

APPENDIX J

BIOLOGICAL EVALUATION

Sensitive Wildlife, Fish and Plants

FOR ALTERNATIVE H

CURLEW NATIONAL GRASSLAND PLAN

(Original Signed Copy on File)

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PROJECT DESCRIPTION

The Caribou-Targhee National Forest is amending existing and creating new management direction for the vegetation, riparian, livestock grazing, wildlife and other resources and uses on the Curlew National Grassland. This management direction is based on a proposed desired range of future conditions. The EIS discloses the environmental effects of amending the direction for resource management.

Alternative H is the Preferred Alternative. This alternative was developed in response to public comment and has an emphasis on adaptive management and monitoring to resolve uncertainties.

Vegetation treatments

This alternative focuses vegetation treatments on maintaining the current acreage of mature sagebrush (>15% canopy cover) at the end of the decade, while increasing the amount in the 6-15% canopy cover class to improve habitat for sage grouse. Treatments, in combination with natural rates of succession would move upland vegetation towards properly functioning condition, including canopy cover and understory vegetation composition. Alternative H proposes to treat a total of 12,100 acres of vegetation over the next 10 years.

- 9,600 acres in canopy cover >15% (with emphasis on >25%) would be treated by herbicide or mechanical methods to achieve a canopy cover of around 15%.
- 2,500 acres with a dominant understory of bulbous bluegrass would be treated thru burn/plow/seed or other appropriate methods to improve understory conditions.

Riparian

Management would emphasize improving conditions on streams that are “at-risk” or “non-functioning” and maintaining those that are in properly functioning condition. This alternative proposes to manage riparian habitat using a 150-foot special Riparian/Wetland emphasis area (RWA) on fish-bearing streams and a 75-foot RWA on non-fish bearing streams. An estimated 5 miles of perennial streams that are considered functioning but “at-risk” would be corridor fenced to increase the rate of achieving properly functioning condition. These stream enclosures would not be grazed. However, once these fenced areas reach a properly functioning condition (as determined by a hydrologist or fish biologist), fences may be removed and the stream reaches may be included into riparian pastures.

Perennial streams that are not currently fenced into riparian pastures would be fenced into riparian pastures using existing pasture boundary fence realignments, where feasible. Riparian utilization levels in riparian pastures would be established at 20-50% or a 2-6” stubble height, based on season of use, stream channel type, existing versus the desired condition, and PFC status of the stream. Bank disturbance, soil disturbance and/or woody vegetation species standards would also be used to regulate use within the RWA to protect or improve riparian resource and water quality values.

Livestock grazing

Livestock grazing would be managed to a level consistent with RWA goals and desired resource conditions. This alternative would allow adaptive livestock grazing utilization levels based on site-specific conditions and needs. Approximately 98% of the Curlew National Grassland has been determined to be “suitable” for livestock grazing, however, upland forage utilization levels would be reduced from 60% that is currently allowed to 50% by dry weight annually.

Allowable use levels would be determined in the allotment planning process and annual operating meetings. The Grassland Plan would include guidance allowing for heavier use levels on some sites, such as crested wheatgrass areas, where higher use is needed to maintain plant vigor. Use levels may be lower in areas important to nesting sage grouse to maintain adequate residual vegetation for cover and areas with native understory.

Other features

Alternative H includes a .25-mile buffer around active sage grouse leks during sagebrush treatments. This is to maintain cover around the lek to prevent abandonment.

Motorized travel would be restricted to designated routes year round. During the snow season, the Grassland would be open to over the snow vehicles.

LIST OF SPECIES

The Intermountain Regions established a sensitive species list, by Forest in 1995. This list was updated in 1999. The species in the table below were identified as sensitive species for the Caribou National Forest in 1999.

Table 1. Sensitive species for the Curlew National Forest (1999)

