APPENDIX A

List of Pod Members

NNSG - SAGE GROUSE POD MEMBERS

The following individuals attended one or more of the Sage Grouse Pod Meetings and were contributors to the Sagebrush Ecosystem Conservation Strategy:

Name	Affiliation
Will Amy	USFS, Wells
Kevin Atchley	USFS, Elko
Gary Back	SRK Consulting, Inc.
Harvey Barnes	Rancher, Jiggs
Jim Baumann	Rancher, Eureka County
Paul Blackburn	NRCS, Elko
Steve Boyce	Citizen/Sportsman, Spring Creek
Sheri Eklund-Brown	Elko County Commissioner, Elko
Leland Campsey	NRCS, Elko
John Carpenter	Assemblyman, Elko
Charles Chester	Sportsman, Elko
Doug Clarke	USFS, Elko
Leta Collord	Citizen, Elko
Patrick Coffin	USFWS/BLM
Mike Creek	Bald Mountain Mine, Spring Creek
Lucy Downer	Barrick Goldstrike Mines, Elko
Sid Eaton	NDOW, Elko
Steve Foree	NDOW, Elko
Derril Fry	Wildlife Services, Elko
Bill Gibbs	North East Elko Conservation District, Wells
Larry Gilbertson	NDOW, Elko
Dan Gralian	Rancher, Nv Cattlemen's Association
Carrie Hernandez	USFWS, Reno
Larry Hislop	Conservationist, Elko
Cheri Howell	USFS, Wells
Jon Hutchings	Eureka County, Eureka
Portia Jelinek	USFS, Elko
Martin Larraneta	Nv Dept. Agriculture, Winnemucca
Ray Lister	BLM, Elko Field Office
Lucia Machado	NDEP, Carson City
Kent McAdoo	UNR, Cooperative Extension, Elko
Merlin McColm	Conservationist, Elko
Shammy McClain	Rancher
Neil McQueary	Rancher, Ruby Valley
Peter Mori	Rancher, Owhyhee Conservation District, Tuscarora
Chuck Petersen	NRCS, Elko
J.D. Radakovich	Rancher, Tuscarora
Bob Reed	Rancher, Jiggs
Jake Reed	Rancher, Jiggs
Lisa Reed	Rancher, Jiggs
Lyle Rosendahl	North East Elko Conservation District, Wells
Alan Sharp	Rancher, Ruby Valley
Tom Talley	Sportsman, Spring Creek
Kevin Tomera	Rancher, Jiggs
Carl Uhlig	Elko Co. Association Conservation Districts, Montello
Bill Upton	Placer Dome U.S.A., Elko
John Wright	Rancher, Deeth
Fred Zaga	Rancher, Elko County PLUAC, Jiggs

APPENDIX B

Calculations of PMU Sage Grouse Population Estimates

CALCULATIONS OF PMU SAGE GROUSE POPULATION ESTIMATES

The table on the following page provides two examples to follow while reading the text below.

Base populations of sage grouse are estimated by starting with the known leks in an area. That number is multiplied by the percent of active leks to give the total number of leks expected to be active (active leks). The percent of active leks is determined by recent lek counts of known leks and the percentage of those documented as active.

The next step is to calculate the average number of cocks/lek from the most recent lek counts (total number of cocks observed divided by the number of leks). The average number of cocks/lek is multiplied by the total number of active leks, which equals the total number of cocks one could expect to observe on all leks, if all leks were counted.

The next step is to expand the number observed on leks by 2X based on sage grouse marking studies that indicate no more than 50% of cocks are observed on leks because of their attendance patterns. This provides the base population of males.

The next step involves estimating the base population of females. In the past, the number of cocks was multiplied by 2. This was based on sage grouse population studies. More recent population studies in Colorado suggest there are 2.73 females/male in the spring population. Obviously this number could vary and it would be acceptable to use almost any number between 2.0 and 2.73. NDOW is currently using 2.73.

The next step merely adds the base numbers of males and females to provide a total unexpanded base adult population.

One last step provides for a range of estimates that is derived from the estimated detection rate for leks. The biologist estimates a percentage range he expects leks have been detected in the area, (i.e. 50-80% or 80-90% or x% to xx%). This step requires the biologist to make an assessment of lek work conducted over the past 30+ years and to provide an estimate of the relative percentage of the area that has been adequately surveyed and leks subsequently documented. Example: If 1,000 birds is the base population and the biologist's detection rate suggests only 50% to 75% of the leks in the area have been detected, the estimated grouse population is between and 1,333 - 2,000.

Example Table of Calculations to Estimate PMU Sage Grouse Populations

PMU	Total Known Leks	% Active	% Active X Total Known Leks	Average Cocks/ Lek	% Active Leks X Average Cocks/ Lek	X 2 = Total Males (50% of cocks obs)	X 2.73 (females/male on lek) = Total Hens	Males + Females = Total Adults (before detection rate)	Highest Expected Detection Rate 1 (use decimal for %)	Lowest Expected Detection Rate 2 (use decimal for %)	X detection rate 1 = Low pop est	X detection rate 2 = High pop est.
Area 1	18	0.85	15.3	10.0	153.0	306	835	1141	0.9	0.75	1268	1522
Area 2	240	0.6	144.0	11.6	1670.4	3341	9120	12461	0.7	0.6	17802	20769

APPENDIX C

PMU Risk Factor Matrix and Definitions

Population and Habitat Risks		Population Management Units - Elko									
		Desert	Islands	Tuscarora	N. Fork	O'Neil Basin	Snake	Gollaher	S. Fork	Ruby Valley	East Valley
Habitat Quantity	Low-1 Mod-2 High-3	2	1	3	1	2	1	3	2	2	3
Habitat Quality	Low-1 Mod-2 High-3	2	1	3	1	1	1	3	2	2	3
Habitat Fragmentation	Low-1 Mod-2 High-3	1	1	3	2	2	2	3	2	1	1
Changing Land Uses	Low-1 Mod-2 High-3	1	1	2	2	1	2	1	2	1	1
Livestock Grazing	Low-1 Mod-2 High-3	2	1	3	3	2	1	2	3	1	1
Fire Ecology	Low-1 Mod-2 High-3	1	1	3	2	1	2	1	2	1	1
Predation	Low-1 Mod-2 High-3	1	1	2	2	1	2	1	2	1	1
Disturbance	Low-1 Mod-2 High-3	1	1	3	2	1	1	1	3	1	1
Disease/Pesticides	Low-1 Mod-2 High-3	1	1	1	1	1	1	1	1	1	1
Hunting/Poaching	Low-1 Mod-2 High-3	1	1	1	1	1	1	1	2	2	2
Cycles/Populations	Low-1 Mod-2 High-3	1	1	1	1	1	1	1	2	2	3
Climate/Weather	Low-1 Mod-2 High-3	2	1	2	1	1	1	1	1	1	3
Risk Factor Total		**16**	**12**	**27**	**19**	**15**	**16**	**19**	**24**	**16**	**21**

SAGE GROUSE POPULATION RISK FACTORS

DESERT PMU (Rating: 16)

Habitat Quantity (2)

- Insufficient water and poor distribution
  - guzzlers, solar wells
  - improve springs and mesic areas
  - repair riparian zones
- Vast amounts of sagebrush
  - selective fire suppression

Habitat Quality (2)

- Large areas of old age class sagebrush
  - selective fire suppression
  - prescribed burns, beating, chemicals
- Poor understory
  - vegetal manipulation
- Mesic and riparian zones in poor to fair condition
  - protect, rehabilitate, reestablish historic meadows
- Annual Grass Invasion
  - rehab following fire events

Habitat Fragmentation (1)

- Not perceived to be a problem

Changing Land Uses

- Not perceived to be a problem

Livestock Grazing (2)

- Wild horse numbers may be high for available habitat
  - continue monitoring to adjust population estimate
  - control horse numbers
- Livestock distribution may be a problem during dry season
  - establish more watering sources
- Allotment evaluations need to be updated
  - (add BLM data)

Fire Ecology

- Potential exists for extremely large wildfires
  - selective fire suppression
  - vegetal manipulation for fire breaks
  - green strips

Predation (1)

- Not determined to be a problem

Disturbance (1)

- Not determined to be a problem

Disease/Pesticides (1)

- Not determined to be a problem

Hunting/Poaching (1)

- Not determined to be a problem

Cycles/Populations (1)

- Population range 696 to 836
- Not determined to be a problem
  -lack of historical data

Climate/Weather (2)

- Subject to extreme weather
  -protect sufficient amounts of seasonal habitat

ISLANDS PMU (rating : 12)

Habitat Quantity (1)

- Not a problem at present time
  -coordinate with Idaho to insure sufficient wintering habitat for Nevada birds during extreme winters

Habitat Quality (1)

- Not determined to be a problem
  -brooding and summer use areas need to be evaluated

Habitat Fragmentation (1)

- Not a problem in Nevada
  -need to coordinate with Idaho to prevent fragmentation of winter use areas

Changing hand uses (1)

- Not a problem

Livestock Grazing (1)

- Allotment evaluations need to be updated
  -need to coordinate with USFS and BLM (Idaho) to insure compliance

Fire Ecology (1)

- Not a problem
  -fire suppression recommended

Predation (1)

- Not a problem

Disturbance (1)

- Not a problem

Disease/Pesticides (1)

- Not a problem
  -no data

Hunting/Poaching (1)

- Not a problem

Cycles/Populations (1)

- Population range 1,094 to 1,313
- Not a problem
  -need to conduct surveys and share data with Idaho

Climate/Weather (1)

- Subject to extreme winter conditions
  -coordinate with Idaho to preserve ample wintering areas

TUSCARORA PMU (rating : 27)

Habitat Quantity (3)

- Loss of large tracks of habitat to wildfire
  -rehabilitate with sage grouse requirements considered
  -prevent large wildfires ; total suppression, green strips, etc.
- Loss of large tracks of habitat to mining
  -mitigate
  -rehabilitate disturbance
- De-watering due to mining
  -mitigate
  -continue monitoring
  -artificial water sources, if needed

Habitat Quality (3)

- Conversion of sage grouse habitat to annual grass
  -rehabilitate damaged areas with consideration for sage grouse needs
  -protect remaining unburned areas
- Riparian zones and mesic areas in poor to fair condition
  -protect and repair
- Loss of water sources possible
  -minimize net loss of water from PMU

Habitat Fragmentation (3)

- Large tracks of habitat lost to fires
  -rehabilitate, protect remaining area
- Water distribution may limit seasonal use
  -protect water sources, install guzzlers
- Large expanses of annual grass
  -rehabilitate

Changing Land Uses (2)

- Mining
  -mitigate losses of public land lost
- Land exchanges
  -recommend no net loss of sage grouse habitat

- Agricultural conversion (hay farms)
  -probably no net loss of habitat

Livestock Grazing (3)

- Allotment evaluations outdated
  -sheep trailing through critical use areas
  -some brooding habitat needs improvement

Fire Ecology (3)

- Vast acreage lost to wildfires, high risk of reburn
  -rehabilitate burns to enhance sage grouse habitat
  -protect remaining sagebrush zones

Predation (2)

- Moderate concern of increased predation due to reduced quality of habitat
- Major powerlines provide perches for avian coyotes

Disturbance (3)

- Mining and exploration activity
  -restrict season of use in critical habitat
  -rehabilitate abandoned travelways
    -render unusable
- Powerlines
  -restrict utility routes to existing corridors
  -retrofit powerlines with antiperching devices as sage grouse use data is updated
  -restrict use of maintenance roads to maintenance or emergency vehicles
- Ranchettes/subdividing
  -consider sage grouse on all zoning processes
  -restrict land exchanges that will change land use patterns
  -mitigation for all lost sage grouse habitat
- Off real vehicle abuse
  -consider road closures and vehicular restrictions in land use planning
  -create realistic, enforceable laws to regulate ORV use.
- Sheep trailing
  -should not pass through critical sage grouse use areas

Disease/Pesticide (1)

- No known problems
  -chemical hazards associated with mining are generally addressed for all wildlife species through environmental assessments and mitigation

Hunting/Poaching (1)

- Not a problem

Cycles/Populations (1)

- Population parameters indicate general downward trend over past two decades
  -continue population monitoring

Climate/Weather (2)

- PMU is subject to extreme weather
  - define and protect winter use areas

NORTH FORK P.M.U. (19)

Habitat Quantity (1)

- Large blocks remains intact
  -will need to be protected to prevent large scale loss

Habitat Quality (1)

- Habitat contains adequate mixture of sage types and age classes and water sources
- Seasonal habitat types well distributed and represented
  -Nesting and brood rearing use areas should be monitored to detect any needed improvements or changes in trend

Habitat Fragmentation (2)

- Some fragmentation has occurred due to fires, powerlines, urbanization, ranchettes and seedings
  -sage grouse needs must be considered in all scoping of these types of projects. mitigation may be necessary
  -no net loss of sage grouse habitat should occur

Changing Land Uses (2)

- Increased urbanization will have negative impacts to sage grouse habitat
  -land exchanges should result in no net loss of habitat
  -zoning processes should consider sage grouse values
  -potential may exist for conservation easements to be established for important habitat now under private ownership

Livestock Grazing (3)

- Allotment Evaluations - need updates
  -(list dates, needs)

Fire Ecology (2)

- Potential exists for large scale loss to fire
  -projects to prevent large scale loss needed
- Potential exists for annual grass and weed invasion
  -rehabilitate burned areas

Predation (2)

- Avian predation compounded by multiple powerlines, providing perches
  -retrofit with anti-perching devices
  -raven control may be necessary in some nesting areas
  -could coordinate coyote control for livestock with sage grouse needs near leks and nesting

Disturbance (2)

- Vehicular access overabundant throughout all season of use areas
  - consideration should be given to seasonal road closures
  - " " off road vehicle restrictions
- Mining and Exploration
  - season of use restrictions necessary
  - all travelways must be rehabilitated so as to preclude access by any vehicle
- Powerlines
  - may cause abandonment of leks and negatively impact sage grouse survival
  - should be routed away from leks, breeding complexes and wintering ground areas
  - anti-perching devices when needed
  - no net gain of vehicular access due to construction or maintenance
- Ranchettes/Subdivisions
  - all land exchanges should have no net loss of sage grouse habitat
  - zoning process should consider sage grouse needs
  - powerlines should meet BLM wildlife standards

Disease/Pesticides (1)

- No known disease problems
- Pesticide use could negatively impact sage grouse
  - all pesticide use on public lands should adhere to NEPA process
  - pesticide users on private lands should be advised of any potential risks to wildlife

Hunting/Poaching (1)

- ♦ Not a known problem
  - hunting provides valuable data on sage grouse population (hunting should be used as a management tool and monitored closely)

Cycles/Populations (1)

- ♦ Population well above viable minimum
  - Population range 10,046 to 12, 055
- ♦ Population presently static with long term downward trend
  - monitoring needs: leks, production values, harvest distribution

Climate/Weather (1)

- ♦ Area subject to extreme weather conditions and wide array of weather patterns

O'NEIL BASIN (15)

Habitat Quantity (2)

- ♦ Wildfire has consumed vast acreages of sage grouse habitat
  - rehabilitation efforts have been initiated on most affected areas
  - extensive areas of sage grouse habitat remain available

Habitat Quality (1)

- ♦ Habitat remaining has potential to provide high quality year-long sage grouse habitat
  - the PMU possesses adequate water, optimum elevation parameters, extensive, desirable topographic features and a fair component of desirable sagebrush species
  - fire rehabilitation efforts should benefit sage grouse in future years
  - some opportunities exist for vegetal manipulation to enhance existing range conditions

Habitat Fragmentation (2)

- ♦ Wildfire have fragmented portions of PMU
  - negative impacts should lessen as rehabilitation of vegetal communities progress
- ♦ Ranchette communities pose potential threat to contiguous expanses of habitat
- ♦ Major utility corridors bisect PMU
  - use existing corridors for future needs
  - retrofit utility towers with anti-perching devices in zone of influence to sage grouse

Changing Land Uses (1)

- Open space – agricultural land being converted to residential
  - all land exchanges and zoning regulations should consider sage grouse habitat
  - no net loss of sage grouse habitat
- Increased off-road vehicle use may have negative impacts
  - leks and wintering areas could be disturbed

Livestock Grazing (2)

- Land use plans need to be updated
- Post fire monitoring and analysis will be incorporated into management schemes

Fire Ecology (1)

- Wildfires have burned important areas of sage grouse habitat
  - restoration efforts mostly completed
  - fire suppression should be a priority in key sage grouse habitat
  - fire breaks should be incorporated into fire plans and restoration projects
- Opportunities exist in some areas for vegetal manipulation for rejuvenation of sagebrush habitats

Predation (1)

- Not a major concern in PMU in general
  - utility corridors could have had negative impacts on leks and wintering areas, but not documented
  - raven numbers may be at artificially high levels near human developments and dumps

Disturbance (1)

- Many lekking areas accessible by vehicle
  - disturbance by vehicular traffic may disrupt breeding activities
  - ease of access may encourage visitation of leks
- Wind power generation may disturb or kill sage grouse
  - monitoring, analysis and mitigation necessary
- Presence of utility corridors have been kept to a minimum
  - use existing corridors for future use
- Increased off-road vehicle use a concern
  - public education needed
  - regulations may be necessary if negative impacts are documented

Disease/Pesticides (1)

- ♦ It is unknown if diseases affect sage grouse in PMU
- ♦ No known pesticide problems
  - all applications on public land must meet NEPA standards
  - landowner awareness programs may be beneficial

Hunting/Poaching (1)

- ♦ Hunting not a significant impact
  - hunting is a good management tool to collect production and age class data
- ♦ Poaching not documented as a serious problem

Cycles/Populations (1)

- ♦ Population range 8,305 to 9,967
  - static with long term downward trend

Climate/Weather (1)

- ♦ PMU subject to extreme weather
- ♦ Precipitation patterns generally sufficient to benefit sage grouse habitat

SNAKE PMU (16)

Habitat Quantity (1)

- ♦ Majority of PMU contains sage grouse habitat of varying seral stages and quality
- ♦ Wildfires have consumed several important portions
- ♦ Large tracts of private lands exist within PMU

Habitat Quality (1)

- ♦ A large portion of the PMU still contains fair to good yearlong sage grouse habitat
  - fires have been rehabilitated
  - monitoring will determine need for future manipulation to improve sage grouse habitat
  - older seedings now have enough sagebrush present to provide limited sage grouse habitat
- ♦ Range management strategies are in place and being explored that should improve habitat quality
- ♦ Water distribution is widespread and generally consistent
  - water quality should be monitored and protected
- ♦ Large tracts of potential winter use areas exist
  - winter use areas should be defined and protected

- telemetry studies are ongoing to determine season of use habitat characteristics

Habitat Fragmentation (2)

- ♦ PMU divided by interstate highway
- ♦ PMU divided by utility corridor
  - all future utility need(s) should be contained in existing corridors
  - option of underground utility lanes should be explored
  - existing poles and towers should be retrofitted with anti-perching devices where lek or wintering ground existed in past or are documented in future
- ♦ PMU divided by main country roads
  - speed limits should be conservative and enforced

Changing Land Uses (2)

- ♦ Presently not a problem
  - due to extensive private land potential exists for increased agricultural practices, subdivisions or land exchanges
  - impacts to sage grouse should be considered during analysis of land exchange proposals
  - zoning regulation changes should consider future impacts to wildlife habitats
- ♦ Mining activity quiet at present time
- ♦ Power generation, wind or other types may be proposed in the future

Livestock Grazing (1)

- ♦ Grazing management plans are current and being refined to enhance range condition

Fire Ecology (2)

- ♦ Wildfires have affected large areas of habitat
  - rehabilitation complete but needs continued monitoring to determine success and future needs for enhancing sagebrush habitat
  - annual grass invasion is a potential problem
  - fire breaks needed
  - full suppression recommended

Predation (2)

- ♦ Predation, both avian and terrestrial, documented as a problem to grouse nesting and brood survival in PMU
  - predator control (ravens, coyotes) was being conducted in conjunction with sharptail grouse reintroduction efforts (predator control cancelled by DOW predator control committee)
  - utility towers pass through breeding complexes and wintering areas providing perches for avian predators

Disturbance (1)

- Interstate highway and major county roads bisect PMU
- Utility corridor bisects PMU
- Vehicular access abundant yearlong to most of the PMU
  - increased recreational use by both full size and off-road vehicles
- Proposed wind power generators may cause disturbance of sage grouse

Disease/Pesticides (1)

- Disease not a documented problem
- Pesticide use not a documented problem

Hunting/Poaching (1)

- Poaching, hunting not a documented problem or negative impact on PMU population

Cycles/Populations (1)

- Population range 2,636 to 3,163
- Population static with long term downward trend
  - monitoring of leks, production, harvest and habitat use ongoing
  - telemetry research ongoing

Climate/Weather (1)

- PMU subject to extreme weather conditions
- Overall weather patterns are generally favorable for sage grouse habitat maintenance and bird survival

GOLLAHER PMU (19)

Habitat Quantity (3)

- Vast amounts of sage grouse habitat burned
  - rehabilitation projects complete
  - monitoring needed to determine additional needs for sage grouse
  - manipulation of livestock use criticizal for recovery
  - may need to improve habitat in older burns to speed up recovery of PMU
- Water availability adequate

Habitat Quality (3)

- Fires have eliminated vast amounts of sagebrush
  - cumulative effects of fires have reduced the quality of sage grouse habitat dramatically
  - need to evaluate all burned areas and formulate vegetative manipulation plan to enhance sage grouse habitat
- Water sources in varying degrees of degradation
  - water sources, mesic areas and what few riparian areas exist need to be protected and rehabilitated
  - due to private land holdings, land exchanges, purchases or mitigation may be necessary

Habitat Fragmentation (3)

- PMU crossed by major utility corridor
  - use existing corridor for all future needs
  - retrofit existing towers with anti-perching devices if determined beneficial
- Fires have fragmented sage grouse seasonal use areas
  - rehabilitation plans should consider need of corridors and connecting blocks of remaining habitat
- Main county roads meander through PMU
- Hundreds of miles of fencing are present
  - all future fencing modification or construction must consider sage grouse use areas

Changing Land Uses (1)

- Not seen as a problem at current time
  - future expansion of Jackpot could have some impacts
  - conversion of range land to agriculture is a possibility considering the amount of private land in PMU
  - proposed power plant could affect land use dramatically

Livestock Grazing (2)

- Allotment evaluations need to be updated
  - continual monitoring needed to determine recovery of burned areas
- The amount of private land within PMU will influence grazing strategies available to improve overall condition of sage grouse habitat

Fire Ecology (1)

- Fires have already affected large areas
  - full suppression recommended
  - green stripping recommended

Predation (1)

- ♦ Not a major concern
  - predation may have increased due to habitat degradation

Disturbance (1)

- ♦ Proposed power plant and associated disturbance may be a potential problem
- ♦ Wind power generators may be a problem
  - research on effects of generators should be required with permits
- ♦ Military aerial maneuvers
  - unknown disturbance levels

Disease/Pesticides (1)

- ♦ Not a known problem at this time

Hunting/Poaching (1)

- ♦ No impacts presently

Cycles/Populations (1)

- ♦ Population range 5,172 to 6,207
  - downward trend due to habitat loss
  - monitoring needed

Climate/Weather (1)

- ♦ PMU subject to weather extremes
  - need to protect wintering areas

SOUTHFORK PMU (24)

Habitat Quantity (2)

- ♦ Fire has greatly reduced quantity of sagebrush habitat
  - -rehabilitation accomplished
    - -may need further efforts to meet sage grouse need in some areas
    - -monitoring of recovery essential
    - -fire suppression recommended
    - -measures to protect remaining habitat needed
- ♦ Water distribution limited on some areas of PMU
- ♦ Past seedings removed large tracks of sagebrush
  - -recommend planning seeding maintenance with sage grouse needs considered

- Urbanization has reduced quantity of suitable sage grouse habitat
  -several communities exist within PMU and have expanded considerably in recent years resulting in direct loss of habitat, fragmentation, and disturbance

Habitat Quality (2)

- Fires have destroyed vast amounts of prime habitat
  - continued reclamation recommended
- Past seedings were large blocks converted to grass
  - maintenance should be planned with sagebrush obligate species considered
- Some riparian and springs are degraded and in less than desirable condition
  - protection and managed use needed
- Aspen stand regeneration less than optimal in places
  - all aspen should be inventoried, analyzed and put under proper management
- Water distribution limited in southern portion
  - possible opportunity for artificial water sources
- P J encroachment occurring in Unit 103
  - minimal problem currently but may need to be addressed in future

Habitat Fragmentation (2)

- Urbanization has fragmented habitat
- Major roads and transmission lines throughout PMU
- Fires have left large voids in previously contiguous habitat

Changing Land Uses (2)

- Urbanization a concern
  - community expansion and rural developments will continue to reduce amount of sagebrush habitat
  - zoning regulations should consider net loss of habitat
- Private lands being converted from open range to agriculture may increase
- Designated recreational areas, such as South Fork State Park, have changed use patterns for surrounding lands
  - increased human activity associated with recreational demands will continue to affect sage grouse

Livestock Grazing (3)

- Allotment plans need to be updated
  - seasonal habitat requirements of sage grouse need to be considered during planning process
- Post fire grazing needs to be monitored and analysis made to determine if desired range conditions are being achieved

Fire Ecology (2)

- Fire has destroyed and fragmented vast areas of PMU
  - annual grass and weed invasion a concern
  - total suppression recommended
  - protection of remaining habitat critical

Predation (2)

- Predation probably increased considerably due to loss of good habitat
  - raven populations at inflated levels due to human activities and urbanization

Disturbance (3)

- Disturbance levels high in many portions of PMU due to close proximity to urban and rural communities and designated recreational use areas
- Major roads throughout PMU
- Off-road access plentiful
  - may need in future to limit off-road use
- Regional airport increases aerial traffic over PMU

Disease/Pesticides (1)

- Not a known problem
  - chance of domestic fowl disease higher in this PMU due to human development and occupancy
- Pesticide contamination not a known problem

Hunting/Poaching (2)

- Due to close proximity to communities hunting pressure and poaching could potentially have negative impact on localized populations of sage grouse
  - this PMU should be considered separately from the rest of Elko County when establishing sage grouse hunting seasons
  - special consideration should be given this PMU for law enforcement activities

Cycles/Populations (2)

- Population adversely affected by loss of habitat in recent years
  - overall loss of habitat and especially loss of critical breeding and brood rearing areas have negatively impacted local sage grouse populations
  - population will not recover until habitat is restored

Climate/Weather (1)

- Normal climatic patterns are usually conducive to maintaining healthy range conditions and water sources

RUBY VALLEY PMU (16)

Habitat Quantity (2)

- Several sections of this PMU do not possess good sage grouse habitat or only limited quantities
  - Maverick Mtns., Delcer Buttes, Long Valley, Pequop Mtns., Valley Mtn., Wood Hills, Spruce Mtn
  - water distribution limited
  - P J encroachment
  - lake playas etc.,
  - potential exists in some areas to enhance habitat or provide water

Habitat Quality (2)

- Water distribution limited in some areas
- P J encroachment
- Past fires or seedings not yet fully recovered

Habitat Fragmentation (1)

- Not a problem within PMU
  - mountain ranges within PMU may not be barriers, bird movements not identified

Changing Land Uses (1)

- Not a problem at present time
  - changes from open range to agriculture has been expanding, but slowly
  - limited subdivision of private land to date

Livestock Grazing (1)

- Most land use plans up to date
  - monitoring ongoing
  - grazing strategies being analyzed

Fire Ecology (1)

- Wildfire has claimed some key areas but recovery is occurring
  - recommend suppression in critical sage grouse habitat
  - recommend limited suppression in P J zones

Predation (1)

- Not a problem

Disturbance (1)

- Not a widespread problem
  - recommend limited season of use near leks (gravel pits and exploration)

Disease/Pesticides (1)

- Not a documented problem

Hunting/Poaching (2)

- This PMU has a few rather localized populations that should be considered separately when establishing hunting seasons
- Poaching is a potential problem due to close proximity to human developments and activity

Cycles/Populations (2)

- Population range 1,741 to 2,089
  - population trend downward for many years

Climate/Weather (1)

- PMU subject to extreme weather
  - protection of winter use areas critical
  - winter use areas need to be better defined

EAST VALLEY PMU (21)

Habitat Quantity (3)

- PMU has limited sage grouse habitat
  - this portion of Elko County begins transition to desert scrub community divided by high, dry, mountain ranges
  - geologic, topographic and climatic zones preclude major portions of PMU from ever being high quality sage grouse habitat

Habitat Quality (3)

- Same as above

Habitat Fragmentation (1)

- Mountain ranges may prevent movement between isolated populations
  - no data, PMU needs to be surveyed

Changing Land Uses (1)

- Not a problem at this time

Livestock Grazing (1)

- Land use plans up to date
  - specific sage grouse use areas may deserve attention with regard to grazing after use areas are better defined

Fire Ecology (1)

Predation (1)

- Not a known problem
  - special concern may develop if isolated populations are defined and appear to be affected by predation

Disturbance (1)

- Not a problem

Disease/Pesticides (1)

- Not a known problem

Hunting/Poaching (2)

- Due to very low numbers of birds and localized populations this PMU should receive special consideration when determining hunting seasons

Cycles/Populations (3)

- Limited, isolated populations may be extremely vulnerable to cyclic events
- Population range 398 to 477
  - much of PMU unsurveyed

Climate/Weather (3)

- Drier portion of Elko County

APPENDIX D

Population Management Unit Habitat Condition Risk Factor Rating Description

HABITAT CONDITION ASSESSMENT
For the
NORTHEAST NEVADA
SAGEBRUSH CONSERVATION STRATEGY

Utilizing the best available information, sagebrush habitat conditions within seasonal sage grouse habitats in Northeast Nevada Population Management Units were evaluated and categorized into five different condition classes consistent with the Governor's Sage Grouse Conservation Strategy. The following describes each condition class and the methodology utilized to determine the current habitat condition rating.

