Draft Compatibility Determination

Title

Draft Compatibility Determination for Grazing by Goats on an Experimental Basis to Control Invasive Plants, Ozark Plateau National Wildlife Refuge.

Refuge Use Category

Agriculture, Aquaculture, and Silviculture

Refuge Use Type(s)

Grazing (Experimental)

Refuge

Ozark Plateau National Wildlife Refuge (NWR/Refuge)

Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

Ozark Plateau National Wildlife Refuge was established on April 1, 1986, pursuant to the Endangered Species Act of 1973, Migratory Bird Conservation Act of 1929, and the Fish and Wildlife Act of 1956, and as a refuge and breeding ground for migratory birds and other wildlife.

"... to conserve (A) fish or wildlife which are listed as endangered species or threatened species .... or (B) plants" ... 16 U.S.C. 1534 (Endangered Species Act of 1973).

"... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. 715d (Migratory Bird Conservation Act)

"... for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." 16 U.S.C. 742(a)(4) and ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." 16 U.S.C. 742(b)(1) (Fish and Wildlife Act of 1956).

Ozark Plateau National Wildlife Refuge was established to:

- Prevent the extinction and aid in recovery of federal-listed threatened and endangered Ozark cave species;
- Reduce the need for future listing of species of concern in the Ozarks;
- Protect large continuous stands of Ozark forest essential to interior forest nesting migratory birds;
- Provide important environmental educational opportunities identifying the need for protecting fish and wildlife and other karst resources of the Ozarks.

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife,and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

No

What is the use?

The proposed use is experimental grazing by goats on the Mary and Murray Looney Unit (Looney Unit) in designated areas. The refuge proposes to investigate and evaluate for a maximum period of five years the use of targeted prescribed grazing by goats inside fenced areas on the Looney Unit to help suppress, control, and remove invasive plant species including sericea lespedeza *Lespedeza cuneata*, garlic mustard *Alliaria petiolata*, and non-native bamboo *Phyllostachys* spp. Experimental grazing will be a component of a habitat restoration project on about 15 acres of refuge land that currently consists of upland forest, woodland and old field/meadow. The refuge will be conducting several botanical surveys on the unit as part of the habitat restoration project over a 5 year period that will be used to help determine the effectiveness of prescribed grazing to control invasive plants. Targeted experimental prescribed grazing by goats may also be used to help control other problematic invasive plants should they be identified during these vegetation surveys.

Is the use a priority public use?

No

Where would the use be conducted?

Experimental grazing would occur within a 15 acre habitat restoration project area located on a ridge top above Spavinaw Creek on the north side of the Looney Unit. Prescribed grazing would occur inside small fenced areas (1-2 acres) within this project area where invasive plant species currently occur.

When would the use be conducted?

Grazing would occur during two separate periods during the growing season (between April and October). Each grazing period would last about 1 week/acre. The first grazing period would occur in the spring or early summer (April – June

timeframe) prior to flowering and production of seed. The second grazing period would occur in late summer or early fall (August – October timeframe) to control any new growth that may have occurred after the first grazing period, and to further prevent the plants from flowering and producing seed. Baseline vegetation surveys will be conducted prior to experimental grazing treatments to determine baseline conditions and the extent of invasive plants which will help inform grazing stocking rates, duration and areas to be targeted. Based on a preliminary botanical examination of the project area, we currently estimate we have about 2.5 acres of sericea lespedeza, garlic mustard, and non-native bamboo on the refuge in the project area. Therefore, experimental grazing would occur for about 2.5 weeks in late spring or early summer and for another 2.5 weeks in late summer/early fall for a total of about 5 weeks each growing season. The number of weeks per grazing treatment may vary slightly from this estimate and will be adjusted based on the results of ongoing vegetation surveys.

How would the use be conducted?

The refuge would contract with a private group or individual that lease goats for plant control and management. The Refuge Manager would issue a Special Use Permit to the private grazing cooperator with all restrictions applicable to prescribed grazing including the location, fencing requirements, stocking rates, monitoring, seasonality, and duration of grazing, as well as which species should be targeted. The permittee would put in place temporary mobile fencing to contain goats in targeted grazing areas. Necessary fencing and associated materials will be provided by the permittee. The permittee would stay on site in refuge housing to facilitate regular monitoring and management of the goat herd. Alternatively, the permittee would visit/monitor the herd at a minimum of every two days. Regular monitoring of the herd will help ensure timely implementation of adaptive management actions that may be necessary to help ensure project goals are achieved and help prevent/minimize impacts to non-target vegetation (e.g., fence movement, fence repair, reduction or increase in herd size, etc.); and will help prevent negative impacts to the goat herd (e.g., predation, escaped goats).

