Greater Beaver Creek Park Grazers Noxious Weed Control Project

Havre Field Office

Beaver Creek Park (BCP) is part of the Hill County Parks Department. It is a 10,000-acre park located south of Havre along the north slopes of the Bear Paw Mountains. The park is a multiple use area with recreation as the primary use from Memorial Day through Labor Day. Some areas of the park are hayed during the summer and after Labor Day, the park is open to cattle grazing through leases.

There are several noxious weed species found throughout the park, but Spotted Knapweed (*Centaurea stoebe)* and Houndstongue *(Cynoglossum officinale)* are the local priority for treatment. The Beaver Creek Park Board has partnered with the Hill County Weed and Mosquito District (Weed District) to address these weeds. Each year the BCP coordinates special weed management activities where many of the park users, along with other volunteers, participate. These activities range from "spray days" to biological insect collection and distribution. The weed district will spray throughout the season as time and funding permit.

When the cattle are moved on to the park in September, they transport noxious weed seeds on to the Park. Cattle also transport weed seeds to the adjacent land and to the private ranches when they are removed from the Park in December. Wildlife, humans, vehicles, rain runoff, and the Beaver Creek also transport weed seeds.

In March of 2020, the Natural Resources Conservation Service (NRCS) sent letters to 30 agricultural producers who currently hay or graze on BCP explaining a new opportunity to manage weeds on both the park and surrounding private ranches. This area was selected because of the BCP Grazing Committee's willingness to address weed infestations. The letter solicited a response from interested individuals. The following Targeted Implementation Plan (TIP) documents the steps that will be taken to treat weed patches and reduce weed spread, as well as the partners that will be involved.

Members of the Local Work Group have identified noxious weeds as a priority resource concern for Hill and Blaine Counties. (Hill County Long Range Plan, Section IV and Blaine County Long Range Plan, Section 4.) Noxious weeds in Montana range from a limited presence for some species to widespread and abundant for others (Montana Noxious Weed List, 2019). Appendix 1

This TIP will focus on two weeds: Spotted Knapweed and Houndstongue. These species were selected based on priorities of the Weed District, BCP Board and private landowners in the area. (See Map in Appendix 3). Control of these species will include chemical and biological practices.

The Weed District has found through their mapping over the years that there is an average infestation rate of a 10-14% of the total acres of any pasture on BCP. This figure along with producer input will be used for acre estimates at this time. There are approximately 29,000 acres of grazing land in the TIP proposal area and at a 14% infestation rate would indicate 4,060 acres in need of treatment. When completed this TIP will have treated approximately 55% of the area needing treatment. Field inventory of landowners that have expressed interest in participating in this TIP, will be completed in summer of

2020. This will be accomplished as a team effort between the weed district, landowners and NRCS staff. With input from the Weed District, it was decided to limit each participant to 100 acres. Due to time, topography and labor constraints, it is very difficult for a person to spot spray over 100 acres in a year (Appendix 2).

The TIP will be offered to participants in three signup periods. If awarded a contract, the contract would be three years in length, treating weeds on the same acres for three consecutive years. To date, there are eight producers interested in participating. As neighbors talk and see how the program is working, it is estimated that a second signup would garner eight more participants with an additional four in the third and final signup.

PROJECT BACKGROUND:

The cost of fighting weeds is increasing. Every landowner and Government entity are trying to control these species, but there is no coordinated approach. This is a battle that seems to be circling with limited results. Hill County has an aggressive noxious weed program with special emphasis on BCP; however, livestock producers who annually graze there have limited noxious weed programs on their own ranches.

Historically, efforts for addressing weeds in Hill County involved government agencies and private landowners trying to manage on their own, and there has been limited collaborative approach. The Weed District can only treat county property and roads, federal agencies only treat federal land, state agencies only treat state land and private landowners only treat private acres. The Hill County weed District has spent approximately $58,000 on weed control in Beaver Creek Park each of the past three years ($60,000 planned for 2020). Beaver Creek Park has sponsored Annual Spray Days over that same time period with about 25 attendees at each event and spends about $2,500 annually on herbicides for noxious weed control. While these efforts may be effective in reducing patches of weeds it has little effect on halting weed spread in and around the Park. A coordinated plan may be a more effective and efficient strategy for controlling noxious weeds.

