Cutler Meadow Restoration
Scoping Document
Gardiner Ranger District
Gallatin National Forest
March, 2006

Introduction

The Gardiner Ranger District proposes to restore a native plant community to the Cutler meadow, a former 155 acre agricultural alfalfa field acquired from the Royal Teton Ranch though the Rocky Mountain Elk Foundation in 1999. The Cutler meadow is located west of the Yellowstone River about 13 miles north of Gardiner, Montana, just upstream from Yankee Jim Canyon. The restoration project is the first in a series that will focus on restoring native plant communities to acquired agricultural lands in the Gardiner Basin. The Cutler meadow was tilled and irrigated throughout the twentieth century until 1999. A water right was acquired with the purchase. Native vegetation has disappeared and a variety of weeds have invaded the site.

Cutler meadow looking north toward Dome Mountain

In April, 2005, Yellowstone National Park, the Gallatin National Forest, and the Center for Invasive Plant Management at Montana State University sponsored the Gardiner Basin Restoration Workshop. A group of restoration experts convened to develop recommendations for a restoration plan for acquired properties within the Gardiner Basin.

Cutler Meadow Restoration Goal

Restore a mosaic of sustainable native plant communities that provides for wildlife habitat and forage.

Restoration Strategy

1. Soil tests – Spring, 2006
2. Treat existing vegetation with herbicide when plants are fully emerged – Summer, 2006
3. Follow up spot herbicide treatment of alfalfa, Canada thistle and Russian knapweed – Summer, 2006
4. Chisel plow to fracture historic plow layer – Fall, 2006 or Spring, 2007
5. Harrow – immediately following plowing
6. Fertilize as prescribed by soil tests
7. Irrigate (water rights were acquired with the property) – Summer, 2007
8. Install an 8-foot temporary woven wire fence (with gates) on 3 sides of the 155 acres (not the river side). Gates will be opened during wildlife migration periods and during winter months (volunteer projects if possible) – Summer, 2006 and 2007
9. Drill seed into plowed field – Fall, 2007
10. Spot treat invasive weeds as necessary – Summer, 2008
11. When native plants are established, remove woven wire fence (volunteers).

Cutler meadow looking south

Plants Under Consideration

- Bluebunch wheatgrass
- Western wheatgrass
- Great Basin big sagebrush
- Great Basin Wyoming sagebrush
- Rabbitbrush
- Great Basin wildrye
- Sandberg's bluegrass
- Green needlegrass

- ❖ Slender wheatgrass
- ❖ Idaho fescue
- ❖ Sand dropseed
- ❖ Lupine
- ❖ Buckwheat
- ❖ Yarrow

Restoration Steps

1. Soil test – 7 pits (1 pit/20 acres), test for N,P,K,S,B, soluble salts, exchangeable Na, electrical conductivity, pH, organic matter, plow layer. Be prepared to till the trace elements in well during the harrowing stage, especially any needed phosphorous. Needed nitrogen, on the other hand, wouldn't be applied until after the grass seedlings are 12 to 16 months old. Identify depth of plow layer and need for fertilization

   Who: Gallatin Forest Soil Scientist
   When: Spring, '06

2. Treat existing vegetation when fully emerged – Spring application of roundup (16 oz/Acre) with ammonium sulfate (NH4SO4) enhancer OR a fall application followed by a spring application if needed. Consider a fall and spring application if fall rains support a fall green up flush of annuals.

   Who: Contract Boom Sprayer
   When: Earliest would be Fall, '06 followed by Spring, '07

3. Spot treat Canada thistle and spotted and Russian knapweed at bud to early flowering stage – Milestone (5-7 oz/Acre) or Transline (1 pint/Acre) as an alternate if Milestone isn't permitted. All broadscale applications should consider using non-persistent herbicides instead such as roundup, 2,4-D, etc.

   Who: Current weed spraying contractors
   When: Ongoing through life of project

4. Spot treat alfalfa to reduce wildlife attraction at pre flower stage, ie maximum foliage – Starane (3/4 pint/acre) and Dicamba (4 oz/Acre).

