SNAKE RIVER HEADWATERS
Wild and Scenic River
Bridger-Teton National Forest
DRAFT ORV Assessment

OVERVIEW

The Snake River Headwaters Wild and Scenic River system lies at the heart of the Greater Yellowstone Area (GYA), often referred to as one of the largest intact temperate ecosystems on earth. The streams included in the Snake River Headwaters Legacy Act are considered among the most pristine in the nation.

On March 30, 2009, the Snake River Headwaters Legacy Act was passed by Congress. This Act designated approximately 390 miles of the Snake River Headwaters as wild and scenic rivers. This designation crosses several administrative boundaries, including those of the Bridger-Teton National Forest, Grand Teton and Yellowstone National Parks, the John D. Rockefeller, Jr. Memorial Parkway and the National Elk Refuge.

This report begins by describing Outstandingly Remarkable Values (ORVs—clarified below) that will become the cornerstone of a Comprehensive River Management Plan (CRMP). Public input on these draft statements is important as the planning team progresses with creating a CRMP over the next two years. The focus of this report is on designated portions of the Snake River Headwaters located within, or along the boundary of the Bridger-Teton National Forest. The Omnibus Public Land Management Act of 2009 designated twelve river segments that flow through National Forest lands to be added to the National Wild and Scenic River System. As stated in the Act, these river segments include:

> (A) BAILEY CREEK.—The 7-mile segment of Bailey Creek, from the divide with the Little Greys River north to its confluence with the Snake River, as a wild river.
>
> (B) BLACKROCK CREEK.—The 22-mile segment from its source to the Bridger-Teton National Forest boundary, as a scenic river.
>
> (C) BUFFALO FORK OF THE SNAKE RIVER.—The portions of the Buffalo Fork of the Snake River, consisting of—(i) the 55-mile segment consisting of the North Fork, the Soda Fork, and the South

Fork, upstream from Turpin Meadows, as a wild river and (ii) the 14-mile segment from Turpin Meadows to the upstream boundary of Grand Teton National Park, as a scenic river.

(D) CRYSTAL CREEK.—The portions of Crystal Creek, consisting of—(i) the 14-mile segment from its source to the Gros Ventre Wilderness boundary, as a wild river; and (ii) the 5-mile segment from the Gros Ventre Wilderness boundary to its confluence with the Gros Ventre River, as a scenic river.

(E) GRANITE CREEK.—The portions of Granite Creek, consisting of— (i) the 12-mile segment from its source to the end of Granite Creek Road, as a wild river; and (ii) the 9.5-mile segment from Granite Hot Springs to the point 1 mile upstream from its confluence with the Hoback River, as a scenic river.

(F) GROS VENTRE RIVER.—The portions of the Gros Ventre River, consisting of— (i) the 16.5-mile segment from its source to Darwin Ranch, as a wild river and (ii) the 39-mile segment from Darwin Ranch to the upstream boundary of Grand Teton National Park, excluding the section along Lower Slide Lake, as a scenic river.

(G) HOBACK RIVER.—The 10-mile segment from the point 10 miles upstream from its confluence with the Snake River to its confluence with the Snake River, as a recreational river.

(I)PACIFIC CREEK.—The portions of Pacific Creek, consisting of—(i) the 22.5-mile segment from its source to the Teton Wilderness boundary, as a wild river; and (ii) the 7-mile segment from the Wilderness boundary to the Forest boundary as a scenic river.

(J) SHOAL CREEK.—The 8-mile segment from its source to the point 8 miles downstream from its source, as a wild river.

(K) SNAKE RIVER.—The portions of the Snake River, consisting of—i. the 7 mile portion from the source to Yellowstone NP Boundary as a wild river; (iii) the 19-mile segment from the mouth of the Hoback River to the point 1 mile upstream from the Highway 89 bridge at Alpine Junction, as a recreational river, the boundary of the western edge of the corridor for the portion of the segment extending from the point 3.3 miles downstream of the mouth of the Hoback River to the point 4 miles downstream of the mouth of the Hoback River being the ordinary high water mark.

(L) WILLOW CREEK.—The 16.2-mile segment from the point 16.2 miles upstream from its confluence with the Hoback River to its confluence with the Hoback River, as a wild river.

(M) WOLF CREEK.—The 7-mile segment from its source to its confluence with the Snake River, as a wild river.

Defining and describing ORVs provides the foundation for developing a CRMP for these river segments. The map on page 7 shows the location of these designated river segments in relationship to those located on the adjacent National Park Service and National Elk Refuge lands. Designated portions of the Snake River Headwaters located on Yellowstone & Grand Teton National Parks, the John D. Rockefeller Memorial Parkway and the National Elk Refuge will be addressed separately by the National Park Service in a concurrent wild and scenic river planning effort.

SNAKE RIVER HEADWATERS
DRAFT ORV STATEMENTS

Free-flowing condition, water quality, and Outstandingly Remarkable Values (ORVs) form the three pillars of protection under the Wild and Scenic Rivers Act. Free-flowing condition and water quality support the integrity of the ORVs, and their protection is a key component of the Comprehensive River Management Plan (CRMP). Because of their importance to the overall protection and enhancement of a designated wild and scenic river, free-flow condition and water quality are included as part of this ORV report. These fundamental characteristics of the Snake River Headwaters are described below.

Free-Flowing Condition

According to the Wild and Scenic Rivers Act, "free-flowing" means flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. However, the existence of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic rivers system shall not automatically bar its consideration for such inclusion provided that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.

The Snake River Headwaters are high quality snowmelt-dominated streams. The headwaters contain diverse, abundant native species and natural communities; extensive, intact, and interconnected habitats; high water quality; and natural channel morphology. The headwaters contain numerous U.S. Geological Survey stream gauges which provide flow data for monitoring their free-flow conditions. Peak flows generally occur in late May and early June. Low flows generally occur in October below Jackson Lake and in September above the dam and on tributary streams. The majority of the river segments contain an unaltered hydrograph (except as noted below). These natural flow regimes are a feature no longer commonly found on the majority of streams and rivers in Wyoming, or in much of the Intermountain West, and contribute substantially to the Outstandingly Remarkable Values found in the Snake River Headwaters.

The Snake River below Jackson Lake is influenced by Jackson Lake Dam, originally constructed in 1907 and raised in 1917. The dam is operated by the Bureau of Reclamation and provides water to Idaho in order to meet obligations for the Snake River Compact between Idaho and Wyoming. The Bureau of Reclamation cooperatively works with the National Park Service to provide spring-release flushing flows in May/June. Constant flows between 1,500-2,100 cubic feet per second (cfs) are released from July to September. Recent studies (Schmidt et. al.) show that tributaries below the dam mitigate its effects related to hydrology and geomorphology by contributing flow to the mainstem Snake River.

The middle reach of the Snake River (south of the boundary with Grand Teton National Park), which is not within the WSR designation, has been modified by a levee system which does have some influence on the lower 19 mile recreational section. Because the term "free-flowing" means "flowing in a natural condition without…straightening, rip-rapping, or other modification of the waterway", these levees are a noteworthy influence on this reach of the river. They confine the channel and partially keep it from accessing its natural floodplain, thus reducing its ability to perform the natural functions it would have if it were in a natural, free-flowing condition through this reach (e.g., water table recharge; overbank sediment deposition; flood flow attenuation).

The Snake River and its tributaries contain a number of other minor channel modifications (such as boat ramps, stream bank stabilizations, bridges, and culverts). These man-made features generally do not impede the free-flowing character of the river system.

For most of the tributaries, the characteristics of the water itself and the nearly unaltered flow regimes of the designated waterways are rare among rivers in the nation.

Water Quality

All of the rivers and streams within the Snake River Headwaters have excellent water quality. Natural geologic and geothermal forces, as well as artificial changes in stream flow (due to the Jackson Lake Dam), can affect the water quality of the Snake River Headwaters. These and other natural and human influences can cause changes in temperature, sediment, dissolved oxygen, and other water quality characteristics. Ongoing monitoring provides opportunities to study these influences on the natural features, systems, and processes of the Snake River Headwaters.

ORV Statements

Outstandingly Remarkable Values (ORVs) are the characteristics that make a river worthy of special protection. The foundation for preparing a Comprehensive River Management Plan is to clearly articulate a designated river's ORVs, free-flowing condition, and water quality, so that these values can be protected and enhanced in accordance with the Wild and Scenic Rivers Act's mandate. During a May 2010 NPS workshop and an August 2010 Forest Service workshop, criteria were used to draft a set of outstandingly remarkable value statements for the Snake River Headwaters that are presented in this document. These criteria were developed using the Interagency Wild and Scenic Rivers Coordinating Council's guidance for determining ORVs (IWSRCC 1999), which states:

- An ORV must be river related or dependent. This means that a value must:
  - Be located in the river or on its immediate shorelands (generally within ¼ mile on either side of the river, also referred to as the river corridor);
  - Contribute substantially to the functioning of the river ecosystem; and/or
  - Owe its location or existence to the presence of the river.

- An ORV must be rare, unique, or exemplary at a comparative regional or national scale. Such a value would be one that is a conspicuous example from among a number of similar values that are themselves uncommon or extraordinary.

So that their protection and enhancement can be assured, the Forest Service also determined that ORVs for the Snake River Headwaters must be specifically evaluated and defined for individually designated river segments.

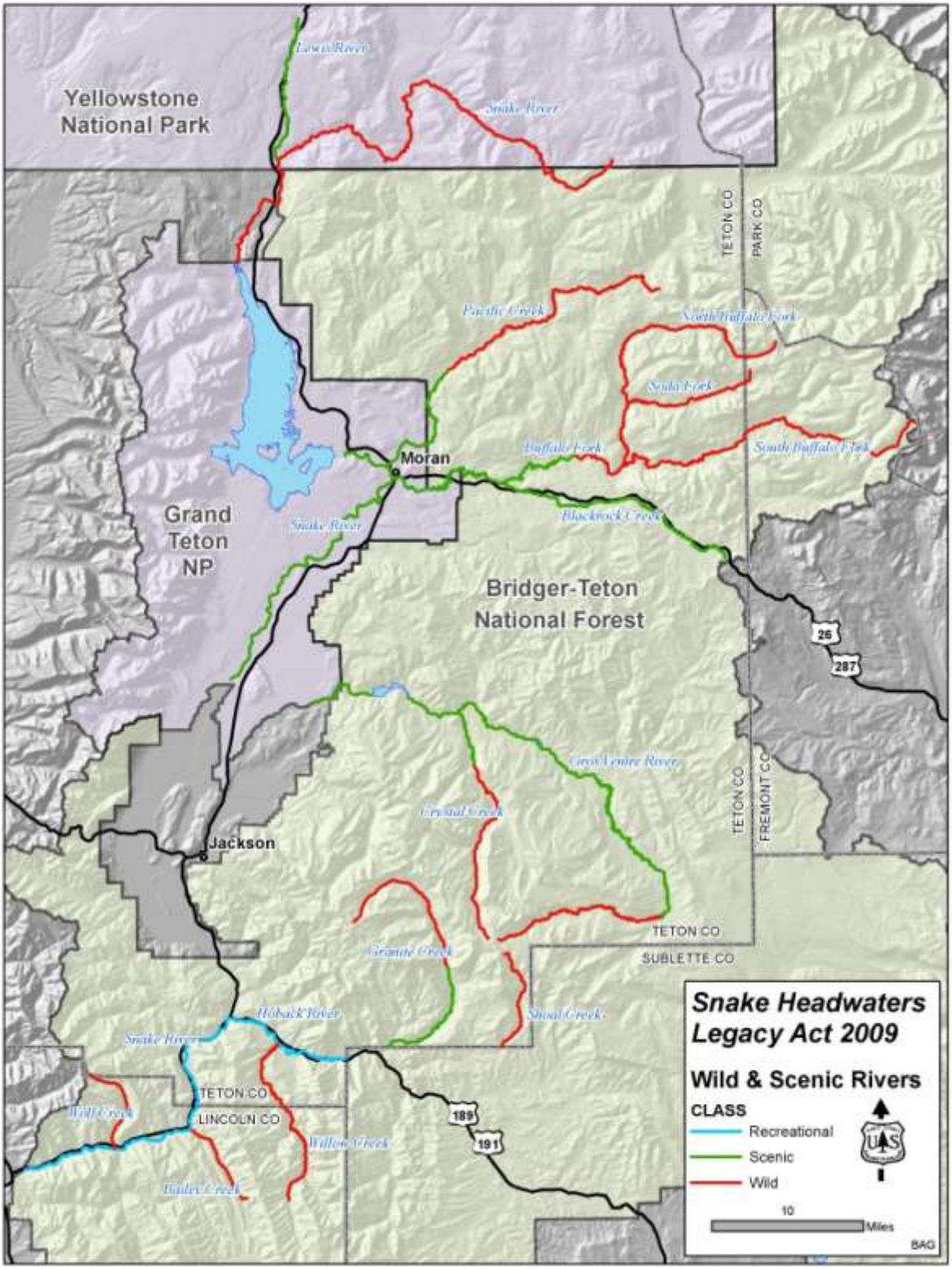
The workshop participants concluded that the Snake River Headwaters contain the following ORVs: scenic, recreational, cultural, ecological/wildlife, fish and geologic. A set of broad statements has been developed that articulates each ORV for the entire Snake River Headwaters system. An evaluation process based on a defined set of criteria for each ORV was used to determine which river segments contain the different ORVs. The results were used to draft ORV sub-statements by river segment, which provide evidence for the broader ORV statements. In late 2010, the public was also invited to two sessions, one in Jackson and one in Bozeman, to learn about the river planning process and to add their

input regarding the ORV statements. Comments were reviewed by respective resource area specialists and have been incorporated as appropriate into the current version of this report. Criteria used by resource area and supporting evidence charts are provided at the end of this report.