SPECIES	HABITAT
Spotted bat <i>Euderma maculatum</i>	Open ponderosa pine, desert scrub, pinyon-juniper, open pasture and hay fields. Roost in rock cracks and crevices (Clark et al, 1989)
Wolverine <i>Gulo gulo</i>	Large, sparsely inhabited areas (Ruggerio et al 1994)
Western big-eared bat <i>Corynorhinus townsendii pallescens</i>	Moist forests as well as arid savannah and shrub-steppe. Roosts, maternity colonies and hibernacula are in caves and abandoned mines (Clark et al 1989)
Boreal owl <i>Aegolius funereus</i>	Mature to old growth Douglas-fir, mixed conifer, spruce-fir and aspen forests (Hayward and Verner, 1994)
Trumpeter swan <i>Cygnus buccinator</i>	Marshes, lakes, beaver ponds and oxbows and backwaters of rivers with tall emergent vegetation (Shea 1995)
Harlequin duck <i>Histrionicus histrionicus</i>	Streams with gradients of <3 degrees, >50% streamside shrub cover and >3 loafing sites (mid-stream boulders or log jams) (Clark et al 1989)
Flammulated owl <i>Otus flammeooulus</i>	Mature to old growth ponderosa pine/Douglas -fir forests and mixed conifer forests with open canopies (Hayward and Verner, 1994)
Three-toed woodpecker <i>Picoides alborlarvatus</i>	Spruce, ponderosa pine and lodgepole pine forests (Clark et al 1989)

SPECIES	HABITAT
Great gray owl <i>Strix nebulosa</i>	Lodgepole pine, Douglas-fir, aspen and Ponderosa pine forest (Hayward and Ve mer, 1994)
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbianus</i>	Shrub-steppe vegetation
Northern goshawk <i>Accipiter gentilis</i>	Variety of forest types, forest ages, structural conditions and successional stages (Reynolds et al, 1992)
Spotted frog <i>Rana pretiosa</i>	Permanent water such as marshy edges of ponds or lakes, pools of streams and near springs
Starveling Milkvetch <i>Astragalus jejunus var. jejunus</i>	In Idaho, found on barren, eroding shale substrata of the Twin Creek Limestone formation (Montpelier District of the Caribou NF).
Slick-spot Peppergrass <i>Lepidium papilliferum</i>	Occurs in semiarid sagebrush steppe ecosystems, on extensive volcanic plains of Snake River Plain and Owyhee Plateau of southern Idaho.
Cache Beardtongue <i>Penstemon compactus</i>	Has been found on limestone and dolomite formations in the Bear River range between 8800 and 9300 feet elevation.
Payson's Bladderpod <i>Lesquerella paysonii</i>	Found on limestone and gypsum soils, graveled small boulder slopes and open areas.
Yellowstone cutthroat trout <i>Oncorhynchus clarki bouvieri</i>	Cool stream temperature (shade/riparian vegetation), lack of surface fine sediment, adequate hiding cover (pools, undercut banks and large woody debris), bank stability, and migration corridors. They are found in upper Snake River and Salt River drainages.
Bonneville cutthroat trout <i>Oncorhynchus clarki utah</i>	Cool stream temperature (shade/riparian vegetation), lack of surface fine sediment, adequate hiding cover (pools, undercut banks and large woody debris), bank stability, and migration corridors. They are found in the Bear River Drainage.

DESCRIPTION OF PROJECT AREA

The Curlew National Grassland is situated in Southeast Idaho, north of the Utah-Idaho state line. It is located about 17 air miles west of Malad, Idaho (Figure 1).

Today, the Curlew National Grassland incorporates about 75,000 acres within the proclaimed boundary. The Forest Service administers only 47,600 acres of this. The remainder is private property (Figure 2). Almost all of the privately owned land within the proclaimed boundary has been and continues to be heavily developed in farming practices. In contrast, the Grassland exhibits a mosaic of sagebrush/grass cover types of various ages, densities and understory composition.

Elevation on the Grassland ranges between 4,570 to 5,940 feet above sea level.

The area was designated a National Grassland in 1960. Previous to that time, much of it had been farmed and seeded to non-native species. After this time, more vegetation treatments were seeded to crested wheatgrass to improve forage production.

The Curlew is predominately sagebrush (95%) with smaller amounts of mountain brush and riparian. This sagebrush is now about 17% in the 0-5% canopy cover class; 24% in the 6-15% canopy cover class and 59% in the >25% canopy cover class.

There are about 12,000 acres that have never been plowed and are in native vegetation. There are also about 5,200 acres that have a dominant understory of bulbous bluegrass. Much of the rest is dominated by a crested wheatgrass understory.

Riparian areas have been heavily impacted by past uses. They continue to be impacted by livestock grazing, and runoff from summer storm events that generates large amounts of sediment from upstream private lands.

The Curlew National Grasslands potentially provides habitat for only four of the Sensitive Species identified for the Caribou National Forest. Of these four, only one, the Columbian sharp-tailed grouse is known to use the Curlew National Grasslands.

Wildlife Species

SPOTTED BAT

Habitat and Population Overview

The following information is summarized from Groves et al, 1997.