   Who: Current weed contractor
   When: OPTIONAL if prior weed treatments are not successful in killing or minimizing alfalfa

5. Chisel plow 10" deep (minimum) to fracture historic plow layer in early summer– Use a 135 to 145 horse tractor, such as the Challenger Cat, which rents for about $40/hr. Churchill Equipment suggests we consider using a conservation chisel which does deep tillage well at $5/acre with a 180 to 200 horse power tractor at $40/hr. Since there isn't much residue on the surface it probably doesn't matter what we use so long as we don't turn over the ground like a plow. A plow puts a lot of pressure on the sublayer and that compaction is what we are really trying to break up. Also strive for no more than 12 to 14 inch spacing between the tines.

Consider cost-share purchase of chisel plow if YNP tractor is available to do the plowing.

Who: Contract
When: April, May '07 as early as possible

6. Harrow immediately after plowing with a tine-type harrow to breakup the clods.
   Who: See #5 above
   When: See #5 above

7. One time irrigation – August/September to add 3 inches moisture to the soil profile. This will force the grass seedlings to go deep for moisture as they become established the following growing period.
   Who: Contract or Forest Service force account
   When: August/September, 2007

8. Harrow one more time to remove annual weeds prior to planting with the tine-type harrow again. Fertilize as recommended by soil scientist after his soil tests. Probably post-irrigation so fertilizer does not leach out during irrigation.
   Who: See #5 above
   When: Early October, '07

9. Optional: Install preferably 8, not 6, foot high net wire fence on at least the west side of the field to keep a majority of the wildlife out. Install large enough gates that big game may be allowed to cross when necessary.
   Who: Obtain cost estimate for both contract fence building and constructing force account or with volunteers
   When: Fence can be built anytime prior to emergence of plants following seeding. Summer, '06 or Summer, '07

10. Pack the seedbed so that the seed isn't planted too deep – the spiral packer. Prefer using a cultipacker if planting will follow in the fall.
    Who: Contract
    When: Just prior to planting. October, '07

11. Seed Grasses – Utilize preferably the truax drill to plant the grass seed. A Tye drill would be a substitute if the truax is not available. Avoid leasing the truax "rough rider" model. Timing of planting maybe more suited to spring if seed can be planted just before ample early spring rains. This would lesson the chances of mortality due to winter emergence, and freezing with a October/early November seeding.
    Who: Contract
    When: October/November, '07 or April, '08 if we want to bet on ample spring rains (optimum)

12. Post seeding herbicidal control of annual weeds in the early spring when broadleaf plant rosettes are 1 inch diameter or less and the young grasses have no

more than 2 leaves with the focus being the young annual alien grasses. The need for treatment may be overlooked if there isn't enough alien annuals present: thus, requiring close monitoring. Roundup (3 oz/acre) application, preferably by helicopter. If the window is missed then consider mowing instead.

Who: NPS or NRCS personnel would be excellent sources of help.
When: May/June, '08

13. Kochia control using a mix of Buctril (1 pint/Acre) and Starane (3/4 pint/acre). Herbicide is selective to Kochia and not persistent.

Who: Contract
When: June, '08 or when there is a good flush of Kochia

14. Interseed, criss cross, forb and shrub seed after grasses become established – Utilize the truax drill again and alternate seed boxes for spacing the sagebrush seed. Dilute the seed with rice hulls. Idealy, place the seed on the surface and then press it into the soil surface with the press wheels as is the case for most forbs and shrubs. Identify flood plain and avoid planting sagebrush in flood plain, instead encourage the wildrye.

Who: Contract
When: 1-2 years following establishment of grasses

15. Spot treat knapweeds and Canada thistle with Milestone (5-7 oz/Acre) or Transline (1 pint/Acre) as an alternate if Milestone isn't permitted.

