

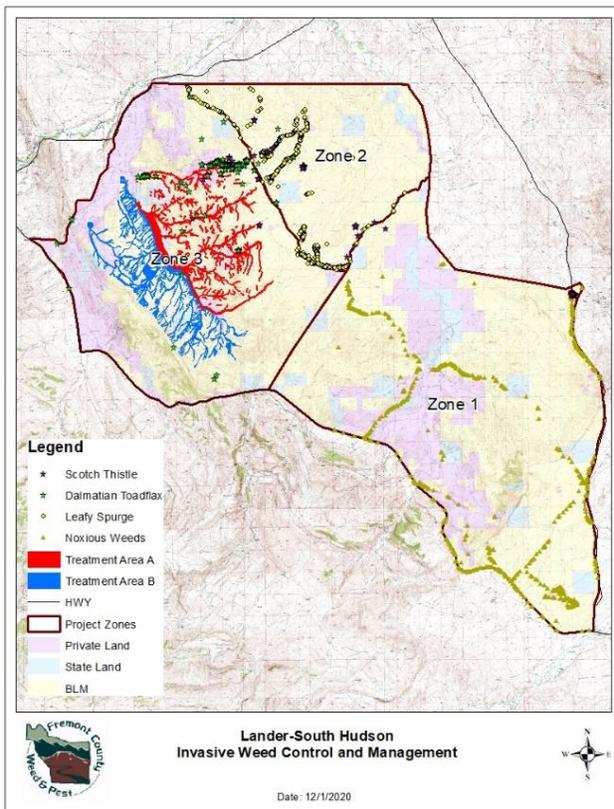


December 2, 2020

Wyoming Wildlife and Natural Resource Trust
 Hathaway Building - First Floor
 2300 Capitol Avenue
 Cheyenne, Wyoming 82002

Final Report: Government Draw Invasives 09-16-025

Project Overview: The Government Draw Invasives project (a.k.a. Lander-South Hudson Invasive Weed Control and Management) focused on the control and management of invasive weeds threatening historic ecosystem structure, function, and biodiversity of Wyoming sagebrush steppe. The project area lies within core sage-grouse habitat and is year-long winter range for mule deer and pronghorn. Land uses of the project area include grazing, mineral extraction, hunting, and other recreational activities.



Noxious and invasive weed control in the area has taken place by all stakeholders for many years. Private landowners treat noxious weeds on their properties and receive incentives for weed control through cost shares with Fremont County Weed and Pest. Wyoming State Lands pays 100% of the costs for controlling leafy spurge and offers 100% of the herbicide costs for controlling State designated noxious weeds on their parcels. BLM, the largest manager, has an active noxious weed control program carried out by Fremont County Weed and Pest. These efforts have allowed for the control of certain high-priority weeds and small infestations within the project area, however leafy spurge and cheatgrass have continued to expand their range and impact.

The goal for this project was to halt the expansion of leafy spurge, cheatgrass, and other invasive weeds within the region's intact sagebrush steppe ecosystems while driving the impacted range towards more desirable, resilient,

and weed resistant ecological condition. To achieve this goal the project area was divided into three zones with specific strategies for each zone.

Zone 1 is the southern third of the project area. Except for some private land and cheatgrass, weed infestations within Zone 1 are limited to Fremont County Weed and Pest defined high priority weeds or small well-defined infestations. The strategies within Zone 1 were detection and aggressive annual control and monitoring of the small infestations where eradication may be possible, cost-share assistance for private landowners, and surveying for the extent of cheatgrass invasion. Weed management activities within Zone 1 were funded by BLM, Wyoming State Lands, private landowners, Fremont County Weed and Pest District (FCWP), and Wyoming Department of Transportation (WDOT).

Zone 2 is the eastern third of the project area. Zone 2 is where the eastward expansion of leafy spurge begins to diminish. Strategies in Zone 2 included the annual management of leafy spurge infestations to prevent further expansion, aggressive annual control and monitoring of priority weed infestations, and surveying for cheatgrass extent. Weed control, survey, and monitoring in Zone 2 were funded by the Wind River/Sweetwater River Sage-grouse Local Working Group (WRSRSLWG), BLM, Wyoming State Lands, private landowners, FCWP, and WDOT.

