

2B. Habitat Improvement (40 pts)

In July 2012, the Marvel Complex Fire ignited on public lands administered by the Bureau of Land Management (BLM) Upper Snake Field Office. Due to strong, gusty winds and hot dry conditions, the fire quickly spread, resulting in the consumption of about 4,575 acres of early-seral sagebrush steppe identified as priority greater sage-grouse habitat. Areas burned included BLM-administered Big Desert Allotment and 240 acres of the adjacent Sage Hills Ranch. Portions of the BLM grazing allotment will be closed to livestock grazing until adequate vegetation recovery takes place.

Rangeland managers have prepared an Emergency Stabilization and Rehabilitation (ESR) Plan for the burned area, which will help them receive emergency funding. The area qualifies for this funding because it has been identified as high priority due to the widespread loss of sagebrush cover related to habitat quality for sage-grouse. Three known leks were burned over and another 25 are within 5 km of the fire perimeter. Concern for weeds taking over burned areas has also been identified. About 72 acres of noxious weeds, including leafy spurge, spotted knapweed, and rush skeletonweed, have been identified within portions of the burned and surrounding area. Cheatgrass is also prevalent.

To improve the diminished ecological condition caused by the burn, the field office is proposing two different treatments to reestablish sagebrush and native grasses and forbs into this preexisting sage-grouse habitat. Treatments include drill-seeding with a mix of native perennial grasses and forbs followed by a separate drill-seeding for sagebrush. Sagebrush will be drilled in long narrow strips spaced approximately 200 feet apart throughout the designated seeding boundaries following the initial grass and forb seeding. The treatment will be completed using a Truax® drill owned by the BLM and a leased tractor.

- **Forb and grass seeding:** The area chosen to be seeded with perennial grasses and forbs makes up 70% of the BLM land impacted by the fire. Contracted labor and equipment to complete the seeding will cost \$6.80/acre.
- **Sagebrush seeding:** Of the area seeded with forbs and grasses, 9% will be drill-seeded with the sagebrush mix. Labor and equipment costs will be absorbed by field office.
- **Weed treatment:** Inventory and spot treatment with herbicide will take place throughout the entire BLM-managed burn area. Weed treatment costs \$1.87/acre.
- **Fencing:** Several portions of fencing will need to be repaired to protect treatments during recovery periods. Replacement materials include steel posts, braces, stays, gate materials, wire, and all applicable mounting hardware. Materials cost \$2,571.43/mile. Construction of 3.5 miles of fence will be completed by the Upper Snake Field Office seasonal fence crew.

Drilled Native Grass & Forb Seed Mix

Species/Variety	Lbs/acre	Cost/lb
'Anatone' Bluebunch Wheatgrass	4.0	\$3.29
'Secar' Snake River Wheatgrass	4.0	\$2.14
'Nezpar' Indian ricegrass	1.0	\$3.64
'Sherman' Big Bluegrass	1.0	\$3.84
Blue Penstemon	0.125	\$24.48
Silvery Lupine	0.125	\$50.00
Basalt Milkvetch	0.125	\$67.32
TOTAL	10.375	\$154.71

Drilled Sagebrush Seed Mix

Species/Variety	Lbs/acre	Cost/lb
Wyoming Big Sagebrush	0.75	\$7.57
Basin Big Sagebrush	0.25	\$10.21
TOTAL	1.0	\$17.78

Questions: **Show Calculations (use back of sheet if needed)**

1. What is the cost for the perennial grass and forb seeding treatment (seed and labor)? (15 points)
2. What is the cost for the sagebrush seeding treatment? (10 points)
3. What is the cost for the weed treatment? (5 points)
4. What is the cost for materials to repair fences damaged by the fire? (5 points)
5. What is the grand total for the treatments included in this ESR Plan? (5 points)

2B: Habitat Improvement Scenario

Answers:

1. Forb and Grass Seeding

Total acres treated = 4,575 acres total – 240 acres of Sage Hills Ranch = 4335 acres BLM x 70% = 3034.5 acres

Total seed cost = \$46.925/acre (see table below) x 3034.5 acres = \$142,393.90

Labor cost = \$6.80/acre x 3034.5 acres = \$20,634.60

Total cost (seed + labor) = \$163,028.50

Drilled Native Grass & Forb Seed Mix

Species/Variety	Lbs/acre	Cost/lb	Cost/acre
'Anatone' Bluebunch Wheatgrass	4.0	\$3.29	\$13.16
'Secar' Snake River Wheatgrass	4.0	\$2.14	\$8.56
'Nezpar' Indian ricegrass	1.0	\$3.64	\$3.64
'Sherman' Big Bluegrass	1.0	\$3.84	\$3.84
Blue Penstemon	0.125	\$24.48	\$3.06
Silvery Lupine	0.125	\$50.00	\$6.25
Basalt Milkvetch	0.125	\$67.32	\$8.42
TOTAL	10.375	\$154.71	\$46.925

2. Sagebrush Seeding

Total acres treated = 3034.5 (acres treated in #1) x 9% = 273.11 acres

Total seed cost = \$8.23/acre (see table below) x 273.11 acres = \$2,247.65

Drilled Sagebrush Seed Mix

Species/Variety	Lbs/acre	Cost/lb	Cost/acre
Wyoming Big Sagebrush	0.75	\$7.57	\$5.68
Basin Big Sagebrush	0.25	\$10.21	\$2.55
TOTAL	1.0	\$17.78	\$8.23

3. Herbicide Treatment

Total acres treated = 4335 acres (total acres burned – private acres burned)

Treatment cost = 4335 acres x \$1.87/acre = \$8,106.45

4. Fencing

Miles of fence = 3.5

Total construction cost = 3.5 miles x \$2571.43/mi = \$9000

5. Grand total cost for ESR Plan = \$163,028.51 + \$2,247.70 + \$8,106.45 + \$9000 = \$182,382.66