The BCP Grazing Committee approached the NRCS Hill County Field Office about a partnership approach to weed control in properties adjacent to BCP and the properties of lessees. It was decided to organize a Coordinated Resource Management team that consisted of the following agencies: NRCS, Hill County Conservation District (HCCD), Weed District, and the BCP Grazing Committee. The purpose of this meeting was to determine the objectives, purpose, project area and partnership for a weed management plan in the greater BCP area. It was concluded that a collaborative approach to managing weeds was going to be the most efficient way to decrease infestation, leverage funds and provide education outreach. This will provide the structure for agencies and landowners to work together.

Successful weed management requires proper plant identification, selection of effective management strategies and long-term monitoring. Weed management decisions vary according to plant life cycles, infestation size, environmental parameters and management objectives. This project is the start of an integrated weed management plan in an area where there is little information about total noxious weed presence.

OBJECTIVES:

The objective of this project is to decrease excessive plant pest pressure by controlling the spread of the listed species. Secondary goals that will be achieved in this project will be improved plant community structure and increased plant health and vigor. A Coordinated Management Resource team (CMR) has been developed with the following partners: NRCS, Hill County Conservation District (HCCD), Weed District, and the BCP Grazing Committee. The CMR was developed to coordinate efforts, collaborate and to work together on the ground to address the excessive plant pest pressure. By doing this we are hoping to leverage funds, expertise and any other resources that are available through these agencies. Development of a CMR will utilize resources from Federal, State and County resources to assist landowners with the resource concern. This CMR will coordinate finances, time, technical resources, and equipment to maintain native vegetation while decreasing infestation.

GOALS:

The goal of this project is to apply Herbaceous Weed Treatment (Practice Code 315) to a total of 2,250 acres in the area surrounding BCP (See Map in Appendix 4). The Weed District has been treating noxious weeds in this area, covering the county road and portions of BCP they can access. They estimate that there is 10-14% noxious weed coverage in this area. A factor of 10% of pasture and/or range acres per producer was used to develop the treated acres estimate for this TIP.

It is anticipated that applications for the TIP will be offered in three signup periods over three consecutive years, with approximately 750 acres contracted per signup. Participants will have a three-year contract. Weeds will be treated on the same acres for three consecutive years using the following practice scenarios: 315 Herbaceous Weed Control scenarios #3 Spot Treatment, #4 Ground Application, Scenario #6 Biological Control. The project will also consider strategies to develop a site for an insectary. Biological control will be focused on remote areas measuring three to five acres in size. There are six to seven species of insects that can be released for Spotted Knapweed. The insect for Houndstongue has been effective in Canada and is close to being approved for release in the United States. The weed district has a drone with mapping capabilities to assist with inventory. They have a licensed drone pilot and have finalized air space clearance. This is an opportunity to coordinate an effort between BCP, public agencies and private landowners to address excessive plant pest pressure that impacts both public and private ground in a focused and collaborative way.

An inventory of treated areas will be completed, followed by yearly photo-point monitoring during the three-year plan, by NRCS staff and contract participants. This data will document where weed treatment occurs and how the site responds. With permission from the contract participant, inventory and monitoring data will be shared with the Montana Natural Heritage Program so that BCP Field Guide data can be updated.

The HCCD and the Weed District will also conduct outreach and education for landowners and recreationalist, focusing on weed identification, weed control and training to obtain a private applicators license if needed. The format will include landowner meetings and providing Montana Noxious Weed Field Guides to the public.

NRCS personnel and the Weed District will team up with the participating producers to inventory the land for the listed noxious weeds.

The Weed District will be providing recommendation for chemical use and biological control. If the opportunity arises, they will advise if an insectary can be developed. Spotted Knapweed has biocontrol agents available. The Weed District will continue their current weed management practices and will also have spraying equipment available to rent for local landowners. They will sell chemical at state cost to those participants that have obtained private applicator licenses.

