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APPENDIX I: BAER TEAM RESOURCE ASSESSMENTS

VEGETATION AND RANGE RESOURCE ASSESSMENT

THREATENED AND ENDANGERED PLANT RESOURCES ASSESSMENT

SOIL AND WATERSHED RESOURCE ASSESSMENT

OPERATIONS ASSESSMENT

WILDLIFE ASSESSMENT

FOREST AND WOODLANDS RESOURCE ASSESSMENT

CULTURAL ASSESSMENT

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Bishop Fire - 2887 acres**

Soil/Water Resources

- Aerial or Drill seed 6.0 (29.1 acres) along dozer line
- Monitor for seeding success
- Rehabilitate 6.0 miles of dozer line

Wildlife Resources

- Aerial or Drill seed 360 acres in swaths within burn perimeter.
- Monitor seeding success

Forest/Woodland

- No treatments

Cultural Resources

- Cultural resource inventory linear projects on 5.2 miles of bulldozer lines, road maintenance, and new fences.
- Assessment on historic structure damaged during fire suppression activities

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitor noxious weeds as needed
- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects.
- Control 5 acres of noxious weeds
- 5.2 miles of new protective fence

Allotments affected

HD
Town Creek
Holborn

**BUREAU OF LAND MANAGEMENT
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BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Bob's Flat Fire - 580 acres**

Soil/Water Resources

- No treatments

Wildlife Resources

- Aerial seed 21 acres critical wildlife winter range & sage grouse habitat
- Monitor seeding success on seeded acres
- Monitor revegetation of critical winter range and sage grouse habitat

Forest/Woodland

- No treatments

Cultural Resources

- No treatments

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery success on seeded acres

Allotments affected

Private

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Buckhorn Fire - 750 acres**

Soil/Water Resources

- Aerial or Drill seed 1.0 (4.9 acres) along dozer line

Wildlife Resources

- Aerial seed 200 acre swaths in a 400 acre block within burn perimeter to reestablish shrub, grass and forb species
- Monitor revegetation of critical winter range and sage grouse habitat

Forest/Woodland

- No treatments

Cultural Resources

- No treatments

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitor and treat for noxious weeds as needed
- Control 5 acres of noxious weeds
- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects

Allotments affected

South Buckhorn

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Double Mountain Fire - 3397 acres**

Soil/Water Resources

- Aerial seed 165 acres in watersheds with riparian/upland seed mixture and monitor watershed treatments to determine success
- Public safety restore drainage and grades to 18 miles of roads damaged by fire suppression
- Public safety replace 2 cattleguards damage by fire suppression

Wildlife Resources

- Aerial seed 680 acre swaths in a 3400 acre block within burn perimeter to reestablish shrub, grass and forb species
- Monitor revegetation of critical winter range and sage grouse habitat

Forest/Woodland

- No treatments

Cultural Resources

- Cultural resource inventory linear projects on 12.0 miles of road maintenance and 3.0 miles of new fence

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Control 5 acres of noxious weeds
- Repair 2.1 miles of pre-existing protective fence
- 3 miles of new protective fence

Allotments affected

Beaver Creek

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Egbert Fire -1,955 acres**

Soil/Water Resources

- Aerial or Drill seed 4.0 (19.4 acres) along dozer line

Wildlife Resources

- Monitor revegetation of critical winter range and sage grouse habitat
- Hand seed 100 acres within burn perimeter

Forest/Woodland

- No treatments

Cultural Resources

- Cultural resource inventory linear projects on 5.0 miles of new fence
- Cultural resource inventory drill seeding project on 545 acres

Infrastructure Resources

- No treatments

Vegetation Resources

- Drill reseeding of 551 acres of burned rangeland to maintain ecological stability
- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Repair 1.8 miles of pre-existing protective fence
- Reconstruct 2.5 miles of protective fence
- 5 miles of new protective fence

Allotments affected

Gordon Creek
Snow Water Lake
Warm Creek

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Isolation Fire - 14,002 acres**

Soil/Water Resources

- Aerial seed 525 acres in watersheds with riparian/upland seed mixture and monitor watershed treatments to determine success
- Place 2 flood hazard warning signs
- Aerial or Drill seed 10.0 (48.5 acres) along dozer line

Wildlife Resources

- No treatments

Forest/Woodland

- No treatments

Cultural Resources

- Cultural resource inventory linear projects on 7.0 miles of new fence

Infrastructure Resources

- Monitoring of relic aspen/cottonwood stands for post fire regeneration to prevent unacceptable change to the ecosystem structure

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Control 30 acres of noxious weeds
- Repair 16 miles of pre-existing protective fence
- Reconstruct 1 mile of protective fence
- 7 miles of new protective fence

Allotments affected

Stormy
Deeth
McKinley FFR

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Maggie Creek Fire - 11,434 acres**

Soil/Water Resources

- Aerial or Drill seed 9.1 (44.1 acres) along dozer line
- Aerial seed 525 acres in watersheds with riparian/upland seed mixture and monitor watershed treatments to determine success
- Public safety restore 9.1 miles of roads, fire lines and other sites disturbed by fire suppression
- Place 2 flood hazard warning signs
- Install straw bail check dams in critical watershed areas

Wildlife Resources

- Monitor revegetation of critical big game winter range areas and sage grouse habitat
- Aerial seed 1600 acre swaths in a 3200 acre block within burn perimeter to reestablish shrub, grass and forb species

Forest/Woodland

- Monitoring of relic aspen/cottonwood stands for post fire regeneration to prevent unacceptable change to the ecosystem structure

Cultural Resources

- Cultural resource inventory linear projects on 4.0 miles of road maintenance

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Control 610 acres of noxious weeds
- Aerial seed 162 acres within burn perimeter
- Repair 4 miles of pre-existing protective fence

Allotments affected

Hadley
Carlin Field

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Metropolis Fire - 1138 acres**

Soil/Water Resources

- Aerial or Drill seed 4.2 (20.4 acres) along dozer line
- Public safety restore 4.2 miles of roads, fire lines and other sites disturbed by fire suppression

Wildlife Resources

- No treatments

Forest/Woodland

- No treatments

Cultural Resources

- No treatments

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects

Allotments affected

Trout Creek
Cedar Hill
Metropolis

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Mud Springs Fire - 546 acres**

Soil/Water Resources

- No treatments

Wildlife Resources

- Aerial seed 273 acre swaths in a 546 acre block within burn perimeter to reestablish shrub, grass and forb species
- Monitor revegetation of critical winter range and sage grouse habitat

Forest/Woodland

- No treatments

Cultural Resources

- No treatments

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects

Allotments affected

Twenty Five

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Neptune Fire - 1513 acres**

Soil/Water Resources

- No treatments

Wildlife Resources

- Monitor revegetation of critical winter range and sage grouse habitat

Forest/Woodland

- No treatments

Cultural Resources

- No treatments

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects

Allotments affected

Spruce

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Upper Clover Fire - 1,993 acres**

Soil/Water Resources

- No treatments

Wildlife Resources

- Monitor revegetation of critical winter range and sage grouse habitat
- Aerial seed 387 acre swaths in a 774 acre block within burn perimeter to reestablish shrub, grass and forb species

Forest/Woodland

- No treatments

Cultural Resources

- Cultural resource inventory linear projects on 1.1 miles of new fence
- Cultural resource inventory drill seeding project on 545 acres

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Aerial or drill reseeding of 254 acres of burned rangeland to maintain ecological stability
- 1.1 miles of new protective fence

Allotments affected

Little Humboldt
Squaw Valley

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
West Bullion Fire - 337 acres**

Soil/Water Resources

- Aerial or Drill seed 2.1 (10.2 acres) along dozer line
- Monitor for seeding success

Wildlife Resources

- Monitor revegetation of critical winter range and sage grouse habitat
- Aerial seed 185 acres within burn perimeter to reestablish shrub, grass and forb species

Forest/Woodland

- No treatments

Cultural Resources

- Cultural resource inventory linear projects on 1.5 miles of new fence
- Assessment on historic structure damaged during the fire

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Repair 1.5 miles of pre-existing protective fence
- 1.5 miles of new protective fence

Allotments affected

Four Mile Canyon
Bullion Road
Ten Mile

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
West Pequop Fire - 3496 acres**

Soil/Water Resources

- Aerial or Drill seed 16.9 (81.9 acres) along dozer line

Wildlife Resources

- No treatments

Forest/Woodland

- No treatments

Cultural Resources

- No treatments

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Repair 0.3 miles of pre-existing protective fence

Allotments affected

Big Springs
Private

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION PLAN AND ACCOMPLISHMENT REPORT**

**Summary of BAER Team Recommendations
Wine Cup Fire - 9345 acres**

Soil/Water Resources

- Aerial or Drill seed 2.0 (9.7 acres) along dozer line
- Public safety restore 2.1 miles of roads, fire lines and other sites disturbed by fire suppression

Wildlife Resources

- Aerial seed 811 acres in a 1621 acre block crucial for big game winter range and sage grouse habitat
- Hand plant 100 acres bitterbrush seedlings
- Monitor revegetation of critical winter range and sage grouse habitat

Forest/Woodland

- No treatments

Cultural Resources

- Cultural resource inventory linear projects on 4.0 miles of new fence
- Assessment on historic structure damaged during the fire

Infrastructure Resources

- No treatments

Vegetation Resources

- Monitoring of burned area for natural rangeland vegetation and recovery from fire effects
- Repair 2.3 miles of pre-existing protective fence
- Reconstruct 3.1 miles of protective fence
- 4 miles of new protective fence

Allotments affected

HD
Private

Summary of Rehabilitation Projects Planned for the Elko 14 Fire Complex 2001

- * Rehabilitation of 12 miles bull dozer lines and roads damaged by fire suppression (Cultural)
- * Inventory of 790 acres for seeding (Cultural)
- * Inventory 3 exposed sites (Cultural)
- * Monitor of Noxious weeds on 38,250 acres
- * Monitoring of 2 relic aspen/cottonwood stands
- * Monitoring of 39 sites of shrub reestablishment, critical big game winter range, and sage grouse habitat
- * Monitor 35,050 acres of sage grouse habitat a (sensitive species)
- * Treat 655 acres of noxious weeds
- * Aerial reseed 4,679 acres Hand plant 200 acres and dribble seed 332 acres of critical wildlife winter rangeland
- * Aerial reseed 254 acres, drill seed 805 acres, acres of burned over rangeland.
- * Reconstruct 6.6 miles of protective fence
- * Replace 28 miles of protective fence (minor)
- * Construct 26.8 miles of new protective fence
- * Dozerline rehabilitation on 268.2 Acres of roads, fire lines, and disturbed areas.
- * Install 2 flood warning signs (public safety)
- * Restore 12 miles of roads damaged by fire suppression (public safety)
- * Install 3 new cattleguards damaged during fire suppression (public safety)
- * Install one 1 new bridge damaged during fire suppression (public safety)
- * Aerial seed 1,061 acres of drainages for watershed protection
- * Aerial or drill seed 15.4 miles of cat lines constructed during fire suppression operations
- * Install 2853 straw bale check dams for erosion control on burned slopes
- * Monitoring of all fires burned for natural rangeland vegetation and recovery from fire effects (acres)
- * Exclude livestock in seeded areas for a minimum of two years to allow seeded areas to vegetate

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION PLAN**

PART A FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Elko 14 Fire Complex 2001	Jurisdiction	Acres
Number of Fires in Complex:	14	BLM, Elko Field Office	
Agency Unit	Bureau of Land Management		
Region	Intermountain		
State(s)	Nevada		
County/Acres	Eureka: 2,555 acres Elko: 50,816 acres		
Duration of Complex	7/03/01 Through 7/09/01		
	Bishop, Bobs Flat, Buckhorn, Double Mountain, Isolation, Maggie Creek, Metropolis, Mud Springs, Neptune, Egbert, Upper Clover, West Bullion, West Pequop, Wine Cup	TOTAL ACRES	53,371

PART B NATURE OF PLAN

I. Type of Plan (check one box below):

<input type="checkbox"/>	Short-term Rehabilitation (complete Parts A, B, C, and H only)
<input type="checkbox"/>	Long-term Rehabilitation (complete all parts)
<input checked="" type="checkbox"/>	Both Long and Short Term Rehabilitation (complete all parts)

II. Type of Action (check one box below):

<input checked="" type="checkbox"/>	Initial submission
<input type="checkbox"/>	Updating or revising the initial submission
<input type="checkbox"/>	Supplying information for accomplishment to date on work underway
<input type="checkbox"/>	Different phase of project plan
<input type="checkbox"/>	Final report (to comply with the closure of the EFR account)

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY STABILIZATION & REHABILITATION PLAN AND ACCOMPLISHMENT
REPORT**

PART C REHABILITATION ASSESSMENT

I. Rehabilitation Objectives:

- Locate and stabilize severely burned slopes which pose a direct threat to human life, property or critically important cultural and natural resources.
- Recommend post-fire rehabilitation prescriptions which prevent irreversible loss of natural and cultural resources.
- As practical and necessary, restore natural conditions to areas disturbed by fire suppression actions.
- Conduct immediate post-burn reconnaissance for fire suppression related impacts to T&E species.
- Provide long-term monitoring recommendations intended to ensure the success of rehabilitation efforts.
- Evaluate loss of AUM's, and provide recommendations for mitigations.

II. Rehabilitation Recommendations:

See Summary of Rehabilitation Recommendations.

III. BAER Team Members

SPECIALTY/PROFESSION	NAME/AGENCY	ASSESSMENT INCLUDED (Yes or No)
Team Leaders	Tom Warren, BLM	N/A
Operations	Rick Driggs, BLM	YES
Archaeologist	Eric Dillingham, BLM	YES
Forester	Skip Ritter, BLM	YES
Watershed and Riparian Specialists	Carol Evans, BLM Carol Marchio, BLM Chuck Keeports, BLM	YES
Soil Scientist	Carol Evans, BLM Chuck Keeports, BLM	YES
Range Conservationists	Doug Furtado, BLM Leticia Lister, BLM Jeff Moore, BLM Donna Nyrehn, BLM Chris Robbins, BLM Karl Scheetz, BLM Bruce Thompson, BLM	YES
Vegetation Specialists	Stan Kemmerer, BLM Kathy McKinstry, BLM Mark Coca, BLM	YES

Wildlife Biologists	Ray Lister, BLM Ken Wilkinson, BLM Suzanna Grayson, BLM	YES
Environmental Protection Specialist	Marlene Braun, BLM	N/A
GIS Specialist	Bruce Piper, BLM	N/A
Computer/Documentation Specialist	Rick Driggs, BLM Marjorie Dunmyer, BLM	N/A

- **Resource Advisors:** (Note: Resource Advisors are individuals who assisted the BAER Team with the preparation of this plan. See Part H of this plan for a full list of agencies and individuals who were consulted or otherwise contributed to the development of this plan.)