Zone 3 is the western portion of the project area and is the most severely impacted zone. Strategies in Zone 3 included aggressive annual control and monitoring of priority weed infestations, surveys for cheatgrass extent, aerial surveys to more precisely define leafy spurge infestations, and with funds from this grant, treatment of Area A and Area B for leafy spurge and cheatgrass using aerial applicators during the fall of 2017-2020. Weed control, survey, and monitoring in Zone 3 were funded by Wyoming Wildlife and Natural Resource Trust (WWNRT), USFS State and Private Forestry (USFSSPF), WRSRSLWG, BLM, Wyoming State Lands, private landowners, FCWP, and WDOT

The strategies of this project addressed ecosystem processes, helping to improve the condition of infested areas so they can begin the transition toward more desirable habitats. Individual species performance was tipped to the advantage of native species by removing competitive invasive weeds and allowing the desired species to take advantage of additional moisture and nutrients. Control assists with reducing seed production, limiting the availability of seed for spread and germination. This is of particular importance with cheatgrass where reproduction is only through seed and seed viability may be less than 10 years.

Partnership: The project could not have been completed without the financial and consulting contributions from many partners. The following agencies, landowners, and businesses contributed to the success and implementation of this project.

- Land Owners
 - Private Landowners
 - Bureau of Land Management
 - Wyoming State Lands
- Funding (Direct & Matching)
 - Bureau of Land Management

- Wyoming Wildlife and Natural Resource Trust
- Wind River/Sweetwater River Sage-grouse Local Working Group
- U.S. Forest Service State and Private Forestry
- Fremont County Weed and Pest District
- Private Landowners
- Wyoming Department of Transportation
- Wyoming State Lands
- Consultation and Support
 - Wyoming Game and Fish
 - U.S. Fish and Wildlife Service
 - Popo Agie Conservation District
 - U.S. Forest Service
 - Popo Agie Weed Management Area
 - Alligare
 - Hammond Helicopter
 - Sky Aviation

Accomplishments: Invasive weed management has been taking place within the project area for many years. With the limited funds available, priority had been to ensure all priority weeds and isolated weed infestations were treated annually. These priority weeds include Scotch thistle and Dalmatian toadflax along with isolated infestations of other noxious weeds such as Russian knapweed, leafy spurge, and whitetop. When funds allowed, leafy spurge control was carried out with truck-mounted sprayers and backpacks in infested draws working from the top down.

Fremont County Weed and Pest conducted ground-based surveys of Zones 2 & 3 in 2014 and 2015 which confirmed the widespread invasion of leafy spurge within the draws of Zone 3 and the limited distribution and cover of leafy spurge within Zone 2. This shifted the ground-based weed control strategy to put the focus on priority weeds and leafy spurge control in Zone 2.

In 2017 additional funding through this grant and other contributing parties provided the opportunity to continue our ground-based work within the project area and carry out helicopter control treatments of the large infestations within Zone 3 of the project area. Zone 3 was split into two treatment areas, A and B, which were designed to allow for a four-year treatment plan that incorporated two treatments of each area with a growing season of rest between herbicide applications.

To more precisely define treatment polygons for the aerial applicator the BLM funded aerial surveys in 2017 and 2018 of Zone 3 treatment areas. These surveys were very valuable in defining where to apply herbicide. They were also valuable in identifying unknown patches of Dalmatian toadflax and identifying the widespread nature of cheatgrass invasion to the region. The most cheatgrass dominant areas were largely within the draws and low land areas of the landscape which corresponded with leafy spurge.

Using Sample Point vegetation monitoring the Fremont County Weed and Pest District established ten monitoring plots within treatment area A in 2017 and seven monitoring plots within treatment area B in 2018. All plots have been monitored at approximately the same time of year since establishment. The results of these monitoring plots will be presented later in this document.

Beginning in the fall of 2017 a helicopter applicator was contracted to treat the leafy spurge and cheatgrass in treatment area A with Imazapic at 10oz/acre plus methylated seed oil at 32oz/acre. Imazapic was chosen for its efficacy to control both leafy spurge and cheatgrass with a fall application and for its environmental and non-target safety.

Uniform and effective control of leafy spurge and cheatgrass with very minimal non-target injury observed in the summer of 2018 confirmed that the treatments were a success and the aerial applicator was contracted to continue with fall treatments for 2018-2020.

The success observed with aerial treatments to Zone 3 in 2017 led to treating the leafy spurge in Zone 2 with a helicopter in 2018 and 2019. This treatment strategy was augmented from the aerial treatment strategy used in Zone 3 in that we chose to use two consecutive treatments; one in the fall of 2018 and the second to the new growth in the fall of 2019 to see if the "double whammy" would further stress leafy spurge and give us longer-term control than what was observed with the treatments to Zone 3 Areas. We could also observe if there was a larger impact to non-target vegetation using this strategy. 2020 observations indicate that the non-target injury was minimal. Observations in 2021 will tell us if this alternative strategy offers superior control.

