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Date: 31 March 2003 (edited and Environmental Consequences added, 23 April 2003)

Subject: Affected Environment – Gibson Jack Creek RNA for the Portneuf West Bench Fuels Reduction Project

Issue statement: Will the proposed project impact the Gibson Jack Creek RNAs ecological and research values for which it was established?

Background Research Natural Area Information

The Forest Service Research Natural Areas (RNAs) System represents a valuable ecological resource for scientists, managers and educators. In general, non-manipulative research that does not significantly impact the ecological composition, structure, or function of the area is appropriate for RNAs. The level of acceptable use varies by RNA, depending on the rarity of taxa, fragility or resilience of the ecosystems, and cumulative impacts of use.

RNA Management is the responsibility of National Forests and Ranger districts. However, the Forest Service Manual (FSM 4063.04b.1b and 4063.04c.2) specifies that “Station Directors [USFS Research Stations] have the authority to approve all management plans for RNAs and that “Forest Supervisors must coordinate with the Station Director’s representative to address needed changes in management or protection”. The collaborative between Ranger Districts and Research Stations in RNA management will help insure that there is a sound scientific basis for management plans or management actions on RNAs.

RNA management should be designed to protect or restore the natural ecological communities, species, and processes that the RNA was designed to represent and protect. The RNA manual (FSM 4063) provides significant discussion with regard to RNA management.

Affected Environment

Gibson Jack Creek Research Natural Area (RNA)

Gibson Jack Creek RNA is the largest Research Natural Area on the Forest and contains about 2,200 acres (891 ha). It is located six miles south of Pocatello, Idaho on the Westside Ranger District. The entire RNA is within the project analysis boundary. The RNA occupies the headwaters of Gibson Jack Creek, a tributary of the Portneuf River. It was established on the Forest on April 1, 1982. The RNA represents an area that has not been grazed by livestock for over 75 years. In a region where it is difficult to find ungrazed areas, the Gibson Jack RNA is significant as a baseline monitoring area (page 3-294, Caribou National Forest Revised Forest Plan FEIS 2003).

Currently, no management plan for the Gibson Jack RNA has been completed. On file at the Westside District in Pocatello and the Headquarters office in Idaho Falls is the Establishment Record that outlines the justification, distinguishing features, location, vegetation types, plant species list and information concerning possible conflicts in the establishment of the RNA (USDA Forest Service 1982).

Gibson Jack Creek RNA contains several shrub types in unusually fine condition. These include mountain sagebrush (*Artemisia tridentata* ssp. *vaseyana*) types, a black sagebrush (*Artemisia nova*) type, a Utah juniper (*Juniperus osteosperma*) type and chokecherry-serviceberry (*Prunus virginiana-Amelanchier utahensis*) communities. The area also contains several forest types, including bigtooth maple (*Acer grandidentatum*), aspen (*Populus tremuloides*), Douglas-fir (*Pseudotsuga menziesii*), and subalpine fir (*Abies lasiocarpa*). It includes a small drainage basin complete with streams, beaver dams, and ponds. Red-osier dogwood (*Cornus sericea*) dominates the riparian zone, with willows, including whiplash willow (*Salix lasiandra*), attaining prominence on the lower 0.25 mile. An unclassified forb-dominated community interrupts the red-osier dogwood and continues up the northerly fork to the end of permanent water. The mountainous country provides geologic, elevational, slope, and aspect variation. These result in great differences in vegetation. Forests cover most of the north-facing slopes while shrubs and grass dominate on southern slopes. Boundaries between vegetation communities are sharp and easily distinguished (page 2, USDA Forest Service 1982).

The Pinyon-Juniper plant communities within the Gibson Jack Creek RNA as well as elsewhere were sampled in 1996 by Steven K. Rust and to assist with the identification and description of juniper woodland communities on BLM and NFS lands and to assist in the determination of their conservation status. (page 1, Rust 1996)

Within Gibson Jack Creek the Utah Juniper/Low sagebrush/Bluebunch wheatgrass (*Juniperus osteosperma/Artemisia arbuscula/Agropyron spicatum*) plant community is documented as occurring on the southwest to west-facing slopes in mid- to upper slope positions on the ridge spurs of Wild Mountain. Stands varied in seral status and structural condition. Mid-seral stands are present where fuels are continuous. Late-seral stands are present where fuels are interrupted by talus or rock outcroppings. The structure of late-seral, mid-slope stands is savanna-like. Ridge crest stands are dominated by low growing wind trained, krumholz Utah Juniper (Appendix 3, page 20 Rust 1998).

