for the spread of weeds. Perennial grasses provide the principal deterrent to the spread of weeds. Since the numbers of cattle would be reduced after the critical growing season of the perennial grasses (May to mid-July), lowering cattle use after the critical growing season would probably have little effect on either reducing or increasing the potential for weeds to spread.

Alternative 4 **– No Change:** Individual and small groups of the non-native thistles that are present in Lee Canyon have the potential to spread or cause new infestations, with or without livestock grazing. However, recent observations found only minor populations in Lee Canyon which indicates they are not likely to spread substantially absent fire or new disturbances. The full stands of perennial grasses that currently occupy much of Evans Flat bench are expected to be maintained, and there should be little to no new disturbances that would give cheatgrass or other weeds more areas to occupy.
The lack of additional water in the Evans Flat/Lee Canyon area means the opportunities to lessen the use in the Trout Creek area would be more limited.

Cumulative Impacts

Under the Proposed Action and Alternatives 1 and 2, cheatgrass and other weeds are likely to spread around the new trough locations, well site and roads, but the areas impacted are expected to be about one acre and these weeds would tend to be diminished from being grazed and trampled by livestock frequenting these areas and/or suppressed by competition with perennial vegetation. Providing water on Evans Flat bench would continue to provide opportunities to lessen grazing use in the Trout Creek area which would help maintain the health of perennial vegetation to better resist the spread of weeds.

Over the next ten years and beyond, climate change could reduce the amount of soil moisture necessary for plant growth, especially in the summer and fall when there is normally less precipitation. Existing perennial plants in some areas may not be able to survive if soil moisture levels are reduced. Reduced perennial plant populations would allow cheatgrass and other invasive non-native species that are able to survive under these conditions to expand. Increases in ground cover from cheatgrass and other weeds would also increase the fine fuels that can carry fire thus increasing the likelihood that fires would spread more readily resulting in larger acreages burned that may further facilitate the spread of invasive non-native species.

3.2.3 Livestock Grazing

Affected Environment

Historically both cattle and domestic sheep grazed in the Pine Mountain Allotment. Cattle use has long been the primary kind of livestock grazing in the allotment and is currently the only kind of livestock authorized to graze in the allotment. Current livestock permitted use in the Pine Mountain Allotment is 5,550 AUMs from 4/1 to 11/30.

Cattle have grazed the Evans Flat Pasture from early spring to late fall (authorized period of use is 4/1 – 11/30). Prior to 2004, the Trout Creek Pasture to the south of the Evans Flat Pasture was within the Evans Flat Pasture. In 2004, the Trout Creek Fence was built to manage cattle grazing in much of the Trout Creek area separately.

Within the Evans Flat Pasture, there are 937 public land AUMs which represents 50% of the total AUMs in the pasture. The remaining 50% of the AUMs (937 AUMs) in the pasture are associated with the intermingled private lands which are owned by the livestock permittees (Map 1). Total AUMs for both public and private lands in the pasture are 1,874 AUMs. The permittees commonly graze 300 cattle or less within the Evans Flat Pasture on an annual basis. A rough estimate of grazing capacity for the Evans Flat area is 400 - 500 AUMs over approximately 3,000 acres. The 400 - 500 AUMs on 3,000 acres equates to 7.5 to 6.0 acres/AUM, respectively. Carrying capacities of crested wheatgrass seedings elsewhere in the Elko District range from 2 – 4

acres/AUM. Although Evans Flat grows mostly medium sized perennial grasses such as crested wheatgrass and thickspike wheatgrass, the overall capacity of Evans Flat is estimated to be somewhat lower than an area that is covered by a full stand of crested wheatgrass because part of Evans Flat grows only small sized perennial grasses and cheatgrass.

The levels of utilization recently observed on Evans Flat bench have ranged from heavy use on the perennial grasses at the end of 2008 which was a dry year, to light/low moderate levels of use at the end of 2009 which was a good forage production year, to generally no use with small patch grazing by the end of September 2011 which was also a good forage production year. In 2011, the cattle grazed the Trout Creek Pasture until mid-June and were then moved into the upper Trout Creek area just to the north and east of the Trout Creek Pasture. The permittee licensed 300 cattle. Based on the low amount of utilization on Evans Flat by the end of September, it appears that most of the cattle remained in the area adjacent to Trout Creek.

In the upper Trout Creek area of the Evans Flat Pasture, there are perennial grasses such as bluebunch wheatgrass, thickspike wheatgrass, squirreltail grass, and bluegrasses that serve as key forage species related to cattle use. Bitterbrush is also present in limited amounts and is a key forage species for both mule deer and cattle. Much of the bitterbrush on the upper Trout Creek area was lost as a result of the 1999 Sadler Fire; therefore, the limited numbers of bitterbrush that remain have become more important. The remaining bitterbrush plants in the upper Trout Creek area are located on the bench just above Trout Creek Exclosure #3, on a small bench between the main Trout Creek channel and the North Fork of Trout Creek, and on the Ravens Nest Mountain area above. The bitterbrush plants on the bench are within ¼ mile of the water in Trout Creek and tend to receive heavy use by cattle; however, the bitterbrush plants upslope on the Ravens Nest Mountain area receive low levels of use.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** Perennial forage grasses for cattle use are common on Evans Flat (See Vegetation section). Providing water on the bench means cattle grazing on the bench would have water in closer proximity to an area with abundant forage and they would not have to expend the energy to trail down into Lee Canyon to water and back onto Evans Flat to graze. In addition, providing water on Evans Flat in the northern part of the pasture would help shift some of the cattle use away from the Trout Creek area in the southern part of the pasture thereby improving the distribution of cattle use within the pasture. The use in 2011 seems to demonstrate that the Evans Flat area could be periodically deferred from grazing during the critical growing season of the key perennial grasses (mid-May to mid-July) and conversely, providing water on Evans Flat could provide the opportunity to reduce or defer use in the Trout Creek area. Deferring use in the Trout Creek area during the critical growing season of perennial grasses would benefit those grasses. In other years, the cattle could graze the Trout Creek area during the growing season, deferring use on Evans Flat, and then be moved to the Lee Canyon/Evans Flat area for the late summer and fall use which

would tend to reduce use on bitterbrush in the Trout Creek area. Cattle tend to make substantial use of bitterbrush beginning the latter part of July and later.

The following discussion pertains to which spring source is selected under the Proposed Action:

The low flow spring source in Lee Canyon has a minimum flow of approximately 0.8 gallons per minute (1,152 gallons/day), based on measurement in August 2009. This amount of water would meet the needs of approximately 45 to 60 cattle during the hot summer months, based on 20 – 25 gallons of water/cow/day. This amount of water would be more limiting compared to the amount of water that could be made available from the water source in the main channel in terms of being able to shift more cattle away from the Trout Creek use area to the Evans Flat uses area. Some of the cattle herd would still water at the other water sources in the pasture. Water flow from the spring source may be higher in the spring when additional water is moving through the watershed from rain and snowmelt. The current livestock use period for this pasture is 4/1 – 11/30 (eight months). If the pipeline system was in operation for the full eight month use period, and 45 cattle were consuming 25 gallons each day, the total consumption by livestock would be approximately 270,000 gallons per year. The pipeline would most likely be in operation for six months (5/1 – 10/31) or less because of the difficulty of accessing the turn-on valve at the water collection box in the spring from residual snow and/or wet soils, and the desire to shut-down the system in the fall to avoid problems with water freezing in the system. Forty-five cattle consuming 25 gallons/day for six months would total 202,500 gallons per year.

The flow of water in the main channel, adjacent to the low flow spring, is estimated to flow at three gallons/minute (4,320 gallons/day) which would provide water for about 170 to 215 cattle based on 20 – 25 gallons of water/cow/day. Assuming the grazing capacity of Evans Flat bench is 500 AUMs (equivalent to 200 cattle for 2.5 months or 100 cattle for 5 months, etc.), the amount of water that could be supplied by the water system to meet the total water needs of the cattle grazing 500 AUMs on Evans Flat would be 375,000 gallons per year, based on the consumption of 25 gallons/cow/day.

The initial costs of the pipeline system, along with replacement costs and the costs to check and adjust the water system over 50 years are shown in Table 4 below:

Table 4 – Estimated Costs for the Spring/Pipeline System

Initial costs to install spring/pipeline system. This includes the water collection box, HDPE pipe and connectors, storage tanks, troughs with timbers and fittings, valves, labor and equipment.	$60,000
Costs to replace the storage tanks and troughs after 25 years	$15,000
Costs to turn on/off the system, and to check the operation of and adjust the system once every 7 days for 6 months each year over 50 years.	$67,500
Total Costs over 50 years	$142,500

Water flowing to the troughs would be gravity fed. The need to check if water is getting to the troughs would be less than if water were pumped from a well because a gravity system that does not rely on power generation and a mechanical pump is less likely to experience problems. Burying the storage tanks eliminates the repair costs that would otherwise accrue due to vandalism by recreationists/hunters (i.e. shoot holes in them).

Providing water on Evans Flat bench would allow the cattle to thoroughly graze the bench area and could result in the levels of use exceeding the utilization levels described under the environmental design/resource protection measures; however, if utilization is managed as described in the environmental design/resource protection measures, the impact on grass vigor should be modest and leave an acceptable level of hiding cover for wildlife use.

Some examples of adjustments to cattle use in the event that utilization levels are exceeded include deferment of use the following year during all or a substantial portion of the critical growing season for the perennial grasses to let the grasses rebuild their vigor and levels of cover, and/or adjust stocking rates. Requiring deferment during the critical growing season could mean the permittees would have to place the cattle in a different pasture or lease pasture elsewhere during that time. If other pasture is not available, the permittees would have to sell the cattle. Periodically, there may be opportunities to place the cattle in the Trout Creek Pasture in the spring and then the cattle could be moved just to the north of the Trout Creek Pasture fence for the first part of the summer and not turn-on the Evans Flat pipeline or push cattle to the Evans Flat area until mid-July or later. By mid-July, the key perennial grasses should be at seedripe and had a chance to rebuild their vigor.

***Alternative 1* – Well and Pipeline System:** As described under the Proposed Action, providing water on the bench means cattle grazing on the bench would have water in closer proximity to an area with abundant forage and would not have to expend the energy to trail down into Lee Canyon to water and back onto Evans Flat to graze. In addition, providing water on Evans Flat in the northern part of the pasture would help shift some of the cattle use away from the Trout Creek area in the southern part of the pasture, and could provide opportunities to periodically rotate deferment of cattle use between the Evans Flat area and the Trout Creek area.

The initial costs of the pipeline system, along with replacement costs and the costs to check and adjust the water system over 50 years are shown in Table 5 below:

Table 5 – Estimated Costs for the Well/Pipeline System

Initial costs to install well/pipeline system. This includes drilling the well 300 feet deep, solar pump system, HDPE pipe and connectors, storage tanks, troughs with timbers and fittings, valves, labor and equipment.	$77,400
Costs to replace the well pump every 5 years over 50 years	$9,000
Costs to replace the storage tanks, troughs, and solar panels after 25 years	$37,500
Costs to turn on/off the system, and to check the operation of and adjust the system once every 3 days for 6 months each year over 50 years.	$105,000
Total Costs over 50 years	$228,900

If the well needed to be drilled deeper, costs would increase by $45.00/foot (drilled and cased). Burying the storage tanks eliminates the repair costs that would otherwise accrue due to vandalism by recreationists/hunters (i.e. shoot holes in them).

Although the amount of water that might be available from a new well won't be known until a well is drilled and tested, it is possible the water well could provide more water for cattle use compared to the Proposed Action. The descriptions of potential water use under the Proposed Action are examples of potential water use under this alternative.

Providing water on Evans Flat bench would allow the cattle to thoroughly graze the bench area and could result in the levels of use exceeding the utilization levels described under the environmental design/resource protection measures; however, if utilization is managed as described in the environmental design/resource protection measures, the impact on grass vigor should be modest and leave an acceptable level of hiding cover for wildlife. Some examples of adjustments to cattle use in the event that utilization levels are exceeded are described above under the impacts of the Proposed Action.

***Alternative 2* – Haul Water:** Under this alternative, water would be hauled to four new trough locations installed on Evans Flat at the same locations as described under the Proposed Action, and would provide the same kinds of benefits for cattle management as described under the Proposed Action (easier access to water, improved distribution, opportunities to defer and rotate cattle use between Evans Flat and Trout Creek). Each of the four locations would have two troughs installed. Water would be pumped from a well on private lands near Pine Creek into a water haul truck that could transport up to 4,000 gallons. The water would be hauled six to seven miles from the well in Pine Valley to the troughs on Evans Flat. The troughs would be filled every day for three months, which would support about 144 cattle each day, and then once a week for an additional 3 months, which would support about 20 cattle each day. The amount of water consumed by the cattle on an annual basis under this alternative would be similar to the 375,000 gallons described under the Proposed Action based on the amount of water to support 500 AUMs of cattle use on the Evans Flat area.

The costs of the water hauling operation over 50 years are shown in Table 6 below:

Table 6 – Estimated Costs for the Haul Water Alternative

Purchase water haul truck (4,000 gallon capacity)	$85,000
Costs for 8 new troughs and installation	$20,000
Gravel and maintain road over 50 years	$30,000
Replace the water haul truck after 25 years	$85,000
Replace troughs after 25 years	$20,000
Maintenance and repairs of water haul truck over 50 years	$100,000
Gas over 50 years	$68,400
Labor costs for water truck driver over 50 years	$255,000
Total Costs over 50 years	$663,400

The livestock permittee would be responsible for all of the costs associated with the water hauling operation.

Providing water on Evans Flat bench would allow the cattle to thoroughly graze the bench area and could result in the levels of use exceeding the utilization levels described under the environmental design/resource protection measures; however, if utilization is managed as described in the environmental design/resource protection measures, the impact on grass vigor should be modest and leave an acceptable level of hiding cover for wildlife. Some examples of adjustments to cattle use in the event that utilization levels are exceeded are described above under the impacts of the Proposed Action.

***Alternative 3* – Reduced Cattle Numbers:**

If cattle use were reduced to the levels proposed under this alternative, the use on bitterbrush in the Trout Creek area should be less which would leave more stem/leader growth for mule deer use.

Table 7 below displays the numbers of cattle and AUMs that would be grazed under this alternative based on authorized use in 2009 and 2010 in comparison to the numbers authorized in 2007 and 2008.

Table 7.

Use Areas	**Cattle Numbers**		**Periods of Use**	**AUMs[1]**	
	2009/10 (Alt. 3)	**2007/08**		**2009/10 (Alt. 3)**	**2007/08**
Evans Flat & Trout Creek	180	180	4/1 – 4/30	178	178
Evans Flat & Trout Creek	260	180	5/1 – 7/15	650	450
Evans Flat	80		7/16 – 9/30	203	--
Evans Flat	40		10/1 – 11/30	80	
Evans Flat & Trout Creek	--	260	7/16 – 9/15	--	530
Evans Flat & Trout Creek	--	180	9/16 – 10/15	--	178
Evans Flat & Trout Creek	--	90	10/16 – 11/30	--	136
			Total	**1,111**	**1,472**

[1] One Animal Unit Month (AUM) = one cow grazing for one month. Each AUM number is a combination of AUMs on both public and intermingled private lands.

In 2007/08, authorized use exceeded what would be authorized under the Reduced Cattle Numbers Alternative by 361 AUMs (1,472 – 1,111 = 361). The adjacent Trout Creek Pasture to the south of the Evans Flat Pasture was grazed by the permittee's cattle in 2007 and 2008 but the pasture was closed to grazing in 2009 and 2010, thus it appears the permittees graze more AUMs in the Evans Flat Pasture when the Trout Creek Pasture is

grazed in the same year, and fewer AUMs during those years the Trout Creek Pasture is not available for livestock grazing. A reduction of 361 AUMs of use under this alternative would result in lost opportunities in some years for the permittee's cattle to harvest the forage in the pasture to produce beef, and the permittees would have to lease pasture elsewhere to compensate for the reduction in AUMs. The 2011 private grazing land lease rate calculated for Nevada is $12.50/AUM. (BLM 2011). The lost opportunity costs, based on the difference in AUMs the permittees could graze under this alternative compared to what the permittees were authorized to graze in 2007 and 2008, would be $4,512.50/year. If these lost opportunity costs occurred half of the years (25 years) over a span of 50 years, the lost opportunity costs would be $112,812.50 (361 AUM reduction X $12.50/AUM X 25 years = $112,812.50).

***Alternative 4* – No Change:** Under this alternative, there would be no costs of installing or maintaining new water developments. The cattle would continue to expend additional energy walking down into the middle portion of Lee Canyon to water and walk back up the side-slopes of Lee Canyon to graze on Evans Flat bench. However, the permittees could drill a well and install a pipeline system on their private lands on the bench thus precluding the need for BLM review or approval.

If the permittees installed a well and pipeline system only on their private lands, the impacts would be similar to those described under Alternative 1 (well and pipeline system on both public and private lands); however, the distribution of water would be limited to one section of private land on Evans Flat because the pipeline could not cross any of the common public/private land corners without BLM review and approval.

Cumulative Impacts

The Proposed Action and Alternatives 1 and 2 would provide water for livestock use in areas where it has not been available in the past thereby improving the ability to distribute the cattle use within the pasture, and provide opportunities to periodically defer cattle use between Evans Flat and Trout Creek areas. The costs associated with the new water development would continue. Under the Reduced Cattle Numbers alternative, there would be annual losses in rancher revenue that would accumulate over the long-term.

