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Comments: The Old Growth Amendment Draft EIS exempted all units protected by a grasslands stand-alone Land Management Plan. There are old and mature growth trees and stands within the Dakota Prairie Grasslands which need to be protected by the Forest Service's Old Growth Amendment. I am asking that the LMP's for the Dakota Prairie Grasslands be amended with a full suite of plan components to protect these woodlands.

The Dakota Prairie National Grasslands are listed as a Category 1 based on Existing Direction in the Draft IES, page C2. They are listed as grasslands which are predominantly un-forested and have a stand-alone grassland LMP. Limited management actions occur in areas that are forested. According to the Draft EIS - Amendments to the LMPs to Address Old-Growth Forests Across the NFS page C-4, Category 1 Lands, LMPs will be exempted from the amendment unless there are unique circumstances presented that would justify amending them with a sub-set or full suite of plan components.

There are several areas in the Dakota Prairie National Grasslands which are unique and should receive full protection as Mature or Old Growth forests. None fit the "classic old growth" characteristics of the Pacific North West, but they are old or mature growth forests in their own right, and provide the same benefits of providing homes for wildlife, filtering drinking water, providing recreational opportunities, stabilizing soils, increasing water infiltration, and helping to fight climate change by absorbing and storing carbon.

The Dakota Prairie National Grasslands has identified six Research Natural Areas (RNAs) which exemplify the Mature and Old Growth characteristics of these ecosystems. Each of the RNAs, whether proposed or existing, are managed to "Maintain natural (relatively pristine/pre-European settlement) conditions by maintaining or restoring natural ecological processes. Vegetation, habitat, soil productivity, water quality, and ecological processes are in a natural condition (within the range of natural variability). Vegetation manipulation may be used to maintain the ecosystem or unique features for which the Research Natural Area was established or to reestablish natural ecological processes, such as fire and herbivory" DPNG Management Plan, Chapter 3, Management Direction Section 2.2 Research Natural Areas, page 3-14. This is not permanent protection.

Each of these RNA's do not encompass the entire ecosystem, and indeed are often just a token portion of the ecosystem. The full ecosystem needs to be identified and managed as the RNA's are managed, and should be protected by a full suite of plan components .

The specific RNA's I am proposing be added and managed as Mature or Old Growth, along with their similar surrounding habitat, are listed below. Standards and guidelines for management are listed in the DPNG Management Plan, Chapter 3, Management Direction Section 2.2. Standards and Guidelines page 3-14. With the exception of the Livestock Grazing section, management guidelines are generally acceptable, if they are expanded to the entire similar habitat. Specifics are noted in the RNA descriptions below.

RNA Descriptions: Much of the descriptions for the following RNA's are from the DPNG Management Plan, Chapter 3, Management Area Direction, Research Natural Area Descriptions, page 3-16 through 3-20.

Bear Den/Bur Oak (Proposed) -McKenzie Ranger District - Bear Den/Bur Oak contains representative bur oak habitat intermixed with salt desert shrub and mixed-grass prairie. The area provides excellent representation of the bur oak/chokecherry habitat type. The bur oak communities generally exhibit high-quality condition. Some of the most dense and extensive bur oak communities on the Little Missouri National Grassland are found in Bear

Den/Bur Oak. While I am unaware of any tree age data (cores or cookies) from this exact location, similar oak stands south of Bear Den/ Bur Oak near the Killdeer Mountains (Killdeer Mountain Battlefield State Historic Site) have had increment cores which date as far back as the late seventeen hundreds and early eighteen hundreds. The Bear Den/Bur Oak area should be studied for inclusion and management as Old Growth. Data from Killdeer Mountain Battlefield State Historic Site is from Carolyn Sieg and Dave Meko, and is available from the International Tree Ring Data Bank at: https://www.ncei.noaa.gov/products/paleoclimatology/tree-ring Threats to the area are from fire and oil development.

Limber Pines RNA (Existing) -Medora Ranger District - The Limber Pines area contains the only population of Limber pines to occur in North Dakota. This community is disjunct from the natural distribution range for the species. Consequently, the population and site have been of interest to researchers for studies involving genetics, historical evolution and physiological adaption of the species. Many of the trees are over 200 years old based on a study by Potter and Green, 1964. At that time, 50 trees were studied, with the oldest being 256 years (now 306 years). [Potter, L.D. and Green, D.L. (1964), Ecology of a Northeastern Outlying Stand of Pinus flexilis. Ecology, 45: 866-868. https://doi.org/10.2307/1934937]. No basal area was calculated in the study, but based on size and frequency data in the study, basal area calculates to over 120 sf/acre at the time of the study.