The following matrix summarizes the evaluation results and provides an organization to the ORV statements and sub-statements described below.

River Segment	**ORV Category**					
	Scenic	Recreational	Cultural	Ecological/ Wildlife	Fish	Geologic
Bailey Creek	•	•		•	•	•
Blackrock Creek	•	•	•	•	•	
Buffalo Fork (wild)	•	•	•	•	•	•
Buffalo Fork (scenic)	•	•		•	•	•
Crystal Creek (wild)	•	•		•	•	•
Crystal Creek (scenic)	•	•		•	•	•
Granite Creek (wild)	•	•	•	•		•
Granite Creek (scenic)	•	•		•	•	•
Gros Ventre (wild)	•	•	•	•	• *	•
Gros Ventre (scenic)	•	•	•	•	•	•
Hoback River (recreatl)	•	•	•	•	•	•
Pacific Creek (wild)		•		•	•	•
Pacific Creek (scenic)		•		•	•	•
Shoal Creek (wild)	•	•		•	•	•
Snake River (wild)	?	•		•	•	?
Snake River (recreatl)	•	•		•	•	•
Willow Creek (wild)	•	•		•	•	
Wolf Creek (wild)	•	•		• **	• **	

*Ouzel Falls to Darwin Ranch only **Lower three miles only


Yellowstone National Park
Lewis River
Snake River
TETON CO
PARK CO
Pacific Creek
North Buffalo Fork
Soda Creek
Buffalo Creek
South Buffalo Creek
Moran
Grand Teton NP
Snake River
Blackrock Creek
Bridger-Teton National Forest
26
287
Gros Ventre River
Crystal Creek
TETON CO
FREMONT CO
Jackson
TETON CO
SUBLETTE CO
Granite Creek
Shoal Creek
Hoback River
Snake River
TETON CO
LINCOLN CO
Wilt Creek
Willow Creek
Bailey Creek
189
191
Snake Headwaters Legacy Act 2009
Wild & Scenic Rivers
CLASS
Recreational
Scenic
Wild
10
Miles
BAG

Scenic Values

The Snake River Headwaters, from its origins in Fox Park, flow downstream through an iconic landscape dominated by the Yellowstone Plateau and the Teton Range. The geologic history defines the scenery, moving south from the volcanic Yellowstone Plateau to the fault block uplift/glacial forms of the dramatic Teton Range. These landscapes provide spectacular settings undeveloped by humans that create a distinctive sense of place. The river and its tributaries create unparalleled scenery with diverse opportunities for viewing the rivers, and for viewing the magnificent surrounding landscape from the rivers, with scenic views that can be both dramatic and subtle. Seasonal and climatic variations of vegetation, combined with water features, clean air and landforms, create varied scenescapes such as fall colors and winter wonderlands. These elements combine to offer a landscape character throughout the Snake River Headwaters that is unique and unforgettable on a scale that draws visitors from all over the world.

Bailey Creek

A remote setting in a canyon with very diverse scenic values; including a fire burned landscape, geologic landslide, thickets of riparian willows, and a turquoise lake rimmed by forest. Moose and bald eagles are common. Bailey Lake, originally a small glacial pond, was greatly enlarged by a massive landslide that continues to build a natural dam at the lake's outlet.

Blackrock Creek

Blackrock Creek has distinctive scenic values, including the landscape in which it is located, with views of the Teton Range, Breccia Cliffs, and other nearby mountains. This segment is characterized by interspersed confined canyons with conifers, and meandering sections through sub-alpine moist meadows. The lower sections afford spectacular views of the Teton Range. This is one of the few areas on the forest where gnarled whitebark pine can be viewed from a paved, readily accessible road, and diversity of subalpine vegetation is high. The meandering reaches and confined canyons offer distinctive 4-season water features and colors.

Buffalo Forks

<u>Wild</u>: Outstanding scenic features in the upper segment include views of imposing peaks of layered volcanic rocks, many spectacular water features (South Fork Falls is an example), and wide wet meadows that provide outstanding opportunities to see wildlife in a wild setting.

<u>Scenic</u>: The Buffalo River Valley is rich with picturesque working ranches, dude ranches and haylands to the south. The Tetons are visible to the west, and predominant mountain plateaus of the Teton Wilderness form the northern backdrop. The lower segment is well known for its spectacular views of the Teton Range and the pastoral ranch land setting of the Buffalo Valley. The river corridor is lush with vegetated meadows, providing migration routes for elk, wintering moose, grizzly bears and wolves.

Crystal Creek

Wild: The wilderness section includes scenic features of various kinds—multi-colored cliffs, landslides, deep pools and riffles in the creek, and views of the surrounding high peaks of the Gros Ventre Range. Near the headwaters, in the alpine zone, are fine examples of limestone topography, wildflower fields, and views to distant mountain ranges.

Scenic: The outstanding scenery in the lower section of Crystal Creek includes the pastoral ranch setting, stream meanders, and views of the surrounding landscape from the stream, including the looming Gros Ventre Wilderness and the distant Teton Range.

Granite Creek

Wild: Outstanding scenery includes a classic U-shaped glaciated valley, evident throughout the length of the upper river segment. Imposing cliffs and high peaks as well as the beauty of the river itself and surrounding talus slopes, wildflower fields, and forest contribute to outstanding scenery.

Scenic*:* Below the wilderness boundary, roadside views of the meandering creek, whitewater sections, cascades such as Granite Falls, surrounding cliffs, and mountains in the southern Gros Ventre Range all contribute to scenic values.

Gros Ventre River

Wild: Cascades and waterfalls, as well as an outstanding example of subalpine parklands, exist in the uppermost reaches of the river. Surrounding peaks and cliffs in the background add to the beauty of this river throughout this segment.

Scenic: This section contains expansive open terrain with exposed sedimentary rock layers of many colors, cliff banks, dense forest, and narrow canyons. The river alternates between a broad willow-dominated bottoms, spruce forest and narrow incised canyons. Distant views of the Teton Range are spectacular as are features within the river corridor, including the Red Hills, Lavender, and Gray Hills.

Hoback River

Views of diverse terrain, vegetation, water features and steep mountains contribute to the outstanding scenic values. Some of the area's outstanding scenic attributes are views of the south flank of the Gros Ventre Peaks, Shoal Peak and West Dell Falls, aspen stands that turn gold in fall, meadows with wildflower displays in July and August. Rare among rivers with highway access is the outstanding opportunity for wildlife viewing. Bald eagles, ospreys, and waterfowl can be seen along the river; in winter bighorn sheep often congregate next to the highway. Wintering elk, moose, and mule deer are also seen in the corridor.

Pacific Creek

Views contain the classic braided creek typical of the region but do not offer any unique, rare, or exemplary qualities.

Shoal Creek
Views of diverse terrain and vegetation, reflecting pools, and steep mountains contribute to the outstanding scenic values. Views of Palmer Peak and cliffs surrounding Doubletop Peak dominate the view to the north; more distant views of the Hoback Range are seen to the south. Shoal Falls and geologic structures in the upper canyon contribute to variety and outstanding scenery; tilted cliff bands, narrow sections of cascading water, and open views distinguish the lower segment. The undeveloped wilderness character of the Shoal Creek Wilderness Study Area is rare on a national scale and qualifies this stretch for a Scenic ORV.

Snake River
Wild: *Not yet evaluated.*

Recreational: The landscape is very scenic and the lower Snake attracts close to 200,000visitors in the two-month summer period when whitewater rafting is a popular pursuit. Scenery is often enjoyed from the river itself as well as from the highway, the trails and/or camping facilities.

The Snake River is a brilliant ribbon of blue, green and white cascading ripples surrounded by a canyon with towering spruce, pine, and fir trees, with moss covered walls and bald eagles. In winter, the lower canyon cliffs may be festooned with ambling mountain goats.

Willow Creek

Scenic integrity is high and landscape variety is enhanced by the alternating sections of wide and narrow canyon, changing vegetation, and views of nearby mountain peaks, cliffs, and folded sedimentary rocks. Variety of vegetation ranging from old growth spruce bottoms, mixed conifer forest, sagebrush-covered slopes, and aspen stands contribute to the scenic value. While not unique within the Snake River Headwaters, or particularly uncommon in the Greater Yellowstone Ecoregion, these features are sufficiently rare nationally to constitute an outstandingly remarkable value.

Wolf Creek

A variety of scenic attractions, including small cascades on the creek, limestone cliff bands along the sides of the lower canyon, seasonal colors in the understory shrubs and deciduous trees, wildflower parks in previously burned areas and colorful tilted strata in the upper reaches of the creek all contribute to its scenic value. These features are sufficiently rare on a national scale to constitute an outstandingly remarkable value for this segment.

Recreation Values

Context: The Snake River Headwaters attract a strong regional following (Wyoming, Utah, Idaho, and Montana), because of season-long water flows. However, the two National Parks also draw a large national and international public, many of whom choose to participate in guided river-related activities on the National Forest or to privately enjoy the abundant and varied opportunities for viewing, interacting with, or photographing river-related scenery and wildlife. For the purposes of evaluating the ORV, a national comparison has been used, and relative to the current system of designated Wild and Scenic Rivers, the Snake River Headwaters as a whole is considered to possess outstandingly remarkable recreational value, as discussed below.

The Recreation Opportunity Spectrum (ROS):
Since the early 1980's, the Recreation Opportunity Spectrum (ROS) has been used as a framework for identifying, classifying, planning, and managing a range of recreation settings. As such, the ROS system is an appropriate planning tool to help define ORVs for river segments in the Snake River Headwaters. This system recognizes that visitors do not all seek the same type of experience and for many, substitution is not an option. Thus, in order to produce the "greatest good for the greatest number", managers strive to offer a spectrum of recreation settings and provide information about each type of setting so visitors can choose which opportunity best meets their needs and desires. Recreation settings are defined in terms of their physical, social, and managerial attributes. Physical attributes include the degree of remoteness and evidence of humans including the degree of facility development. Social attributes include the frequency of interaction with other visitors and the degree of solitude, challenge and self-reliance. Managerial attributes include whether or not motorized activities are allowed and the degree of management presence (e.g. signing, personnel, regulations). The physical, social and managerial attributes combine into six distinct described settings that offer a spectrum from urban to primitive. For the purposes of describing the recreation ORVs for Snake River Headwaters river segments, five of the six settings are potentially applicable (1) rural, (2) roaded natural, (3) semi-primitive motorized, (4) semi-primitive non-motorized, and (5) primitive.