NAME	AFFILIATION, SPECIALTY, or PROFESSION
Leticia Lister	BLM, Range Conservationist
Mark Coca	BLM, Natural Resource Specialist
Janice Stadelman	BLM, Surface Protection Specialist
Chris Robbins	BLM, Range Conservationist
Bruce Thompson	BLM, Range Conservationist
Tom Warren	BLM, Emergency Stabilization & Rehabilitation
Jeff Arnberger	BLM, Assistant Fire Control Officer (FCO)

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY STABILIZATION & REHABILITATION PLAN AND
ACCOMPLISHMENT REPORT**

PART D SUMMARY OF APPROVAL AUTHORITIES (By Activities/Cost)

ACTIVITIES REQUIRING FIELD OFFICE / STATE OFFICE CONCURRENCE

Long-term ESR Rehabilitation request (charged to ESR)	
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	\$38,447.00
C-1b (BLM 98-148 III. K) Archaeological Resource Damage Assessment	\$21,176.00
C-2a (BLM 98-148 III. K) Historic Structure Damage Assessment	\$19,290.00
M-1 (BLM 98-148 III. Q 1, V) Monitoring	\$44,835.00
M-2a (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	\$16,476.00
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	\$12,578.00
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	\$90,475.00
M-2d (BLM 98-148 III. O and V) Monitoring and Evaluation of Watershed Emergency Treatments	\$10,355.00
N-1a (BLM 98-148 III F) Protection of Threatened and Endangered Species (Flora and Fauna) Protection of Sensitive Species (Sage Grouse)	\$26,450.00
N-2 (BLM 98-148 III. U) Non-native Invasive Plant Control	\$119,940.00
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	\$638,461.00
N-3b (BLM 98-148 III. Q) Ecological Stabilization - Planting/Seeding	\$137,770.00
P-2a (BLM 98-148 III. O) Grazing Exclusion	\$118,366.00
P-2b (BLM 98-148 III. O) Grazing Exclusion	\$57,025.00
P-2c (BLM 98-148 III. O) Grazing Exclusion	\$242,925.00
R-2 (BLM 98-148 III. M) Natural Resource Restoration	\$28,319.00
S-2 (BLM 98-148 111. A) Roads, Trails and Safety Signs	\$1,344.00

S-6 (BLM 98-148 III. M) Facility Replacement	\$121,680.00
W-1a (BLM 98-148 III. BB) Grass Reseeding	\$119,554.00
W-1b (BLM 98-148 III. BB) Grass Reseeding	\$77,704.00
W-12 (BLM 98-148 III. BB) Straw Bale Check Dams	\$75,288.00
TOTAL REHABILITATION COST (Short & long-term)	\$2,018,458.00

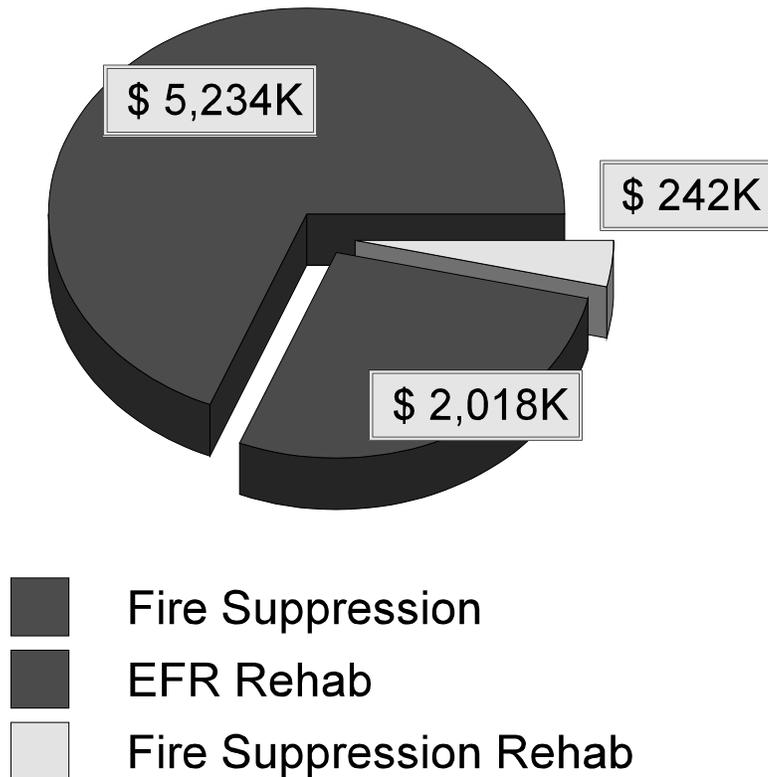
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BURNED AREA EMERGENCY STABILIZATION & REHABILITATION PLAN AND
ACCOMPLISHMENT REPORT

PART E SUMMARY OF ACTIVITIES

The SUMMARY OF ACTIVITIES table identifies **trackable** rehabilitation costs charged or proposed for funding from fire suppression rehabilitation, emergency fire rehabilitation, emergency fire stabilization, agency operations, and other. Only trackable expenditures are displayed in the total cost column. They are coded

with the appropriate cost authority. The total cost of the rehabilitation effort to date, excluding the costs absorbed by the fire (fire crew, labor and associated overhead) is displayed as either Fire Suppression Rehabilitation (F), Emergency Fire Stabilization and Rehabilitation (ESR), Agency Operations (OP) or Other (O).

Elko 14 Fire Complex 2001



PART E - SUMMARY OF ACTIVITIES - Elko 14 Fire Complex 2001

ELKO FIELD OFFICE FIRES:

All Fire Areas:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
N-1a (BLM 98-148 III F) Protection of Threatened and Endangered Species (Flora and Fauna) Protection of Sensitive Species (Sage Grouse)	acres	\$0.75	35050		\$26,450.00		C, P	\$26,450.00
TOTAL COST FOR FIRE					\$26,450.00			\$26,450.00
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Bishop Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	5.2		\$4,671.13		C, P	\$4,671.13
C-2a (BLM 98-148 III. K) Historic Structure Damage Assessment	Fire	\$6,430.00	1		\$6,430.00		P, C	\$6,430.00
M-1 (BLM 98-148 III. Q 1, V) Monitoring	Acres	\$1.17	1500		\$1,758.23		P	\$1,758.23
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	3		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	acres	\$701.36	6		\$4,208.14		P	\$4,208.14
N-2 (BLM 98-148 III. U) Non-native Invasive Plant Control	acres	\$183.11	5		\$915.57		P, C	\$915.57
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	360		\$31,888.97		P,C	\$31,888.97

P-2c (BLM 98-148 III. O) Grazing Exclusion	Miles	\$9,064.37	5.2		\$47,134.70		C	\$47,134.70
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	29.1	\$8,430.97	\$0.00		C, P, F	\$8,430.97
TOTAL COST FOR FIRE					\$8,430.97	\$97,974.28		\$106,405.25
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Bobs Flat Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	acres	\$701.36	3		\$2,104.07		P	\$2,104.07
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	21		\$1,860.19		C	\$1,860.19
TOTAL COST FOR FIRE					\$3,964.26			\$3,964.26
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Buckhorn Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
M-1 (BLM 98-148 III. Q 1, V) Monitoring	acres	\$1.17	750		\$879.12		P	\$879.12
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	3		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	6		\$4,208.14		P	\$4,208.14
N-2 (BLM 98-148 III. U) Non-native Invasive Plant Control	acres	\$183.11	5		\$915.57		P, C	\$915.57
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	200		\$17,716.09		C, Aerial	\$17,716.09

W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	4.9	\$1,419.65	\$0.00		C, P, F	\$1,419.65
TOTAL COST FOR FIRE				\$1,419.65	\$24,686.46			\$26,106.11
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Double Mountain Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	15.0	\$10,779.48	\$2,694.87		P, C	\$13,474.35
M-1 (BLM 98-148 III. Q 1, V) Monitoring	Acres	\$1.17	6000		\$7,032.94		P	\$7,032.94
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	3		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	15		\$10,520.35		P	\$10,520.35
M-2d (BLM 98-148 III. O and V) Monitoring and Evaluation of Watershed Emergency Treatments	Treatment	\$1,150.56	3		\$3,451.67		P	\$3,451.67
N-2 (BLM 98-148 III. U) Non-native Invasive Plant Control	acres	\$183.11	5		\$915.57		P, C	\$915.57
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	680		\$60,234.72		C	\$60,234.72
P-2a (BLM 98-148 III. O) Grazing Exclusion	Miles	\$4,227.36	2.1		\$8,877.45		C	\$8,877.45
P-2c (BLM 98-148 III. O) Grazing Exclusion	Miles	\$9,064.37	3.0		\$27,193.10		C	\$27,193.10
S-6 (BLM 98-148 III. M) Facility Replacement	Miles	\$5,760.00	18.0	\$103,680.00	\$0.00		P, C	\$103,680.00
S-6 (BLM 98-148 III. M) Facility Replacement	Culverts	\$3,000.00	2	\$6,000.00	\$0.00		P, C	\$6,000.00
S-6 (BLM 98-148 III. M) Facility Replacement	Cattleguard	\$6,000.00	2	\$12,000.00	\$0.00		P, C	\$12,000.00

W-1a (BLM 98-148 III. BB) Grass Reseeding	acres	\$112.68	165		\$18,592.28		P, C	\$18,592.28
TOTAL COST FOR FIRE					\$132,459.48	\$140,480.49		\$272,939.97
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Egbert Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	5.0		\$4,491.47		P, C	\$4,491.47
C-1b (BLM 98-148 III. K) Archaeological Resource Damage Assessment	acres	\$26.60	551		\$14,658.00		P, C	\$14,658.00
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	3		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	15		\$10,520.35		P	\$10,520.35
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$840.00	100		\$84,000.00		P, C	\$84,000.00
N-3b (BLM 98-148 III. Q) Ecological Stabilization - Planting/Seeding	acres	\$117.29	551		\$64,625.00		C	\$64,625.00
P-2a (BLM 98-148 III. O) Grazing Exclusion	Miles	\$4,227.36	1.8		\$7,609.24		C	\$7,609.24
P-2b (BLM 98-148 III. O) Grazing Exclusion	Miles	\$8,640.15	2.5		\$21,600.38		C	\$21,600.38
P-2c (BLM 98-148 III. O) Grazing Exclusion	Miles	\$9,064.37	5.0		\$45,321.83		C	\$45,321.83
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	19.4	\$5,620.65	\$0.00		C, P, F	\$5,620.65
TOTAL COST FOR FIRE					\$5,620.65	\$253,793.81		\$259,414.46
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Isolation Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	7.0		\$6,288.06		P, C	\$6,288.06
M-1 (BLM 98-148 III. Q 1, V) Monitoring	Acres	\$1.17	12,000		\$14,065.88		P	\$14,065.88
M-2a (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Survey	\$27.46	3		\$8,238.00		P	\$8,238.00
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acers	\$701.36	18		\$12,624.41		P	\$12,624.41
M-2d (BLM 98-148 III. O and V) Monitoring and Evaluation of Watershed Emergency Treatments	Treatme nt	\$1,150.56	3		\$3,451.67		P	\$3,451.67
N-2 (BLM 98-148 III. U) Non-native Invasive Plant Control	acres	\$183.11	30		\$5,493.44		P, C	\$5,493.44
P-2a (BLM 98-148 III. O) Grazing Exclusion	Miles	\$4,227.36	16.0		\$67,637.71		C	\$67,637.71
P-2b (BLM 98-148 III. O) Grazing Exclusion	Miles	\$8,640.15	1		\$8,640.15		C	\$8,640.15
P-2c (BLM 98-148 III. O) Grazing Exclusion	Miles	\$9,064.37	7.0		\$63,450.56		C	\$63,450.56
S-2 (BLM 98-148 111. A) Roads, Trails and Safety Signs	Sign	\$336.00	2		\$672.00		p	\$672.00
W-1a (BLM 98-148 III. BB) Grass Reseeding	acres	\$112.68	525		\$59,157.26		P, C	\$59,157.26
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	48.5	\$14,051.62	\$0.00		C, P, F	\$14,051.62
TOTAL COST FOR FIRE				\$14,051.62	\$249,719.14			\$263,770.76
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Maggie Creek Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	4.0	\$3,593.18			P, C	\$3,593.18
M-1 (BLM 98-148 III. Q 1, V) Monitoring	Acres	\$1.17	12000		\$14,065.88		P	\$14,065.88
M-2a (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Survey	\$27.46	3		\$8,238.00		P	\$8,238.00
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	6		\$1,935.07		P	\$1,935.07
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	15		\$10,520.35		P	\$10,520.35
M-2d (BLM 98-148 III. O and V) Monitoring and Evaluation of Watershed Emergency Treatments	Treatment	\$1,150.56	3		\$3,451.66		P	\$3,451.66
N-2 (BLM 98-148 III. U) Non-native Invasive Plant Control	acres	\$183.11	610		\$111,699.85		P, C	\$111,699.85
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	1600		\$141,728.75		P, C	\$141,728.75
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	162		\$14,350.04		P, C	\$14,350.04
P-2a (BLM 98-148 III. O) Grazing Exclusion	Miles	\$4,227.36	4.0		\$16,909.43		C	\$16,909.43
R-2 (BLM 98-148 III. M) Natural Resource Restoration	Miles	\$1,838.90	9.1	\$16,733.96	\$0.00		P, C	\$16,733.96
S-2 (BLM 98-148 111. A) Roads, Trails and Safety Signs	Sign	\$336.00	2		\$672.00		p	\$672.00
W-1a (BLM 98-148 III. BB) Grass Reseeding	acres	\$112.68	371		\$41,804.46		P, C	\$41,804.46
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	44.1	\$12,776.83	\$0.00		C, P, F	\$12,776.83
W-12 (BLM 98-148 III. BB) Straw Bale Check Dams	Straw Bails	\$26.39	2,853		\$75,288.00		p	\$75,288.00
TOTAL COST FOR FIRE				\$33,103.97	\$440,663.49			\$473,767.46

COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. **METHOD:** FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel

Metropolis Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	3		\$2,104.07		P	\$2,104.07
R-2 (BLM 98-148 III. M) Natural Resource Restoration	Miles	\$1,838.90	4.2	\$7,723.36	\$0.00		P, C	\$7,723.36
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	20.4	\$5,910.37	\$0.00		C, P, F	\$5,910.37
TOTAL COST FOR FIRE				\$13,633.73	\$2,104.07			\$15,737.80
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Mud Springs Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	3		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	6		\$4,208.14		P	\$4,208.14
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	273		\$24,182.47		Aerial	\$24,182.47
TOTAL COST FOR FIRE					\$29,358.15			\$29,358.15
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Neptune Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$967.54	1		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	9		\$6,312.21		P	\$6,312.21
TOTAL COST FOR FIRE					\$7,279.75			\$7,279.75
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Upper Clover Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	1.1		\$988.12		P, C	\$988.12
C-1b (BLM 98-148 III. K) Archaeological Resource Damage Assessment	acres	\$26.60	245		\$6,518.00		P, C	\$6,518.00
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	3		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	9		\$6,312.21		P	\$6,312.21
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	387		\$34,280.64		C	\$34,280.64
N-3b (BLM 98-148 III. Q) Ecological Stabilization - Planting/Seeding	acres	\$170.69	254		\$43,354.00		C	\$43,354.00
N-3b (BLM 98-148 III. Q) Ecological Stabilization - Planting/Seeding	acres	\$117.29	254		\$29,791.00		C	\$29,791.00
P-2c (BLM 98-148 III. O) Grazing Exclusion	Miles	\$9,064.37	1.1		\$9,970.80		C	\$9,970.80
TOTAL COST FOR FIRE					\$132,182.31			\$132,182.31
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

