

AMENDED BURNED AREA EMERGENCY REHABILITATION PLAN  
MINIDOKA NATIONAL WILDLIFE REFUGE

South Refuge Fire  
26 July 2000

Lake Walcott Fire  
23 August 2000

Note: This is an amended BAER plan. The original plan only included the South Refuge Fire. The Refuge staff can only seed about 300 acres in one fall and only that much seed will be available. Therefore, it seemed logical to combine the previously submitted BAER plan proposal with this proposal, and to seed only the best ground in the two fires. Most information relating to the South Refuge Fire has not been changed since the previous plan.

The seed requested below is being held for us at no obligation, but we should either buy the seed soon or release it so the company can sell it to another buyer.

I. Background:

Minidoka NWR was established in 1909 by Executive Order by Teddy Roosevelt. It is an overlay refuge on the Bureau of Reclamation Minidoka Project on the Snake River. The Refuge includes Lake Walcott and almost all of its shoreline to distance of 0.5 to 1.5 miles from the reservoir. The Refuge is 20,699 acres, about half is upland and half reservoir and associated wetlands. The Refuge lies in southcentral Idaho in the Snake River Plain. The Refuge supports several colonies of water birds and large numbers, up to 100,000, waterfowl during the summer molt and fall staging prior to migration. The uplands support sagebrush vegetation. The Snake River Plain Big Sage habitat type has been converted to agriculture or degraded by the loss of native species and invasion of exotic annual grasses. Less than 2% of this habitat type remains in good condition (Noss, R. F., E. T. LaRoe, and J. M. Scott. 1995. Endangered ecosystems of the United States: A preliminary assessment of loss and degradation. USDI, National Biological Service. Biological Report 28. Washington, D.C., 58pp.).

The Refuge is in a high fire frequency area. The Refuge can expect one or more wildfires almost every year. More than half of the fires originate from lightning. About half of the fires originate on the Refuge. Size averages over several hundred acres and ranges from a few acres to several thousand acres.

2. Site Information:

2A. South Refuge Fire

2A.I. Location and Size: The fire was in Township 9S, Range 27E, Sections 7,17,18,19,20 and 21 and in Township 9S, Range 26 E, Sections 12 and 13, Boise Meridian. Approximately 1600 acres burned on Minidoka NWR and 300 -400 acres of BLM land burned.

2A.2. Soils: Soils in the burned area are shallow and vary from sandy loam to coarse gravel. Several sites contain wind-deposited sand dunes.

2A.3. Topography: The area is generally rolling, open terrain with numerous outcrops of basalt. The northern border of the fire is the shore of Lake Walcott, an 11,300 acre reservoir. About 4.5 miles of shoreline was burned. Elevation averages about 4,200 feet.

2A.4. Climate: The area is semi-arid with average precipitation of 8 inches per year. Average minimum temperature in January is -5F while maximum average for July is 97F. Much of the precipitation comes in the form of snow during the winter months.

2A.5. Vegetation prior to fire: The uplands are classified as sagebrush. The overstory is composed primarily of sagebrush with smaller amounts of rabbit brush and traces of bitterbrush. The understory in places is largely cheatgrass (downy brome). Crested wheat grass and native grasses are also present and include of western wheatgrass, Indian ricegrass, needle-and-thread, squirreltail and Sandberg's bluegrass. Native and introduced forbs are also present. The riparian vegetation is a narrow strip which consists of willows, currant, Russian olive and numerous forbs.

2A.6. Intensity of fire: The fire intensity ranged from moderate to high in various places throughout the burn. In some places the brush species were entirely consumed, while in other places only fine fuels were consumed and the stems of the brush are still standing. There were no islands of unburned vegetation on lands managed by Minidoka NWR; there were islands of unburned areas on Bureau of Land Management lands.

2A.7. Hydrology: The burned area has no perennial streams, but during heavy precipitation events run-off can reach the reservoir (Lake Walcott). The burned area includes about 4.5 miles of reservoir shoreline.

2A.8. Land Ownership: About 1600 acres of the burned area is managed by the U. S. Fish and Wildlife Service (Service); about 300-400 acres of Bureau of Land Management lands burned. All of the land managed by the Service is actually Bureau of Reclamation land.