Who: District Contract
When: Annually

Timeline

2006

- Soil testing - spring
- Herbicide treatment of existing vegetation - summer/fall

2007

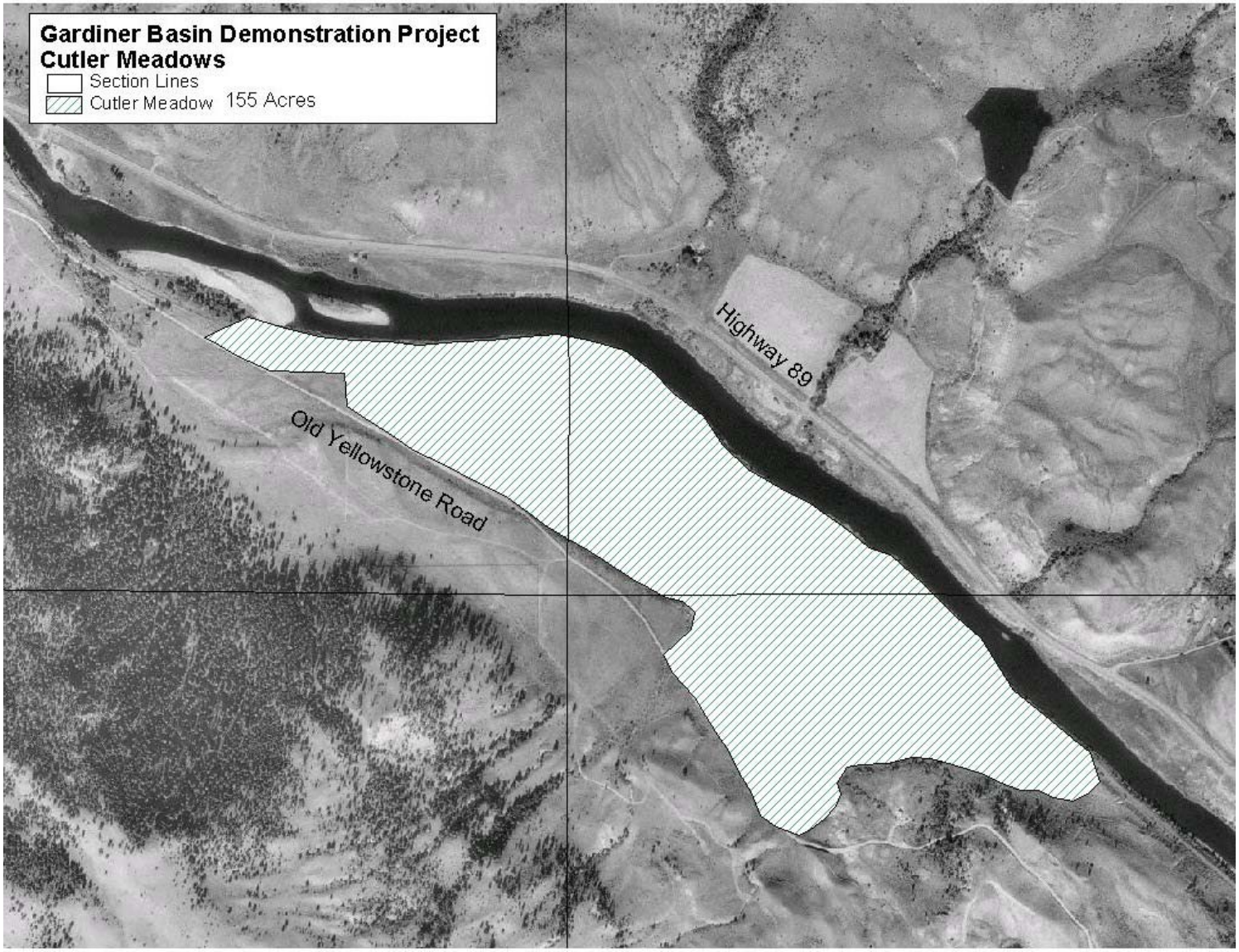
- Spot herbicide treatment – spring/summer
- Plow and harrow – spring/early summer
- Irrigate – summer
- Harrow & cultipack – fall
- Seed – Fall

2008

- Seed grasses – spring (if not done fall, '07)
- Spot herbicde treatment as needed – summer

2009 and Beyond

- Inter-seed forb and shrub seed when grasses are established – spring
- Monitor and treat noxious weeds as necessary


Gardiner Basin Demonstration Project
Cutler Meadows
Section Lines
Cutler Meadow 155 Acres
Highway 89
Old Yellowstone Road