West Bullion Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	1.5		\$1,347.44		P, C	\$1,347.44
C-2a (BLM 98-148 III. K) Historic Structure Damage Assessment	Fire	\$6,430.00	1		\$6,430.00		P, C	\$6,430.00
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	3		\$967.54		P	\$967.54
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	9		\$6,312.21		P	\$6,312.21

N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	185		\$16,387.38		C	\$16,387.38
P-2a (BLM 98-148 III. O) Grazing Exclusion	Miles	\$4,227.36	1.5		\$6,341.04		C	\$6,341.04
P-2c (BLM 98-148 III. O) Grazing Exclusion	Miles	\$9,064.37	1.5		\$13,596.55		C	\$13,596.55
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	10.2	\$2,955.19	\$0.00		C, P, F	\$2,955.19
TOTAL COST FOR FIRE				\$2,955.19	\$51,382.16			\$54,337.35
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

West Pequop Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
M-1 (BLM 98-148 III. Q 1, V) Monitoring	Acres	\$1.17	1,500		\$1,758.24		P	\$1,758.24
M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	3		\$2,104.07		P	\$2,104.07
P-2a (BLM 98-148 III. O) Grazing Exclusion	Miles	\$4,227.36	0.3		\$1,268.21		C	\$1,268.21
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	81.9	\$23,728.40	\$0.00		C, P, F	\$23,728.40
TOTAL COST FOR FIRE				\$23,728.40	\$5,130.52			\$28,858.92
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

Wine Cup Fire:

PART E LINE ITEM	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
				FIRE	ESR	OP		
C-1a (BLM 98-148 III K) Archaeological Resource Damage Assessment	Miles	\$898.29	4.0		\$3,593.18		P, C	\$3,593.18
C-2a (BLM 98-148 III. K) Historic Structure Damage Assessment	Fire	\$6,430.00	1		\$6,430.00		P, C	\$6,430.00
M-1 (BLM 98-148 III. Q 1, V) Monitoring	Acres	\$1.17	4,500		\$5,274.71		P	\$5,274.71
M-2b (BLM 98-148 III. O and V) Monitoring and Evaluation of Emergency Treatments	Treatment	\$322.51	9		\$2,902.61		P	\$2,902.61

M-2c (BLM 98-148 III. O and V) Monitoring and Evaluation of Seeded Areas and Natural Release	Acres	\$701.36	12		\$8,416.28		P	\$8,416.28
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$88.58	811		\$71,838.75		C	\$71,838.75
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$840.00	100		\$84,000.00		P	\$84,000.00
N-3a (BLM 98-148 III. E) Ecological Stabilization - Planting/Seeding	acres	\$168.65	332		\$55,993.00		P,C	\$55,993.00
P-2a (BLM 98-148 III. O) Grazing Exclusion	Miles	\$4,227.36	2.3		\$9,722.92		C	\$9,722.92
P-2b (BLM 98-148 III. O) Grazing Exclusion	Miles	\$8,640.15	3.1		\$26,784.47		C	\$26,784.47
P-2c (BLM 98-148 III. O) Grazing Exclusion	Miles	\$9,064.37	4.0		\$36,257.46		C	\$36,257.46
R-2 (BLM 98-148 III. M) Natural Resource Restoration	Miles	\$1,838.90	2.1	\$3,861.68	\$0.00		P, C	\$3,861.68
W-1b (BLM 98-148 III. BB) Grass Reseeding	acres	\$289.72	9.7	\$2,810.32	\$0.00		C, P, F	\$2,810.32
TOTAL COST FOR FIRE				\$6,672.00	\$311,213.38			\$317,885.38
COST: F=Suppression; ESR=Long-term Rehab.; OP=Base Funding. METHOD: FC=Crews Assigned to Fire; C=Contract; EFC=Emergency Fire Contract; P=Agency Personnel								

COST SUMMARY

TOTAL COSTS FOR ELKO 14 FIRE COMPLEX 2001:

	COST BY FUND SOURCE			SPECIFICATIONS TOTAL
	FIRE	ESR	OP	
TOTAL COST FOR ELKO 14 FIRE COMPLEX 2001	\$242,075.67	\$1,776,382.27		\$2,018,457.94

ELKO 14 FIRE COMPLEX 2001	FY 2001 FIRE FUNDING	FY 2002 FIREFUNDING	FY 2003 FIRE FUNDING	TOTAL FIRE
	\$181,556.75	\$60,518.92	\$0.00	\$242,075.67

ELKO 14 FIRE COMPLEX 2001	FY 2001 ESR FUNDING	FY 2002 ESR FUNDING	FY 2003 ESR FUNDING	FY 2004 ESR FUNDING	TOTAL ESR
	\$54,915.00	\$1,613,747.93	\$53,859.67	\$53,859.67	\$1,776,382.27

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION PLAN ACCOMPLISHMENTS REPORT**

PART G. GENERAL CONSULTATIONS (NON-ASSESSMENT RELATED)

Vegetation and Range:

Tom Warren - Emergency Stabilization & Rehabilitation Coordinator
Marlene Braun - NEPA Coordinator
Steve Dondero - Recreation Planner
Doug Furtado - Rangeland Management Specialist
Chris Robbins - Rangeland Management Specialist
Stan Kemmerer - Resource Management Specialist
Ray Lister - Wildlife Team Leader
Leticia Lister - Rangeland Management Specialist
Kathy McKinstry - Wild Horse Specialist
Donna Nyrehn - Rangeland Management Specialist
Clint Oke - Assistant Field Manager
Jeff Moore - Rangeland Management Specialist
Janice Stadelman - Surface Protection Specialist
Ken Wilkinson - Wildlife Biologist
Suzanne Grayson, Wildlife Biologist
Jason Spence, Rangeland Management Specialist

Soil and Watershed:

Doug Furtado, Elko BLM Rangeland Management Specialist
Carol Marchio, Elko BLM Hydrologist
Chuck Keeports, Elko BLM Hydrologist
Donna Nyrehn, Elko BLM Rangeland Management Specialist
Janice Stadelman, Elko BLM Surface Protection Specialist

Wildlife:

Ken Wilkinson, Wildlife Biologist, BLM, Elko Field Office
Ray Lister, BLM Elko Wildlife Biologist
Suzanne Grayson, Wildlife Biologist, BLM, Elko Field Office

Cultural:

Eric Dillingham, Archaeologist, Bureau of Land Management, Elko Field Office
Tim Murphy, Archaeologist, Bureau of Land Management, Elko Field Office

Rehabilitation Operations:

Rick Driggs, Civil Engineer Technician BLM Elko Field Office
Glen Uhlig, ESR Logistics, BLM Elko Field Office
Leticia Lister, Rangeland Mngt Specialist, BLM Elko Field Office

Recreation/Wilderness:

Steve Dondero, BLM, Elko Field Office
Tamara Hawthorne, BLM, Elko Field Office

Fire:

Jeff Arnberger, Assistant Fire Management Officer, BLM, Elko Field Office
Joe Freeland, Fire Management Officer, BLM, Elko Field Office

GPS/GIS/RAWS:

Bruce Piper, GIS Specialist, BLM, Elko Field Office
Rick Driggs, Civil Engineering Tech, BLM, Elko Field Office

Photography:

Tom Warren, BLM Elko Field Office
Mark Coca, BLM Elko Field Office
Leticia Lister, BLM Elko Field Office

Residents/Ranchers who were consulted:

John Griggs, Grazing Permittee
Gene Buggetti, Grazing Permittee
Julian Smith, Grazing Permittee
Deloyd Salterthwaite, Grazing Permittee
Scott Egbert, Grazing Permittee

Holtz Inc., Grazing Permittee
W. Bruff, Grazing Permittee
Dean Stitzel, Grazing Permittee
Winchell, Grazing Permittee

BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION PLAN ACCOMPLISHMENTS REPORT

ELKO FIELD OFFICE:

PART H. BUREAU OF LAND MANAGEMENT REVIEW AND APPROVAL

I. Emergency Fire Stabilization and Rehabilitation (ESR) Concurrence:

- Concur
- Concur with Revision
- Do Not Concur

Explanation for revision or disapproval:

Field Manager, Elko Field Office _____ Date _____

II. Emergency Fire Stabilization and Rehabilitation (ESR) Approval (check one box below):

- Concur
- Concur with Revision
- Do not concur

Explanation for revision or non-concurrence:

State Director, BLM Nevada
Date

III. BLM Emergency Fire Stabilization and Rehabilitation (ESR) (check one box below):

- Approved
- Approved with Revision
- Disapproved

Explanation for revision or disapproval:

Director, BLM
Date

PART H. BUREAU OF LAND MANAGEMENT REVIEW AND APPROVAL

ELKO FIELD OFFICE, Cont.

I. Suppression Related Rehabilitation Approval:

- Approved
- Approved with Revision
- Disapproved

Explanation for revision or non-concurrence:

Field Manager, BLM Elko Field Office
Date

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION TEAM**

Elko 14 Fire Complex 2001

VEGETATION AND RANGE RESOURCE ASSESSMENT

I. ISSUES

- Short and long-term fire impacts to plant communities and vegetative resources on lands administered by the Bureau of Land Management, Elko Field Office
- Evaluate and assess fire and suppression impacts to vegetative resources and identify values at risk
- Fire impacts to known noxious weed populations and the potential spread of other species into the burned/disturbed areas
- Fire and suppression impacts to rangeland improvement projects within the burned area
- Management strategies which provide for the natural recovery and revegetation of impacted areas including the establishment of rangeland seeding to increase the effectiveness of reducing future wildland fire size and cost.
- Determine rehabilitation and monitoring needs supported by specifications to aid in vegetative recovery and soil stabilization
- Protection and enhancement of other resource values including site productivity, wildlife habitat, vegetative resources, diversity of other life forms such as wild horses, and watershed stability

II. OBSERVATIONS

The fires within the Bureau of Land Management's Elko Field Office occurred between the dates of July 3rd and July 9, 2001. Fourteen individual or multiple (complex) fires encompass a total of 50,810 acres that have impacted private, and federal lands. This assessment will attempt to broadly describe plant communities impacted by these fires and the influence that fire will have in the short and long-term to vegetative species. However, due to the extensive geographical area they encompass a more detailed description will not be feasible. Detailed files have been left with and are being maintained by the local agencies that contain much more site specific information than can be encapsulated by this report. Detailed allotment fence line maps, vegetative maps, soil type descriptions, field notes, rehabilitation cost documentation etc. have been utilized to provide the rehabilitation recommendations contained within this report.

Analysis work by the BAER Team has been done on a very broad-scale approach, however impacts to structural range improvements, and vegetative resources have been looked at and analyzed on a landscape and allotment level basis for each fire. Findings and recommendations contained within this assessment are based upon information obtained from field reviews, and personal interviews with private ranchers, county officials, federal land managers, and local technical staff.

Reconnaissance of impacted areas included aerial and ground survey methods. This assessment will attempt to capture the concerns expressed by the BLM, County Supervisors, Extension Service, Natural Resources Conservation Service staff and private land owners for the future management of these lands. Summary tables contained within Appendix III will detail the known damage to vegetative resources and structural improvements while this writeup will synopsize revegetation processes and future monitoring criteria and will outline management considerations for recovery of the vegetative resources.

A. Background

The Elko 14 Fire Complex Fires which were ignited by lightning engulfed extensive areas of range and desert mountain lands in the north central and eastern portion of Nevada. Burning conditions were generally characterized as severe with extreme observed fire intensity and rapid rates of spread.

Vegetative resources and structural range improvements were extensively impacted by these fires. As detailed later in this report, fire impacts ranged from partial to total loss of understory and shrub species, with varying degrees of losses noted in overstory species, and in many cases total consumption of all vegetative species.

Resource concerns expressed by federal, state, county and private sources concerning vegetative resources include: vegetative loss and the short and long-term impacts to wildlife habitat, wild horse Herd Management Areas (HMA's), short and long-term impacts to the forage base in northern Nevada rangelands, impacts to structural range improvements, watershed quality, noxious weed spread, site productivity, aesthetics, impacts to threatened or endangered plant and animal species, and potential long term affects to the ecological integrity of desert ecosystems.

Within the Elko Field Office, 14 fires were reviewed to determine fire suppression impacts and fire effects on vegetative resources. In all cases, burn intensities varied across the landscape with most fires consuming a significant portion of palatable species for both livestock and wildlife on public land allotments.

B. Reconnaissance and Results

Resource contacts at the Field Office were contacted on a daily basis to help collect data for the assessments and specifications. Upon consultation with local staff, and after reviewing a general map of the burned areas within the fire perimeter, a field survey methodology was developed and inventory procedures established in order to conduct a timely review of each fire area. In order to better facilitate the timely collection of data, the vegetation section was broken down into four divisions: range vegetation analysis; revegetation assessment and development; structural improvement inventory and mapping; noxious weed assessments. Direct fire impacts to vegetation resources and noxious weed populations have been documented on a broad scale for all fire areas.

Field visits were conducted on many fire areas to better assess damages to vegetative resources and structural range improvements although only a small portion of overall burned areas were intensively sampled. Additional analysis was conducted using Geographic Information System (GIS) data layers of pre-fire vegetative inventories, soil survey information, and allotment data file information. Cross references were made between these data sets with field and aerial reconnaissance observations to determine fire effects on vegetative resources.

Resource advisor reports were used to help determine vegetative losses and suppression impacts, requirements for rehabilitation efforts, and long-term rehabilitation needs. In addition analysis of plant associations impacted by previous fires adjacent to current fire areas to

determine fire effects to plant community ecological integrity of native grass and shrub species.

A literature review was conducted to obtain baseline data on soils, hydrologic processes, plant communities and the dynamics of vegetative species within the burned area watersheds. Many well written documents exist that detail historic and present day vegetation descriptions. Baseline information from these documents have been included to provide the reader with a better understanding of vegetative community structure and provide insight into the fragility of these watersheds.

Plant communities within the fire area vary across the landscape based upon slope, aspect, and soil type. Generally speaking, areas on north and east facing slopes support plant communities that have conditions favorable for moderate to rapid vegetative recovery. However, on south and west facing slopes and on alkali soil in the valley bottoms, vegetative cover is scattered and vegetative recovery is slow due to hot, dry climate and shallow, droughty soil conditions.

Vegetation resources provide valuable wildlife habitat, livestock forage and watershed protection. Past land management practices (i.e. mining and grazing activities), have shaped plant community composition in the northern Nevada region. The effects of these fires will have both positive and negative short and long-term influences on these communities and in the natural regeneration processes of the impacted watersheds.

1. Vegetation

Vegetation resources were directly impacted by the Elko 14 Fire Complex and by suppression tactics utilized to control the fire. Documented impacts to vegetation resulted from:

- a) Construction of dozer lines, safety zones and hand lines on previously undisturbed sites.
- b) Impacts to native tree, shrub, and grass species during line construction and suppression mop-up activities.
- c) Reduction of fuels and vegetation ahead of the fire-front by night-time dozer operations and fire suppression tactics.
- d) Vegetation losses due to fire intensity.

In the high burn intensity areas, seed within the soils have either been consumed or viability significantly reduced by the intense heat. In moderate burn intensity areas, seed banks have been impacted as well, but some natural regeneration will occur. On low intensity burn areas, seed banks within the soil were not severely impacted by the fire.

Within the low to moderate burn intensity areas, a faster moving fire did not injure all of the root crowns of native grass species. In many of the low to moderate burn intensity areas, root crowns were still visible and regrowth will occur during the next growing season.