OBJECTIVES/OUTCOMES:

- Noxious weed treatment of 750 acres in the focused area for three years and an additional 750 acres in each of the planned sign-ups in years 2 and 3.
- Education and outreach will be provided by the Hill County Weed & Mosquito District to landowners in the focused area. Through proper plant identification, selection of effective management strategies and long-term monitoring the objective that landowners will be more successful in managing weeds on their land, resulting in a decrease in the number of weed infested acres will be achieved.
- Fully map the affected area and treatment area.
- Decrease plant pest pressure by using chemical and biological control.
- Coordinate resources with Beaver Creek Park to treat targeted weed species.
- Decreasing weeds while mapping the progress in treated area to document an outcome.
- Improve plant community and structure.
- Increase in native plant health and vigor.
- Decrease in producer labor after treatment.
- Monitor and Scout treated areas. This will be done by landowners with assistance from NRCS. Monitoring will be conducted as follows; a minimum of one key area will be selected in each treatment area to monitor vegetative productivity and treatment area. Areas selected for monitoring will be in the treated area. Monitoring will consist of establishing permanently marked 100’ transects with photo points at the 10’, 30’, 50’, 70’, and 90’ intervals. Transects will be oriented East (0’) to West (100’). Ground shot photos will be taken by centering a 3’X3’ frame at each of the prescribed intervals. Landscape photos will be taken facing the transect from each end of the transect. Monitoring should occur after the completion of the growing season each year but before plants begin to deteriorate (generally August/September). Photos are intended to document the exact same locations each year in order to observe changes in residue, productivity, and species composition. Monitoring should be conducted before and after treatment. Contract participant will keep track of records for types of chemical used and before/after photos of each treatment area will be used.

ALTERNATIVES:

1. No Action
    a. The No Action approach will lead to continued range degradation, decreased stocking rates, and an overall long-term negative effect on the private land. The weeds will continue to encroach to a level where it would be financially infeasible to address. This action does not meet the goals of the Local Working Group, Hill County Conservation District or the Hill County Weed and Mosquito District.

2. Herbaceous Weed Treatment with Chemical
    a. This treatment would consider using Chemical Scenario #3 spot treatment or Scenario #4 ground application to control the weeds on private land. Once treatment is conducted; inventorying, monitoring and mapping will occur to document progress. Spot treatment is selected as weed frequency and coverage is not uniform throughout the area. Ground treatment would be selected to those areas that are uniform and weed frequency and coverage is confined to one area. Treatment will occur by backpack, ATV sprayer or any ground equipment. Treatment will occur on the same acres every year for three years. All chemical recommendation will be done by Hill County Weed and Mosquito District.

3. Herbaceous Weed Treatment with Chemical and Biological control
    a. This alternative would utilize chemical scenario #3 or #4 and biological control scenario #6 in order to treat the focused area. Chemical control would be utilized in areas that equipment and or backpacks are accessible. For those areas that chemical may be a risk, organic producers or in areas that are inaccessible for equipment, biological control would be utilized. Treatment will occur on the same acres every year for three years. Treatment scenario(s) chosen will be based on the location and type of weeds. Areas where infestations are occurring and equipment cannot be used, scenario #3 will be used. In areas where infestations are scattered across the pasture and can be accessed by an ATV or other spraying equipment, scenario #4 will be used. Areas that are sensitive to chemical (i.e. surface water or meadows that have deciduous trees that would be susceptible to any chemicals) or need to be chemical free will use scenario #6.

4. Herbaceous Weed Treatment with Prescribed Grazing on entire range unit.
    a. This would utilize chemical treatments scenario #3 and #4, biological control scenario #6 and prescribed grazing scenario #12 deferment on the entire pasture that treatment occurred.

PROPOSED ACTION:

Alternative #3 utilizing a chemical and biological method is the best approach to reduce the weed infestation at this time. A three-year contract will be developed. Inventorying and mapping infestation will consist of field work, use of drone for mapping and client interviews. First year in the contract chemical will be applied following the Weed District's chemical recommendation and following all the requirements of the label. Year two and three, scouting and monitoring will occur to see the impact of chemical treatment from the previous year. Planned amounts for years 2 and 3 will be the same as year 1, but it is anticipated that a reduction of treatment acres will occur. In sensitive areas or areas that are inaccessible for equipment biological control will be used and repeated for 3 consecutive years.

RANKING QUESTIONS:

1. The application will address the priority resource concern using 315 Herbaceous Weed Treatment and the area to be treated is located within 1 mile of the outside boundary of Beaver Creek Park (See Appx. 4).

2. The application will address the priority resource concern using 315 Herbaceous Weed Treatment and the area to be treated is located within 2 miles of the outside boundary of Beaver Creek Park (See Appx. 4).