## 2B. Lake Walcott Fire

28.1. Location and Size: The fire originated in Township 9S, Range 26E, Section 4 and burned into Sections 2, 3, 9, 10, 11 and 12, Boise Meridian. Approximately 1300 acres burned on Minidoka NWR. Only Refuge lands were involved.

28.2. Soils: Soils in the burned area are shallow and vary from sandy loam to coarse gravel. There is one area of sand dunes that did not burn; it was covered primarily with native grasses.

28.3. Topography: The area is generally rolling, open terrain with a few outcrops of basalt. The northern border of the fire is the shore of Lake Walcott, an 11,300 acre reservoir. About 3.5 miles of shoreline was burned. Elevation averages about 4,200 feet.

2B.4. Climate: The area is semi-arid with average precipitation of 8 inches per year. Average minimum temperature in January is -5F while maximum average for July is 97F. Much of the precipitation comes in the form of snow during the winter months.

2B.5. Vegetation prior to fire: The uplands are classified as sagebrush. The overstory is composed primarily of sagebrush with smaller amounts of rabbit brush and traces of bitterbrush. Crested wheatgrass and native grasses are also present and include of western wheatgrass, Indian ricegrass, needle-and-thread, squirrel tail and Sandberg's bluegrass. Cheat grass (downy brome) is present in some places, occasionally in extensive patches. This exotic grass is less common on this burn than on the South Refuge Fire. Native and introduced forbs are also present. The riparian vegetation is a narrow strip which consists of willows, currant, Russian olive and numerous forbs.

2B.6. Intensity of fire: The fire intensity ranged from moderate to high in various places throughout the burn. In some places the brush species were entirely consumed, while in other places only fine fuels were consumed and the stems of the brush are still standing. Some of the large willows (18-20 inch dbh) on the shore were killed.

2B. 7. Hydrology: The burned area has no perennial streams, but during heavy precipitation events run-off can reach the reservoir (Lake Walcott). The burned area includes about 3.5 miles of reservoir shoreline.

2B.8. Land Ownership: About 1300 acres of the burned area is managed by the Service.

### 3. Resource Uses: (South Refuge & Lake Walcott Fires)

Note: Both fires will be covered together. They were both on the same side of the reservoir and are separated by less than a mile of unburned ground.

Vegetation: Most of the vegetation was sagebrush type with some rabbitbrush mixed in. The understory was grasses and forbs. Some native species of grasses dominated patches, while cheat grass or crested wheatgrass dominated the understory in other locations. The sagebrush was predominantly the Wyomingensis subspecies that is heavily used for food by wintering mule deer and pronghorns. The Lake Walcott fire included extensive areas of crested wheatgrass seedlings.

Songbird: This group of species used the burned areas from spring through fall for nesting and foraging. Species present that are associated with sage are sage thrasher and Brewer's sparrow; these species are declining because of the loss of sagebrush habitat. Other species present in the areas prior to the burn were vesper, lark and grasshopper sparrows, loggerhead shrike, homed larks, and western meadowlark.

Game Birds: Pheasants, gray partridge and sharp-tailed grouse were present in areas burned by both fires. The Lake Walcott fire burned within 30 yards of the only sharp-tailed grouse lek on the Refuge.

Raptors:: Red-tailed, Swainson's and ferruginous hawks, northern harrier, golden eagle, and short-eared owl nest nearby and use the areas for hunting during spring through fall. During the winter rough-legged and red-tailed hawks use the areas for hunting. Occasionally other species such as prairie and peregrine falcons, American kestrel, sharp-shinned hawks use the areas, primarily during migration. Bald eagles forage and roost along the reservoir shoreline during fall, winter and early spring.

Ungulates: Mule deer and pronghorns use the areas year round and are dependent on the brush species, especially sagebrush for food during the winter. Pronghorn use was heaviest on the South Refuge burn.

Herptiles: Species present in the burned areas include western chorus frog, northern leopard frog, western terrestrial garter snake, western rattlesnake, gopher snake, racer, sagebrush lizard~ western skink, and longnose leopard lizard.

Threatened and Endangered Species: Sharp-tailed grouse, a recently petitioned species, use these areas year round, and the Lake Walcott Fire nearly burned a lek that has been used for the last 3 years. An endangered snail, the Utah valvata (*Valvata utahensis*) live in the reservoir adjacent to the burns.

Public Use: The South Refuge Fire burned along an access road to a popular fishing site. This area is not open to hunting. The Lake Walcott Fire burned about half of the upland habitat and most of the shoreline in the hunt area.