The amount of water available for the pipeline system could be less in the future as a result of climate change. The amount of water from the low flow spring is already relatively marginal in terms of installing a pipeline system, thus lower flows would raise the question of whether or not the pipeline system would be feasible if only the low flow spring were used to supply water for the pipeline system. Reductions of water flows in the main channel where there are higher amounts of water available would not be as much of a concern.

In the future, if adjustments to livestock use on Evans Flat are needed to manage the levels of use, the permittees would need to adjust their operation to adapt to these circumstances which could add more complexity to their management plan and require

more time and labor to accomplish the on-the-ground management. However, the cattle that normally graze in the Evans Flat/Lee Canyon area will periodically graze the Trout Creek Pasture thus reducing their use of forage in the Evans Flat Pasture and provide time for the forage to build good vigor and increase vegetative cover. Use in the Trout Creek Pasture would also reduce the water demand in the Evans Flat/Lee Canyon area during those times.

3.2.4 Riparian Areas, Water Quality, and Aquatic Macroinvertebrates

Affected Environment

Water resources in the project area include ephemeral/intermittent streams, springs, and groundwater. The project area is located within the Pine Valley Hydrologic Basin within the Humboldt River Region. Drainages within and near the project area formed from ephemeral/intermittent streams supplied with runoff from rains and winter snowpack as well as several springs. Drainage generally flows to the West toward Pine Creek.

The project includes spring development in Lee Canyon in T30N, R53E, Section 8. At that location the canyon is host to an intermittent/ephemeral stream which drains about 670 acres of high elevation terrain. Flow in the Lee Canyon stream is estimated by BLM to have a base flow of around three gallons per minute and likely experiences flood flows near 10 cubic feet per second. During summer and fall, flow in the Lee Canyon stream disappears beneath alluvial and colluvial substrate and reappears intermittently. Surface expression and proximity of water to the surface is indicated by the presence of aspen stands and other hydrophytic vegetation.

Much of the flow in the Lee Canyon stream infiltrates into groundwater before reaching Pine Creek. Most of this infiltration occurs at the lower end of Lee Canyon when it contacts the Piedmont and infiltrates into valley sediment; however, the rapid disappearance of surface water flows in upper Lee canyon indicate that a significant amount of water also infiltrates into bedrock and/or fan remnants adjacent to the proposed spring development(s).

State water quality standards outlined in Nevada administrative code (NAC) 445A apply to water resources within and near the project area. Generally, water quality standards fall into either the Numeric or Narrative Standard. Numeric water quality standards based on a variety of beneficial uses including aquatic life, recreation, and irrigation apply to Pine Creek. Narrative standards would apply to most streams within the project area because there is typically no surface hydrologic connection between tributaries and Pine Creek during normal flow conditions. The narrative standards typically address pollution from domestic or industrial waste.

There are no known water quality conditions within the project area that have resulted in an inability to use water resources for their known beneficial uses. Some water quality data have been collected, but these data are insufficient to determine trends at local springs and do not include any bacteria data. For purposes of evaluation, riparian

condition assessments can be used to determine whether, and to what extent, water quality is influenced by human activities. In general, a spring is more likely to have issues with water quality if its riparian area has been rated as non-functional in contrast to a rating of proper functioning condition.

Riparian condition assessments[16] were conducted in 2003 and 2009 to evaluate the riparian condition of selected areas. The methodology evaluates the functionality of riparian areas based on hydrological, vegetation, and soils/erosional factors, within the context of the geologic setting and the potential of the area. Prichard et al. (1999) suggests the following definitions for spring and lentic areas:

> "Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to:
> 1) Dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality;
> 2) Filter sediment and aid floodplain development;
> 3) Improve flood-water retention and ground-water recharge;
> 4) Develop root masses that stabilize islands and shoreline features against cutting action;
> 5) Restrict water percolation;
> 6) Develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; and
> 7) Support greater biodiversity".

There are several springs within and near the project area generally located in the drainage bottoms within Lee Canyon and its tributaries. Proper functioning condition assessments indicated that one spring in Lee Canyon, downstream of the proposed development, was at risk with downward trend. A spring complex in a tributary that enters the middle portion of Lee Canyon was non-functional, and the spring complex in upper Lee Canyon where development is proposed is in proper functioning condition. Where problems existed with riparian functionality assessments, livestock grazing was noted as a contributing factor.

The following discussion pertains to which spring source is selected:

The low flow spring is one of the proposed development options. This spring is one of several springs which are tributary to the Lee Canyon stream. Surface discharge from the spring was measured to be 0.8 gallons per minute in 2009. Additional discharge of an unknown amount occurs beneath the surface and feeds the stream nearby. Flow from the spring is most likely the result of a geologic fault, joint or fracture as evidenced by the presence of iron precipitation which is not present within the stream channel upstream. The spring flows for about 50 – 75 feet from the base of the canyon sideslope towards the

[16] Riparian condition assessments are qualitative assessments of riparian areas based on quantitative science.

main channel and then goes underground about 40 feet from the main channel. Water quality samples from the spring indicate it is of sufficient quality for livestock watering.

The other water source proposed, having moderate water flow in the main channel adjacent to and rising in the channel above the low flow spring, has an estimated surface flow of about three gallons/minute with additional flows of unknown amounts in the gravel substrates below the surface. The surface water flows about 100 – 150 feet before going underground. The water rising at this location appears to be water supplied by the upper watershed and is not directly connected to the water that emerges from the adjacent low flow spring.

Groundwater within and near the project area is present at varying depths and is used for a variety of purposes. In general there is little information regarding the groundwater resource in higher elevations such as on Evans Flat. More information is available on and near the valley bottoms where there are several operating wells which serve irrigation, stockwater, and quasi-municipal uses. Because there are no operating wells on or near Evans Flat, depth to groundwater is uncertain; however, presence of water in drainage bottoms near Evans Flat indicates that groundwater would likely be between 250 and 550 ft. below the land surface. Wells drilled at and near the valley floor indicate that groundwater levels are about 100 ft. below the surface.

Aquatic macroinvertebrates are larger than microscopic invertebrate animals. Habitats with swiftly flowing water are preferred by some species and other species occur only in placid water. Some species prefer gravel substrates and others prefer silt, sand, or cobbles. Most spring-fed systems include aquatic species that are close relatives to common species in other North American wetlands. Aquatic and riparian communities at larger springs and springs that have been minimally altered have greater biological diversity than communities at small and highly disturbed springs. Diversions of water can decrease biological diversity by reducing aquatic habitat and reducing soil moisture in riparian zones. (Sada 2001). The proposed water sources in upper Lee Canyon were not sampled to detect the presence of aquatic macroinvertebrates; however, some are likely present. Some of the macroinvertebrates that are likely in the areas where the water boxes would be installed include stoneflies, mayflies, and caddisflies.

Direct and Indirect Effects of Alternatives

***Proposed Action* - Spring Development and Pipeline System:** Installation of a spring development and pipeline system would have a variety of direct and indirect effects to water quality and riparian areas in and around the larger project area. The diversion would directly reduce water flows in Lee Canyon, resulting in negative impacts to water quality and quantity. However, providing water on Evans Flat may decrease water consumption from other natural water sources in the larger area. Surface water is still expected to be available for use by wildlife at the source.

The proposed pipeline would divert water from a natural source in Lee Canyon to several places of use on nearby Evans Flat. Because cattle currently access and consume water

in Lee Canyon, the amount of the diversion is not expected to be equal to the loss of water in Lee Canyon under the Proposed Action. However, it is reasonable to assume that the Proposed Action would result in some additional diversion of water from Lee Canyon because cattle would consume more water from the source if it were easier to access. Up to 375,000 gallons or 1.15 acre feet of water could be diverted into the pipeline system annually but this would be a minor amount of water in relation to the total that flows through the watershed to ultimately become groundwater.

Although flowing water from springs in the area quickly infiltrates into groundwater, diversion of available water would have some impact to riparian vegetation. However, riparian vegetation present in the canyon (See Section 3.2.7 Vegetation) such as willows and sedges have extensive root systems that allow plants to uptake water from greater depths which also allows them to extend (grow) during times of drought (US DOI 2006). There are approximately 10 acres of mostly woody riparian habitat in Lee Canyon below the proposed pipeline water source and approximately 10 acres of mostly woody riparian habitat above the proposed water source. It is estimated that for every gallon/minute of water removed from Lee Canyon, the riparian habitat could shrink from 0.1 to 0.5 acres. If the low flow spring were developed as the water source, existing riparian habitat at and/or below the water source could shrink by 0.1 to 0.5 acres. If the flow of water in the main channel were developed as the water source, and three gallons/minute of water were directed into the pipeline system, the riparian habitat at and/or below the proposed water source could shrink by 0.3 to 1.5 acres.

Some temporary negative impacts to riparian soils and water quality are expected to occur during installation of a water collection system and other ground disturbing activities. Some riparian and upland soil erosion could also occur from sedimentation that enters the Lee Canyon stream. This small increase in sedimentation would not affect beneficial uses of water in the immediate vicinity of the project and would not likely affect water quality in Pine Creek due to distance and absence of a perennial hydrologic connection.

Development of the water source and diversion of water into the pipeline system would likely reduce habitat for aquatic macroinvertebrate populations associated with the area around the water box; however, the water box would be installed at the bottom end of the water source which would leave most of the habitat associated with the water source/riparian area unaltered and able to support the existing macroinvertebrates.

Alternative 1 **- Well and Pipeline System:** A well and pipeline system would provide indirect benefits to riparian areas and would not result in any of the potential negative effects to Lee Canyon as described above. Availability of water on Evans Flat would result in decreased consumption of water in the middle and lower portions of Lee Canyon as less cattle travel to these sources to obtain water. Pumping water from the well would not affect nearby surface water resources due to the nature of the hydrological connection, but would remove water from the Pine Valley Basin as a whole. Twenty thousand acre feet of water per year are available in the basin and the well would divert less than 5 acre feet. Diversion of water from the groundwater aquifer would represent

only a very small portion of available water. Surface disturbance caused by installation of these facilities would not likely result in any sedimentation in local streams.

***Alternative 2* – Haul Water:** The impacts would be similar to those described under Alternative 1.

***Alternative 3* – Reduced Cattle Numbers:** There would be no new impacts to the springs or riparian areas because the springs and riparian areas in upper Lee Canyon would not be developed, and cattle would continue to access existing water sources. Consumption rates from Trout Creek would be lower from mid to late summer due to reduced numbers of cattle, but consumption from other sources would remain the same along with current impacts to riparian areas.

***Alternative 4* – No Change:** Under the No Change alternative, the impacts would be similar to Alternative 3 except there would be no reduction in water consumption by cattle in the Trout Creek area.

Cumulative Impacts

The cumulative effects study area (CESA) is the Lee Canyon Watershed and the northern portion of the Trout Creek watershed. Cumulative effects to water quality and riparian areas occur as a result of drought, livestock grazing, livestock water consumption, and past mining. Water quality is negatively affected by these impacts but has not resulted in exceeding water quality standards within the CESA. If climate change results in reduced amounts of water, the negative impacts would increase but the Proposed Action and alternatives would not be expected to result in exceeding water quality standards; however, there could be some decrease in riparian values (i.e. less surface coverage, etc.). Periodic use in the Trout Creek Pasture would reduce the water demand in the Evans Flat/Lee Canyon area during those times.

3.2.5 Soil Resources and Air Quality

Affected Environment

Generally, soils in the Evans Flat Pasture are strongly influenced by gravels and stones in the surface soils with gravelly and stony loams in the Trout Creek area and Lee Canyon to very gravelly loams on the south slopes of Evans Flat and gravelly loams to loams on Evans Flat bench.

Soils at the low flow spring source in Lee Canyon are medium textured, have high organic matter content and are permanently moist. The soils under the aspen stand are typically more than 60 inches deep and somewhat poorly drained. The surface soils are thick, dark, and medium textured, with the underlying material typically medium to moderately fine textured with gravels. Soils where the moderate water flows arise in the main channel are composed mostly of gravels and cobbles on the surface with some finer soil particles mixed with the gravels and cobbles in the subsoils. The bottom and south slope of the canyon through which the pipeline would be placed are very gravelly loam

soils with stones/cobbles. The wind erosion hazard is slight for all soils. The water erosion hazard ranges from slight to moderate.

The soils on Evans Flat are loam and gravelly loam soils that are moderately deep to deep and well drained. Surface soils are moderately fine to medium textured and more than 10 inches thick to the subsoil with some soils having high volumes of rock fragments. The wind erosion hazard is slight, and the water erosion hazard is slight. Evans Flat is flat to gently rolling and the water erosion hazards are relatively low.

Few biological soil crusts have been observed in the project area. The gravelly soil surfaces in Lee Canyon would tend not to support biological soil crusts except possibly lichens. Much of the soil surfaces on Evans Flat were disturbed by the seed drilling operations during fire restoration work following the 1999 Sadler Fire. Since Evans Flat is now generally covered with grasses, the grasses would tend to suppress development of biological soil crusts.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** The low flow spring development would temporarily remove portions of the wetland soil at the lower end of the spring; however, the soil would be retained and placed back on the spring area after the spring box and collection pipe are installed. The spring soils should then quickly settle and stabilize.

Installation of the water collection box in the main channel where moderate flows of water are present would move the surface gravels and cobbles around and break up some of the compacted subsoils. The finer soil particles would more readily move downstream with the water flows.

Trenching and back filling the pipeline trench will generate dust in the air but only in the immediate vicinity of the work. The soils in Lee Canyon are largely gravelly loams and the soil surface after installation of the pipeline will likely continue to be very gravelly which should expose the soils to only minor amounts of wind and water erosion.

On Evans Flat, the soils affected by the trenching and trough installations would be susceptible to increased water erosion until vegetation reestablishes; however, because most of the bench is flat/gently rolling nothing more than minimal erosion (from wind or water) is expected. Once vegetation has reestablished on the surface of the pipeline trench, the potential for water erosion should return to a low level. Elevated levels of potential water erosion are expected to occur around the troughs (because of recent disturbance and removal of some vegetation), until they are compacted from livestock use. Compaction can accelerate runoff during precipitation events, but actual erosion should be minimal due to the flat and gently rolling terrain.

Alternative 1 **- Well and Pipeline System:** There would be no disturbance to the soils in Lee Canyon. The impacts on Evans Flat are similar to those described under the

Proposed Action with some additional surface disturbance up to 50 feet X 50 feet associated with drilling and operating the well which would be similar to the impacts around a trough.

***Alternative 2* – Haul Water:** Blading to level the existing dirt road leading up to Evans Flat would redistribute and smooth the soil at a couple of drainage crossings near Highway 278. Gravel would then be placed on the road to create a firm and stable surface, and would better resist water erosion. During these activities, additional dust would be in the air but only in the immediate vicinity of the work.

The impacts on Evans Flat are similar to those described under the Proposed Action; however, there would be no water storage tank or pipeline installed. There would be soil compaction and dust from the two-track roads that would develop from the water truck driving to and from the water troughs; however, dust in the air would be present only when the truck is moving, and actual erosion should be minimal due to the flat and gently rolling terrain. There could also be some rutting of the main access road leading up to Evans Flat and in the tracks leading to each trough during wet periods; however, the ruts in the gravel road would be either smoothed over using mechanical equipment such as a road grader or front-end loader and/or by the water truck driving over the surface as the surface dried. Ruts in the two-track roads on Evans Flat bench would be smoothed by the water truck driving over the surface as the surface dried. Surface disturbance from new two-track roads is estimated to be about one acre.

***Alternative 3* – Reduced Cattle Numbers:** There would be no new impacts to soil resources.

***Alternative 4* - No Change:** No new affects to soil resources would occur.

Cumulative Impacts

A higher degree of soil compaction would occur around the newly placed troughs, and on new trails created by cattle going to and away from the troughs. There would be additional compaction from the development of two-track roads during water hauling. Since the troughs and new two-track roads would be on relatively flat to low gradient areas on the bench, and the areas receiving higher degrees of compaction would be relatively small (less than two acres), water runoff and accelerated soil particle movement would be relatively minor.

3.2.6 Special Status Species, Migratory Birds and Other Wildlife

There are approximately 350 species of vertebrate wildlife that potentially occur in northeastern Nevada (See Appendix 3). Aspen, willows, pinyon pine, mountain mahogany, mountain brush and sagebrush/bunchgrass communities, rock outcrops on the uplands, and the mid elevation grassland bench of Evans Flat provide habitat for at least 250 species of vertebrate wildlife on a seasonal or yearlong basis. This includes small and large mammals, birds, amphibians, and reptiles, some of which are considered

Special Status Species, Candidate Species, and BLM Sensitive Species. Definitions of special status species can be found in Appendix 2.