This species is relatively solitary, but may hibernate in small clusters, although winter habits are poorly known. They roost in cracks and crevices in cliffs and canyons. They appear to use the same roost each night during the summer and appear to maintain exclusive foraging areas. They primarily foraged over dry, open coniferous forest.

This species has been documented in the Owyhee area of the southwestern part of the state, and is over 150 miles to the west of the Grasslands.

Habitat Evaluation

The Curlew National Grassland does not have any cliffs or canyons that would provide suitable roosting habitat. It is also well outside of the known distribution of the species.

Determination of Effects

Implementation of Alternative H will have **no impact** on the spotted bat or its habitat.

WESTERN BIG-EARED BAT

Habitat and Population Overview

The following information is summarized from Idaho State Conservation Effort, 1995.

Western big-eared bats occur in a wide variety of habitats, but its distribution tends to be strongly correlated with the availability of caves or cave-like roosting habitat. In Idaho, the largest known populations are associated with the lava flows in the southwestern part of the state.

Maternity colonies for this species have been found in lava-tube caves at Craters of the Moon National Monument, over 80 miles to the north of the Curlew National Grasslands. Summer roosts of males and non-reproducing females include caves, buildings, prospect holes, bridges, boulders on a cave floor and abandoned mines. Hibernacula have been documented in lava-tube caves on BLM Shoshone District to the northwest (90 miles), and in a couple of caves and abandoned mines in Bear Lake County (approximately 60 miles), to the east of the Curlew National Grassland.

More recently, this species has been found in abandoned mines in the south end of the Elkhorn Mountains (Lengas 1997), which is over 20 miles to the east of the Curlew National Grassland.

This species is highly nocturnal, emerging from the roost after sunset and forage up to 13 km (8 mi) from the day roost. They have been found to forage in a wide variety of habitats across its range. They glean insects from vegetation and within tree canopies. They are considered food specialists, with a diet of >90% moths.

Habitat Evaluation

The Curlew National Grassland has no features that could provide habitat for maternity colonies, summer roosts or winter hibernacula. The Grasslands are over 20 miles from the nearest known area of use. If areas adjacent to the Curlew provide the necessary physical structure and are being used, the Curlew could provide foraging habitat.

Welch (1999 draft) identified two moth species that are associated with sagebrush; the sagebrush defoliator (*Aroga websteri*) and a leaf miner (*Bucculatrix trienticola*). Both of these species depend on sagebrush during the larval stage, when the larvae feed on sagebrush foliage. Alternative G maintains the current distribution of sagebrush canopy cover classes at the end of the decade.

Determination of Effects

Implementation of Alternative H will have **no impact** on roost habitat, maternity colonies, winter hibernacula or foraging habitat of the Western big-eared bat.

SPOTTED FROG

Habitat and Population Overview

The following habitat information is taken from Koch and Peterson, 1995.

Spotted frogs are highly aquatic, almost always associated with surface water. Adult spotted frogs can migrate from a hibernation site in a permanent body of water to a breeding pond, then to a wetland or creek for the summer months, and then back to the hibernation site. They also may hibernate, breed, and spend the active season all in the same permanent water body.

Before 1997, spotted frogs (*Rana pretiosa*) were listed as a species of concern due to population declines in some areas of their range. As a result, they were placed on the USFS R4 Sensitive Species list in 1995. Groves et al (1997) ranked them as G4/S4 (globally and statewide, not rare and apparently secure, but with cause for long-term concern). Distribution maps in that document show them distributed across northern Idaho, including the northern part of the Targhee, and small areas in southwestern Idaho (but nowhere in the vicinity of the Caribou or the Curlew).

In 1996, spotted frogs were split into separate species (www.pacificbio.org/). The species was split into *Rana luteiventris*, the Columbian spotted frog, and *Rana pretiosa*, the Oregon spotted frog. In Idaho, the spotted frog (*Rana pretiosa*) became the Columbian spotted frog (*Rana luteiventris*). Current distribution maps, maintained by Dr. Charles Peterson at Idaho State University (Digital Atlas of Idaho at imnh.isu.edu/digitalatlas) show a similar distribution as earlier maps as published in Groves et al (1997).

The population in the northern part of the state is not in trouble (C.Peterson, ISU, pers. comm.). However, the Great Basin population, which includes southwest Idaho, may be at risk and is listed as a state Species of Special Concern by the Conservation Data Center. This population is a candidate species. Engle and Harris (2001) compiled information on state SSC for a recent meeting. They identified the Great Basin population, found in Owyhee and Twin Falls counties, as being at risk.