R-0 Habitat areas with desired species composition that have sufficient, but not excessive, sagebrush canopy and sufficient grasses and forbs in the understory to provide adequate cover and forage to meet the seasonal needs of sage grouse.

Sagebrush cover types within the BLM Elko Field Office area of administration were identified utilizing regional vegetation cover data from the SAGEMAP GIS data base ("stitch map"). This data base made available a map depicting the current distribution of 10 sagebrush cover types generated from readily available data on vegetation, elevation, and soil characteristics. Using this regional sagebrush cover type information as the starting point, additional local information (i.e. fire history, soil survey data, land treatment records, current ecological condition data, and professional judgment) was utilized to assess and categorize these areas into the appropriate R-Value category as described below. If a sagebrush cover type area was not categorized as R-1, 2, 3 or 4, it was categorized as R-0 by default. Therefore, it was assumed to currently have the desired sagebrush canopy and understory composition to adequately provide for the seasonal needs of sage grouse.

Regional sagebrush cover type data indicate sagebrush habitats exist within certain areas which have not been currently designated as seasonal sage grouse habitat. Although sage grouse are not known to currently occupy these areas, these areas were included in the assessment process, thus assuming they could potentially be occupied at some later date.

Soil survey data was not available for the Humboldt National Forest, the Duck Valley Indian Reservation and those portions of the Ruby Valley PMU and the South Fork PMU located in White Pine County. In the absence of other historical information (i.e. ecological condition data, wildfire history records, and land treatment records, etc.), the SAGEMAP cover type data ("stitch map") was utilized to assess habitat conditions within these areas. Sagebrush cover types designated as mountain sage and mountain brush were categorized as R-O.

R-1 Habitat areas which currently lack sufficient sagebrush and are currently dominated by perennial grasses and forbs yet have the potential to produce sagebrush plant communities with good understory composition of desired grasses and forbs.

Elko BLM land treatment records were utilized to map crested wheatgrass seedings within the planning area. Without considering the age or current condition of these seedings, it was automatically categorized as R-1. This assumed that the seeding project has been continuously managed to maintain a perennial grass dominated condition.

Fire history information for the period 1980-2002 was mapped utilizing available GIS data. Those areas above 6,000 feet elevation which have burned within the last five years were categorized as R-1. Those areas below 6,000 feet elevation which have burned within the last ten years were also categorized as R-1. These assumptions were based on the potential for range sites within these elevation ranges to naturally re-establish sagebrush dominated communities following wildfire events. Local knowledge of each burned area was utilized to verify these assumptions. Burned areas which have become dominated by annual vegetation (typically those burned areas below 6,000 feet elevation) were categorized as R-4.

Fire history and land treatment information was not available for sagebrush habitats within the Humboldt National Forest, the Duck Valley Indian Reservation, or public lands in White Pine County. Therefore, the SAGEMAP cover type data ("stitch map") was utilized to assess sagebrush habitat conditions within these areas. There were no areas categorized as R-1.

R-2 Existing sagebrush habitat areas with insufficient desired grasses and forbs in the understory to meet seasonal needs of sage grouse.

Based on existing ecological condition data and professional experience, it was determined that Loamy 8-10 inch range sites within the planning area are most likely to meet this category description. Therefore, the available soil survey data was queried to identify all soil mapping units in which 50% or greater of the area is comprised of Loamy 8-10 inch range sites (i.e. *Artemisia tridenta Wyomingensis* dominated sagebrush types). These areas, less any area previously categorized as R-1, R-3, or R-4 based on other available information, were categorized as R-2.

Soil survey information was not available for sagebrush habitats within the Humboldt National Forest, the Duck Valley Indian Reservation, or public lands in White Pine County. Therefore, the SAGEMAP cover type data ("stitch map") was utilized to assess sagebrush habitat conditions within these areas. Sagebrush cover types designated as black sagebrush, low sagebrush, and Wyomingensis sagebrush/Basin big sagebrush were categorized as R-2.

R-3 Sagebrush habitat areas where pinyon-juniper encroachment has potentially affected the potential to produce sagebrush plant communities that provide adequate cover and forage to meet seasonal sage grouse needs.

Utilizing existing soil survey data, soil mapping units were identified in which 50% or greater of the area is comprised of Woodland types. Pinyon-juniper woodlands are not assumed to be sage grouse habitat. However, sagebrush habitats located adjacent to pinyon-juniper woodland types are potentially affected by the encroachment of pinyon-juniper into these areas. The initial query depicting soil mapping units where 50% or greater is comprised of woodlands was assumed to be those areas of true woodlands. The soil survey data was then queried to identify those soil mapping units which are comprised of 25% or greater woodlands. This resulted in a larger polygon area generally situated adjacent to the true woodlands, thus verifying the assumption that these areas would be located adjacent to the true woodlands. The true woodland areas (queried as 50% or greater of the soil mapping unit) were then subtracted from the larger polygon (queried as 25% or greater of the soil mapping unit), leaving only those areas assumed to be potential encroachment areas. Basically, this was a polygon depicting soil mapping units in which woodland types comprise 25-49% of the soil mapping unit. Because the soil survey data could not be queried based on specific woodland type, it included other woodlands such as aspen, mountain mahogany, mixed conifer, etc. Therefore, professional judgment was utilized to identify and delete those areas other than pinyon-juniper types.

Because true woodlands are typically located on slopes greater than 15%, these areas were then deleted from the potential encroachment polygon. The resulting area (i.e. soil mapping units in which woodland types comprise 25-49% of the soil mapping unit and are less than 15%), less any area previously categorized as R-1 or R-4 based on other available information, was categorized as R-3. The true woodland types were not included in the habitat assessment.

Soil survey information was not available for lands within the Humboldt National Forest, the Duck Valley Indian Reservation, or public lands in White Pine County. Therefore, the SAGEMAP cover type data ("stitch map") was utilized to assess sagebrush and sagegrouse habitat conditions within these areas. Land cover types designated as pinyon/juniper were categorized as R-3.

R-4 Habitat areas which have the potential to produce sagebrush plant communities, but are currently dominated by annual grasses, annual forbs, or bare ground.

Fire history information for the period 1980-2002 was mapped utilizing available GIS data. Local knowledge of each burned area was utilized to verify any assumptions relative to natural re-establishment of sagebrush communities as described under R-1 above. Those burned areas which have become dominated by annual vegetation (typically those burned areas below 6,000 feet elevation where herbaceous understory vegetation was insufficient to ensure a desirable and/or predictable post burn successional response) were categorized as R-4. Local knowledge of other sagebrush habitat areas currently dominated by annual vegetation resulting from surface disturbances other than fire were also mapped and categorized as R-4.

Fire history information was not available for sagebrush habitats within the Humboldt National Forest, the Duck Valley Indian Reservation, or public lands in White Pine County. Therefore, the SAGEMAP cover type data ("stitch map") was utilized to assess sagebrush habitat conditions within these areas. There were no areas categorized as R-4.

APPENDIX E

Nevada Predator Control Program Data 1915 - 1979

Predator Control Efforts 1915-1979 - Statewide and Elko County						
Year	Coyote	Bobcat	Mountain Lions	Total (1)	Elko County (2)	Elko County %
1915	648	26	0	674		
1916	8,866	1,259	3	10128		
1917	6,570	1,130	7	7707		
1918	6,009	1,138	8	7155		
1919	4,651	1,023	5	5679		
1920	4,662	780	1	5443		
1921	4,801	781	0	5582		
1922	4,939	622	1	5562		
1923	4,436	598	0	5034		
1924	5,924	813	4	6741		
1925	4,331	546	3	4880		
1926	5,031	781	3	5815		
1927	2,933	529	1	3463		
1928	4,736	1,131	5	5872		
1929	4,682	1,000	5	5687		
1930	2,738	578	1	3317		
1931	1,506	392	3	1901		
1932	5,134	674	0	5808		
1933	6,069	760	2	6831		
1934	1,377	115	0	1492		
1935	923	164	0	1087		
1936	792	128	0	920		
1937	725	76	0	801	339	42.3%
1938	846	53	3	902	533	59.1%
1939	794	48	8	850	401	47.2%
1940	5,508	555	10	6073	n/a	
1941	7,460	735	5	8200	3171	38.7%
1942	7,806	897	10	8713	3276	37.6%
1943	8,571	821	4	9396	3486	37.1%
1944	9,790	704	3	10497	4471	42.6%
1945	7,798	512	1	8311	3237	38.9%
1946	6,387	257	6	6650	2477	37.2%
1947	6,168	296	2	6466	1709	26.4%
1948	3,860	279	5	4144	914	22.1%
1949	1,410	370	5	1785	606	33.9%
1950	1,212	744	54	2010	814	40.5%
1951	1,865	971	77	2913	1114	38.2%
1952	2,233	966	58	3257	1187	36.4%
1953	2,388	2,573	66	5027	1808	36.0%
1954	4,091	3,484	81	7656	2293	30.0%
1955	4,529	3,191	92	7812	1690	21.6%
1956	4,612	3,257	155	8024	1550	19.3%
1957	4,246	3,442	116	7804	1765	22.6%
1958	3,654	3,465	181	7300	n/a	
1959	5,018	3,629	108	8755	2549	29.1%
1960	6,005	4,077	133	10215	2562	25.1%
1961	8,183	3,756	116	12055	5587	46.3%
1962	8,145	2,175	69	10389	3841	37.0%
1963	6,373	2,707	87	9167	n/a	

1964	7,774	2,636	97	10507	n/a	
1965	7,414	2,162	99	9675	n/a	
1966	6,775	1,844	50	8669	n/a	
1967	5,271	1,125	51	6447	n/a	
1968	3,704	1,029	70	4803	n/a	
1969	3,480	632	61	4173	n/a	
1970	2,433	443	46	2922	n/a	
1971	4,044	382	20	4446	n/a	
1972	2,792	515	14	3321	n/a	
1973	6,272	268	7	6547	n/a	
1974	5,066	128	9	5203	n/a	
1975	6,734	34	10	6778	n/a	
1976	5,447	29	20	5496	n/a	
1977	4,112	11	23	4146	n/a	
1978	4,280	27	16	4323	n/a	
1979	4,447	35	32	4514	n/a	
Totals	301,480	70,308	2,132	373,920	131,708	35.2%
Mean	4,638	1,082	33	5,753		
	(1) Statewide total of coyotes, bobcats, and mountain lions.					
	(2) The individual county totals were not available for all years; the numbers only represent coyotes, bobcats, and mountain lions					
	(3) Percent of statewide total of coyotes, bobcats, and mountain lions taken in Elko County					

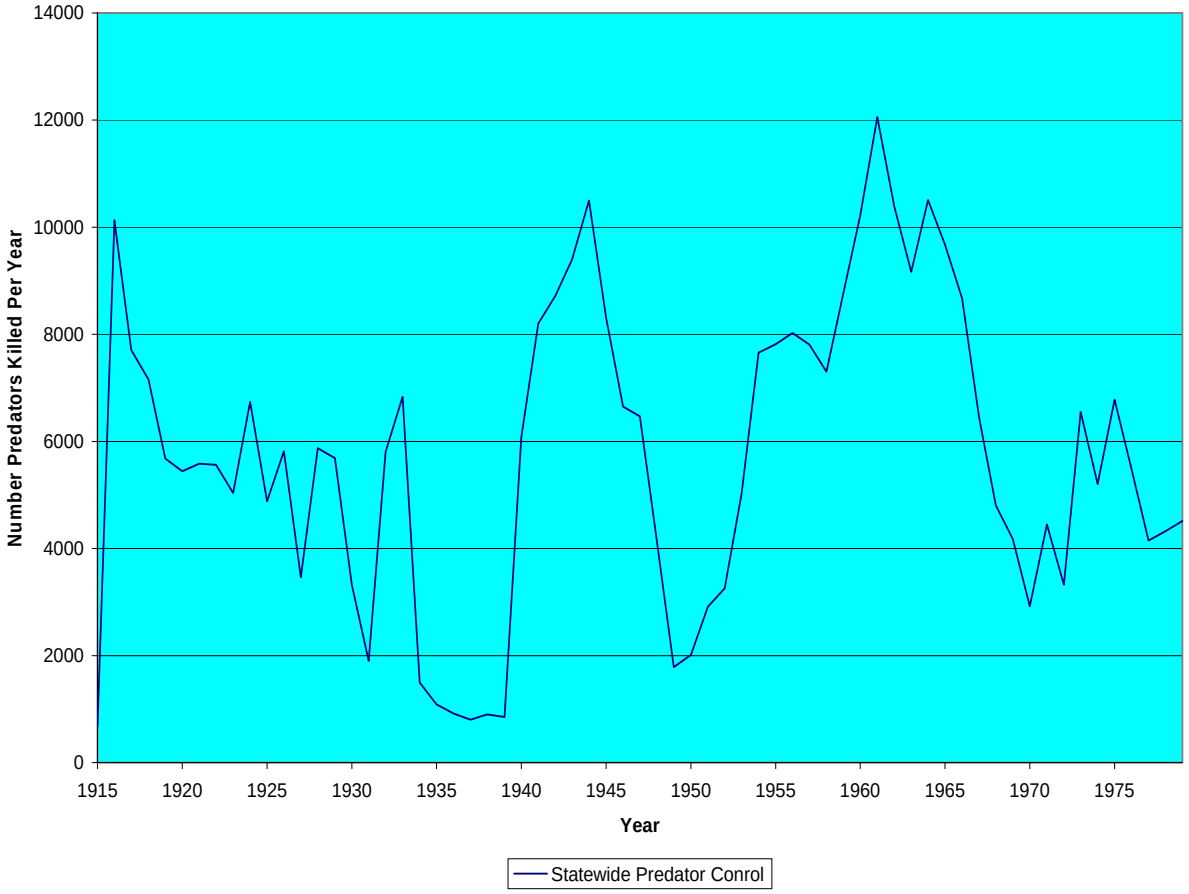


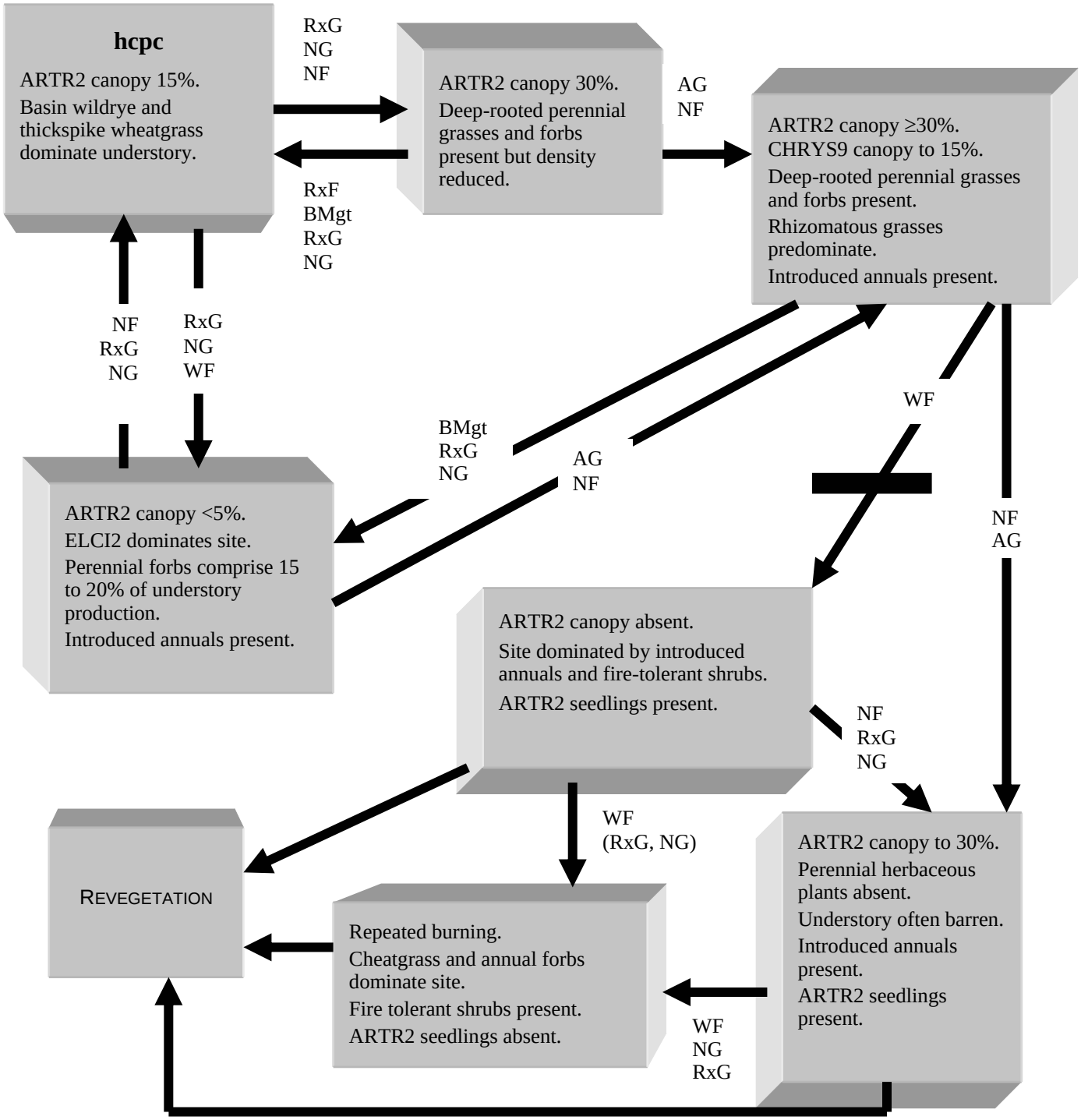
Figure B-1: Nevada Statewide Predator Control Data, 1915-1979

APPENDIX F

State and Transition Models for Six Sagebrush Range Sites - Prepared by NRCS

LOAMY FAN 8-10” p.z.
025XY070NV

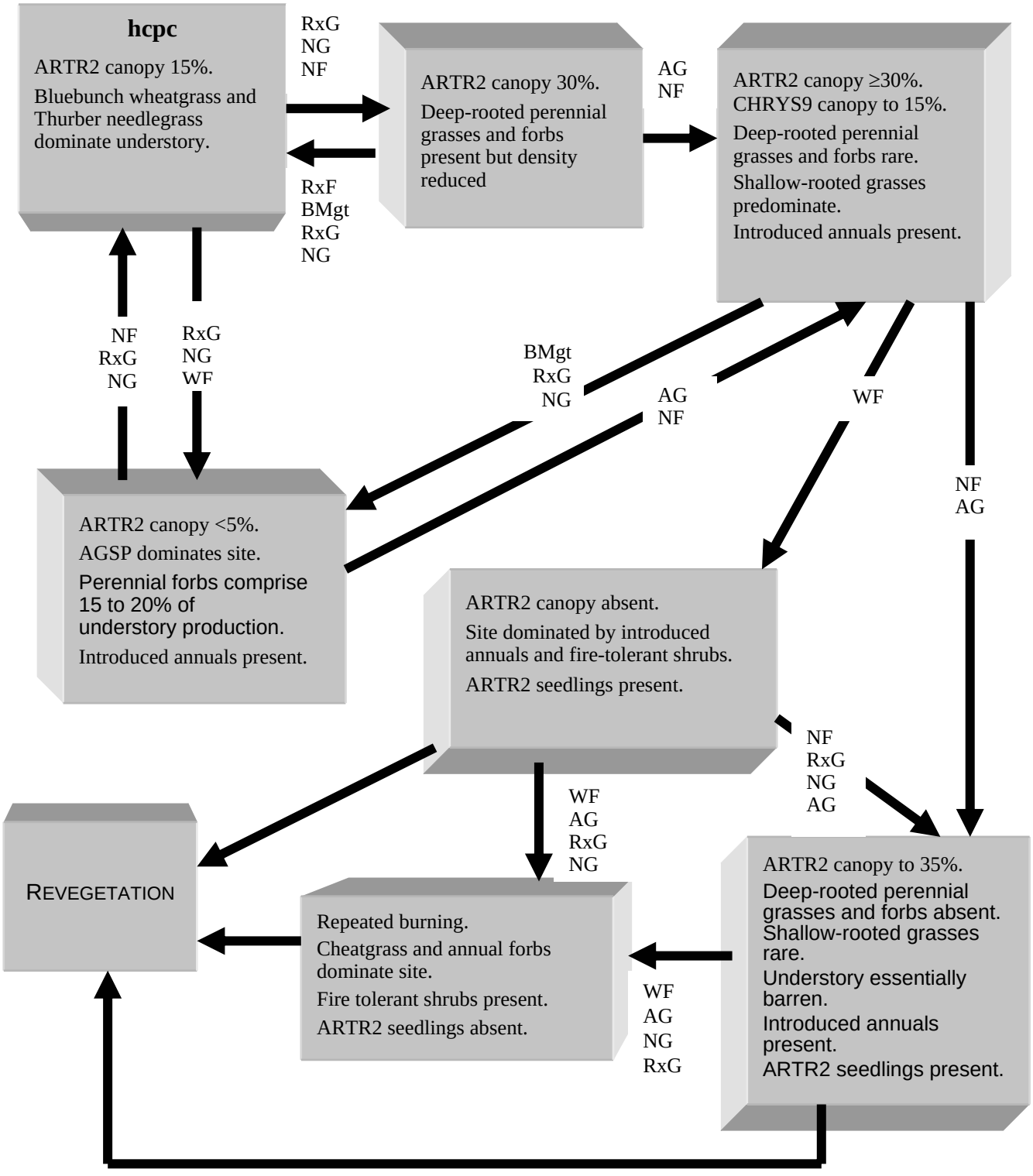
Steady States and transitional pathways



AG - Abusive Grazing
BMgt - Brush Management
HCPC - Historic Climax Plant Community
NG - No Grazing
NF - No Fire
RxF - Prescribed Fire
RxG - Prescribed Grazing
WF - Wildfire

LOAMY 10-12” p.z.
025XY014NV

Steady States and transitional pathways

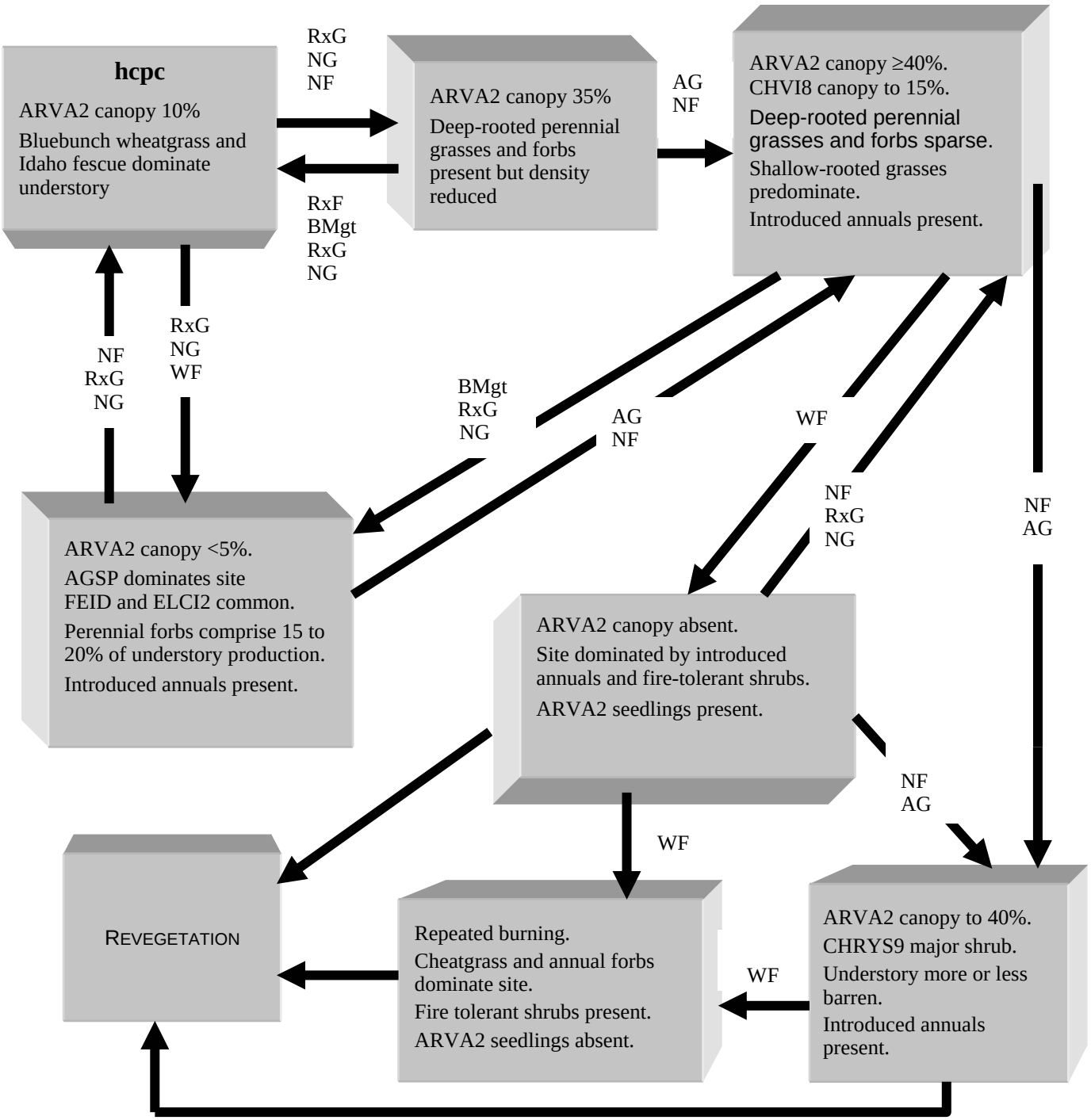


AG - Abusive Grazing
BMgt - Brush Management
HCPC - Historic Climax Plant Community
NG - No Grazing

