Southeast Montana Ventenata Control

Targeted Implementation Plan for Montana Focused Conservation

FIGURE 1- VENTENATA (LIGHT COLORED GRASS IN THIS PHOTO) INVADING NATIVE GRASSLANDS.

Carter, Custer, Fallon, and Powder River Counties in Southeast Montana.
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Overview

The goal of this Targeted Implementation Plant (TIP) is to contain and reduce ventenata presence in Southeastern Montana in coordination with the Southeast Montana Ventenata Task force and participating agricultural producers. Ventenata has been confirmed in Carter, Fallon, and Powder River Counties and is suspected to exist in Custer County. The plant is a state-listed noxious weed known for its ability to rapidly spread and quickly dominate native grasslands, savannahs, and even perennial pasture/hayland. Infestations severely impact forage production and ecological function. This puts profitability of agricultural operations at risk and compromises integrity of native rangelands and agricultural lands.

Treatments of ventenata through the implementation of Herbaceous Weed Treatment and Prescribed Grazing will address this TIP's primary resource concern, Plant Pest Pressure, and secondary resource concerns, Plant Productivity and Health and Plant Structure and Composition.

Implementation of this TIP will occur in 2024 – 2026, with a goal of treating approximately 4000 acres in 2024/2025, and 3000 acres in 2026. Total investment by NRCS is estimated at $1,159,000.

Geographic Area

The target area for this TIP corresponds with the counties that are participating in the Southeast Ventenata Task Force and are within the NRCS Miles City Area. Information on the task force is provided in the 'Partnership' section of this TIP.