Acres Treated	2017	2018	2019	2020	Total
WWNRT	3,196	1,698	1,829	1,609	8,332
Partners	602	1,298	3,001	2,046	6,947
Total	3,798	2,996	4,830	3,655	15,279

Cost:

WWNRT - \$198,442.96

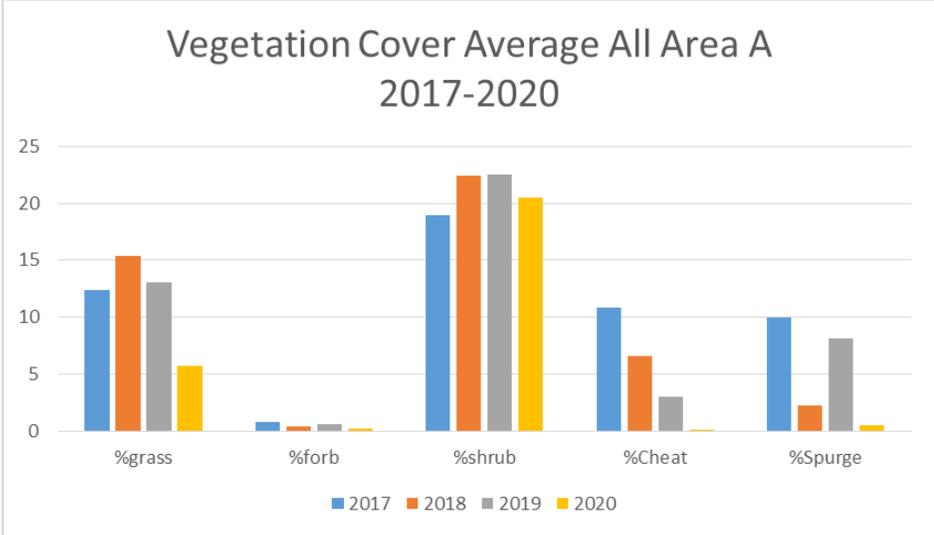
Match - \$283,333.11

Total Project - \$481,776.07

Partner	2017	2018	2019	2020	Total
WWNRT	\$71,049.76	\$42,868	\$45,557.09	\$38,968.11	\$198,442.96
BLM	\$27,441.65	\$2,890	\$16,430.90	\$9,917.85	\$56,680.40
WRSRSLWG	\$10,000.21	\$9,999.79	\$21,500	\$15,000	\$56,500.00
WYDOT	\$8,803.03	\$11,238.78	\$17,636.49	\$15,365.27	\$53,043.57
FCWP	\$9,476.56	\$2,996.41	\$14,628.05	\$23,570.80	\$50,671.82
USFSSPF	\$0	\$14,377.46	\$12,011.11	\$13,611.41	\$39,999.98
State Land	\$1,823.04	\$705.93	\$10,592.95	\$2,827.77	\$15,949.69
Private	\$1,481.97	\$1,553.13	\$2,563.47	\$4,889.08	\$10,487.65
Total	\$130,076.22	\$86,629.50	\$140,920.06	\$124,150.29	\$481,776.07

Monitoring:

10 Sample Point monitoring plots established within Treatment Area A. Monitoring carried out the last week in June 2017 - 2020