Summary Statement
The primary recreational value of the Snake River Headwaters lies in the fact that an interconnected watershed system has been protected, encouraging visitors to establish memorable relationships and a 'Sense of Place' with associated emotional bonds, strongly felt values, meanings and symbols. Due to the number of river miles and their distribution across a natural landscape largely comprised of public lands, the system offers a unique opportunity for recreationists to participate in a *diverse spectrum of year-round, river-related activities within a variety of settings*, ranging from easily accessible social opportunities to rustic peaceful settings along low volume gravel roads to wild quiet settings accessible by horse or foot trails, where solitude is a primary value. The diversity of landscapes and waters ranging from small fast moving streams to meandering rivers and challenging whitewater also provides recreationists opportunities for skill development progression whether the activity is bank fishing, float fishing, kayaking, rafting, or hiking, horseback riding and backcountry camping along the waterways. Because this wide range of the Recreation Opportunity Spectrum is covered, some settings and some activities are particularly well-suited to younger people, those with little experience, or people with physical limitations, and can serve to create immersive experiences for these classes of people on public lands that may otherwise seem intimidating.

Season-long water flows draw recreationists to the Snake River Headwaters from across a largely arid regional landscape. Moving water draws the attention, whether one is listening, viewing, , or playing in the water itself. Contributing to the recreational value of this system is the unparalleled opportunity to photograph or connect with the diversity of wildlife Jackson Hole is known for and to fish for wild cutthroat trout on historic waters associated with fishing legends, all infused with the scenic quality created by the contrast between the fluidly moving riverine environment and the dramatic constancy of alpine peaks. The descriptions to follow specify which aspects of the recreation opportunity spectrum are highlighted in which segments of the designation.

Bailey Creek
This segment is unique within the Snake River Headwaters with its trail-only accessible, low-elevation, landslide-created destination lake midway between its source and confluence. The visible and still active landslide and the effects of the East Table Fire offer glimpses into landscape-scale processes. This is also the only reach in the system that can be accessed either by a short float across the mainstem Snake or from a remote roadway, and its relatively easy terrain allows families with young members or people with little backcountry experience to connect with this intimate stream as they travel, fish, or camp. This segment is sometimes also accessed in winter by a snowmobile trip to a remote guard station, and then a ski or snowshoe excursion into this peaceful little drainage.

Blackrock Creek
Flowing alongside the Wyoming Centennial Scenic Byway of State Highway 26/287, this scenic tributary provides numerous opportunities to recreationists driving for pleasure. Interpretive sites, photographic pullouts, year-round resorts and seasonal campgrounds are among the facilities enjoyed by many as they take advantage of the paved access through rare alpine terrain shared with the distinctive charismatic wildlife of the high Rockies.

Buffalo Fork
Wild: Horsepacking, hunting, fishing, day rides and other wilderness activities are centered on this river and its forks. The river is accessed by trails for most of its length and numerous outfitter-guides are available to lead people into the area. Wildlife resources are superlative, with the full complement of native species represented, and little in the way of invasive plants or animals. Over 80% of the Buffalo Fork is in the Wilderness; its forks penetrate the Teton Wilderness and head in the alpine country of the Continental Divide. Because of the size and remoteness of the Teton Wilderness, as well as the adjacent wilderness lands in Yellowstone National Park and the Shoshone National Forest, this river is exemplary in providing recreation visitors with a true wilderness experience.

Scenic: The lower segment is served by the Buffalo Valley Road, along which there are numerous river and fishing access points, resorts, visitor services, and trailheads. Resorts offer float trips, horseback rides, and other front-country activities, as well as snowmobiling in winter. This section of the river corridor is a gateway to the Teton Wilderness, with the most heavily used campgrounds and trailheads near its boundary.

Crystal Creek
Wild: Increasingly popular for its wild fishery and for hunting, this segment attracts people with steep, boldly-colored cliffs. The upper reaches epitomize backcountry explorations, following the waterway's path into an open and untamed past, with few signs or sounds of the modern world. A large, active landslide highlights the dynamic nature of these wild landscapes.

Scenic: Lush bottomland meadows and rural ranchlands provide the backdrop for fishing or trailhead camping. Nearby rustic campgrounds give this segment a more social setting.

Granite Creek

Wild: Whether streamside hiking, backpacking, hunting, horse packing, or camping, the first few miles of Granite Creek Trail in the Gros Ventre Wilderness offer a low-gradient trail experience in a primitive wilderness environment. With outstanding granite features, Turquoise Lake is one of the two alpine tarns within the Snake River Headwaters system. This piece of the Snake River Headwaters provides access to many other trails throughout the Gros Ventre Wilderness, dispersing visitors for few encounters even during the summer tourist season.

Scenic : Soaking & swimming in hot water features, fishing, kayaking, camping, dog sledding, snowmobiling, streamside hiking, backpacking, hunting, horse packing are all available and accessible in this stunning valley with wall-to-wall wildflowers and abundant wildlife. Yosemite-esque granite boulders and bedrock loom over a picturesque 30'+ waterfall with undeveloped hot springs at the base. Class V whitewater above and class III whitewater below makes this drainage unique at many levels. Public hot springs with easy access and full body immersion for soaking or swimming are rare in the region. This tributary of the Hoback River is one of the most recreationally diverse sections in the Headwaters, with many activities available within a small area.

Gros Ventre River

Wild: Ouzel Falls is unique with its low gradient, solid rock substrate, and Upper Falls, while a classic scene, offers rare opportunities for wilderness camping at its base. Fishing and hunting during multi-day trips are most popular. The many sounds of wild nature predominate.

Scenic : The most technical whitewater experience in the system is to be found on the Gros Ventre's lower reaches, while horse and hiking experiences are often suitable for midlevel adventurers with a social propensity. The scenic section of the Gros Ventre is particularly notable for its rustic yet accessible recreation. This long river corridor offers a remote feel and is highly valued by people whether the activity is scenic driving on a primitive road, viewing wildlife, photography, fishing, hunting, kayaking, camping, ATV riding or snowmobiling.

Including both scenic and wild classifications, this river exemplifies the overall extraordinary value identified for the Snake River Headwaters system, eg. the remarkable diversity of recreational experiences available, tied together within a single waterway, and made more distinctive by the wealth of other resource values that contribute to this experience.

Hoback River

Whether driving the Centennial Scenic Byway to learn about the region's history and geology, or viewing the bighorn sheep that congregate along Highway 191 during the winter months, or hoping that the next attempt at an Eskimo roll of a kayak will end right-side-up with a fresh breath of air, visitors to the Hoback River can experience the Headwaters in a more social setting. The Hoback provides an exceptional intermediate learning environment for those running nontechnical whitewater in a variety of crafts. This narrower river also offers f bank fishing with great scenery and easy access, and an opportunity to partake of unique features such as the odiferous chalky travertine waters of Stinking Springs, the pretty blue water of the spring-fed pond by Hoback Campground, or a drink or a ride at a working dude ranch.

Pacific Creek
Wild: Big-game hunting and wilderness travel are the primary attractions; the Teton Wilderness is well known as one of the largest and most undisturbed of wild lands in the lower 48 states, offering opportunities to absorb extended pack trips.

Scenic: The primitive road yields an easier level of access for day users fishing or shooting photographs under the distant shadow of the Teton Range.

Shoal Creek
An adventurer's high country paradise, Shoal Creek lures visitors along its low-gradient beaver meadows with their popular fisheries and birdlife, up to a dramatic waterfall. Spectacular cliffs then yield only a thin route for creek and trail to climb toward the alpine tarn and fishing/camping destination of Shoal Lake, just below the jutting backbone of the Gros Ventre range.

Snake River
Wild: Whether skiing into the Snake River Hot Springs on the forest across from the John D. Rockefeller, Jr. Memorial Parkway, backpacking into the very remote official headwaters of the Colombia/Snake River system, or participating in outfitted or private extended horse packing trips, the fishing is exceptional, and the opportunity to view rare and diverse wildlife is high. Trails and campsites are nearby for part of its length, with little intrusion into the wild character of the river segment, and the final few miles are accessed only by cross-country travel. There is a high opportunity for solitude in a primitive setting.

Recreational**:**
Whether commercial or noncommercial rafting or kayaking the iconic Big Kahuna or Lunch Counter rapids, or drifting along while wetting a line under osprey & bald eagles, this section provides easy access from an adjoining scenic byway and attainable opportunities in a non-technical, high-volume river. World class rapids, a native cutthroat trout fishery, and hydrology that offers exciting whitewater features and personalities at varied water levels make this section ideal for learning river-related skills (fishing, rafting and kayaking). The river offers ideal roadside locations to observe or photograph whitewater boating activities and also offers "park and play" kayak spots throughout the summer; locations for these activities are relatively rare within the region. The proximity to a busy summer tourist destination, high demand for water activities, existing capacity of the river and facilities (from 70- to 120,000 client trips per summer), and easy access/length traditionally has allowed for outfitters to charge a much lower price than for a comparable river trip elsewhere. This makes the Snake unique in its ability to serve more people regardless of economic strata. Because paddling is typically a low-impact activity, many visitors can participate without changing the value of other natural resources. The current prevalence of non-motorized use contributes to the river's ability to entrance and engage so many.

Willow Creek
Classified as a Wild river and yet located outside designated Wilderness, even casual recreationists are privileged with visiting this primitive jewel of stream. Willow Creek does offer a rare opportunityto mountain bike and snowmobile along a stream worthy of Wild classification. No groomed trails exist along the corridor, so very few winter encounters would be expected, and most bicycling activity occurs

on a former road east of the creek corridor, so traditional types of recreation remain preeminent. The lower Willow Creek corridor also provides the northern access to the region's longest National Recreation Trail, winding up to the Wyoming Range backbone and traveling southward for 70 miles. Favored hunting opportunities can be found here, alongside summer fishing.

Wolf Creek
Access into the Palisades Wilderness Study Area directly from a paved highway is a valuable option to some visitors, especially those traveling from outside the region. The creek with its water music, talus slopes with pikas or cliff sides with mountain goats, and the trail with its many rocky fords, provide a primitive opportunity within minutes of the experience provided by the highly developed Snake River Canyon.

Cultural Values

The continuum of human use along the Snake River Headwaters encompasses thousands of years of diverse people, cultures, and uses. American Indian through early-twentieth century American cultures flourished along these rivers because they provided a corridor for travel through inaccessible terrain and sustenance for travelers. Evidence of Native American travel and settlement, fur trapping, exploration, early European-American settlement, tourism, dude ranching, public lands management, and conservation activities is reflected in archeological sites, historic buildings, and cultural landscapes along the river corridors. Natural and cultural resources continue to carry cultural significance to American Indian Tribes and others to the present day.

Bailey Creek
This river segment does not contain any cultural outstandingly remarkable values.

Blackrock Creek
Togwotee Pass, named after a Sheepeater Indian Chief, was an important travel corridor over the continental divide during prehistoric times. The economy of prehistoric groups, and the Wind River Shoshone in particular, was based on the hunting, fishing, and plant gathering opportunities that were found in abundance along the creek corridor. The Blackrock Creek corridor continued as a major travel route for the Euro-American trappers and traders in the early 1800's and Jackson Hole quickly became a crossroads for the early trappers.

In 1904 the Old Blackrock Office was constructed and was used by Rudolph Rosencrans, the first forest ranger on the Teton National Forest. This one room log cabin, which is the oldest administrative structure on the Bridger-Teton National Forest, is located adjacent to the current Buffalo District Ranger's Office on Blackrock Creek.

Buffalo Fork
Wild: No outstanding cultural values have been identified along the wild segment of the Buffalo River; however there have not been any systematic archeological investigations along this segment.

Scenic: Rosencrans Cabin Historic District is located on the south bank of the Buffalo Fork River and is on the National Register of Historic Places. Constructed around 1915, the cabins are particularly well built and are representative of early Forest Service administrative buildings. The structures are also

associated with Rudolf "Rosie" Rosencrans, one of the first rangers on the Forest who played a vital role in the early history of the Forest Service. Rosie's grave is also located at the site.

Crystal Creek
Neither the wild nor scenic river segments contain any cultural outstandingly remarkable values.

Granite Creek
Wild: No outstanding cultural values have been identified along the wild segments of Granite Creek.