NF - No Fire
RxF - Prescribed Fire
RxG - Prescribed Grazing
WF - Wildfire

LOAMY SLOPE 12-16” p.z.
025XY012NV

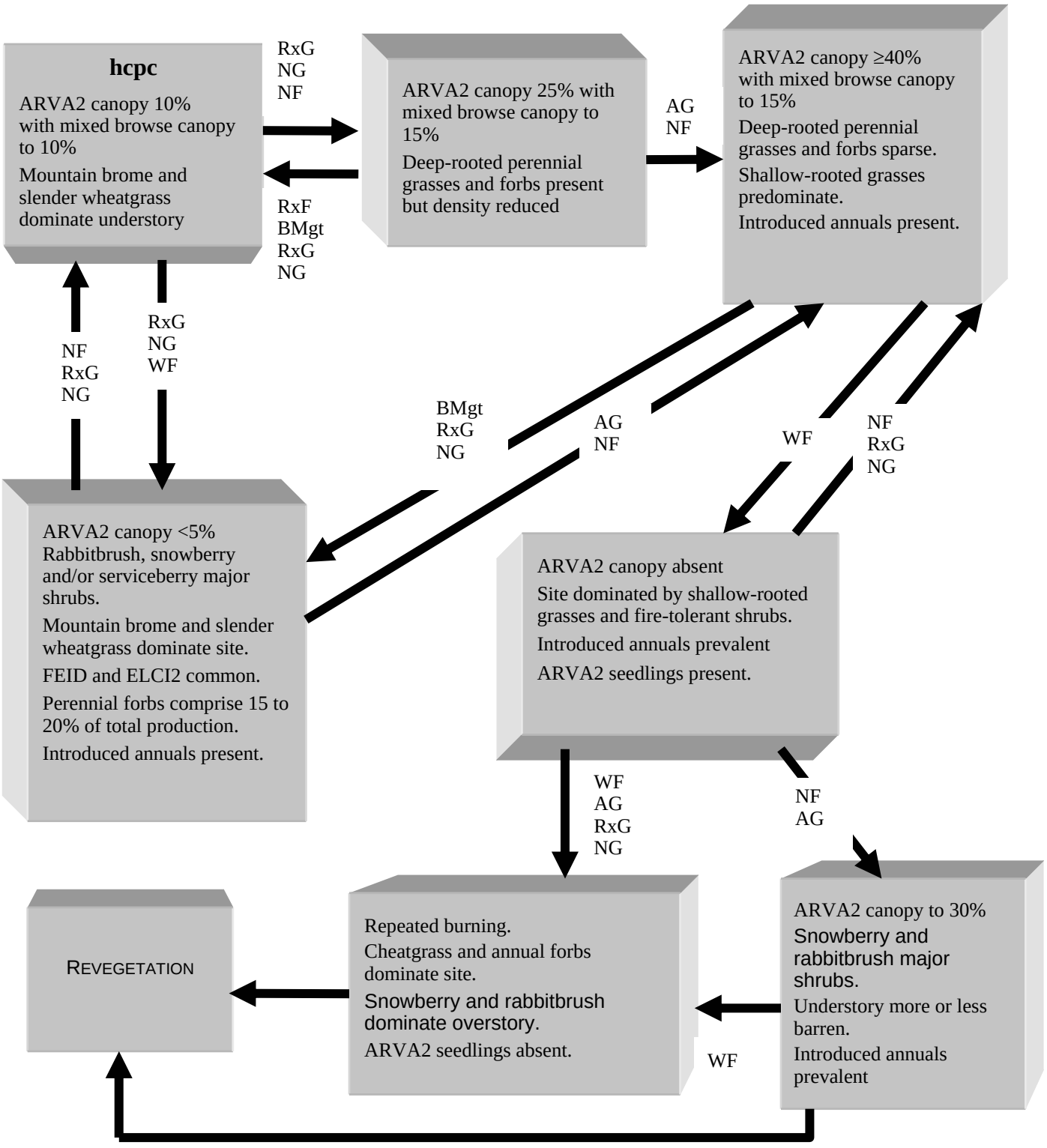
Steady States and transitional pathways



AG - Abusive Grazing
BMgt - Brush Management
HCPC - Historic Climax Plant Community
NG - No Grazing
NF - No Fire
RxF - Prescribed Fire
RxG - Prescribed Grazing
WF - Wildfire

LOAMY SLOPE 16+" p.z.
025XY004NV

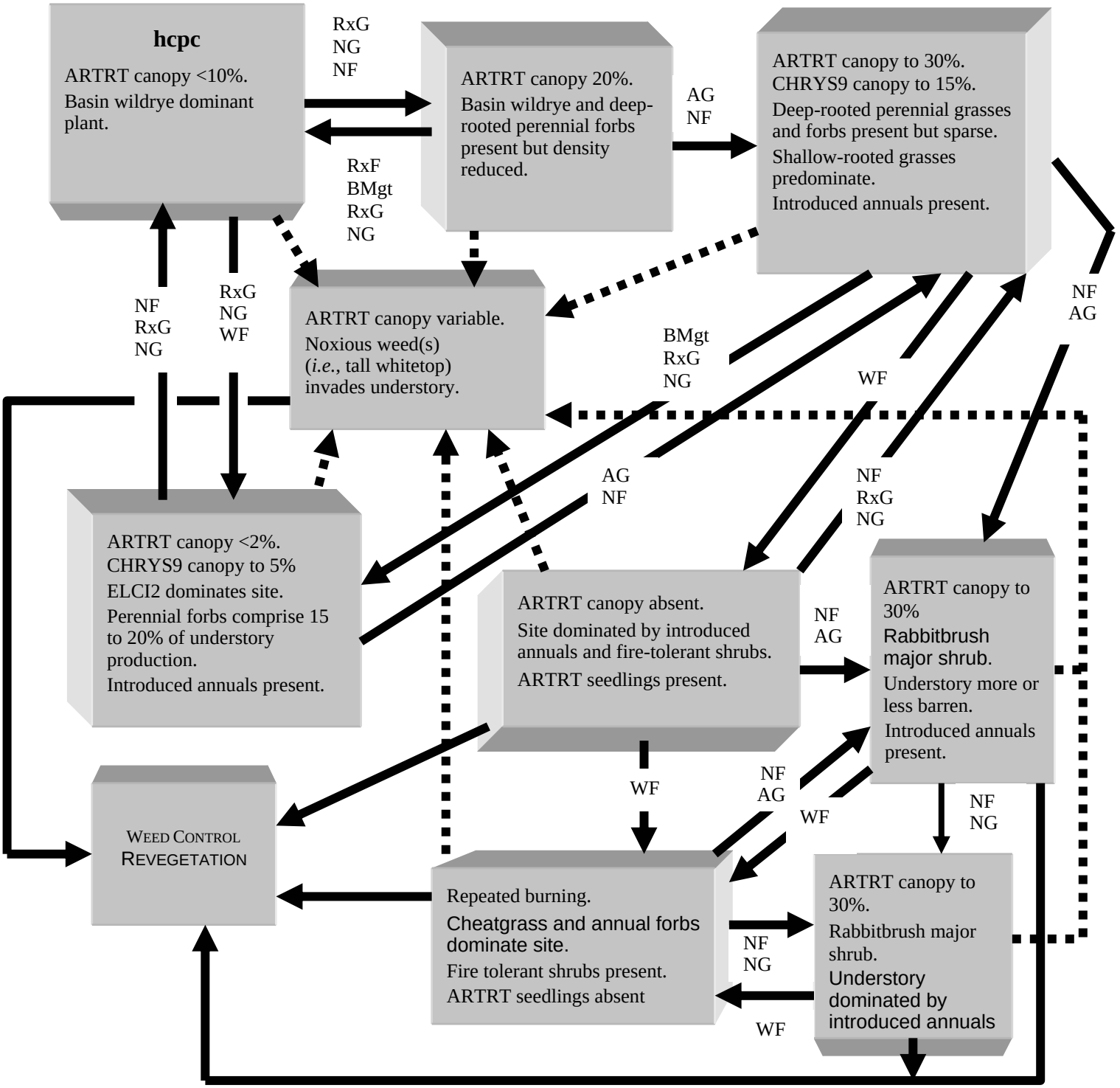
Steady States and transitional pathways



AG - Abusive Grazing
BMgt - Brush Management
HCPC - Historic Climax Plant Community
NG - No Grazing
NF - No Fire
RxF - Prescribed Fire
RxG - Prescribed Grazing
WF - Wildfire

LOAMY BOTTOM 8-14” p.z.
025XY003NV

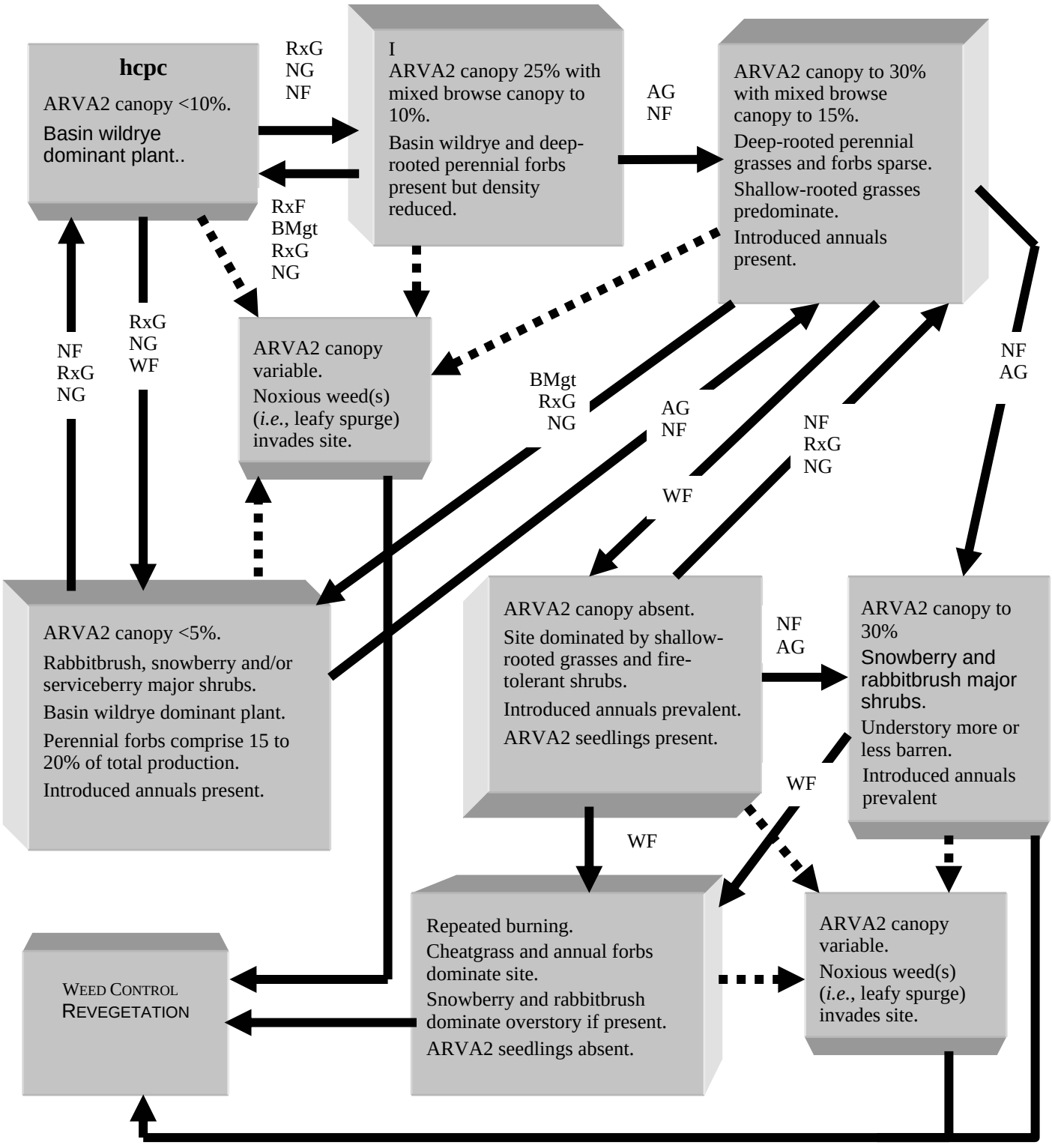
Steady States and transitional pathways



AG - Abusive Grazing
BMgt - Brush Management
HCPC - Historic Climax Plant Community
NG - No Grazing
NF - No Fire
RxF - Prescribed Fire
RxG - Prescribed Grazing
WF - Wildfire

LOAMY BOTTOM 14+" p.z.
025XY081NV

Steady States and transitional pathways



AG - Abusive Grazing
BMgt - Brush Management
HCPC - Historic Climax Plant Community
NG - No Grazing
NF - No Fire
RxF - Prescribed Fire
RxG - Prescribed Grazing
WF - Wildfire

APPENDIX G

Sagebrush-Obligate Species and Sagebrush-Using Species of Conservation Concern in Elko County, Nevada

Sagebrush Obligate and Sagebrush Using Species of Conservation Concern in Elko County, Nevada

Condensed from material prepared by Peter F. Brussard and Claudia Funari, Biological Resources Research Center, University of Nevada, Reno, NV 89557

BLACK ROSY FINCH

Leucosticte atrata – Ridgeway, 1874

Primary habitat: BREEDING: Barren, rocky, or grassy areas and cliffs among glaciers or beyond timberline (9,000 –13,000 ft. elevation). Nests in these areas usually in rock crevices or holes in cliffs above snowfields. May nest in old abandoned buildings. NONBREEDING: During migration and winter they are in open places such as fields, cultivated lands, brushy areas, and around human habitation (AOU 1983). May roost in mine shafts or similar protected sites.

Special habitat features: Cliff holes and crevices and natural caves at high elevations are necessary for nesting, and at lower elevations similar sites plus open pit mine high walls, crevices in abandoned buildlings, and cliff swallow nests are used for winter roosting (Ryser 1985). Winter roost sites tend to be isolated and in short supply in lower elevation habitats. Distance between foraging areas in the sagebrush and roost sites is unknown (Neel 1999).

Local distribution: The Black Rosy Finch is the breeding form of the Rosy Finch in the eastern part of the Great Basin—in the Ruby Mountains and snake Range in Nevada and in the Raft River and Wasatch Ranges in Utah and on Steens Mountain, Oregon. During the winter, they can be found at valley and foothill sites throughout the Great Basin (Ryser 1985).

Habitat availability in Elko County: More information is needed on proximity of suitable wintering areas to breeding areas.

BLACK-THROATED SPARROW

Amphispiza bilineata - Cassin, 1850

Primary habitat: BREEDING: Frequents the arid, hot deserts of the West. Not closely associated with particular plant species or communities, but favors sparsely vegetated desert scrub, including thorn brush, cacti, chaparral, mesquite and juniper. It is most often found on desert uplands, alluvial fans, and hillsides where thorny, xeric brush dominates, and sometimes also in dry shrubby washes, but avoids desert valley floors. Occurs from below sea level (Death Valley) to over 2,200 meters, but below 1,500 m in northern parts of range (Bent 1968, AOU 1983, Howell and Webb 1995, Rising 1996). It uses all seral stages in desert habitats as long as vegetative cover is below 25 percent, and uses shrubs and cacti for foraging, song perches, lookouts, shelter and nesting (USDA Forest Service 1994). May take advantage of mammal burrows to escape desert heat (Austin and Smith 1974). NONBREEDING: In addition to xeric shrub habitats, may be found in riparian areas, grasslands, and weedy fields away from desert region (AOU 1983, Rising 1996). During non-breeding season, found in small foraging flocks and often in mixed-species flocks that may include sage sparrows (*Amphispiza belli*), Brewer's sparrows (*Spizella breweri*), white-crowned sparrows (Zonotrichia leucophrys), vesper sparrows

(*Pooecetes gramineus*), cactus wrens (*Campylorhynchus brunneicapillus*) or verdins (*Auriparus flaviceps*) (Ehrlich et al. 1988, Rising 1996). Foraging flocks may follow local topography, particularly washes (Eichinger and Moriarty 1985).

Special habitat features: Requires desert scrub habitats with sparse shrubs (below 25 percent vegetative cover) and water sources during dry seasons (USDA Forest Service 1994).

Local distribution: Drier, hotter parts of the Great Basin desert.

Habitat availability in Elko County: Not a sagebrush obligate but uses alkali scrub habitats as well. As long as these are protected from fire and not converted to annual grasslands, suitable habitat should be available for the species.

BREWER'S SPARROW
Spizella breweri - Cassin, 1856

Primary habitat: Resides in open desert shrub and cropland habitats, usually with some herbaceous understory. BREEDING: In treeless shrub habitats with moderate canopy, mainly in sagebrush habitat with grasses. Breeding elevations range from 500 ft to 10,300 ft. NON-BREEDING: Can also be found to a lesser extent in mountain mahogany, rabbitbrush, bunchgrass grasslands with shrubs, bitterbrush, ceanothus, manzanita and large openings in pinyon-juniper (Knopf et al. 1990; Rising 1996; Sedgwick 1987; USDA Forest Service 1994).

Special habitat features: Thrives where extensive areas of sagebrush habitat are maintained with shrubs occurring in tall, clumped, and vigorous stands. Average canopy height usually <1.5 meter (Rotenberry et al. 1999). Prefers tall sagebrush shrubs for nesting and song perches and low percent grass cover to facilitate foraging on ground. Breeding adults have high site tenacity and return to previous breeding locations even after the habitat has been manipulated. Year to year variations in abundance and densities can lead to biased conclusions about habitat preferences and effects of management activities (Wiens et al. 1986). Results of a habitat suitability model indicate that a minimum of 0.46 acres (0.2 ha) of suitable habitat and slope not greater than 30 degrees are needed for successful reproduction (Short 1984 cited in USFS 1994). However, this reflects estimated minimum territory size and does not reflect landscape-level characteristics needed for a sustainable population (J.T. Rotenberry, pers. comm.).

Local distribution: The species is a common summer resident and migrant in the Great Basin; it is probably the most characteristic bird of the sagebrush country.

Habitat availability in Elko County. Probably quite similar to that for sage grouse. Habitat requirements seem to overlap significantly.

BURROWING OWL
Athene cunicularia - Molina, 1782

Primary habitat: Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports, nesting and roosting in burrows

dug by mammals, or by owl (rarely). Spends much time on the ground or on low perches such as fence posts or dirt mounds. Nests in abandoned burrows (e.g., prairie dog, ground squirrel, fox, marmot, tortoise), including badger excavations (see especially Green and Anthony 1989). May enlarge or modify burrow. Nests in lava cavities in some areas. Abandoned burrows soon become unsuitable for nesting.

Special habitat features: Seem to be more attracted to locations with available burrows than by any other features.

Local distribution: Burrowing owls breed throughout the state in open, treeless parts of intermontane valleys (Heron et al. 1985).

Habitat availability in Elko County: Considerable amount of preferred habitat is still available.

CALLIOPE HUMMINGBIRD
Stellula calliope - Gould, 1847

Primary habitat: Open montane forest, mountain meadows, canyons, and streams, willow and alder thickets. In migration and winter also in chaparral, lowland brushy areas, and deserts (AOU 1983). Nests in tree (frequently conifer) at edge of meadow or in canyon or thicket along stream. Nests 1-21 m above ground (usually low, with branch or foliage above). Nectar supply unimportant in location of male's breeding territory (Armstrong 1987). Forages in early shrub stages after clear-cutting (Calder and Calder 1994) which provide a greater abundance of flowers for nectar sources. (DeGraaf and Rappole 1995).

Special habitat features: Flowers, preferably red, for nectar. Food sources include: *Castilleja* spp., *Penstemon* spp., *Aquilegia* spp., *Ipomopsis* spp., *Ribes* spp., *Arctostaphylos* spp., *Mimulus* spp., *Pedicularis* spp., *Sarcodes* spp. Distribution highly dependent on nectar sources and is an important pollinator of adapted flowers (Zeiner et al. 1990)

Local distribution: Breeds in mountain ranges throughout the Great Basin (Ryser 1985).

Habitat availability in Elko County: Unknown. It would be useful to inventory the forb component of sagebrush habitats adjacent to this species' breeding habitats.

FERRUGINOUS HAWK
Buteo regalis- Gray, 1844

Primary habitat: GENERAL: In the Great Basin primarily sagebrush, saltbush-greasewood shrubland, periphery of pinyon-juniper and other woodland (Niemuth 1992, Bechard and Schmutz 1995, Houston 1995, Leary et al. 1998). Usually occupies rolling or rugged terrain (Palmer 1988). High elevations, forest interiors, narrow canyons, and cliff areas are avoided (Palmer 1988). Landscapes with moderate cover (less than 50 percent) are used for nesting and foraging (Wakeley 1978, Bechard et al.1990, Leary et al. 1998). NESTING: Nests in tall trees or willows along streams or on steep slopes, in junipers (Utah), on cliff ledges, river-cut banks, hillsides, or power line towers, sometimes on sloped ground or on mounds in open desert.. Nest site selection depends upon available substrates and surrounding land use.

Ground nests typically are located far from human activities and on elevated landforms. Lone or peripheral trees are preferred over densely wooded areas when trees are selected as the nesting substrate (Weston 1968, Woffinden and Murphy 1983, Palmer 1988, Bechard et al. 1990).

Secondary habitat types: Also uses pastures, but generally avoids areas of intensive agriculture or human activity

Special habitat features: Requires open areas to roost and forage. Vulnerability of prey is an important factor in habitat suitability, and Ferruginous Hawks avoid dense or tall vegetation that reduces their ability to see prey (Howard and Wolfe 1976, Wakeley 1978, Schmutz 1987).

Local distribution: In Nevada the ferruginous hawk is a common breeding species, nesting primarily in the east-central part of the state (Herron et al. 1985). The species rarely winters here.

Habitat availability in Elko County: Ample habitat exists for this species.

GRAY FLYCATCHER
Empidonax wrightii - Baird, 1858

Primary habitat: BREEDING: Arid woodland and brushy areas (AOU 1998). Most commonly associated with pinyon-juniper or juniper woodland in the Great Basin (Ryser 1985). Also common in Nevada in tall riparian big sage two to three meters tall, sometimes with bitterbrush as an understory (Neel 1999). May colonize open, second growth of ponderosa or lodgepole pine after logging (USDA Forest Service 1994). NON-BREEDING: In migration and winter in arid scrub, riparian woodland, and mesquite (AOU 1998).

Special habitat features: Requires tall vegetation structure and high insect production for forage. Distribution tends to shift toward areas with high insect production.

Local distribution: Uncommon to common migrant and breeding species in the Great Basin. Primary habitat is pygmy conifer woodland; also nests in tall big sagebrush (Ryser 1985). It has been recorded as breeding species in the Carson Range, Toiyabe Mountains, Ruby Mountains Spruce Mountain, Deep Creek Range, Raft River Mountains, and others.

Habitat availability in Elko County: Juniper woodlands are currently plentiful in the county; efforts to eradicate them should consider this species.

GREEN-TAILED TOWHEE
Pipilo chlorurus - Audubon, 1839

Primary habitat: BREEDING: Primarily in mountains (AOU 1983, Dobbs et al. 1998). Occurs up to 2400 m in elevation in Great Basin. Rarely found below 1200 m (Burleigh 1972). Habitat is usually low shrubs, sometimes interspersed with trees; avoids typical forest, other than open pinyon-juniper woodlands (Dobbs et al. 1998). Dry shrubby hillsides and post-disturbance shrubby second growth are most commonly used. In northern Great Basin, habitat varies with

elevation; uses tall sagebrush/bunchgrass, mountain mahogany/bunchgrass, and aspen/sagebrush/bunchgrass communities as primary breeding and foraging habitat (Maser et al. 1984). NON-BREEDING: Primarily in lowland habitats (AOU 1983, Dobbs et al. 1998). Possibly limited in habitat use by distribution of water. Unlike desert-adapted sparrows, towhees are not tolerant of saline water (Dobbs et al. 1998, Smith and Ohmart 1969).

Secondary habitat: In pinyon-juniper, associated with sagebrush (*Artemisia* spp.) dominated openings with high shrub species richness (Sedgwick 1987); uses juniper for song perches (Maser and Gashwiler 1978).

Special habitat features: Associated with dense shrubs 0.5 to 1.5 m in height; most commonly uses dry shrubby hillsides and post-disturbance shrubby second growth (Dobbs et al. 1998, Knopf et al. 1990). In shrub-steppe habitats prefers ecotones between sagebrush and other shrubby habitats, especially mountain mahogany (*Cercocarpus* spp); often select a central bush of another shrub species within sagebrush-dominated patches; high shrub patch vigor (percent live branches and standing herbaceous biomass) important to nesting microhabitat (Knopf et al. 1990).

Local distribution: Present in the higher valleys and mountains in sagebrush thickets of the Great Basin.

Habitat availability in Elko County: Higher-elevation shrub habitats above the juniper zone are still plentiful and relatively healthy.

KIT FOX
Vulpes macrotis - Merriam, 1888

Primary habitat: Primarily open desert, shrubby, or shrub-grass habitat. In central California, found in alkali sink, valley grassland, foothill woodland. In Mojave Desert, occurs in creosote bush; in Great Basin, in shadscale, greasewood, and sagebrush.

Secondary habitat types: Foothill woodlands.

Special habitat features: Ground cover in kit fox habitat is usually less than 20% (McGrew 1979). Prefers light desert soils; loamy desert soils needed for burrowing (McGrew 1979).

Local distribution: Western and southern parts of Nevada in Lower Sonoran life zone and in salt desert portion of Upper Sonoran life zone; may occur in far eastern Elko County. Maximum population density in optimum habitat in western Utah was about 2 adults per square mile.

Habitat availability in Elko County: Considerable favorable habitat should still be available statewide; very little apparently exists in Elko County.