Based on ecological and environmental data collected from 16 plots established within the RNA for the Utah Juniper plant community, the average cover of vegetation components is: trees, 24%; shrubs, 22%; herbs 20%; grass, 24%; moss and lichen, 6%; and substrate components; rock, 21%; gravel and soil, 9% (Appendix 3, page 20 Rust 1998). A complete summary of the described Utah Juniper plant community and management recommendations is included in Steve K. Rust's Report, *An Information Protocol for the Application of Natural Areas in Ecosystem Management and Stewardship* (Appendix 3, page 19-23, Rust 1998).

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (No Action) Alternative

With this alternative no fuels reduction work would be conducted as proposed in the analysis area. With this alternative there are no expected direct effects to the Gibson Jack RNA. Indirect and cumulative impacts are related to the greater potential of a large fire starting within the RNA or adjacent to it and burning uncontrollably. This situation could initiate a need to conduct emergency suppression tactics to protect human life and property within or adjacent to the RNA and post-burn emergency rehabilitation activities. More so than a wildfire, the emergency suppression activities pose a threat the natural ecological communities, species, and processes that the RNA was designed to represent by disturbing the ground mechanically (i.e. building of fire lines, falling of trees, etc.) and the use of retardants which could harm the aquatic communities within the RNA. Post-burn rehabilitation activities could also pose a threat to the plant biodiversity within and around the RNA by introducing non-genetically local plant material and non-native plants by reseeding, unintentional reintroduction or the use of mulch to reduce unacceptable erosion impacts. Currently there are no genetically local plant materials available for reseeding projects in the area.

The plant communities within the RNA have evolved with fire as a disturbance and the effects to the RNA from a wildfire overtime could be beneficial in restoring the natural disturbance regimes that have maintained the diversity of plants and plant communities within the RNA if the wildfire happened to occur within the range of natural variability and in such a way that did not require emergency suppression activities or post-fire rehabilitation. Currently there is no specific management plan for the Gibson Jack RNA specifying what management activities are appropriate, such as prescribed fire.

Alternative 2 (Proposed Action) Alternative

The Portneuf West Bench Fuels Reduction Project proposed project does not include activities within the RNA, however proposed prescribed burns and road/trail clearing are proposed to occur along the boundaries of the RNA. There are no direct impacts expected to occur to the values of the RNA since no projects are proposed within the RNA. Potential indirect and cumulative impacts to the RNA from the proposed actions could be beneficial or negative. Beneficial impacts would be a reduced potential of an uncontrollable wildfire and the subsequent adverse impacts of emergency suppression and rehabilitation activities as discussed for Alternative 1. Potential negative impacts include the potential for the spread of noxious and invasive plant species into the RNA from the creation of bare ground from the burning and other disturbance activities. The mitigation of having all vehicles entering and leaving the project area wash and cleaned to reduce the introduction of invasive plants should reduce the risk, however invasive plants that are already present could increase with the disturbance.

Also the RNA represents an excellent opportunity for baseline monitoring for the proposed project and the proposed project activities (e.g. prescribed burning). The proposed activities could provide examples of management activities that could occur within the RNA in the future to insure the long-term viability of the ecological conditions within the RNA.

Some of the plant communities within the RNA could benefit from restoration activities such as prescribed burning, especially the juniper dominated plant communities (Rust 1998). Many of the plant communities within the RNA are in good to excellent ecological condition and appear to be resistant to natural episodic disturbance events (e.g. low intensity fire). Activities such as exotic plant species introductions, alteration of fire disturbance regimes, recreational development (e.g. trails) and use, and the combined cumulative effects adjacent to the RNA are factors which could affect the ability to protect or restore the natural ecological communities, species, and processes that the RNA was designed to represent and protect.

References:

Rust, Steven K. 1996. Classification and Inventory for the Conservation and Management of Pinyon-Juniper Ecosystems, Summary of 1996 Field Season Sampling Effort. Conservation Data Center, Idaho Department of Fish and Game. Boise, ID. 20 pages.

Rust, Steven K. 1998. An Information Protocol for the Application of Natural Areas in Ecosystem Management and Stewardship. Conservation Data Center, Idaho Department of Fish and Game. Boise, ID. 29 pages.

USDA Forest Service. 2003. Caribou National Forest Revised Forest Plan Final Environmental Impact Statement, Volume I. Caribou-Targhee National Forest. Idaho Falls, ID.

USDA Forest Service. 1982. Establishment Report Gibson Jack Creek Research Natural Area. Caribou-Targhee National Forest. Idaho Falls, ID. 16 pgs.