Scenic: The Granite Hot Springs Pool and Bath House are located on the east bank of Granite Creek at the end of the Granite Creek Road. The site consists of a concrete swimming pool and log bathhouse, both of which were built by the Civilian Conservation Corp (CCC's)during the 1930's. The Granite Hot Springs Pool and Bathhouse are historically significant not only because of their association with the Civilian Conservation Corp, but also because these facilities enhanced recreation opportunities on the forest during and immediately following WWII.

Gros Ventre River
Wild: A number of significant prehistoric sites are located along this segment of the Gros Ventre River corridor and include stone circle sites, the only known petroglyph site on the BTNF, and artifacts dating to at least 10,000 years before present. These sites reflect the importance of high elevation environments in the annual migration and subsistence activities throughout prehistoric times.

Scenic: Prehistoric sites have been found at critical "bottle necks" along the pronghorn migration route into Jackson Hole and may provide information on prehistoric hunting activities related to this migration corridor. The river corridor also served as one of the main transportation routes into Jackson Hole during historic times. The President Chester Arthur expedition of 1883 traveled down the valley on its way to Yellowstone National Park. The early 1900's saw the establishment of a number of homesteads in the valley and include the Darwin Ranch and the Dew Homestead, the remains of which can still be seen on the banks of the Gros Ventre River just upstream from the confluence with Fish Creek.

Hoback River
The Hoback River is named after trapper and explorer John Hoback who guided members of John Jacob Astor's American Fur Company through the Hoback Canyon in 1811. A recently discovered prehistoric site has been investigated and reveals over 2 meters of intact archeological deposits dating to over 7,000 years ago. Floral and faunal remains from this site may provide scientific data related to changes in ecological conditions in the region over time. Battle Mountain, at the confluence of Granite Creek and the Hoback River, was the scene of a confrontation between a hunting party of Bannock Indians and local residents over hunting rights. The skirmish left one Bannock Indian dead and led to the Indian scare of 1895 as Jackson homesteaders feared they would be attacked in retaliation.

Pacific Creek
Wild and Scenic: These river segments contain no cultural outstandingly remarkable values, however, there have not been any systematic archeological investigations along the Pacific Creek corridor.

Shoal Creek
This river segment contains no cultural outstandingly remarkable values.

Snake River (Lower segment)
This river segment contains no cultural outstandingly remarkable values.

Willow Creek
This river segment contains no cultural outstandingly remarkable values.

Wolf Creek
This river segment contains no cultural outstandingly remarkable values.

Ecological / Wildlife Values

Context and Comparables for the Snake Headwaters Segments
Due to the integrity of its wildlife and plant communities, and their natural interactions with physical processes, these ecological and wildlife values are Outstandingly Remarkable for the Snake River Headwaters. Significance is both relative to the multi-state region that includes Western Wyoming, Northern Utah, Eastern Idaho and Western and South-central Montana, and especially when viewed from a national or international perspective. The Snake River Headwaters is a particularly pristine and unique component of the Greater Yellowstone Ecosystem, the largest intact ecological unit in the lower 48 states. Natural processes such as fire, flooding, landslides, plant succession, wildlife migration, and predator-prey dynamics profoundly affect the Snake River Headwaters landscape and its biota. Beaver in all of these stretches build and sustain wetlands, and are successfully contributing to management efforts where they raise streamside water tables, increase late season flows, and provide holding areas for trout, waterfowl and other wildlife.

A full complement of native plant and wildlife species is present. Exotic flora, although often present on sites with a history of anthropogenic influence (e.g., along roads, trails, and in developed areas) have minimal influence on the ecological function of the extensive backcountry and wilderness areas. Plant species diversity is high. Species assemblages include numerous distinct riparian plant communities that are unique to the region. All native wildlife species are self-sustaining, and the river courses and associated habitats are critical to their viability. Nationally important wildlife populations include the Jackson elk herd (the largest in the world), the Yellowstone grizzly bear and gray wolf populations (the southern-most in North America), tri-state trumpeter swans (the largest native resident population in the lower 48 states), the only nesting common loons in Wyoming and substantial recovered nesting populations of bald eagles and peregrine falcons. With only one exception (the northern leopard frog), all native wildlife are present, and no exotic birds, mammals, reptiles, or amphibians are known to use the rivers and creek corridors designated under the Wild and Scenic Rivers Act. Beavers are common on most of the river segments. They act as a keystone species by building dams that create and sustain wetlands that provide habitat for nesting and migrating waterfowl, including sensitive species such as trumpeter swans. Four of North America's largest carnivores—grizzly and black bears, wolves, and cougars occur along with 7 native ungulates, including moose, mule and white-tailed deer, bison, elk, pronghorn, and bighorn sheep in an ecologically dynamic system rivaled in few places on earth. The diversity and abundance of wildlife in this assemblage is recognized world-wide and is the primary reason people visit Grand Teton National Park, the Bridger-Teton National Forest, and the National Elk Refuge, the primary federal land units in the Snake River Headwaters. See Appendix X for a table of which Threatened, Endangered, Sensitive and Management Indicator Species (wildlife, plants, fish and amphibians) are known to be in which segments.

Bailey Creek
This segment makes an important contribution to the ecological integrity of the lower Snake River system, owing to the presence of Bailey Lake and numerous riparian zones along its upper and lower sections. Also contributing to the wildlife values is a variety of vegetation types and habitats, including many springs flowing into the creek's headwaters, tall forb communities that support diverse plants and excellent ground cover, and a robust community of mountain shrubs. Overall, vegetative and wildlife diversity is high—the creek corridor provides quality habitat for nesting and for seasonal migrations of many neotropical migrant birds, shorebirds, and waterfowl, including 10-20 trumpeter swans that winter on Bailey Lake. The entire corridor is also used by resident moose and migrating elk. Riparian communities above the lake include at least three willow species that provide shade and overhanging banks for trout. The wet meadows in this section and at Bailey Lake support a rich variety of plant species. The north shore of the lake provides excellent habitat for amphibians. Beaver activity along the lower 2-3 miles of the creek greatly enhances habitat diversity and ecological function. Bald eagles are commonly seen here as they have nested for decades near the confluence of the creek and Snake River. Because of its high vegetative and wildlife diversity, and its close proximity to the lower Snake River, the Bailey Creek segment offers outstandingly remarkable ecological and wildlife values.

Blackrock Creek
This segment is characterized by undulating topography that supports a mix of wet meadows, small ponds, and extensive willow communities—habitats that attract a rich diversity of wildlife, including protected and special-status birds and mammals, and seasonally-migrant wildlife such as elk, mule deer, and moose, aquatic invertebrates, and amphibians. Due to the easy access to the corridor from Highway 286, this segment offers outstanding opportunities for viewing wildlife and enjoying the flora and fauna characteristic of subalpine habitats and unique high-elevation (> 9,000 feet) riparian zones. The corridor is used by sandhill cranes, bald eagles, trumpeter swans, many species of passerine birds, red-tailed hawks and osprey. It is also an important stop-over area for neotropical migrants, waterfowl, and shorebirds. The old growth forests within the corridor are important to great gray owls and other cavity nesting birds. Whitebark pine stands exist in the upper meadows, and wetlands near the source provide important habitat for sensitive native amphibian species such as boreal toads and spotted frogs. This is a very important area for grizzly bears, gray wolves, moose, wolverines, snowshoe hares, and the federally threatened Canada lynx that all use the Togwotee Pass area for foraging and as a movement corridor. Moose winter range is found within the corridor. During highway reconstruction (still in progress as of 2010), the Wyoming Department of Transportation installed numerous underpasses designed to accommodate safe travel of wildlife, and retaining walls that greatly reduced roadway effects on the corridor's extensive riparian zones. The area is a very popular snowmobile recreation area during the winter, but this activity does not appear to have compromised the ecological integrity of the corridor, particularly during the late spring, summer, and fall seasons. Because of its vegetative diversity, its importance to wildlife and uniqueness as a high-elevation area with a well-developed riparian zone, this river segment offers outstandingly remarkable ecological and wildlife values.

Buffalo Forks
<u>Wild</u>: The wildlife resources and habitats along these river segments are regionally and nationally significant owing to their location within the vast, 585,000-acre Teton Wilderness, a pristine headwaters ecosystem that supports some of greatest native wildlife diversity and abundance in the nation. Portions of these river segments are among the farthest from human development in the lower 48 states. The trophic interactions between the geological, vegetative, and wildlife resources occur in a setting largely uninfluenced by humans and that is lacking in exotic fauna. Area topography includes

steep hanging valleys, cirque basins, broad plateaus, high mountain lakes, and high. The area's lower elevations drain into river valleys with braided watercourses that support broad, well-developed riparian zones. These habitats support a complete assemblage of seasonal or resident (yearlong) wildlife, including several listed species (grizzly bears, gray wolves, occasional Canada lynx), de-listed and nationally significant raptors (bald eagle, peregrine falcon), five native ungulates and their associated predators and scavengers, and an abundance of passerine birds, shorebirds and waterfowl such as spotted sandpipers, American dippers, and breeding pairs of the rare harlequin duck. Trumpeter swans nest in oxbows of the Buffalo River and in some upper elevation wetlands. The river bottoms are used as movement corridors by river otters and wolverines, and they help support one of the longest moose and elk migrations (35 miles and 55 miles respectively) in North America. Because of their pristine condition and the extraordinary diversity and abundance of wildlife, these river segments provide outstandingly remarkable ecological and wildlife values.

Scenic: This river segment is characterized by a very broad riparian zone situated along a braided river channel with numerous well-watered oxbows and side-channels, These habitats support extensive willow (and other deciduous shrub) communities that are mixed with conifers and cottonwood galleries that, similar to the wild segment of the Buffalo Fork, support a complete assemblage of seasonal and resident wildlife, including grizzly bears, gray wolves, bald eagles, one nesting pair of peregrine falcons, trumpeter swans, and numerous ungulates, passerine birds, shorebirds, and waterfowl (as described above). This river segment provides very important habitat, including winter range, for moose, and serves as a critical migration corridor for elk. Residential development along this segment is limited and other anthropogenic influences such as livestock grazing are minimal. Due to its pristine condition, extensive coverage of riparian and (mature) conifer-dominated habitats, this river segment provides outstandingly remarkable ecological and wildlife values that are significant at both a regional and national scale.

Crystal Creek

Wild: The diversity of habitats from this creek's source near 11,000-foot peaks in the pristine Gros Ventre Mountain Range and Wilderness to the Crystal Creek trailhead at Shorty Creek is outstanding. The stream corridor includes numerous broad riparian zones and landslide sites with diverse micro-topography that strongly enhance vegetation and wildlife diversity. Due to remoteness resulting from strong seasonal inaccessibility, the corridor also shows little evidence of anthropogenic activity. Raptors utilize the cliffs and riparian habitat, including peregrine and prairie falcons, for both nesting and foraging. Elk, bighorn sheep, and mule deer also use the corridor for migration, seasonal range, and parturition. Similar to the Gros Ventre River, the area is an important breeding ground and seasonal movement corridor for neotropical migrants, wading birds, and waterfowl. Predators such as grizzly and black bear and mountain lion regularly forage or hunt large prey along the creek. The tremendous topographic, vegetative, and wildlife diversity of Crystal Creek, and its association with the Gros Ventre River corridor, qualify it as an outstandingly remarkable ecological and wildlife value.

Scenic: This segment contains an open (creek) channel that flows through several broad riparian zones with extensive stands of willow, sedge meadows, and uplands that support breeding and migration of neotropical migrant birds, wading birds, and waterfowl, including trumpeter swans. Raptors, including bald eagle, golden eagle, peregrine falcon, prairie falcon and osprey, nest and forage along the cliffs, and hunt in the riparian habitat and adjacent uplands that border the Crystal Creek and the Gros Ventre River. The lower reach of Crystal Creek is within the National Pronghorn Migration Corridor, a 340 mile route that connects the Upper Green River and Grand Teton National Park. The agricultural fields and sagebrush communities near the mouth of Crystal Creek are particularly import for pronghorn for

feeding and resting during the non-winter months. Elk, bighorn sheep, and mule deer also use the corridor for migration, seasonal range, and parturition. Grizzly and black bear, and mountain lion use the creek corridor for foraging. Similarly to the wild segment (as described above), the mountain slopes that border the west side of Crystal Creek contain diverse micro-topography that results from slumping and small landslides. The tremendous topographic, vegetative, and wildlife diversity of the scenic section of Crystal Creek, and its close association with the wildlife resources of the Gros Ventre River corridor, qualify it as an outstandingly remarkable ecological and wildlife value of both regional and national significance.