In many areas, however, fire intensities were high enough to consume and kill many brush species such as Wyoming big sagebrush, antelope bitterbrush. Loss of these shrub species has altered the makeup of some critical wildlife habitat areas and is further discussed within the Wildlife Assessment.

These fires have also set back the successional processes of many mid to late seral plant communities and provided a window of opportunity for the further encroachment of non-native invasive species, such as cheatgrass (*Bromus tectorum*). Cheatgrass has steadily increased its hold on western rangelands over the past several decades. A highly aggressive competitor, this annual species may occupy many more thousands of acres of rangelands in the Nevada area unless negatively impacted native communities are rehabilitated with perennial species to replace species killed in these fires. Cheatgrass is an undesirable species in native rangelands due to its competitive nature and ability to create monocultures and less diverse landscapes; shallow root systems that increase erosion potentials and decrease watershed health and function; low nutritional value for wildlife and domestic livestock; and it negatively impacts critical wildlife habitat.

Fire areas within the Elko 14 Fire Complex have been analyzed for the potential loss of ecological integrity as result of fire effects to native species. Using soil survey and vegetative inventories, high productivity sites have been identified that are known to be overtaken by competing vegetation following disturbance. These areas were mapped and rehabilitation recommendations compiled to treat these lands with native and introduced species to combat the spread of invasive non-native species.

2. Revegetation

The decision to re-vegetate burn areas will be based upon the following criteria:

- Watershed stability
- Control of Noxious weeds
- Protect the ecological integrity of the plant community

Areas of re-seeding were based on consultation and recommendations of the BAER team watershed and vegetation specialists. The BAER team relied heavily upon the reconnaissance data of the Resource Advisors' reports. Meetings with the local resource staff personnel to assess the individual fires and map areas of the highest productivity, and/or resource value. The areas targeted for re-seeding also considered the parameters of soil properties, erosion potential, aspect, biological diversity, threat to existing watershed and seed availability.

The BAER team will use the seed mixes that were agreed upon and established in the 1999 Northern Nevada Fire Complex, ELKO 13 and Elko 21 BAER Plan. These seed mixes were developed in consultation with the public, county, and state resource advisors, as well as private landowners. The BAER team vegetation specialists and local resource staff provided data based on rehabilitation efforts that have been implemented within the region and developed seed mixes based on the criteria listed above and consideration of the general ecological requirements and broad range of plant communities.

The following re-seeding treatment types were developed in specifications:

A Table of the treatment by type, fire name, acres, and mix number is exhibited in the Appendix of this assessment. Also refer to Map Section-Treatments for display of seeding locations by fire.

Aerial or Broadcast seeding

Seed mixes designated will be applied by qualified rotary wing aircraft at the seeding rate for each mix.

An estimated 5,011 acres will be aerial seeded in the burned acreage, seed will be applied when weather conditions are favorable to allow

for coverage by snow or adequate moisture, and thus will be applied in late fall or early winter. The above total includes 332 acres for broadcast seeding of bitterbrush using a dozer with a seed dribbler.

Reseeding using rangeland drill

Drill seeding was targeted on areas with favorable access, soil conditions and slope. A total of 805 acres is scheduled to be drill seeded on 5 different fires. One seeding includes 259 acres be overseeded aerially with kochia

Replanting Seedlings

A total of 200 acres will be seeded with bitterbrush seedlings.

Natural resource protection

Establishment of vegetation to provide an area of resistance to invasion on exotic species is needed in areas that burned and will take time to recover. The seeding is designed to be strategically placed by utilizing existing roads, ridge tops, drainages, or any other man-made or natural feature that would make the buffer more effective. It may also provide some protection to newly seeded or established areas. The primary species to be planted is forage kochia, an introduced plant that is a semi-evergreen subshrub or small shrub. It has excellent forage quality in spring, summer, and fall. The lower 1/3 of the plant is green year round. Forage kochia can be broadcast seeded into cheatgrass stands and within two years it can provide succulent forage.

Seed

For the purpose of developing budgeted costs for the above mentioned specified treatments, seed costs were obtained from different major seed vendors and the BLM seed warehouse director. The BAER team vegetation specialists used a standard price for each species per pound to develop cost figures. For the magnitude of this potentially large seeding effort, it should be noted that there will be potential problems with the seed supply to meet the demands. Some species will not be available the first year; therefore substitutions may be necessary to establish some effective ground cover. It is anticipated however, that most grass species ordered would be available within the 3 year ESR window. Flexibility must be anticipated when planning the seed storage, mixing and actual seeding effort. Additional site preparation may be needed if seeding is done in year 2 and 3.

3. Seeding Effectiveness Monitoring

It is very critical that monitoring be conducted not only on proposed treatment areas, but on non-treated areas as well. The monitoring in unseeded areas will give managers an example of what could have happened without seeding. The National Research Council proposed the concept of rangeland health as a common denominator for the description of the nation's rangelands. Applying the concepts of rangeland health and thresholds to cheatgrass infested rangelands would yield valuable information for science based management decisions. Little research has been done to identify the thresholds of cheatgrass dominance where by a disruption in ecological processes, native plant composition or soil stability occurs. Young and Evans (1978) reported that native perennial plant densities of 2.5 plants per square meter were adequate to prevent cheatgrass dominance if the shrub steppe community was removed. Monitoring data, using the BLM techniques such as "freqdens" or other models will provide managers in this region, who most likely will also be conducting rehabilitation, with valuable data and applied research on treatment success and failures, as well as how certain plant communities respond to post fire effects. This information will also assist managers in providing baseline criteria for post fire grazing management.

4. Grazing

The Northern Nevada Fires have significantly altered management strategies for many grazing allotments, wildlife management areas, and recreational areas.

The AUM losses suffered by local ranchers have ranged from minor in some grazing allotments to losses from 2 to 3 years of the forage base on BLM administered grazing lands. With the aid of field inventories, rancher participation, and GIS analyses, impacted allotments have been identified and an inventory compiled of structural improvement losses, livestock deaths resulting from the fire, and other property damage estimates.

Many decisions must be made over the next several months between the BLM and permittees relating to management options within the impacted allotments. Recommended recovery periods for many of the more intensely burned areas will be 2 full growing seasons. There are many management options, however, that may influence when an allotment may be grazed, where and for how long grazing may occur. The specific AUMs that would be affected for each allotment will be identified as specific plans and grazing strategies, including closure where necessary, are developed.

It is not the intent of this report to prescribe specific management recommendations for each impacted allotment or permittee. Due to the amount of land impacted by the Elko 14 Fire Complex, the immediate and careful review of management plans must receive a high priority to determine management options that not only provide the necessary protection for rehabilitation treatments and natural regeneration processes but also provide viable management options for the ranching community. This process will require a concerted effort between the federal government and permittees and could take several months to complete.

Specific objectives for each fire or portions of the burned areas, or on the basis of grazing allotments, will be developed to ensure attainment of the primary goal of watershed stabilization and preventing establishment of invasive plant species or noxious weeds. In many areas, the rehabilitation of burned areas will involve a natural revegetation response of the species burned but not affected by the fire. In some cases, re-seeding will be necessary to meet resource objectives and provide for watershed protection. In many cases, it could take two growing seasons following the burn or re-seeding for plant species to become established enough to withstand the impacts of grazing and still provide necessary watershed protection. However, because of the inherent variability in soils and site potentials within the burned areas, site specific monitoring will be necessary to determine just when resource objectives have been achieved on specific burned areas. Annual site specific monitoring could show that grazing may occur sooner than two growing seasons or that longer deferment is needed. These determinations will be made on a case by case basis based on sound resource data, scientific principles, and experience. In those areas where cheatgrass invasion is a concern, a post fire grazing plan could include short duration early spring grazing as a tool to prevent cheatgrass establishment or production, therefore reducing competition with perennial grasses for available moisture. Because livestock grazing is administered by individual grazing allotments, the post fire grazing management for each allotment within the burned area will be developed, monitored, and evaluated on a case by case basis consistent with site specific resource objectives. (See BLM ESR Handbook, H-1742-1, page III-1. 7/27/1999)

5. Structural Range Improvements

Assessments of fences were conducted and compiled using information from Resource Advisor reports and field reconnaissance. The burned areas on the Elko Field Office area were inventoried largely by visual inspections from helicopter. Other data was obtained from Resource Advisor Reports, Resource Management Staff, permittee contacts (in-house and in the field), Allotment Management Plans, resource information on GIS, allotment maps, and allotment case files. Other range improvement damage was collected collaterally to this process.

Different states of damage were found to the fences in the burned areas. These ranged from some minor heat stress wire, to several burned posts or stress panels, to completely obliterated fence lines. To categorize these variable conditions two categories of fence and needs for rehabilitation were identified. These were termed "repair" and "replace". The primary distinction made is if wooden posts were badly burned so as to lay the wire on the ground and the fence is entirely dysfunctional it requires "replacing" or reconstruction. The "repair" category includes fences weakened by heat, with occasional burned posts, or with stress panels and corners burned but wire is left standing and intact. The recommendations for rehabilitation of these fences are found in Specification P-2a for fences requiring replacement and P-2b for fences requiring repair.

There were 32 miles of fence that were within the burn perimeters. Approximate total miles of fences in need of repair or replacement is 32 miles. These are tallied in either specification P-2a or P-2b. Distances for these fences were derived from GIS mapping. More detailed listings of fence locations are found in the incident file. Fences are needed to protect critical riparian areas destroyed by the fire and to protect proposed rangeland seeding and natural vegetation that was burned.

Proposed new fence needed for resource protection is another category. These are standard BLM specification fences for specific resource protection efforts. There are about 27 miles of new fence proposed. The following is only a general assessment of these fence needs. The primary need for these fences is to manage livestock and wild horse grazing on sensitive, native release, or seeded areas. The new fences are needed to protect and restore rangeland seedings and restore rangeland health and water quality by protecting seeding and critical riparian areas burned by the fires to allow vegetation to re-establish and stabilize soils and watersheds.

Recommendation for priorities of fencing needs are as follows:

- Protect and stabilize soils by keeping grazing animals off of seeded areas allowing plants to establish and develop effective root depths and root reserves.
- Control duration of grazing to keep a healthy and diverse plant community while utilizing the range forage for livestock production. Provide grazing management options to allow use of burned areas as range plant production permits as well as utilizing low value forage areas (cheatgrass).
- Rangeland reseeding are needed to restore and promote a healthy ecosystem and allow natural fire to assume its role assume in land management.
- Develop improved plant community management (seral stages, range condition, cheatgrass and noxious weed invasion) integrating natural fire, prescribed fire, and grazing management to meet management objectives.
- Many allotment boundary fences and pasture fences were damaged or destroyed from the fires. Construction of the new proposed fences as well as reconstruction of existing fences is essential to protect range resources.

6. Noxious Weeds

Elko BLM Field Office burned in areas infested with Nevada Listed noxious weeds and other undesirable exotic species. Inventory by Field Office staff, Resource Advisors, and Field Office Monitoring Team revealed that noxious weeds occur in 5 of the wildfires. Weeds present are Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), Russian knapweed (*Centaurea diffusa*), hoary cress (*Cardaria draba*), Cheatgrass (*Bromus tectorum*). The fires are Bishop, Buckhorn, Double Mountain, Isolation and Maggie Creek. Noxious weeds are a growing concern for most of the west and are truly an explosion in slow motion.

The recent wildfires exacerbate the problem in that the very competitive noxious weeds have a prepared seed bed in which to grow, will have reduced competition from native vegetation, and most have the ability to begin germination after the first fall rains. New and unrecorded noxious weed populations were found in the burned areas.

Given the competitive nature of weeds such as Scotch thistle and Diffuse knapweed and the ability for seeds to be produced throughout the summer, there is a high probability that noxious weeds will increase dramatically on the fires of the Elko 14 Fire Complex 2001 Fires. Weeds are to be expected to increase on all burned areas where weeds are known to exist.

The cumulative effects of spread of noxious weeds with the invasive exotic annual grass, cheat grass or downy brome (*Bromus tectorum*), will be evident on the burned areas. The exotic undesirable and aggressive vegetation will directly compete with native vegetation. These non-native weeds have the ability to out-compete and replace our native plants, often creating their own monotypic plant community. The loss of perennial grasses results in an increase in soil erosion due to the lack soil binding qualities of the native plants. Uncontrolled noxious weed infestations result in decreases of native vegetation diversity, reductions in forage and wildlife habitat, and declines in agricultural crop values. Once exotic weeds become established it is extremely difficult to eradicate them and bring back the native communities that have been displaced.

7. Wild Horses

Only one Herd Management Areas (HMA), that burned by the Elko 14 Fire Complex. This area is Spruce-Pequop Herd Management Area.

Neptune

The Neptune fire was in the Spruce-Pequop Herd Management Area (HMA). The Neptune Fire was not large enough or impacted sufficient areas to warrant a wild horse removal. Any livestock grazing closer could be done with herding and water placement, and would not impact wild horses.

III. RECOMMENDATIONS

- **Management** (Specification related)

1. Seeding

a. N-3c BLM 98-148 III. O Ecological Stabilization - Planting/Seeding

Fires within the Elko 14 Fire Complex have negatively impacted mid to late seral plant communities and increased the potential for erosion, loss of ecological integrity through the invasion of non-native species, and the spread of known populations of noxious weeds. Range sites within the 10 fires covered under this plan have been analyzed and prioritized for treatment to prevent site degradation using site preparation techniques that may include chaining and disking.

b. P-2a BLM 98-148 III. O Grazing Exclusion

Reconstruct and or repair allotment boundary fences and interior pasture fences.

c. P-2b BLM 98-148 III. O Grazing Exclusion

Reconstruct allotment boundary fences and interior pasture fences. Remove burned fence materials including wire. These fences are used as part of the livestock and allotment management plans. Support costs are included to provide for administrative costs and contracting issues.

d. P-2c BLM 98-148 III. O Grazing Exclusion

Construct new fence to protect and/or enhance natural resources and their management. These fences are necessary to prevent grazing by livestock of burned areas needing grazing rest or protect sensitive species and key areas from grazing.

2. Monitoring

a. M-2b BLM 98-148 III. V Monitoring and Evaluation of Emergency Treatments

Conduct re-seeding monitoring each year following treatment (2000-2002) to determine success of revegetation efforts on the Elko 14 Fire Complex. Utilize "Fregdens" Techniques or similar methods established for seeded areas. Use production/site composition methods for areas managed for natural release. A resource specialist from each Field Office will provide program oversight for this specification.

3. Weed Control

a. N-2 BLM 98-148 III. U Non-native Invasive Plant Control

Control non-native/noxious weed infestations within the Elko 14 Fire Complex prior to seed-set and maturation. Control of these Nevada Listed noxious weeds needs to be conducted or they will spread into non-infested areas of the burns. Utilize integrated pest management techniques (herbicides, biological, mechanical and cultural control methods) as appropriate to prevent the spread and establishment of noxious weeds within the fire area.

4. Noxious Weed Monitoring

a. M-1b BLM 98-148 III. Q1, V Monitoring

Conduct long-term monitoring (3 years) to monitor vegetative recovery within the burned area in order to detect the invasion of invasive/noxious weeds on roads, handlines, dozer lines and other disturbed areas within the Elko July Fire areas. Monitor existing noxious weed infestations within burned areas to determine if expansion is occurring into non-infested areas. Inventory for noxious weeds near existing locations and in areas that have a high probability for invasion within the burned areas.