LOGGERHEAD SHRIKE
Lanius ludovicianus - Linnaeus, 1766

Primary habitat: BREEDING: Open country with scattered trees and shrubs, savanna, desert scrub (southwestern U.S.), and, occasionally, open woodland; often perches on poles, wires or fence posts (Tropical to Temperate zones) (AOU 1983). For nesting, prefers short-grass pastures in western Canada, Texas (Telfer 1992), and many other areas (Luukkonen 1987, Novak 1989, Gawlik and Bildstein 1990, Bartgis 1992). However, others have found no preference for short-grass areas (e.g., see Chavez-Ramirez et al. 1994). Historically, orchards seemingly were used with some frequency (see Novak 1989). Nests in shrubs or small trees (deciduous or coniferous). Nests often in isolated woody plants but also commonly along fence lines or hedgerows (Brooks 1988, Luukkonen 1987), in an open area in a wooded area, or in open country. Tends to nest in areas with several potential suitable nesting trees/shrubs (Brooks 1988). Sometimes nests in the same site in successive years, but return rates generally are low; males are most likely to reoccupy previous breeding territories (Kridelbaugh 1982, Luukkonen 1987, Brooks 1988, Bartgis 1989, Haas and Sloane 1989). In the Great Basin Loggerhead Shrikes are found in greasewood/grass, tall sagebrush/bunchgrass (with or without juniper), mountain mahogany, and riparian communities (Maser et al. 1984). NON-BREEDING: Birds nesting in areas with a relatively extended snow cover, 10-30 days per year, are forced to move south, and the winter range lies mainly south of 40^{o} (Lefranc 1997). During periods of cold with snow cover, resident birds sometimes move into woodlots (Byrd and Johnston 1991), and in winter in Virginia, many move from pastures to shrub and open forest habitats during periods of cold, wet weather (Blumton et al. 1989).

Secondary habitat types: Not easily identifiable, since this species shows a fairly wide habitat tolerance and regional differences in habitat preferences.

Special habitat features: Suitable hunting perches are an important part of the habitat (Yosef and Grubb 1994). In the upper Midwest, Brooks (1988) found that nestling growth rate, nesting success, and fledgling success were positively correlated with percentage of home range coverage in grassland.

Local distribution: In the Great Basin the Loggerhead Shrike is found in open country in the foothills and valleys generally around desert shrub steppe vegetation , juniper or pinyon-juniper woodlands, and mountain mahogany.

Habitat availability in Elko County. Since Loggerhead Shrikes are found in a variety of shrubland and open woodland habitats in the Great Basin, potential habitat is seemingly abundant locally.

PRAIRIE FALCON
Falco mexicanus - Schlegel, 1851

Primary habitat: Primarily open situations, especially in mountainous areas, steppe, plains or prairies (AOU 1983). Typically nests in pot hole or well-sheltered ledge on rocky cliff or steep earth embankment, 10-100+ m above base. May use old nest of raven, hawk, eagle, etc. Commonly changes nest site within territory in successive years (see Palmer 1988).

Secondary habitat types: May nest in man-made excavations on otherwise unsuitable cliffs (Cade 1982). Nests near agriculture, riparian areas, and wetlands. Nests primarily in cliffs but also in trees, on power line structures, on buildings, and inside caves. Small scale agricultural development can benefit falcon populations by providing an ecotone for prey populations. Irrigation canals and agricultural borders provide great foraging habitat (Steenhof 1998).

Special habitat features: May be limited by lack of nest sites in some areas; artificial sites are readily accepted (see Evans 1982 and references cited in Palmer 1988). In Mojave Desert, remote nests had higher productivity than did nests that were closer to human activity (Boyce 1988). Prey species abundance is the characteristic of nest site preference (Neel 1999).

Local distribution: The Basin and Range physiographic region is reported to contain 28% of the world's population of Prairie Falcons. Prairie falcon breeds in all counties in Nevada where cliffs occur with sufficient structure to support nesting.

Habitat availability in Elko County. Many areas with cliffs and escarpments adjacent to broad valleys exist locally.

PRONGHORN ANTELOPE

Antilocapra americana - Ord, 1815

Primary habitat: Grasslands, sagebrush plains, deserts, and foothills. Need for free water varies with succulence of vegetation in the diet.

Secondary habitat types: Occasionally uses pastures.

Special habitat features: Birth and fawn bedding sites in a sagebrush-steppe community in south-central Wyoming were in dense shrub cover, but the tallest, most dense cover was avoided (Alldredge et al. 1991). Do best in habitats that average 30-38 cm of precipitation a year.

Local distribution: *A.a. americana* is the subspecies currently found in Nevada. It is now found in the northern part of the state in sagebrush, bitterbrush, pinyon-juniper, and alkali scrub habitats.

Habitat availability in Elko County: Considerable suitable habitat is still available.

PYGMY RABBIT

Brachylagus idahoensis - Merriam, 1891

Primary habitat: Typically in large, tall, dense stands of big sagebrush growing in deep loose soils. Digs burrows 3 inches in diameter; burrows may have 3 or more entrances. In southwestern Wyoming, pygmy rabbits selectively used dense and structurally diverse stands of sagebrush that accumulate a relatively large amount of snow; the subnivean environment provided access to a fairly constant supply of food and provided protection from predators and thermal extremes (Katzner and Parker 1997).

Secondary habitat types: Have been found to occupy areas supporting greasewood, *Sarcobatus* (Davis, 1939).

Special habitat features: Requires deep, soft soils in which to burrow. Requires tall, dense stands of sagebrush.

Local distribution: Primarily found in areas of Great Basin big sagebrush dominated plains and alluvial fans where plants occur in tall and dense clumps and the soil relatively deep and friable (Orr 1940; Green and Flinders 1980a, b; Weiss and Verts 1984).

Habitat availability in Elko County: Basin big sagebrush has largely disappeared from valley bottoms because of agricultural conversion. Suitable remaining habitat may be areas with large Wyoming sagebrush adjacent to streams and riparian areas.

SAGE SPARROW
Amphispiza belli - (Cassin, 1850)

Primary habitat: BREEDING: Found from sea level to 2000 meters (Rising 1996); strongly associated with sagebrush for breeding. Prefers semi-open habitats, shrubs 1-2 meters tall (Martin and Carlson 1998). Habitat structure (vertical structure, shrub density, and habitat patchiness) is important to habitat selection (Martin and Carlson 1998). In northern Great Basin, associated with low and tall sagebrush/bunchgrass, juniper/sagebrush, mountain mahogany/shrub, and aspen/sagebrush/bunchgrass communities for breeding and foraging (Maser et al. 1984). Subspecies *A. b. nevadensis* occupies the valleys and flats over most of the state; breeds in brushland dominated by big sagebrush or sagebrush-saltbush (Johnson and Marten 1992). Subspecies *A. b. canescens* is a summer resident in western Esmeralda County; breeds in desert scrub where *Atriplex* is prevalent (Johnson and Marten 1992).
NON-BREEDING: In migration and winter also in arid plains with sparse bushes, grasslands and open situations with scattered brush, mesquite, and riparian scrub; preferring to feed near woody cover (Martin and Carlson 1998; Meents et al. 1982; Repasky and Schluter 1994).

Special habitat features: Requires large areas of sagebrush and other preferred shrubland habitats, tall sagebrush shrubs for nesting or song perches, and low percent grass cover to facilitate foraging on ground. Positively correlated with big sagebrush (Artemisia *tridentata*), shrub cover, bare ground, above-average shrub height, and horizontal patchiness; negatively correlated with grass cover (Rotenberry and Wiens 1980; Wiens and Rotenberry 1981; Larson and Bock 1984).

Local distribution: Summer resident in valleys throughout the entire state; winter resident mainly in the southern part (Alcorn 1988).

Habitat availability in Elko County: Ample habitat still exists for the persistence of this species provided that fires are limited and management activities favor the retention of sagebrush shrubland.

SAGE THRASHER
Oreoscoptes montanus - Townsend, 1837

Primary habitat: BREEDING: Sagebrush plains, primarily in arid or semi-arid situations, rarely around towns (AOU 1998). Prefers dense stands. Usually breeds between 1300 and 2000 meters above sea level (Reynolds and Rich 1978). NONBREEDING: In winter, uses arid and semi-arid scrub, brush, and thickets.

Secondary habitat types: In northern Great Basin breeds and forages in tall sagebrush/bunchgrass, juniper/sagebrush/bunchgrass, mountain mahogany/shrub, and aspen/sagebrush/bunchgrass communities (Maser et al. 1984). Deciduous forest edges and clearings are also used (Ehrlich et al. 1988).

Special habitat features: In Idaho, Knick and Rotenberry (1995) found the probability of occupancy increased with increasing homogeneity of the surrounding habitat within a 1-kilometer radius and with greater percent sagebrush cover. Also, presence is positively correlated with shrub patch size and negatively correlated with disturbance. Will thrive where sagebrush habitat is maintained with shrubs occurring in tall, clumped, and vigorous stands. Prefers tall shrubs for nesting or song perches and low percent grass cover to facilitate foraging on ground.

Local distribution: Common summer resident of the Great Basin in shrublands dominated by big sagebrush. Relative abundance significantly positively correlated with the following species in western U.S., based on North American Breeding Bird Survey data (T.D. Rich, unpublished data): Brewer's Sparrow (*Spizella breweri*) ($r = 0.87$, $p < 0.001$), Sage Sparrow (*Amphispiza belli*) ($r = 0.73$, $p < 0.001$), Gray Flycatcher (*Empidonax wrightii*) ($r = 0.73$, $p < 0.001$), Sage Grouse (*Centrocercus urophasianus*) ($r = 0.71$, $p < 0.001$), Rock Wren (*Salpinctes obsoletus*) ($r = 0.61$, $p < 0.001$), Vesper Sparrow (*Pooecetes gramineus*) ($r = 0.53$, $p < 0.001$), Prairie Falcon (*Falco mexicanus*) ($r = 0.53$, $p < 0.001$), and Green-tailed Towhee (*Pipilo chlorurus*); $r = 0.51$, $p < 0.001$). It is rarely seen in the winter but may winter in southern Nevada (Neel 1999).

Habitat availability in Elko County: As long as large fires are controlled, ample habitat should be available for this species.

SAGEBRUSH LIZARD
Sceloporus graciosus - Baird and Girard, 1852

Primary habitat: Sagebrush is primary habitat; prefers areas with open ground and some low bushes usually above 3000 ft in elevation (Stebbins 1985). A ground dweller. Uses rodent burrows, shrubs, logs, etc., for cover.

Secondary habitat types: Pinyon- juniper woodland, montane chaparral, and open conifer and hardwood forests are also used (CDFG 1999).

Special habitat features: Requires soil to burrow in and fallen logs/debris/shrubs for cover.

Local distribution: Primarily found in sagebrush shrublands in the Great Basin.

Habitat availability in Elko County: Substantial areas of habitat exist for this species.

SAGEBRUSH VOLE
Lemmiscus curtatus - (Cope, 1868)

Primary habitat: Open stands of big sagebrush. Vegetation usually dominated by sagebrush and bunchgrasses, especially crested wheatgrass. Rabbitbrush may also be a dominant component of the vegetation (Carroll and Genoways 1980). Nests in underground burrow.

Secondary habitat types: Open stands of bitterbrush with perennial grass, low sage and grass-forb stages of Pinyon-Juniper. Will hollow out dried cow dung for shelter from predators and harsh weather (Zeveloff 1988).

Special habitat features: Most common in sagebrush with a sparse grass understory. Require shrubs or dense, tall grasses for cover.

Local distribution: Distribution is tied to sagebrush and perennial grassland (O'Farrell 1972); generally inhabits sagebrush, bitterbrush, and low sage habitats in the Great Basin.

Habitat availability in Elko County: Ample habitat appears to be available for this species.

SWAINSON'S HAWK
Buteo swainsoni - Bonaparte, 1838

Primary habitat: Sagebrush shrublands, prairies, and cultivated lands (e.g., alfalfa and other hay crops and certain grain and row croplands) with scattered trees. In the Northern Great Basin open sagebrush/bunchgrass, juniper/sagebrush/bunchgrass, and aspen/sagebrush/bunchgrass communities are important (Maser et al. 1994). Talltrees next to open fields are used for nest and roost sites. In migration and winter also in grasslands and other open country (AOU 1983). Migrants may roost at night on ground in very large fields (Ridgely and Gwynne 1989).

Secondary habitat types: Tolerates extensive cultivation in nesting area (Schmutz 1989), though vineyards, orchards, rice, corn, and cotton are not suitable foraging habitat. Nests typically in solitary tree, bush, or small grove; many nests on old black-billed magpie nests; sometimes on rock ledge. Readily nests in trees in shelterbelts and similar situations produced by humans (Gilmer and Stewart 1984).

Special habitat features: Great Basin nests, usually in junipers, are not near riparian areas (Biosystems Analysis, Inc. 1989). Evidently often returns to area where it nested in previous year.

Local distribution: Was once a common breeding species within the Great Basin, primarily in agricultural valleys, before the 1950's when it began to decline (Ryser 1985).

Habitat availability in Elko County: Areas of suitable foraging habitat next to riparian areas or other areas with large trees may be limiting.

Pooecetes gramineus - (Gmelin, 1789)
VESPER SPARROW
REGULATORY STATUS
Federal: National Conservation Status Rank: N5B,N5N (05 Jan 1997)

State: Arizona (S5), California (S?), Colorado (S5), Idaho (S4B,SZN), Iowa (S4B,S4N), Montana (S5B,SZN), Nevada (S4B), Oregon (S4B), Utah (S2N,S5B), Washington (S4B,SZN), Wyoming (S5B,S5N)

Other: Heritage Status: Global Conservation Status Rank: G5 (04 Dec 1996); Rounded Global Conservation Status Rank: G5; Global Conservation Status Rank Reasons:

BASIC LIFE HISTORY INFORMATION

Primary habitat: Favors sparsely vegetated, dry uplands; occurs in sparse or open stands of sagebrush, low sagebrush, and grassland flats. Occupies open meadows, farmlands, and open brushlands in winter (Degraaf and Rappole 1995). Nests on the ground, often in a small depression near a clump of grass (Harrison 1978).

Secondary habitat types: Pinyon-juniper associations, woodland clearings, and alpine and subalpine shortgrass meadows (AOU 1983).

Special habitat features: Minimum grassland size is 30 acres (Jones and Vickery 1997). Requires open areas with short herbaceous vegetation and conspicuous song perches (Degraaf and Rappole 1995).

Local distribution: Resides in the higher mountains and valleys of the Great Basin; prefers areas with sagebrush-grass habitat that have low shrubs and are thinly covered with grass (Ryser 1985).

Habitat availability in Elko County: Appropriate sagebrush-grass habitats still exist, but fires and inappropriate management practices result in loss and fragmentation.

WHITE-TAILED JACKRABBIT
Lepus townsendii - Bachman, 1839

Primary habitat: Open grasslands and sagebrush plains with ample grass cover.

Secondary habitat types: At higher elevations found in open areas adjacent to pine forests and in alpine tundra.

Special habitat features: Prefers open, grassy areas with scattered shrubs. Rests by day usually in shallow depressions (forms) at base of bush or beside or in cavity in snow usually 10-20 cm in depth.

Local distribution: Historical distribution included northern and eastern Nevada and along eastern slope of Sierra. However, the preferred habitat of white-tailed jackrabbits has been

virtually eliminated by agricultural and grazing practices in lower elevations in Nevada, and the species has retreated to higher elevations and has become quite rare (Verts and Carraway 1998).

Habitat availability in Elko County: Records exist from the Ruby Mountains and the Jarbidge area. Reoccupation of lowland habitats by this species would be an excellent indicator of successful restoration.

Species Hypothesized Response to Habitat Treatments

Shrub Canopy Cover:	>25%	(estimated)
Perennial Grass Cover (basal):	<10%	(estimated)
Forb (perennial and annual) Cover:	<5%	(estimated)

Species	Pre-treatment	Immed. Post-treatment	10-years Post-Trtmnt	20-years Post-Trtmnt	30-years Post-Trtmnt	40+ years Post-Trtmnt
Black Rosy Finch	n/a	winter habitat	winter habitat	winter habitat	??	??
Black-Throated Sparrow	not abundant	foraging/nesting habitat	foraging/nesting habitat	??	??	??
Brewer's Sparrow	abundant	adverse	adverse	present	abundant	abundant
Burrowing Owl	not abundant	nesting habitat	nesting habitat	not abundant	not abundant	not abundant
Calliope Hummingbird	foraging/poor	foraging/moderate	foraging/improved	foraging/improved	foraging/poor	foraging/poor
Ferruginous Hawk	foraging habitat	foraging habitat	foraging habitat	foraging habitat	foraging habitat	foraging habitat
Gray Flycatcher	n/a	n/a	n/a	n/a	n/a	n/a
Green-tailed Towhee	not abundant	not abundant	not abundant	not abundant	not abundant	not abundant
Kit Fox	not abundant	improved	improved	present	not abundant	not abundant
Loggerhead Shrike	present	improved	improved	present	present	not abundant
Prairie Falcon	foraging habitat	foraging habitat	foraging habitat	foraging habitat	foraging habitat	foraging habitat
Pronghorn Antelope	not abundant	improved	improved	present	not abundant	not abundant
Pygmy Rabbit	n/a	n/a	n/a	n/a	n/a	n/a
Sage Sparrow	abundant	adverse	adverse	present	abundant	abundant
Sage Thrasher	abundant	adverse	adverse	present	abundant	abundant
Sagebrush Lizard	present	adverse	improved	improved	improved	present
Sagebrush Vole	present	adverse	present	abundant	abundant	present
Swainson's Hawk	foraging habitat	foraging habitat	foraging habitat	foraging habitat	foraging habitat	foraging habitat
Vesper Sparrow	not abundant	improved	improved	present	not abundant	not abundant
White-tailed Jackrabbit	not abundant	improved	improved	present	not abundant	not abundant

APPENDIX H

Recommendation for Application Rates of Spike™ 20P Herbicide to Thin Big Sagebrush

USDA NRCS
Natural Resources Conservation Service
5301 Longley Lane, F-201
Reno, NV 89511

Big Sagebrush Management with Spike* 20P Herbicide

*Trademark of Dow AgroSciences, LLC[1]

What is Spike 20P Herbicide?
Spike 20P is a pelleted herbicide used to control woody plants. The active ingredient in Spike 20P is tebuthiron which makes up 20% of the pelleted formulation. Inert ingredients comprise the remaining 80%.

What are the ecological benefits of using Spike 20P to control big sagebrush?
Big sagebrush (Artemesia tridentata), a woody shrub dominant on many acres of western rangeland, is an integral part of the plant and wildlife communities when combined with a balanced mixture of grasses and forbs. However, as its density increases, the vast root system of big sagebrush can reduce soil moisture resulting in lowered water tables, decreased water volume in creeks and springs, and degraded riparian areas. Decreases in big sagebrush stand density not only provide more forage to livestock and wildlife, but also give way to greater grass and forb cover, which results in lower surface erosion potential and higher soil moisture retention during drought periods. The competitive ability of dense big sagebrush stands also decreases desirable herbaceous understory species, negatively impacting biodiversity and forage availability for wildlife and livestock. As a result of accurate aerial application made possible with Spike 20P pellets, range managers can create mosaic patterns of variable brush stand densities in order to increase fringe areas preferred by many species.

What are some other advantages of using Spike 20P to control big sagebrush?

- Pellet formulation provides a herbicide application that essentially is not affected by sunlight and temperatures as well as an application with a higher potential for accuracy (low drift potential).
- Application flexibility: The timing of application is not dependent on plant growth stage and can be applied when native grasses are dormant or to fit wildlife nesting habits.
- The partial big sagebrush kill that results from the use of low application rates of Spike 20P creates a visual picture that is non-distinguishable from a big sagebrush stand in a normal die-back cycle.
- The gradual kill of sagebrush (usually 2-3 years) with the use of Spike 20P, allows wildlife and plant species to adjust to habitat changes over an extended period of time compared to the drastic, one-season change from prescribed burning or a 2,4-D treatment.
- The impact of reduced or "thinning" application rates on desirable forbs and brush is negligible.

Why should big sagebrush be thinned?
Big sagebrush is thinned to improve productivity, vegetative mosaic patterns, plant diversity, wildlife habitat, and soil protection on rangeland. Leading ecologists recommend a big sagebrush canopy cover between 10-15% for optimum biodiversity. However, the desired density of big sagebrush varies greatly according to management objectives for the site. In addition, it is generally accepted that having a variety of sagebrush densities over a large area of land may provide for optimum biological diversity on a landscape scale. Within limits, this concept in using Spike 20P to thin big sagebrush stands can accommodate these various objectives.

What are the available application methods for Spike 20P?
While fixed wing and rotor (helicopter) aircraft are the main options for applying Spike 20P, in most cases an applicator mounted to a fixed wing aircraft appears to be the most cost effective. A fixed wing aircraft generally provides a larger coverage area per load compared to a helicopter and is therefore faster in job completion. This results in a lower cost per acre with the use of fixed wing aircraft. Treatment area topography and other operational factors may dictate the need for the use of helicopter in order to allow for application flexibility.

What are the environmental effects of using Spike 20P?
It has been demonstrated in animal toxicity and safety studies that Spike 20P (tebuthiron-20% active ingredient) has a relatively low order of toxicity. Spike 20P is virtually harmless to livestock and wildlife. Due to its high soil particle binding potential, Spike 20P has not been found to appear below 24 inch soil depths and therefore poses little to no threat to groundwater. Application rates that are in excess of recommended levels as outlined in the application rate tables on the reverse, could result in unacceptable impacts on non-target species.

(over)

How much Spike 20P should be applied to reduce big sagebrush?
The following tables show recommended application rates of Spike 20P (presented with permission from Dow AgroSciences, LLC) to achieve various reductions in big sagebrush canopy cover.

Table 1 - Spike 20P Application Rates Required to Achieve Specified Levels of Big Sagebrush Canopy Cover Reduction *by Percent Soil Organic Matter.*

Percent Organic Matter	Desired Percentage Reduction In Canopy Cover			
	40%	50%	75%	85%
	Spike 20P Application Rate Per Acre in Pounds			
<3	NR	1.0	1.5	2.0
3 to 4.5	1.0	1.5	2.5	3.5
4.5 to 5	1.0	2.0	NR	NR
>5	2.0	3.0	NR	NR

NR = not recommended due to lack of data showing percent reduction under these conditions. Soil organic matter and to a lesser extent, the amount of clay in the soil, are the major factors that determine how effectively Spike thins big sagebrush. Higher organic matter and clay content require higher Spike application rates to achieve the same results. Soil texture and organic matter are determined by laboratory analysis of samples taken from the top 10 inches of soil profile located under the drip line of the sagebrush canopy.

Table 2 - Spike 20P Application Rates Required to Achieve Specified Levels of Big Sagebrush Canopy Cover Reduction *by Big Sagebrush Subspecies and Site Elevation.*

Subspecies / Site Elevation	Desired Percentage Reduction In Canopy Cover			
	40%	50%	75%	85%
	Spike 20P Application Rate Per Acre in Pounds			
Wyoming / <6,500'	NR	NR	1.0	1.5
Wyoming / >6,500'	NR	1.0	3.0	NR
Mountain / <6,500'	1.5	2.0	3.0	3.5
Mountain / >6,500'	1.5	2.5	NR	NR

NR = not recommended due to lack of data showing percent reduction under these conditions. The subspecies of big sagebrush that is present at a site, in combination with site elevation, can serve as an indicator of soil texture and organic matter, and can be used to predict the rate of Spike required to achieve the desired level of thinning. Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) typically grows at higher elevations and at sites with higher organic matter. Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) typically grows at lower elevations with lower soil organic matter.

It is important to realize that Spike 20P is effective in thinning stands of big sagebrush (*Artemisia tridentata*), but its effect on other species of sagebrush is variable. If you are unsure which species of sagebrush you are dealing with, please consult a range specialist for positive identification. Please note: it is important to be accurate in the application of Spike 20P. Unacceptable impact on non-target species may occur at application rates that exceed the site recommendations shown above.

Here are some examples of how to determine the proper rate of Spike 20P for your job:

Example 1: The site has 4% organic matter in the top ten inches of soil profile. Present canopy cover of big sagebrush is 20%. The objective is to obtain 10% canopy cover. To achieve this, the canopy cover must be reduced by 50%. Table 1 shows that to obtain a 50% reduction in canopy cover at 4% OM, the recommended application rate is 1.5 lbs. of Spike 20P per acre.

Example 2: The site supports mountain big sagebrush and is over 6500 ft. in elevation. Present canopy cover is 30%. It is desirable to reduce density by 50% thereby leaving 15% canopy remaining. Table 2 shows that to obtain a 50% reduction in canopy cover, the recommended application rate is 2.5 lbs. of Spike 20P per acre. Note that higher levels of canopy reduction cannot be achieved at recommended rates in this situation.

Your local USDA Natural Resources Conservation Service Nevada field office can provide assistance to evaluate environmental risks associated with application of pest management recommendations.

[1] Trade names are used solely to provide specific information. Mention of a trade name does not constitute a guarantee of the product by the U.S. Department of Agriculture nor does it imply endorsement by the Department or the Natural Resources Conservation Service over comparable products that are not named.

APPENDIX I

Watershed Prioritization Matrix and Matrix Definitions

Elko County Sagebrush Ecosystem Conservation Strategy Watershed Prioritization Matrix

Watershed ID	Land Status (% public land and private land)	Existing Management Plans	Population Distribution and Trend	Fire History (% watershed in need of rehabilitation; % sagebrush)	Other Issues - (SSS, Water Quality, etc.)	PMU Priority	Total
Rock Creek	(7+10) = 17	5	10	1	5	27	65
Little Humboldt	(10+5) = 15	5	5	10	2	27	64
Upper Humboldt	(4+1) = 5	5	10	10	10	24	64
S.F. Owyhee	(7+1) = 8	5	10	5	7	27	62
Steptoe Valley	(10+1) = 11	10	5	10	4	21	61
S.F. Humboldt	(7+1) = 8	5	10	5	9	24	61
N.F. Humboldt	(10+1) = 11	5	10	5	9	19	59
Goose Creek	(10+5) = 15	5	10	5	2	19	57
Salmon Falls	(10+1) = 11	5	10	5	6	19	56
Great Salt Lake	(10+1) = 11	10	1	10	2	21	55
Long/Ruby Valley	(7+1) = 8	5	10	10	6	16	55
Little Owyhee	(10+10) = 20	5	1	10	2	16	54
Central	(10+10) = 20	5	1	1	1	24	52
Upper Owyhee	(7+1) = 8	5	10	5	4	19	51
1000 Springs	(7+1) = 8	5	10	5	3	19	50
Bruneau/Jarbidge	(10+1) = 11	5	1	5	8	19	49
Grouse Creek	(7+10) = 17	5	1	5	1	19	48
Middle Humboldt	(4+1) = 5	5	1	5	4	27	47
Pine Creek	(4+1) = 5	5	1	1	3	24	39

MATRIX DEFINITIONS DRAFT

Watershed ID - Each watershed or subbasin will be given a name that will serve as the watershed ID.

Land Status - Watersheds with higher percentages of public land will be given preference over watersheds dominated by private land. Land status will include the following:

Percent of watershed that is in public ownership; 0 - 25% = 1, 26 - 50% = 4, 51 - 75% = 7, 76 - 100% = 10;

Number of permittees - 1 - 3 = 10; 4 - 6 = 5; >6 = 1

The score for public ownership and the score for number of permittees will be combined and the total score entered into the matrix.

Existing Management Plans - Watersheds with allotments that have existing grazing decisions, habitat management plans, or other management plans will be given preference over watersheds that have not yet been evaluated.

Entire watershed under existing management plans = 10; watershed partially under existing management plans = 5, watershed has no existing management plans = 1.