Granite Creek

Wild: This segment has several prominent riparian zones interspersed with large forb and grassy meadows, and extensive conifer stands. Several sections contain well-water oxbows and side channels.. These habitats support waterfowl, neotropical migrants, wading birds, and several aquatic mammals. Numerous waterfowl including an occasional Harlequin Duck forage the length of the creek. American dipper and spotted sandpiper are common summer residents. Nesting and foraging falcons, both peregrine and prairie, use adjacent cliffs and riparian habitat. Northern goshawk, Cooper's hawk and sharp-shinned hawks nest in adjacent uplands and forage frequently along the creek. Turkey vultures, once a rare species in the GYE, are now common summer residents and can be observed soaring over the drainage. The wild upper section provides important habitat for large numbers of moose, elk, and mule deer, and the creek corridors support numerous beaver. The upper corridor thus qualifies as having an outstandingly remarkable ecological and wildlife value at both a regional and national scale.

Scenic**:** This segment has extensive, broad riparian zones, and sagebrush steppe communities along most of its length. The riparian zone contains numerous ponds, side-channels, and oxbows that provide habitat for beaver and moose, and the willow communities and stream channel are used by neotropical migrant birds, waterfowl, and shorebirds. Active beaver colonies that visitors can view from the roadway provide remarkable examples of the ecological functioning of wetlands, complete with waterfowl including occasional harlequin ducks. Hawks, vultures and a nesting pair of peregrine falcons commonly use the riparian corridor and/or the adjacent uplands seasonally for foraging. Pronghorn are occasionally found within the river corridor, perhaps a remnant of past migration corridors into Jackson Hole that have since been cutoff by human development. The Granite Creek Road, with a campground, numerous dispersed camping sites, user-created trails, and summer cabins, is travelled year-round (to Granite Hot Springs) by snowmobile users, hikers, hunters, and local residents. Thus, anthropogenic activity somewhat compromises the ecological integrity of the area. Nonetheless, this segment does offer outstandingly remarkable ecological and wildlife values at the national scale, although not particularly unique to the region, and provides important connectivity with the rest of the designation.

Gros Ventre River

Wild: This section supports a broad riparian zone for nearly its entire length and scattered stands of conifers, sagebrush, and grasses at the margin of the wetlands. The riparian zone supports beaver, muskrat, and moose yearlong, and is an important bird and mammal migratory corridor between the Snake and Green River drainages. This reach provides stop-over sites for migrant birds, including common loon, white-faced ibis, many species of duck, and trumpeter swan. Upland forb and grass meadows are used by elk and mule deer. Ospreys and eagles forage along the river, and falcons, buteos, osprey and vultures use the uplands for foraging and nest in the rocky escarpments at the margin of the river corridor. Gray wolves, black bears, and cougars commonly use this area, as does an occasional grizzly bear. The frequent slumps and slides on the mountain slopes promote diverse

microtopography that locally increases floral and faunal diversity. The Jackson bighorn sheep herd, designated a Wyoming core herd, utilizes the upper Gros Ventre; this herd has never received a supplemental transplant and has thus been continuously self-sustaining. This segment shows very little evidence of historic and current anthropogenic activity. Due to its importance in providing linkage between the lower Gros Ventre and Snake River corridors and the Green River, its extensive riparian zones, and its importance to mammals and birds, this segment provides outstandingly remarkable values at both a regional and national scale.

Scenic: This river segment has many wildlife resources and habitats that are exceptional for the Yellowstone Ecosystem and that are rare at the regional and national scale. The river corridor supports a diverse array of aquatic birds, mammals, and amphibians—many federally endangered or sensitive—that rely on the unique habitats which have developed in association with the area's many landslides, slumps, and waterways impounded by unstable topography, including the Upper Slide Lake. The steep cliffs (near Lower Slide Lake; Lavender, Red, and Grey Hills) provide nesting habitat for several raptor species (including falcons, buteos and osprey) which depend on the river corridor for crucial foraging habitat. The braided waterways (Yellowjacket Flats), broad riparian zones (near the lakes cited above), and the upper section of the Gros Ventre river provide excellent breeding habitat for shorebirds, waterfowl and passerine birds including both year-round residents and seasonal, and neotropical migrants. Similarly to the wild section of the Gros Ventre River, this river segment is an important bird and mammal migratory corridor between the Snake and Green River drainages and also provides important stop-over sites for migrant birds including common loon, white-faced ibis, many species of duck, and trumpeter swan. In addition, trumpeter swans have nested for many years on Upper Slide Lake and subadult swans summer on Lower Slide and the broader reaches of the river. Much of the river segment encompasses the National Pronghorn Migration Corridor, an important travel route and summer breeding ground for a small (< 200) population of pronghorn. Moose winter range is found along the river, and bighorn sheep will move down to these elevations for the winter as well. Taller browse shrub species, such as mountain sagebrush, bitterbrush, and willow (Salix spp), provide critical winter benefits. The corridor also supports a small number (< 100) of Upland Sage Grouse, a species recently identified as a candidate for endangered status under the Endangered Species Act. These birds are unique among members of this species because they occupy sagebrush habitats at the interface with conifer forests at high (> 7500 feet) elevations. Many of the habitats used by the grouse are within the river corridor. The strong diversity and abundance of fauna along the river, coupled with the pristine and diverse wildlife habitat, constitute an outstandingly remarkable ecological and wildlife value.

Hoback River

As a tributary to the lower Snake River, the Hoback River helps to support the exceptional wildlife values in this area. Important habitat types include the extensive sagebrush steppe on the north, along with escape terrain in the rocky bluffs. Conifer stringers on both sides of the corridor provide cover, and on the south side, extensive heavy timber is available as well. The river corridor provides winter range for moose, elk, mule deer, bighorns, and mountain lions and is an important mule deer and avian migration corridor. The lower canyon provides valuable nesting habitat for many species of birds and raptors and also provides an important seasonal habitat and a migration corridor for many wildlife species, including neotropical migrant birds (fall and spring), and bighorn sheep that are frequently seen and photographed by visitors along highway 189/191. Gray wolves travelling between Jackson Hole and the upper Hoback River and its tributaries also use the river corridor, as does an occasional grizzly bear. Many species of raptors nest or forage along this segment including bald eagle, golden eagle, peregrine and prairie falcon, red-tailed hawk, osprey and all three species of accipiters. Other frequently viewed

wildlife include river otters, waterfowl, American dipper, spotted sandpiper, marmot and pika, a species recently proposed for listing under the federal Endangered Species Act. The presence of the highway, however, detracts from the value of wildlife habitat in the road corridor as wildlife mortality often results from collisions with vehicles. Nonetheless, because of its close proximity to the lower Snake River, its importance for many ungulates as seasonal habitat and a migration corridor, and the diversity and abundance of wildlife easily watchable by the public, the Hoback River segment qualifies as an outstandingly remarkable ecological and wildlife value.

Pacific Creek

Wild: Similar to the Buffalo and Soda Forks of the upper Snake River system, this segment is part of the Teton Wilderness headlands, a vast ecosystem that is nationally significant and unique due its large acreage, pristine condition, wildlife diversity, and topographic richness. The creek is braided along its entire length with scattered riparian zones that support large willow complexes, backwaters, and ponds, particularly in the middle section. These habitats are important for neotropical migrant birds, shorebirds, and waterfowl such as trumpeter swans and harlequin duck. Other frequently observed species include spotted sandpiper, American dippers, bald and golden eagles that use the corridor as a migration route and also as nesting habitat or for foraging in late spring and summer. Harlequin ducks utilize the complex riverine habitat of this section. The creek corridor is also part of an important migration route for elk and moose; this migration route is among the longest in the nation for these species. The river corridor provides foraging areas for abundant resident grizzly and black bears and provides foraging habitat and a movement corridor for gray wolves, wolverines, and river otters. The corridor is relatively uninfluenced by human activities and is essentially lacking in exotic flora. Because of its pristine character and extremely high wildlife diversity, this river segment provides outstandingly remarkable ecological and wildlife values.

Scenic: The scenic portion of Pacific Creek is highly braided and contains a mix of open gravel shoals, riparian (willow) shrub communities; cottonwood, lodgepole pine, and spruce-fir forests; and sagebrush steppe. The creek contains many well-watered side channels, vegetated islands, and slumping cut banks that add to the diversity of vegetation communities and faunal diversity. This section acts as an important travel corridor for many birds and mammals such moose, elk and bald eagles, linking the upper (wild) section of Pacific Creek to Jackson Lake and the Snake River in Grand Teton National Park. Moose winter range is found along this segment. The area is also used by resident grizzly bears and several packs of gray wolves, cougars, black bears, bald eagles, osprey, and many neotropical migrant birds for foraging or nesting. Although the west portion of the creek corridor contains a housing development, and well-travelled dirt road, trailhead, and a trail, the area remain largely pristine as compared to other rivers in the region and the nation. Because of it importance as a travel corridor and foraging and nesting for migratory wildlife, its relatively pristine condition, and its vegetative diversity, the scenic section of Pacific Creek provides outstandingly remarkable values at both a regional and national scale.

Shoal Creek

This segment significantly enhances the collective ecological integrity and wildlife diversity of the lower Snake River system. Upper Shoal Creek has numerous riparian zones that contain extensive stands of willow and aspen, sedge meadows, and backwater ponds that provide high quality habitat for a diverse array of water-dependent wildlife, including beaver, moose, amphibians, waterfowl, many species of passerine birds (both resident and migrant), and shorebirds. Mountain lions, grizzly bears and gray wolves occupy the upper section of the segment along with abundant summering ungulate populations. This segment contains limestone outcrops that support several unusual plants. Payson's bladderpod and

fringed gentian have been identified in the area. The area is ecologically intact and there are few or no exotic flora. The high diversity of wildlife and pristine character of this segment constitute an outstandingly remarkable ecological and wildlife value.

Snake River

Wild: The uppermost section of the Snake River near the south boundary of Yellowstone National Park meanders through a broad, high-elevation (8200 feet) plateau and supports a mix of willow and sedge communities, lodgepole pine and spruce-fir forests, and open grassy parks. This reach contains at least four major riparian complexes with numerous side-channels and oxbows that add to flora and fauna diversity. These communities provide very important habitat for threatened grizzly bears and gray wolves, and numerous neotropical migrant birds, shorebirds, passerines, waterfowl—including harlequin ducks-- and raptors. The area is very pristine, and functions essentially without anthropogenic influence. Because of its extreme importance to grizzly bears, gray wolves, and a variety of birds, its extensive riparian zones, and its pristine condition, this segment offers outstanding ecological and wildlife values at both a regional and national scale.

Recreational: The entire lower Snake River segment provides unparalleled viewing of raptors, waterfowl, ungulates and several uncommon mammals for the many boaters, cyclists, and automobile travelers (Highway 26/89) that use the river corridor. The cottonwood galleries contribute significantly to the ecological value of this corridor. Roosting, foraging, and nesting bald eagles (4-5 pairs), golden eagles, peregrine and prairie falcons, red-tailed hawks, accipiters, and ospreys are commonly seen (upper section), as are trumpeter swans (in winter), river otters, bighorn sheep, mountain goats, and moose. This river segment provides a major migration corridor for neotropical migrant birds, raptors, waterfowl, and shorebirds both in spring and fall. These species depend on the river itself, the riparian habitats, and the cliff habitat adjacent to the river. Ungulate winter ranges adjacent to the river provide important winter food for resident and migrant bald and golden eagles. The rare wolverine has been reported occasionally near the road or in associated canyons. Canada lynx have also been documented crossing through the drainage. Threatened gray wolves and grizzly bears are also occasionally seen. When commenting on the draft Snake River Management Plan prepared by the U.S. Forest Service in 2002, the public consistently referred to the aesthetic values, the exceptional faunal diversity, and the need for protecting wildlife in this river corridor. The tremendous diversity and abundance of wildlife, coupled with its high visibility to recreationists and highway users, constitutes an outstandingly remarkable ecological and wildlife value.