The refuge will closely monitor the effects of experimental grazing on target and other plant species. Vegetation surveys will be conducted prior to experimental grazing treatments to determine baseline conditions which will help inform grazing stocking rates, duration and areas to be targeted. Subsequent vegetation surveys also will be done to determine the effects and success of targeted grazing.

Why is this use being proposed or reevaluated?

Experimental grazing will be one of several management tools implemented as part of a habitat restoration project on a 15 acre portion of the Looney Unit. Other management actions to be implemented include prescribed fire, selective tree

removal, and seeding/planting of native plants. The project site currently consists of upland forest, woodland and old field/meadow with invasive plant species occurring in each habitat type. The purpose of the overall project is to restore this portion of the Looney Unit to a healthier and more open woodland and grassland habitat condition believed to have historically occurred in the area under natural ecological processes including a high fire frequency.

The purpose of the experimental grazing aspect of the project is to assess the effectiveness and viability of targeted grazing by goats as a management tool to control invasive plants. Invasive plant species displace native plants and reduce the quality of habitat on the refuge for native wildlife. Use of grazing to control invasive plants may prove to be a good management tool in general, but also could provide a viable alternative to the use of herbicides on the refuge in proximity to sensitive caves where use of some pesticides could present a water quality concern for sensitive aquatic cave species.

Sericea lespedeza, garlic mustard and non-native bamboos are invasive plant species that currently occur on the Looney Unit in the habitat restoration project area. Sericea lespedeza is a very aggressive invasive plant that readily outcompetes native plant species, becomes dominate in the understory forb community, and blocks sunlight for shorter native grasses and forbs (Cummings et al., 2017). Garlic mustard is invasive in deciduous forest understories where it can produce large amounts of seed, crowd out native species, and dominate forest understories (Munger 2001; Rodgers et al. 2008). Non-native bamboos can form dense monoculture thickets that displace native species.

Goats prefer sericea over other plants and are proving to be effective at significantly reducing and controlling sericea (Hart 2001; SARE 2005). Goats also are known to readily graze on garlic mustard and bamboo. This use should improve habitat value on the refuge by enhancing important forested, woodland and grassland habitat through a decrease in invasive plant species and a subsequent increase in diversity and biomass of native plants species (James et al. 2017), which would benefit native wildlife species.

Availability of Resources

Experimental grazing by goats on the refuge would be part of a pilot habitat restoration project on about 15 acres of the Looney Unit. This habitat restoration project is fully funded by Natural Resource Damage Assessment and Restoration (NRDAR) funds for the Tar Creek Mining Superfund site. The project would serve to help replace and offset damages to resources in northeast Oklahoma as a result of mining in the Tar Creek area. Funding received will cover all aspects of the restoration project including payment for the leasing of goats, materials and equipment, staff time, and various other needed services for the overall project.

Vegetation monitoring including baseline surveys and vegetation response monitoring are included as part of the habitat restoration project. The Refuge will contract with qualified botanists using NRDAR project funds to conduct vegetation surveys to determine baseline conditions and subsequent vegetation surveys to determine effects and success of targeted grazing, and other aspects of the restoration project. Additional costs for project implementation, materials, or monitoring are not anticipated, but should they occur they should be minor and could be done with existing resources for on-going operations and maintenance.

Anticipated Impacts of the Use

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

Experimental grazing will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge. Disturbance to wildlife and habitat and other physical impacts are anticipated to be minor and temporary. Invasive plants are not used for food or cover for federally-listed species that occur on the refuge. Overall, there are no anticipated effects on threatened and endangered species. No conflict of user groups is anticipated since the Looney Unit is closed to the public except for events authorized by permits. Overall, this use should improve habitat value on the refuge through a decrease in invasive plant species and an increase in native plants species (James et al. 2017), which would benefit native wildlife species and further the mission of the Service.

Short-term impacts

There are few minor anticipated short-term impacts associated with experimental grazing. The presence of goats could cause a minor disturbance to wildlife located in areas being grazed or in habitats adjacent to the targeted grazing sites. Wildlife is expected to move to other areas of suitable habitat during the activity and would return after the activity is over, or after acclimating to the presence of goats. Goats also are likely to forage on native plant species, and a minor amount of vegetation trampling by goats on non-target species also would likely occur. Some soil disturbance and compaction would occur. However, goats would graze on the refuge for limited periods of time (about 2.5 weeks each grazing period, and 5 weeks total per year) on a small portion of the refuge unit (about 5 acres or about 1% of the unit), and regularly would be moved among small fenced paddocks (e.g., weekly) in a timely manner to minimize impacts to soil and non-target native plants. Non-target native vegetation is expected to naturally recover from minor temporary grazing and trampling. Goats also may drop seedlings of other non-native plants on the refuge after initially arriving should they forage on such species soon before being transported. However, many seeds do not survive the digestive tracts of goats well (Harrington et al., 2011; Hart 2001; Marchetto et al., 2000), and goats often pass ingested seeds within 24 hours of ingestion (Harrington et al., 2011). To minimize this potential impact, the refuge will require all goats be corralled off-refuge and fed only a high quality hay (i.e., with little to no seeds) or feed grains for a minimum of 24 hours before arrival at the refuge. The refuge will closely monitor the effects of experimental grazing on target and other plant species; and will follow an adaptive management strategy in regards to stocking density and duration for future grazing events to help reach management goals.