Candidate Species for Federal Listing

Yellow-billed cuckoo

Affected Environment

The Nevada Department of Wildlife's (NDOW) 2006 Wildlife Species List, for areas that include the Pinon Range, includes the yellow-billed cuckoo, a candidate species. This information was coordinated by NDOW with the U. S. Fish & Wildlife Service. The yellow-billed cuckoos are riparian obligates. Suitable habitat would include willow cover for foraging areas and cover. There are no known specific habitat areas such as roosting, nesting or foraging sites within the allotment. A dead bird was confirmed as a yellow-billed cuckoo from the Ruby Lake Refuge in eastern Elko County in 1972 (a new record for northeastern Nevada). Another site record was recorded for inclusion in the Breeding Bird Atlas near the confluence of Huntington Cr. and South Fork Humboldt River in Elko County around 2000. The BLM has not been made aware of any other documented observations or site records in Elko County by any agency or academia personnel, or the general public.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** There would be the potential loss of up to 1.5 acres (7.5%) out of a total of 20 acres of woody riparian shrubs and trees in Lee Canyon. However, if 1.5 acres of habitat were lost, it is not considered significant because most of the shrub and tree habitat would still be present. The yellow-billed cuckoo, if present, may temporarily avoid the construction area when the water box and pipeline are being installed (one to two weeks) and during maintenance/operation activities (a few hours over a couple of days each year), although the effects would be temporary and they would readily return to the area thereafter. In accordance with the environmental design/resource protection measures, if a yellow-billed cuckoo is observed nesting in Lee Canyon and the construction activities would not be able to avoid disturbing it, construction activities would be delayed until after the young birds have fledged.

Alternative 1 **- Well and Pipeline System:** There would be little if any effect on the yellow-billed cuckoo because potential habitat in Lee Canyon would not be affected.

Alternative 2 **– Haul Water:** The impacts would be the same as Alternative 1.

Alternative 3 **– Reduced Cattle Numbers:** No new affects to the potential habitat for the yellow-billed cuckoo would occur.

***Alternative 4* - No Change:** No new affects to the potential habitat for the yellow-billed cuckoo would occur.

Cumulative Impacts

The riparian zone in Lee Canyon may reduce in size as a result of the Proposed Action. Climate change could result in less water to support the riparian zone which would exacerbate the potential effects of the Proposed Action, and add negative impacts to all of the alternatives as they pertain to potential yellow-billed cuckoo habitat.

Greater Sage Grouse

Affected Environment

On March 5, 2010, the U.S. Fish and Wildlife Service announced Proposed Rules* in the Federal Register for the notice of 12-month findings for petitions to list the greater sage grouse as a threatened or endangered species. The Fact Sheet for this finding iterated the following:

> **"After thoroughly analyzing the best scientific and commercial information available, the Fish and Wildlife Service has concluded that the greater sage-grouse warrants protection under the Endangered Species Act. However, the Service has determined that proposing the species for protection is precluded by the need to take action on other species facing more immediate and severe extinction threats. As a result, the sage-grouse will be added to the list of species that are candidates for Endangered Species Act protection. The Service will review the status of the sage-grouse annually, as we do all candidate species, to determine whether it warrants more immediate attention*."

The Proposed Rules were formally announced in the Federal Register on March 23, 2010 under the following reference: 13910 Federal Register / Vol. 75, No. 55 /Tuesday, March 23, 2010 /Proposed Rules.

The Evans Flat area is within the South Fork Sage Grouse Population Management Unit (PMU) in Northeastern Nevada considered under the 2001 Governor's Nevada Sage Grouse Conservation Strategy and 2004 Elko County Sagebrush Ecosystem Conservation Strategy by the Northeastern Nevada Stewardship Group Inc. (NNSG). Sage grouse are dependent on sagebrush habitats. Sagebrush provides the primary source of food and cover in winter and fall. In spring and summer, sage grouse feed on herbaceous vegetation and insects, and nest under sagebrush. Wetland and riparian areas provide important brood rearing habitat. As of 2009, four leks/lek complexes were identified within 6 miles of Evans Flat. A sage grouse lek is a courtship display area for breeding also known as a "strutting ground". The lek areas form undefined "core areas" for associated nesting/early (upland) brood-rearing, summer/late (riparian/meadow) brood-

rearing and fall/winter habitat. Most nesting occurs within 2 – 3 miles of leks and that reestablishing sagebrush in burned areas improves the chances that sage grouse will reestablish in the area. (Greater Sage Grouse Conservation Plan for Nevada and Eastern California). Although the Evans Flat area is more than a few miles from known leks, there could be sage grouse movements into the area from other areas relatively far away as individual or groups of grouse seek seasonal use areas.

The limited riparian areas in upper Lee Canyon provide water sources for sage grouse to drink, and succulent forbs and insects for food. The riparian vegetation is almost all woody shrubs and trees which are not food sources for sage grouse, but there would be some sagebrush, forbs, and insects in the adjacent uplands that would provide food sources.

Prior to the 1999 Sadler Fire, the Evans Flat upland bench area would have provided potential sage grouse habitat including lekking, nesting and early (upland) brood-rearing and fall/winter habitat. The Evans Flat area was searched by helicopter for undocumented leks in 2004 and 2009 and no leks were located. As of 2011, the only intact sagebrush grasslands are located on the northern fringe areas of Evans Flat and seasonal use either does not occur or is limited to areas in close proximity to areas with sagebrush cover. The fire burned the sagebrush thus habitat will continue to be very limited on the bench until sagebrush becomes re-established with a high percentage of the area with approximately 8-15% shrub foliar cover. Sagebrush/other shrub foliar cover is currently less than 1% on the bench.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** Capturing and piping water from one of the water sources in Lee Canyon would still leave water in the area for sage grouse to drink, and water collected in the water troughs on Evans Flat would provide additional alternate watering sites for wildlife, including the sage grouse. Small animal/bird escape ramps to be installed in the troughs would prevent accidental drowning of birds and other animals. The top edges of the troughs would only be about 20 inches from the ground which would give raptors little to no advantage when using them as perches to search for sage grouse.

During construction activities, the chances of sage grouse being present are low because there is little habitat for them in Lee Canyon and there is a very low amount of sagebrush habitat for them on Evans Flat bench. However, if they are present, sage grouse are quite mobile and would run or fly away from the human activities but would be expected to remain in the area and return after the activities have ended. Construction activities would occur for about 8 hours/day over a 3 – 4 week time period. Disturbances to sage grouse during annual operation and maintenance activities would occur for only brief periods in any one area. For example, the permittees would spend a few hours in the spring and fall to turn the pipeline system on/off and make sure the float valves on each trough are functioning properly and otherwise adjusting the pipeline system. In addition, the permittees would be checking the area for about one to two hours once a week over a

six month period each year to make sure there is water in the troughs and to remove algae and other debris. Again, if they are present, sage grouse are quite mobile and would run or fly away from the human activities but would be expected to remain in the area and return after the activities have ended.

If sage grouse were to nest on Evans Flat, now or when sagebrush again reestablishes across the bench, cattle voluntarily moving around the bench could disturb nesting sage grouse; however, the chances of causing sage grouse to abandon their nests or cattle damaging their eggs is very low unless stocking rates are unacceptably high or cattle are bunched and driven through a nest site.

Cattle are normally turned into the Evans Flat Pasture in the spring by opening the gates on private land fields at the western edge of the pasture and letting the cattle freely move into the pasture and up onto Evans Flat bench without being herded, thus there should be no disturbances from cattle being bunched and driven through the area. When cattle or bison were grazed during the peak of hen attendance at leks on a ranch in Utah, no changes in grouse attendance or behavior were observed, and sage grouse nests that were monitored showed none were abandoned while cattle or bison grazed in the pastures. In addition, artificial nests were placed in a sagebrush pasture having high cattle density (nearly two cow/calf pairs/acre) and of the 30 eggs placed in 10 nests, only one egg was stepped-on by cattle. (Danvir 2002). Much of the literature suggests that stocking rates $\leq$ 0.4 ha/AU are likely to increase trampling losses. (Schultz 2010). This equates to a stocking rate of one cow/acre. The permittees normally graze 300 cattle or less on the Evans Flat Pasture. If all 300 cattle were to graze on Evans Flat bench, the stocking rate would be about one cow/10 acres (300 cattle over 3,000 acres) which indicates that trampling losses from cattle would likely be minor. Furthermore, limited research suggests cattle avoid placing their hooves on the locations that many birds nest, particularly at the stocking rates found on most sagebrush rangelands. (Schultz 2010).

Providing water on Evans Flat bench would allow the cattle to thoroughly graze the bench area and would allow for more of the cattle herd to remain on the bench. When the cattle graze the bench during the growing season, the growth and vigor of the grazed grasses could be reduced; however, if utilization is managed as described under the environmental design/resource protection measures of the Proposed Action, the impact on grass vigor should be modest and leave an acceptable level of hiding cover for wildlife. When the grass vigor is suppressed due to grazing during the growing season, sagebrush seedlings would have a better chance of establishing which would accelerate the return of sagebrush to the burn area thereby improving habitat for the sage grouse. Sagebrush/ other shrub foliar cover is currently less than 1% on the Evans Flat upland bench. This low percentage of sagebrush/other shrub foliar cover is large scale habitat fragmentation cause by the Sadler Fire of 1999; thus, leaving opportunity for project developments with minimal to no additional habitat fragmentation occurring within the project area. This habitat fragmentation is considered to be a short term effect on the environment only because the sagebrush steppe will eventually re-develop itself over time. However, the Evans Flat pipeline will be built next to an existing mining road that will even further reduce the effect of a long term habitat fragmentation due to the

pipeline; this is due to the fact that the existing mine road is considered a long term type of habitat fragmentation that has already occurred with no influence from the installation of the Proposed Action.

Regarding the potential for transmission of West Nile Virus, the water troughs could provide a relatively minor amount of additional habitat for mosquitos to lay their eggs. Habitat suitable for mosquito reproduction is already present from the waters in Mill Creek and Lee canyons. The additional habitat that could be created around the troughs would be from water spilling out of the troughs and maintaining wet spots/puddles on the ground and/or from water left in the troughs after the cattle have been removed. When the cattle are in the pasture, they would be drinking from the troughs and fresh water would be flowing into the troughs through the pipeline which would make the water unattractive to mosquitos that need standing/still water for their eggs to mature. The cattle would also be walking around the troughs enough to disturb any wet spots thereby minimizing mosquito reproduction. Overflow or wet areas that settle in hummocky areas around the troughs when the cattle are not in the pasture could also be a breeding source for mosquitoes. In addition, standing/still water left in the troughs after the cattle are removed, along with the growth of algae in the troughs on which mosquitos could lay their eggs, could provide habitat for mosquito reproduction. However, if the environmental design/resource protection measures are followed, such as installing float valves to prevent trough overflows and removing algal growth and other debris, there should be little if any increase in areas where mosquitos could reproduce and therefore little to no additional risk created for the transmission of West Nile Virus.

Alternative 1 **- Well and Pipeline System:** The effects of this alternative on sage grouse in the Evans Flat area would be similar to the Proposed Action. One difference between this alternative and the Proposed Action is that no water would be piped from Lee Canyon; therefore, there would be no decrease in water to drink in Lee Canyon and the extra water could support more insect production as a food source for sage grouse. There would be increases in human activity during construction for about 8 – 12 hours/day over a 3 – 5 week time period, and from the permittees checking the well and trough system every few days over six months of time instead of being in the area once a week under the Proposed Action. Although it is unlikely that sage grouse would be present on Evans Flat during construction activities because of the low amount of sagebrush, if sage grouse were present, the level of disturbance may cause the sage grouse to run or fly away from the immediate area of activity, but they would be expected to readily return to the area thereafter. The sage grouse would also be expected to readily return to the area following human activities associated with operation and maintenance.

Regarding cattle disturbances to sage grouse, particularly during the nesting period, the impacts would be similar to those described under the effects of the Proposed Action. No additional habitat fragmentation will occur from this action.

Alternative 2 **– Haul Water:** The impacts would be similar to those described for Alternative 1; however, there would be an increase in human activity from the permittees hauling water every day for three months and then once a week for three additional

months. Again, if sage grouse are in the area, they would run or fly away from the immediate area of activity, but would be expected to return to the area thereafter. No additional habitat fragmentation will occur from this action.

***Alternative 3* – Reduced Cattle Numbers:** There would be no new impacts to sage grouse habitat in Lee Canyon or Evans Flat and there may be some positive effect in the Trout Creek use area. The closest sage grouse lek to the Trout Creek use area in the Evans Flat Pasture is about 3 miles to the south, thus sage grouse are likely to use the Trout Creek area. Sage grouse have recently been observed along the middle fork of Trout Creek in the Trout Creek Pasture about 3/4th mile south of the Trout Creek Pasture Fence. Under this alternative, the reduction of cattle in the Trout Creek area beginning in mid-July may result in a modest improvement to sage grouse habitat. By mid-July, sage grouse would be attracted to the riparian areas for brood-rearing. Most of the riparian habitat in the Trout Creek area is located in the Trout Creek Pasture which is immediately adjacent to and south of the Trout Creek use area in the Evans Flat Pasture. Cattle grazing on the north side of the fence have access to only short stretches of Trout Creek at the water gaps; however, the reduction or removal of cattle from these water gaps in the summer would let the forbs re-grow and provide some food for sage grouse and their young. No additional habitat fragmentation will occur from this action.

***Alternative 4* - No Change:** No new impacts would occur to sage grouse or their habitat.

Cumulative Impacts

Sagebrush is expected to reestablish on Evans Flat with sufficient cover to provide sage grouse nesting and early brood rearing habitat in 15 to 25 years. Any priority to complete artificial sagebrush seeding efforts could accelerate the establishment of sagebrush on Evans Flat. In the future, livestock grazing could exceed the utilization levels allowed under the project design/resource protection measures. If this occurs, and there is sufficient sagebrush cover to attract sage grouse nesting and brood rearing, the levels of hiding cover for nesting and early brood rearing would be diminished and could adversely affect nesting success and brood survival. However, adjustments in livestock use, if necessary, would be made as noted in the project design/resource protection measures to deal with this potential issue. If future fires burn/reburn Evans Flat, habitat for sage grouse would continue to be greatly diminished in the area.

Nevada BLM Sensitive Species

Pygmy Rabbits

Affected Environment

Pygmy rabbits are a BLM Sensitive Species that were petitioned for listing as threatened or endangered under the Endangered Species Act. As of September 29, 2010, the U.S. Fish and Wildlife Service determined that, "… pygmy rabbit does not warrant protection

under the Endangered Species Act." This does not downplay the need for collective land management actions to conserve, enhance or protect pygmy rabbit habitat.

Pygmy rabbits are found in a variety of vegetation types that include big sagebrush that are suitable for creating their burrow system. Pygmy rabbits typically occur in areas supporting tall, dense sagebrush and deep friable soils required for excavating burrows. Sagebrush, forbs and grasses are utilized as forage with percentages of intake variable on a seasonal basis. No known formal surveys have been completed in the Proposed Action area; however, pygmy rabbits have been observed on the lower eastern flanks of the Pinon Mountain Range and to the northwest between Palisades and Interstate 80. Generally, the rocky and gravelly soils in the Evans Flat Pasture are not typical soils for pygmy rabbit burrow systems. However, there are some patches of deeper soils and taller sagebrush on the toe slopes of the low elevation hills and fans adjacent to Trout Creek that may be suitable for burrows but most of these areas are on private lands owned by the livestock permittees.

Direct and Indirect Effects of Alternatives

Proposed Action **- - Spring Development and Pipeline System:** It is unlikely that pygmy rabbits would be found in the project area due to gravelly soils and the low levels of sagebrush on Evans Flat. Pygmy rabbits are dependent on sagebrush for winter forage and cover from predators. If pygmy rabbits are present, they would likely hide in their burrows when construction, maintenance and operation activities are occurring nearby but these impacts would be temporary and minor.

The potential for cattle to trample burrow entrances is low because pygmy rabbits often dig the entrances to their burrows near the base of big sagebrush and cattle usually step around shrubs because they are an obstruction to movement and grazing.

Providing water on Evans Flat bench would allow the cattle to thoroughly graze the bench area. When the cattle graze the bench during the growing season, the growth and vigor of the grazed grasses would be reduced; however, if utilization is managed as described under the environmental design/resource protection measures of the Proposed Action, the impact on grass vigor should be modest and leave an acceptable level of forage and hiding cover for pygmy rabbits. When the grass vigor is suppressed due to grazing during the growing season, sagebrush seedlings would have a better chance of establishing which would accelerate the return of sagebrush to the burn area thereby improving habitat for pygmy rabbits.

Alternative 1 **- Well and Pipeline System:** The impacts to pygmy rabbits would be similar to the Proposed Action; however, checking the well system every few days for six months each year would introduce more human activity. The additional activity may prompt the rabbits to hide in their burrows but the frequency and duration of activity should have only a minor impact.

***Alternative 2* – Haul Water:** The impacts would be similar to the Proposed Action; however, hauling water every day for several months each year would introduce more human activity. The additional activity may prompt the rabbits to hide in their burrows but the frequency and duration of activity should have only a minor impact.

***Alternative 3* – Reduced Cattle Numbers:** There would be no new potential impacts to pygmy rabbits or their habitat in the Lee Canyon/Evans Flat area because there would be no new water development. Reducing cattle numbers in the Trout Creek area beginning in mid-July would leave more grass forage for the rabbits in that area if they are present; however, the permittees could fence their private lands where most of the suitable habitat is located in lower Trout Creek and graze them with their cattle through the grazing season resulting in little to no change from the current situation.