#### 4. Evaluation and Analysis

4.1 On Site Physical Habitat Damage: The vegetative cover was almost completely removed. In many places the brush stems were consumed right into the ground. In other places the stems are dead, but still standing. Where native grasses were present, they will likely resprout next spring. Cheat grass will also sprout next spring. In the meantime there will be no ground cover over the winter. Some of the biotic soil crust appears to have survived, although it is very difficult to evaluate its viability at this point simply by looking at it. There may be some chance of water erosion near the reservoir shoreline where the lack of vegetation will allow some silt and nutrients from the ash to run into the reservoir after a major precipitation event. There may be some wave erosion on the reservoir shoreline where emergent vegetation and willows were burned. There are 50-100 acres of sand dunes in the South Refuge Fire that were stabilized by the burnt vegetation. The sand in these areas will move with the wind during fall and winter. The sand could blow into the reservoir in some places, possibly affecting the Utah valvata snail. The sand dunes in the Lake Walcott Fire did not burn.

4.2 Damage to Structures: The only physical structures in the fire were fences and signs. Damage caused by suppression activities has been repaired, with the exception of one cut through the boundary fence. There are still breaks in the wire in several locations that will require fixing soon to keep cattle out. The face of many of the refuge boundary and hunting area signs was burned off, and several other signs were damaged by retardant drops

4.3 Offsite Nonphysical Damage: There will likely be some suspended sediment problems at the shoreline areas that burned, from run-off from large precipitation events and from wave erosion along a cut bank. About 3 Yz miles of shoreline are exposed sand, the rest is rock. Sediment run-off from these sandy areas could have negative effects on Utah valvata snails.

#### 4.4 Damage to Wildlife Habitat :

Songbirds: Habitat for brush associated songbirds (Brewer's, vesper, and lark sparrows, sagethrasher, and western meadowlark) was eliminated. The area is unlikely to support adequate brush for these species for at least 15-25 years. Homed larks will be favored by the reduction in brush cover. Much of the crested wheatgrass was nesting area for grasshopper sparrows, a species that has declined by 2/3 in the US in the past few decades. They require little or sparse brush and dense residual grass cover from previous years for nest sites. They will suffer loss of nest habitat next year, but increased habitat in the next 15-25 years after the residual grass cover improves.

Ungulates: Mule deer and pronghorn habitat has been lost. Both species use sagebrush for escape cover and for feeding. This represents significant loss on the Refuge, especially when other fires in the past 10-15 years are considered. Cumulative losses are much higher than the current burn.

Upland Game Birds: Ring-necked pheasants, gray partridge and sharp-tailed grouse all occur in the burned area. All used the brush as nest and escape cover.

4.5 Benefit & Risks: If native grasses can be established future fire damage and frequency will be reduced. Well established native grasses can exclude annual exotic grasses, such as downy brome, even following fires. Once established they could eliminate the need for future fire rehabilitation, because they resprout the next spring. Past experience with natives here, suggest that they can recover on a site following fire and at the same time exclude downy brome if they are not stressed by fire or grazing for a year or two after wildfire. The problem is that there is a rather sparse and scattered coverage of native grasses in the burned area. A stand of native bunch grasses should be more resistant to fire in the future as it is a less continuous fuel bed and is not as fine a fuel as downy brome. This should reduce future fire frequency and size of fires. These sites are not grazed, so once established native grasses should not be stressed by livestock. The crested wheatgrass seedlings also will resprout and will exclude downy brome.

The risk is that seedlings of native grasses may fail to establish if there is inadequate precipitation. Recent seedlings here have failed or done exceptionally well, depending on weather conditions. If seedlings fail, all efforts and seed costs are lost.

A second risk if nothing is done will be that downy brome and noxious weeds may increase. Without grazing and with the fire intensity that we experienced in this burn most of the native grasses will survive. If this area is not grazed or burned again next year the vegetation should not degrade much. The same fire danger will remain from the dense stands of downy brome.

## 5. Rehabilitation Needs and Objectives

### 5.1. Rehabilitation Alternatives:

5.1a. No Action: Allow natural revegetation. This would be the least expensive alternative in the short term. There would be no improvement in wildlife habitat, vegetation, or in future fire susceptibility. If fire frequency stays high, future suppression costs will be recurring costs in the long term. Spot spray infestations of state-listed noxious weeds.