Population Distribution and Trend - Watersheds with numerous strutting grounds and with stable or increasing populations of sage grouse will be given preference over watersheds with few strutting grounds or declining populations.

Watershed has 25 or more active strutting grounds = 10; watershed has 10 - 25 active strutting grounds = 5; watershed has less than 10 active strutting grounds = 1.

Fire History - Watersheds that have not had any recent fire history and have decadent stands of sagebrush will have the highest ranking - manage the "good stuff" where sage grouse currently exist and the potential return for effort expended is likely to be high. Annual grasslands that have been created in the last 40 years will have the second highest priority. Watersheds with pinyon-juniper encroachment onto rangeland sites will have the lowest priority, unless the amount of existing sagebrush is high and the watershed can be ranked under the first priority.

Watersheds with intact sagebrush = 10

Watersheds with high percentage of annual grasslands = 5

Watersheds with high percentage of pinyon-juniper encroachment = 1

Other Issues - The focus of the strategy is for ecosystem management with sage grouse as the featured species; however, where other special status species (plant or animal) are an issue, or where water quality is of high concern, or where other

issues exist that need to be addressed, this category provides for these issues to enter into the prioritization process.

Multiple issues of high concern = 10; one or two issues of high concern = 5; no issues of high concern = 1.

Percent of Population Management Unit in the Watershed - Population Management Units (PMUs) were identified in the Nevada Sage Grouse Conservation Strategy. Watersheds that have a high percentage of one or more PMUs will have preference over watersheds with only a portion of, or no PMUs.

PMUs are a high percentage of the watershed = 10, PMUs are less than 50% of the watershed = 5; no PMUs in the watershed = 1.

Population Management Unit Priority - The Nevada Sage Grouse Conservation Strategy also includes a matrix for prioritizing actions. The priority is based on PMU characteristics. The ranking of the PMUs within the NNSG Planning Area will be entered into the NNSG matrix.

Total - The score for each criteria for each watershed will be totaled and the watersheds ranked from highest to lowest score. This will provide the final prioritization.

APPENDIX J

On-Going Sage Grouse Population and Habitat Improvement Actions

Nevada Department of Wildlife

NDOW continues to do and/or has done the following for sage grouse habitats and resources:

1. Assess Elko County sage grouse populations via annual attendance of males on 10-15 trend leks throughout the county. Many other leks are visited on a yearly basis, but the focus remains on these trend leks. Additional population inventory work has been conducted on a frequent basis with Elko BLM. A significant effort has been undertaken during the last several years to identify new grounds using GIS models to predict lek locations. Both helicopter and ground surveys have been employed to identify new leks. These efforts have utilized both volunteer labor and agency personnel. This continuing collaborative effort between agencies has allowed BLM/NDOW personnel to visit nearly 1,500 leks and identify nearly 300 new leks over the last four years in Elko County alone!

2. Collect age/sex/recruitment data on Elko County sage grouse populations on a yearly basis via hunter harvest. Wings from harvested sage grouse are collected on a yearly basis from approximately 20 traditional, key locations around the county. Brood survey information is collected yearly on a limited basis throughout the county. Emphasis on this data and associated seasonal distribution information will increase in the future.

3. Identification of sage grouse wintering grounds remains a priority and will take on added emphasis as the Elko County sage grouse plan is implemented. At present, most documentation of wintering grounds comes as a result of incidental information from other survey work. Directed efforts specifically for wintering ground detection will increase in the future. GIS modeling will aid in these efforts.

4. Over the last 10 years, NDOW has implemented restoration work on nearly 40,000 acres in the western portion of the county where the wildfire and cheatgrass issue has impacted nearly 90% of historic deer winter range for the MA 6 deer herd. Almost all of this project work is within historic or existing sage grouse habitat. One of the strategic goals of these 27 projects has been to reestablish sagebrush in areas where wildfires have effectively eliminated this essential element of mule deer and sage grouse habitat. Costs associated with these projects have exceeded $1,000,000. Additionally, NDOW has taken an active role in the rehabilitation of burned areas elsewhere in the county. With collaborative efforts involving BLM, USFS, and private landowners, NDOW has taken an active role in the rehabilitation of important sagebrush habitats following wildfires. Over the last four years, NDOW has spent over $250,000 in Elko County in efforts to restore sagebrush to 30,000 acres impacted by fire, all of which have value to sage grouse.

5. NDOW will continue to work in the collaborative arena in Elko County whether it is with the NNSG, the Shoesole HRM groups, the Tomera or South Buckhorn working groups for the betterment of wildlife habitats and resources.

Forest Policies and Projects that benefit Sage Grouse in Northeastern Nevada

Humboldt-Toiyabe National Forest
Ruby Mountains/Jarbidge and Mountain City Ranger Districts

Introduction

The following is a list of policies and projects that have or will have benefit to sage grouse habitat on National Forest System Lands in northeastern Nevada.

Policies:

In November of 2003, the Intermountain Region of the U.S. Forest Service added the Greater Sage Grouse to the Region's list of sensitive species. This designation results in the species inclusion into all Biological Evaluations for all authorized activities conducted on National Forest System lands. BEs will recommend avoidance and mitigation measures for projects that potentially effect sensitive species.

Amendment Number 2 (1990) of the Humboldt National Forest Land and Resource Management Plan (LRMP) identifies sage grouse as a management indicator species (MIS). This designation requires the agency to address potential impacts to the species in National Environmental Policy Act (NEPA) documentation.

Projects:

In 2000, the Camp Fire burned over 30,000 acres of National Forest, BLM, and private lands. The Forest Service cooperated with the Nevada Department of Wildlife (NDOW) to seed 3,000 acres of Forest System lands on the Jarbidge Ranger District with sagebrush and bitter brush to benefit sage grouse, mule deer, and elk.

In 2001, about 500 acres of land burned on the east side of the E. Humboldt range of the Ruby Mountains District. The Forest Service cooperated with NDOW to seed those acres with sagebrush and bitter brush to benefit sage grouse and mule deer.

In 2002, the Mountain City Range District completed a draft Area Analysis for the Jack Creek and Bull Run area of the district. In the document, several recommendations were made to improve habitat conditions for several species including sage grouse.

Upcoming Planning Efforts:

Currently, the Jarbidge Ranger District is conducting a NEPA analysis to comply with the 1995 Range Rescissions Act. During this process, sage grouse will be evaluated in both the NEPA document as well as the biological evaluation process.

The Mountain City Ranger District is scheduled to start the Range Rescissions Act NEPA process in 2005.

SUMMARY OF LAND MANAGEMENT ACTIONS THAT CONTRIBUTE TO SAGE GROUSE HABITAT AND/OR SAGEBRUSH CONSERVATION ON PUBLIC LANDS IN THE BLM ELKO FIELD OFFICE

INTRODUCTION

The BLM, through its broad legislative, regulatory and policy mandates, has the responsibility for the management of the public land resources under the principles of sustained yield and multiple use. The BLM is committed to working collaboratively with public land users, and state and federal agencies to accomplish its public land management responsibilities. The BLM's commitment to working collaboratively with local working groups to help conserve sage grouse and sage grouse habitat, is further emphasized in the 2000 Memorandum of Agreement signed by BLM, Forest Service, U.S. Fish and Wildlife Service, and Western Association of Fish and Wildlife Agencies.

The BLM Elko Field Office has been an active participant in the development of the Northeast Nevada Sagebrush Conservation Strategy (as well as the Central Nevada Conservation Plan) and continues to support the efforts of the Northeast Nevada Stewardship Group to address important issues related to resource stewardship and the informed management of public lands. To the extent that staffing and funding allows, the BLM will assist in the development of watershed assessments and the implementation of conservation actions identified through the watershed assessment process proposed by the Northeast Nevada Sagebrush Conservation Strategy. From the BLM's perspective, the local conservation plans, and in the case of the Northeast Nevada working group, the watershed assessments, will provide important recommendations and tools that the BLM will consider as we develop management strategies for conserving sage grouse habitats on public lands.

BLM's management strategies and decisions to conserve sage grouse must comply with existing laws, policies, regulations and management plans while considering the needs or implications to other species and multiple uses. BLM decisions that affect resource uses and allocations on public lands must be evaluated in accordance with NEPA and provide opportunities for wide public review. Based on our participation in the plan/strategy development to date, the Elko Field Office anticipates that most habitat restoration and improvement activities will typically be in conformance with our existing land use plans.

The BLM Elko Field Office has addressed the protection and management of sage grouse habitat by identifying multiple use objectives and decisions through land use plan development and implementation beginning in 1985. Therefore, the BLM Elko Field Office feels strongly that public land management decisions implemented since that time should be given full consideration when evaluating past, present, and future sage grouse population and habitat conservation efforts. In addition, we feel that it is imperative that these multiple use decisions and/or actions be evaluated and incorporated into the proposed watershed assessment process to ensure their

effectiveness in addressing the sage grouse habitat and/or population risks that have been identified and prioritized in the local conservation strategy.

The following summary (also summarized in Attachment 7) serves to outline the current management strategies and actions implemented through the BLM's land use plan development and implementation process, as well as other various initiatives, that contribute to sage grouse habitat and/or sagebrush conservation on public lands in the Elko Field Office.

A. LAND USE PLANNING (Resource Management Plans)

Resource Management Plans (RMPs) were developed for the Wells and Elko Resource Areas of the Elko Field Office in 1985 and 1987, respectively. These RMPs were developed in response to Section 202 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712) and address management for more than 7 million acres of public lands in Elko, and portions of Lander, Eureka, and Humboldt counties.

The regulations developed for implementing RMPs were designed to comply with the provisions of environmental legislation, particularly the National Environmental Policy Act of 1969 (NEPA) by incorporating an environmental impact statement (EIS) into the planning process. The most important and fundamental aspect of the RMP process is that it was designed to be issue oriented and driven. In other words, the RMPs were prepared to guide managers in making decisions on solving specific problems on certain areas of public land.

The Wells and Elko RMPs made the following types of range and wildlife management decisions:

1.Livestock Grazing:
- a. Identified objectives for vegetation goals.
- b. Determined where livestock grazing would and would not be allowed.
- c. Identified the degree of range improvements.
- d. Identified kind of livestock to be permitted by area.
- e. Identified goals for authorized levels of livestock use.
- f. Identified "initial levels" of authorized livestock grazing.
- g. Identified that "monitoring" would be used to adjust livestock grazing if it was determined that the existing authorizations were not meeting the LUP objectives.

2.Wild Horse and Burros:
- a Identified Herd Management Areas.
- b. Identified "initial levels" of Wild Horse and Burros.
- c. Identified that "monitoring" would be used to adjust Wild Horse and Burro levels.

3.Wildlife:
- a. Identified habitat objectives by kind and area or wildlife.

b. Identified "reasonable numbers" of wildlife by kind and area.
c. Identified aquatic habitat objectives.
d. Identified that "monitoring" would be used as the basis for recommending adjustments in wildlife population levels to the Nevada Department of Wildlife.

Although sage grouse and/or sagebrush habitat conservation was not specifically identified as an issue during the development of the Wells and Elko RMPs, sage grouse habitat is addressed and considerations are provided for in terms of overall wildlife habitat objectives and standard operating procedures for the various authorized land management programs designed to protect and/or enhance crucial habitats for sensitive species, including sage grouse. A summary of the programmatic considerations included in each of the RMPs which benefit sage grouse and/or sagebrush conservation are included in Attachment 1A and 1B. In addition, the general guidance provided by the existing RMPs direct that more site specific activity plans such as Habitat Management Plans be developed for specific sites or areas with high priority competing uses. Specific sage grouse and/or sagebrush habitat issues, objectives, standards, and monitoring activities are provided for in these site specific activity plans.

B. STANDARDS AND GUIDELINES

1. Rangeland Health Standards

The BLM grazing regulations that became effective on August 21, 1995, required that the terms and conditions of grazing permits and leases must ensure conformance with the standards and guidelines. Terms and conditions generally include the kind and number of livestock, the period(s) of use, the allotment(s) to be used and the amount of use described in animal unit months (AUM) (the amount of forage to sustain a cow and calf for one month). On February 12, 1997, the Secretary of the Interior approved Standards and Guidelines for Nevada. These standards for rangeland health and the guidelines for grazing management were developed in consultation with Nevada's three resource advisory councils to help ensure productive sustainable rangelands. The standards and guidelines provide clear direction to achieve properly functioning ecosystems for both uplands and riparian areas. They also provide for managing rangelands in a manner that will achieve or maintain ecological health, including the protection of habitats for threatened or endangered species and the protection of water quality. The standards and guidelines were reviewed in 1997 and an Administrative Determination of NEPA Adequacy was completed which determined that they were consistent with the management decisions and objectives for all existing land use plans.

The BLM utilizes the allotment evaluation process to ensure multiple uses for grazing allotments are meeting or making progress toward meeting land use plans, allotment specific objectives, and the standards and guidelines. In accordance with the grazing regulations, if the allotment evaluation process determines that existing grazing permit terms and conditions are not meeting those standards, and livestock grazing is a significant factor in not meeting the standards, then as soon as possible or no later than

the start of the next grazing year, the terms and conditions of the permit or lease will be modified.

Current policy direction is to complete an assessment of all grazing allotments to determine progress toward attainment of the standards for rangeland health by 2008. See discussion below regarding the allotment evaluation and multiple use decision process.

2. Western Association of Fish and Wildlife Agency Guidelines to Manage Sage Grouse Populations and Their Habitats

In addition to the many other management objectives and/or standards that apply to sage grouse and/or sagebrush habitats, both the Wells and Elko RMPs require that alterations of sagebrush areas will be in accordance with the 1977 Western States Sage Grouse Guidelines, as amended, and as future studies might dictate. In 2000 the Western Association of Fish and Wildlife Agencies (WAFWA) finalized an update of the 1977 guidelines. The Bureau of Land Management (BLM), US Forest Service, and US Fish and Wildlife Service signed a memorandum of agreement to consider these guidelines in their respective planning efforts, utlizing local expertise and quantitative data. In addition, the agencies are urged to "use an adaptive management approach, using monitoring and evaluation to assess the success of implementing these guidelines to manage sage grouse populations". In accordance with the existing land use plans and the 2000 Memorandum of Agreement, the BLM will consider the WAFWA guidelines in all sage grouse and/or sagebrush habitat enhancement projects that occur on public lands and/or are federally funded. These guidelines are not viewed as "hard and fast" standards in lieu of working collaboratively to improve range health. We recognize that these guidelines need to be adapted to local environments and based on scientifically credible ecological data collected and analyzed at the local level.

3. Nevada BLM Management Guidelines for Sage Grouse and Sagebrush Ecosystems

In Nevada, the BLM has recognized that generally lower moisture regimes prevail throughout the majority of Nevada's sagebrush ecosystem. Therefore, BLM developed a set of sage grouse management guidelines designed to be consistent with the WAFWA guidelines, yet adapted to Nevada to provide interim guidance to BLM field managers without restricting options currently being explored for local sage grouse conservation planning. The Nevada BLM Guidelines apply the most current sage grouse science to BLM activities, within the context of a multiple use mandate (see Attachment 2). Because they were developed to be consistent with the WAFWA guidelines and more specific to Nevada, the Elko Field Office will continue to consider the NV guidelines, together with the WAFWA guidelines, in all sage grouse and/or sagebrush habitat enhancement projects that occur on public lands and/or are federally funded. Nevada BLM Guidelines specific to Fire Management, Emergency Fire

Rehabilitation, and Vegetation Treatments have been incorporated into the Elko/Wells Resource Management Plan Fire Amendment as standard operating procedures.

C. LAND USE PLAN IMPLEMENTATION (Activity Plans)

1. Habitat Management Plans

Implementation of the wildlife/riparian management objectives outlined in the Wells and Elko RMPs is accomplished through the development of step-down activity plans in priority designated order. The development of Habitat Management Plans (HMPs) was accomplished for many areas of the Elko Field Office until the allotment evaluation process was implemented for Nevada, beginning in the late 1980's. The allotment evaluation process is consistent with the implementation description and management decisions outlined in the RMPs and blends the evaluation of resource conditions and identification of needed changes in management for the range, wildlife, and wild horse programs.

The BLM Elko Field Office has completed three HMPs which specifically identify sage grouse habitat objectives (North Fork, O'Neil/Salmon Falls and Cherry Creek HMPs) covering approximately 1,404,683 acres. The Marys River Riparian/Aquatic HMP was developed to address riparian issues in the Marys River Watershed. Although this HMP does not specifically identify management objectives for sage grouse, riparian enhancement objectives for the Marys River watershed are expected to significantly benefit sage grouse populations in this 421,562 acres area. All four HMPs were developed in cooperation with the NDOW under the authority of the Sikes Act. Each plan is viewed as a Sikes Act cooperative federal-state management plan to improve wildlife habitat on public lands. Table 1. outlines the amount of sage grouse habitat addressed by each HMP:

Table 1. Summary of Elko Field Office Habitat Management Plans.

Habitat Management Plan	Year Completed	Level of Consideration for Sage Grouse and/or Sagebrush Habitats	Acres of Sage Grouse and/or Sagebrush Habitat
O'Neil/Salmon Falls	9/8/86	Emphasis placed on improvement of riparian habitats essential for brood rearing. Objective to improve 43 springs and/or wet meadows within the HMP area.	682,532 acres
Cherry Creek	9/30/87		362,136 acres
North Fork	9/30/87	Emphasis placed on improvement of riparian habitats essential for brood rearing. Ojective to improve 42 springs and/or wet meadows within one mile	360,015 acres

		radius of known lek areas.	
Marys River	9/30/87	Designed specifically to improve riparian and aquatic habitats for Lahontan cutthroat trout with significant benefits also realized by livestock permittees, recreationists, and other fish and wildlife species, including sage grouse.	421,562 acres
Total Acres			1,826,245 acres

2. Allotment Management Plans

The BLM Elko Field Office administers livestock grazing on 241 grazing allotments (226 allotments are located in Elko County). The Wells and Elko RMPs established multiple use objectives and initial stocking levels for livestock, wild horses, and wildlife from which adjustments would be based on monitoring. Therefore, the rangeland management program has focused on monitoring, evaluating, and making any necessary changes in livestock grazing management to achieve stated objectives.

The Wells and Elko RMPs directed implementation of the range management objectives to be accomplished through the development of step-down activity plans in priority designated order. Allotment Management Plans (AMPs) were developed to prescribe the manner in and extent to which livestock grazing is conducted and managed within specific grazing allotments to meet multiple use, sustained yield, economic, and other needs and objectives as determined through the land use planning process.

A selective management approach was utilized to determine priorities for AMP development. This approach classified grazing allotments into three categories ("M" maintain, "I" improve, or "C" custodial) according to their management needs, potential for improvement, and Bureau funding/manpower constraints. The selective management process identified 83 "I" category allotments and 93 "M" category allotments. Generally, emphasis is placed on implementation of step-down activity plans for these "I" and "M" allotments.

Until the allotment evaluation process was implemented for Nevada, beginning in the late 1980's, the Elko Field Office had completed AMPs for 12 "I" category allotments and 20 "M" category allotments, totally 1,998,435 acres. These AMPs were prepared with the appropriate participation by various resource specialists to ensure that resource management guidelines identified in land use plans were properly considered and mitigating measures are included, as necessary, in the selection of allotment specific management actions.

3. Allotment Evaluations and Multiple Use Decisions

In the late 1980's, BLM in Nevada shifted its energies from implementing land use plan objectives through the development of program specific activity plans (AMPs, HMPs, etc.) to an allotment evaluation process. In a priority schedule order, grazing allotments are evaluated to determine progress toward attainment of multiple use objectives (including sage grouse) and the standards for rangeland health. The allotment evaluation process consists of or involves:

a. The evaluation of current grazing use by all users (livestock, wild horses, wildlife) based on monitoring data analysis and interpretation;
b. Recommendations to change or adjust grazing systems;
c. Recommendations to change or adjust stocking levels; and
d. Establishment of stocking levels for wild horses.

Any needed changes in grazing, wildlife, and/or wild horse and burro management are implemented through issuance of a multiple use decision. To date, the Elko Field Office has completed the allotment evaluation and multiple use decision process for 101 allotments, totaling 4,158,694 acres (61% of the Elko Field Office area of administration). A map depicting existing grazing allotments which currently have prescriptive management in place to address attainment of multiple use objectives (including sage grouse habitat objectives) and standards for rangeland health are shown on the map in Attachment 3A. The map in Attachment 3B outlines the current schedule for completion of evaluations through 2007.

Beginning in the late 1980's, grazing allotments were evaluated individually, utilizing the selective management criteria to establish the priority schedule. In the late 1990's, the BLM Elko Field Office began grouping allotments with similar management issues and completing the evaluation and multiple use decision process for a "complex" of allotments. In some instances, this included up to six or more allotments. More recently, evaluations have been completed for groupings of allotments within an entire watershed (i.e. Marys River).

It is important to clarify that the schedule for completing allotment evaluations is based on the selective management criteria established in the land use plans, as well as changes in resource issues that have occurred during implementation of each RMP. The Elko Field Office has placed a high priority on completing evaluations within wild horse and burro herd management areas and Lahontan cutthroat trout (LCT) habitats. To date, all grazing allotments within wild horse and burro herd management areas have been completed. All evaluations for allotments within LCT habitat have been completed with changes in grazing management in place except the Tuscarora and North Fork Group complexes.

In some instances, an allotment evaluation will be completed for an allotment where an AMP or HMP is already in place. In such cases, the evaluation process serves to assess progress toward attainment of the land use plan objectives, standards for rangeland health, and the specific activity plan objectives. Any necessary changes in the management prescribed in the AMP or HMP are then implemented through issuance of the multiple use decision.

The allotment evaluation and standards and guidelines assessment schedule for high priority allotments in the Elko Field Office is outlined in Attachment 4. This schedule is subject to modification based on changes in staffing, funding and other workload priorities.

The Elko Field Office fully expects that the watershed and population management unit priorities established in the Northeast Nevada Sagebrush Conservation Strategy will result in adjustments to the attached schedule, ultimately directing BLM's efforts to complete required evaluations and standards and guideline assessments. Currently the Elko Field Office has completed the allotment evaluation for the Rock Creek Allotment affecting 345,279 acres of sage grouse habitat in the Rock Creek Watershed/ Tuscarora PMU. The Tuscarora Complex Allotments, also located in the Rock Creek Watershed/ Tuscarora PMU is scheduled for completion in 2005 and would affect an additional 81,161 acres.

The map in Attachment 3A shows that allotment evaluations have been completed in nearly every watershed and/or population management unit. The watershed assessment process proposed by the Northeast Nevada Sagebrush Conservation Strategy will include these existing management actions and serve to assess their effectiveness in addressing overall watershed and/or sage grouse habitat issues. Any necessary changes in the existing management would implemented through BLM's decision process.

4. Range Improvement Projects and Funding

The available rangeland improvement funding is a function of annual grazing receipts. During the past ten years, the Elko Field Office has had as much as $500,000 available annually for rangeland improvement development. During the past ten years available funding has been utilized to implement expensive Allotment Management Plans (AMPs) and Multiple Use Decisions (MUDs) which have been designed to implement changes in management to meet specific multiple use objectives. During the past ten years, we have been experiencing many factors which have resulted in a marked decrease in available range improvement funds (i.e. reduced grazing fees and reduced active use due to drought and other economic reasons, etc.).

Currently, the Elko District has approximately $400,000 to spend on project development each year. Because less funding is available, range improvement funding has been committed for the next three to five years. The Elko Field Office has responded by working harder to identify ways to implement needed changes in management to meet our objectives which will require less monetary investment and require less effort to implement than many of our previous AMPs and MUDs. In addition, the Elko Field Office has developed a project evaluation process which ranks each proposed project utilizing ecological and planning criteria to determine implementation priorities. Utilizing this criteria, projects that are part of an interdisciplinary planning effort (i.e. allotment evaluation/multiple use decision, conservation plan, burned area

emergency rehabilitation plan, etc.), address special status species habitat enhancement, and have a high degree of cooperative funding will receive a higher priority for implementation.

D. POPULATION INVENTORIES

The BLM Elko Field Office has worked closely with the Nevada Department of Wildlife (NDOW) Region II office to maintain an up to date inventory and GIS data themes for sage grouse leks and winter grounds. In cooperation with NDOW, BLM has assisted in ground and aerial lek surveys. In addition, the Elko Field Office has assisted NDOW in incorporating nearly forty years of site records into the GIS data base. The BLM has secured $30,000 to $50,000 each year through annual budget appropriations and its Challenge Cost Share program to support this effort. This work has been in concert with NDOW's annual lek trend counts and brood surveys. During the past four years, BLM and/or NDOW personnel have conducted 1,452 site visits, identifying 274 new leks. There are currently 942 known leks within Elko County. Table 2 summarizes the number of known leks visited and new leks found during 2000-2003 in Elko County.

Table 2. 2000-2003 Elko County Lek Survey Summary.

Year	Number of Known Leks Visited	Number of New leks Found
2000	193	24
2001	544	118
2002	571	74
2003	144	58
Total	1,452	274

Survey work during the past four years has focused mainly on presence/absence documentation at known lek locations and monitoring the impacts of recent wildfires. In 2003, existing information was utilized to build a GIS model to predict locations where lek sites might be found. Utilizing this GIS model, 58 new leks were identified in 2003. Future inventory efforts will be directed toward locating new leks or wintering areas based on predictive modeling. Special attention will be given to gathering new information within high priority watersheds and/or PMUs identified in the Northeast Nevada Sagebrush Conservation Strategy.

The BLM Elko Field Office's continued participation in population inventories is always subject to available funding. However, BLM views this information as essential to making sound land management decisions. Therefore, a high priority will continue to be placed on funding requests for cooperative efforts such as this.

E. FIRE MANAGEMENT

1. Fire Management Pan Amendment

Wildfires have had a significant impact on sage grouse habitats in the Elko Field Office, affecting nearly 1.9 million acres during the past 20 years (see map Attachment 5). To address the increasing amount and cost of wildfire suppression, the 1995 Federal Wildland Policy (reviewed and updated in 2001) directed Federal agencies to develop Fire Management Plans for all areas subject to wildland fires. These plans were to address all potential wildland fire occurrences and include a full range of fire management actions, use new knowledge and monitor results to revise fire management goals, objectives and actions, and be linked closely to land and resource management plans. A Fire Management Plan was first developed by the BLM Elko Fire Management Officer in 1998. Since the existing RMPs did not provide adequate direction for fire management, an RMP amendment was determined necessary.

On November 10, 2003 the BLM Elko Field Office issued a Proposed Elko/Wells Resource Management Plan Fire Management Amendment. This amendment to the existing Wells and Elko RMPs incorporates current direction for responding to wildfires and using fire to achieve resource management objectives. The intensity and size of wildfires have increased compared to pre-settlement conditions, and wildfires pose a significant threat of risk to life, property, and resources. Vegetative communities have high fuel loads that are extremely flammable, especially at the height of the fire season in July and August. The proposed plan amendment prescribes a strategy for responding to fires and reducing hazardous fuel loads at a landscape level, with an objective of improving the condition of public lands throughout the region.