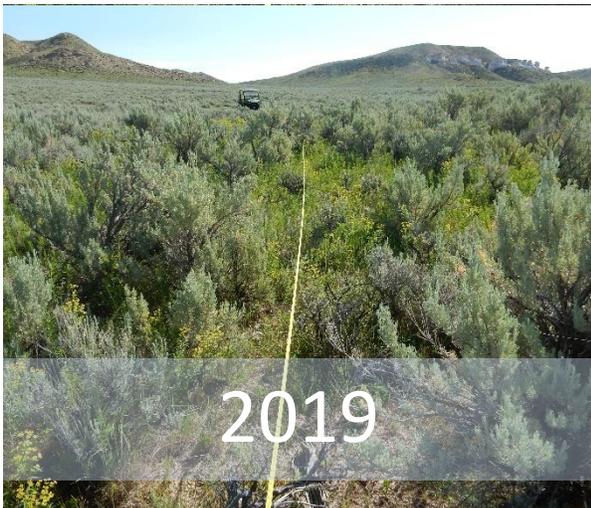
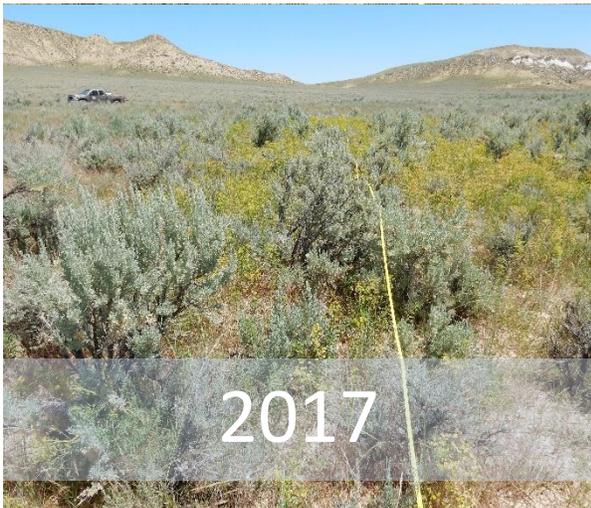
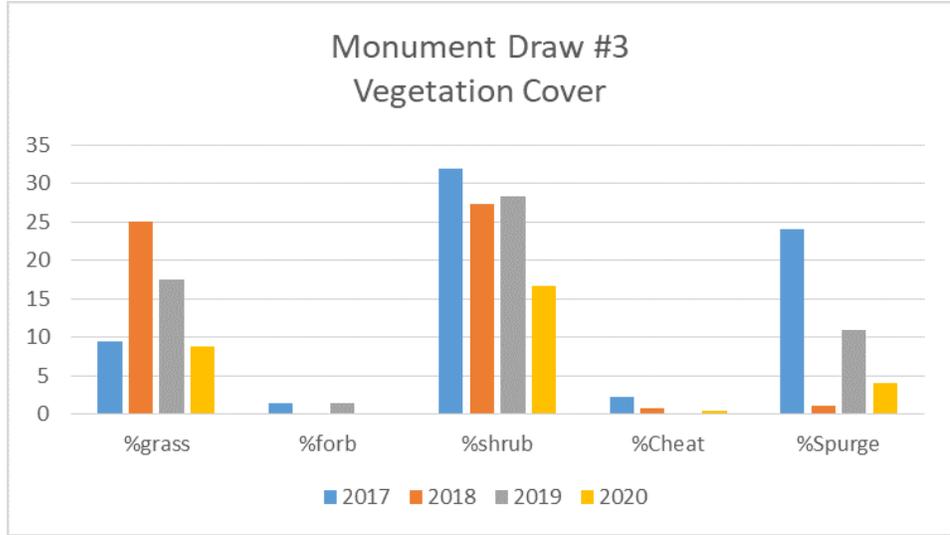


6/14/2017 Aerial View – Pre-treatment “Yellow” leafy spurge and “red” cheatgrass visible.

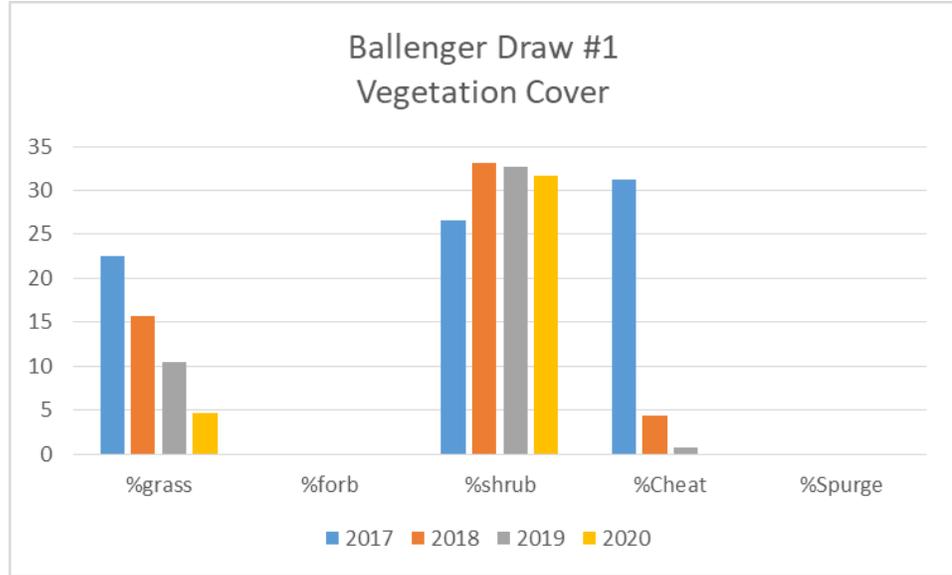
6/13/2018 Aerial View – 1 year after treatment leafy spurge and cheatgrass not visible.