The pines were first identified as a unique community in 1949 and have been a continual source of considerable research interest. Potter and Green also concluded that "There was evidence from "cat-face" scars and verification from local ranchers of a recent fire in 1945 which destroyed several acres of limber pine. A cone moth (Dioryctria sp.) was also observed and almost all existing seed had been mined." The site is currently grazed at low to moderate utilization levels, making survival of limber pine seedlings and saplings a major concern. Additional protections may be necessary for the survival of the species in the area, including controlled burning, juniper and ladder fuel removal, and grazing exclusion.

Little Missouri RNA (Proposed) -Medora Ranger District - This area encompasses steep bluffs to the alluvial floodplains of the Little Missouri River. The area is an excellent representation of the Little Missouri River corridor, with health of the vegetative community rated between good and excellent. The healthy gallery cottonwood bottoms are significant, especially since cottonwood bottoms seem to be trending downward elsewhere across the Northern Great Plains. Oil and gas exploration has occurred in the area, with some existing private leases. Livestock grazing is allowed. As in other units, I have concern for seedling and sapling survival in grazed areas, particularly young cottonwoods in floodplains.

Mike's Creek RNA - (Proposed) -Medora Ranger District - This area contains the most dense and extensive Rocky Mountain juniper woodlands on the Little Missouri National Grasslands. These juniper woodlands occur on north-facing slopes created by rugged badlands. Vegetative health in Mike's Creek is considered good to excellent. The age of these junipers are hard to determine, as juniper is known to create false rings. Some light livestock grazing occurs, but is not as much of a concern as in other areas because juniper is generally unpalatable. Concern of management is because juniper can overtake grazing areas, and if areas are managed simply to improve grazing conditions, wholesale elimination of junipers if often prescribed.

Ponderosa Pine RNA - (Proposed) -Medora Ranger District - The Ponderosa Pine area provides excellent representations of ponderosa pine in good condition. They are the most northeasterly colonies of native ponderosa pine in North America.

Potter and Green mapped and studied the ponderosa pine in this area in the late 1950's. Their work shows that the ponderosa pine stands are from the 1880's and early 1900's (120 to 140 years old), and that basal area of the pines was 44.6 sf/acre. The "presence of the older veteran trees indicates that ponderosa pine in this area of the Badlands predates the coming of the white man by at least 100 years. The existence of even larger stumps

indicates that the pines and junipers have considerably greater antiquity in the area." [Potter, L.D. and Green, D.L. (1964), Ecology of Ponderosa Pine in Western North Dakota. Ecology, 45: 10-23. https://doi.org/10.2307/1937103] .

This unique occurrence of ponderosa pine inspired the creation of the only national forest ever conceived in North Dakota, the Dakota National Forest (1908-1917). Prior to its establishment, the stands on this now-decommissioned national forest were harvested. No appreciable volume of timber has been harvested since, although a forest fire in 2004 crowned out and killed many mature trees on both private and public lands. Management of this area needs to take into consideration regeneration, stand composition, and stand density. The area is currently grazed, making seedling and sapling survival a concern. Junipers can provide ladder fuels, which cause fires to crown out and kill the ponderosa pine; they may need to be removed if low-intensity controlled burns are not feasible.

Oak Hills RNA - (Proposed) -Sheyenne National Grasslands, McLeod ND - The Oak Hills area is found on sandy outwash areas of the Sheyenne River. Vegetation is influenced by the soils and moisture availability, and includes a complex of grassland openings intermixed with bur oak woodlands, along with scattered thickets of shrubs. The oak savanna is considered critically endangered, estimated to have declined by 98 percent over its historic occurrence in the Midwest. Oak Hills RNA is one of the best remaining sites within the Sand hills on the Sheyenne National Grassland, but there are many additional acres of Oak Savanna in the area which need protection, many are in non-motorized units but are still grazed.

Trees in these oak savannas are mostly sprouts from trees cut in the 1870's and 1880's when the area was homesteaded; these sprouts now function as a mature forest and age around 140 years. Individual bur oak trees from the area have been dated to 1556 and 1802 (Personal correspondence, Joseph Zeleznik, NDSU Extension Forester, Fargo ND, August 2024).

Much of the oak savanna in the Sheyenne National Grasslands is grazed. While efforts have been made in the past couple of decades to control the length and intensity of grazing in the savannas, the effects of grazing are still very visible. Oak seedlings are common along the edges of oak forests and in openings, but very few seedlings survive to pole size. There are no new trees to replace the existing oaks when they die. Additional protections need to be made to ensure that seedlings survive and grow into mature trees (exclusion fences, removal of grazing).