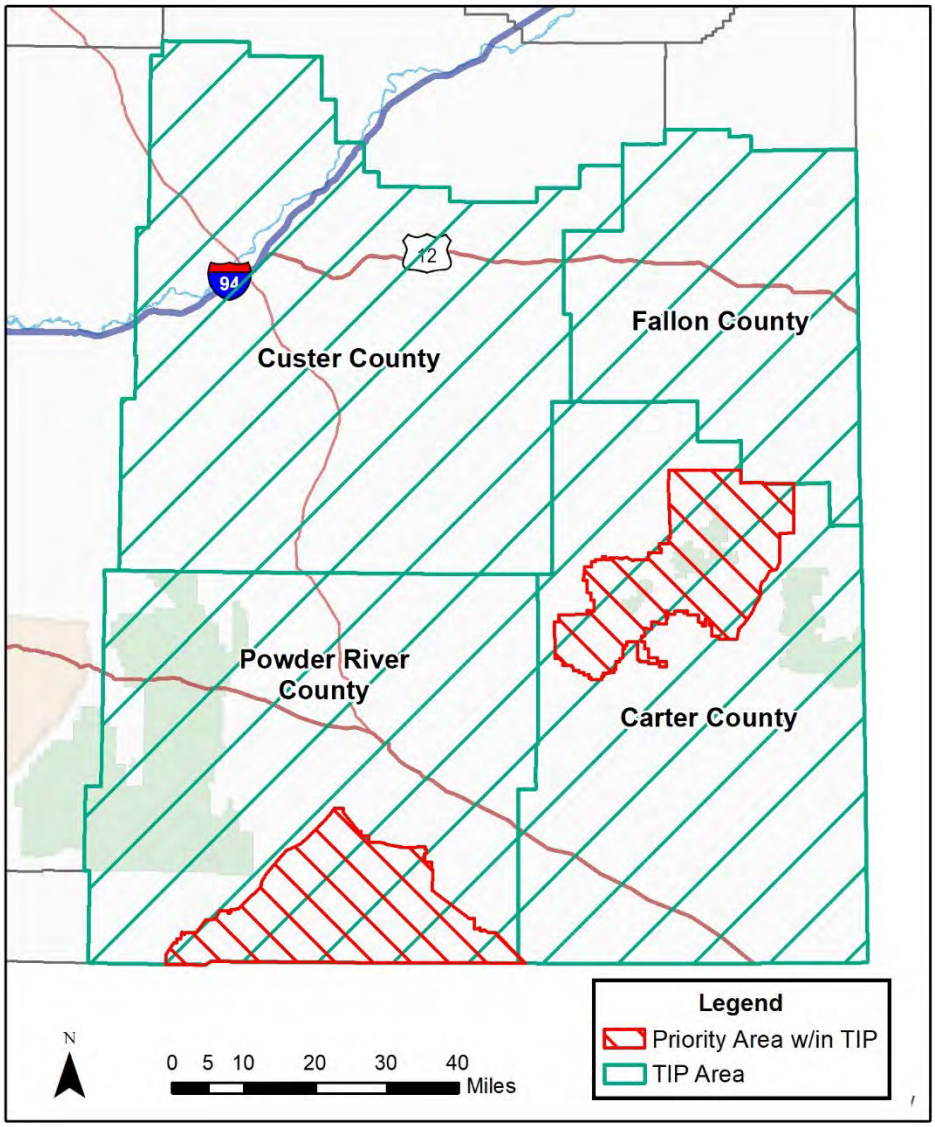

FIGURE 2 - SOUTHEAST MONTANA VENTENATA TIP AREA

Ventenata has been confirmed in Carter, Fallon, and Powder River Counties and is suspected to exist in Custer County. The plant appears to be traveling north from infestations in Wyoming, with most observations occurring along the Montana-Wyoming border. Additionally, disturbance caused by oil/gas pipelines has facilitated the plant's movement north through Carter County into Fallon County. Ventenata has also been observed scattered across Carter County, often near recreational parking areas, on private land and public land managed by the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS).

At this time, the first stages of inventory of infestations are occurring, and awareness of ventenata's distribution is limited. It is expected that infestations are more far-reaching than are currently documented, so the multi-county TIP area was chosen to accommodate infestations that are not yet known. Within the TIP area, two areas have been delineated that contain most of the documented infestations (see Figure 2). Since most of the inventory and mapping efforts, and treatments to date, have been completed within these areas, they are in part, prioritized for treatment within this TIP.

Resource Concerns

Ventenata dubia goes by several names; most common are ventenata, voodoo grass, or North Africa wiregrass. It is an aggressive non-native winter annual grass from the Mediterranean region of Europe and North Africa. Ventenata germinates in the fall; seedlings generally emerge in October to mid- November. The germinated

plants overwinter and produces a seedhead the following spring, usually in May and June. Ventenata litter quickly builds up on the soil surface, which is thought to aid in the germination of new seedlings by creating its own favorable microclimate. Based on continued research of ventenata, it is believed that seeds are viable for three to five years, so with aggressive control and a good monitoring plan, it is possible to significantly reduce or eradicate infestations.

Figure 3 - Ventenata in Carter County. Photo Credit: Angel Vega, Ekalaka Field Office

Ventenata spreads extremely quickly and is very expensive to control; it is degrading native range, transitional forest/savannah habitats, pastures, hay fields, and Conservation Reserve Program (CRP) lands across the western United States. Ventenata can greatly reduce forage production (up to 70%) and rapidly become the dominant species. It has been reported to even outcompete cheatgrass, another invasive winter annual grass, and very aggressive introduced perennial grasses, such as smooth brome and Kentucky bluegrass. Ventenata offers little to no forage value for livestock or wildlife due to its growth habits and high silica content which reduce palatability. These factors lead to decreased stocking capacity which have severe economic impacts on livestock producers. Wildlife habitat quality, especially for nesting birds and use by ungulates, will also be negatively impacted. Dense ventenata infestations not only create more competition for resources for native or desirable grasses, but by completing its life cycle and drying out sooner, it creates a thatch layer supplying a heavier load of fine fuels. This results in an increased fire danger that begins earlier in the year compared to a site dominated by deep-rooted perennial vegetation. Ventenata's shallow root system increases the potential for erosion and limits watershed function. Dryland pasture and hay fields are also at risk to ventenata infestations. Caution must be used to not spread seed further into fields during harvest by moving haying equipment or hay bales to non-infested areas.