B. Management (non-specification related)

1. Rangeland vegetation

- a. Establish vegetation database on current range data, plant communities, and their ecological health in GIS to assist future management in assessment, rehabilitation and restoration.
- b. Establish vegetative objectives for grazing management and baseline criteria.
- c. Use public information releases to promote rehabilitation efforts and improve community relationships.
- d. Enhance public outreach programs by utilizing volunteer organizations to learn about and be involved with rehabilitation efforts.

2. Noxious Weeds (non-specification related)

Establish a Weed Management Area (WMA), or Areas, that include the burned areas. A multi-agency/interest group should be in place to address the noxious weed problem as a result of the wildfires. The control of noxious weeds are a problem that cross jurisdictional boundaries. A WMA, an essential part of a complete IWMP, can help with finding funding sources for lands not covered under EFR. The wildfires could be a source of noxious weeds that invade adjacent non burned BLM, State, and private lands.

• CONSULTATIONS

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VI. REFERENCES

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ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION TEAM

ELKO 14 Fire Complex 2001

THREATENED AND ENDANGERED PLANT RESOURCES ASSESSMENT

I. ISSUES

- Determine impacts of fire to threatened and endangered plant species and/or habitat.

II. OBSERVATIONS

Research was conducted on species currently listed by the USFWS to verify that no T&E species occurred within the fire area. Contacts were made with local experts to determine if additional sensitive species of concern were potentially affected by the fire and suppression actions.

A. Background

Refer to Vegetation Assessment.

B. Reconnaissance Methodology and Results

The BAER Team Vegetation Specialist met with Sensitive Species Coordinator to obtain baseline information pertaining to known T&E plant species. No T&E plants were known to exist within the fire areas.

The BAER Team Wildlife Biologist initiated emergency consultation with the T & E Coordinator of the Elko Field Office BLM to verify documented T&E plants within the area. At that time it was confirmed that the list contained no Threatened and Endangered plant species occurs within the 14 fire areas.

Upon consultation with local staff, and after reviewing the burned areas within the fire perimeter, it has been determined that no direct fire impacts have occurred to T & E plant species.

III. RECOMMENDATIONS- NONE

IV. CONSULTATIONS

Ray Lister, Sensitive Species Coordinator, BLM, Elko Field Office

V. LITERATURE REVIEWED:

BLM Sensitive Plants in Nevada, Memorandum dated February 27, 1998

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BUREAU OF LAND MANAGEMENT
BURNED AREA EMERGENCY REHABILITATION TEAM

Elko 14 Fire Complex 2001

SOIL, WATERSHED, AND AQUATIC/RIPARIAN RESOURCES ASSESSMENT

I. OBJECTIVES

- Assess overall watershed changes from fire, particularly those that pose substantial threats to human life, property, and critical natural resources. This includes evaluating changes to soil conditions, hydrologic function, and aquatic and riparian habitats. In addition, watershed response to precipitation events and high winds will be evaluated.
- Identify the most critical soil and watershed areas and issues based on increased flood potential and loss of soil resources from water and wind, and prescribe treatments to mitigate impacts and risks.
- Identify risks to aquatic and riparian habitats as well as important fisheries resources.
- Develop a map of burn severity.
- Identify future monitoring needs.

II. ISSUES

- Threats to human life and property in and adjacent to the burned area from accelerated runoff and erosion
- Threats to water quality of streams and reservoirs.

III. OBSERVATIONS

A. Background

Geology/Physiography: The Elko 14 2001 Fires burned 53, 371 acres within the Owyhee High Plateau MLRA (Major Land Resource Area) and the Central Nevada Basin and Range MLRA. The Owyhee High Plateau MLRA surrounds Elko, Nevada and extends to the northeast corner of the state.

Within both the Owyhee High Plateau MLRA and the Central Nevada Basin and Range MLRA are moderately steep to steep mountain slopes underlain by both volcanic and sedimentary rocks. Landscapes slope gently to foothills and valley floors, which are underlain by lake sediments and recent alluvium. Many canyons have well defined alluvial fans at their mouth spreading out onto valley floors.

Elevations range from less than 5,000 feet to more than 10,000 feet. Annual precipitation averages from 5 to 8 inches in lower elevations, 8 to 15 inches in most of the area, and 20 to 30 inches in the mountains. Precipitation is typically snow in the winter months, and rain in spring and summer.

In the uplands, the volcanic materials vary from basaltic to intermixed ash and tuffaceous materials. Sediments include erosion-resistant, consolidated siliceous materials and conglomerates, to limestone, shale, and sandstone, with some layers of erodible bentonite clay. Debris flows and recent alluvial deposits in channels and foothills include a range of particle size from very coarse (boulders, stones, and cobbles) to very fine clays in wide flat valley bottoms.

Definitions of terms commonly used in soil and watershed assessments.

Term	Definition
Fire Intensity	Based on temperature, flame length, heat of combustion and total amount and size of fuel consumed. Accounts for convective heat rising into the atmosphere and fire effects on the over story.
Fire Severity	Based on temperature, moisture content of duff and fuels lying on the ground, heat of combustion and total amount of duff and ground vegetation consumed. Accounts for the amount of conductive and radiant heat that goes down into the soil, affecting soil characteristics.
Burn Severity	A relative measure of the degree of change in a watershed that relates to the severity of the effects of the fire on watershed conditions. Burn severity is delineated on topographic maps as polygons labeled high, moderate, and low/unburned.
Watershed Response	A qualitative degree and/or modeled measure of how a watershed will respond to precipitation. Parameters include pre-existing soil moisture; amount and duration of rainfall; lag time between initiation of storm and peak flow runoff; and peak flow discharge (maximum cfs generated by a storm) and sediment yield. Changes in the characteristics of a watershed brought about by a fire increase the efficiency with which a watershed yields runoff. Burned watersheds shed more water faster.

Reconnaissance and field evaluations were conducted to identify the spatial distribution and extent of the fire severity and resulting burn severity and soil conditions. Field evaluations included, but were not limited to:

B. Reconnaissance Methodology

- soil related fire effects;
- mapping burn severity;
- current channel and culvert condition;
- threats to structures and facilities from storm flow and debris;
- threats to human life and property from wind-blown dust.

Burn Severity: Burn severity is not the same concept as fire intensity. Fire intensity and severity relate to effects on vegetation. Burn severity relates specifically to effects of the fire on soil conditions and hydrologic function (e.g., amount of surface litter, erodibility, infiltration rate, runoff response). Although burn severity primarily is not a reflection of effects of fire to vegetation, vegetative conditions and pre-fire vegetation density are among indicators used to assess burn severity.

Site indicators used to evaluate and map burn severity include soil hydrophobicity (water repellency), ash depth and color (fire severity), size of residual fuels (fire intensity), soil texture and structure, and post-fire effective ground cover. These criteria indicate fire residence time, depth of litter layer consumed, radiant heat throughout the litter layer and ease of detachability of the surface soil. Using these indicators, burned areas are mapped into three relative burn severity categories. These include high, moderate, and low/unburned.

In some cases there may be complete consumption of vegetation by fire, with little effect on soil and watershed function. In general, the denser the pre-fire vegetation, the longer the residence time and the more severe are the effects of the fire on soil hydrologic function. For example, deep ash after a fire usually indicates a deeper litter layer prior to the fire, which generally supports longer residence times.

Increased residence times promote the formation of water repellent layers at or near the soil surface, and loss of soil structural stability. The results are increased runoff and soil particle detachment by water and transport off-site (erosion). The presence of white ash indicates a hotter fire and more complete consumption of organic matter. Powdery ash without identifiable remnants of twigs and leaf litter also indicates more complete consumption.

Generally there is a close correlation between soil properties and the amount of heat experienced by the soil as well as the residence time of the heat in contact with the soil.

The burn severity map then becomes a basis to predict the hydrologic response of soil to the fire, and the rate of natural revegetation of the site following the fire.

It is important to note that burned area map units usually are mapped at no less than 40 acres in size and may include areas of other burn severity, but which are too small to segregate. Small areas of different burn severity can be present in each map unit.

Soil Conditions: Soil related fire effects were evaluated for several parameters that affect soil conditions. These parameters are hydrophobicity, changes in vegetative ground cover and soil structure, and susceptibility to water and wind erosion. Hydrophobicity was evaluated by observing the depth and thickness of a water repellent horizon in surface soils where it exists, and duration of a water drop beading on this surface. Changes in vegetative ground cover as affected by the fire were noted and compared to pre-fire conditions. Loss of soil structure is usually indicated by a change to a powdery soil. Soils susceptible to wind erosion were examined in the field to determine if there was an increased risk of erosion. Soil survey maps and photos were used to assist in making predictions of areas with the greatest risks of wind or water erosion.

Formation of Hydrophobic Soil: When soils are heated by fire, one result can be development of a hydrophobic layer on or in the surface soil horizon. This occurs due to volatilization of organic matter in and on the surface soil that have high amounts of lignin and other waxy compounds. After the fire passes, the gasses cool to a waxy coating on soil particles. The effect is similar to putting wax on a car to cause water to bead up and run off. If the hydrophobic layer is thick, or the degree of water repellence is strong, it can seriously inhibit infiltration of rainfall, increase runoff and detach surface soil particles. This increases flooding, erosion and sedimentation. Some soils can be significantly hydrophobic, even without fire. Vegetation type, amount of organic matter and soil texture are the primary factors that determine whether or not soils will become hydrophobic.

Watershed Response: On-the-ground field observations and aerial reconnaissance were conducted to determine the potential for high runoff response. Channel morphology related to transport and deposition processes were noted, along with channel crossings and stream outlets. Observations included condition of riparian vegetation along perennial streams and the potential for vegetational loss and/or conversion. Burn severity and changes in soil infiltration were considered for runoff potential.

C. Findings

Maggie Creek

Elevation for the Maggie Creek Fire ranges from approximately 5220 feet along Dry Gulch to 6220 feet on the far west side. Annual precipitation averages from 8 to 16 inches. There are no perennial streams in the Maggie Creek Fire, but Susie Creek is perennial and is located within one mile of the fire on the east side. Susie Creek flows from north to south, where it has its confluence with the Humboldt River. Susie Creek supports suckers and dace, and is a proposed and historic Lahontan Cutthroat trout stream. Soils in the perennial drainages are deep.

Burn Severity: There are two major ephemeral drainage networks in the Maggie Creek Fire. They are Dry Gulch and its numerous tributaries to the east, and the several drainages on the east side that have their confluence near Huntsman Ranch and Susie Creek. These drainages, and the surrounding area, had high burn severity. The fire in these areas removed most of the vegetative community, and left the soils very susceptible to wind and water erosion. A field inspection of the area shortly after the fire revealed that extensive runoff and debris flows had already occurred from a rainstorm shortly after the fire was controlled.

Values at Risk/Resources to be Protected: The only residence near the burn area is the Huntsman Ranch located in the northwest sixteenth of sec.16, T. 34 N., R. 53 E. The ranch is situated approximately ½ mile east of the burn at the bottom of a large ephemeral drainage network, adjacent to the confluence with Susie Creek.

Fisheries and aquatic resources in Susie Creek are likely to be adversely affected. Loss of protective streamside cover will result in accelerated sediment loading both from the affected watershed as well as from eroded streambanks. Ash is likely to enter the stream channel and increase the pH level to the detriment of both fish and invertebrates. High sediment loads and well as loss of shading cover will likely intensify the effects of thermal warming. High stream temperatures could result in fish mortality.

Recommendations: The burned area above Huntsman Ranch and the area above the large reservoir in sec.11, east of Dry Gulch have high runoff potential. They had high fire intensity, the slopes are steep, and infiltration rates are slow to very slow. Runoff is rapid throughout most of the two watersheds of concern. This area already is exhibiting accelerated sheet, rill, and gully erosion.

Ten ephemeral drainages are proposed for watershed treatment. A series of straw bale check dams would be constructed. These dams would reduce water erosion by reducing the slope lengths, trapping sediment, and slowing runoff. This would reduce the potential flood risk downstream to Huntsman Ranch and Susie Creek, as well as reduce the sediment load to Susie Creek. The culvert along the road near Huntsman Ranch partially washed out from the rain following the fire. The check dams would also reduce the risk of future culvert wash outs.

There are two main road entrances to the Maggie Creek burn on the southern end that are at most risk of flood damage. One is located approximately ½ mile northwest of Huntsman Ranch, and the other is located at the southern end of the Dry Gulch Road in sec.36. It is recommended that flood hazard warning signs be placed at these junctions. The burned watershed should be rested from livestock grazing until the watershed has been stabilized enough that large debris or mud flows should not be a risk.

Isolation

Elevation for the Isolation Fire ranges from approximately 5800 along Hot Springs Creek to peaks of 7196 feet. Annual precipitation averages 10 to 14 inches. Perennial streams in the Isolation Fire flow from southeast to northwest with northeast/southwest aspects to their slopes. Soils in the perennial drainages are shallow to deep and well-drained with medium to rapid runoff. Hazard of erosion due to water is moderate to severe. Erosion due to wind is slight.

Burn Severity: There are two perennial streams in the Isolation Fire. They are Pole Creek and Hot Springs Creek. Burn severity was high in both Pole Creek and Hot Springs Creek drainages. There is evidence of past soil movement in both creeks, and in the upland area above Hot Springs Creek there is an old mud flow.

Values at Risk/Resources to be Protected: There is a slight threat to property in sec.5, T.39 N., R. 59 E. where an old cabin is located. The cabin is located on private land, and the portion of the watershed that is located on public land above had only a moderate fire severity, and a seeding is not necessary there. The two areas at greatest risk of increased peak flows are the Pole Creek and Hot Springs Creek watersheds. Although there are no structures at risk (other than the cabin), there are roads downstream that could get washed out and riparian areas that could be subjected to accelerated incision. Neither Pole nor Hot Springs Creeks supports game fish, however; Pole Creek supports willow and aspen stands, some of which were impacted by the fire.

Recommendations: Burned areas along the drainages that had high fire severity should be aerially seeded with a watershed mix during late fall. Fencing and rest from livestock grazing for a minimum of two years should occur to allow the seedings to be successful. Additionally, flood hazard warning signs should be placed along the dirt roads near the Hot Springs drainages. Large peak flows, possibly accompanied with large amounts of cobble, could occur following an intense rainstorm over the watershed before the vegetation has fully recovered to preburn conditions. Land users who hunt or recreate in these areas could be in danger following a storm.

Double Mountain

Elevation for the Double Mountain Fire ranges from approximately 6100 feet to 7200 feet. Annual precipitation averages 8 to 20 inches. There are two perennial streams within the fire, Jakes Creek and West Fork of Beaver Creek. Soils within the Double Mountain Fires are moderately deep to deep with rapid runoff. Hazard of erosion due to water is slight to moderate. Hazard of erosion due to wind is slight.

Burn Severity: Burn severity is high along the drainages, and moderate throughout the remainder of the fire. Several rains that occurred since the fire caused noticeable erosion in the burned area.

Values at Risk/Resources to be Protected: The dirt roads that go around the fire on the north and east sides are at risk of getting washed out following an intense precipitation event. The two perennial streams are at risk of excessive sedimentation following a large runoff

Recommendations: Seed the drainages that have high burn severity with a watershed mix to protect the roads below and the two streams.