3. This application will include both chemical and biological controls to address the priority resource concern.

4. This application will include only chemical controls to address the priority resource concern.

5. This application will include only biological controls to address the priority resource concern.

RESOURCE CONCERNS BEING ADDRESSED:

Plant Pest Pressure: Rangeland Health Assessment and Ecological Site Descriptions will be used to evaluate the treatment.

MONITORING AND EVALUATION:

For all three years monitoring and follow up will occur at the end of the growing season to evaluate the treatment area. A photo point will be set up on these sites. With permission from landowner site location and treatments will be shared with partners to ensure that we are addressing the same resource concern and to implement a better inventory of the weed problem in this area. Monitoring will be conducted as follows; a minimum of one key area will be selected in each treatment area to monitor vegetative productivity and treatment area. Areas selected for monitoring will be in the treated area. Monitoring will consist of establishing permanently marked 100' transects with photo points at the 10', 30', 50', 70', and 90' intervals. Transects will be oriented East (0') to West (100'). Ground shot photos will be taken by centering a 3'X3' frame at each of the prescribed intervals. Landscape photos will be taken facing the transect from each end of the transect. Monitoring should occur after the completion of the growing season each year but before plants begin to deteriorate (generally August/September). Photos are intended to document the exact same locations each year in order to observe changes in residue, productivity, and species composition. Monitoring should be conducted before and after treatment. Contract participant will keep track of records for types of chemical used and before/after photos of each treatment area will be used.

By the end of each EQIP contract and the BCP Grazers Weed TIP, the participants should be able to better identify, treat, monitor, and track weed infestations on their land. This will result in a fewer number of weed infested acres in the BCP area. Weeds will always be a management issue but hopefully the education and cost share dollars from the NRCS and the other cooperators of this TIP, will help producers keep control of the weed infestations on their property.

TIME FRAME AND BUDGET:

This project will be offered in three signup periods, one signup per year. The funded contracts will be three-years in length. A 315 Herbaceous Weed Treatment waiver was granted October 7, 2019, for repeat treatments of noxious vegetation. Houndstongue and Spotted Knapweed will have three years of repeated treatment. All contract dollars will be obligated at contracting and expended according to the contract schedule.

Below is a table illustrating the total budget for the first year's sign-up to achieve a goal of addressing 750 acres of noxious weed control on the same acres for three consecutive years. It is estimated that 10% of participants will qualify as historically underserved. With continued interest, sign-ups two and three cost tables will look the same as the example below.