The proposed plan amendment is expected to reduce adverse impacts through the reduction of hazardous fuel loads, resource-focused response strategies, and new procedural guidelines. The proposed plan amendment identifies that fire prevention actions such as vegetation manipulation, fuels reduction, green strips, fuel breaks and thinning should be maximized through the use of prescribed burning, mechanical, chemical and biological (including grazing) treatments to reduce wildfire fuel hazards. Nevada BLM Management Guidelines for Sage Grouse and Sagebrush Ecosystems specific to Fire Management, Emergency Fire Rehabilitation, and Vegetation Treatments have been incorporated into the proposed plan amendment as standard operating procedures. The proposed plan amendment identifies 24,000-60,000 acres to be treated annually utilizing appropriate fuels management techniques. The proposed acreage would vary by year dependent on project planning, funding and staffing levels.

Vegetation treatment projects are generally consistent with the Wells and Elko RMPs and are guided by the Vegetation Treatment on BLM Lands in Thirteen Western States EIS (1991) and the site specific NEPA document prepared for each individual project. The Elko Field Office has also completed a programmatic Elko/Wells District Vegetation Treatment by Fire environmental assessment (2000). Funding for earlier vegetation treatment projects has been through available rangeland improvement program and/or cooperative cost share funds. Most recently, fuels treatment funding has been made available through the National Fire Plan and Healthy Forest Initiatives. The BLM Elko Field Office has completed nearly 46,000 acres of vegetative treatments to meet multiple use and fuels management objectives since 1991. These projects are

summarized in Table 3 and are included in the map showing seedings and treatments in Attachment 5. Each project was designed and evaluated through a site specific environmental assessment to ensure beneficial impacts to sage grouse and/or sagebrush obligate species were achieved.

The BLM Elko Field Office feels that the fire/fuels management program objectives are consistent with the objectives for sage grouse and/or sagebrush habitat management outlined in the Northeast Nevada Sagebrush Conservation Strategy. The effectiveness of these projects will be included in the proposed watershed assessment process with respect to overall watershed functionality and meeting sage grouse and/or sagebrush habitat objectives. In addition, the integration of these programs will maximize available fuels program funding to accomplish common goals. In other words, the watershed assessment process will have a major influence in establishing priorities for future fuels management projects.

Table 3. Summary of Elko Field Office Vegetation Treatment Projects.

Name Of Project	Year(s)	Acreage
Stud Creek	1991-1993	1,000
Stormy	1995-2001	2,900
Frenchy	1999	2,283
Frenchy-Scott	1999	537
Rose	1999	1,131
Mineral	1999 - 2000	986
Sadler-Garcia	1999	2,107
Clover	2000	172
Clover 2	1999	6,755
Cross Ranch	2001	600
Clover Green Strip	2002	10,200
Izzenhood	2002-2003	4,974
Beaver Creek	2002-2003	660
Palamino	2003	1,155
Liza Jane	2003	2,036
East Highway	2003	1,094
Gravel Pit	2003	698
Little Humboldt	2003	1,350
Long Field	2003	800
Spruce	2003	1,439
South Spruce	2003	1,078
Owyhee	Planned	3,000
Elko South	2003	800
Elko North	2003	800
Total Acres Treated		48,555

2. Wildfire and Emergency Stabilization and Rehabilitation

Following each wildfire event, interdisciplinary resource management teams evaluate and develop appropriate Burned Area Emergency Rehabilitation plans to address specific resource concerns. Fire rehabilitation is directed by the guidelines for rangeland health, the Normal Fire Rehabilitation Plan Environmental Assessment (2000), and the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook (2001), as amended. The extent to which a burned area is reseeded is governed by several variables which are evaluated on a site specific basis, such as burn intensity, soil stability, pre-burn conditions, etc. Reseeding following wildfire events has occurred at varying degrees through out Elko County in the past 20 years however, efforts since 1999 have been the most extensive. Since 1999, nearly 800,000 acres have burned in the Elko Field Office area of administration. As a result of rehabilitation efforts, approximately 270,000 acres have been reseeded with appropriate seed mixes based on site potential, seed availability, and specific resource issues or objectives. Site evaluations following these wildfire events determined that the remaining 530,000 acres could rehabilitate naturally due to pre-fire vegetative conditions, elevation, precipitation zone, and site potentials. A summary of the acres treated for each fire from 1999-2003 is included in Attachment 6.

The Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook provides for post treatment monitoring up to three years following treatment to evaluate effectiveness and identify the need for further treatments. Treatment objectives are also established and monitored prior to allowing livestock grazing. Post fire grazing management is also considered to ensure treatment success. The effectiveness of these projects will also be included in the proposed watershed assessment process with respect to overall watershed functionality and meeting sage grouse and/or sagebrush habitat objectives. Additional restoration projects may be identified through the watershed assessment process.

G. GREAT BASIN RESTORATION INITIATIVE

The Great Basin Restoration Initiative (GBRI) began following the devastating 1999 fire season with two reports, “Out of Ashes, An Opportunity” (August 1999), which explained the threats and ecological status of the Great Basin, and “The Great Basin: Healing the Land” (April 2000), which proposed guiding principles and outlined goals and actions in five key areas to help direct restoration work. Since then, an expanded team representing many disciplines has continued to meet regularly and work on strategies and products to assist restoration work in the Great Basin.

The GBRI team defines restoration as “implementation of a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long term”. This definition gives field offices the latitude to conduct a wide range of activities under the label of restoration, as long as the actions promote diversity and the ability of the restored community to better resist or recover from disturbances such as weed invasion or

repeated wildland fires. Use of native plants in restoration projects is emphasized where the seed is available and adapted to the site being restored. Many activities (fire rehabilitation, hazardous fuels reduction, implementation of standards and guidelines, wildlife habitat restoration, etc.) currently funded under other programs meet this definition, and therefore may be included under the umbrella of GBRI.

There is no permanent funding tied specifically to GBRI. Restoration funding arises through several avenues including numerous BLM subactivities and the National Fire Plan. For example, many of the vegetation treatment projects listed in Table 3 above are funded under the umbrella of GBRI. In addition, BLM's noxious weed program secures substantial funding through the GBRI. As a result, during 2002 and 2003 the Elko Field Office has completed 5,868 acres of noxious weed treatment, directly benefiting sage grouse habitat restoration. GBRI is consistent with existing and new land use plans and the National Fire Plan. The bottom line is, what's good for sage grouse will be provided for through restoration efforts associated with GBRI. While some of these efforts will overlap, coordination among the various initiatives will minimize duplicate efforts and ensure maximum use of available resources.

H. HABITAT INVENTORY AND MONITORING

1. Upland Habitats

The objective of BLM's monitoring program is to gather data that can be used in the planning process, in the development of activity plans (HMPs, AMPs, multiple use decions, etc.), and in evaluating the effectiveness and impacts of land management decisions. Management objectives dictate the monitoring studies that need to be initiated and the evaluations dictate management actions needed to meet the objectives. The monitoring program includes wildlife, watershed, range, riparian, and wild horse studies. The data collected includes actual grazing use reports, utilization, climate, and condition and trend studies. All monitoring data is collected, stored, and utilized in accordance with the Elko Field Office Monitoring Plan, together with policy directives. The Elko Field Office has upland habitat monitoring established on all "I" and "M" category grazing allotments. This data serves as the basis for evaluating attainment of habitat objectives, including those for sage grouse, as well as developing desired future condition objectives. This data will also be an integral part of the proposed watershed assessment process.

The Nevada Rangeland Monitoring Handbook (1984) outlines the minimum monitoring methods that will be used. Additional monitoring methods which may be determined appropriate (depending on the issues and management objectives involved) are included in the BLM and Interagency Technical Reports and various BLM Manual Handbooks and Supplements.

A recent example of how the Elko Field Office has addressed sage grouse habitat objectives through the evaluation and monitoring program is the Hubbard Vineyard

Allotment in northeastern Elko County. The BLM recently completed an evaluation of resource conditions for the Hubbard Vineyard Allotment which provides critical seasonal habitat for sage grouse and is the site for an on-going sharp-tailed grouse reestablishment study. In order to ensure significant progress toward attainment of resource objectives the BLM has implemented an adaptive management approach, utilizing the principles of holistic management to involve the interested public in the decision making process. Critical sage grouse and sharp tailed grouse nesting habitat within the Hubbard Vineyard allotment occurs within three separate pastures. A grazing system has been designed that would allow for grazing in each of the pastures during the critical nesting season one year out of three. Each pasture would be rested two years out of three. The grazing system has been designed to improve degraded riparian habitat conditions within the three pastures, ultimately improving summer and late brood-rearing habitat for sage grouse. The WAFWA guidelines outline the critical need for residual nesting cover to ensure nesting success. Therefore, concern has been raised regarding the potential effects the proposed grazing system might have on nesting sage grouse and sharp tailed grouse.

Given the plan for adaptive management of sage grouse and specifically the concern, a study was initiated to:

1. Locate critical nesting areas within the Hubbard Vineyard Allotment.
2. Describe sage grouse nesting habitat use in relation to grazed and ungrazed pastures.
3. Identify selected habitat conditions within occupied nesting areas in relation to sage grouse management guidelines, life history, and habitat requirements.
4. Define seasonal sage grouse movements and critical habitat areas to assist in the holistic management process and adaptive grazing management within the Hubbard Vineyard Allotment.
5. Evaluate satellite telemetry technology against conventional radio telemetry and evaluate the effectiveness this technology in tracking sage grouse annual movements.
6. Apply this information to habitat evaluations and adaptive management strategies elsewhere in Elko County.

The Hubbard Vineyard allotment is an example of the adaptive management process being utilized by BLM to address sage grouse habitat issues. The Elko Field Office expects data from this study and others in Elko County to formulate the quantitative local knowledge base referred to in the WAFWA Guidelines as integral to adapting them to the local area.

2. Riparian Habitats

In addition to the multiple use mandate outlined in FLPMA (1976), numerous laws, regulations, policies, Executive orders, and Memorandums of Understanding direct BLM to manage its riparian-wetland areas for the benefit of the nation and its economy. The Wells and Elko RMPs both outline specific objectives for the management of riparian habitats. The minimum standard of “proper functioning condition” was established for all

riparian areas by the Northeast Nevada Resource Advisory Council through approval of the Standards and Guidelines for Rangeland Health in 1997. As described above under Upland Habitats, riparian monitoring data is essential to the planning process, the development of activity plans, and in the evaluation of the effectiveness and impacts of land management decisions. Riparian habitats provide an essential component of sage grouse brood rearing habitat, providing succulent vegetation during late summer and fall when upland sites begin to dry up. Therefore, managing for healthy riparian areas is consistent with the needs and objectives for sage grouse habitat management.

The Elko Field Office collects aquatic/riparian habitat data on nearly 250 miles of high and medium priority streams. There are over 900 miles of perennial stream habitats on public lands in the Elko Field Office area of administration. A functionality assessment was completed on all lotic areas (perennial streams) in 2001. The Elko Field Office continues to collect aquatic/riparian habitat data and reassess functionality conditions on all riparian areas as part of ongoing monitoring plans and rangeland health or management evaluations. Table 4 summarizes the current condition ratings for these lotic habitats.

Table 4. Elko Field Office Summary of Lotic Riparian Functionality Ratings.

Functionality Rating	PFC	FARup	FARdn	FARna	NF	Unknown	Total Miles
Stream Miles	178 (20%)	153 (17%)	122 (13%)	125 (14%)	335 (37%)	0	912

PFC=Proper Functioning Condition
FARup=Functioning at Risk with an upward trend
FARdn= Functioning at Risk with a downward trend
FARna=Functioning at Risk with trend not apparent
NF=Non Functional

The Elko Field Office initiated a functionality assessment survey of public land lentic (springs, seeps, and wetlands) in 1998. Table 5 summarizes the current condition ratings for these lentic habitats.

Table 5. Elko Field Office Summary of Lentic Riparian Functionality Ratings.

Functionality Rating	PFC	FAR up	FAR na	FAR dn	NF	Unkown	Total
Acres	2137.2	70.5	97.05	288.2	130.15	2893.9	5617

PFC=Proper Functioning Condition
FARup=Functioning at Risk with an upward trend
FARdn= Functioning at Risk with a downward trend
FARna=Functioning at Risk with trend not apparent
NF=Non Functional

I. SURFACE MINING AND MITIGATION

Mining activity, primarily in the Carlin Trend, creates disturbances to existing wildlife habitat and also the opportunity to rehabilitate and reclaim disturbed areas for the benefit of wildlife and other multiple uses. Creative solutions to both short and long term problems continue to be developed in conjunction with the mining companies, Nevada Department of Wildlife, and BLM. Monitoring of the dewatering activities to determine if impacts are occurring, determining what those impacts may be, and developing mitigation if the impacts occur are major issues. In addition to mitigating direct impacts associated with surface mining activities, creative solutions have often included off-site mitigations to address impacts to sage grouse and/or sagebrush habitats. Table 6 summarizes some of the major mining operations permitted on public lands in the Elko Field Office and the mitigations developed to benefit sage grouse and/or sagebrush habitats.

Table 6. Summary of Off-site mitigations associated with surface mining which directly or indirectly benefit sage grouse and/or sagebrush habitats.

1991 – Newmont Gold Quary Project	•Funded **3,400 acres** (5 yr project) mule deer/sagebrush habitat restoration project in Dunphy Hills. •Installed artificial wildlife water developments to mitigate dewatering impacts.
1991 – Barrick Betze Project	•Mitigation fund established in amount of **$660,000** to addressed potential impacts to **330 acres** of riparian/wetlands resulting from dewatering activities •Financial assurances for: **$40,000** in accelerated riparian/wetland re-vegetation projects. **$50,000** toward development of alternative wildlife water sources. **$50,000** toward habitat development projects for sage grouse. **$125,000** for mule deer/sagebrush habitat enhancement projects. •Pursue a land exchange offering valuable wildlife habitat(s) in exchange for long term loss of wildlife habitat within the boundaries of the Betze Pit.
Newmont Mining Company 1993 – South Operations Area Project (SOAP) Mitigation Plan, as amended by 2002 – SOAP Amendment Mitigation Plan, also carried out through the 2002 – Leeville Project	•Maggie Creek Watershed Restoration Project: -Riparian area fencing/development -Vegetation management plan -Conservation easement •Susie Creek Riparian enhancement project: -riparian exclosures •Marys River Riparian Project: -stock watering well development away from Marys River riparian habitats •Spring/Seep enhancement: -fence/development **six (6) identified springs/seeps plus 25 additional** •Established a **"habitat mitigation bank"** to offset direct impacts associated with mine activities, by restoring **3,487 acres** of mule deer/sagebrush habitat in the Dunphy Hills. •Funding for **139 acres** of sage grouse habitat enhancement (applied to habitat mitigation bank). •Funding for **139 acres** of mule deer/sagebrush habitat enhancement (applied to habitat mitigation bank). •Donated sagebrush seeder equipment to NDOW for use in future projects.
1993 - Barrick Meikle Mine Project	•Funding committed for sage grouse and mule deer/sagebrush habitat improvement programs. •Construction of artificial water sources for wildlife.

1994 - Independence Mining Company – Jerritt Canyon Mine Expansion Project	•MOU between USFS, IMC and NDOW allowing for **contributed funds to NDOW** to mitigate past, present, and future impacts to mule deer/sagebrush habitat. •California Mtn. Mine Sage Grouse Mitigation Plan, allowing for **45 acres** of habitat to be treated to benefit sage grouse •Wetlands mitigation plan allowing for development of **20 acres** of offsite wetlands.
1995 – Newmont: Section 36 Project	•Funding for **211 acres** of mule deer transition/sagebrush habitat restoration (applied to habitat mitigation bank).
1996 - Independence Mining Company – DASH Project (mostly USFS lands)	•MOU between USFS, IMC and NDOW allowing for **contributed funds to NDOW** to mitigate past, present, and future impacts to mule deer/sagebrush habitat. •Off-site wetlands mitigations
1996 – Bootsrap Mine Project	•Funding to **300 acres** mule deer transition/sagebrush habitat restoration (applied to habitat mitigation bank).
1996 – Newmont Lantern Mine Project	•Funding for **75 acres** of mule deer transition/sagebrush habitat restoration (applied to habitat mitigation bank).
2002 – Newmont Pete Project	•Funding for **264 acres** of mule deer/sagebrush habitat restoration (applied to habitat mitigation bank). •Funding for off-site enhancement of **74 acres** of sage grouse habitat.
2003 – Barrick Betze Project	•Improve **15 springs** in cooperation with NDOW and BLM •Restore **635 acres** of riparian habitat through the Willow Creek Riparian Enhancement Project •Provide **$50,000** for sage grouse habitat enhancement projects

J. LAND TENURE ADJUSTMENTS

The Elko and Wells RMPs classified the public lands into three management categories based on their suitability for land tenure adjustments. These include sales, transfer primarily by exchange, and retention. Public lands identified for transfer primarily by exchange are generally suited for exchange for private lands within those areas classified for retention. Those areas classified for retention are high resource value public lands that are to be retained and managed intensively and consolidated where possible to enhance management opportunities. Consistent with the decisions outlined in the Elko and Wells RMPs, the Elko Field Office has engaged in an active land exchange program since the mid 1980's to consolidate land ownership within high resource value retention areas for the public benefit. Over 200,000 acres containing valuable riparian and wildlife habitat values have been incorporated into public ownership as a result of the land exchange program.

Each proposed land exchange is subject to detailed analysis, including preparation of an environmental assessment/land report, a cultural resources evaluation, a report on

mineral potential, and an appraisal to establish fair market value. The following criteria are considered during the analysis process:

1. Public resource values or concerns, including but not limited to: threatened, endangered, or sensitive species habitat; riparian areas, flood plains, and wetlands; fisheries, nesting/breeding habitat for game birds or animals, key big game seasonal habitat.
2. Accessibility of the land for public uses.
3. Amount of public investment in facilities or improvements and the potential for recovering those investments.
4. Difficulty or cost of administration (manageability).
5. Significance of the decision in stabilizing business and social and economic conditions.
6. Encumbrances or conflicts or record.
7. Suitability and need for change in land ownership.

Table 7 below outlines those land exchanges which have resulted in private lands containing high resource values (i.e. critical wildlife habitats, riparian or wetland habitats, etc.) being transferred to public ownership.

Table 7. Land Exchanges completed with high resource values.

Proponent	**Date**	**Acres**
Glaser Land & Livestock	1/30/1985	10,063.12
Harvey Dahl	7/25/1985	1,978.26
Boyd Ranch	11/12/1985	4,891.78
FS/Loyd & Alta Sorensen	3/19/1987	5,064.12
Loyd & Alta Sorensen	5/26/1987	960.00
Newmont Gold Company	9/25/1987	1,027.64
Ray Corta	9/15/1988	1,920.00
Lands of Sierra	10/11/1988	3,383.55
Olympic Nevada Inc	5/29/1991	46,968.57
Newmont Gold Company	5/29/1992	280.00
Olympic Nevada Inc	11/25/1992	11,252.02
Barrick Goldstrike	6/14/1995	403.32
Independence Mining	1/29/1996	4,132.64
Simplot	7/12/1996	21,736.02
Barrick Goldstrike	6/19/1997	344.68
BSR Associates	5/26/1999	70,498.39
Western Resource Mgmt	1995-2001	30,504.47
FS/Kenneth Jones	7/17/1998	400.00
Total		215,808.58

ATTACHMENT 1a

Programmatic Considerations in Land Use Plans That Benefit Conservation of Sage-Grouse and/or Sagebrush Habitat

Plan Name: Elko RMP

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
Energy (Fluid minerals, solid minerals, wind, etc.)	"Apply restrictions on leasable and/or saleable mineral developments to protect crucial deer winter range, sage grouse strutting and nesting habitats, and antelope kidding areas." "Provide for oil/gas and geothermal leasing as follows: a) Designation: Limited-subject to no surface occupancy. Purpose: Protection of Special Recreation Management Areas and sage grouse strutting grounds… b) Designation: Limited – subject to seasonal restriction. Purpose: Protect crucial deer winter range, crucial antelope yearlong habitat, and sage grouse brood rearing areas…." "Maintain public lands open for exploration, development, and production of mineral resources while mitigating conflicts with wildlife [including sage grouse], wild horses, recreation, and wilderness resources."	
Fire	Evaluate recent prescribed burns and wildfires to determine if rehabilitation is necessary to achieve habitat management objectives. Review district fire management plans annually, incorporate new sage grouse habitat information, and distribute to fire dispatchers for initial attack planning. Where practical, locate fire camps, staging areas, and heli bases	"Prescribed burn plans will be developed before any planned burning occurs on any native vegetation or seeded areas." Assure that long-term wildfire rehabilitation objectives are consistent with the potential natural vegetation community. Seedings should include an appropriate mix of grasses, forbs, and shrubs, including sagebrush, that will recover the ecological processes and habitat features of the potential natural vegetation.

	at least 1 km. (0.6 mile) away from known sage grouse habitat. Also, as part of any preparedness planning process, identify the possible location of these temporary facilities on a map. Ensure known sage grouse habitat information is incorporated into each Wildfire Situation Analysis to assist in determining appropriate suppression plans and prioritizing fires during multiple ignition episodes. Minimize the amount of sage grouse habitat burned: Give wildfire suppression in sage grouse habitat appropriate consideration within the framework of the Federal Wildland Fire Policy (human life and safety as the first priority, with property and natural resources as equal second priorities) (USDI and USDA 1995). Use direct attack when it is safe and effective. Retain, if possible, unburned areas (including interior islands and patches between roads and the fire perimeter) of sage grouse habitat. When modifying water sources for the temporary purpose of fire suppression, ensure that all impacts are reclaimed as soon as practicable following fire suppression activities. Evaluate all wildfires as soon as possible to determine if reseeding is necessary to recover ecological processes and achieve habitat objectives appropriate for the biological needs of sage grouse and prevent the invasion of noxious weeds or other exotic invasive species. Align long-term objectives for seedings with the habitat needs of sage grouse.	Emphasize native plant species when these species are adapted to the site, are available in sufficient quantities, and are economically and biologically feasible. Reseed all burned lands occurring in sage grouse habitat within 1 year unless natural recovery of the native plant community is expected. “Fire Prevention: Vegetation manipulation, fuels reduction, green strips, fuel breaks and thinning should be maximized through the use of prescribe burning, mechanical, chemical, and biological (including grazing) treatments to reduce wildfire fuel hazards….[Annual target acreage levels for the proposed action would be 24,000-60,000 acres.]” “…Conduct fire rehabilitation activities to emulate historic or pre-fire ecosystem structure, functioning, diversity and/or to restore a healthy stable ecosystem.”
Grazing	“Maintain or improve the condition of the public rangelands to enhance productivity for all rangeland values [including sage grouse].”	"...The following chart shows the allowable use level guidelines for five plant categories by season-of-use: Degree of Allowable Use Guide

	"Monitor the interaction between wildlife habitat condition and other resource uses and make adjustments in season-of-use for livestock to improve or maintain essential and crucial wildlife habitats [including sage grouse]." "The short and long-term range objectives of the grazing management program are to maintain or improve the condition of the public rangelands to enhance productivity for all rangeland values through the following: a) Maintain or improve a sufficient quantity, quality and diversity of habitat and forage for livestock, wildlife [including sage grouse] and wild horses through natural regeneration and/or artificial methods. b) Improve the vegetation resource by providing for the physiological needs of key management species [including sage grouse]. c) Reduce soil erosion and enhance watershed values by increasing ground cover and litter and the density of stabilizing riparian vegetation. d) Improve and maintain the condition of aquatic and riparian habitat. e) Improve the health and productivity of wild horses by maintaining a natural ecological balance of wild horses on public lands. f) Improve rangeland habitat to attain reasonable numbers of big game." "Maintain or improve the condition of the public rangelands to enhance productivity for all rangeland values [including sage grouse]" "Techniques which would result in a minimum improvement of 30 percent in [meadow and riparian area] condition in the short term from the date of implementation would be used. Utilization levels will not exceed 50 percent on meadow and riparian areas."	Plant Grazing Seasons Category Spg Summ Fall Wtr Ylg Annual Grasses 60% 90% 90% 90% 83% Perennial Grasses & Grasslike Plants 50% 50% 60% 60% 55% Annual Forbs 60% 90% 90% 90% 83% Perennial Forbs & Biennial Forbs 50% 50% 60% 60% 55% Shrubs, Half Shrubs, & Trees 30% 50% 50% 50% 45% "In the short-term, maintain or enhance native vegetation with utilization levels not to exceed 50% on key species." "..utization levels of 25 percent by livestock and 25 percent by mule deer will be established on bitterbrush throughout crucial winter habitat..." "To improve ... springs and associated wet meadow riparian areas, livestock grazing systems (rest rotation and deferred) will be developed within all allotments that have been identifed as having sage grouse strutting grounds. Grazing prescriptions should limit utilization on these meadows to less thatn 55 percent prior to June 1 of every other year and rest those same key meadows every other year..." On all vegetation treatments, manage livestock for the long-term health of the vegetation community and the attainment of the treatment objectives.
Realty	"Land tenure adjustment would be subject to a detailed analysis….The following ….criteria…are considered during the analysis process:1. Public resource values or concerns, including but not limited to: threatened, endangered, or sensitive species habitat [including sage grouse]; riparian areas, floodplains, and	

	wetlands; fisheries, nesting/breeding habitat for game birds or animals…." "Time-of-day and/or time-of-year restrictions will be placed on construction activities associated with transmission and utility facilities that are in the immediate vicinity or would cross crucial sage grouse, crucial deer and pronghorn antelope winter habitats, antelope kidding areas, or raptor nesting areas."	
Vegetation (sagebrush) management	"Manage rangeland to protect or enhance crucial sage grouse strutting or nesting habitat." "Improve and maintain meadow and riparian areas for mule deer, sage grouse, and native trout ..." "Conserve and enhance terrestrial, riparian, and aquatic wildlife habitat [including sage grouse]." "Activities that could adversely affect threatened, endangered, or sensitive species [including sage grouse] habitat will not be permitted. Actions in threatened, endangered, or sensitive species habitat will be designed to benefit these species through habitat improvement. All project work will require a threatened, endangered, or sensitive species clearance before implementation. Consultation with the U.S. Fish and Wildlife Service as per Section 7 of the Endangered Species Act is necessary if a threatened, endangered, or proposed threatened or endangered species, or its habitat may be impacted. Other species considered sensitive, but not under the protection of the Act, are given special management considerations through Bureau policy. If adverse impacts to these other sensitive species are identified during project planning, the project will be modified or possibly abandoned to avoid these impacts." Consider the habitat needs of sage grouse when planning vegetation treatments and maintenance projects. Take appropriate precautions to minimize the possibility that noxious weed eradication activities directly impact sage grouse populations or affect sagebrush stands.	"Alteration of sagebrush areas either through application of herbicides, prescribed burning, or by mechanical means will be in accordance with procedures specified in the Western States Sage Grouse Guidelines, the Memorandum of Understanding between the Nevada Department of Wildlife and the Bureau of Land Management, as amended, and as future studies might dictate." "Vegetation manipulation projects will be designed to minimize impacts on wildlife habitat and to improve it whenever possible. Projects that would alter the potential natural plant composition will not be allowed in riparian areas." "Consistent with the Elko RMP...there will be no vegetative type conversions to provide livestock forage within any seasonal crucial big game habitat." "Minimal clearing of vegetation will be allowed on project sites requiring excavation." "A site specific soils analysis will be completed prior to planning vegetation type conversions to determine land treatment feasibility." "Disturbed areas will be treated, where such action is necessary and practical, to replace ground cover and prevent erosion." "The selection and use of herbicides as a means to remove brush will be deferred until completion of a Bureau Environmental Impact Statement on the use of herbicides on the public lands."