5.1.b Selective Rehabilitation: Rehabilitate selected areas where native grasses do not presently occur, especially in areas that might affect listed and petitioned species and areas that sand dunes may blow. Seed with native grass mixtures about 300 acres of upland and plant willow cuttings on about 0.5 mile of exposed sand cutbanks along the reservoir. This will provide some habitat for upland birds and ungulates and will help revegetate the shoreline to reduce wave erosion. Spot spray infestations of state-listed noxious weeds.

5.1c. Complete Rehabilitation: Aerial spray Oust® over the burned area, leaving adequate buffer along the shoreline. Oust® inhibits plant growth and can control downy brome for 1-2 growing seasons, but when applied at the proper rates will allow existing perennial grasses, forbs and shrubs to persist. It is usually applied in the fall of the fire. Native grasses can be planted the following fall. Drill native grass seed where possible; aerial seed native grasses over the rest of the burn, then chain to bury the seed. Seed cannot be drilled over much of the area because of rock outcrops. Spot spray infestations of state-listed noxious weeds. Minidoka NWR currently does not have authorization to use this herbicide from the Regional Integrated Pest Management Specialist.

5.2. Treatment Recommendations: Alternative 5.1 b is recommended. This will allow us to focus on the areas where rehabilitation is possible and on the areas where it is needed most. The seed will be drilled, or broadcast and chained in fall 2000. We plan to seed with 12 lbs of mixed grass seed per acre. Six species are planned for the mix, Sandberg's bluegrass, Great basin wildrye, bottlebrush squirreltail, blue bunch wheatgrass, western wheatgrass, and needle-and-thread. These species all naturally occur on the Refuge and all are adapted to arid climates. The area will not be grazed in the future to allow the native grass to grow without disturbance. Infestations of state-listed noxious weeds will be sprayed with approved herbicides.

Willow cuttings will be taken from willows existing on the Refuge or nearby and planted within a week after collection. Cuttings need to be planted during the dormant season. Planting will be done during March and early April 2001.

## 6. Environmental Considerations

6.1. Impacts of Proposed Alternative: Proposed rehabilitation actions should have no impact on endangered or petitioned species, and should benefit them over the long term. If the seeding is successful habitat conditions for all species will be improved and future fire damage and fire frequency will be reduced. If the seeding fails the habitat conditions will be no worse than if left untreated. Willow plantings will stabilize the sand cutbanks and will reduce suspended sediments in the reservoir. This will benefit the Utah valvata snail. Any herbicides that will be required already have been approved for use by the Regional Integrated Pest Management Specialist. An archaeological clearance will be undertaken before any ground disturbing

activities.

6.2. Relation to Other Plans: This BAER Plan is consistent with the Refuge Fire Management Plan. The most recent Fire Management Plan states the top two objectives for habitat management in relation to fire were 1) "to retain the refuge uplands in as natural a state as possible, maintaining native plants over introduced species when possible" and 2) to "maintain natural diversity of plants to encourage wildlife diversity." The Fire Management Plan was written before the endangered snails and sharp-tailed grouse were found on the Refuge and before the sharp-tailed grouse was petitioned for listing so it does not address these two species specifically. Minidoka NWR is scheduled for CCP about 2005 or later. The Refuge is operating under a Refuge Management Plan written in the early 1990's. This plan also was written before the discovery of Utah valvata snails on the Refuge and before sharp-tailed grouse were petitioned. This BAER Plan is also consistent with the Management Plan. Among the wildlife goals statements are: "provide safe habitat for naturally occurring wildlife species threatened with extinction" and "maintain natural ecological diversity on refuge lands".

6.3. We will comply with Idaho State and Cassia County noxious weed laws and ordinances. The recovery plan for the Snake River Mollusks, which includes the endangered Utah valvata, calls for restoration of damaged riparian area. The proposed action is consistent with the recovery plan. Herbicide use will comply with all Service, Federal, and State policies and laws.

## 7. Monitoring and Evaluation

### 7.1. Monitoring Process

7.1.1. Proper Implementation: The seeding operation will be constantly monitored to make sure that the seed is being planted at the proper rate and depth. Willow cuttings will be planted following directions in Bentrup, G., and J. C. Hoag. 1998 (The practical streambank bioengineering guide. USDA, NRCS, Plant Materials Center, Aberdeen, ID). For best establishment cuttings need to be planted during the spring while plants are still dormant. We have successfully established willows at other locations on the Refuge following these guidelines.