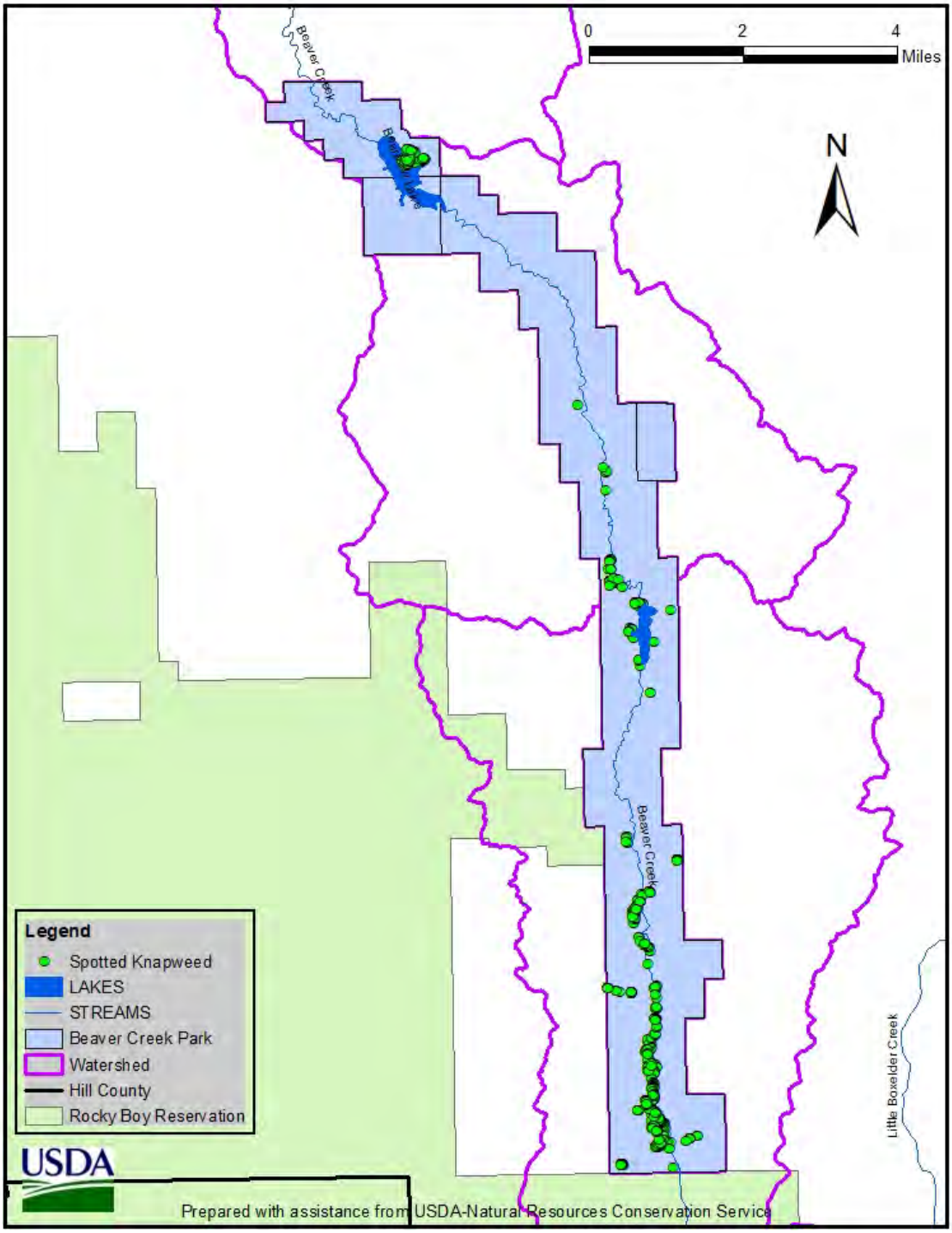
Practice Code	Year 1	Year 2	Year 3	Total by Practice Code
315 Scenario #4 ground equipment	Ground appl. at $43.48 on 540 acres and 60 acres at $52.17/ac (HU) totals $26,610	Ground appl. at $43.48 on 540 acres and 60 acres at $52.17/ac (HU) totals $26,610	Ground appl. at $43.48 on 540 acres and 60 acres at $52.17/ac (HU) totals $26,610	$79,830
315 Scenario #3 backpack or Hand-sprayer	Spot Treat. at $90.31/ac on 135 acres and 15 acres at $108.38/ac (HU) totals $13,818	Spot Treat. at $90.31/ac on 135 acres and 15 acres at $108.38/ac (HU) totals $13,818	Spot Treat. at $90.31/ac on 135 acres and 15 acres at $108.38/ac (HU) totals $13,818	$41,454
315 Scenario #6 Biological control – insect agents	Bio. Control at $44.07 on 18 acres and 2 acres $52.89/ac (HU) totals $899	Bio. Control at $44.07 on 18 acres and 2 acres $52.89/ac (HU) totals $899	Bio. Control at $44.07 on 18 acres and 2 acres $52.89/ac (HU) totals $899	$2,697
Practice Total	**$41,327.00**	**$41,327**	**$41,327**	
Cost Overrun	**$2066**	**$2066**	**$2066**	
Annual Total	**$43,393.35**	**$43,393.35**	**$43,393.35**	
Grand Total				**$130,180.05**

Appendix 1 Links to noxious weed listings:
https://agr.mt.gov/Portals/168/Documents/Weeds/2019%20Montana%20Noxious%20Weed%20List.pdf?ver=201 9-07-02-095540-487

http://fieldguide.mt.gov/displaySpecies.aspx?county=Hill

Appendix 2 Spray Times
In 2019 Hill County Weed & Mosquito District sprayed 119 acres using 589 working hours in one season for a crew of two. Data from Terry Turner, April 28, 2020.

Appendix 3 Spotted Knapweed Map



Spotted Knapweed locations courtesy of Hill County Weed & Mosquito District

Appendix 4 TIP Map