IV. RECOMMENDATIONS

A. Management (specification related)

- a. 2,853 Add Straw Bale check dams and 2 flood hazard signs

W-1a BLM 98-148 III. BB Grass Reseeding

Aerially seed drainages with annual and perennial grasses to provide short-term (the first growing season) and long-term plant cover to reduce erosion and sedimentation into the drainages that would occur following a wildfire without treatment.

B. Monitoring

Monitor the effectiveness of the straw bale check dams following each large precipitation event. Repair as necessary.

C. Management (non-specification related)

- Monitor roadways within burned areas that could wash out..

Situation: In several areas within the burn there are roads that may wash out following large runoff events.

Recommendation: Monitor the condition of the roads at places where they are in danger of washing out.

V. CONSULTATIONS

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VI. REFERENCES

USDA NRCS Soil Surveys for all affected counties

USDA SCS, 1992, 1990. Nevada Site Descriptions. Technical Guide. Major Land Resource Areas.

USDI BLM. BLM Revised Emergency Fire Rehabilitation Handbook. H-1741-1. July 1999

USDI BLM 1999 Northern Nevada Fire Complex Burned Area Rehabilitation Plan

**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION TEAM**

ELKO 14 Fire Complex 2001

OPERATIONS ASSESSMENT

I. ISSUES

- Identify, inventory, and map fire suppression impacts.
- Initiate discussions with private land owners, state officials, and federal agencies to insure acceptable rehabilitation techniques are implemented.
- Develop short term rehabilitation treatments for fire lines, staging areas, and safety zones; 14 fires totaling 53,371 acres
- Direct personnel and equipment involved in restoration efforts.
- Document all private and public facilities damaged by fire.
- Conduct an assessment of roads used by suppression crews that need maintenance as a result of action taken during the fire.
- Conduct an assessment of all private and public property affected by fire.

II. OBSERVATIONS

A. Background

On July 3, lightning ignited the Neptune Fire in the Elko Field Office area. Over the next few days, lightning ignited over 60 fires within the Elko Field Office Area including the Isolation Fire which grew to 14,032 acres. Factors contributing to the rapid growth of many of these fires included strong erratic winds, low humidity, extremely dry fuels, and limited access limited resource personnel to control the fires. Extremely heavy rain events caused from monsoonal moisture on the 6th, 7th and 8th of July contributed to extinguishing the fires and also caused erosion and flooding problems within the fire areas.

The following data briefly summarizes the 14 fires located within the Elko Field Office Area that the Elko BAER team was asked to assess.

Administrative Unit	Fire Name	Ignition Date	Control Date	Acres Burned
NV-EKD	Bishop	07/03/01	07/06/00	2,887
NV-EKD	Bob's Flat	07/05/01	07/08/01	580
NV-EKD	Buckhorn	07/04/01	07/05/01	749
NV-EKD	Double Mountain	07/03/01	07/10/00	3,397
NV-EKD	Egbert	07/03/01	07/6/01	1,955
NV-EKD	Isolation	07/03/01	07/09/01	14,001
NV-EKD	Maggie Creek	07/04/01	07/08/01	11,434
NV-EKD	Metropolis	07/03/01	07/09/01	1,138
NV-EKD	Mud Springs	07/20/01	07/21/01	546
NV-EKD	Neptune	07/03/01	07/06/01	1,513
NV-EKD	Upper Clover	07/04/01	07/05/01	1,993
NV-EKD	West Bullion	07/04/01	07/07/01	337
NV-EKD	West Pequop	07/03/01	07/08/01	3496
NV-EKD	Wine Cup	07/04/01	07/09/01	9,345

Incident commanders contained the above fires utilizing various suppression techniques including building 69.25 miles of dozer lines. Due to the varied terrain, lines were constructed across terrain features including slopes in excess of 40%. Dozer impacts varied according to topography with light one blade surface scrapes along valley floors and ridge tops. Some dozer use resulted in moderately deep downcutting, but for the most part, these actions were isolated occurrences.

Rehabilitation treatments were implemented on all suppression related impacts that occurred on the major Elko Field Office Fires. Treatments were directed in a cooperative effort by resource advisors from the Elko, Nevada. Corrective action to prevent soil erosion and help begin the restoration process needs to be completed with the use of heavy equipment and crews to re-contour hand and dozer suppression lines. In addition, safety zones and staging areas need to be treated.

At specific locations where the resource advisor felt heavy equipment would cause further resource degradation the sites were treated by crews or left alone. To date over 80% of all suppression lines assessed for rehabilitation have received treatments. The remaining 20% is scheduled to be completed by the Elko Field Office.

Aerial seeding of all perimeter lines has been prescribed to provide a timely means of applying seed on disturbed soils prior to erosive rains. The use of a helicopter and seed hopper will facilitate a uniform application with all line treated without regard to private or public ownership. The use of a rangeland drill where access and terrain allows is also recommended to insure increased success of the seeding operation.

Resource advisors also surveyed fire areas for damaged public and private property. Structures destroyed numerous power poles, range improvements, and over 32 miles of fence line. No livestock or wildhorses were reported as being lost due to the fires.

Assessments document 16 miles of County and BLM roads damaged by the suppression effort. Funding is requested to rehabilitate damaged roads back to their pre-fire condition and purchase nine replacement signs to insure public safety is not compromised. Intermittent spot rocking (gravel) is proposed for roads severely impacted.

B. Reconnaissance Methodology and Results

Resource advisors from BLM Field Offices served as rehabilitation specialists for each fire. Field surveys of fire damages and suppression related impacts were identified by a thorough ground and aerial reconnaissance. Considerable effort was made to access even the most remote areas of each fire to assess damages. Resource advisors assigned to fires were also directed to contact as many land owners and permittees as possible to insure their first hand accounts of damages and rehabilitation needs were included in reports.

III. Recommendations

Management (Specification Related)

- Continue to rehabilitate remaining fire lines and other sites directly or indirectly impacted by fire suppression activities.
- Designate a lead person from the Elko Field Office to coordinate and plan the aerial seeding of suppression lines. Past experience has revealed that the magnitude of this operation will present formidable challenges if not properly preplanned between operational, air, and logistical personnel.
- Within the next 60 days prioritize road rebuilding and grading projects to maximize brief work periods following rain events this coming fall.

a. R-2 BLM 98-148 III. M Natural Resource Restoration

General Description: Dozer line rehabilitation will generally be rehabilitated with dozers on slopes up to 40%. Hand crews will be used on slopes greater than 40%. Hand crews will also work behind dozers and complete rehabilitation at locations determined to be impracticable for dozer rehabilitation by dozer operators.

b. S-6 BLM 98-148 III. M Facility Replacement

Rehabilitation of preexisting roads is necessary to avoid erosion gullies and ponding on road surfaces due to blockage of drainage diversions by berms. The intent is not to improve the roads beyond the pre-existing condition but to reestablish drainage and surface requirements for public safety. Road regrading should occur after sufficient moisture is available to reconstruct roads to pre-fire condition. Many of these roads provide primary access to private property, permittee allotments, recreational users, and the public at large.

c. W-1b BLM 98-148 III. M Grass Reseeding

General Description: Seeding is to be completed via helicopter or rangeland drill. The District staff and equipment, primarily transport vehicles, will be used to move seed to and load seed from strategic staging points in close proximity to each fire. The need for seeding, seed selection and application rates were determined in consultation with local area resource management staff. Seeding will serve as an immediate, temporary ground cover to decrease surface erosion and help prevent invasion of exotic plants.

Management (Non-Specification Related)

- Insure rehabilitation specifications are clearly understood by new personnel assigned to treatment work, particularly heavy equipment operators performing line rehab.
- Many range and watershed treatments are enormous operational projects. Most projects would be best implemented with many resources over a short duration in contrast to limited resources over a long duration.

- Guarantee safety of personnel assigned to operational assignments in the fire area during periods of precipitation over the burn.

CONSULTATIONS

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Ray Lister, Wildlife Team Lead, BLM Elko Field Office
Glen Uhlig, ESR OPS/Logistics, BLM Elko Field Office
Norm Rockwell, District Engineer, BLM Elko Field Office

REFERENCES

Resource Advisor reports
USDI, 1995. BAER Field Team Leader Reference Book
BLM 98-148 III.M. BLM Emergency Fire Rehabilitation Handbook

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BUREAU OF LAND MANAGEMENT - ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION TEAM

ELKO 14 Fire Complex 2001

WILDLIFE ASSESSMENT

I. ISSUES

- **Critical big game winter range and sage grouse habitat loss from fires.**
- **The threat of exotic annual plant species revegetating burned areas and increasing fire frequency.**
- **Critical loss of limited wildlife habitat (deciduous woodland habitat) as a result of fires.**

II. OBSERVATIONS

The purpose of this Wildlife Assessment is to document the effects of the fire, suppression activities, and proposed rehabilitation work to all Threatened, Endangered, Candidate, Sensitive (TECS) or otherwise significant mammals, birds, amphibians, reptiles, fish, invertebrates and their habitat, which may be found within or downstream from the fire areas. A review of BLM Elko Field Office TECS list, Nevada Partners in Flight Conservation Plan, and consultation with Nevada Division of Wildlife personnel was completed. Six TECS Species will be addressed in this assessment as a result of this review and consultation.

Species and issues identified by the BLM staff at the Elko Field office to be addressed include loss of crucial big game winter range, sage grouse habitat and limited deciduous woodland areas that provide habitat for numerous wildlife species .

A. Wildlife Background

The 2001 Elko fires associated with the Elko Field Office burned approximately 64,693 acres between July 3, 2001 though July 9, 2001. Because of strong winds and fuel types, these fires burned quickly through these areas and consumed large acreages in a short period of time. Vegetation resources were impacted by varying degrees as burn intensities were relatively uniform across the landscape. However there were blocks of unburned vegetation and varying amounts of mosaic in these burn patterns. Elevation ranges within the fires areas are from approximately 4,700 to 7,200 feet.

Plant communities within the fire areas include sagebrush with cheatgrass-dominated understories, sagebrush with perennial grass/forb-dominated understories, mountain shrub communities, juniper, aspen, and limited riparian habitats with willow and other riparian species. Many of the ridges are vegetated by the pinon-juniper forest vegetation, reflecting shallow rocky soil types. The climate in the area is arid, with precipitation primarily occurring during winter months with a variety of wildlife habitats present within the fire area. Wildlife species found in these habitats vary in abundance and diversity depending on the type and condition of the vegetation. Approximately 350 species of wildlife including mammals, birds, amphibians and reptiles are seasonal or yearlong residents within these fire areas.

B. Reconnaissance Methodology and Results

Wildlife information for this assessment was based upon a review of relevant literature, and personal communications with BLM and Nevada Division of Wildlife. Reconnaissance included field reviews.

Species Of Concern:

Sage grouse: Of the six TECS species assessed, the fires had the most affect on sage grouse habitat. It is widely know that sage grouse (*Centrocercus urophasianus*) are a growing concern across the West. At a sage grouse workshop in Billings, Montana in July, 1998, representatives of every western state presented data depicting long-term population decline. In Nevada, sage grouse populations in certain areas continue to decline according to most trend indices (Saake and Stiver 1999). Sage grouse have been designated by the Nevada Bureau of Land Management State Director as a BLM Sensitive Species and therefore afforded by BLM policy (BLM 1988, 1998) the same level of protection as candidate species, this is, "BLM shall carry out management, consistent

with principles of multiple use, for the conservation of candidate species and their habitats and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered”.

Although the suspected causes of sage grouse decline are numerous, loss of habitat ranks at the top of the list (Braun 1998). The primary concern of local experts with respect to range fires is the loss of sage grouse habitat. Rehabilitation of sage grouse habitat, and the prevention of invasion by fire prone annual weeds is a wildlife management priority of both NDOW and BLM and is reflected in the treatment specifications of this plan.

Other species listed on the Nevada State and BLM sensitive species lists not requested by BLM or NDOW personnel to discuss here, is located in Appendix III.

The following listed species were identified by BLM as potentially existing within or adjacent to the fire area. Through field work and consultation with various experts, it was determined that these species were unaffected by the fire (no habitat within the fire area, inventories prior to the fire determined absence, or are migrants and are not in the area at this time):

Bald eagle, <i>Haliaeetus leucocephalus</i>	T
Spotted frog, <i>Rana luteiventris</i>	C
Mountain Plover, <i>Charadrius montanus</i>	P

KEY TO LISTING STATUS:

T = THREATENED

C = CANDIDATE

P = PROPOSED

III. RECOMMENDATIONS

A. Management: (Specifications related)

The following activities can be accomplished by using ESR funds as outlined in the stipulations section of this plan.

a. N-3a BLM 98-148 III. E Ecological Stabilization - Planting/Seeding

Aerially seed crucial big game winter range and sage grouse habitat to reestablish shrub species important for cover, nesting, and forage.

b. N-3b BLM 98-148 III. Q Ecological Stabilization - Planting/Seeding

Fires within the Elko 14 2001 Fires have negatively impacted mid to late seral plant communities and increased the potential for erosion, loss of ecological integrity through the invasion of non-native species, and the spread of known populations of noxious weeds. Range sites within the 14 fires covered under this plan have been analyzed and prioritized for treatment to prevent site degradation, maintain ecological stability, and prevent spread of non-native, invasive weeds along roads by reseeding using species adapted to the sites.

B. Monitoring (specification related):

The following rehabilitation-related monitoring may be accomplished through the use of ESR funds.

a. M-2a BLM 98-148 III. Q1, V Monitoring and Evaluation of Emergency Treatments

Monitor vegetation for rehabilitation seeding success in crucial big game winter ranges. Measure utilization on rehabilitation seeding from livestock grazing and wildlife.

C. Management: (Non-specifications related)

The following recommendations are made for the purpose of mitigating fire, suppression activity and subsequent long term rehabilitation effects to all wildlife species found within the fire area.

1. Complete management actions necessary to protect affected deciduous trees and shrubs including, but not limited to, quaking aspen, bitterbrush, serviceberry, snowberry and chokecherry from livestock grazing as necessary to ensure that resprouting stems and seedlings that result after the fire are protected. This would include said vegetation that was affected by the fire that was or was not initially identified during summer 2001 after post-fire reconnaissance surveys.
2. Monitor critical bitterbrush and other mountain shrub areas for post fire resprouting and utilization, and address possibilities or need for planting or resource protection in the future if dictated from monitoring.
3. Ensure flexibility in the wildlife seed operation based on seed availability and priority areas. In case of seed shortages, the identified areas could be strip-seeded. For example, if only 50% of the seed is available, the same identified areas would be seeded, but only every other swath would be seeded.
4. Evaluate the opportunities to minimize sediment-loading from road-widening activities adjacent to the stream channel.
5. Rather than reconstruct enclosures, evaluate opportunities for construction of a watershed based riparian pasture.

VI. SOURCES OF INFORMATION FROM WHICH THIS REPORT WAS DERIVED:

Personal Communication with:

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VII. REFERENCES:

FWS Species list for Elko Field Office dated 07/26/00
FWS, Endangered Species Act of 1973 as Amended through the 100th Congress, 1988.

FWS, Endangered Species Consultation Handbook, Chapter 7 - Emergency Consultation, received 8/4/95.