	Develop and maintain cumulative records for all vegetation treatment projects to determine and evaluate site specific and cumulative impacts to sage grouse habitats and identify best management practices for successful vegetation treatments. Create sites suitable for leks where current leks are compromised by roads and other facilities. Use vegetation treatments to maintain or improve known habitats. Avoid vegetation treatments in known habitats when birds are present.	"A variety of methods, including structural, may be employed to maintain, improve, protect, and restore watershed conditions and to provide for various water improvements. Meeting emergency needs will be the first priority. The BLM will comply with state water laws and will coordinate with local, state, and Federal agencies in designing and locating watershed projects." "…Implement 500 acres of vegetation treatment….within crucial big game habitat." Type conversions of pinyon pine/juniper stands to improve livestock and/or wildlife forage production will be limited to areas where forage production is the most beneficial (and has the greatest cost/benefit ratio)." Vegetation treatments in areas highly susceptible to, or currently dominated by, cheatgrass should be accompanied by rehabilitation. Rehabilitation should include site preparation techniques and seed mixtures appropriate for the soils, climate, and landform of the area. Use appropriate vegetation treatment techniques to remove junipers/conifers that have invaded sage grouse habitat. Whenever possible employ vegetal control techniques that are least disruptive to the stand of sagebrush. Take appropriate precautions to minimize the possibility that noxious weed eradication activities directly impact sage grouse populations or affect sagebrush stands. Implement effective monitoring plans to determine the effectiveness of vegetation treatments. When native plant species adapted to the site are available in sufficient quantities, and it is economically and biologically feasible to establish or increase them to meet management objectives, emphasize them over non-native species.

Wild Horse & Burros	"Manage wild horse populations and habitat in the established herd areas consistent with other resource uses [including sage grouse]."	
Other Potentially Applicable Standards	"Manage ... high priority riparian/stream habitat to provide good habitat condition for wildlife [including sage grouse] and fish." "Livestock water improvements will include bird ramps in watering troughs, and as needed, drinkers along pipelines, overflows at troughs, and protected seep areas. Spring developments will be fenced to prevent trampling of adjacent vegetation and provide escape areas for small wildlife. A portion of the water at these spring developments will be maintained at the source ensuring that wildlife which have used the water will have access to it as per Nevada Revised Statues 533.367." “Habitat management plans will be written for specific purposes including management of crucial habitats to provide for threatened, endangered, or sensitive species where present; ….improvement of riparian, wetland, and aquatic habitats; and management of other habitats to meet the needs of upland game and nongame animals.” Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria. Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the live cycle requirement of threatened and endangered species.	

ATTACHEMENT 1b

Programmatic Considerations in Land Use Plans
That Benefit Conservation of Sage-Grouse and/or Sagebrush Habitat

Plan Name: Wells RMP

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
Energy (Fluid minerals, solid minerals, wind, etc.)	"Apply time of year restrictions on leasable and/or saleable mineral development to protect crucial deer winter range and sage grouse strutting and nesting habitats." "Time-of-day and/or time-of-year restrictions will be placed on construction activities associated with transmission and utility facilities and leasable and salable mineral exploration and/or development that are in the immediate vicinity or would cross crucial sage grouse, crucial deer and pronghorn antelope winter habitats, antelope kidding areas, or raptor nesting areas." "Time of year restrictions would be imposed ... to protect sage grouse breeding activities." "Closely manage new road construction and mining activities within riparian zones to minimize or eliminate impacts." "Time of year restrictions would be imposed on 170,800 acres in the ONeil/Salmon Falls RCA, 42,200 acres in the Goos Creek RCA, and 56,300 acres in the Ruby/Wood Hills RCA, all to protect sage grouse breeding activities." "The District Oil, Gas, and Geothermal Environmental Assessment will be amended to protect high use recreation areas and crucial wildlife habitat [including sage grouse]."	

Fire	Evaluate recent prescribed burns and wildfires to determine if rehabilitation is necessary to achieve habitat management objectives. Review district fire management plans annually, incorporate new sage grouse habitat information, and distribute to fire dispatchers for initial attack planning. Where practical, locate fire camps, staging areas, and helibases at least 1 km. (0.6 mile) away from known sage grouse habitat. Also, as part of any preparedness planning process, identify the possible location of these temporary facilities on a map. Ensure known sage grouse habitat information is incorporated into each Wildfire Situation Analysis to assist in determining appropriate suppression plans and prioritizing fires during multiple ignition episodes. Minimize the amount of sage grouse habitat burned: Give wildfire suppression in sage grouse habitat appropriate consideration within the framework of the Federal Wildland Fire Policy (human life and safety as the first priority, with property and natural resources as equal second priorities) (USDI and USDA 1995). Use direct attack when it is safe and effective. Retain, if possible, unburned areas (including interior islands and patches between roads and the fire perimeter) of sage grouse habitat. When modifying water sources for the temporary purpose of fire suppression, ensure that all impacts are reclaimed as soon as practicable following fire suppression activities. Evaluate all wildfires as soon as possible to determine if reseeding is necessary to recover ecological processes and achieve habitat objectives appropriate for the biological needs of sage grouse and prevent the invasion of noxious weeds or other exotic invasive species.	"Public rangelands are managed to: enhance the productivity of the rangelands….provide for inventory and categorization based on conditions and trends, and provide for orderly use, improvement and development. Short term management actions: prescribe burn (without seeding) 27,000 acres…" Assure that long-term wildfire rehabilitation objectives are consistent with the potential natural vegetation community. Seedings should include an appropriate mix of grasses, forbs, and shrubs, including sagebrush, that will recover the ecological processes and habitat features of the potential natural vegetation. Emphasize native plant species when these species are adapted to the site, are available in sufficient quantities, and are economically and biologically feasible. Reseed all burned lands occurring in sage grouse habitat within 1 year unless natural recovery of the native plant community is expected. "Fire Prevention: Vegetation manipulation, fuels reduction, green strips, fuel breaks and thinning should be maximized through the use of prescribe burning, mechanical, chemical, and biological (including grazing) treatments to reduce wildfire fuel hazards….[Annual target acreage levels for the proposed action would be 24,000-60,000 acres.]" "…Conduct fire rehabilitation activities to emulate historic or pre-fire ecosystem structure, functioning, diversity and/or to restore a healthy stable ecosystem."

	Align long-term objectives for seedings with the habitat needs of sage grouse.	
Grazing	"The livestock grazing use level will be consistent with other resource users [including sage grouse]." "Continue to monitor the interaction between wildlife habitat condition and other resource uses and consider adjustments in livestock seasons of use to improve or maintain essential and crucial wildlife habitats [including sage grouse]." "The short and long-term range objectives of the grazing management program are to maintain or improve the condition of the public rangelands to enhance productivity for all rangeland values through the following: a) Maintain or improve a sufficient quantity, quality and diversity of habitat and forage for livestock, wildlife [including sage grouse] and wild horses through natural regeneration and/or artificial methods. b) Improve the vegetation resource by providing for the physiological needs of key management species [including sage grouse]. c) Reduce soil erosion and enhance watershed values by increasing ground cover and litter and the density of stabilizing riparian vegetation. d) Improve and maintain the condition of aquatic and riparian habitat. e) Improve the health and productivity of wild horses by maintaining a natural ecological balance of wild horses on public lands. f) Improve rangeland habitat to attain reasonable numbers of big game."	"Deferment of livestock use will be in effect for a minimum of two growing seasons following brush control projects so vegetation may be re-established." On all vegetation treatments, manage livestock for the long-term health of the vegetation community and the attainment of the treatment objectives.
Realty	"Time-of-day and/or time-of-year restrictions will be placed on construction activities associated with transmission and utility facilities …that are in the immediate vicinity or would cross crucial sage grouse, crucial deer and pronghorn antelope winter habitats, antelope kidding areas, or raptor nesting areas."	
Vegetation (sagebrush)	"Manage ... high priority riparian/stream habitat to provide good	"Alteration of sagebrush areas either through application of

management	habitat condition for wildlife [including sage grouse] and fish. Techniques which would result in a minimum improvement of 30 percent in habitat condition in the short-term from the date of implementation would be used...." "Manage areas in good or better habitat condition so that further declines in habitat quality do not occur." "The Bureau will manage habitat so as to protect animal and plant species which are of particular concern to both the Federal and State Governments." Consider the habitat needs of sage grouse when planning vegetation treatments and maintenance projects. Take appropriate precautions to minimize the possibility that noxious weed eradication activities directly impact sage grouse populations or affect sagebrush stands. Develop and maintain cumulative records for all vegetation treatment projects to determine and evaluate site specific and cumulative impacts to sage grouse habitats and identify best management practices for successful vegetation treatments. Create sites suitable for leks where current leks are compromised by roads and other facilities. Use vegetation treatments to maintain or improve known habitats. Avoid vegetation treatments in known habitats when birds are present.	herbicides, prescribed burning, or by mechanical means will be in accordance with procedures specified in the Western States Sage Grouse Guidelines, the Memorandum of Understanding between the Nevada Department of Wildlife and the Bureau of Land Management, as amended, and as future studies might dictate." "Crested wheatgrass seedings will generally not be located in crucial big game habitats." "Proposed seedings for livestock management will be composed primarily of crested wheatgrass although other species, including grasses, forbs, and shrubs, may be included on a case-by-case basis." "Emphasis will be placed on the management of browse on crucial mule deer winter range." "Physiological requirements for the management of different vegetation types will be determined by BLM based on the best available scientific information. Methods of management to meet these requirements will be determined through consultation, coordination, cooperation, and public involvement. The preferred method to accomplish this consultation and coordination is through the Coordinated Resource Management and Planning (CRMP) process." "Minimal clearing of vegetation will be allowed on project sites requiring excavation." "Achieve annual utilization of the ... bitterbrush population which does not exceed 45 percent of twig length ... (maximum of 25 percent for livestock). "Chain or burn, and seed 5,500 acres to improve crucial big game habitat." "Identify, in coordination with woodland products management, about 50,000 acres of crucial deer winter habitat for improvement."

		Vegetation treatments in areas highly susceptible to, or currently dominated by, cheatgrass should be accompanied by rehabilitation. Rehabilitation should include site preparation techniques and seed mixtures appropriate for the soils, climate, and landform of the area. Use appropriate vegetation treatment techniques to remove junipers/conifers that have invaded sage grouse habitat. Whenever possible employ vegetal control techniques that are least disruptive to the stand of sagebrush. Take appropriate precautions to minimize the possibility that noxious weed eradication activities directly impact sage grouse populations or affect sagebrush stands. Implement effective monitoring plans to determine the effectiveness of vegetation treatments. When native plant species adapted to the site are available in sufficient quantities, and it is economically and biologically feasible to establish or increase them to meet management objectives, emphasize them over non-native species.
Wild Horse & Burros	"Continue management of the six existing wild horse herds consistent with other resource uses [including sage grouse]." "...manage wild horses within HMAs...to maintain a thriving natural ecological balance consistent with other resource needs [including sage grouse]."	
Other Potentially Applicable Standards	"Protect, enhance and/or develop 250 spring sources for their wildlife values [including sage grouse]." Generally, spring developments will be fenced to prevent trampling of adjacent vegetation and to provide escape areas for small wildlife. Water at these spring developments will be maintained at the source."	

	"The Bureau seeks to improve stream habitat for fish, resulting in benefits not only to the fisheries, but to other resources such as watershed, wildlife [including sage grouse], erosion, flood control, water quality and recreation." "Wetland, Riparian Management: As a part of wetland-riparian management, consider all measures to minimize damage and to preserve and restore the area in accordance with the 6740 manual, and in adherence with Executive Orders No. 11990 and No. 11988." "The Bureau will manage habitat so as to protect animal and plant species which are of particular concern to both the Federal and State governments." "The Nevada Department of Wildlife will be consulted when sensitive species are involved." Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria. Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the live cycle requirement of threatened and endangered species.	

ATTACHMENT 2

Nevada BLM
Sage Grouse/Sagebrush Ecosystem Management Guidelines

These management guidelines and supportive background information establish interim policy for the Bureau of Land Management in Nevada. The guidelines have been developed to be consistent with the WAFWA Guidelines within the inherent constraint of generally lower moisture regimes throughout the majority of Nevada's sagebrush ecosystem. Many Nevada sagebrush range sites may not have the potential to achieve the optimum sage grouse habitat conditions described in the WAFWA Guidelines. These guidelines will be incorporated, as appropriate to site specific conditions, into the long-term Sage Grouse/Sagebrush Ecosystem Conservation Assessment and Strategy Plan(s).

Throughout this document the terms *known habitat* and *potential habitat* are used. *Known habitats* are those habitats that are known to be currently occupied and used by sage grouse for breeding, nesting, brood-rearing or wintering. Knowledge of sage grouse occupancy is unknown for large expanses of sagebrush areas. *Potential habitat* refers to the kinds of land, land forms, and plant communities that may support or potentially support sage grouse during breeding, nesting, brood-rearing, or wintering. These habitats may be vitally important to sage grouse, but we lack information about sage grouse occupancy. BLM will treat all historical habitats (leks, breeding, brood-rearing and winter) as potential habitat unless BLM, in cooperation with the Nevada Division of Wildlife, determines that they no longer can function as sage grouse habitat and cannot be reasonably rehabilitated. It is important to maintain the historical baseline of sagebrush ecosystems.

Management guidelines described herein (concerning size of buffers, time frames, etc.) may be modified based on monitoring, site-specific local knowledge, professional judgement, or the need to protect/accommodate other resources.

GOAL

The goal of these management guidelines is to initiate actions that effectively promote the conservation of sagebrush habitats on BLM-administered public lands in Nevada. While these guidelines focus on conservation of sage grouse and their sagebrush habitats, conservation of sagebrush habitats needed by sage grouse will benefit a multitude of other sagebrush habitat species of concern (Wisdom et al. in press). Sage grouse are considered to be an umbrella species, so management of sagebrush ecosystems to meet the life cycle needs of sage grouse is expected to achieve sagebrush ecosystem health and sustainability and provide for the needs of other sagebrush obligate and associated species.

These guidelines will be implemented in concert with Nevada's allotment evaluation and multiple-use decision process established to implement the BLM Nevada standards and guidelines for rangeland health and other applicable laws, regulations, and policies. The guidelines represent the interpretation of the standards and guidelines as they apply to the management of uses affecting sage grouse habitats and sagebrush ecosystems.

These goals will also be implemented in concert with reclamation standards as described in *Final Guidelines for Successful Mine and Exploration Revegetation in Nevada*.

OBJECTIVES

The following objectives are intended as guidance for implementation of existing land-use plan activities and development of long-term conservation management plans. The objectives are applicable to sagebrush habitats in Nevada managed by BLM. Neither these objectives nor the guidelines derived from these objectives are intended to supercede the National Environmental Policy Act (NEPA) or any other applicable laws or regulations.

1. Identify and map, in cooperation with the Nevada Division of Wildlife, known sage grouse habitats.

2. Maintain and enhance known sage grouse habitats, paying particular attention to areas of high ecological integrity.

3. Minimize net loss of sage grouse habitat as a result of new actions authorized by BLM; minimize habitat losses resulting from natural disturbances (wildland fire, insects, disease, etc.).

4. Provide sage grouse habitats that are secure from direct human disturbance during the winter and breeding seasons (when birds are concentrated and susceptible to harassment).

5. Restore sage grouse habitats.

Management Actions

SPECIFIC GOALS

•Where possible, manage all historical habitat so that these habitats may one day be used again by sage grouse.

•Provide secure sage grouse breeding habitat with minimal disturbance and harassment.

•Maintain and improve existing leks or create sites suitable for additional leks.

•Manage sagebrush communities, based on best available science, to achieve optimal nesting habitat conditions within site potential to insure nesting and early brood-rearing success.

•Manage vascular and non-vascular plant communities and macrobiotic crusts to provide a diversity of high quality plant and insect food sources.

•Promote habitat conditions that support growth and survival of young sage grouse in late brood-rearing habitat.

•Maintain or improve known winter sage grouse habitat.

PROGRAM SPECIFIC GUIDELINES

Grazing by livestock, horses and burros, and wildlife

•Coordinate with livestock permittees to locate the placement of salt or mineral supplements appropriate distances from leks to avoid livestock concentrations and reduce the potential for harassment and displacement of birds during the breeding season.

•Designate livestock trailing routes, turnout locations, sheep bedding grounds/camp/sheep sheering facilities, and corral locations to ensure attainment of objectives for known sage grouse habitat. Evaluate existing livestock trailing routes and sheep bedding ground locations and make appropriate adjustments where such uses are precluding attainment of habitat objectives.

•Apply livestock grazing management to accomplish the four fundamentals of rangeland health, as described in the standards and guidelines: (1) watersheds are properly functioning, (2) ecological processes are in order, (3) water quality complies with state standards, and (4) habitats of protected species are in order, and to attain desired future condition objectives where applicable.

•Where grazing use by wildlife (e.g. elk, deer, antelope, etc.) is determined to be adversely affecting sage grouse populations or habitat, suggest appropriate adjustments to the Nevada Division of Wildlife.

•If it is determined through assessment/monitoring/observation that sage grouse habitat quality conditions (as described in the WAFWA guidelines and in relation to the specific site potential) are not being met, and livestock is determined to be a significant contributing factor, institute appropriate changes in grazing management prior to the next grazing year to ensure significant progress toward

attainment of appropriate habitat objectives and the standards for rangeland health.

•During drought periods (i.e., a specified period of time in which the precipitation received is less than 75 percent of average) of two or more years, reduce stocking rates or change management practices for livestock if nesting cover and brood-rearing habitat requirements are not being met.

•Grazing in non-riparian sage grouse habitats should not exceed moderate use (see Appendix II, excerpted from Nevada Rangeland Monitoring Handbook, 1984, for a description of utilization levels) at the end of the growing season and throughout the dormant period. This applies to regularly authorized use, temporary non-renewable use (TNR), and grazing use during periods of drought and may be adjusted to lower levels as necessary to optimize nesting, brood rearing and winter habitat characteristics relative to site potential.

•Coordinate livestock use on wetland-riparian and streambank-riparian habitat to ensure known late season brood-rearing habitats are in optimal condition.

•Determine grazing use levels on that portion of the pasture which is known habitat. Grazing use levels should not be determined by “average use” throughout the entire pasture or grazing unit.

•Avoid supplemental winter feeding of livestock in known winter sage grouse habitat.

•Where wild horse and burro populations are adversely affecting the sage grouse population or habitat, evaluate herd populations and adjust numbers as necessary.

•Locate wild horse and burro capture facilities at appropriate distances from known sage grouse habitat to avoid adverse impacts to the habitat.

Range Improvement Projects

•Ensure that existing spring developments maintain, and new spring developments are designed and constructed to maintain, their free-flowing nature and wet meadow characteristics.

•Where necessary, modify existing water developments in cooperation with livestock permittees and other cooperators to restore natural ecological functions and processes at the source.

•Where necessary, modify, reconstruct, or relocate existing livestock facilities, in cooperation with livestock permittees, or other cooperators, to mitigate any adverse impacts to known sage grouse habitats.

•Install wildlife escape ramps in new water troughs. Retrofit existing troughs with wildlife escape ramps as needed.

•Construct new livestock facilities (livestock troughs, fences, corrals, handling facilities, “dusting bags”, etc.) at appropriate distances from known sage grouse habitats based on WAFWA sage grouse management guidelines, and on site-specific conditions, to avoid concentration of livestock, collision hazards to flying birds, or avian predator hunting perches.

•Construct new livestock water developments outside of known sage grouse habitat unless it can be demonstrated that the development will not adversely affect the habitat.

•Consider off-site mitigation on a case-by-case basis in evaluating construction activities.

Vegetation Treatment

•Consider the habitat needs of sage grouse when planning vegetation treatments and maintenance projects.

•On all vegetation treatments, manage livestock for the long-term health of the vegetation community and the attainment of the treatment objectives.

•Vegetation treatments in areas highly susceptible to, or currently dominated by, cheatgrass should be accompanied by rehabilitation. Rehabilitation should include site preparation techniques and seed mixtures appropriate for the soils, climate, and landform of the area.

•Use appropriate vegetation treatment techniques to remove junipers/conifers that have invaded sage grouse habitat. Whenever possible employ vegetal control techniques that are least disruptive to the stand of sagebrush.

•Take appropriate precautions to minimize the possibility that noxious weed eradication activities directly impact sage grouse populations or affect sagebrush stands.

•Implement effective monitoring plans to determine the effectiveness of vegetation treatments.

•Develop and maintain cumulative records for all vegetation treatment projects to determine and evaluate site specific and cumulative impacts to sage grouse habitats and identify best management practices for successful vegetation treatments.

•Evaluate recent prescribed burns and wildfires to determine if rehabilitation is necessary to achieve habitat management objectives.

•Create sites suitable for leks where current leks are compromised by roads and other facilities.

•Use vegetation treatments to maintain or improve known habitats. Avoid vegetation treatments in known habitats when birds are present.

•When native plant species adapted to the site are available in sufficient quantities, and it is economically and biologically feasible to establish or increase them to meet management objectives, emphasize them over non-native species.

Recreational Use

•Identify conflict areas, assess the significance of impacts, and implement appropriate actions (e.g. emergency seasonal or area closures, educational programs to increase public awareness, etc.) as necessary to protect known sage grouse habitat.

•Construct new facilities (i.e., kiosks, toilets, signs, etc.) appropriate distances from known sage grouse habitats, based upon site-specific conditions and evaluation, to minimize disturbance to and displacement of birds and habitat loss and/or fragmentation.

•Limit development of new roads and trails to minimize impacts to known sage grouse habitat.

•Select sites, routes, and times for motor vehicle, OHV, competitive/commercial recreational events, etc., which minimize impacts to known breeding, nesting, brood-rearing and/or wintering habitat.

•Avoid the use of temporary horse corrals in riparian areas and meadows, and in known sage grouse habitat. Encourage use of pelleted feed or certified weed-free hay for horses to discourage the spread of noxious and invasive weeds.

•Plan and design the development of new recreational facilities to control recreational impacts to known sage grouse habitats and to riparian and wet meadow areas.

Lands and Realty

•Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known sage grouse habitat to avoid adverse impacts.

•Wherever possible, locate new utility corridors a minimum 3.3 km (2 miles) from known sage grouse habitat, or appropriate distance based on site-specific conditions. Aerial structures should be modified to prevent avian predator perching or nesting.

•In evaluating land and realty actions, consider off-site mitigation on a case-by-case basis.

•In land exchanges or property transfer actions, consider such factors as: 1) loss or fragmentation of known or potential habitat 2) acquisition of equal or better quality habitat 3) consolidation of public lands for secure populations 4) direct impacts to sage grouse populations.

•Avoid authorizing rights-of-way that would result in significant habitat loss, habitat fragmentation, or population disturbance.

•Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species.

•Work with existing rights-of-way holders in an attempt to install perch guards on all poles where existing utility poles are located within 3.3 km (2 miles) of known leks, where necessary. Stipulate these requirements at grant renewal.

•Authorize new rights-of-way at least 3.3 km (2 miles) or other appropriate distance (based on features such as type of project, topography, etc.) from leks.

•Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. Whenever possible, install new power lines within existing utility corridors. Otherwise, power lines should be located at least 3.3 km (2 miles) from breeding, nesting, brood-rearing and winter habitat.

•Allow land disposals in sage grouse habitats only if the land is identified as containing no known breeding, nesting, brood-rearing or winter habitat or where determined that those lands are not manageable as sage grouse habitat.

Energy and Minerals B locatable, leasable, salable
(*Leasable is oil, gas, and geothermal; salable is sand and gravel or common rock; and locatable is gold and silver.)*

•Avoid permitting or leasing energy or mineral-associated facilities or activities in known sage grouse habitat, as practicable (e.g. modifying location, implementing time-of-year and/or time-of-day restrictions, etc.)

•Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and land form. Attempt to restore the ecological processes and potential natural vegetation, and prevent the invasion of noxious weeds or other invasive species.

•Consider the habitat needs of sage grouse when developing reclamation plans, as appropriate.

•Consider, on a case-by-case basis, off-site mitigation when evaluating energy and mineral activities.

•Avoid permitting or leasing mineral and energy-related activities within 3.3 km (2 miles)or other appropriate distance based on site-specific conditions, of leks, or within 1 km. (0.6 mi.) of known nesting, brood-rearing and winter habitat.

•For notices acknowledged under 43 CFR § 3809, inform the operator if the proposed exploration is within 3.3 km (2 miles) of known sage grouse habitat and make recommendations to avoid or mitigate potential impacts.

Fire Management

•Review district fire management plans annually, incorporate new sage grouse habitat information, and distribute to fire dispatchers for initial attack planning.

•Where practical, locate fire camps, staging areas, and helibases at least 1 km. (0.6 mile) away from known sage grouse habitat. Also, as part of any preparedness planning process, identify the possible location of these temporary facilities on a map.

•Ensure known sage grouse habitat information is incorporated into each Wildfire Situation Analysis to assist in determining appropriate suppression plans and prioritizing fires during multiple ignition episodes.

•Minimize the amount of sage grouse habitat burned:

•Give wildfire suppression in sage grouse habitat appropriate consideration within the framework of the Federal Wildland Fire Policy (human life and safety as the first priority, with property and natural resources as equal second priorities) (USDI and USDA 1995).

•Use direct attack when it is safe and effective.

•Retain, if possible, unburned areas (including interior islands and patches between roads and the fire perimeter) of sage grouse habitat.

•When modifying water sources for the temporary purpose of fire suppression, ensure that all impacts are reclaimed as soon as practicable following fire suppression activities.

Emergency Fire Rehabilitation

•Evaluate all wildfires as soon as possible to determine if reseeding is necessary to recover ecological processes and achieve habitat objectives appropriate for the biological needs of sage grouse and prevent the invasion of noxious weeds or other exotic invasive species.

•Assure that long-term wildfire rehabilitation objectives are consistent with the potential natural vegetation community.

•Align long-term objectives for seedings with the habitat needs of sage grouse. Seedings should include an appropriate mix of grasses, forbs, and shrubs, including sagebrush, that will recover the ecological processes and habitat features of the potential natural vegetation. Emphasize native plant species when these species are adapted to the site, are available in sufficient quantities, and are economically and biologically feasible.

•Reseed all burned lands occurring in sage grouse habitat within 1 year unless natural recovery of the native plant community is expected.