Habitat Evaluation

The spotted frog has not been found, nor is it expected to be found anywhere on the southern part of the Caribou-Targhee (old Caribou). In reports on amphibian surveys on the Caribou, spotted frogs are not listed as one of the species expected to be present (Burton and Peterson, 1998). The Grasslands are well outside of the distribution of this species and is not expected to be present.

Determination of Effects

Implementation of Alternative H will have **no impact** on the spotted frog or its habitat.

COLUMBIAN SHARP-TAILED GROUSE

Habitat and Population Overview

Over the last decade concern has increased regarding Columbian sharp-tailed grouse populations in Idaho, the western United States and southern Canada. Once considered one of the most abundant upland game birds throughout much of the Intermountain West, its abundance and distribution have declined dramatically since the turn of the century. The loss and/or degradation of native grassland and shrub-steppe habitats from agricultural expansion, fire, invasion of non-native annual vegetation and overgrazing by livestock are cited as contributing to this species decline (Ulliman et al, 1998).

Columbian sharp-tailed grouse have undergone a significant range-wide decline; the species currently occupies less than 10% of its former range. Many remaining populations are small and widely separated from other populations. Idaho has the best remaining populations, with 75 percent of the remaining birds (Paige and Ritter, 1999).

In southeastern Idaho, the largest concentrations of sharp-tailed grouse are in Fremont, Bonneville and Oneida counties (Ulliman, 1995). Populations in Idaho are currently increasing due, in part, to the Conservation Reserve Program (CRP) (Sirotnak, *et al*, 1991, Meints, *et al*, 1992). Idaho spring breeding populations are estimated to be 20,000 to 50,000 birds (Ulliman, 1998).

Sharp-tailed grouse are nest habitat generalists and can adapt to many different habitats (Apa 1998). Summer and brood-rearing habitat generally consists of shrub-steppe vegetation with 20-40 percent shrub cover interspersed with a high diversity of forbs and bunchgrasses, generally comprised of 60-80 percent grass/forbs cover. Summer habitat use generally consists of grasslands or habitat edges during the morning hours, moving to shrub cover during mid-day, then back to more open vegetation types towards the evenings (Ulliman, 1995).

During winter, sharp-tailed grouse exhibit a close association with deciduous trees and mountain shrubs in upland and riparian areas, because they provide the only adequate food source and shelter from weather and predators. Severity of the winter influences habitats used by sharp-tailed grouse. Unless forced by heavy snows, birds do not move out of summer/fall habitat (Ulliman, 1993). The most important shrub species in these cover types is serviceberry, chokecherry, bittercherry and Hawthorne (Ulliman, 1995). Saab and Marks (1992) describe preferred sharp-tailed grouse habitat as having moderate vegetative cover, high plant species diversity and high structural diversity.

Sharp-tailed grouse favor lek (traditional breeding ground) locations having low, mottled, or sparse vegetation with good visibility. Leks tend to be used year after year and are focal points in population surveys and management of sharp-tailed grouse populations. In the fall a hunting season for sharp-tailed grouse occurs in southeast and eastern Idaho. The Grassland draws both resident and non-resident hunters; the daily bag limit is two birds with four birds in possession after the first day of the season (Idaho, 1998, pg 15).

Several Master's thesis and one Doctoral dissertation have addressed sharp-tailed grouse ecology on and adjacent to the Grassland (Apa 1998, Ulliman 1995a, Schneider 1994). Because of recent increases in some sharp-tailed grouse populations, improved range condition, and the Conservation Reserve Program, interest in transplanting sharp-tailed grouse to historic ranges within Idaho and surrounding western states has increased. In 1988 the Idaho Department of Fish and Game began live trapping of sharp-tailed grouse to transplant in suitable habitats in other areas of the Idaho and out-of-state. The transplant program has been ongoing since 1988, with the exception of 1989-90, with birds trapped from the Grassland and adjacent ownerships (D. Rose, IDFG Biologist, pers. comm.). Birds from the local area (Arbon Valley, Rockland and Curlew) have been transplanted to Idaho, Oregon, Washington and Nevada, but transplants have not been very successful to this point (D. Meints, IDFG Biologist, pers. comm.).