Ventenata was added to the state of Montana Noxious Weed list in June 2019 as a Priority 2A noxious weed. Montana Department of Agriculture defines Priority 2A weeds as "common in isolated areas of Montana." Management criteria will require containment and suppression where common, and eradication or containment, prevention, and education where less abundant.

The NRCS Field Office Long Range Plans (LRP) for Carter, Custer, Fallon, and Powder River Counties all list the need to control noxious and invasive plants and address problems impacting grazingland health and productivity as a high priority resource concerns. As a result, a clear and direct connection exists between the resource concerns addressed by this TIP and those identified as priorities within each county's Long Range Plan. LRP priority resource concerns were based on input from local working groups and partners.

As stated in the overview, the primary resource concern addressed by this TIP is Plant Pest Pressure. Secondary resource concerns addressed are Plant Productivity and Health and Plant Structure and Composition. It is important that funds to treat ventenata are available in 2024, as the task force will be focusing on inventory and mapping of infestations in 2023.

Goals and Objectives:

The over-arching goal of this TIP is to contain, reduce, and where possible eradicate, ventenata in the TIP area. Additionally, through the Southeast Montana Ventenata Task Force, coordinate resources to inventory, treat, and monitor infestations between partners and agricultural producers to maximize effectiveness of efforts.

Other goals include:

- Providing education and increasing awareness of ventenata identification, distribution, and impacts
- Improving grazingland health within the TIP area

Objectives:

- During the lifespan of the TIP, provide at least 1 outreach event in each enrolled county.
- Provide resources to the public that will aide in the rapid treatment of infestations: identification guides, plant mounts, education on how to use mapping applications/software, etc. The Southeast Ventenata Task Force will work with partners and public land agencies to install signs at recreational parking areas.
- Through this TIP - Treat 4000 acres of Ventenata in 2024 and 2025, and 3000 acres in 2026.
    - Eradicate small, isolated occurrences of ventenata.
    - Contain larger infestations; minimize or stop the spread of the weed.
- Increase production of desirable forage within treatment areas; create positive rangeland trend.

Partnerships

The first recordings and treatment of ventenata in southeast Montana were made in 2020 in Carter County. Those infestations were thought to be small and isolated. It was not until the summer of 2022 that larger and more widespread (but still scattered) infestations were found – as awareness of the plant increased, number of reported infestations rose. In response, the Southeast Montana Ventenata Task force was created in October of 2022.

The Southeast Ventenata Task Force covers Carter, Custer, Fallon, Big Horn, Rosebud, and Powder River Counties. The task force is made up of each county's local Weed District and Conservation District, Montana State University – Extension, the Bureau of Land Management (BLM), the Montana Department of Natural Resources and Conservation (DNRC), the Natural Resources Conservation Service (NRCS), the U.S. Forest Service (USFS), and Montana Fish Wildlife and Parks (FWP).

The task force gives the group a means to work together towards a common goal: reducing the impact and infestations of Ventenata. Within the task force, technical information can easily be shared, and cross-ownership treatments can be planned and coordinated.

The following priorities were set by the Task Force at the October 2022 meeting:

1) Inventory of infestations
2) Outreach
3) Funding

The task force agreed to work together to provide outreach events and technical material to the public. For example, the 2023 Montana State University Winter Ag Series in Carter and Powder River Counties included presentations by MSU Extension on ventenata. Lastly, the task force will apply for grant funds and work with neighboring states and their task forces, such as the Northeast Wyoming Invasive Grasses Working Group. To date, the Powder River County has applied for a grant with the Montana Noxious Weed Trust Fund for Powder River County; results for that grant will be delivered in March.

BLM will be doing aerial surveys for ventenata infestations in the summer of 2023. Ground surveys will be completed by other agencies and partners during the 2023 field season as well. Locations of infestations on public land can be shared within the group. Private land information will only be shared with select agencies with written permission from the landowner.