***Alternative 4* – No Change:** There would no new impacts.

Cumulative Impacts

Sagebrush is expected to reestablish on Evans Flat and again dominant the area in 15 to 25 years which should improve habitat for pygmy rabbits, if present. Successful artificial sagebrush seeding efforts could accelerate the reestablishment of sagebrush. Assuming the rabbits are present in the area, if grazing results in utilization levels in excess of the levels described under the project design/resource protection measures applicable to the Proposed Action and Alternatives 1 and 2, the levels of forage and hiding cover for the rabbits would be diminished. However, adjustments in livestock use, if necessary, would be made as noted in the project design/resource protection measures to deal with this potential issue. If future fires burn/reburn Evans Flat or more of the lower Trout Creek area, habitat for pygmy rabbits would continue to be greatly diminished in the area.

Raptors (Hawks, Falcons, and Eagles and Owls)

Affected Environment

Bald eagles - The bald eagle is a migrant and potential winter resident on the area including the nearby private lands in Pine Valley that provide foraging areas on wetlands, riparian areas, irrigated hayfields and uplands with shrub cover. Foraging areas within suitable winter habitat is widely dispersed over tens of thousands of acres on uplands, irrigated lands and riparian areas throughout the Elko District. This has been documented during formal surveys completed through coordination by BLM and the Nevada Department of Wildlife. Areas that provide intact habitat with shrub cover for prey species and adjoining areas with open water foraging areas increase the suitability of use of habitat on the area. There are no known specific habitat areas such as roosting, nesting or foraging sites in the Lee Canyon or Evans Flat area.

Golden eagles – Golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The area provides foraging habitat where prey species are primarily small mammals.

Prairie falcons - The area provides foraging habitat for this species where prey species are primarily small mammals.

Northern goshawks - Aspen stands in Lee Canyon provide potential nesting habitat. The area provides foraging habitat for this species where prey species are primarily small mammals and birds.

Swainson's hawks – Aspen and narrowleaf cottonwood stands in Lee Canyon provide primary potential nesting habitat. Riparian areas on the Proposed Action area and adjoining uplands provide foraging habitat during the summer period, and during migration or seasonal movement events.

Ferruginous hawks – In Nevada, this species prefers to nest in scattered juniper woodlands that are found on the edge of salt desert shrub or sagebrush vegetation types overlooking broad valleys. They could also nest on the top of "tall" sagebrush/other shrubs, rock outcrops, manmade structures or on deciduous trees such as quaking aspen or cottonwoods. Tall sagebrush/other shrubs could be defined as shrubs existing at about six feet in height or higher which keeps the nest out of the reach of potential ground-dwelling predators such as coyotes. Relative to the area, nesting could occur in aspen and pinyon pine trees in Lee Canyon. Otherwise, the area provides foraging habitat for ferruginous hawks associated with migration or seasonal movement events. Nest sites have been documented by NDOW biologists to the southwest in Pine Valley.

Short-eared owls - The area provides foraging and nesting habitat for this ground-nesting species. The short-eared owl nests on the ground, unlike most other owls. Nests are usually situated in the shelter of a grass mound, under a grass tuft, or among herbaceous ground cover. Nests are loosely constructed by the female, who scrapes a spot on the ground and then lines the scrape with grass stems, herb stalks, and feathers plucked from her breast. This species' foraging areas include riparian/meadow habitat.

Long-eared owls - The area provides potential habitat for this tree-nesting species. BLM personnel have observed this species nesting and roosting in two separate areas in willow stands on the flanks of mountains on the Tuscarora Field Office area.

Burrowing owls - This species could occur on the area. Abandoned mammal burrows, such as those created by badgers, help to provide nesting habitat. This species tends to use disturbed or open sites with minimal vegetation for nesting and loafing, such as recent burned areas, moderately to heavily grazed areas, or areas near troughs, corrals, or livestock mineral licks where open terrain exists. This may be due to the lack of vegetation at these sites that allows increased visibility from the burrow entrance. Burrowing owls use shredded horse or cow manure to line their nests, possibly to mask nest-odors as a predator avoidance strategy.

Direct and Indirect Effects of Alternatives

***Proposed Action* - Spring Development and Pipeline System:** There would be the potential loss of up to 1.5 acres (7.5%) out of a total of 20 acres of woody riparian shrubs and trees in Lee Canyon from project-associated de-watering which would reduce nesting habitat for avian species such as Swainson's hawks, Ferruginous hawks, and Long-eared owls. There would also be some reduction of foraging areas associated with the potential loss of woody riparian shrubs and trees. However, if 1.5 acres (7.5%) of habitat were lost, it would not be considered significant because most of the shrub and tree habitat would still be present.

On Evans Flat, new locations for raptors to drink water would be created at the new troughs. As the sagebrush reestablishes in the area, the open sites around the troughs would tend to be maintained by cattle use and could provide nesting and loafing habitat for burrowing owls. If the environmental design/resource protection measures are followed, such as preventing trough overflows and limiting algal growth, there should be little if any increase in areas where mosquitos could reproduce and therefore little to no additional risk created for the transmission of West Nile Virus.

There is potential for Short-eared owls that are nesting to be disturbed by construction and/or operation/maintenance activities. There is also the potential for cattle grazing in the area to disturb nesting owls or damage eggs in the nest. However, prior to construction, the area would be surveyed to detect any Short-eared owls/nests on the ground. If any nests are found, the pipeline and/or trough(s) would be relocated so as to avoid disturbing the nest site(s). During operation and maintenance activities, owls nesting close to the activities may run or fly away temporarily. Generally, human activities would be of short duration in any one area while either driving along the pipeline route or stopping to check/clean each trough (15 minutes) which should have little to no consequence to the success of nesting owls.

Regarding the potential impacts of cattle stepping on Short-eared owl's nests or the burrows of burrowing owls, the impacts should be minor. Much of the literature suggests that stocking rates ≤ 0.4 ha/AU (hectares/cow) are likely to increase trampling losses. (Schultz 2010). This equates to a stocking rate of one cow/acre. The permittees normally graze 300 cattle or less on the Evans Flat Pasture. If all 300 cattle were to graze on Evans Flat bench, the stocking rate would be about one cow/10 acres (300 cattle over 3,000 acres) which indicate that trampling losses from cattle would likely be minor. Furthermore, limited research suggests cattle avoid placing their hooves on the locations that many birds nest (raised grass bases and shrubs), particularly at the stocking rates found on most sagebrush rangelands. (Schultz 2010). This also indicates that cattle would tend to avoid stepping on the raised mounds of burrowing owl burrows.

Livestock use would reduce the forage and cover important for the reproduction of small animals that are preyed upon by raptors; however, if utilization is managed as described under the environmental design/resource protection measures of the Proposed Action, the amounts of forage and cover for the prey species should be adequate to sustain their populations. In addition, when the grass vigor is suppressed due to grazing during the growing season, sagebrush seedlings would have a better chance of establishing which

would accelerate the return of sagebrush to the burn area thereby generally improving habitat for the prey species.

Raptors may temporarily avoid the area with the increase in human activities during construction and maintenance/operation, although the effects would be temporary and they would readily return to the area thereafter. In accordance with the environmental design/resource protection measures, if any eagles, hawks, or owls are observed nesting near where the construction activities would occur in Lee Canyon, and the construction activities would not be able to avoid disturbing them, construction activities would be delayed until after the young birds have fledged.

Alternative 1 **- Well and Pipeline System:** Since there would not be any water development in Lee Canyon under this alternative, there would be no potential loss of the woody riparian shrubs and trees or disturbances to raptors nesting in the canyon. The remaining impacts would be similar to those described under the Proposed Action.

Alternative 2 **– Haul Water:** Impacts would be similar to Alternative 1.

Alternative 3 **–** Reduced Cattle Numbers**:** There would be no new potential impacts to raptors or their habitat in the Lee Canyon/Evans Flat area because there would be no new water development. Reducing cattle numbers in the Trout Creek area beginning in mid-July would leave more grass forage for the species on which raptors prey thereby improving the prey habitat; however, the permittees could fence their private lands in lower Trout Creek and graze them with their cattle through the grazing season resulting in less of an improvement in forage for prey.

Alternative 4 **- No Change:** There would be no new impacts related to raptors.

Cumulative Impacts – The reestablishment of sagebrush on Evans Flat over the next 15 to 25 years would generally improve habitat for the species upon which raptors feed; however, if the area were to reburn, sagebrush habitat for the prey species would again be diminished.

Nevada BLM Sensitive Species – Passerines (Songbirds)

Affected Environment

Vesper sparrows – This species is a ground-nester associated with sagebrush grasslands and riparian areas providing water sources and areas for forage diversity.

Pinyon jay – The area, with surrounding juniper woodlands, provides suitable habitat for this species.

Juniper titmouse – The area, with surrounding juniper woodlands, provides suitable habitat for this species.

Yellow-breasted chat - Primary nesting and foraging habitat for this species occurs on montane riparian habitat type, including willow stands potentially provided on the area.

Loggerhead shrike – Potential nesting habitat is provided on the area primarily by basin and Wyoming big sagebrush. Foraging habitat and water sources are provided on the area.

Direct and Indirect Effects of Alternatives

***Proposed Action* - Spring Development and Pipeline System:** Up to 1.5 acres (7.5%) of the montane woody riparian shrubs and trees in Lee Canyon, out of a total of 20 acres, could be lost under this alternative. This could result in a potential loss of nesting and foraging habitat for the yellow-breasted chat, and some loss of foraging habitat for other species. However, the potential loss of up to 1.5 acres of the woody riparian shrub and tree habitat is not considered significant because most of the shrub and tree habitat would still be present.

Water that would be in the troughs on Evans Flat would be new locations at which the songbirds could water. If the environmental design/resource protection measures are followed, such as preventing trough overflows and limiting algal growth, there should be little if any increase in areas where mosquitos could reproduce and therefore little to no additional risk created for the transmission of West Nile Virus.

Songbirds may temporarily avoid the area with the increase in human activities during construction and maintenance/operation, although the effects would be temporary and they would readily return to the area thereafter.

There would be some increased level of livestock disturbance to songbirds that may nest and rear their young on Evans Flat when the pipeline system is activated and cattle graze the area during the nesting and early brood rearing times. Since there is little to no sagebrush on Evans Flat due to fire, the songbirds would be ground nesters such as Vesper sparrows. However, shifting more cattle numbers to Evans Flat would reduce cattle numbers and disturbance to songbirds elsewhere in the pasture, particularly the Trout Creek area. Grazing the area would be by small dispersed groups of cattle that would spread out across the broader uplands to which wildlife in the area would adjust. Regarding the potential impacts of cattle stepping on ground nesting birds, the impacts should be minor. Much of the literature suggests that stocking rates ≤ 0.4 ha/AU are likely to increase trampling losses. (Schultz 2010). This equates to a stocking rate of one cow/acre. The permittees normally graze 300 cattle or less on the Evans Flat Pasture. If all 300 cattle were to graze on Evans Flat bench, the stocking rate would be about 10 acres/cow (300 cattle over 3,000 acres) which indicate that trampling losses from cattle would likely be minor. Furthermore, limited research suggests cattle avoid placing their hooves on the locations that many birds nest (raised grass bases and shrubs), particularly at the stocking rates found on most sagebrush rangelands. (Schultz 2010).

Residual grass cover on Evan Flat from prior year(s) and current year's growth at various heights would help provide forage and cover diversity for songbirds. If excessive grazing use occurs, adjustments would be made to prevent that from occurring in the future as stated under the environmental design/resource protection measures.

Alternative 1 **- Well and Pipeline System:** The impacts would be similar to those described under the Proposed Action; however, there would be no potential loss of riparian habitat in Lee Canyon since there would be no water development in that area. Water that would be in the troughs on Evans Flat would be new locations at which the songbirds could water. There would be an increase in human activity compared to the Proposed Action due to the permittees checking the well every few days as opposed to once a week; however, wildlife would temporarily run or fly away from the immediate area of activity and would be expected to readily return thereafter.

Alternative 2 **– Haul Water:** The impacts would be similar to those described for Alternative 1; however, hauling water to the troughs for one to two hours every day for 3 months would bring more human activity to the area. The increased activity would cause some additional disturbances to wildlife; however, wildlife would temporarily run or fly away from the immediate area of activity and would be expected to readily return when the haul truck has left the vicinity.

Alternative 3 **– Reduced Cattle Numbers:** There would be no new potential impacts to songbirds or their habitat in the Lee Canyon/Evans Flat area because there would be no new water development. Reducing cattle numbers in the Trout Creek area beginning in mid-July would probably have little to no effect on songbirds because it would be after the nesting season and the young would have fledged.

Alternative 4 **- No Change:** There would be no new impacts to songbirds.

Cumulative Impacts

Impacts would be similar to those described for sage grouse.

Nevada BLM Sensitive Species – Bats

Affected Environment

The general area provides roost sites associated with the trees, rock outcrops, and mine shafts in Lee Canyon. There are a couple of mine shafts at the upper end of Lee Canyon. Bats drink from areas with open water. Riparian areas also produce and attract the majority of the insect forage base for bats. Foraging area diversity is provided on the riparian areas associated with Lee Canyon and Mill Creek Canyon.

Small-footed myotis (*Myotis ciliolabrum*). This species could occur on the area. This species has been observed in the Ruby Mountains east of the allotment and in a variety of

habitats in eastern Nevada, including springs, canyons, coniferous forests, and deciduous forests. Roosting occurs primarily in caves or mine shafts or adits.

Long-eared myotis (*Myotis evotis*). This species is relatively common throughout northeastern Nevada and could occur in the Lee Canyon area. This species is often associated with mid-elevation pinyon pine and Utah juniper woodlands and is dependent upon natural springs within these woodland types as water sources. It has also been reported to be found within a variety of other habitats.

Long-legged myotis (*Myotis volans*). This species uses a variety of sites for roosting, including trees. They could also roost in any rock crevices that occur on the associated canyon area.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** The diversion of water into the pipeline could result in a potential reduction of up to 1.5 acres out of 20 acres of the woody riparian shrubs and trees in Lee Canyon. These woody riparian areas would have higher insect production compared to the uplands. The potential reduction of these areas could reduce the insect prey base; however, it is not considered significant because most of the shrubs and trees would persist. The water at the new trough locations on Evans Flat could attract more insects to the area and increase the prey base for bats. Otherwise, bats would continue to forage for insects on upland areas on Evans Flat. The proposed water sources mostly flow within a relatively closed aspen stand which would naturally limit bat access to these water sources. The water in the new troughs would provide additional open water locations for the bats to drink.

Alternative 1 **- Well and Pipeline System:** The water at the new trough locations on Evans Flat could attract more insects to the area and increase the prey base for bats. The water in the new troughs would also provide additional open water locations for the bats to drink.

Alternative 2 **– Haul Water:** The impacts would be the same as described for Alternative 1.

Alternative 3 **– Reduced Cattle Numbers:** There would be no new water available for bats to drink because no water project would be installed on Evans Flat. Reducing cattle numbers in the Trout Creek area beginning in mid-July would probably have little to no impact on bats.

Alternative 4 **- No change:** There would be no new impacts to bats.

Cumulative Impacts

Future fires could alter vegetation types which could adversely affect the production of insects that provide food for bats.

Big Game – Mule Deer and Antelope

Affected Environment

Mule Deer (Resource Management Plan-featured species) - The Lee Canyon/Evans Flat area is within Management Area (MA) 6 - Unit 065 as delineated by the Nevada Department of Wildlife (NDOW). Upper Lee Canyon and adjacent range are classified as deer summer range (approx. May 2 to Oct. 14). However, intermediate range (approx. Oct 15 – Dec 14 and March 16 – May 1) use also occurs on the same area. The Lee Canyon drainage, having willow and aspen cover, coupled with upland perennial herbaceous vegetation, likely provides historic summer fawn-rearing cover as well as being able to provide forage diversity on a yearlong basis. The Evans Flat area would provide for some spring and fall use; however, the 1999 Sadler Fire eliminated most of the sagebrush in the area which would likely prompt deer to move through the area and not linger.

The upper Trout Creek area is considered summer and fall range for mule deer. As a result of the 1999 Sadler Fire, many bitterbrush plants were lost. Bitterbrush is a plant that helps to provide forage and cover diversity for many wildlife species and is the key browse species for analyzing the condition of this vegetative component for mule deer habitat on the pasture. Currently, there are light densities of bitterbrush plants in upper Trout Creek on the bench and associated drainages between the Trout Creek Pasture Fence and the North Fork of Trout Creek. There are also some bitterbrush plants on Ravens Nest Mountain just above the bench where it is mixed with Pinyon pine and Mountain mahogany trees. The cattle mostly graze the bitterbrush on the bench and adjacent drainages but make little use of bitterbrush on the slopes of Ravens Nest Mountain. Monitoring between 1995 and 2010 has indicated that bitterbrush age and form class has been unsatisfactory due to chronic heavy (61-80%) to severe grazing use (81-100%) except when data were collected in 2001 when the pasture had been rested from livestock use following the Sadler Fire. In 2001, bitterbrush age and form class were satisfactory. In 2003, 2008, and 2010, utilization on bitterbrush was 77%, 93% and 96%, respectively. In 1995, 89% utilization was observed. The utilization objective for bitterbrush is 50% on the pasture. Bitterbrush age and form class, and utilization samples, did not include plants killed by 1999 Sadler Fire. Literature regarding bitterbrush utilization suggests that sustained use of 80% or more could eventually weaken or kill plants (Shepherd 1971).