Willow Creek

This tributary of the Hoback River significantly enhances the ecological and wildlife values associated with the lower Snake River system. Wildlife habitat diversity within this segment is very high due to a mix of riparian zones, aspen stands, sagebrush and grassland steppe, and conifer forests. The upper reach is dominated by subalpine parks and scattered timber that provides summer habitat for elk, mule deer, black bears, and a variety of small mammals and nesting birds. In the middle section, the creek meanders through wide willow flats, over braided gravel shoals, and cuts through sections of bedrock where it forms riffles and cascades. Several ponds in the creek corridor provide habitat for amphibians, including chorus frog, spotted frogs, and tiger salamanders. A number of bat species forage over the creek and pond habitat as well. Birds that nest in the willows include yellow warbler, Wilson warbler and willow flycatcher. Willows also provide foraging habitat for the red-naped sapsucker which nests in aspen or conifer cavities in the uplands. This area is also used by sandhill cranes (nesting), river otters, mink, moose, and numerous neotropical birds and waterfowl. Wildlife diversity near the confluence with the Hoback River is exceptional due to high habitat diversity. This section supports nesting bald

eagles and foraging goshawks, Cooper's hawks, gray wolves (threatened), and bobcats. Owing to its contribution to the lower Snake River system, its high diversity of vegetation and wildlife, and its pristine condition, this segment represents and an outstandingly remarkable wildlife and ecological value.

Wolf Creek
The stream corridor in this segment is relatively narrow due to steep mountain slopes that often reach to the margin of the creek. Several well-developed riparian zones with beaver dams and ponds along the lower three miles are used by foraging bald eagles, peregrine falcon, osprey, and raccoons. The broadest riparian zones are in the lowest mile. The entire segment is used by gray wolves and mountain goats, moose, mule deer, and elk. Although this area provides important habitat for several ungulate species, the stream corridor itself does not provide extensive habitat for a diversity of river-related wildlife. Owing to a limited acreage of riparian habitat and limited use by river-related wildlife, this segment provides an outstandingly remarkable ecological value for the lower three miles only.

Fisheries Values

The Snake River Headwaters provides a unique fishery for the Snake River finespot and Yellowstone cutthroat trout, which are both nationally significant. While these two fish are not at present different genetically, and WGF manages them as one species, they tend to be spatially separated, and are generally different visually. The headwaters contain a diverse community of other native species including regionally significant populations of northern leatherside chub and bluehead sucker. The community of native fish also includes whitefish, suckers, dace, and sculpins. Spawning, rearing, and adult habitats are characterized by excellent water quality, few natural or man-made barriers, and a diverse and abundant macro invertebrate community supporting naturally reproducing and genetically pure populations of native fish. Two Forest Service Region 4 Sensitive Species, the Columbia Spotted Frog and the Boreal Toad are found within the Snake River Headwaters, as are Boreal Chorus Frogs, a Management Indicator Species on the Bridger-Teton. Rainbow Trout are listed and considered a negative indicator where present. See Appendix X for a table of which Threatened, Endangered, Sensitive and Management Indicator Species (wildlife, plants, fish and amphibians) are known to be in which segments.

Bailey Creek
This segment has three distinctive reaches – the free-flowing 4.3 mile reach between the confluence and Bailey Lake, 35 acre Bailey Lake, and the reach upstream of the lake to the headwaters. The entire segment contains native species including Snake River cutthroat trout and Paiute sculpin, with the addition of Yellowstone cutthroat trout and the non-native brook trout in and above the lake. Non-native brook trout are suppressing native species where present, however, the exceptional quality of spawning habitat in the lowest reach and the presence of native species found in Bailey Creek lead to a determination that Fish are an ORV here.

Blackrock Creek
Blackrock Creek is a free-flowing tributary to the Buffalo Fork River (15 mi.) from its headwaters to a point of diversion above the Blackrock Ranger Station. The segment contains 5 native fish species (Snake River cutthroat trout, mottled sculpin, longnosed dace, speckled dace, and mountain sucker). This segment contains Snake River and Yellowstone cutthroat trout, Forest Service designated "Sensitive Species" and Wyoming species of concern. While the overall health of Snake River cutthroat trout

populations is strong in the segment, localized populations of brook trout impact the indigenous fishery through competition and predation. Fish are considered an ORV in the segment due to the presence of cutthroat trout and other native species, high species diversity, and natural reproduction of native species.

Buffalo Fork

Wild**:** Buffalo Fork River is a free flowing wild river from its headwaters in the Teton Wilderness to Turpin meadows (55 miles). The North, Soda and South Buffalo Fork drainages are free flowing with well developed and stable channels. A good pool-riffle ratio (40-75% pools), fair large woody debris accumulation, and pocket/plunge pools can be found in canyon reaches with boulders. Meadow reaches and small tributaries provide most of the spawning and nursery habitats. Joy Creek runs through a hanging meadow in the headwaters and is extremely cold. The North Fork Falls are a barrier to migration to the upper reaches. There is good habitat above the South Fork Falls that supports a strong self-sustaining population of fish. Fish species in the North Fork of the Buffalo Fork include Snake River cutthroat trout, mountain whitefish, mottled sculpin, and speckled dace. Non-native fish include brook trout that are abundant and rainbow trout are commonly found.

Scenic**:**

Turpin Meadows to the boundary with Grand Teton National Park is designated a scenic river. From Blackrock Creek to the confluence of the North and South Forks, the channel is fairly stable with large woody debris and a fair pool-riffle ratio. There are adequate spawning sites for a stream with a high annual stream flow variation. Water exchange in lakes is limited to spring runoff. The segment contains Snake River cutthroat trout, mottled sculpin, longnosed dace, speckled dace, and mountain sucker, all native fish species that were historically present in the Greater Yellowstone Ecosystem. Rare fish species include leatherside chub and redside shiner. Both wild and scenic segments provide an important connectivity corridor for Snake River cutthroat trout reproductive movement between the mainstem Snake River and upstream colder-water tributaries. Fish are considered an ORV in these segments due to the presence of cutthroat trout and other native species, high species diversity, and fish passage.

Crystal Creek

Wild and Scenic: This free-flowing segment from the headwaters to the Gros Ventre River contains Snake River cutthroat trout, a nationally significant species of concern, along with mountain whitefish and mottled sculpin. Exceptional habitat quality occurs throughout the scenic and lower wild sections of the stream and provides important spawning habitat for Snake River cutthroat trout and recruitment to the Gros Ventre River. Given the high quality habitat and abundance of Snake River cutthroat trout, both segments of Crystal Creek are determined to exhibit an ORV for Fisheries.

Granite Creek

Wild: Above the falls (Wild segment), Granite Creek becomes more confined with the falls acting as a total fish barrier to migration; trout found above the falls have been planted.

Scenic: This segment contains Snake River and Yellowstone cutthroat trout, Forest Service designated "Sensitive Species" and Wyoming species of concern. The segment contains 3 native fish species (Snake River cutthroat trout, mountain whitefish and mottled sculpin) that were historically present in the Greater Yellowstone Ecosystem. Fish are considered an ORV in the segment downstream from Granite

Falls due to the presence of cutthroat trout and other native species, and natural reproduction of native species.

Gros Ventre River
Wild: From Darwin Ranch to Ouzel Falls (.5mi) has an active fishery. Ouzel Falls is a barrier to fish passage. All fish above the falls have been planted. Forest Service records indicate that brook trout were found above the falls in small numbers. Fish are considered an ORV in the portion of the segment downstream from Ouzel Falls due to the presence of cutthroat trout and other native species, high species diversity, and natural reproduction of native species.

Scenic: The portion of the Gros Ventre River from Darwin Ranch to the boundary with GTNP is the most productive fishery in the Forest Service managed portion of the river. The scenic portion has been stocked with cutthroat trout and brook trout. This segment contains Snake River and Yellowstone cutthroat trout, Forest Service designated "Sensitive Species" and Wyoming species of concern. The segment contains 8 native fish species (Snake River cutthroat trout, mountain whitefish, mountain sucker, bluehead sucker, mottled sculpin , longnose dace, speckled dace, redside shiner,) that were historically present in the Greater Yellowstone Ecosystem.

Hoback River
Recreational: The designated segment of the Hoback River is a high gradient river with limited spawning material due to coarse substrate (boulders/rubble) but provides fish passage that connects 319 stream miles in the Hoback Basin to the Snake River Basin. This segment contains Snake River cutthroat trout, Forest Service designated "Sensitive Species" and Wyoming species of concern. The segment contains 9 native fish species (Snake River cutthroat trout, mountain whitefish, bluehead sucker, longnosed dace, mountain sucker, Paiute sculpin, Utah sucker, Utah chub, and mottled sculpin) that were historically present in the Greater Yellowstone Ecosystem. This segment is a very important connectivity corridor for Snake River cutthroat trout reproductive movement between the mainstem Snake River and the Hoback tributaries. Fish are considered an ORV in the segment due to the presence of cutthroat trout and other native species, high species diversity, and fish passage.

Pacific Creek
Wild and Scenic: These segments contain Snake River and Yellowstone cutthroat trout, Forest Service designated "Sensitive Species" and Wyoming species of concern. The segment contains 9 native fish species (Snake River cutthroat trout, Yellowstone cutthroat trout, mountain whitefish, mountain sucker, Paiute sculpin, redside shiner, speckled dace, Utah sucker, and mottled sculpin) that were historically present in the Greater Yellowstone Ecosystem. Fish are considered an ORV in the segment due to the presence of cutthroat trout and other native species, high species diversity, and natural reproduction of native species.

Shoal Creek
Wild: Native Snake River cutthroat trout and Paiute sculpin are present in large numbers lower in the system and decrease in abundance near the lake. Bonneville cutthroat trout are present in Shoal Lake. Shoal Creek is an important reproductive tributary for Snake River cutthroat trout and provides recruitment to the Hoback River.

Snake River
Wild**:** The headwaters segment has a limited variety of native fish species present but is important for natural reproduction of Snake River cutthroat trout. The segment contains two native fish species

(Snake River cutthroat trout and mottled sculpin). Fish are considered an ORV in the segment due to the presence of cutthroat trout and other native species, and fish passage that connects tributaries to the Snake River Basin.

Recreational**:** The canyon segment has a wide variety of native fish species present. The segment contains 12 native fish species (Snake River cutthroat trout, Yellowstone cutthroat trout, mountain whitefish, mountain sucker, bluehead sucker, longnosed dace, Paiute sculpin, redside shiner, speckled dace, Utah sucker, Utah chub and mottled sculpin). Fish are considered an ORV in the segment due to the presence of cutthroat trout and other native species, high species diversity, and fish passage that connects tributaries to the Snake River Basin.

Willow Creek
Wild: Snake River cutthroat trout are abundant and occupy 19 miles of stream from the confluence with the Hoback River, and Paiute sculpin are common throughout the system. The dominant habitat type along the stretch is low gradient riffles with an abundance of large woody debris providing ample spawning and rearing habitat. Willow Creek is considered an ORV for Fish as the creek provides an important spawning and recruitment stream for native cutthroat trout for both the Hoback and Snake Rivers.

Wolf Creek
Wild: This high gradient stream is a tributary to the lower Snake River, six miles above Alpine, WY. The species present here include Snake River cutthroat trout, Paiute sculpin, and mottled sculpin – the majority of which are concentrated in the lower reaches closest to the Snake River. While there has been documented spawning of cutthroat in Wolf Creek, the habitat is limiting, but the presence of the native species listed meets the criteria for fisheries ORV in the lower 3 miles of this segment.

Geologic Values

The Snake River Headwaters lie within a seismically and geomorphically active zone where dynamic geologic processes continue to shape the landscape. Unique features include geothermal springs and landslides. In addition, the Snake River is a textbook example of a naturally braided river system, despite the presence of Jackson Lake Dam on the mainstem. This is a dynamic system that transports high sediment loads, creating a diverse landscape and supporting vegetative communities critical to the ecological health of the river. The BTNF segments that fall within the Teton and Gros Ventre Wilderness areas contain stretches that can serve as reference reaches for future monitoring. Reference measurements for pattern, profile, and dimension also provide valuable templates for restoration projects.