BLM and USFS have budgets approved for noxious weed control that can be applied to ventenata infestations. Currently, BLM is seeking approval to use Rejuvra on their lands. Rejuvra (indazaflam is the active ingredient) is a relatively new herbicide used to treat annual grasses. Until it is approved, the BLM will continue to use other herbicides to treat known infestations. Rejuvra is approved for use on USFS land.

DNRC has a small noxious weed budget, but the brunt of noxious weed control on stateland is the responsibility of the lessees. DNRC will help inventory and monitor infestations, but it is expected that lessees will seek financial assistance for treatments on stateland from NRCS and locally gained grants.

Local Weed Districts and NRCS Field Offices will continue to be the main points of contact for private landowners or agricultural operators that discover ventenata infestations. Together, the two agencies can plan and help producers treat ventenata.

Local Weed Districts, Conservation Districts, MSU Extension, and NRCS Field Offices are expected to provide the bulk of the outreach efforts.

Alternatives:

1. No Action: NRCS does not contribute efforts to the Southeast Montana Ventenata Task Force or seek funding to help private landowners and operators treat ventenata. Public land agencies, County Weed Districts, and where economically feasible, private landowners treat ventenata without NRCS resources.

   Under the “no action” alternative, efforts to inventory, control, treat, and monitor infestations are expected to be drastically reduced, especially on private land. Chemical treatment of ventenata infestations is very expensive; without financial assistance from NRCS, treatment may be cost prohibitive in many circumstances.

   Without coordinated treatment across ownerships, the ability to control ventenata infestations in their early stages will be lost. Ventenata is likely to spread quickly. The integrity of grazingland and perennial hayland will become more at risk as ventenata spreads across the landscape. As infestations spread, the quality of wildlife habitat will deteriorate, grazeable forage will decrease, wildfire risk will increase, and ecological function of the landscape will be negatively impacted. This high-risk alternative has the potential to result in

significant reduction in profitability and landscape ecosystem function long-term. No action treatment does not meet the goals of the landowners, local working groups, or conservation districts and partners.

2. Landowner Education: In this alternative, NRCS would not contribute financial assistance, but instead would focus technical assistance efforts on outreach and education. Making landowners aware of ventenata and the resource concerns an infestation presents will give them the tools necessary to make informed decisions on how to manage their property. This alternative is helpful but does not fully meet the goals of the landowners, local working groups and, or the conservation districts and partners.

3. Herbaceous Weed Treatment and Education: In this alternative, NRCS would utilize both technical and financial assistance. Financial incentive to treat ventenata through Herbaceous Weed Treatment (Conservation Practice 315) would be available. Through Herbaceous Weed Treatment, participants could treat ventenata through targeted grazing or chemical means, but no incentives for post-treatment grazing rotations or deferment would be offered.

   This alternative was not chosen, as research is showing that post-treatment deferment is important in recovery of perennial plants after treatments of indazaflam. See section below on chemical treatment alternatives for more information. Additionally, post treatment prescribed grazing may be identified as beneficial to some plant communities to build resistance to future noxious and invasive weed infestations.

4. Herbaceous Weed Treatment, Prescribed Grazing, and Education: This alternative is the same as Alternative 3, except that NRCS would also provide financial assistance to implement Prescribed Grazing (Conservation Practice 528). Prescribed grazing could be utilized to provide post treatment grazing deferment and, where needed, grazing rotations to promote grazingland health.

Alternative 4 is the chosen alternative for this TIP. It best encompasses the conservation practices needed to effectively address the identified resource concerns and meet the objectives of the TIP. As with any projects involving NRCS technical and financial assistance, National Environmental Policy Act (NEPA) concerns will be addressed through environmental evaluations that include cultural resources and threatened and endangered species reviews.