Bureau of Land Management. 1988. 6840 Manual. Special Status Species Management, Washington D.C.

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Braun, C.E. 1998. Sage grouse declines in Western North America: what are the problems? Western Assoc. State Fish and Wildl. Agencies.

Saake, Norm and San Stiver. 1999. Nevada upland game, furbearer and waterfowl: status and hunting seasons recommendations. Nevada Division of Wildlife. Reno

Coffin, Patrick and William Cowan. 1995. Lahontan cutthroat trout recovery plan. Region 1, U.S. Fish and Wildlife Service, Portland Oregon.

Ken Wilkinson, Wildlife Biologist, BLM, Elko Field Office 775-753-0351

BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION TEAM

ELKO 14 Fire Complex 2001

FOREST AND WOODLANDS RESOURCE ASSESSMENT

I ISSUES

- Reforestation of woodland species within severely burned areas.
- Potential loss of aspen cover type from fire effects.
- Potential loss of woodland cover types from the landscape.

II OBSERVATIONS

A Background

Fire History

The Elko14 Fires was an umbrella of numerous fires which occurred in the Elko Field Office area. For a complete history of these fires, refer to the Operations Assessment portion of this plan.

There has been no major impact to forest and woodland types by this fire complex.

Vegetation

The major woodland species within the fire areas include Pinyon pine (*Pinus monophylla*), Utah juniper (*Juniperus osteosperma*), and Curlleaf mountain mahogany (*Cercocarpus ledifolius*), Antelope bitterbrush (*Purshia tridentata*) a major deer big game species is also covered under this section due transplant planting.

Aspen (*Populus tremuloides*) is the only significant commercial forest species of concern. Remnant stands of aspen appear widely scattered throughout the district in relatively small stands, some as small as ½ acre to just a few trees left. Relic populations of aspen and Narrowleaf cottonwood (*Populus angustifolia*) still exist along stream courses and around springs and seeps.

The pinyon-juniper cover type was found on all aspects and at elevations generally below 7,500 feet. Aspen was encountered above 7,000 feet. Occasional aspen clones were encountered at lower elevations in draw bottoms, associated with springs and stream courses.

The number and size of the fires involved, and lack of an accurate local database precludes obtaining accurate information on acreage of woodland type within the burned area (or the total woodland acreage burned and to what level of severity).

From 1980 to 1998 it is estimated that about 15,500 forested acres had been lost to wildfires and, combined with major losses in 1999 and 2000, indicate that loss of these habitat types is widespread in Northern Nevada, and that efforts should be made to maintain these species on their native range.

Management Direction

Management direction is outlined in the Resource Management Plan for the Elko Field Office and also Normal Fire Rehabilitation Plans (NFRP's). Specific objectives are:

- Manage suitable forested lands for optimum production of woodland products on a sustained-yield basis while protecting sensitive values.
- Maintain where necessary for management those routes currently servicing pinyon-juniper harvest areas.
- Maintain historical pinyon-juniper woodland areas for noncommercial pine nut gathering by Nevada Indians and all other members of the public.
- Seedlings of native shrubs or trees may be planted as an ESR measure to restore forest productivity.

The primary concern expressed during the Team assessment process was the general decline in acreage of both aspen and woodlands on the landscape due not only to fire loss, but other land management practices as well.

Without active restoration, efforts to maintain and reintroduce these species within the Elko Field Office area will be limited.

This report will emphasize the protection (by enclosures/grazing strategies) of these species as a primary goal of the field areas effected.

Tree Damage/Mortality

Aspen and Cottonwoods: Fire killed aspen and cottonwoods varied by entire stands consumed periphery trees in individual stands and along riparian areas in drainages. For the most part, these stands were not heavily impacted by the fire. Isolated steep drainages in the Neptune, Isolation, Double Mountain and West Pequoop Fires were impacted the most. Mortality occurred from foliage loss as well as cambium damage. All size classes were effected.

Woodland species: There is evidence of some prolonged fire residence time, as indicated by ash patterns, that suggest that heavy contiguous ground fuel existed pre-burn. Some small areas experienced 100% mortality with no needles or foliage remaining. In areas where burned foliage is still present, the needles are blackened and brittle, indicating dead crowns. The results are that the woodland species in these severely burned areas have been eliminated from the landscape. Most woodland areas experienced lower fire intensity and mosaic patterns of unburned or partial burned landscapes. These remnant stands will survive and should regenerate naturally. Some additional mortality will continue to occur for several years as a result of fire induced stress and loss of photo synthetic capability. Stressed trees also encourage mortality from numerous insect and disease pathogens.

Harvest and Fuels Treatment History

The majority of the burned areas have little history of harvest treatments. They have had limited harvesting of small amounts of woodland products such as fuelwood, posts and Christmas trees.

Many stands had high stocking densities, which contributed to the extreme fire intensity.

B Reconnaissance Methodology

Burn area assessment consisted of both aerial and ground reconnaissance and mapping. No area received no inventory by the forester. Information provided by various resource advisors was used as a reference source.

C Findings

Forest Mortality

Levels of fire mortality in woodland areas can generally be categorized as moderate(with less than 30% of the stems killed), mosaic burn (with up to 80% of the stems killed) and stand replacement (> 80% mortality).

Again, due to the magnitude of the fires and areas involved, accurate mapping of all levels of severity and acres effected was not possible. The combined lost forest cover between the Neptune and West Pequop Fires was roughly 450 acres or about 3,150 cords of wood. The amount of aspen/cottonwood forest burned.

Potential Reforestation

Reforestation may be considered in the future on areas within the fire complex that have been moderately to severely impacted. These areas will be monitored for further mortality and may be considered for future treatments.

Potential Salvage

Much of the burned area will be opened to the public to harvest usable products. Sale areas for salvage will be established by BLM staff.

Forest Health

Aspen and cottonwood stands that were burned should regenerate by sprouting. These areas are expected to sprout rapidly and rejuvenate the clones. During the development of this text, suckers were already appearing on the Double Mountain Fire it was documented that livestock were also noted camping on the burned stands and consuming the regeneration. The pre fire condition of these clones contained decadent mature trees that were dying out through natural succession. Post-fire sprouting will return these areas to their early seral stage if the regeneration is protected. Some of these areas can be expected to expand in size over the pre-fire acreage. To ensure the successful replacement of these stands the areas must be protected until the young sprouts have reached a height where browsing will not kill or deform the individual plants. This can be achieved by closing the area to grazing animals by fencing the drainages where the stands occur or by closing the pastures to livestock grazing until the trees attain a height where the livestock will not adversely effect the trees.

Woodland species however will experience just the opposite effect. The intensity of some of the fire has effectively removed some areas of tree cover and associated seed sources. Without management intervention through reforestation, some areas will experience a type conversion within the foreseeable future, from trees to grass and shrub species. Some seed may be reintroduced into these areas to enhance regeneration to woodland cover types. Long term benefits of this action will include, restoring wildlife habitat by providing cover and browse species. Tree cover will break up contiguous fuels and may limit the potential for future catastrophic fires. The planting of pinyon pine would provide a future source of pinyon nut for collection by Native Americans.

III RECOMMENDATIONS

A Management (specification related)

See recommendation W-1a under Soil, Watershed and Aquatic/Riparian Resources Assessment

B Monitoring (specification related)

a. M-1a BLM 98-148 III. C1 Monitoring

General Description: Monitoring aspen stands with walk-thru examinations or establish a grid of fixed plots to ensure that excessive browsing from wildlife and livestock does not inhibit the growth and survival of aspen seedlings. Establish a grid of fixed plots in woodland plantations to insure acceptable levels of seedling survival. All burned quaking aspen and cottonwood stands on the Isolation and Double Mountain Fires should be monitored twice annually for at least 5 years or until sapplings are at least 5 to 7 feet tall.

C Management (non-specification related)

The following recommendations are not related to plan specifications but should be considered. These can not be accomplished through EFR funding.

Salvage of fire killed trees

Harvest operations should take advantage of fire killed species of commercial size and quality, to be utilized for wood products. Scorched or damaged trees with at least 1/3 live crown should not be harvested as they have the potential to survive and provide a local seed source for natural regeneration. The slash that results from this operation will provide a microsite for future natural and artificial regeneration. Slash left on site will also retard the flow of water and soil movement and help to minimize soil erosion.

Continued reforestation

Areas that are type converted to grass and shrub land should be considered as candidates for a continuing reforestation program on the district. A continued effort on the part of management will be required to insure that woodland cover types will remain a viable component of the local ecosystem. Alternative funding sources will need to be located to conduct these projects.

IV CONSULTATIONS

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Ken Wilkinson, Wildlife Biologist, BLM Elko Field Office, 775-753-0351

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**BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
BURNED AREA EMERGENCY REHABILITATION TEAM**

ELKO 14 Fire Complex 2001

CULTURAL RESOURCE ASSESSMENT

I. ISSUES

- a Occurrence of prehistoric and historic archaeological resources, historic structures, and historic landscapes within the burned area and fire suppression area;
- b Potential for impacts to cultural properties consequent to the wildfire, fire suppression and rehabilitation activities;

- c Assessment of fire and fire suppression effects on previously documented cultural resources as well as those identified during the ground disturbance inventories associated with the Elko 14 Fire Complex 2001;
- d Recommendation of appropriate evaluation, monitoring, or preservation treatments for cultural resources affected by fire, suppression, or rehabilitation activities; and
- e Avoidance or mitigation of adverse effects to cultural resources from suppression and rehabilitation activities.

II. BACKGROUND INFORMATION

"Prehistory" and "history" as we understand are the cumulative records of the human experience of perhaps thousands of people for over 12,000 thousand years, as represented by their material remains upon the landscape. Hence, for our purposes, a summary "history" is essentially impossible. In areas such as the Great Basin, as represented by the Eastern Nevada landscape, with its dry climate, excellent preservation and very low development of the land, preservation of material culture tends to be much higher than other parts of the country. As a result the complexity of human interaction with the landscape and natural environment as represented by material remains tends to be greater than many areas. This complexity makes it all the more difficult to comprehensively represent a summary of prehistoric and historic material culture. The majority of this section is drawn from the 1999 BAER plan but is tailored to the present situation.

The following information is intended to be a cursory overview of present knowledge, and is not represented as a comprehensive summary. The purpose of this background information is to provide a framework within which the fire, suppression activity, post-suppression inventory, and recommended cultural resource prescriptions may be considered in context.

The Elko 14 Fire Complex occurred within an area known to archaeologists as the Central Great Basin, characterized by long, north-south trending mountain ranges and valleys known to have been inhabited for approximately 12,000 years. Valley floors are over 5,000 feet in elevation, and mountains tend to be as much as 10,000 above sea level. These valleys were immense lakes during the Pleistocene, at their deepest levels between 20,000 and 12,500 years ago, shrinking to lower levels by 12,600 to 10,600 years ago during a postulated dry period when temperatures were higher than the present and the lakes began to dry up, and the late Pleistocene megafauna were propelled to extinction. From that time until approximately 8,000 years ago, the trend continued; temperatures climbed and peaked at approximately 4,000 years ago, when the climate became cooler and moister much like it is today.

The Central Great Basin was occupied by Western Shoshone peoples at the time that Euro-American contact was first established by Jedediah Smith in 1827-30 and Peter Ogden who traveled through the northern Great Basin Region (1829 -1830) and extended these contacts. The Humboldt River Valley may have been first traveled by non-Indians in 1830-31, by the Bonneville-Walker party. Incidental contact between trappers, mountain men and settlers by the late 1840's, and miners began settling in the area in 1948 following the discovery of gold in California, and accelerated with the discovery of the Comstock in 1857.

Cultural history and sequences, prior to mans contact with non-Indians, is documented according to oral tradition, linguistics, and archaeological research. What is known is that the Western Great Basin has been occupied in excess of 10,000 years, with a subsistence style and lifeway that has been maintained until recent times. For the purposes of this assessment, it is sufficient to say that while arguments concerning linguistics, ethnicity and demography are of significant interest and a source of potential research in the area, the objectives of this assessment are not served by documenting these debates. Suffice that the mandate of this assessment is to ensure that resources damaged by the suppression of fires, or the related rehabilitation efforts must be identified and evaluated.

The operating principal of heritage protection is that the very rare survival of intact elements of the human record upon this erosive landscape is an event to be celebrated. With the added toll of agricultural and industrial land development, each prehistoric and historic archaeological site surviving assumes increasing importance to science, culture and education.

As noted above, Euro-American forays into the fire area began with Euro-American contact initiated by Jedediah Smith's expedition in 1827-30 and Peter Ogden who traveled through the northern Great Basin from 1829 -1830. The Humboldt River Valley may have been first traveled by non-Indians in 1830-31 by the Bonneville-Walker party. The incidental contact by trappers and mountain men accelerated to occupation by settlers by the late 1840's and forays by miners beginning in 1948 with the discovery of gold in California, with the greatest influx of non-native people beginning in 1857 with the discovery of the Comstock Lode. From that time on, the decline of native populations continued with each onslaught of infectious disease, expanded use of the range by cattle, agricultural use of native natural resources and industrial development of roads, railroads, ranches, mines and town sites.

Table CR. 1 2001 Elko 14 Fire Complex Cultural Resource Advisors

Name	Home Office	Work Period
Eric Dillingham	Elko Field Office	throughout fire season
Tim Murphy	Elko Field Office	throughout fire season
Cristina Weinberg	Elko Field Office	throughout fire season
Bryan Hockett	Elko Field Office	throughout fire season
Bill Fawett	Elko Field Office	July through Sept.

III. RECONNAISSANCE METHODOLOGY

Protection of human life and property from wildfire takes precedence over the protection of historic and prehistoric cultural properties. However, the diminishing numbers of archaeological sites (including historic period sites) representing millennia of human life must be provided protection whenever possible, as well as cultural property. Section 106 of the National Historic Preservation Act mandates that

the Federal Government will account for cultural resources in its projects and undertakings. Fire suppression and subsequent rehabilitation efforts are subject to Section 106. Legal requirements are expanded upon below.

Although the initial attack efforts were conducted without any strong emphasis on the protection of cultural resources, attempts were made after suppression efforts were initiated to monitor suppression activities and protect potential cultural properties from inadvertent damage. However, the vast scale of the Eastern Nevada landscape, and the sheer size of the fires involved (up to 53,385 acres), in reality, prevented any effective intervention by the limited cultural heritage resources available to the effort. Informal inventories/damage assessments were subsequently undertaken for selected tractor rehabilitation. Cultural resource protection was a high priority during BAER activities and tasks.

Table CR.2, considered together with the list of issues used to introduce this section of the BAER Plan, represent the primary goals for conducting this cultural resources assessment. The actions taken to meet these goals are also summarized. Secondary goals reflected in the assessment process included (1) adherence to BLM/SHPO protocols concerning approaches to and treatment of cultural resources, (2) full recording or updating of documentation on all cultural resources affected by the fire complex, and (3) protection for or mitigation of adverse effects to cultural properties affected by suppression or post-suppression activity.