Bailey Creek
Bailey Creek's valley has been modified by glacial action. Bailey Lake is a geologically noteworthy lake that was formed when a landslide blocked the valley and dammed the creek. Mainly for the latter reason, Geology is an Outstandingly Remarkable Value on the entire (Wild) segment of Bailey Creek.

Blackrock Creek
Blackrock Creek has a large groundwater influence, with springs bolstering summer low flows in the stream. Breccia cliffs are a scenic feature along portions of the stream, and shallow landslides are

common where erosive side slopes have been undercut by the creek. These features, however, are not noteworthy enough to constitute an Outstandingly Remarkable Value for Geology.

Buffalo Fork River

Wild: The Buffalo Fork valley was the route of a major ice sheet that flowed into Jackson Hole, joining another ice sheet that flowed south from Yellowstone during multiple glacial events within the past 150,000 years (Pleistocene geologic epoch). This ice sheet was important in creating current landscape features in Jackson Hole, and in creating east-west trending lakes such as Two Ocean and Emma Matilda Lakes (in GTNP). Relict glacial valley features are evident in both the Wild and Scenic segments of the Buffalo Fork. There are also noteworthy waterfalls along South Buffalo Fork, in the Wild segment.

Scenic: The Buffalo Fork is a classic braided stream, especially downstream from Turpin Meadows, with features that include oxbows, multiple channels, active lateral point bars, and mid-channel bars.

These features, along with the relict glacial features, lead to the conclusion that Geology is an Outstandingly Remarkable Value for both the Wild and Scenic segments of the Buffalo Fork.

Crystal Creek

Wild: The Crystal Creek slide is one of the larger landslides in Wyoming and is a textbook example of a large rock landslide. It is an active mass movement along the lower portion of the Wild segment of Crystal Creek and deposits sediment into the stream. The landslide was a pre-existing mass movement feature that had stabilized and had forest cover on it when it reactivated after 2002, based on aerial photography.

Scenic: Crystal Creek is a high bedload stream with braided and meandering reaches. There is a scenic canyon above the parking area and spectacular exposed sedimentary geology throughout the watershed that makes the stream an exceptional resource.

The landslide, the exposed sedimentary geology, and the nature of the stream make Geology an Outstandingly Remarkable Value for both the Wild and Scenic segments of Crystal Creek.

Granite Creek

Wild: Granite Creek flows through a classic u-shaped glacial valley. The stream corridor contains a number of outstanding geologic features including the Open Door, Granite Falls, a natural bridge, and Turquoise Lake.

Scenic: Granite Hot Springs is a popular geothermal feature along the stream.

These features lead to the determination that Geology is an Outstandingly Remarkable Value for both the Wild and Scenic segments of Granite Creek.

Gros Ventre River

Wild: The upper Gros Ventre River is a fine example of a meandering stream, with abundant oxbows (cut-off, abandoned meanders that become isolated ponds). This is in both the Wild and Scenic segments of the river.

Scenic: The Gros Ventre River corridor has a number of noteworthy geologic features. The Gros Ventre Slide is possibly the largest landslide in the United States that has slid within historical times. Lower

Slide Lake (formed by the Gros Ventre Slide) is outside the legislated Wild and Scenic boundary, but Upper Slide Lake was also formed when a naturally-triggered landslide partially dammed the Gros Ventre River. Exposed sedimentary rock beds along the river provide outstanding scenery; the Lavender Hills, Grey Hills, and Red Hills are noteworthy examples.

For all the aforementioned reasons, Geology is an Outstandingly Remarkable Value for the entire Wild and Scenic Gros Ventre River.

Hoback River
The Hoback River, along with the Snake River south of Hoback Junction, provides the best cross-sectional view of the Wyoming Thrust Belt from east to west due to the cut made by the Hoback River through the Hoback Canyon northwest of Bondurant. This thrust belt is a 65-million year old feature, formed by compressional geologic forces, that runs from the Arctic to Mexico.

Specific notable features along the river within the corridor include the dramatic Hoback Canyon (eroded by the Hoback River), scenic rapids in the river, and active landslides and debris flows along the corridor. Stinking Springs is a geothermal feature along the river associated with tectonic activity on the Wyoming Thrust Belt.

For all these reasons—in particular, the exceptional exposure of the Wyoming Thrust Belt—Geology is an Outstandingly Remarkable Value for the Recreational Hoback River.

Pacific Creek
Wild: Active geologic features of interest include Parting of the Waters along the Continental Divide, where waters split and flow west down Pacific Creek or east down Atlantic Creek. Pacific Creek is also an excellent example of a braided stream channel within both the Wild and Scenic segments.

Wild and Scenic : The Pacific Creek valley was the route of a major ice sheet that flowed into Jackson Hole, joining another ice sheet that flowed south from Yellowstone during multiple glacial events within the past 150,000 years (Pleistocene geologic epoch). Glacial valley features are found in both the Wild and Scenic segments. The valley contains coarse conglomerates that were shed from the Gros Ventre Mountains, including the part that extended into what is now Jackson Hole. Fossil remains are present in the Pacific Creek corridor. They include 65-million year old remains of flora and fauna that are remnants of a time when the area had a much warmer climate.

For all the preceding reasons, Geology is an Outstandingly Remarkable Value along both the Wild and Scenic segments of Pacific Creek.

Shoal Creek
Points of geologic interest along Shoal Creek include Shoal Creek Falls, Shoal Peak, and Shoal Lake (a classic glacial lake, or tarn). Exposed cliff bands and limestone caves provide additional scenic interest, making Geology an Outstandingly Remarkable Value for this designated Wild stream.

Snake River
Wild**:** *not yet evaluated*.

Recreational: The Snake River Canyon south of Hoback Junction, along with the Hoback River Canyon, provides the best cross-sectional view of the Wyoming Thrust Belt from east to west due to the cut

made by the Snake River through the canyon. This thrust belt is a 65-million year old feature, formed by compressional geologic forces, that runs from the Arctic to Mexico. The visually prominent Camp Davis geologic formation is a conglomerate consisting of debris shed during the advance of the thrust sheet.

The Snake River Canyon itself is a spectacular landscape feature eroded by the river. Rapids created by rocks originating from the valley walls and reworked by the river have created a rare recreational and visual experience. Named rapids include Big Kahuna, Lunch Counter, Champagne, and Cottonwood, and there are smaller "play holes" such as Taco and King's Wave. Stream-created depositional features such as instream bars and islands add to the river scenery. Active landslides and debris flows along the canyon add to the stream's sediment load and change the river and canyon character. There is one geothermal feature, Astoria Hot Springs, in the designated reach. It is no longer accessible to the general public, but steam from the springs can still be seen along the river where the springs empty into the Snake.

All in all, Geology is an Outstandingly Remarkable Value of the Recreational segment of the Snake River.

Willow Creek
The Hoback Normal Fault forms the Willow Creek Anticline (Ann's Ridge)—an actively forming anticline—east of Willow Creek. This is not sufficient, however, to constitute a geologic Outstandingly Remarkable feature.

Wolf Creek
There are no Outstandingly Remarkable geologic features along Wolf Creek.

Blackrock Creek

SNAKE RIVER HEADWATERS
ORV EVALUATION

During the August 2010 workshop, designated river segments of the Snake River Headwaters were evaluated to determine if they contain the ORVs identified above (scenic, recreational, cultural, ecological/wildlife, fish, and geologic). A clearly defined set of criteria was developed for each ORV based on the professional judgment of subject matter experts participating in the workshop. The evaluation criteria and draft results of this effort are described below for each ORV.

Scenic

Evaluation Criteria

River Related or River Dependent: River related scenery is considered views of the river and its immediate environs and/or scenes *from* the river of distant landscapes where the river factors into the foreground view.

Rare, Unique, or Exemplary in a Regional or National Context:

- *Regional or National Context* - The greater Yellowstone ecosystem is uniquely identifiable from scenery across the nation or internationally.
- *Rare* - The scenery represents an example of views that are uncommon within the national context.
- *Unique* – The scenery represents a singular example of views within the regional or national context.
- *Exemplary* – The scenery represents a conspicuous example among other similar views within the regional or national context.

River Segment	**SCENIC ORV CRITERIA**				
	Dramatic Scenery	Water Special features Color	River Related/ Dependent	Rare, Unique, or Exemplary	ORV?
Bailey Creek	A remote setting in a canyon with very diverse scenic values; including a fire burned landscape, geologic landslide, thickets of riparian willows, and a turquoise forested lake. Moose and bald eagles are common. Bailey Lake, originally a small glacial pond, was greatly enlarged by a massive landslide that continues to build a natural dam at the lake's outlet.	A recent fire, displays a scenic fire ecosystem for the first few miles. A recent undisturbed landslide is seen easily. The landslide and lake are examples of surficial geologic actions. The trail climbs up to Bailey Lake, which is a scenic 35 acre turquoise, forested lake. Fire weed covers the steep canyon hillsides, providing brilliant spring & fall colors.	**Y**	**Y**	**ORV**
Blackrock Creek	This segment is characterized by interspersed confined canyons with conifers, and meandering sections through sub-alpine moist meadows. The lower sections afford spectacular views of the Teton Range. This is one of the few areas on the forest where whitebark pine can be viewed from a paved, readily accessible road, and diversity of vegetation is high.	Meandering reaches and Confined canyons Distinctive fall, winter, spring and summer water features and colors.	**Y**	**Y**	**ORV**

River Segment	SCENIC ORV CRITERIA				
	Dramatic Scenery	Water Special features Color	River Related/ Dependent	Rare, Unique, or Exemplary	ORV?
Buffalo Fork	The Buffalo River Valley is rich with picturesque ranches, haylands and dude ranches laying to the south. The Tetons and Mount Moran are visible to the west, and predominant mountain plateaus of the Teton Wilderness form the northern backdrop. The lower segment is well known for its spectacular views of the Teton Range and pastoral ranch land setting of the Buffalo Valley. The river corridor is rich with lush vegetated meadows, providing migration routes for elk, wintering moose and grizzly bears and wolves.	Teton Wilderness offers views of scenic features such as South Fork Water Falls, layered volcanic peaks and wide wet meadows.	**Y**	**Y**	**ORV**
Crystal Creek	Pastoral ranch setting with meandering pools of the lower creek, with views of the surrounding colored red hill cliffs, limestone outcrops, and Gros Ventre Wilderness	Variety of ecological habitats ranging from 11,000 foot peaks to the confluence of with the Gros Ventre River.	**Y**	**Y**	**ORV**
Granite Creek	Wild: Classic U-shaped, glaciated valley, imposing cliffs and high peaks as well as the beauty of the river itself and surrounding talus slopes, wildflower fields and forest. ***Scenic:*** *Scenic:* Views of meandering creek, whitewater sections, cascades (Granite Falls) and surrounding cliffs, and mountains in the southern Gros Ventre Range.	Wild Section - views include a classic U-shaped glaciated valley, evident for the length of the upper river, imposing cliffs and high peaks as the beauty of the river itself and surrounding talus slopes, wildflower fields, and forest. Scenic: Outstanding scenery of creek, meanders, whitewater sections, cascades (Granite Falls) as well as surrounding cliffs, and mountains in the southern Gros Ventre Range.	**Y**	**Y**	**ORV**
Gros Ventre River	The scenic values are spectacular, ranging from high rocky peaks and sloping valleys with clear meandering streams emanating the river.	The Gros Ventre slide, remnants of the vast earth slide which occurred in 1925, can been seen on the north west section of the river.	**Y**	**Y**	**ORV**
Hoback River	The canyon is very scenic with towering cliffs of grey and red rock, water features and steep mountains contribute to the outstanding scenic values. Some of the area's outstanding scenic attributes are views of the south flank of the Gros Ventre Peaks, Shoal Peak and West Dell Falls, aspen stands that turn gold in fall, meadows with wildflowers displays in July and August.		**Y**	**Y**	**ORV**