Implementation Monitoring

Critical to BLM's success in meeting responsibilities and implementing these guidelines for the management of sage grouse habitat is the ability to measure and report on-the-ground results. Pursuant to this end, field offices, in cooperation with the Nevada Division of Wildlife, will maintain annual records of the following:

Baseline Information

- •Total district acreage (# of acres)
- •Known sage grouse habitat (acres)
- •Total number of leks

Sage Grouse Monitoring

- •Total number of leks (#)
- •Number of leks surveyed (#)
- •Estimated sage grouse population (#)

Grazing Monitoring (livestock, wild horses and burros, and wildlife)

- •Number of allotments assessed for rangeland health (annual and cumulative #)
- •Acres assessed for rangeland health (annual and cumulative # acres)
- •Number of allotments meeting wildlife standard for sage grouse habitat
- •Acres which meet wildlife standard for sage grouse habitat (annual and cumulative # acres)
- •Number of allotments not meeting wildlife standard for sage grouse habitat - due to livestock (annual and cumulative #)
- •Acres which do not meet wildlife standard for sage grouse habitat - due to livestock (annual and cumulative # acres)
- •Number of allotments not meeting wildlife standard for sage grouse habitat - other causes (annual and cumulative #)
- •Acres which do not meet wildlife standard for sage grouse habitat - other causes (annual and cumulative # acres)
- •Number of allotments where corrective action was taken (annual and cumulative #)
- •Number of acres where corrective action was taken (annual and cumulative #)

Recreational Use

- •Road or area closures required in known sage grouse habitat (# of roads and acres)
- •New roads and trails restricted in known sage grouse habitat (# of roads and acres)
- •Recreational permits that include restrictions for sage grouse habitat (# of permits)

Lands and Realty

- •Land tenure adjustments involving sage grouse habitat (#)
- •Net gain/loss of sage grouse habitat (# acres)
- •Rights-of-ways authorized in known sage grouse habitat (#)
- •Rights-of-ways authorized in known sage grouse habitat with restrictions (#)

Energy and Minerals

•Management actions taken relative to energy/minerals with respect to sage grouse habitat (#)
•Description

Range Improvements

•Range improvements constructed in sage grouse habitat (#)
•Range improvements constructed which incorporate sage grouse guidelines (#)
•Modification of existing range improvements to meet sage grouse guidelines (type and #)

Wildfire

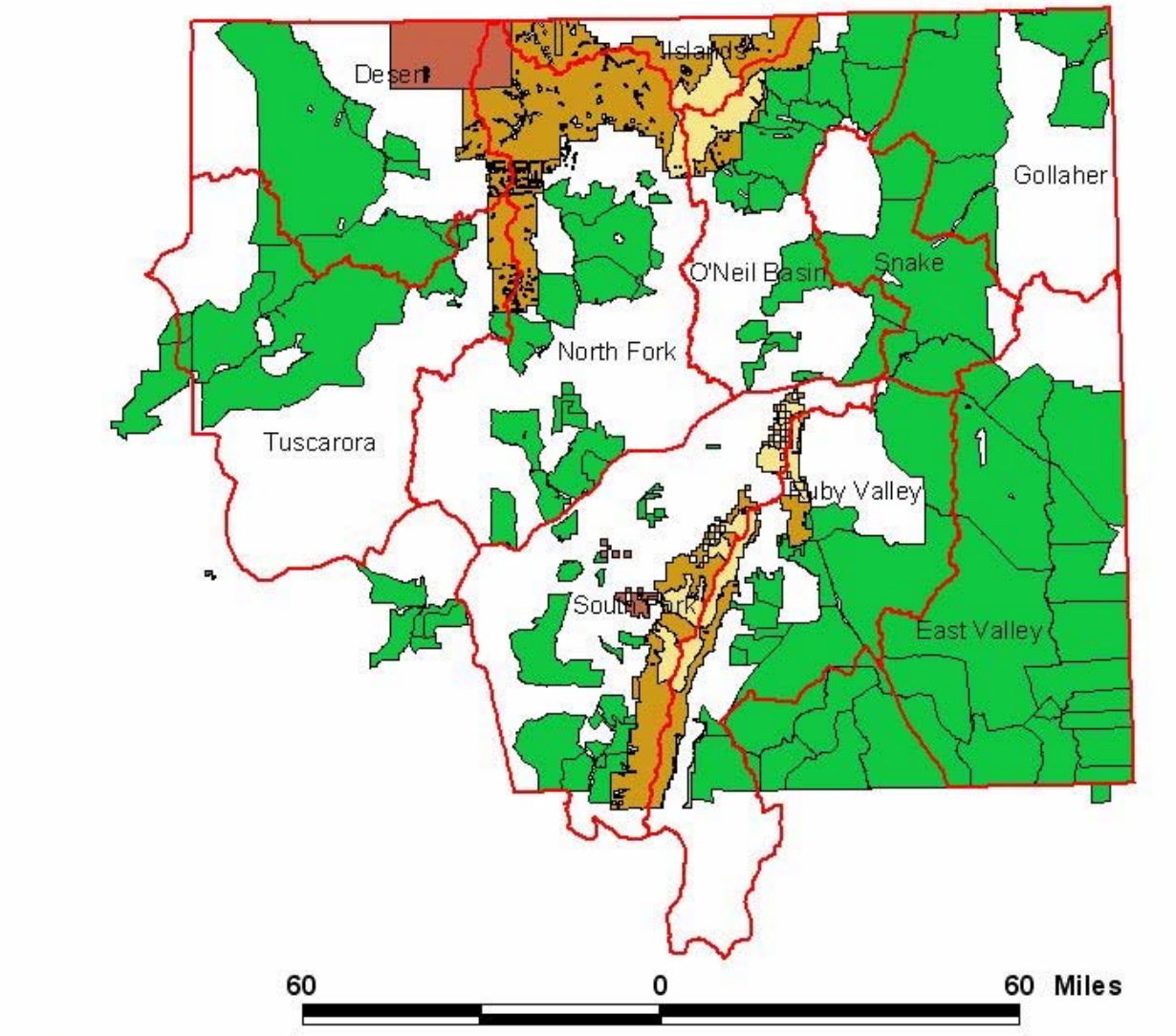
•Sage grouse habitat burned (acres)
•Known sage grouse habitat burned (acres)
•Sage grouse habitat requiring reseeding (acres)
•Sage grouse habitat rehabilitated and reseeded (acres)

Vegetation Treatment

•Vegetation Treatments in sage grouse habitat (#, type, acres)

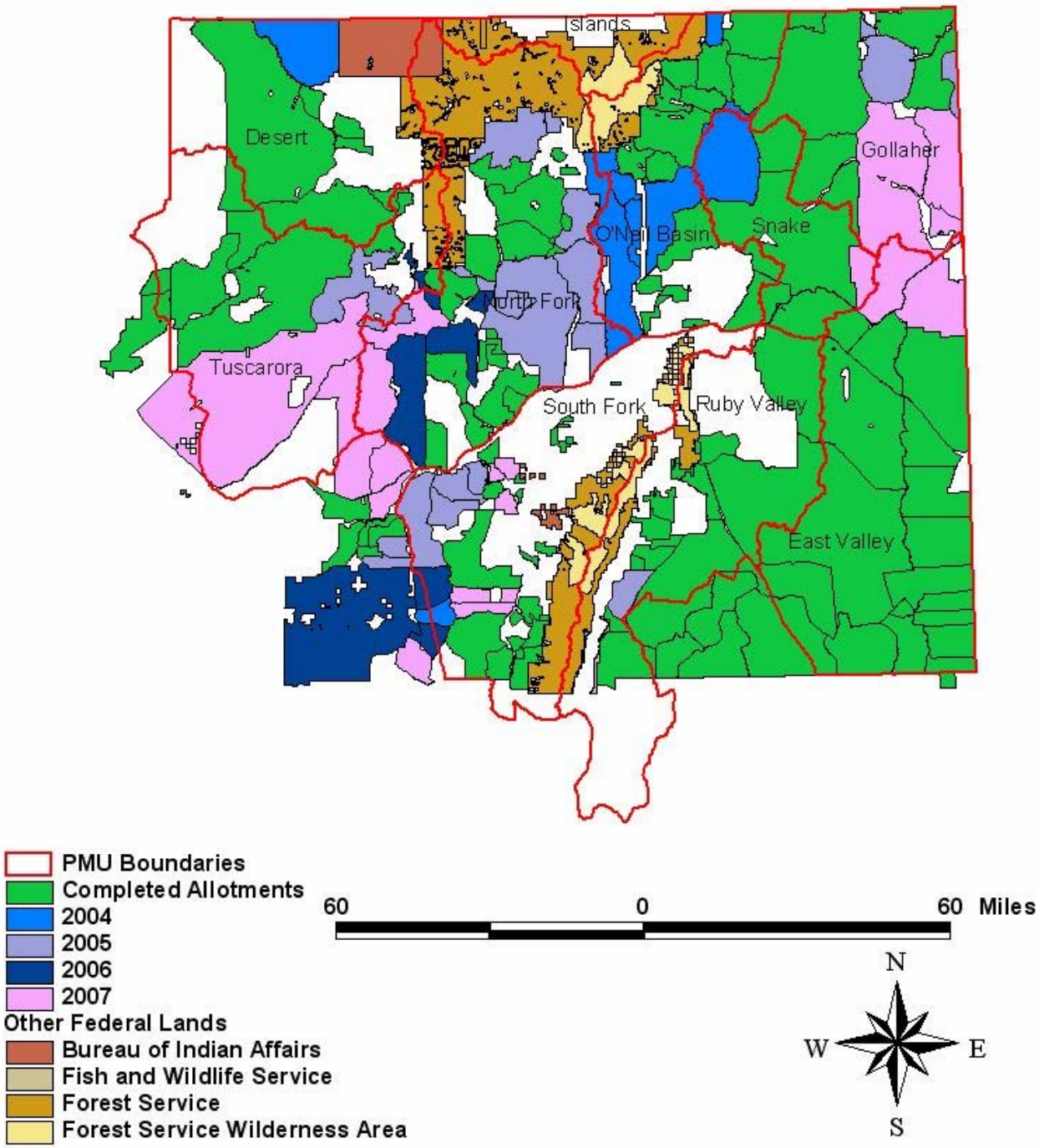
Attachment 3A

Completed Allotment Evaluations and Standards and Guidelines Assessments



Attachment 3B

Completed and Proposed Allotment Evaluations and Standards and Guidelines Assessments



ATTACHMENT 4

ELKO DISTRICT
ALLOTMENT EVALUATION – STANDARDS AND GUIDELINES ASSESSMENT SCHEDULE
February, 2004

Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
Rock Creek	R	1997	1997	2003			**356,510**	**85,497**	**442,007**
Spanish Ranch	LCT, SG, CBG						139,847	42,741	182,588
Squaw Valley	WH						216,663	42,756	259,419
Little Humboldt	R	2002	2002	2003			**112,485**	**46,478**	**158,963**
Little Humboldt	LCT, SG, CBG						68,880	16,705	85,585
Tall Corral	WH						9,568	0	9,568
Jakes Creek							34,037	29,773	63,810
Hubbard/Vineyard	R, WQ, RB, SG, CBG	1997	1997	2003			112,214	6,891	119,105
Cottonwood	R, WQ, RB, SG, CBG				2003 (93)	2003	16,689	133	16,822

Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
Lindsay Creek	R, SG	2002	2002	2002 Deter. 2003 M/MUD			9,314	20	9,334
Frost Creek	R, SG, LCT			2002 Deter. 2004 M/MUD	2002 (93)	2002	11,110	350	11,460
L. Goose Creek	R, SG, CBG	2005	2005	2005			69,447	3,450	72,897
Marys River	R	2003	2003	2004			**236,532**	**42,479**	**279,011**
Deeth	WQ						125,398	1,806	127,204
Pole Creek	LCT, SG,						5,302	2,544	7,846
Antelope Basin							16,744	0	16,744
Anderson Creek					2003 (91)	2004	21,560	1,869	23,429
Hot Creek							16,856	1,052	17,908
Stormy							50,672	35,208	85,880
Gulley	R, WQ, SG, CBG	2004	2004	2004			11,202	2,100	13,302

Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
N. Diamond	SG, CBG	1998	1998	2004			**85,496**	**966**	**86,462**
Red Rock	WH						66,324	966	67,290
Browne							19,172	0	19,172
YP	R, WQ, SG		1998	2004 FMUD			96,634	1,515	98,149
Ruby 8		2005	2005	2005			28,900	0	28,900
Tuscarora/Eagle	R	2005	2005	2005			**76,988**	**45,274**	**122,262**
Tuscarora	WQ						49,303	40,494	89,797
Eagle Rock	LCT, RB, SG						27,685	4,780	32,465
Adobe Hills	R, LCT	2004	2004	2005			23,007	26,317	49,324
Stag Mountain	R	2005	2005	2005			**103,449**	**45,463**	**148,912**
Stag Mtn.	WQ						39,999	1,375	41,374
Devils Gate	SG						49,797	29,128	78,925
Morgan Hill							13,653	14,960	28,613

Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
N. Fork Group	R	2005	2005	2005			**125,087**	**98,160**	**223,247**
N. Fork Group	LCT(historic)						116,337	90,140	206,477
Coal Mine Basin	SG, CBG						8,750	8,020	16,770
Rough Hills	R, SG	2004	2005	2005			5,233	837	6,070
Wildhorse Group	R, SG	2004	2005	2005			25,578	41,909	67,487
Jackpot	R, WQ, SG				2005 (91)	2005	67,406	3,766	71,172
Tomera	R	2005	2005	2005			**78,578**	**67,632**	**146,210+**
Devils Gate FFR	WQ						3,026	+	3,026+
Thomas Creek	SG, CBG						4,858	13,785	18,643
Thomas Creek FFR							203	+	203+
Emigrant Spring							13,246	10,546	23,792
Pine Mtn.							30,493	29,828	60,321
Grindstone							6,486	7,713	14,199
Tonka							20,266	5,760	26,026

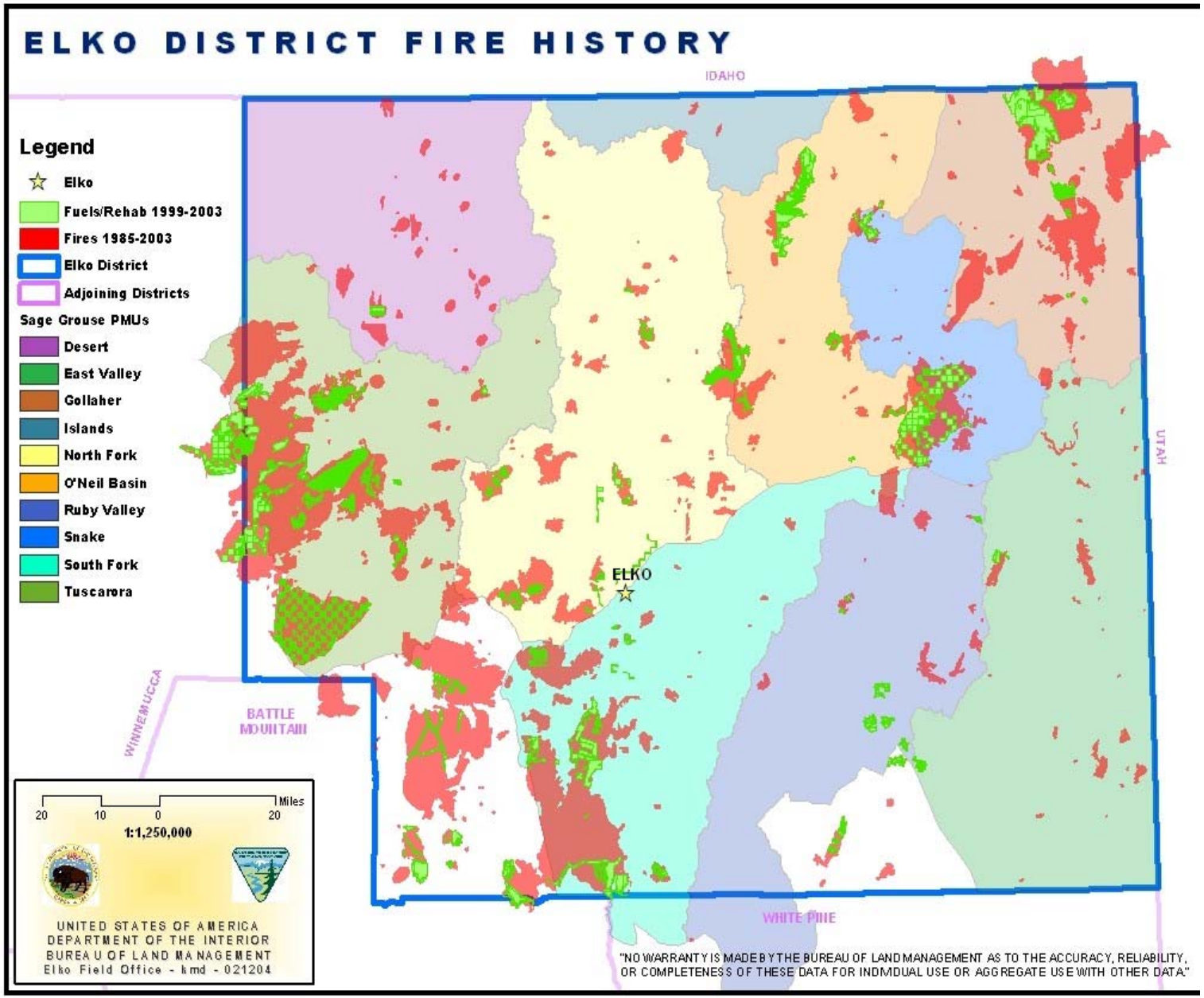
Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
Goose Crk	R	2005	2005	2005			**189,762**	**15,874**	**205,636**
Bluff Creek	SG, CBG				2006 (91)	2007	51,166	5,192	56,358
Barton							2,939	954	3,893
Grouse Creek							16,903	345	17,248
Big Bend							49,307	9,383	58,690
South Buckhorn	R	2005	2006	2006			**276,445**	**108,682**	**385,127**
South Buckhorn	WQ						222,823	92,319	315,142
Indian Springs	SG, CBG						19,046	14,650	33,696
Bruffy							18,400	428	18,828
Pony Creek							16,176	1,285	17,461
Suzie Creek	R	2006	2006	2006			**124,363**	**85,802**	**210,165**
Hadley	LCT						27,323	41,162	68,485
Carlin Field	SG						18,798	3,982	22,780
Blue Basin							36,642	0	36,642
Taylor Canyon							8,672	40,658	49,330
Lone Mountain							32,928	0	32,928

Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
TS	R	2006	2006	2007			**84,605**	**17,962**	**102,567**
T Lazy S	WQ						68,797	0	68,797
Mary's Mountain	LCT						15,808	17,962	33,770
South Fork	R	2006	2006	2007			**14,867**	**12,780+**	**27,647+**
Ten Mile Creek	WQ						5,636	3,545	9,181
Bullion Road	LCT						4,128	3,595	7,723
White Flats FFR							2,520	+	2,520+
River							4,979	2,880	7,859
Cut-Off							2,583	2,760	5,343
Winecup/Gamble	R	2006	2007	2007			**543,560**	**375,793**	**919,353**
Gamble Ind.	SG, CBG						209,800	139,849	349,649
Dairy Valley							51,770	37,139	88,909
Pilot Valley							43,825	56,400	100,225
HD							238,165	142,405	380,570
O'Neil	R				2006	2007	**85,143**	**4,668**	**89,811**
O'Neil	WQ				(92)		66,100		
Canyon	LCT, RB, SG				(92)		19,043		

Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
Palisade	WQ	2007	2007	2007 Deter.			**18,608**	**12,091**	**30,699**
Safford Canyon	CBG			2008			7,973	1,192	9,165
Palisade				MASR &			10,635	10,899	21,534
				MUDs					
Mineral Hill	CBG	2007	2007	2007 Deter.			24,907	1,341	26,248
				2008					
				MASR &					
				MUDs					
25	R	2007	2007	2007 Deter.			293,286	215,759	509,045
	WQ			2008					
	LCT, CBG			MASR &					
				MUDs					
Robinson Mtn	R	2007	2007	2007 Deter.			18,662	680	19,342
	SG			2008					
				MASR &					
				MUDs					

Complex/ Allotment (Category)	Resource Issues R = High/Med Priority Stream Riparian WQ = Water Qual. LCT = Lahontan cutthroat trout RB= Redband Trout SF= Spotted Frog SG= Sage Grouse. CBG= Crucial Big Game Habitat WH = Wild Horses	First Time Evaluations			Re-Evaluations (yr. first evaluated)		Acres		
		AE In-House Draft w/S&G Assess	AE to Public w/ S&G Assess	S&G Determination,MASR, PMUD, FMUD	S&G Assess	S&G Deter.	Public	Private	Total
Robinson Creek	R SG	2007	2007	2007 Deter. 2008 MASR & MUDs			17,264	0	17,264
							Total	**Total**	**Total**
							3,341,100	**1,370,669**	**4,711,769**

Attachment 5



ATTACHMENT 6
SUMMARY OF WILDFIRES AND RESEEDING EFFORTS
ELKO FIELD OFFICE 1999-2003

1999 Elko Fires

Fire Name	Total Acres Burned	Acres Seeded	Acres Managed for Natural Response
Ajax	1,087	0	1,087
Bispo	750	9	741
Clover	73,073	21,048	52,025
Frenchie	54,676	15,315	39,361
Hansel	2,494	14	2,480
Hunter	4,563	1,069	3,494
Izzenhood	28,594	50	28,544
Pilot	4,104	219	3,885
Rain	21,730	8,754	12,976
Rose	48,479	16,834	31,645
Sadler	199,199	128,283	70,916
Wagonbox	21,622	854	20,768
Dido	15,699	0	15,699
Mitchell Crk.	2,925	827	2,098
No School	11,271	0	11,271
Welches Crk.	10,815	2,000	8,815
TOTAL	501,081	195,276	305,805

2000 Elko Fires

Fire Name	Total Acres Burned	Acres Seeded	Acres Managed For Natural Response
Alazon	200	0	200
Basin	3,669	1,653	2,016
Beowawe	13,929	9,575	4,354
Big Springs	1,624	1,624	0
Hogan	1,870	0	1,870
Kelly Creek	37,716	11,891	25,825
Linka	3,298	775	2,523
Mary's	58	0	58
Morris	79	0	79
Omni	420	340	80
Railroad Pass	827	827	0
Rodriques	269	0	269
Squaw Valley	601	0	601
Adobe	6,860	1,767	5,093
Camp Creek	31,194	7,391	23,803
Charlie	3,021	0	3,021
Choke Cherry	31,051	20,363	10,688
Cold Springs	8,393	4,155	4,238
Gamble	22	0	22
Mahogany	214	0	214
Mule	69	0	69
Patty Jack	35	0	35
Rabbit	5,837	3,571	2,266
Sheep Pen	2,496	0	2,496
South Cricket	66,487	14,534	51,953
Three Mile	3,379	2,274	1,105
Vega	2,697	0	2,697
West Basin	33,221	11,954	21,267
Wimpy	2,869	0	2,869
18 /21Mile	642	420	222
TOTAL	236,362	66,429	169,933

2001 Fires

Fire Name	Total Acres Burned	Acres Seeded	Acres Managed. For Nat.\Rel.
Bailey	1,201	213	988
Buffalo	21,188	4,410	16,778
Coyote	11,675	1,799	9,876
Dee Gold	316	0	316
Dunphy	9,061	260	8,801
Hot Lake	70,910	8,320	62,590
Mile Marker	578	79	499
North Delano	8,827	5,041	3,786
Ranch	18,966	14,826	4,140
Rodeo Crk.	5,529	1,571	3,958
*Sheep	83,670	33,080	50,590
Stag	19,579	10,202	9,377
Tabor Crk.	7,004	1,022	5,982
Bishop	2,887	360	2,527
Bob's Flat	580	21	559
Buckhorn	749	200	549
Double Mtn.	3,397	845	2,552
Egbert	1,955	362	1,593
Isolation	14,032	525	13,507
Maggie Crk.	11,434	2,291	9,143
Metropolis	1,138	0	1,138
Mud Springs	546	273	273
Neptune	1,513	0	1,513
Upper Clover	1,993	869	1,124
West Bullion	337	185	152
West Pequop	3,496	0	3,496
Wine Cup	9,345	811	8,534
Dry Hills	1,900	1,900	0
Shale	1,079	0	1,079
TOTAL	53,402	6,742	46,660

2002 and 2003 Elko Fires

Fire Name	Total Acres Burned	Acres Seeded	Acres Managed for Natural Response
2002 Fires			
Adobe	440	130	310
Belmont	599	20	579
2003 Fires			
Schell	1,723	881	842
Savannah	1,443	664	779
Totals	4,205	1,695	2,510

ATTACHMENT 7

SUMMARY OF LAND MANAGEMENT ACTIONS THAT CONTRIBUTE TO SAGE GROUSE HABITAT AND/OR SAGEBRUSH CONSERVATION ON PUBLIC LANDS IN THE BLM ELKO FIELD OFFICE

Land Use Plan Conformance	•Both the Elko and Wells RMPs contain objectives and standards that pertain to sage grouse and/or sagebrush habitat conservation. •The sage grouse conservation planning effort is consistent with both RMPs.
Standards and Guidelines for Rangeland Health	•Sage grouse conservation planning efforts are consistent with S&Gs
WAFWA Sage Grouse Guidelines	•Consistent with both RMPs. •Will be considered in conservation planning efforts as per national interagency MOU.
NV Sage Grouse Guidelines	•Consistent with WAFWA guidelines and adapted for Nevada for use in conservation planning and implementation.
Habitat Management Plans	•Elko Field Office has 1.8 million acres under HMP which considers sage grouse habitat objectives (some overlap with completed AMPs and allotment evaluations).
Allotment Management Plans	•Elko Field Office has 32 AMPs in place (covering 1.9 million acres) which consider multiple use management objectives, including sage grouse habitat.
Allotment Evaluations/S&G Assessments and Multiple Use Decisions	•Elko Field Office has completed 101 allotments covering 4.1 million acres (61% of the total field office acreage). •Remainder to be completed by 2008.
Range Improvement Funds	•Ecological criteria utilized to prioritize implementation of Multiple use Decisions, giving special status species habitat and cooperative funding projects higher priority.
Population Inventories	•Elko Field Office has coordinated with NDOW to accomplish nearly 1,500 site visits and locating nearly 300 new leks during the past 4 years.
Fire Management Plan Amendment	•Approved plan to be issued in 2004. •Calls for 24,000-60,000 of fuels reduction projects consistent with other multiple use values, including sage grouse. •NV Sage Grouse Guidelines incorporated as SOPs. •Nearly 46,000 acres of vegetation treatments completed 1991-2003.
Wildfire and Emergency Stabilization and Rehabilitation	•1.9 million acres affected by fire in Elko Field Office since 1980 •800,000 acres burned since 1999 •270,000 acres reseeded •530,000 acres determined suitable for natural re-vegetation
Great Basin Restoration Initiative	•GBRI has been the foundation for funding of many recent fuels, restoration, and noxious weeds projects. Nearly 6,000 acres noxious weeds treatments funded

	under the umbrella of GBRI since 2002
Upland Habitat Monitoring	•This is the foundation for allotment evaluations and S&G Assessment process. •This information is crucial to future watershed assessment efforts and to support local site specific implementation of sage grouse conservation plans.
Riparian Habitat Monitoring	•Also serves as the foundation for allotment evaluations and S&G Assessment process. •Riparian habitat is key component to sage grouse brood rearing habitat. •PFC inventory for streams complete in Elko Field Office. •PFC inventory for springs, seeps, and wetlands is ongoing.
Surface Mining	•Direct and indirect impacts from surface mining activities in the Carlin Trend have been resolved through creative approaches in cooperation with NDOW and the mining companies. •Off site mitigations for sage grouse habitat conservation has been substantial. •Offsite mitigations have ranged from cash deposits for future on the ground projects to land exchanges to allow for critical habitats to come under public ownership and management.
Land Tenure Adjustments	•Over 200,000 acres of public lands with high resource values have been consolidated through land exchanges directly benefiting sage grouse habitat conservation.