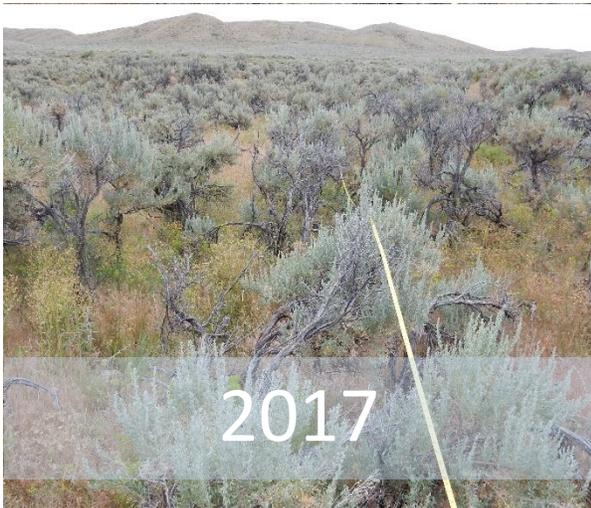
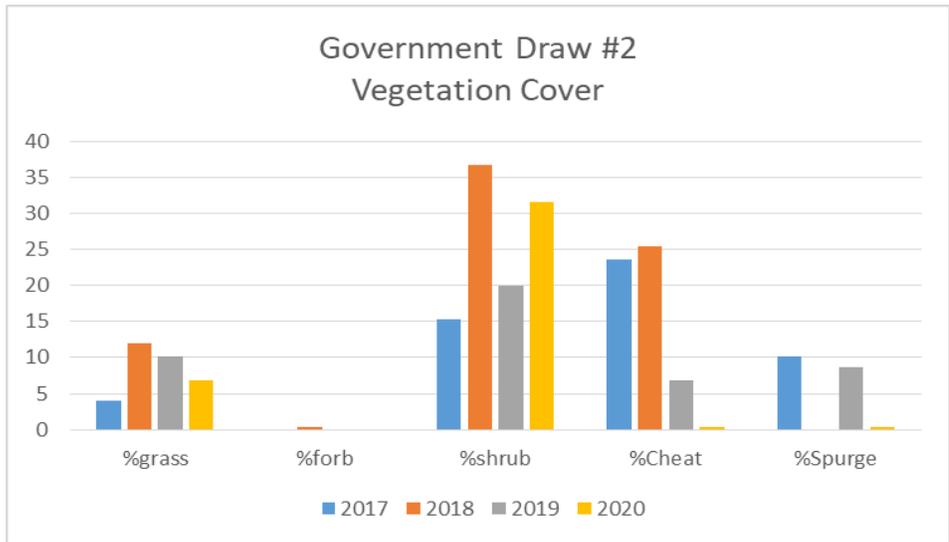
Primary target
within Monument
Draw #3 was leafy
spurge.



Primary target within Ballenger Draw #1 was cheatgrass.



Government Draw #2 included significant amounts of both leafy spurge and cheatgrass.



Conclusion:

Leafy spurge is challenging to manage. This project determined that an aerial herbicide application is the most effective and cost-efficient treatment option in remote and rugged terrain with large infestations. This was true while also providing the most uniform and consistent control with the least amount of non-target injury as compared to other methods and tools. With the tools and resources available for this project we saw consistent control for one year before leafy spurge returned to near initial conditions. There may be evidence that although leafy spurge returned two years after treatment its impact may decline with continued treatments. Evaluation of the success and non-target impacts of two consecutive treatments carried out in Zone 2 will be looked at in 2021. Results from that experiment will be compared to the results of our treatment-rest-treatment-rest strategy for future planning.

With consistent treatments carried out in alternating years, cheatgrass can be controlled in our sagebrush steppe ecosystems. Our monitoring data suggests we are keeping cheatgrass in control where applied. With cheatgrass's relatively short seed viability and an increased resilience response from desirable grass, this project suggests we may be able to reduce the impacts of cheatgrass on this system. 2020 monitoring data shows a noticeable reduction in desirable grass cover across all sites. 2020 was a very dry year with almost no growing season moisture. We believe this is the driving factor in the reduced cover. Future evaluation should continue to see if desirable grass continues to respond favorably to the removal of cheatgrass.

The Government Draw Invasives project successfully reduced the spread of invasive species from the project area by annually controlling all known infestations of priority invasive species and controlling invasive species isolated from larger infestations. The project limited the spread of noxious and invasive weeds from roads and helped landowners and land managers reduce the impact of invasive weeds on their lands. With funding assistance from this grant and other partners, aerial treatments were carried out for four years in the most severely impacted range. These treatments controlled both leafy spurge and cheatgrass reducing seed spread from the area and, overall, improved rangeland grass production for use by wildlife and livestock.