**Table CR.2 2001 Elko 14 Fire Complex
Cultural Resource Assessment Objectives and Activities**

Date	Resource Protection	Disturbance Area Inventory	Damage Assessment	Rehabilitation Prescription & Treatment
07/03 thru 07/09	Life and property primarily, avoidance and protection of sites, if possible and if known.	Inspection of eight fires and fireline during and immediately post-suppression	California Trail (two fires) crossed by fireline and signs burnt, railroad grade crossed several times, impacts to prehistoric sites	replace signs and stabilize CA Trail, railroad grade already re-contoured during initial rehabilitation, data recovery for prehistoric sites
7/10-8/04	Elko BLM archaeologists assist writing BAER plan, monitoring of dozer line rehabilitation	Office records reviewed for potential damage in fire areas	lists of historic and prehistoric sites identified for further rehabilitation	hand reseeding, re-signing, testing and data recovery
8/18 - on going	Long-term Evaluation and Enhancements	Suppression disturbance areas and rehabilitation areas	Sites should be identified, marked and avoided for seedings, fencing, etc....	Site evaluation for NR-eligibility status, production of written reports as required by law, and Nevada State Protocol

Cultural resources located in the field by BAER personnel are discussed in detail in the findings section found later in this text. None of the identified historic or prehistoric sites or locales was formally recorded; the principal reason being the inadequate site identification and definition, which would have required a more comprehensive inventory and evaluation than the effort allowed. What is provided are (1) descriptions of resources observed and identification of defining elements, (2) gross numbers of archaeological sites and cultural properties within the burn perimeters, (3) descriptions of the nature and extent of fire effects or fire suppression-related damages, if any, (4) assessments of the risks to cultural resources derived from increased erosion threats or other watershed-related fire effects, and (5) recommendations for actions or treatments for resource stabilization or rehabilitation, including watershed treatments, if applicable.

A guiding principle as well as legal requirement of burned area rehabilitation is to regard archaeological sites and other materially fragile cultural resources as watershed elements; if post-fire conditions indicate erosion threats or other actual or potential watershed problems then cultural resources must receive special attention to ensure that their unique and irreplaceable values are given full consideration.

Incident-related damages to cultural resources fall in two broad categories: fire-related and suppression-related. Fire-related impacts include thermal fracture of obsidian, basalt, chert, granite and other stone artifacts, destruction of structures and features, destruction of organic elements in an occupational or midden deposit, destabilization of soils within a site or landscape with resultant increased erosion, wind deflation of loosened sediments, and increased susceptibility to looting and surface collection due to greater visibility. Suppression related impacts come from disturbance or destruction from dozer or hand line construction, use of sites for fire camp or equipment staging, rehabilitation activities, including restoration of dozer and hand lines, silt basin construction, restoration of range and forest land, and replacement of infrastructure. Effects to sites may be indirect, such as suppression-caused erosion or loss of setting to a site National Register-eligible under categories A, B or C.

IV. FINDINGS

The Elko 14 Fire Complex cultural resource assessment addresses 14 fires, encompassing approximately 53,385 acres, the perimeters of which contain a minimum of 630 previously recorded historic and prehistoric archaeological sites. These sites range from gold mines of the historic era to American Indian camp and quarry sites to food-procurement sites of prehistory. Since many of these activities occur within the same land form, the prehistoric and historic cultural elements of the rehabilitation can be quite complex.

From the period 2000-2001 the Elko Field Area Office has attempted and made progress in its record-keeping of cultural resource inventory and site logs. While computerized data bases are being created and paper data bases are being merged and updated, rapid retrieval of site information is not always possible. In many of the 2001 fire areas there had been little previous archaeological inventories. Hence, accurate information was not immediately available for suppression activities. However the majority of bulldozed firelines were surveyed during and immediately after suppression, with some minor exceptions. It was fortunate for this BAER 14 Fire Complex, in contrast to past years, that the site damage was relatively minor.

Table CR.2 summarizes numbers of recorded cultural resource localities associated with the fires and relevant to the assessment process, reasonably foreseeable rehabilitation actions, or both. It was not possible to assess each site individually. Site assessments must await cultural resource inventory, performed under contract, in advance of the variety of rehabilitation projects recommended in the cultural resource prescriptions.

Table CR.3 Cultural Resources Associated with the Elko 14 2001 Fires

Fire Name	Acres Burned	Number of known sites on or near fireline or otherwise possibly affected (burnt, etc..)	Notes
Bishop	2887	5	California Trail, Oregon Shortline Railroad Grade, approximately five prehistoric scatters, one historic wall; California Trail signing and one site to be tested. Railroad grade needs to be re-seeded and fireline crossing
Bob's Flat	580	0	No rehabilitation planned for cultural resources
Buckhorn	750	0	No rehabilitation planned for cultural resources
Double Mountain	3397	0	Cultural resources survey fo twelve miles of road rehabilitation, possible closure fences and aspen enclosures; no other rehabilitation for cultural resources
Isolation	14,002	7	Fireline did not impact cultural resources or resources were of limited significance; cultural resources survey of eight miles of fenceline
Maggie Creek	11,434	0	Most of bulldozed fireline was on private lands; cultural resources survey for possible road re-building or straw bale emplacement
Metropolis	1,138	2	California Trail re-graded on previously graded area; no new disturbance; one historic ditch unaffected; no cultural resources rehabilitation planned
Mud Springs	546	0	No rehabilitation planned for cultural resources
Neptune	1,513	0	No bulldozed fireline; literature and GLO record search conducted; no rehabilitation planned for cultural resources
Egbert	1,955	1	No impacts on cultural resources; No rehabilitation planned for cultural resources; cultural survey planned for 545 acre seeding and 1-2 fences
Upper Clover	1,993	0	No rehabilitation planned for cultural resources
West Bullion	337	6	One prehistoric site to undergo damage assessment and National Register evaluation; cultural resources survey for potential seeding
West Pequop	3,496		Central Pacific Railroad Grade burned over in one location; three archaeological sites and two isolated finds on selected dozer line found
Wine Cup	9,345	2	One prehistoric archaeological site and California Trail on bulldozed fireline; most rehabilitation and partial avoidance accomplished during suppression; replace burned California Trail signs
Total	53,373		

V. RECOMMENDATIONS

A. Management (Specification Related)

Two specifications were prepared to address known and potential effects to cultural resources. One is addressed to a specific sites and, to generic inventories for dozer line and seeding rehabilitation efforts. It is recommended that each of these 4 specifications be accomplished by contract. Contracts must either address specific rehabilitation needs for properties damaged by the fires, or be written to initiate a large-scale effort to inventory previously un-inventoried areas for potential cultural resources disturbed by previous, or in advance of further ground-disturbing activity.

After inventory, each inventoried cultural property must be evaluated for potential eligibility to the National Register of Historic Places. Only properties eligible to the National Register may be considered as significant, and thus eligible for treatment.

a. C-1a BLM 98-148 III. K Archaeological Resource Damage Assessment

General Description: Suppression and rehabilitation efforts of linear projects at 14 fires during the period of July have damaged or may result in damages to cultural resources. Linear projects include bulldozer lines, road maintenance activities and new fence construction. Although the projects are dissimilar, the cultural resource inventory effort for each is similar and disparate projects may be put together in one contract. Therefore for the purposes of this plan they are treated together.

Construction of approximately 78 miles of bulldozer line, safety zones, and staging areas potentially damaged many cultural resources. Secondary impacts to cultural resources from construction of bulldozer lines may result because these lines have opened areas to the public that were previously not accessible by road.

Several roads were damaged by fire fighting equipment either from repeated use by heavy vehicles or due widening of the roads or two-track trails so they could serve as firelines. The original fire fighting activities may have impacted cultural resources. Planned post-fire road maintenance could add to the damage. Cultural resource inventories are needed to assess the impacts and to prevent new impacts.

New fences are planned to protect seedings or burn areas. These fences will be inventoried for cultural resources and rerouted as necessary to avoid eligible sites.

This prescription will focus on the inventory of disturbed areas or areas which will be disturbed, and the evaluation of historic properties located for potential eligibility to the National Register of Historic Places. All dozer line, damaged roads and proposed new fences will receive survey coverage. Actual field experience may require modification of this assumption. Management recommendations will be developed for eligible historic properties in a manner responsive to the damage and the information potential of the site.

b. C-1b BLM 98-148 III. K Archaeological Resource Damage Assessment

General Description: Areas designated for mechanized seeding for the control of undesirable species and erosion will be inventoried for potential cultural resources. This prescription will focus entirely upon the inventory of disturbed areas and avoidance of cultural resources as specified in Appendix F, Section J (pp 42-43) of the State Protocol Agreement Between the BLM, Nevada and the Nevada SHPO. Inventory standards will vary depending on the type of planned treatment and cultural resource sensitivity. The following are minimal standards. Fire rehabilitation activities that involve mechanized surface disturbance less than 10cm depth will generally have transect spacing of 100 meters. More intense inventory will be used for highly sensitive areas. If surface disturbance is greater than 10cm then 30 meter transect intervals will be used. The BLM, through informal discussions, can agree to modify the inventory approach for individual rehabilitation undertakings.

All cultural resources discovered or relocated will be plotted on maps and at a minimum will be recorded on the Nevada IMACS short form. Resources except those previously determined not eligible, by BLM and SHPO, or that have been fully mitigated, will be flagged for avoidance and avoided during rehabilitation activities. Flagging will be placed to minimize the potential for looting and vandalism and removed as soon as possible after re-seeding is completed. Sites will be hand seeded for camouflage as appropriate.

c. C-2b BLM 98-148 III. K Historic Structure Damage Assessment

General Description: CRNV-12-3445 was damaged by fire line construction during the suppression of the West Bullion fire. The fireline bisects a site containing approximately one hundred items (flakes and flaked stone tools). It is possible that there is a subsurface component to the site. The amount of damage to the site and the National Register status of the site are both unknown. The only way to assess the damage and status is by further testing. Should the damage and National Register assessments both show that suppression efforts damaged a National Register Eligible site, then data recovery will recover all potential information from the archaeological site. Recordation will include archival research, intensive survey and mapping of the surface component, excavation of up to four 1x1 meter units, and preparation of an initial report or memorandum regarding the National Register status of the site.

Should the site be considered National Register eligible, more archaeological excavation would be required by BAER plan amendment.

d. Management (non-specification related)

Two levels of recommendations are relevant: the immediate post-fire treatment and rehabilitation of cultural resources, and the subsequent opportunities for inventory, evaluation and mitigation of selected sites through documentation or oral history as well as the preservation of these few remaining prehistoric and historic cultural properties.

Most all of the small number of necessary and useful stabilization and rehabilitation treatments required for the preservation of cultural resources affected by the fire complex, primarily the inventory of rehabilitated dozer lines, range land seeding and erosion control measures are by necessity to be completed through post-incident activities using suppression or contracted resources. However, the fires may have caused high-intensity impacts of longer duration, principally the destruction of historic cultural properties, including the loss of features, baking of most metal artifacts, melting some, and shattering of nearly all glass objects.

Some prehistoric sites are known to have received direct impacts from dozer line construction. At the present, this damage appears to be restricted to the damage to and displacement of stone tools. At one site, however, it may extend to the disturbance of cultural deposits. Stabilization recommendations must necessarily await professional evaluation as well as permission by private property owners. Resources are located on federal and private lands. If permission is not granted by the property owner(s), no cultural resource inventory or stabilization work will be done.

In addition to the immediate physical effects of the fire, significant post-fire damage to sites will certainly accrue from sheet erosion and gullying resulting from accelerated runoff, particularly due to thunderstorms. The effects of these post-fire impacts will have long-term adverse consequences for many of these sites, primarily from accelerated erosion, but also from post-fire stabilization activities including supplemental erosion control, greater access and visibility, revegetation and reforestation.

In particular, post-suppression rehabilitation through rangeland seeding by drill, plow or chain may potentially effect historic and prehistoric cultural properties. Any rehabilitation work within these areas must be carefully coordinated with the archaeologist assigned to the project. Mitigation options range from complete avoidance to data recovery, in consultation with SHPO.

All equipment operations on private and public lands contribute to potential adverse effects which, although perhaps individually minor, will be significant in the long term. All post-fire rehabilitation measures, whether done force-account or through contract, should have specific site protective measures applied to the work. As opposed to a fire emergency, these operations are not related to the immediate protection of life and property. As a consequence, inadvertent damage to cultural resources must be prevented. Accordingly, the following non-specification related recommendations are pertinent:

1. Rehabilitation contracting should be guided by specific language in contract specifications which address the requirement to protect identified cultural resources. The sites must be flagged, and GPS/GIS mapping of the site locations. The map should be included as supplemental provisions of the contract. The contractor and his crew should be briefed as to site locations and identifying flagging, and of the requirement to follow specific site treatment recommendations. Archaeological monitors should be in direct contact with the COR and BLM representative to ensure compliance with the cultural resource protection requirements.

2. A post-project inspection should be undertaken, and compliance with the site protection requirements should be a specific evaluation item in the final inspection and compliance report.

3. If more archaeological sites are found to have been damaged during suppression or rehabilitation on private and public lands, then appropriate measures to record these (surface mapping, testing and/or data recovery) may be necessary to assess damage and record the National Register status.

4. Efforts to document and reorganize BLM cultural resource records in the BLM - Elko Field Office should continue. In particular, staff and temporary archaeologist should update paper maps and paper and electronic data bases as well as provide further GIS coverage of the Elko District.

VI. OBSERVATIONS

On August 3, 2001 I monitored and directed a Nevada Division of Forestry honor camp crew during the rehabilitation of three sections of damaged historic railroad grade and one section of the California Historic Trail. Clay McCormick was the honor camp crew boss. There was no dozer for rehabilitation efforts.

The three sections of damaged railroad grade were rehabilitated by hand. The honor camp crew smoothed dozer berms off the top of the grade, repaired the slope on the sides of the railroad grade, leveled off berms on the adjacent ground, and cleaned out excess dirt and debris from the railroad grade. Dirt from the dozer berm was added to fill dozer holes on the railroad grade and adjacent ground as needed. No seeding was done.

The section of California Historic trail had large dozer berms on both sides. The berms were leveled off by hand by the honor camp crew and sagebrush from the berms were spread out on top of the adjacent dozer line and on the spot where the berms had been located. No seeding was done. Small dozer berms were taken down for about 15 meters South of the California Historic Trail.

VII. CONSULTATIONS

Table CR.3 Consultations Concerning the Eastern Nevada Fire Complex

Consultant	Dates	Subjects and Results of Consultation
Eric Dillingham, Archaeologist, Bureau of Land Management, Elko Field Office	July-August 2001	Fire Archaeologist on several BAER 14 Fire Complex Fires, surveyed dozerline, reported damage, assisted in preparation of BARE plan
Teresa Panter, Archaeologist, Elko Field Office	July-August 2001	Fire archaeologist and post-suppression damage assessment archaeologist on several fires; reported to BAER archaeologist and BAER Team
Shawn Gibson, Archaeologist, Elko Field Office	July-August 2001	Fire archaeologist and post-suppression damage assessment archaeologist on several fires; reported to BAER archaeologist and BAER Team
Michelle Wiseman, Archaeologist, Elko Field Office	July-August 2001	Fire archaeologist and post-suppression damage assessment archaeologist on several fires; reported to BAER archaeologist and BAER Team
Danielle Storey, Archaeologist, Elko Field Office	July-August 2001	Fire archaeologist and post-suppression damage assessment archaeologist on several fires; reported to BAER archaeologist and BAER Team
Tim Murphy, Archaeologist, BLM, Elko Field Office	July-August 2001	Technical and library assistance, overall guidance

VII. REFERENCES

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