On October 26, 1999 the U.S. Fish and Wildlife Service published a 90-day finding on a petition to list the Columbian sharp-tailed grouse as threatened (Federal Register, 1999). On October 11, 2000 the USFWS determined that the Columbian sharp-tailed grouse was not warranted for listing under the ESA. Their review showed that some of the smaller, isolated populations are currently at risk of extinction, but there are numerous larger populations that are relatively secure and possibly increasing. In addition, various state and federal agencies are actively managing these populations to improve their overall status and are attempting to restore the grouse to unoccupied but suitable habitat.

Habitat Evaluation

An analysis of sharp-tailed grouse nest success in the Greater Curlew Valley found it to be around 51%, which is close to nest success found in other areas (Apa 1998). Apa also found that nests in native vegetation types had higher nest success than those on non-native sites. Nests were found in stands with high shrub canopy cover, but half the nests were found under grasses or forbs.

Table 2 displays the estimated current quantity of sharp-tailed grouse habitats in the Grassland and Greater Curlew Valley Area

Table 2. Estimated Acres of Sharp-Tailed Grouse Nesting/Summer/Brood-rearing and Winter Habitats at the Grassland and Greater Curlew Valley Area landscape scales.

Data from USFS geographic information system (GIS) files and Gardner, *et al*, 1997.

Habitat	Curlew National Grassland	Greater Curlew Valley Area
Nest/summer/brood	26,639 ¹	96,765
Winter	1,720 ²	60,754

¹ Assumes shrub-steppe vegetation >15% canopy cover .

² Mountain brush, riparian and tree rows.

Most sharp-tailed grouse wintering areas are found adjacent to the Grassland, although mountain brush, tree rows and riparian areas on the Grassland may be used during the winter. In less severe winters, sagebrush habitats on the Grasslands may be used to a greater degree.

Determination of Effects

Apa (1998) found that his data from the Greater Curlew Valley showed that Columbian sharp-tailed grouse are habitat generalists and can adapt to many different habitats. He felt that management for sage grouse, which are habitat specialists, would also benefit sharp-tailed grouse. Columbian sharp-tailed grouse are more adaptable and occupy a much broader nesting habitat niche, which allows them to adapt to many different types of management. Columbian

sharp-tailed grouse broods occupy lower elevations, highly modified sagebrush and grass cover types and CRP on private lands.

Alternative H has been modified to incorporate needs of sage grouse. These modifications include treatments that should improve understory production while maintaining sagebrush overstory, a reduction in livestock forage utilization levels, which will result in more cover for nests and broods, and improved riparian habitats which are used for brood-rearing.

Implementation of Alternative H **may impact individuals or habitat, but will not likely contribute to a trend towards federal listing** or cause a loss of viability to the population or species.

Sensitive Plants

SLICK-SPOT PEPPERGRASS

Habitat and Population Overview

A historical collection of slick spot peppergrass from 1949 is documented for the Caribou National Forest, but is known to be a southwest Idaho endemic. Based on this historical collection, the species was added to the Region 4 sensitive species list for the Caribou in 1994.

This species is identified as a Candidate species in the USFWS 1999 review of plant and animal species proposed for listing (Federal Register 64:57533-57547). In the process of reviewing the species, the USFWS found that the historical collection on the Caribou has not been confirmed and is not considered to exist within preferred habitat for slick spot peppergrass (Wood 2000, pers. comm). The historical collection is believed to be either a misidentification or to have an erroneous data label (Mancuso 2000, pers. comm). In addition, the USFWS considers the entire Caribou National Forest (including the Curlew Grasslands) to be well outside the known range of the species. The species has been recommended to be dropped from the Intermountain Region's Sensitive Species list for the Caribou National Forest.

Habitat Evaluation

The Curlew Grasslands are outside the known and suspected range of Slick-spot peppergrass.

Determination of Effects

Implementation of Alternative H will have **no impact** on the slick-spot peppergrass or its habitat.

PAYSON'S BLADDERPOD

Habitat and Population Overview

Payson's bladderpod is considered a regional endemic to the carbonate mountain ranges of west-central Wyoming and adjacent Idaho most often above 8,000 ft elevation on ridgelines. In Idaho

and Wyoming there are 42 occurrences of the species with populations ranging in size from 10 individuals to many thousands of individuals in areas between 1-30 acres. The one known location for Payson's bladderpod on the Caribou National Forest is on Caribou Mountain on the Soda Springs District (Moseley 1996).

Suitable habitat is sparsely vegetated ridgelines, less so on slopes in openings in sagebrush and forested stands on carbonate parent material with gravelly, skeletal soils.

Habitat Evaluation

The elevation of the grassland is too low for Payson's bladderpod and is outside the known and suspected range of the species.