Long-term impacts

We do not anticipate negative long-term impacts. Long-term impacts are expected to be positive since grazing (along with fire) will be used as tools to maintain or increase native plant species abundance and diversity. Overall, this use should help improve habitat value on the refuge through a decrease of invasive plant species and a subsequent increase in diversity and abundance of native plants species (James et al. 2017). Monitoring will also ensure that grazing is being properly and effectively utilized as a management tool. Ongoing monitoring and adaptive management will help ensure all long-term impacts associated with grazing as an invasive species control method are beneficial for both grassland and wooded/forested habitat.

Public Review and Comment

The draft compatibility determination is available for a 30 day public review and comment period (from February 9, 2023 to March 10, 2023) on the refuge website and Facebook site. Federally-recognized tribes also will be asked to review and comment on the draft compatibility determination. A hard copy of this document also will be posted at the Sequoyah/Ozark Plateau Refuge Headquarters, 107993 S. 4520 Rd, Vian, OK 74962. Concerns expressed during the public comment period will be addressed in the final CD.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

1. A Special Use Permit will be issued with specific restrictions on location, fencing, monitoring, seasonality, and duration of grazing, as well as which invasive plant species should be targeted.
2. Control and confinement of the livestock will be the responsibility of the permittee.
3. The permittee will put in place temporary mobile fencing to contain goats in targeted grazing areas.
4. All costs associated with placement, construction and maintenance of adequate fencing to contain grazing livestock will be borne by the permittee.
5. Permittee assumes all responsibility for animal husbandry.
6. No insecticides, including insecticidal dusting bags, will be allowed.
7. Permitee shall be aware of and comply with state livestock health laws.

8. The permittee will be responsible for providing water for livestock at a location and using methods approved by the Refuge.
9. The Refuge must approve the origin of livestock prior to introduction onto the grazing unit to prevent introduction of invasive species.
10. The permittee will corral the livestock off-refuge and feed them only a high quality hay (i.e., with little to no seeds) or feed grains for a minimum of 24 hours prior to arrival at the refuge.
11. The permittee will monitor the herd and fencing regularly to ensure timely implementation of management actions that may be necessary to help prevent/minimize impacts to non-target vegetation and areas. Monitoring will occur at a minimum of every two days.
12. Necessary actions to prevent/minimize grazing on non-targeted species or in non-targeted areas must be implemented within 24 hours of the issue being detected. Necessary actions could include fence movement, fence repair, reduction in herd size, and/or complete removal of the goat herd from the refuge.
13. The Refuge is not responsible for any loss of livestock.
14. The refuge will conduct multiple botanical monitoring surveys on the unit to assess the effectiveness and impacts of prescribed grazing including a baseline botanical survey prior to implementation of prescribed grazing and subsequent vegetation response monitoring. These data will be used to determine if desired conditions are being met. The refuge will closely monitor the effects of experimental grazing on target invasive plant species and other plant species; and will follow an adaptive management strategy in regards to stocking density and duration for future grazing events to help reach management goals.
15. The Refuge Manager reserves the right to modify grazing areas and/or frequency at any time as necessary to meet refuge management objectives.

Justification

The refuge has determined that targeted experimental grazing by goats on invasive plants, in accordance with the stipulations provided above, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the refuge. The stipulations outlined above would help ensure that experimental prescribed grazing by goats to control invasive plants, as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. We believe targeted experimental grazing by goats on invasive plants will help improve habitat value on the refuge through a decrease of invasive plants and a subsequent increase in diversity and biomass of native plants species. Use of prescribed grazing as a management tool to control invasive species also may help minimize or avoid use of herbicides on the refuge to control invasive plants; and this could be especially beneficial in proximity to sensitive caves where use of some pesticides could present a water quality concern for sensitive aquatic cave species.

Experimental grazing to control invasive plants also would be consistent with the refuge goals, objectives, and management activities described in Ozark Plateau Comprehensive Conservation Plan. The refuge will closely monitor this use and make adjustments as necessary to protect and enhance refuge resources. Overall, the benefits of the grazing program, if implemented properly, are expected to outweigh associated impacts.

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2028

Literature Cited

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