Proposed Solutions and Actions:

As of the writing of this proposal, research has thus far shown that management activities may have little impact treating existing infestations; chemical control of infestations has shown the most success. According to the MSU MontGuide MT201810AG Ventenata publication (2019), the following chemicals are approved for treatment:

- Esplanade 200 SC/Rejuvra (indaziflam)
- Axiom DF (flufenacet and metribuzin)
- Sinbar WDG (terbacil)

Axiom DF and Sinbar WDG are currently labeled to control ventenata with limited application in rights-of-way and natural areas, but not on range or pastureland.

Indaziflam is the active ingredient of the pre-emergent herbicide Rejuvra, that, when properly applied at 5 oz/ac (one time), will provide consistent control of invasive annual grass for up to 4 years. In 2020, the EPA approved the use of Rejuvra, for use on rangeland, CRP land, and natural areas.

The "Rejuvra Herbicide Stewardship Guide" released by Envu states that there are no label restrictions on grazing; livestock are permitted to graze immediately after treatment. However, the guide suggests deferring until the product is incorporated into the soil. Additionally, Envu "Stewardship Guide for Esplanade 200 SC" states that species of ryegrass, bluegrass and fescues are sensitive to indaziflam, so caution should be used, and testing on smaller plots is recommended. Newly established perennial grasses also may be more sensitive to indaziflam.

Research on root damage of perennial plants by Rejuvra has shown varied results. Root damage is a concern this TIP considers, and as a result, Prescribed Grazing and grazing deferment will be promoted. Root damage to desirable perennial grasses, especially in Western Montana, have been recorded. However, when large scale treatment areas in Wyoming were observed, there was minimal impact to native and introduced plant communities. Research near Sheridan, Wyoming has seen some root damage to smaller bunchgrasses (ex. prairie junegrass), but little damage to larger well-established perennials (green needlegrass, western wheatgrass, etc.). No studies on Rejuvra treatments in southeast Montana have occurred.

In early 2023, Rejuvra could be purchased from county weed districts in southeast Montana at a cost of $304.42/quart (32 fl.oz). At this rate, application cost of the chemical calculates is $47.57/ac for the 5 oz/ac rate. The price of chemical paired with cost of application has been prohibitive to many local producers.

The following chemicals are labeled for use on cheatgrass and field brome, but may also be effective on ventenata:

- Outrider (sulfosulfuron)
- Plateau (imazapic ammonium salt)
- Laramie 25 DF or Matrix (rimsulfuron)

Chemicals, such as Plateau, only offer one year of control, so yearly applications are necessary to deplete the seedbank. However, these types of chemicals may be advantageous to treat and then re-seed sites where canopy cover of desirable species is below 30%. To date, infestations of that severity have not been discovered in the treatment area.

For all chemical applications, timing is critical to their effectiveness. Landowners and managers should carefully weigh the benefits and risks prior to any herbicide application and be aware of potential unintended consequences. NRCS does not make herbicide recommendations. Consult with MSU Extension for recommendations.

Project Implementation and Budget:

Inventory efforts are underway and will be the focus of 2023 the Southeast Montana Ventenata Task Force efforts. Thorough inventory of ventenata infestations is a known challenge that the task force hopes to, in part, address. However, even with coordinated inventory and mapping efforts, areas without inventories will exist and small infestations are likely to be unrecorded. Many of the infestations that have been found in the TIP area are very small and scattered (1 square foot to <8 acres in size), making identifying the outer edge of those infestations very hard to determine. If the outside edges of infestations can be identified, treatments will strategically be planned from the outside in if the infestation cannot be treated in full.

Prioritization will be given to:

1) Isolated infestations that that can be treated in their entirety.
2) Treatments within the priority areas identified in Carter and Powder River Counties.
3) Treatments that are adjacent to other treatments and therefore create a larger continuous treated area.

It is expected that most conservation plans will consist of chemical treatment(s) that provide multi-year control of ventenata. Most of these treatments are expected to be followed by grazing deferment to aid in recovery of perennial species. Often, the deferment will be planned on larger acreage (fenced field) than the treatment itself.