Determination of Effects

Implementation of Alternative H will have **no impact** on the Payson's bladderpod or its habitat.

CACHE PENSTEMON

Habitat and Population Overview

Cache Penstemon can be found along ridgelines and summits on carbonate substrates within the Bear River Range at high elevations.

Cache Penstemon is endemic to lands managed by the Wasatch-Cache National Forest and the Caribou National Forest. One of the largest populations is known to occur in the Naomi Peak vicinity in Utah with an estimated 1000 –10,000 plants, within the Naomi Peak wilderness in Utah (Utah Division of Wildlife Resources 1998, pg 86)

Habitat Evaluation

The elevation of the grassland is too low for Cache Penstemon and is outside the known and suspected range of the species.

Determination of Effects

Implementation of Alternative H will have **no impact** on the Cache Penstemon or its habitat.

STARVELING MILKVETCH

Habitat and Population Overview

On the Caribou National, Starveling milkvetch is restricted to exposed Twin Creek Limestone that is raw, loose and eroding shale on the Montpelier District of the Caribou NF (Mancuso and Moseley 1990). Starveling milkvetch is locally abundant in sw. Wyoming and adjacent Utah centering on the Bear-Green River Divide associated with dry hilltops, gullied bluffs, and barren

ridges or river-terraces, on tuff, shale, sandstone, or derived gumbo clays (Conquist et al 1989). Disjunct populations are known to occur in Nevada. In Idaho the species displays a localized distribution pattern associated with the Twin Creek Limestone, which is found on and near the Montpelier District of the Caribou approximately 75 miles from the Curlew Grasslands.

Habitat Evaluation

In Idaho, starveling displays a localized distribution pattern associated with Twin Creek Limestone, 75 miles distant from the grasslands. The species is not suspect to occur on the Curlew Grasslands based on known and suspected distribution of the species.

Determination of Effects

Implementation of Alternative H will have **no impact** on starveling milkvetch or its habitat.

Fish Species

YELLOWSTONE CUTTHROAT TROUT

Habitat and Population Overview

U.S. Fish and Wildlife Service was petitioned to list Yellowstone cutthroat trout in August 1998. In February 2001, the agency finalized their finding regarding the petition to list Yellowstone cutthroat trout. They determined the petition did not provide substantial information to indicate listing was warranted. Yellowstone cutthroat trout currently retains its status as a Sensitive species on the Regional Foresters Sensitive Species List.

The Caribou-Targhee National Forest is currently addressing the needs of Yellowstone cutthroat trout by maintaining consistency with their Forest Plans. Within the range of Yellowstone cutthroat trout, Forest activities are guided by the Targhee Forest Plan Revision (Targhee Forest), the Caribou Forest Plan, as amended by INFISH (Caribou Forest), and the Grassland Management Plan.

Intensive surveys for Yellowstone cutthroat trout distribution have been conducted on the Caribou-Targhee National Forest since 1997. The subspecies appear to be distributed throughout most of the Forest, but populations in various streams or stream segments vary in strength. While some populations are threatened by competition and hybridizing with nonnative species, others appear to be thriving in isolated streams or stream reaches. Some populations have been replaced by introduced nonnative fish species. Genetic interactions between existing Yellowstone cutthroat trout populations have diminished from historic conditions because of a decrease in connectivity. The forest continues to better define fish distribution through ongoing surveys.

Within Idaho, the original cutthroat trout native to the Snake River system may have been the Yellowstone cutthroat trout. It is believed they were replaced by rainbow trout and other subspecies of cutthroat trout in drainages downstream of Shoshone Falls. Shoshone Falls

isolated cutthroat trout from contact with rainbow trout and the Yellowstone subspecies remains the native trout in the upper Snake River basin. It is also believed cutthroat trout may have been native to the Sinks drainages (Dubois District), but further research is needed. Yellowstone cutthroat trout are adapted to cold water. Water temperatures between 4.5 and 15.5 C appear to be optimum for the subspecies. This subspecies migrates for spawning when threshold water temperatures approach 5 C (optimum 10 C) and stream flows subside from spring peaks. Streams selected for spawning are commonly low gradient (up to 3%), perennial streams, with groundwater and snow fed water sources. Use of intermittent streams for spawning is not well documented, but has been noted in some intermittent tributaries to Yellowstone Lake. Spawning occurs wherever optimum size gravel (12-85 mm in diameter) and optimum water temperatures (5.5-15.5 C) are found. Depending on variations in growth, spawning populations are comprised of individuals age 3 and older (primarily ages 4-7). Juveniles congregate in shallow, slow-moving parts of the stream.