The following excerpt is taken from NDOW's 2009-10 Big Game Status report for Unit 065:
Population Status and Trend - "Poor habitat conditions have resulted in population levels that are below historic levels. The trend of this deer population is believed to be stagnant."

The availability of habitat with adequate cover and forage diversity is presently considered to be a critical limiting factor for the affected mule deer population.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** The Proposed Action could have a minor impact on fawn rearing cover and deer browse in Lee Canyon due to the potential reduction of a portion of the woody riparian habitat. The new water troughs on Evans Flat would provide additional water sources on the uplands for deer. Deer and fawns may be displaced with the increase in human activities during construction and maintenance/operation, but are expected to readily return to the area following these activities.

Cattle grazing during the growing season would likely reduce the vigor of the grasses which would allow more sagebrush seedlings to establish and accelerate the return of sagebrush to the burn area. Sagebrush is expected to reestablish to relatively higher cover percentages on Evans Flat in 15 to 25 years which would improve mule deer habitat.

Alternative 1 **- Well and Pipeline System:** Impacts would be similar to those described under the Proposed Action; however, there would be no water development in Lee Canyon thus there would be no new impacts in that area.

Alternative 2 **– Haul Water:** The impacts would be similar to those described for Alternative 1.

Alternative 3 **– Reduced Cattle Numbers:** There would be no change in impacts to mule deer or their habitat in the Lee Canyon/Evans Flat area because no new water development would be installed. The removal of all or most of the cattle grazing in the upper Trout Creek area beginning in mid-July should reduce cattle use on bitterbrush leaving more of the new stem/leader growth as browse for mule deer.

Alternative 4 **- No Change:** There would be no new impacts to mule deer.

Cumulative Impacts

Past fires have dramatically reduced sagebrush on the area. Sagebrush is an important shrub for both forage and cover for mule deer. Fires that re-burn areas where sagebrush plants are reestablishing, or that burn new areas, would continue to diminish mule deer habitat. Burning/re-burning the upper Trout Creek area which grows the remaining bitterbrush in the area since the area burned in 1999 would likely result in few bitterbrush plants surviving in the area.

Pronghorn Antelope – Pronghorn have been observed on the area by BLM personnel in 2010 and other times since the 1999 Sadler Fire. The Lee Canyon/Evans Flat area is designated as antelope summer range by NDOW. The Evans Flat area would also be considered spring and fall range for antelope. The lower elevations below Evans Flat would be considered winter range. The 1999 Sadler Fire burned most of the sagebrush

on Evans Flat creating a grassland appearance with isolated to scattered sagebrush, and islands of sagebrush, which is attractive to antelope.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** There would be little to no impact on antelope browse from the potential reduction of woody riparian shrubs and trees in Lee Canyon because most of the shrubs and trees would remain. The new water troughs on Evans Flat would provide water on the bench versus down to perennial water sources in Lee Canyon and Mill Creek Canyon. Water at the troughs would likely not be available when cattle use does not occur on Evans Flat and water is turned off. Antelope may avoid the area with the increase in human activities during construction, maintenance/operation, although the effects would be temporary and they are expected to return following those activities.

When the cattle graze Evans Flat bench there may be some limited competition for herbaceous forage with antelope. However, if the perennial grass utilization is managed as described under the environmental design/resource protection measures of the Proposed Action, there would be adequate amounts of grasses and forbs for antelope. Cattle generally make little use of forbs so there should be little competition with antelope for these plants. Cattle grazing during the growing season would likely reduce the vigor of the grasses which would allow more sagebrush seedlings to establish and accelerate the return of sagebrush to the burn area. As the taller shrub species such as big sagebrush become common, the area would become less attractive to antelope that prefer areas with shorter forms of vegetation.

Alternative 1 **- Well and Pipeline System:** Impacts would be similar to those described under the Proposed Action; however, there would be no water development in Lee Canyon thus there would be no new impacts in that area.

Alternative 2 **– Haul Water:** The impacts would be similar to those described for Alternative 1.

Alternative 3 **– Reduced Cattle Numbers:** There would be no change in impacts to antelope or their habitat in the Lee Canyon/Evans Flat area because no new water development would be installed. The removal of all or most of the cattle grazing in the Trout Creek area beginning in mid-July should reduce cattle use of grasses that antelope would also graze; however, grasses tend to be a small component of the diet for antelope in the summer and fall so the benefits for antelope would be modest.

Alternative 4 **- No Change:** There would be no new impacts to antelope.

Cumulative Impacts

The reduction of taller vegetation such as big sagebrush and trees due to burns along with the increased amounts of forbs is attractive to antelope that prefer habitats with shorter

vegetation and more forbs. Fires that re-burn areas and that have not yet reestablished the taller shrubs and trees, or that burn new areas, would continue to provide areas attractive to antelope. As the taller shrub species such as big sagebrush become common, the area would become less attractive to antelope.

3.2.7 Vegetation

Affected Environment

The terrain in the upper part of Lee Canyon is composed of steep side slopes and a gentle drainage bottom. The side slopes have native vegetation communities consisting of big sagebrush or low sagebrush or bitterbrush along with bluebunch wheatgrass or Idaho fescue and other native perennial grasses, and some scattered stands of pinyon pine and mountain mahogany. The perennial grasses tend to dominate or equally share the space with the shrubs. There is little to no cheatgrass present. Substantial areas on the slopes consist of rock and rubble patches stretching down the hillsides.

The drainage bottom of upper Lee Canyon is dominated by somewhat open to dense stands of woody riparian shrubs and trees such as aspen, willows, and chokecherry trees. There are also patches of big sagebrush scattered between the woody riparian stands. The vegetation in upper Lee Canyon did not burn in the 1999 Sadler Fire.

The low flow spring source is located in the lower portion of an aspen stand. There is a path between mature aspen trees through the lower part of the aspen stand to where the spring collection box and pipe would be installed. There are some younger aspen trees/saplings along the path. The installation equipment would access the spring through this path. A sparse number of sedges grow in the spring area where their growth is limited due to the shading from the aspen stand.

The water source that rises in the main channel also flows through the same aspen stand where the low flow spring is located and goes underground soon after exiting the bottom of the aspen stand.

The old mining road that runs from the bottom of Lee Canyon to the upper part of Evans Flat grows modest amounts of bitterbrush, rabbitbrush, sagebrush, Sandberg bluegrass and cheatgrass.

Evans Flat is a relatively flat to gently rolling mid-elevation bench between the valley bottoms of Pine Creek/Lee Canyon/Mill Creek Canyon, and the Pinon Mountain Range. Evans Flat burned in the 1999 Sadler Fire. Prior to the 1999 fire, the vegetation on Evans Flat was dominated by big sagebrush with some perennial bunchgrasses and annual cheatgrass in the understory. Following the Sadler Fire, Evans Flat bench was drill seeded with wheatgrasses including crested wheatgrass which is now co-dominate with thickspike wheatgrass and/or Sandberg bluegrass. In addition to the grasses, there are also extensive patches of rabbitbrush that survived the fire and minor amounts of big sagebrush. Cheatgrass, a non-native annual grass, is generally present in minor amounts

with some patches of moderate densities in the southwestern portion of the bench that weren't seeded after the 1999 Sadler Fire. The northern fringe of the bench has noticeable amounts of native perennial grasses including bluebunch wheatgrass, Great Basin wildrye, Thurber needlegrass, and bottlebrush squirreltail grass.

The levels of utilization on the key forage grasses (thickspike wheatgrass and crested wheatgrass) observed on Evans Flat bench the past few years have ranged from heavy use at the end of 2008, which was a dry year, to light/low moderate levels of use at the end of 2009 which was a good forage production year, to generally no use with minor patch grazing by the end of September 2011 which was also a good forage production year. In 2011, the cattle grazed the Trout Creek Pasture until 6/15 and were then moved into the upper Trout Creek basins within the Evans Flat Pasture. Apparently few cattle drifted over to Lee Canyon to graze Evans Flat.

In the upper Trout Creek area of the Evans Flat Pasture, there are perennial grasses such as bluebunch wheatgrass, thickspike wheatgrass, squirreltail grass, and bluegrasses that serve as key forage species related to cattle use. Bitterbrush is also present in limited amounts and is a key forage species for both mule deer and cattle. Much of the bitterbrush in the upper Trout Creek area was lost as a result of the 1999 Sadler Fire; therefore, the limited numbers of bitterbrush that remain have become more important. The remaining bitterbrush plants in the upper Trout Creek area are located on the bench just above Trout Creek Exclosure #3, between the main Trout Creek channel and the North Fork of Trout Creek, and on the Ravens Nest Mountain area above. The bitterbrush plants on the bench are within ¼ mile of the water in Trout Creek and tend to receive heavy use by cattle; however, the bitterbrush plants upslope on the Ravens Nest Mountain area receive low levels of use.

Direct and Indirect Effects of Alternatives

***Proposed Action* - Spring Development and Pipeline System:** Installation of the water collection box and collection pipe in the low flow spring, and portion of the pipeline within the aspen stand, will remove a portion of the sedges growing in the spring, and some of the younger aspen trees/saplings. The reduction in sedges and aspen would last only a few years because the remaining sedges would likely re-grow and cover the water collection pipe and fill around the collection box, and new aspen saplings would re-grow from roots/suckers of other aspen that are present.

Installation of the water collection box in the main channel and digging the pipeline trench along the main channel and to where the trench would exit the aspen stand would likely break some roots of the aspen trees growing in adjacent areas and could uproot younger trees. These impacts would result in minor damage to the stand of trees and new aspen saplings would re-grow from roots/suckers of other aspen that are present.

The portion of the pipeline that would run in the old mining road along the bottom of Lee Canyon would go through patches of willows, chokecherry, serviceberry, and patches of big sagebrush and perennial grasses that have grown in the old mining road after the

mining activity ended. Where the old mining road traverses the south slope of Lee Canyon on its way to the upper part of Evans Flat, the pipeline installation would remove some of the widely scattered upland shrubs and grasses that have established in the old mining road. Some of the vegetation types that would be removed from the old mining road during pipeline installation would reestablish along the edges of the path, and the trench area would be reseeded with native grasses to facilitate the growth of vegetative cover; however, vegetation growth in the center of the road/pipeline path would be partially suppressed due to periodic cattle use, and ATV or horse use to service the spring development and pipeline.

Installation of the pipeline, storage tanks, and troughs on Evans Flat would remove the existing vegetation in the areas of disturbance which would be mostly grasses. The surface area that would be disturbed by the construction activities on Evans Flat would be approximately 3 to 4 acres total, much of which would be reseeded to reestablish the perennial grasses. However, vegetation within 100 feet of the troughs would be substantially reduced once water is available in the troughs due to high levels of grazing and surface disturbance by the cattle. This would result in a long-term reduction of three to four acres of vegetation around the troughs.

Providing water on Evans Flat bench would allow the cattle to thoroughly graze the bench area. When the cattle graze the bench during the growing season, the growth and vigor of the grazed grasses would be reduced; however, if utilization is managed as described under the environmental design/resource protection measures of the Proposed Action, the impact on grass vigor should be modest. When the grass vigor is suppressed due to grazing during the growing season, sagebrush seedlings would have a better chance of establishing which would accelerate the return of sagebrush to the burn area.

Providing water on Evans Flat bench would provide more water for cattle use in the area. This would help reduce the amount of grazing in the Trout Creek area which should improve the vigor of the forage grasses in the Trout Creek area and leave more of the bitterbrush growth for wildlife use. The additional water on Evans Flat bench could also provide an opportunity to implement a rotation grazing system between the Lee Canyon/Evans Flat area and the Trout Creek area which would periodically give each area a break from grazing during the critical growing season for the grasses and result in lower levels of use on bitterbrush when the Trout Creek area is not grazed during the summer/fall season.

***Alternative 1* – Well and Pipeline System:** There would be no disturbance of vegetation resources in Lee Canyon because the spring development and the portion of the pipeline in the canyon would not be installed. The impacts on Evans Flat would be similar to the Proposed Action with the exception that there would some additional surface disturbance of about one-fourth acre involved in drilling and operating the well.

***Alternative 2* – Haul Water:** The impacts would be similar to those described for Alternative 1; however, there would be no well or storage tanks installed, but there would

be the loss of vegetation from the water truck creating new two-track roads. The loss of vegetation around the troughs and from the two-track roads would be three to four acres.

***Alternative 3* – Reduced Cattle Numbers:** There would be no change in impacts to vegetation in the Lee Canyon/Evans Flat area because no new water development would be installed. The removal of all or most of the cattle grazing in the Trout Creek area beginning in mid-July should reduce cattle use of grasses and bitterbrush resulting in a higher level of vegetative cover to help limit soil erosion and improve water infiltration into the soil. However, leaving more grass matter would also provide more fine fuels to burn which could allow fire to spread more rapidly and burn a larger area.

***Alternative 4* – No Change:** There would be no new water development on public lands; therefore there would be no new impacts. However, the permittees could install a well and pipeline on their private land with impacts similar to those described under Alternative 1.

Cumulative Impacts

Disturbance to plant communities associated with installation, maintenance, and operation of the spring or well pipeline systems would add to existing disturbance in the general area; however, the long-term reduction in vegetation around the troughs and well would be relatively minor (between three to four acres).

Sagebrush is expected to reestablish on Evans Flat and again dominant the area in 15 to 25 years. However, if future fires burn/re-burn Evans Flat and other areas in the pasture, sagebrush would continue to be greatly diminished in the area. Leaving more vegetative growth in the Trout Creek area would provide more fuels to carry fire. Burning/re-burning the upper Trout Creek area which grows the remaining bitterbrush in the area since the area burned in 1999 would likely result in few bitterbrush plants surviving in the area.

Climate change could reduce the amount of soil moisture for plant growth, especially in the summer and fall when there is normally less precipitation. Although reductions in soil moisture are not certain, if there are lower levels of soil moisture due to climate change, existing perennial plants in some areas, especially grasses, forbs and seedlings, may not be able to survive. Reduced perennial plant populations would allow cheatgrass and other invasive non-native species that are able to survive under these conditions to expand. Increases in ground cover from cheatgrass and other weeds would also increase the fine fuels that can carry fire thus increasing the likelihood that fires would spread more readily resulting in larger acreages burned that may further facilitate the spread of invasive non-native species.

3.2.8 Visual Resources

Affected Environment

The proposed project area and public lands in the surrounding area are located within Visual Resource Management (VRM) Class III. The Class III objective is to partially retain the existing character of the landscape. The level of change to the landscape should be moderate and could attract attention but should not dominate the view. Change should repeat the basic elements and natural features of the landscape.

The characteristic landscape of the project area consists of a rolling to mountainous foothills cut by a deep, rocky canyon. The vegetation contributes to seasonal color variations of green and gray-green to light yellowish tan and brown. Soil colors are primarily light brown and tan. Texture is varied with scattered riparian vegetation and sagebrush-bunchgrass communities.

Direct and Indirect Effects of Alternatives

Proposed Action **- Spring Development and Pipeline System:** The proposed water developments would introduce new features across the project area landscape. Although the proposed pipeline would be buried, livestock watering troughs would be visible. Color contrasts would be reduced by painting man-made features two shades darker than the surrounding landscape or installing structures that have dark surfaces. Dirt berms and evidence of livestock in the form of trampled vegetation around the water developments will be present on the landscape. The proposed water developments would meet Class III VRM objectives.

Alternative 1 **- Well and Pipeline System:** The proposed water developments would introduce new features across the project area landscape. Although the proposed pipeline would be buried, livestock watering troughs and water pump system would be visible. Color contrasts would be reduced by painting man-made features two shades darker than the surrounding landscape or installing structures that have dark surfaces. Dirt berms and evidence of livestock in the form of trampled vegetation around the water developments will be present on the landscape. The proposed water developments would meet Class III VRM objectives.

Alternative 2 **– Haul Water:** Installation of the new water troughs would introduce new features across the project area landscape; however, there would be no new storage tanks or well. The troughs would be made of a material that is of a color, or painted a subdued color of brown or green, so as not to dominate the area when viewed from a distance in order to meet Class III VRM objectives.

Alternative 3 **– Reduced Cattle Numbers:** There would be no new impacts in the Evans Flat area because there would be no water development installed on Evans Flat. There may be some modest change in the visual appearance of the bitterbrush area in upper Trout Creek if the bitterbrush plants grow larger as a result of reduced cattle use. Although the area is likely to burn periodically in the future with or without the changes proposed in this alternative, leaving more vegetative cover in the Trout Creek area could facilitate the spread of fire thereby increasing the size of future fires. If future fires burned more of the shrubs including bitterbrush, the landscape would provide fewer

contrasts in an area that already has much of a grassland appearance after the 1999 Sadler Fire. The presence of contrasts where there are mixtures of grasslands and shrublands, and trees, can be more visually interesting compared to a landscape with little to no contrasts.

***Alternative 4* - No Change:** No impact.

Cumulative Impacts

Construction of additional water developments across the landscape does create more contrasts with the natural landscape; however, the Proposed Action and alternatives would be designed to meet Class III VRM objectives.

3.3 Mitigation and Monitoring

Elko BLM would monitor, with consideration of compliance with the environmental design/resource protection measures, or other terms and conditions, required by the selected action(s). Rangeland monitoring data would continue to be collected to determine if the livestock management practices are conforming to the Standards and Guidelines for Rangeland Health and multiple use objectives. There are no proposed mitigation measures.