This TIP will provide financial assistance to participants in 2024, 2025, and 2026. Based on estimated annual budgets of $422,000 in 2024/2025 and $315,000 in 2026; total cost of this TIP is projected at $610,000.

Annual Payment Calculation – 2024 & 2025

Practice	**Acres**	**Payment Rate**	**Total**
Herbaceous Weed Treatment: Multi-Year Annual Grass Treatment	4000	$93.12	$372,480
Prescribed Grazing - Deferment	7000	$7.00	$49,000
		Total	**$421,480 – rounded to $422,000**

Annual Payment Calculation – 2026

Practice	**Acres**	**Payment Rate**	**Total**
Herbaceous Weed Treatment: Multi-Year Annual Grass Treatment	3000	$93.12	$279,360
Prescribed Grazing - Deferment	5000	$7.00	$35,000
		Total	**$314,360 – rounded to $315,000**

Total Project Budget:

Year	**Treated Acres**	**Projected Cost**
2024	4000	$422,000
2025	4000	$422,000
2026	3000	$315,000
	Total	**$1,159,000**

Outcomes and Evaluation:

Desired future outcomes include:

- Widespread awareness of ventenata by agricultural producers, recreationalists, and the general public in southeast Montana.
- Agricultural producers, recreationalists, and the general public have the tools they need to identify, document, and report infestations. Informational signs have been placed at high-use recreation sites. Informational flyers have been sent to agricultural producers in the area and news articles on been published in local papers and conservation district newsletters.
- A coordinated rapid response and monitoring system is in place, through the Southeast Montana Ventenata Task Force, to identify, treat, and monitor infestations as they become known.
- Ventenata is eliminated, where possible; otherwise, where multiple treatments may be needed, treated acres have significant reductions in ventenata canopy cover and density prevalence to the point where spread can be controlled. After treatment, productivity and health of key species (e.g. forage grasses) is increased and target plant species production, structure and composition for each site is achieved.
- On treated rangeland, positive rangeland trend is achieved. This will lead to more productive plant populations across the site leading to reduced soil erosion, reduced runoff, increased water infiltration, and greater amounts of quality feed for livestock and wildlife. The site can maintain desired plant composition and species diversity to meet land use goals.

Progress and success of treatments will be measured by:

- An increase of available preferred forage (biomass and canopy cover) with a corresponding decrease in prevalence of ventenata (density and canopy cover), as quantified by monitoring plots. As part of each contract, NRCS will set up monitoring plots and evaluate them annually after treatment for the life of the contract, and then assist the landowners, as workload allows, in the subsequent years. Photo points will be the default monitoring method to be implemented; but more in-depth monitoring methods (such as line-point intercept, Daubenmire, and clipping) can be deployed based on site conditions and landowner goals.
- On rangeland, rangeland trend will be documented before and after treatment.
- A decrease in the size or elimination of the infestation. All treated areas will be mapped using GPS technology before and after treatment on an annual basis throughout the life of the NRCS contract. Follow-up or additional treatments may be recommended based on these field surveys.

Success of the TIP will be measured by:

- Landscape-wide reductions in the occurrence numbers and acreage of ventenata infestations found throughout the life of the TIP.
- New occurrences will be identified during inventories and immediately treated to prevent and manage further impacts.

Application Ranking Questions

1. In regard to the infestation(s) being treated, select all that apply:

    a. The infestation(s) being treated is/are isolated (>5 miles from any other known infestations) and will be fully treated with the implementation of this plan?

    b. The infestation being treated is located within a priority area identified by this TIP?

    c. None of the above; the treatment area is outside of a priority area and within 5 miles of other known infestations?

2. Is the treated area immediately adjacent to other ventenata treatment areas to create a larger continuous treated area?

3. Will Herbaceous Weed Treatment (CP 315) and Prescribed Grazing (CP 528) both be implemented in conjunction with each other on the same acres to address ventenata?

References:

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