The northern tip of the Curlew Grasslands (approximately 7 square miles) flows into the Snake River Drainage. This is the upper part of the Rock Creek Watershed. Rock Creek flows into the Snake River between American Falls and Rupert, Idaho. Yellowstone cutthroat trout inhabit Rock Creek downstream of the Grasslands, but they currently do not occur on the Grasslands because of a long history of habitat impacts on both public and private lands. However, South Fork Rock Creek is in the historic range of the species and the habitat has the potential to improve to its potential, possibly being able to support a fish population again.

Habitat Evaluation

The Forest Fisheries Crew performed the Caribou-Targhee National Forest Fish Distribution Survey on 2.3 miles of the South Fork of Rock Creek in 2001. No fish were observed. Sagebrush and grasses were the dominant riparian vegetation. Sedges and thistles were also observed. The stream substrate was dominated by silt and mud. Aquatic vegetation was frequent. Cattle impacts were most noticeable in the stream reach that extended 1 mile upstream from the Grassland boundary. These impacts included trampled stream banks, cattle trails paralleling the stream, and overgrazed vegetation. As the survey progressed upstream, the cattle impacts decreased somewhat, but were still present in the stream channel and riparian area.

Tiger salamanders were observed in the South Fork of Rock Creek during the survey, indicating the stream is able to support some aquatic life. Although Rock Creek does not currently support a population of Yellowstone cutthroat trout on the Grasslands, the species does occur downstream and may recolonize the Grasslands if habitat improves.

Determination of Effects

The selection and implementation of Alternative H of the Curlew Grasslands Management Plan will have a **Beneficial Impact** upon Yellowstone cutthroat trout and their habitat downstream of the Grasslands and habitat within the Grasslands. The improvements to management direction are listed above (see Project Description section). Site-specific standards and guidelines including greenline stubble height and/or percent utilization, bank disturbance, riparian soil disturbance, and/or woody species regeneration parameters will likely improve the South Fork of

Rock Creek. A 75-foot riparian management area would be established along South Fork Rock Creek. No new roads would be allowed in this riparian area. These actions are expected to have a **Beneficial Impact** upon Yellowstone cutthroat trout and their habitat.

BONNEVILLE CUTTHROAT TROUT

Habitat and Population Overview

Bonneville cutthroat trout (BCT) are endemic to the Great Basin, specifically the Bonneville Basin, which at one time was the site of Lake Bonneville, a fresh water lake that covered much of the lowlands in northern Utah and extended into Nevada and southeastern Idaho. This species comprises of three slightly differentiated groups associated with 1) the Bonneville basin, which includes the Ogden, Provo, Weber and Sevier river drainages in Utah; 2) the Snake Valley region of Utah and Nevada; and 3) the Bear River drainage located in northern Utah, southwestern Wyoming and southeastern Idaho (Behnke 1992). It was thought at one time pure populations were nearly extinct (Behnke 1992, Duff 1988). However, within the past decade, surveys have documented numerous populations of the fish throughout northern Utah, southwestern Wyoming and southeastern Idaho (Behnke 1992, Duff 1988, USFS 1978-2001).

All trout species require four kinds of habitat during the various stages of their life history: 1) spawning, which requires relatively sediment-free gravels and high oxygen levels; 2) nursery or rearing, which requires relatively low water velocities and protective cover; 3) adult, which requires forage sources, cover and resting areas; and 4) overwintering, which provides thermal and protective cover related to deep water with low current velocity, associated with deep natural in-stream pools or beaver ponds (Behnke 1992)

U.S. Fish and Wildlife Service received a petition to list Bonneville cutthroat trout as Threatened in February 1998. The agency responded the petition presented substantial information indicating that listing this species may be warranted. They initiated a status review of the subspecies. On 9 October 2001, US Fish and Wildlife Service determined the Bonneville cutthroat trout do not currently warrant listing. The Bonneville cutthroat trout currently retains its status as a Sensitive species listed on the Regional Foresters Sensitive Species list.

The Caribou-Targhee National Forest is currently addressing the needs of Bonneville cutthroat trout by maintaining consistency with their Forest Plan. Within the range of the subspecies, Forest activities are guided by the Caribou Forest Plan, as amended by INFISH (Caribou Forest), and the Curlew Grassland Management Plan.