4 CONSULTATION AND COORDINATION

4.1 Persons, Groups or Agencies Consulted

A description of the Evans Flat Spring and Pipeline Project proposal was made available to the persons and/or agencies identified below through letters requesting input regarding development of the proposed action and alternatives for the project. The letter provided for a 21 day response period.

Tomera Ranches, Inc. – Stonehouse Division
Nevada Department of Wildlife
U. S. Fish and Wildlife Service
Resource Concepts, Inc.
Western Watersheds Project
Nevada Cattlemen's Association
Elko County Board of County Commissioners
Sustainable Grazing Coalition
Citizens Against Recreation Eviction, USA
Eureka County Natural Resources Department
Eureka County District Attorney
Ken Conley
Carl Slagowski
Jim Baumann
Lenny Fiorenzi
Laurel Marshall
Jerry Todd
Bobbi Royle
Bureau of Indian Affairs – Eastern Nevada Agency
Te-Moak Tribal Council
Te-Moak Tribe, South Fork Band Council
Te-Moak Tribe, Wells Band Council
Te-Moak Tribe, Elko Band Council
Te-Moak Tribe, Battle Mountain Band Council
Ely Shoshone Tribe
Yomba Shoshone Tribe
Duckwater Shoshone Tribe
Sho-Pai Tribes
Western Shoshone Committee
Western Shoshone Defense Project
Western Shoshone Descendants of Big Smoky

Comments identified/received as part of the scoping process were received from Eureka County Department of Natural Resources, Western Watersheds Project, and U.S. Fish and Wildlife Service.

Eureka County Department of Natural Resources stated they support projects that facilitate full use of grazing allotments while also addressing resource concerns. Specific comments pertained to other proposed projects and were not applicable to the Evans Flat Water Project proposal.

Western Watersheds Project (WWP) submitted comment letters that discussed their concerns with other projects, particularly fence projects, not associated with the proposed water project on Evans Flat. Although their comment letters weren't specific to the Evans Flat Water Project proposal, the Tuscarora Field Office felt that certain resource and wildlife concerns discussed in WWP's letters may be similar areas of interest regarding the Evans Flat Water Project proposal such as asking for more information on current resource conditions and impacts of the proposed project on sage grouse, habitat fragmentation, advantages for predators, weed infestations, expanded roading, and aquifer drawdown. Thus, these topics are discussed in the EA. WWP also stated that an environmental impact statement (EIS) should be prepared. An EA is used to assess whether or not there are significant impacts. If there are significant impacts that cannot be mitigated, an EIS would need to be prepared.

The U.S. Fish and Wildlife Service recommended the project(s) be reviewed for all direct and indirect impacts on threatened or endangered species (e.g. Lahonton cutthroat trout - LCT), candidate species (e.g. Greater Sage Grouse and Columbia spotted frog), wetland and riparian habitats including macroinvertebrates, migratory birds, and other species of concern (e.g. pygmy rabbit), and consider incorporating accepted management guidelines into the project. The project area is not identified as an area currently or historically occupied by LCT or Columbia spotted frog; therefore impacts to these wildlife will not be included in the analysis. Potential impacts to the remaining resources and wildlife in the area, and applicable management guidelines, will be/are addressed in the environmental assessment.

4.2 Preparers

Karl Scheetz	Lead Preparer; Livestock Grazing, Invasive Nonnative Species, Soil Resources and Air Quality, Vegetation
Ken Wilkinson	Special Status Species, Wildlife, Migratory Birds
Bill Fawcett	Cultural Resources
Mark Dean	Water Quality, Riparian Areas
Zachary Pratt	Visual Resources
Victoria Anne	National Environmental Policy Act (NEPA) Compliance
Jim Harmening	Engineering

4.3 Distribution

Prior to issuance of any decision to implement the proposed action, this EA will be available for comment on the BLM public web site at:

http://www.blm.gov/nv/st/en/fo/elko_field_office/blm_information/nepa.html

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Appendix 1 - Relationship to Laws, Policies and Land Use Plans

The Federal Land Policy and Management Act of 1976 (FLPMA) requires an action under consideration be in conformance with the applicable BLM land use plan, and be consistent with other federal, state, local and tribal policies to the maximum extent possible.

BLM Land Use Plan Conformance

The project area falls within the land use plan area covered by the Elko Resource Management Plan (RMP). The Proposed Action and alternatives are in conformance with the RMP as follows:

> 1987 Record of Decision (ROD) for the Elko RMP:
> **Livestock Management objective** – Maintain or improve the condition of the public rangelands to enhance productivity for all rangeland values:
>
> Construct 258 miles of fence; drill 28 wells; lay 132 miles of pipeline; install 24 storage tanks; develop 97 springs, and 97 reservoirs to improve livestock distribution and utilization of vegetation. (Management Action 3, page 20)
>
> Implement a rangeland monitoring program to determine if management objectives are being met and adjust grazing management systems and livestock numbers as required. (Management Action 5, page 20)
>
> **Wildlife Objective** – Conserve and enhance terrestrial, riparian and aquatic wildlife habitat.

Consistency with Non-BLM Authorities

The Proposed Action and alternatives are consistent with other Federal, state, local and tribal laws, regulations, policies and plans to the maximum extent possible. However, the 2010 Elko County Public Land Use and Resource Management Plan, Directive 12-2, opposes the granting of certificates of water rights to federal land management agencies for any purpose. The Proposed Action and Alternative 1 state the BLM would apply for wildlife water rights.

Pertinent policy statement/directives from the Elko County plan for public lands are stated below.

Elko County Public Land Use and Resource Management Plan – 2010

Directive 7-1: Preserve agricultural land and promote the continuation of agricultural pursuits, both traditional and non-traditional.

Directive 7-3: Opportunities for agricultural development on public lands should continue at levels that are consistent with historical customs, environmental sustainability, culture and compatibility with other multiple uses.
Directive 7-7: Range water rights and improvements such as those associated with seeps, springs, streams, lakes and wells used by livestock should be protected in the long term for that use. Encourage cooperation between the federal land management agencies and the grazing operator in protecting the riparian values of these water sources.
Directive 12-1: All activities on the County's federally managed public lands should consider the policies as adopted in the Elko County Water Resources Management Plan.
Directive 12-2: Elko County is opposed to the granting of certificates of water rights to federal land management agencies for any purpose.
Directive 13-1: Wetlands, riparian habitat and waters of the US should be protected from undue degradation…
Directive 13-2: Wetlands, riparian habitat and waters should be managed in a responsible and balanced manner with other resources and uses.
Directive 19-1: Identify, protect and preserve wildlife species and habitats….
Directive 19-4: Rangeland management should include adequate consideration of wildlife needs.

Relationship to Other Laws, Policies and Plans

Implementation of a water project for the Evans Flat area would be consistent with the following:

- BLM Policy for Management of Special Status Species (BLM Manual 6840)
- Migratory Bird Treaty Act and Executive Order 13186
- Nevada Partners in Flight Bird Conservation Plan (1999)
- BLM Policy for Management of Riparian-Wetland Areas (BLM Manual 1737)
- Nevada Bat Conservation Plan (Bradley 2006)
- Greater Sage Grouse Conservation Plan for Nevada and Eastern California (2004)
- Elko County Sagebrush Ecosystem Conservation Strategy (2004)

Appendix 2 - Definitions of Special Status Species:

Federally Threatened or Endangered Species: Any species that the U.S. Fish and Wildlife Service has listed as an endangered or threatened species under the Endangered Species Act throughout all or a significant portion of its range.

Proposed Threatened or Endangered Species: Any species that the Fish and Wildlife Service has proposed for listing as a Federally endangered or threatened species under the Endangered Species Act.

Candidate Species: Plant and animal taxa that are under consideration for possible listing as threatened or endangered under the Endangered Species Act.

BLM Sensitive Species: Species 1) that are currently under status review by the U.S. Fish and Wildlife Service, 2) whose numbers are declining so rapidly that Federal listing may become necessary; 3) with typically small and widely dispersed populations; or 4) that inhabit ecological refugia or other specialized or unique habitats.

State of Nevada Listed Species: State-protected animals that have been determined to meet BLM's Manual 6840 policy definition.

The listing of Nevada BLM Special Status Species is based on input provided by BLM, Nevada Department of Wildlife, and U.S. Fish and Wildlife Service in BLM Instruction Memorandum No. NV-2003-097 (July 29, 2003).

The effects of a proposed action on species that are listed or are proposed for listing as threatened or endangered are subject to consultation under section 7 of the ESA.

Nevada BLM policy is to provide State of Nevada Listed Species and Nevada BLM Sensitive Species with the same level of protection as is provided for candidate species in BLM Manual 6840.06C. Per wording for Table IIa. in BLM Instruction Memorandum No. NV-98-013, Nevada protected animals that meet BLM's 6840 policy definition are those species of animals occurring on BLM-managed lands in Nevada that are: (1) 'protected" under authority of Nevada Administrative Codes 501.100 - 503.104; (2) have been determined to meet BLM's policy definition of "listing by a State in a category implying potential endangerment or extinction," and (3) are not already included as a federally listed, proposed, or candidate species.

Appendix 3 - Wildlife Species (Humboldt River Drainage (Pine Creek) to Pinon Range area, NV)

[February 3, 2011 BLM Note: This list encompasses a broad area that includes the Humboldt River drainage area to the Pinon Mountain area. This species list is for a large area of uplands, wetlands and riparian/meadow areas. Some species do not exist on the flanks of the Pinon Range due to site-specific habitat needs that are currently not available on the subject area. However, restoration of riparian/meadow and wetlands could provide seasonal habitat for many of the species listed. The Nevada Department of Wildlife's 2006 Pearl (Humboldt River drainage) to Black Mountain (Pinon Range montane shrub habitat) Wildlife Species List was used as the basis for this list.]

Amphibians (alphabetical by *Latin* ***Order/Family)***

Order: *Anura* (Frogs and Toads)

Family: *Bufonidae* (Toads)

Western Toad	*Bufo boreas*

Family: *Hylidae* (Treefrogs)

Pacific Treefrog	*Hyla regilla*

Family: *Pelobatidae* (Spadefoots)

Great Basin Spadefoot Toad	*Scaphiopus intermontanus*

Family: *Ranidae* (True Frogs)

Columbia Spotted Frog	*Rana luteiventris*
Northern Leopard Frog	*Rana pipiens*
Bullfrog	*Rana catesbeiana*

Birds (alphabetical by *Latin* ***Order/Family***

Order: *Anseriformes* (Waterfowl)

Family: *Anatidae* (Ducks, Geese, Swans)

Greater White-fronted Goose	*Anser albifrons*
Snow Goose	*Chen caerulescens*
Canada Goose	*Branta canadensis*
Tundra Swan	*Cygnus columbianus*
Trumpeter Swan	*Cygnus buccinator*
Wood Duck	*Aix sponsa*
Gadwall	*Anus strepera*
American Widgeon	*Anus americana*
Mallard	*Anus platyrhynchos*
Blue-winged Teal	*Anus discors*
Cinnamon Teal	*Anus cyanoptera*
Northern Shoveler	*Anus clypeata*
Northern Pintail	*Anus acuta*
Green-winged Teal	*Anus crecca*
Canvasback	*Aythya valisinaria*
Redhead	*Aythya americana*
Ring-necked Duck	*Aythya collaris*
Lesser Scaup	*Aythya affinis*
Bufflehead	*Bucephala albeola*
Common Goldeneye	*Bucephala clangula*
Barrow's Goldeneye	*Bucephala islandica*
Hooded Merganser	*Lophodytes cucullatus*
Common Merganser	*Mergus merganser*
Red-breasted Merganser	*Mergus serrator*
Ruddy Duck	*Oxyura jamaicensis*

Order: *Apodiformes* (Small Fast Fliers)

Family: *Trochilidae* (Hummingbirds)

Black-chinned Hummingbird	*Archilochus alexandri*
Calliope Hummingbird	*Stellula calliope*
Broad-tailed Hummingbird	*Selasphorus platycercus*
Rufous Hummingbird	*Selasphorus rufus*

Order: *Caprimulgiformes* (Night Jars)

Family: *Caprimulgidae* (Goatsuckers)

Common Nighthawk	*Chordeiles minor*
Common Poorwill	*Phalaenoptilus nuttallii*

Order: *Charadriiformes* (Wading Birds)

Family: *Charadriidae* (Plovers)

Semi-palmated Plover	*Charadrius semipalmatus*
Killdeer	*Charadrius vociferus*
Mountain Plover	*Charadrius montanus*

Family: *Laridae* (Gulls, Terns)

Ring-billed Gull	*Larus delawarensis*
California Gull	*Larus californicus*
Caspian Tern	*Sterna caspia*
Forster's Tern	*Sterna forsteri*
Black Tern	*Chlidonias niger (L.E.)*

Family: *Recurvirostridae* (Avocets)

Black-necked Stilt	*Himantopus mexicanus*
American Avocet	*Recurvirostra americana*

Family: *Scolopacidae* (Sandpipers, Phalaropes)

Greater Yellowlegs	*Tringa melanoleuca*
Lesser Yellowlegs	*Tringa flavipes*
Solitary Sandpiper	*Tringa solitaria*
Willet	*Catoptrophorus semipalmatus*
Spotted Sandpiper	*Actitus macularia*
Long-billed Curlew	*Numenius americanus*
Marbled Godwit	*Limosa fedoa*
Western Sandpiper	*Calidris mauri*
Least Sandpiper	*Calidris minutilla*
Baird's Sandpiper	*Calidris bairdii*
Long-billed Dowitcher	*Limnodromnus scolopaceus*

Birds (alphabetical by *Latin* ***Order/Family***

Order: *Charadriiformes* (Continued)

Family: *Scolopacidae* (Continued)

Common Snipe	*Gallinago gallinago*
Wilson's Phalarope	*Phalaropus tricolor*
Red-necked Phalarope	*Phalaropus lobatus*

Order: *Ciconiiformes* (Long-legged Waders)

Family: *Ardeidae* (Bitterns, Herons, Egrets)

American Bittern	*Botaurus lentiginosus*
Least Bittern	*Ixobrychus exilis (L.E.)*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Snowy Egret	*Egretta thula*
Cattle Egret	*Bubulcus ibis*
Green Heron	*Butorides virescens (L.E.)*
Black-crowned Night Heron	*Nycticorax nycticorax*

Family: *Cathartidae* (New World Vultures)

Turkey Vulture	*Cathartes aura*
California Condor	*Gymnogyps californianus(L.E.)*

Family: *Threskiornithidae* (Ibises)

White-faced Ibis	*Plegadis chihi*

Order: *Columbiformes* (Pigeons and Allies)

Family: *Columbidae* (Doves)

Rock Dove	*Columba livia*
White-winged Dove	*Zenaida asiatica*
Mourning Dove	*Zenaida macroura*

Order: *Coraciiformes* (Cavity Nesters)

Family: *Alcedinidae* (Kingfishers)

Belted Kingfisher	*Ceryle alcyon*

Order: *Cuculiformes* (Cuckoos and Allies)

Family: *Cuculidae* (Cuckoos and Roadrunners)

Yellow-billed Cuckoo	*Coccyzus americanus (L.E.)*

Order: *Falconiformes* (Diurnal Flesh Eaters)

Family: *Accipitridae* (Hawks, Eagles, Osprey)

Osprey	*Pandion haliaetus*
Bald Eagle	*Haliaetus leucocephalus*
Northern Harrier	*Circus cyaneus*
Sharp-shinned Hawk	*Accipiter striatus*
Cooper's Hawk	*Accipiter cooperii*
Northern Goshawk	*Accipiter gentilis*
Swainson's Hawk	*Buteo swainsoni*
Red-tailed Hawk	*Buteo jamaicensis*
Ferruginous Hawk	*Buteo regalis*
Rough-legged Hawk	*Buteo lagopus*
Golden Eagle	*Aquila chrysaetos*

Family: *Falconidae* (Falcons)

American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Gyrfalcon	*Falco rusticolus*
Peregrine Falcon	*Falco perigrinus*
Prairie Falcon	*Falco mexicanus*

Order: *Galliformes* (Chicken Relatives)

Family: *Odontophoridae* (New World Quail)

California Quail	*Callipepla californica*
Mountain Quail	*Oreortyx pictus (L.E.)*

Family: *Phasianidae* (Grouse, Partridge)

Chukar	*Alectoris chukar*
Gray Partridge	*Perdix perdix*
Greater Sage-Grouse	*Centrocercus urophasianus*
Blue Grouse	*Dendragapus obscurus*
C. Sharp-tailed Grouse	*Tympanuchus phasianellus c. (L.E.)*
Wild Turkey	*Meleagris gallopavo*

Order: *Gruiformes* (Cranes and Allies)

Family: *Gruidae* (Cranes)

Greater Sandhill Crane	*Grus canadansis tabida*
Lesser Sandhill Crane	*Grus canadansis canadensis*

Family: *Rallidae* (Rails, Coots)

Virginia Rail	*Rallus limicola*
Sora	*Porzana carolina*
Common Moorhen	*Gallinula chloropus*
American Coot	*Fulica americana*

Order: *Passeriformes* (Perching Birds)

Family: *Aegithalidae* (Bushtits)

Bushtit	*Psaltriparus minimus*

Family: *Alaudidae* (Larks)

Horned Lark	*Eremophila alpestris*

Family: *Bombycillidae* (Waxwings)