7.1.2. Implementation Effect: Ten line transects will be established in the seeded and unseeded areas. At least 50 points will be sampled for species present on each transect. Random sample site selection procedures will be used. Transects will be run for 3 years following seeding. Transects should be sampled in mid to late June, a time of maximum vegetative growth on the upland sites. Statistical design will be an ANOVA factorial design with treatment and year after seeding being the 2 factors. Photo points will also be established in the seeding. Only photo points will be used to monitor the efficacy of the willow cuttings.

### 7.2. Documenting Results and Accomplishments:

The BAER Project Completion Report will be completed at the end of the monitoring. It will include statistical results and photo documentation of the project. Brief annual progress reports will be completed by 1 December of each year.

## 8. Summary of Anticipated Resource Needs

8.1. Treatment Unit: Two treatment units will be seeded. The treatment unit in the South Refuge Fire is about 900 acres in size, but only about 150 acres can be drilled because of rock outcrops. About 0.5 mile of the shoreline of this unit will be planted with willow cuttings. The treatment unit in the Lake Walcott Fire is about 600 acres, but only about 150 acres will be seeded because perennial and native grasses already exist in much of the area. Both treatment units are managed by the Service.

8.2. Cost:

Most of the funds will be used in FY01, but monitoring and weed control costs will extend into FY03.

Grass Seed

Species	lbs/ac	cost/ac	total cost
bottlebrush squirreltail	0.6	\$15.00	\$4500
blue bunch wheatgrass	4.2	21.00	6300
Great Basin wildrye	1.8	18.00	5400
Sandberg's bluegrass	2.4	16.50	5040
needle-and-thread	0.6	27.00	8100
western wheatgrass	2.4	7.20	2160
rice hulls	4.0	1.4	420
Total	12.0	\$106.40	\$31920

Weed Control

	amount	cost/gal	total
Adjuvant	2 gal	25	50
Clarity	10 gal	95	950
Total			1000

note: Ten gallons will be sufficient for 3 years control of noxious weeds.

Staff Time

	number of staff days	cost/day	total
Planning and purchasing (1 person)	5	250	\$1250
Weed control (1 person) 6days/yr for 3 yrs	18	200	3600
Seeding (1 seeding & part time support)	30	200	6000

Plant willow cuttings (2 persons)	10	200	2000
Monitoring & evaluation (1 person) days/yr for 3 yrs, & 3 days for set up	18	250	4500
Total	72		\$17350

#### Miscellaneous

Fuel		\$1200
shipping for seed		200
Equipment Repair		1500
Archaeological Clearance		3000
Total		\$5900

#### Total Costs

Item	Cost
Seed	\$31920
Staff Time	17350
Weed Control	1000
Miscellaneous	5900
Total	\$56170

### 9. Maps & Figures

9.1 Maps stored in project file.

9.2 Boundary of treatment Unit:

See the maps above for the boundaries of the treatment units. Not every acre within the treatment units will be seeded. Areas with existing native grasses and rock outcrops will not be seeded.

Weed control will take place within the entire bum area.

9.3. Photographs of Resources to be Rehabilitated: Stored in project file.

### 10. Cost/Risk Analysis

There is a risk associated with no action and with the proposed action. With no action there is a risk that downy brome will increase and future fire frequency will increase, further reducing

wildlife habitat. This will lead to increased suppression and rehabilitation costs in the future. It will result in lower carrying capacity for wildlife, including the endangered Utah valvata snail and the sharp-tailed grouse which has recently been petitioned for listing. No action will guarantee at least current conditions, and most likely worse conditions in the future.

The proposed action will cost in excess of \$50,000. There is no guarantee that the seeding will succeed. We have had failures and great successes in recent seedings. At least a portion of the failures might be attributed to poor weather conditions, but part was attributed to planting too deeply. We have resolved this problem. The successful seedings are thick healthy stands of native grasses. These stands provide good wildlife habitat, while at the same time are less likely to burn and if they do burn will not require expensive revegetation. In short, these successful seedings have reduced future suppression and rehabilitation costs while providing-better habitat for wildlife. The proposed action offers this same scenario for the future on the South Refuge and Lake Walcott Fires.