Intensive surveys of Bonneville cutthroat trout distribution have been conducted on the Caribou-Targhee National Forest since 2000 and are now complete. The subspecies occur in streams in the Bear River and Bonneville Drainages and appear to be stressed by nonnative fish, water diversions, habitat impacts (particularly grazing and roads) and disconnectivity. Of the 35 Fifth Code Hydrological Unit Code (HUC) watersheds within their range on the Forest, 6 HUC's have strong populations, 15 HUC's have depressed populations, and 14 HUC's have no Bonneville cutthroat trout populations where we expected to see them.

Habitat Evaluation

Within the Grassland, streamflows are highly variable, ranging from extremely low base flows (those flows during late summer and winter), to extremely high volume, high velocity flows that result from strong summertime rain storms (Baker 1974, Leffert personal observations 1990-2001). The four types of habitat needed for all life stages (Behnke 1992) are generally absent from streams within the Grassland. Most of the streams within the Grassland have little available spawning gravel, as sediment (primarily generated from upland agricultural fields) is in abundant supply, covering or intermingling with most available spawning gravels, making the gravels generally unavailable to salmonid spawning. Nursery rearing is generally unavailable, due to low summertime flows and extremely high velocity storm runoff flows. Livestock grazing has reduced the amount of streamside vegetation throughout the Grassland as well as stream scouring associated with intense runoff events, reducing the amount of available streamside cover. Adult habitat requirements are generally absent throughout the Grassland. Many streams have very low summertime/wintertime flows and many are known to dry up periodically. There is little overwintering habitat due to the lack of stream flows, deep pools or protective streamside cover. Therefore, overall habitat required for salmonids is currently generally lacking or absent throughout the Grassland.

The major streams on the Grasslands that possibly supported Bonneville cutthroat trout populations in the past include Deep, Meadow Brook, Rock, Saylor Springs, and Sheep Creeks. All of these streams flow into the Great Salt Lake Basin. The streams that flow on the west side of the Great Salt Lake Basin are within the range of the Western Bonneville Cutthroat Trout Historic Population. It is geographically isolated from the Bear River Bonneville population. Although some surviving Bonneville cutthroat trout have been recently documented within the Western Bonneville Historic Population area, they are in Utah and Nevada. The C-T National Forest performed fish distribution surveys on the streams within the Grasslands and determined Bonneville cutthroat trout are absent. The Forest considers these streams historic habitat. Restoration has the potential of returning the subspecies to the Grasslands but populations will be limited to the degree of habitat available and its quality. Potential populations will be limited by low base flows, periodic flooding, and sediment influxes originating from upstream private agricultural lands.

Determination of Effects

Two fish distribution surveys have been conducted in the Grasslands since 1999 (Leffert 1999, USFS 2001). No Bonneville cutthroat trout, nor any salmonids, were found in any streams within the Grassland except in Deep Creek associated with the backwaters of Stone Reservoir. There, stocked rainbow trout (*Oncorhynchus mykiss*) were identified in limited numbers, along with a number of nonnative warm water fish species (crappie, yellow perch, carp, and largemouth bass). The only fish species inventoried in other area streams were speckled dace and shiners.

Because habitat throughout the Grassland is limited and no Bonneville cutthroat trout were collected on the Grasslands any proposed management activities would have no impact directly upon individual Bonneville cutthroat trout. It is probable that overall habitat will improve as a

result of proposed management activities associated with the proposed Alternative H. If and when this occurs, the potential for stocking Bonneville cutthroat into improved stream reaches may be considered. However, until sediment sources and flash flood events associated with upland farming are reduced, the overall potential for salmonid introductions into area streams will be limited even if reaches within the Grassland are improved to potential.

The selection and implementation of Alternative H of the Curlew Grasslands Management Plan will have a **Beneficial Impact** upon Bonneville cutthroat trout habitat within the Grasslands. The improvements to management direction are listed above (see Project Description section). Site-specific standards and guidelines including greenline stubble height and/or percent utilization, bank disturbance, riparian soil disturbance, and/or woody species regeneration parameters will likely improve Grassland streams. A 150 foot wide riparian management area would be established along Meadow Brook, Rock, and Deep Creeks (fish occur in these streams). A 75 foot wide riparian management area would be established along Sayler and Sheep Creeks (fish do not occur in these streams). No new roads would be allowed in these riparian areas. Meadow Brook, Sheep, and Deep Creeks, and segments of Rock Creek would be fenced off to exclude cattle. These actions are expected to have a **Beneficial Impact** upon Bonneville cutthroat trout habitat.

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