Bohemian Waxwing	*Bombycilla garrulus*
Cedar Waxwing	*Bombycilla cedrorum*

Family: *Cardinalidae* (Grosbeaks, Buntings)

Black-headed Grosbeak	*Pheucticus melanocephalus*
Blue Grosbeak	*Guiraca caerulea*
Lazuli Bunting	*Passerina amoena*
Indigo Bunting	*Passerina cyanea*

Family: *Cinclidae* (Dippers)

American Dipper	*Cinclus mexicanus*

Family: *Corvidae* (Jays)

Western Scrub-Jay	*Aphelocoma californica*
Pinyon Jay	*Gymnorhinus cyanocephalus*
Black-billed Magpie	*Pica pica*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*

Birds (alphabetical by *Latin* ***Order/Family***

Family: *Emberizidae* (Sparrows, Towhees, Juncos)

Green-tailed Towhee	*Pipilo chlorurus*
Spotted Towhee	*Pipilo maculatus*
American Tree Sparrow	*Spizella arborea*
Chipping Sparrow	*Spizella passerina*
Brewer's Sparrow	*Spizella breweri*
Vesper Sparrow	*Pooecetes gramineus*
Lark Sparrow	*Chondestes grammacus*
Black-throated Sparrow	*Amphispiza bileneata*
Sage Sparrow	*Amphispiza belli*
Savannah Sparrow	*Passerculus sandwichensis*
Grasshopper Sparrow	*Ammodramus bairdii*
Fox Sparrow	*Passerella iliaca sa*
Song Sparrow	*Melospiza melodia*
Lincoln's Sparrow	*Melospiza lincolnii*
White-throated Sparrow	*Zonotrichia albicollis*
Harris' Sparrow	*Zonotrichia querula*
Gambel'sWhite-crowned Sparrow	*Zonotrichia leucophrys gambelii*
Mountain W-crowned Sparrow	*Zonotrichia leucophrys oriantha*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Dark-eyed Junco*(Oregon)*	*Junco hyemalis therburi*
Dark-eyed Junco(*Gray-headed*)	*Junco hyemalis caniceps*
Lapland Longspur	*Calcarius lapponicus*

Family: *Fringillidae* (Finches, Grosbeaks)

Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*
Black Rosy-Finch	*Leucosticte atrata*
Cassin's Finch	*Carpodacus cassinii*
House Finch	*Carpodacus mexicanus*
Red Crossbill	*Loxia curvirostra*
Pine Siskin	*Carduelis pinus*
Lesser Goldfinch	*Carduelis psaltria*
American Goldfinch	*Carduelis tristis*
Evening Grosbeak	*Coccothraustes vespertinus*

Family: *Hirundinidae* (Swallows)

Tree Swallow	*Tachycineta bicolor*
Violet-green Swallow	*Tachycineta thalassina*
Bank Swallow	*Riparia riparia*
N. Rough-winged Swallow	*Stelgidopteryx serripennis*
Cliff Swallow	*Petrochelidon pyrrhonota*
Barn Swallow	*Hirundo rustica*

Family: *Icteridae* (Blackbirds, Orioles)

Bobolink	*Dolichonyx oryzivorus*
Red-winged Blackbird	*Agelaius phoeniceus*
Western Meadowlark	*Sturnella neglecta*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Brewer's Blackbird	*Euphagus cyanocephalus*
Great-tailed Grackle	*Quiscalus mexicanus*
Brown-headed Cowbird	*Molothrus ater*
Bullock's Oriole	*Icterus bullockii*
Scott's Oriole	*Icterus parisorum*

Family: *Laniidae* (Shrikes)

Loggerhead Shrike	*Lanius ludovicianus*
Northern Shrike	*Lanius excubitor*

Family: *Mimidae* (Thrashers, Mockingbirds)

Northern Mockingbird	*Mimus polyglottos*
Sage Thrasher	*Oreoscoptes montanus*

Family: *Motacillidae* (Pipits)

American Pipit	*Anthus rubescens*

Family: *Paridae* (Chickadees, Titmice)

Black-capped Chickadee	*Poecile atricapillus*
Mountain Chickadee	*Poecile gambeli*
Juniper Titmouse	*Baeolophus griseus*

Family: *Parulidae* (Wood Warblers)

Orange-crowned Warbler	*Vermivora celata*
Nashville Warbler	*Vermivora ruficapilla*
Virginia's Warbler	*Vermivora virginae*
Yellow Warbler	*Dendroica petechia*
Yellow-rumped Warbler	*Dendroica coronata*
Black-throated Gray Warbler	*Dendroica nigrescens*
Common Yellowthroat	*Geothlypis trichas*
Wilson's Warbler	*Wilsonia pusilla*
Yellow-breasted Chat	*Icteria virens*

Family: *Passeridae* (Old World Sparrows)

House Sparrow	*Passer domesticus*

Family: *Regulidae* (Kinglets)

Golden-crowned Kinglet	*Regulus satrapa*
Ruby-crowned Kinglet	*Redulus calendula*

Family: *Sittidae* (Nuthatches)

Red-breasted Nuthatch	*Sitta canadensis*
White-breasted Nuthatch	*Sitta carolinensis*

Family: *Sturnidae* (Starlings)

European Starling	*Sturnus vulgaris*

Family: *Sylviidae* (Gnatcatchers)

Blue-gray Gnatcatcher	*Polioptila caerulea*

Family: *Thraupidae* (Tanagers)

Western Tanager	*Piranga ludoviciana*

Family: *Troglodytidae* (Wrens)

Rock Wren	*Salpinctes obsoletus*
Canyon Wren	*Catherpes mexicanus*
Bewick's Wren	*Thyromanes bewickii*
House Wren	*Troglodytes aedon*
Winter Wren	*Troglodytes troglodytes*
Marsh Wren	*Cistothorus palustris*

Family: *Turdidae* (Thrushes)

Mountain Bluebird	*Sialia currucoides*
Townsend's Solitaire	*Myadestes townsendi*
Hermit Thrush	*Catharus guttatus*
American Robin	*Turdus migratorius*
Varied Thrush	*Ixoreus naevius*

Family: *Tyrannidae* (Flycatchers)

Western Wood-Pewee	*Contopus sordidulus*
Willow Flycatcher	*Epidonax traillii*
Hammond's Flycatcher	*Epidonax hammondii*
Gray Flycatcher	*Epidonax wrightii*
Dusky Flycatcher	*Epidonax oberholseri*
Say's Phoebe	*Sayornis saya*
Ash-throated Flycatcher	*Myiarchus cinerascens*

Western Kingbird	*Tyrannus verticalis*
Eastern Kingbird	*Tyrannus tyrannus*

Birds (alphabetical by *Latin* ***Order/Family)***

Family: *Vireonidae* (Vireos)

Plumbeous Vireo	*Vireo plumbeus*
Warbling Vireo	*Vireo gilvus*

Order: *Pelecaniformes* (Four-toed Fisheaters)

Family: *Pelecanidae* (Pelicans)

American White Pelican	*Pelecanus erythrorhynchos*

Family: *Phalacrocoracidae* (Cormorants)

Double-crested Cormorant	*Phalacrocorax auritus*

Order: *Piciformes* (Cavity Builders)

Family: *Picidae* (Woodpeckers)

Lewis' Woodpecker	*Melanerpes lewis*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Red-naped Sapsucker	*Sphyrapicus nuchalis*
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Northern Flicker	*Colaptes auratus*

Order: *Podicipediformes* (Flat-toed Divers)

Family: *Podicipedidae* (Grebes)

Pied-billed Grebe	*Podilymbus podiceps*
Eared Grebe	*Podiceps nigricollis*
Western Grebe	*Aechmophorus occidentalis*
Clark's Grebe	*Aechmophorus clarkii*

Order: *Strigiformes* (Nocturnal Flesh Eaters)

Family: *Strigidae* (Owls)

Western Screech-Owl	*Otus kennicottii*
Great Horned Owl	*Bubo virginianus*
Snowy Owl	*Nyctea scandiaca*
Burrowing Owl	*Athene cunicularia*
Long-eared Owl	*Asio otus*
Short-eared Owl	*Asio flammeus*
Northern Saw-whet Owl	*Aegolius acadicus*

Family: *Tytonidae* (Barn Owls)

Barn Owl	*Tyto alba*

Fish (alphabetical by *Latin* ***Order/Family)***

Order: *Salmoniformes*

Family: *Salmonidae* (Salmon and Trout)

Lahontan Cutthroat	*Oncorynchus clarki henshawi*
Rainbow Trout	*Oncorynchus mykiss*
Brown Trout	*Salmo trutta*

Order: *Scorpaeniformes*

Family: *Cottidae* (Sculpins)

Paiute Sculpin	*Cottus beldingii*

Mammals (alphabetical by *Latin* ***Order/Family)***

Order: *Artiodactyla* (Hoofed Mammals)

Family: *Antilocapridae* (Pronghorn)

Pronghorn	*Antilocapra americana*

Family: *Cervidae* (Deer)

Rocky Mountain Elk	*Cervus canadensis*
Mule Deer	*Odocoileus hemionus*

Order: *Carnivora* (Flesh-Eaters)

Family: *Canidae* (Dogs)

Coyote	*Canis latrans*
Gray Wolf	*Canis lupus (L.E.)*
Common Gray Fox	*Urocyon cinereoargenteus*
Kit Fox	*Vulpes velox*
Red Fox	*Vulpes vulva*

Family: *Felidae* (Cats)

Mountain Lion	*Felix concolor*
Lynx	*Lynx lynx (L.E.)*
Bobcat	*Lynx rufus*

Family: *Mustelidae* (Weasels and Allies)

Short-tailed Weasel	*Mustela erminae*
Long-tailed Weasel	*Mustela frenata*
Mink	*Mustela vison*
Wolverine	*Gulo gulo (L.E.)*
Northern River Otter	*Lutra canadensis*
American Badger	*Taxidea taxus*
Striped Skunk	*Mephitis mephitis*
Western Spotted Skunk	*Spilogale gracilis*

Family: *Procyonidae* (Racoons and Allies)

Ringtail	*Bassariscus astutus*
Common Raccoon	*Procyon lotor*

Family: *Ursidae* (Bears)

Black Bear	*Ursus americanus (L.E.)*

Order: *Chiroptera* (Bats)

Family: *Molossidae* (Freetail Bats)

Brazilian Free-tailed Bat	*Tadarida brasiliensis*

Family: *Vespertilionidae* (Plainnose Bats)

California Myotis	*Myotis californicus*
Western Small-footed Myotis	*Myotis ciliolabrum*
Long-eared Myotis	*Myotis evotis*
Little Brown Bat	*Myotis lucifugus*
Fringed Myotis	*Myotis thysanodes*
Long-legged Myotis	*Myotis volans*
Yuma Myotis	*Myotis yumanensis*
Western Red Bat	*Lasiurus blossvellii*
Hoary Bat	*Lasiurus cinereus*
Silver-haired Bat	*Lasionycteris noctivagans*
Western Pipistrelle	*Pipistrellus hesperus*
Big Brown Bat	*Eptesicus fuscus*
Townsend's Big-eared Bat	*Corynorhinus townsendii*

Spotted Bat	*Euderma maculatum*
Pallid Bat	*Antrozous pallidus*

Mammals (alphabetical by *Latin* ***Order/Family)***

Order: *Insectivora* (Insect Eaters)

Family: *Soricidae* (Shrews)

Merriam's Shrew	*Sorex meriammi*
Dusky Shrew	*Sorex monticolus*
Vagrant Shrew	*Sorex vagrans*
Water Shrew	*Sorex palustris*

Order: *Lagomorpha* (Pikas, Hares, Rabbits)

Family: *Leporidae* (Hares, Rabbits)

Black-tailed Jackrabbit	*Lepus californicus*
Mountain Cottontail	*Sylvilagus nuttalli*
Desert Cottontail	*Sylvilagus audubonii*
Pygmy Rabbit	*Brachylagus idahoensis*

Order: *Rodentia* (Rodents)

Family: *Castoridae* (Beavers)

American Beaver	*Castor canadensis*

Family: *Cricetidae* (Mice, Rats, Voles)

Western Harvest Mouse	*Reithrodontomys megalotis*
Canyon Mouse	*Peromyscus crinitus*
Deer Mouse	*Peromyscus maniculatus*
Pinon Mouse	*Peromyscus truei*
Northern Grasshopper Mouse	*Onychomys leucogaster*
Desert Woodrat	*Neotoma lepida*
Bushy-tailed Woodrat	*Neotoma cinerea*
Mountain Vole	*Microtus montanus*
Long-tailed Vole	*Microtus longicaudus*
Sagebrush Vole	*Lemmiscus curtatus*
Muskrat	*Ondatra zibethica*

Family: *Erethizontidae* (New World Porcupines)

Porcupine	*Erethizon dorsatum*

Family: *Geomyidae* (Gophers)

Botta's Pocket Gopher	*Thomomys bottae*
Northern Pocket Gopher	*Thomomys talpoides*
Townsend's Pocket Gopher	*Thomomys townsendii*

Family: *Heteromyidae* (Kangaroo Rodents)

Little Pocket Mouse	*Perognathus longimembris*
Great Basin Pocket Mouse	*Perognathus parvus*
Chisel-toothed Kangaroo Rat	*Dipodomys microps*
Dark Kangaroo Mouse	*Microdipodops megacephalus*
Ord Kangaroo Rat	*Dipodomys ordii*

Family: *Sciuridae* (Squirrels)

Least Chipmunk	*Tamias minimus*
Uinta Chipmunk	*Tamias umbrinus*
Yellow-bellied Marmot	*Marmota flaviventris*
White-tailed Antelope Squirrel	*Ammospermophilus leucurus*
Townsend's Ground Squirrel	*Spermophilus townsendii*
Belding's Ground Squirrel	*Spermophilus beldingi*
Wyoming Ground Squirrel	*Spermophilus elegans*
Golden-mantled Ground Squirrel	*Spermophilus lateralis*

Family: *Zapodidae* (Jumping Mice)

Western Jumping Mouse	*Zapus princeps*

Reptiles (alphabetical by *Latin* ***Order/Family)***

Order: *Squamata* (Lizards, Snakes)

Family: *Boidae* (Boas, Pythons)

Rubber Boa	*Charina bottae*

Family: *Colubridae* (Solid-toothed Snakes)

Ringneck Snake	*Diadophis punctatus*
Striped Whipsnake	*Masticophis taeniatus*
Great Basin Gopher Snake	*Pituophis cantenifer deserticola*
Common Kingsnake	*Lampropeltis getulus*
Long-nosed Snake	*Rhinocheilus lecontei*
Western Terrestrial Garter Snake	*Thamnophis elegans*
Night Snake	*Hypsiglena torquata*

Family: *Iguanidae* (Iguanas and Allies)

Western Fence Lizard	*Sceloporus occidentalis*
Sagebrush Lizard	*Sceloporus graciosus*
Side-blotched Lizard	*Uta stansburiana*
Greater Short-horned Lizard	*Phrynosoma hernadesi*
Desert Horned Lizard	*Phrynosoma platyrhinos*

Family: *Scincidae* (Skinks)

Western Skink	*Eumeces skiltonianus*

Family: *Teiidae* (Whiptails)

Western Whiptail	*Cnemidophorus tigrus*

Family: *Viperidae* (Vipers)

Great Basin Rattlesnake	*Crotalus viridis lutosus*

Appendix 4 – BLM Nevada Water Rights Policy 2005.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Nevada State Office
P.O. Box 12000 (1340 Financial Blvd)
Reno, Nevada 89520-0006
http://www.nv.blm.gov

In Reply Refer To:

7250(NV-930)P

June 30, 2005

EMS TRANSMISSION 6/30/2005
Instruction Memorandum No. NV 2005-077
Expires: 09/30/2006

To: Field Managers, Nevada
Deputy State Directors and Staff Chiefs, NSO

From: State Director, Nevada

Subject: BLM Nevada Water Rights Policy

This Instruction Memorandum updates and modifies BLM-Nevada's policy on water rights.
With the changes in the Nevada Revised Statutes (N.R.S.) with the passage of S.B. 76 in 2003, the State Engineer will issue a permit to appropriate water for the purpose of watering livestock only to permit applicants who are legally entitled to place livestock on the lands for which the permit is sought, and who own or have an interest in the livestock (N.R.S. 533.503). In addition, new regulations tying appurtenance to ownership of livestock is set forth (N.R.S. 533.040). These changes in State law apply to any water application which is processed by the State Engineer after June 12, 2003. These new regulations also impact stockwatering rights in certificate status which are held by BLM. Such rights are subject to forfeiture after 5 years of non-use for a groundwater right and subject to abandonment for a surface water right.

The United States, not an individual, group, or State agency, is the legal entity responsible for management of public lands for the purposes intended by Congress. This

responsibility cannot be delegated outside the agency. This direction does not preclude working cooperatively with other entities or agencies to meet mutual resource management objectives.

Field Managers are responsible for review and consideration of the general public's best interest in the decision to approve or disapprove any proposed water development projects. A **Commitment of Resources Review, Form NV 7250-1 (June 2005)** will be completed by the appropriate Field Office and approved by the Field Manager or Assistant Field Manager. See Attachments 1 and 2. Form NV 7250-1 can be located at \\blm\dfs\nv\pub\Forms.

The following direction shall serve as BLM-Nevada water rights policy.

1. APPROPRIATION OF LIVESTOCK WATER

a. BLM-Nevada will adhere to substantive and procedural requirements of State law as required by Departmental policy. Accordingly, BLM-Nevada will not file new applications with the State Engineer for permits to appropriate water(s) for the purpose of watering livestock on public lands.

b. In a case where a non-BLM entity in granted a permit and constructs a water development on public lands for the purpose of stockwater only, BLM in Nevada will not expend public funds for construction unless BLM holds a second water right for a different beneficial use(s)[17], or if an exception is granted by the State Director. If BLM is granted a permit on the same development, then public funds may be spent commensurate with the relative share of the water right. It is recognized that there may be unusual cases where BLM may agree to expend funds in excess of the commensurate share in order to assure water is available for an important need (i.e. non-BLM entity unwilling or unable to provide commensurate share).

c. A **Commitment of Resources Review** (CRR) will be completed in those situations in which the State Engineer has issued a permit solely in the name of a non-BLM entity for livestock watering on public lands. The rationale from the CCR will be used to determine if the proposed development will be authorized through permit, right-of-way, or Cooperative Range Improvement Agreement.

2. APPROPRIATION OF WATER FOR BENEFICIAL USES OTHER THAN LIVESTOCK WATER

[17] Beneficial uses recognized by the State of Nevada include: wildlife (including wild horses and burros), the establishment and maintenance of wetlands, fisheries and other wildlife habitats, recreation, quasi-municipal, irrigation, domestic, environmental, and storage. See N.R.S. Sections*: 533.023 533.030, 533.035, 533.040, 533.055, 533.070, 533.075, 533.367, 533.437, 533.490 for limitations and exceptions as well as various State Engineer and Court Decisions.
*(N.R.S. 533.330 provided that individual domestic use may be included in an application with the other use names.)

a. BLM will file and hold appropriative water rights for valid beneficial uses. Each application for a permit to appropriate water shall, in accordance with Nevada State water law, contain only one valid beneficial use, with the exception of domestic use. This may include filing for State appropriative rights on water in excess of that which is reserved on springs identified as Public Water Reserve (PWR) for purposes other than stock watering or human consumption, which are the reserved right purposes identified by Executive Order(s).

b. BLM may determine it desirable to file an application for any beneficial use other than livestock water at the time of a non-BLM entity's application for livestock water. In such a case federal funds may be expended for the development, operation and maintenance of the BLM portion of the development. It is encouraged (not required) that BLM include its application at the same time (preferably in the same envelope) with the non-BLM entity's application so that both applications receive the same priority date and time.

3. PROTESTS

a. Applications by individuals, groups, or agencies to appropriate water on public lands for programs administered by the BLM according to legislative and regulatory mandates will generally be protested.

b. If a non-BLM entity has filed an application for permit to water livestock on lands administered by BLM and the project does not provide a public benefit, then BLM will file a timely protest of the application before the State Engineer issues a permit. The State Engineer shall be informed based on supporting rationale from the CRR that, if a water right permit is issued, BLM will not authorize the development.

c. Upon notification from the State Engineer that a non-BLM entity has filed for a water right for stock water purposes on public land, the appropriate field office will complete a CRR to determine whether or not BLM will protest the application.

4. CONDITIONS FOR EXPENDITURE OF PUBLIC FUNDS

a. No expenditures of public funds for construction or infrastructure development shall be authorized on water sources for which the State Engineer has issued a permit of appropriation for livestock watering on public lands to a non BLM entity, unless BLM holds a second water right for other purposes, or an exception is granted by the State Director.

b. In those situations where BLM already holds a certificated water right for stockwater, the State Engineer has notified BLM that the right is subject to forfeiture or abandonment after 5 years of non-use. Therefore, before public funds may be used for operation, maintenance or modification of the water development, BLM must be granted a Change of Beneficial Use for a different category of use(s).

c. Modifications, i.e. change in point of diversion, of an existing livestock water development may be authorized after completion of a CRR; provided that the modification is consistent with resource management objectives as set forth in BLM Resource Management Plans or other land use plans. Modifications must be consistent with previous policy statements. Should the proposed modification require a new application to the State Engineer, an application will be filed.

d. BLM may file to appropriate water for all identified beneficial uses for programs administered by the BLM according to legislative and regulatory mandates, other than livestock. No development/construction or expenditures of public funds shall be authorized on water sources for which the State Engineer has not issued a permit of appropriation except for public water reserves (see 5. Public Water Reserves).
e. BLM may, after completion and documentation of a CRR, authorize through a cooperative range improvement agreement[18] pipelines on public lands where the source originates on private lands and the permittee holds a valid State appropriative or vested water right**.** The cooperative range improvement agreement will include specific requirements for: construction, maintenance, requirements for removal of materials on abandonment, and documentation of the acknowledgement and acceptance of any imposed condition(s) of approval, such as making water available for wildlife and wild horses or burros as, well as other permittees' livestock in common use allotments.

5. PUBLIC WATER RESERVES (PWR)

a. All new applications filed by any non-BLM entity to appropriate water at springs, seeps, or waterholes which are in conflict with current or foreseeable, quantifiable or quantified needs for human and animal use, previously reserved by executive order as a PWR, shall be protested. If a notification that the source is reserved has not been filed with the State Engineer, notification shall accompany the protest or be completed by the earliest possible date.

b. If the dependable flow of a spring or waterhole exceeds the quantity necessary to fulfill the PWR purpose, then the spring or waterhole will be evaluated to determine public needs for State appropriative water right for non-reserved beneficial uses as allowed under State law. BLM will file for and hold appropriative water rights for valid beneficial uses.

c. Pursuant to an existing agreement with the Nevada State Engineer, Field Office shall notify the State Engineer regarding the surface waters, springs and waterholes, on public lands that qualify as a PWR (as authorized by Executive Order 107 and other valid Executive Orders).

[18] Consistent with 43 CFR 4120.3-2(b) which states in pertinent part, *"…The authorization for all new permanent water developments such as spring developments, wells, reservoirs, stock tanks, and pipelines shall be through cooperative range improvement agreements,*" projects may be authorized and developed through Cooperative Range Improvement Agreements.

d. No expenditures of public funds shall be authorized for development/construction of reserved waters for the purpose of livestock grazing on public lands without prior State Engineer notification that the source water is reserved under PWR 107 or other valid existing PWR.
e. BLM will pay the appropriate fees established by the state for notification of reserved rights, except when notifications are being made as part of a general adjudication. BLM does not pay fees for submission of water rights claims in adjudications that fall under the McCarran Amendment.

f. In cases where water from a PWR is to be piped to a different 40 acre parcel, BLM will use the notification process to alert the State Engineer of the place of use. BLM will not file a Change of Place of Use Application with the State Engineer.

6. WATER RIGHTS RELATING TO REALTY ACTIONS

Review of the BLM Acquisitions Handbook is strongly recommended prior to pursuit of any acquisition of interest in lands.

a. All acquisitions of interests in land (e.g. water rights) must be consistent with approved land use plans prepared pursuant to the Federal Land Policy and Management Act (FLPMA).

b. For any proposed acquisition of water associated with a land acquisition (purchase or exchange), it must be determined if the BLM can make sustained beneficial use of existing water rights which may be offered as a component of the realty action. BLM Nevada will acquire only those quantities of water determined necessary to support the management objectives for the acquired lands. If BLM is unable to make sustained beneficial use of the existing water right, the current owner will obtain a Change of Beneficial Use from the State Engineer for the category of use and water quantities prescribed by BLM.

c. When water rights are changed from one beneficial use to another, the duty (quantity of water appropriated by that right) may be adjusted by the State Engineer. Therefore, the duty or quantity of water to be transferred should be determined and documented by the Field Office prior to the appraisal process.

d. In the nomination phase, a BLM Field Office must perform an assessment of the water right offered to ascertain the priority date, quantity of water available, place(s) of diversion, place(s) of use, beneficial use(s) and the status of the water right(s). Such work may be contracted to a private source.

e. The authority for accepting title to interests in land rests with the Office of the Regional Solicitor (Sacramento). In most cases, BLM will be unable to acquire water rights by a General Warranty Deed. Often the acquisition will be a quitclaim deed, although it may be possible to negotiate the use of a special warranty deed. Under this type of deed, the current owner will warrant title from any defects due to the grantors' actions and for the period the current owner has held title to the water. Only after receipt

of a satisfactory final title opinion, should the federal payment for the water be completed.

Questions regarding this Instruction Memorandum should be directed to Meg Jensen, DSD, Resources, Lands and Planning at 861-6464 or Ted Angle, Acting Soil, Water and Air Program Lead at 861-6401.

Signed by:
Robert V. Abbey
State Director, Nevada

Authenticated by:
Ellyn Darrah
Staff Assistant

Attachments (2)

1) Instructions for Commitment of Resources Review (1 p)
2) Commitment of Resources Review NV 7250-1 Form (1p)

Appendix 5 – Commitment of Resources Review.

U.S. Department of Interior
Bureau of Land Management
Nevada State Office

COMMITMENT OF RESOURCES REVIEW

Name of Spring or Well: _Evans Flat Water Development _30 N _52 E _8_
(Township) (Range) (Section)
Application Number (if any) _____

Description of Proposed Project: The BLM is proposing to authorize either a spring development and pipeline system or well and pipeline system in the Lee Canyon/Evans Flat area of the Pine Mountain Allotment. The spring development will be located in T. 30 N., R. 53 E., sec 8 NE1/4 NE1/4 MDM. The well would be drilled in T. 30 N., R. 52 E., section 11. A pipeline and troughs would be constructed providing for places of use in T. 30 N., R. 52 E., sections 11, 12, and 13. Water rights for the proposed developments will be acquired through applications by BLM and Tomera Ranches, Inc. – Stonehouse Division. BLM will apply for wildlife rights and Tomera Ranches, Inc. will apply for a diversion of their vested claims for stockwater rights. Water development costs will be paid by a combination of funding from Tomera Ranches, Inc., BLM, and possibly N-1 Board funding.

This proposal is consistent with one or more of the following criteria (check all applicable items):

__X__ Improve distribution of livestock away from sensitive riparian areas
____ Protect the habitat of aquatic-dependent resources
____ Protect water quality
__X__ Improve the availability of waters for wildland fire suppression
__X_ Promote meeting fundamentals of rangeland health
_____ Resolve other multiple use conflicts

___X_ None of the following exceptions apply:

- Conflict with attainment of resource objectives including, but not limited to, habitat protection of sensitive or listed species (sage grouse, pygmy rabbit, etc), and/ or;
- Primary objective is to provide water for adjacent private lands (consider a right-of-way authorization), and/or;
- Project compromises compliance with laws, regulations, and direction set forth in resource management plans or land use plans, and/or;
- Conflict with wild horse/burro management objectives**.**

Based on this analysis, BLM will:

__X__ file for a water right and expend public funds
_____ protest filing by non-BLM entity

__Karl Scheetz – Lead Rangeland Management Specialist _____
Preparer, Title Date

I concur with this Commitment of Resources Review:

_____ _____

Field Manager/Assistant Field Manager Date

NV 7250-1
(October, 2005)

Appendix 6 – Request for Waiver to Expend Public Funds.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Elko District Office
3900 Idaho Street
Elko, Nevada 89801-4211
http://www.blm.gov/nv/st/en/fo/elko_field_office.html

In Reply Refer To: Jun 21, 2011
7250/4130 (NVE0200)

Memorandum

To: State Director, Nevada (NV-950)

From: David Overcast
Field Manager, Tuscarora Field Office (NVE0200)

Subject: Evans Flat Water Project – Request For Waiver

This office is requesting your approval to expend public funds on a water project which does not meet the requirements for public funds expenditure established by current BLM Nevada water rights policy. BLM Nevada water rights policy, as outlined in IM No. NV 2005-77, states that BLM will only spend public funds commensurate with BLM's share of the water right. This memorandum also states that public funds may be spent in such a situation where an exception is granted by the State Director.

The proposed project is a spring development and pipeline system that would originate from a water source in Lee Canyon and piped to water troughs placed on Evans Flat bench in the Pine Mountain Allotment. The proposed project would be located about 15 miles south of Carlin, Nevada within T. 30 N., R 52 and 53 E. Cost of the water project is estimated to be $60,000.

The purpose of this project is to provide livestock water on Evans Flat, a broad mid elevation bench, to improve distribution and reduce cattle use in the Trout Creek area to the south. NEPA analysis for this project is being prepared.

Pursuing the proposal to provide stock water on Evans Flat comes from a commitment made by Elko District in 2004. At that time, Elko District Manager, Helen Hankins, and ADM - Renewable Resources, Clint Oke, were working with the livestock permittee in the Pine Mountain Allotment, Tomera Ranches, Inc. – Stonehouse Division, to improve aquatic and riparian habitat conditions in the Trout Creek system located south of Lee Canyon and Evans Flat. The proposal was to build a fence to create a new pasture (Trout Creek Pasture) to enclose most of the upper and middle portions of the Trout Creek system, and then implement changes in cattle periods of use to improve aquatic and riparian habitat. The plan was to place most or all of the cattle in the Trout Creek Pasture in the spring/early summer and then move all the cattle into the Lee Canyon/Evans Flat Pasture to the north for the remainder of the summer/fall grazing season. The Trout Creek Pasture Fence would cross both public lands and private lands (owned by the permittees) that occur in a checkerboard land pattern.

The Trout Creek Fence would have watergaps so that cattle grazing north of the fence would have access to water in Trout Creek. The discussion to improve Trout Creek also included proposals to develop additional stock waters in the Evans Flat and Lee Canyon areas to improve distribution so that fewer cattle would need to water and graze the area immediately north of the new Trout Creek Fence. Two water developments were proposed. One proposal was to equip and pump water from a well that had previously been drilled on the permittees private land in lower Lee Canyon. The second proposal was to install a new water system to provide water on Evans Flat. At the conclusion of these discussions, the permittee supported construction of the Trout Creek Pasture Fence along with the associated changes in cattle periods of use, and agreed to equip and pump the well in lower Lee Canyon. Elko District agreed to pursue a water project for Evans Flat bench.

The permittee equipped and began pumping water from the well in lower Lee Canyon soon after the meetings in 2004. The Elko Office constructed the Trout Creek Fence in 2004; however, moving forward with the proposal for the Evans Flat Water Project has been delayed due to personnel vacancies and other priorities. We are now moving forward with the proposed water project and are preparing the EA.

On December 7, 2010, during a meeting with Tomera Ranches, Inc., Mr. Tomera asked if the BLM would fund installation of that portion of the project to be constructed on Evans Flat which would be about $40,000 or 67% of the estimated total costs of construction. We told Mr. Tomera we would discuss his request and give him an answer.

Following our meeting with Tomera Ranches, Inc., Tom Warren, our Operations Manager, stated there was an expectation in 2004 that the Elko Office would fund most of the Evans Flat Water Project, and Tomera Ranches, Inc. was aware of that expectation. At that time, the proposal was to drill a well and install a pipeline system. Tomera Ranches, Inc. was only expected to contribute to drilling the well. However, no official decision was documented. This was prior to issuance of the 2005 water rights policy for Nevada BLM.

Regarding the Commitment of Resources Review (CRR), there are public benefits. The proposed project would improve livestock distribution as described above. The water project would also increase the availability of water for wildland fire suppression, at least on a short-term basis, however, recharge from the spring development would be relatively slow. Providing water on Evans Flat would also add flexibility for the development of future grazing management plans to attain the standards for rangeland health.

The cooperative agreement for this project has not yet been drafted; however, the permittees have indicated that they will pay for at least 33% of the construction costs. The permittees also understand they will be responsible for operation and maintenance. The responsibilities of the permittee would be stated in the cooperative agreement and would include a stipulation that the permittees allow emergency access to the water source for wildland fire protection and maintain wildlife access to the upland water sources. If a waiver is granted, this office will ensure that all funding sources are identified and quantified before spending any public money.

Water would be available at the source and throughout the distribution network for wildlife. The project would not be located within a herd management area and therefore no arrangements for utilization of water by wild horses would be included.

The Tuscarora Field Office does not yet have a water right for wildlife use; however, we plan to apply for wildlife water rights assuming the Evans Flat Water Project is approved. We anticipate the quantity of water for wildlife use would be approximately 0.0005 cfs, and the quantity of water requested by the permittee for livestock use would be approximately 0.01 cfs. BLM's share of the water rights would be 5% of the total; whereas, the BLM's proposed contributions towards project construction would be about 67% of total costs. We believe the improved livestock distribution within the Evans Flat Pasture, along with previous expectations that the BLM would pursue and fund most of the costs of a water project for Evans Flat, supports our proposal to expend funds in excess of our share of the water rights.

Therefore, the Tuscarora Field Office requests your approval to expend public funds on construction of the Evans Flat Water Project in excess of our commensurate share of the water rights. Your approval will be contingent upon the Tuscarora Field Office's approval to construct the water project.

Please respond with your approval or denial for the expenditure of public funds. If you have any questions regarding this project, please contact Karl Scheetz, Rangeland Management Specialist at 775.753.0280.

/s/ Kathryn W. Fuell, Acting for

David Overcast
Field Manager
Tuscarora Field Office

___X___ I concur.

_____ I do not concur.

/s/ Amy L. Lueders
Jul 19 2011
State Director, Nevada

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