River Segment	SCENIC ORV CRITERIA				
	Dramatic Scenery	Water Special features Color	River Related/ Dependent	Rare, Unique, or Exemplary	ORV?
Pacific Creek	Views of coniferous mountains with sage –brush grassy meadows which varies from the lower elevations of Pacific Creek with mixed stands of Douglas-Fir, lodgepole, pine and alpine fir, to the higher elevations of the Teton Wilderness with white pine.	Braided Creek and Parting of the Waters	**Y**	**Y**	**N**
Shoal Creek	Scenic values are high throughout the creek corridor. Views of Palmer Peak and the cliffs surrounding Doubletop Peak dominate the view to the north; more distant views of the Hoback Range are seen to the south. The foot and horse trail remains mostly in the stream corridor but does not intrude on the scenic quality. Some two-tracks and roads associated with old timber harvest approach the corridor but are not obvious to the average viewer. Beaver ponds, Shoal Falls, and geologic structures in the upper canyon contribute to variety and outstanding scenery; tilted cliff bands, narrow sections of cascading water, and open views characterize the lower segment. Views of the Gros Ventre Range are outstanding.	Views of diverse terrain and vegetation, water reflecting pools, and steep mountains contribute to the outstanding scenic values. Some of the area's outstanding scenic attributes are views of the south flank of the Gros Ventre Peaks, Shoal and West Dell Falls, aspen stands that turn gold in fall, meadows with wildflowers displays in July and August.	**Y**	**Y**	**ORV**
Snake River	The landscape is very scenic and the lower Snake attracts great numbers of visitors, close to 200,000 in a two-month period in summer when whitewater rafting is a popular pursuit.	The Snake River is a brilliant ribbon of blue, green and white cascading ripples that are surrounded by a canyon with towering spruce, pine, and fir trees with moss covered walls and bald eagles. In winter the lower Snake River Canyon is known as a place to see mountain goats.	**Y**	**Y**	**ORV**
Willow Creek	The most Distinctive scenery is in the surrounding mountains, beyond the river corridor. Scenic views of exposed rock faces on mountainsides, with cliffs, hogbacks, deep, steep canyons with heavy conifer cover. (Old Growth Forest) Views of old landslides rock fall deposits of Grayback Ridge and recent rock falls and slumps are seen on the west slope of Clause Peak.	Short steep, and narrow canyons is some places, wide gravelly stream, with beaver ponds, willows and cottonwood. The creek begins in a subalpine forest on the crest of the Wyoming Range at Pickle Pass, and drops to join the Hoback River over 3000 feet lower, which offers a great deal of diverse habitats in a short distance.	**Y**	**Y**	**ORV**
Wolf Creek	Outstanding features include the variety of landscapes and the variety of scenic attractions, including small waterfalls and cascades on the creek, limestone cliff bands along the sides of the lower canyon, seasonal colors in the understory shrubs and deciduous trees, and wildflower parks and colorful tilted strata in the upper reaches of the creek.	Fast flowing creek in a narrow canyon, talus slopes, surrounded by diverse vegetation which displays brilliant fall colors such as huckleberry, currants, red osier dogwoods	**Y**	**Y**	**ORV**

Recreation

The primary recreational value of the Snake River Headwaters lies in the fact that an ***interconnected system*** has been protected.

The discussion below assumes the Headwaters System as a whole meets the criteria of uniqueness by its inclusion of such a distinctive range of activities and settings as described by the Recreation Opportunity Spectrum. Because travel corridors through otherwise inaccessible terrain follow the path of waterways, and because people, especially in the arid West, are attracted to waterways for their recreation, the recreational values of the whole system are also considered river-related/dependent. All segments thus meet the requirements for having Outstandingly Remarkable Recreation Value. Within that system, we have analyzed each stretch for its specific contributions to the overall recreation opportunity spectrum, and noted any features that stand out as rare across the region.

Evaluation Criteria

Contribution to the Spectrum of Recreation Activities Diversity: What recreation *activities* are present on each segment? What kinds of experiences are available for what level of participant?

Contribution to Settings (remoteness, encounters, etc…): What attributes of the physical, managerial and social *setting* are specific to each segment, and how do they fit within the range of settings offered?

Special Features that Contribute to the Recreational Value: Are there rare or unique features that contribute to the segment's recreational value?

River Segment	Recreation Evaluation Criteria		
	Contribution to the spectrum of recreation activities	**Contribution to settings (remoteness, encounters, etc.)**	**Special features that contribute to recreational value (unique, rare)**
Bailey Creek	Possible to access from top or bottom (LGR Road or SR corridor). Good fishing; a rare boat-and-hike opportunity from Snake. Mountain bike opportunities in a wild place are unusual. Gentle grade is easy to hike. Allows one to view a variety of creek and terrain features over a relatively short distance. Historic travel route connecting the Snake to the Salt River Valley.	Primitive setting outside wilderness with trail system along the creek. Gives a remote & intimate backcountry feel.	Bailey Lake, which was created by a rare low elevation landslide. The exemplary geology layout and large lake feature in this section contribute to the recreation values of this stream and the headwaters. Rare viewing opportunity for experiencing varied geological processes in a short distance with trail access.

River Segment	Recreation Evaluation Criteria		
	Contribution to the spectrum of recreation activities	**Contribution to settings (remoteness, encounters, etc.)**	**Special features that contribute to recreational value (unique, rare)**
Blackrock Creek	There are numerous opportunities for interpretation and scenic turnouts, and wildlife viewing opportunities. Parking areas, vault toilets, resort permits, diverse outfitter/guide opportunities, accommodate many visitors each year in the river/highway corridor. Togwotee attracts people driving for pleasure while viewing scenery with frequent opportunities to view wildlife and participate in scenic byway exhibits. The Continental Divide Snowmobile Trail passes through the immediate area.	This creek flows along State Highway 26/287, the Wyoming Centennial Scenic Byway that spans Togwotee Mountain, creating a mountain pass at southern end of the Absaroka mountain range. Roaded Natural setting primarily through NFS lands with direct proximity to major highway.	Opportunities to access and view a unique sub alpine environment including high alpine meadows along a scenic byway and snowmobile trail located along the Continental Divide are rare opportunities. Breccia Cliffs provide a landmark geological feature, and meadows with healthy meandering streams contribute to outstanding attributes visible from the corridor, and enhance recreation experiences. The opportunity to see wildlife in the area is outstanding; grizzly bears and grey wolves are among the megafauna that draw people to the corridor.
Buffalo Forks (Wild)	Horsepacking, hunting, day rides and extended wilderness activities are centered on this river and its forks. The river is accessed by trails for most of its length and numerous outfitter-guides are available to lead people into the area. Pack-in fishing/hunting opportunities available. Non-motorized boating allowed.	Primitive setting inside the Teton Wilderness offering summer and winter activities. Specific trail system provides access to the Forks of the Buffalo. Numerous falls and lakes are found on the river forks and their tributaries; there are extensive meadows through which the streams meander.	Features such as South Fork Falls are rare, and numerous wide wet meadows provide outstanding opportunities to see wildlife in a wild setting. Wildlife resources are superlative, with the full complement of native species.
Buffalo Fork (Scenic)	Corridor recreation activities include scenic driving, dude ranching, big game hunting, fishing, wildlife viewing, and non-motorized floating on this segment with unique river camping experience opportunities.	Roaded Natural setting with direct proximity to major highway and county road that offers easy viewing & access opportunities.	The Buffalo Fork is a major cold water sport fishery for the native (fine-spotted) cutthroat trout population.

River Segment	Recreation Evaluation Criteria		
	Contribution to the spectrum of recreation activities	**Contribution to settings (remoteness, encounters, etc.)**	**Special features that contribute to recreational value (unique, rare)**
Crystal Creek (Wild)	Wildlife and active geology viewing. Pack trips, hunting, hiking, camping, fishing, kayaking. Can be on the more challenging end of the spectrum for hikers with many creek crossings and some route-finding.	Primitive setting located in designated wilderness with good trail access and few encounters. Connectivity to other wilderness drainages and trail systems. Wild & Scenic designated rivers seldom include the smaller water, upper reaches of their headwaters and tributary headwaters, this feature is rare.	Landslide activity buckled the streambed and elevated it 15' into the air. Geology and hydrology events reacting to these changes. Bighorn sheep hunting is rare.
Crystal Creek (Scenic)	High-quality fishing experiences. Close in and far out meadows. Large meandering stream and big meadow without high growth allow for unobstructed backcasting for those learning to fly-fish. Kayaking/rafting.	Roaded natural. Scenic section is rural with gravel road running alongside creek, and irrigated ranch meadows.	Southwestern-looking red sandstone cliffs make the landscape unlike any found in the GYE.
Granite Creek (Wild)	Streamside hiking, backpacking, hunting, horse packing, camping, pack-rafting and fishing.	Primitive setting with outstanding granite features. First few miles of Granite Creek trail offer a low-gradient hiking experience that is excellent for those unable or uninterested in hiking steeper trails in a wilderness environment. The upper reaches of a tributary rare among designated waters.	Turquoise Lake located at the headwaters. Turquoise Lake is one of only two alpine tarns within the Snake River Headwaters system.
Granite Creek (Scenic)	Soaking & swimming in hot water features. Fishing, kayaking, developed and undeveloped camping, dog sledding, snow machining. Streamside hiking. Girl Scout Camp, Safari Club International /American Wilderness Leadership School facility, some private residences and FS recreation residence area offer unusual activities.	Primitive feel to a rural setting. Diversity of activities available (hike, fish, hunt, kayak, soak & camp) to partake all in one day in one area. Groomed setting in winter that offers skiing, snow machining on and off trail (no closed winter range).	Intermediate class III+ kayaking/small boat opportunity falling between Hoback & GV in difficulty. The presence of a scenic and accessible waterfall with a hot spring feature below it is unique at all water levels. Public hot water features with easy access are rare in region. Class V river opportunities above Granite Falls. Granite Hot Springs historic CCC built pool and bathhouse facility.

River Segment	Recreation Evaluation Criteria		
	Contribution to the spectrum of recreation activities	**Contribution to settings (remoteness, encounters, etc.)**	**Special features that contribute to recreational value (unique, rare)**
Gros Ventre River (Wild)	Horse- or backpacking, hunting, fishing, remoteness challenge but terrain itself not intimidating.	Primitive located in designated wilderness. Known as "The people's wilderness" this area is less overwhelmed than other designated wilderness. Includes the open and airy upper reaches of its headwaters.	Upper Falls camping destination; Ouzel Falls formation.
Gros Ventre River (Scenic)	A full gamut of motorized and non-motorized recreation activities. Kayaking below Slide Lake. Hunting.	Rustic; gravel road access to dispersed sites and rec areas.	Not highly regulated; Class IV most challenging whitewater in area. National Geological Site. Path of the Pronghorn interpretive opportunities.
Hoback River	Offers intermediate learning environment for those learning to run nontechnical whitewater in a variety of crafts. Bank fishing popular without much access. Driving for pleasure on this scenic byway.	Paved access; very social setting among many engaged private landowners.	Rare geological features in the corridor that make for a unique learning opportunity. Viewing of bighorns on winter range.
Pacific Creek (Wild)	Packing in for fishing and hunting.	Wild setting in designated wilderness.	Parting of the Waters National Natural Landmark where Two Ocean Creek splits into Atlantic and Pacific Creeks on the Continental Divide.
Pacific Creek (Scenic)	Considerable horse day use on the less-challenging scale. Primary access corridor for hunting outfitter camps in wilderness.	Rustic setting along a gravel road. High encounters.	Often-photographed scenic vistas of the Teton Range.
Shoal Creek	Shoal Creek Trail follows the waterway closely along the designated stretch. Primary activities in this smaller tributary are hiking, fishing, swimming, hunting and horseback riding, along with backcountry camping and extended overnight pack trips.	Primitive setting; most of the designation is within the Gros Ventre Wilderness and Shoal Creek Wilderness Study Area. Shoal Lake is one of only two alpine tarns within the Snake River Headwaters system. Encounters moderate.	Shoal Lake. Shoal Falls. Beaver ponds.

River Segment	Recreation Evaluation Criteria		
	Contribution to the spectrum of recreation activities	**Contribution to settings (remoteness, encounters, etc.)**	**Special features that contribute to recreational value (unique, rare)**
	Photography and wildlife viewing are strong attractions for summer visitors		
Snake River (Wild**)**	Backpacking and horsepacking—some people seeking the ultimate source of this major river system for the West.	Primitive setting with few encounters. Access thru Natl Park or Fs trails but then trail veers away from source waters.	Fox Park and patrol cabin. Access to Continental Divide and Thoroughfare country for Yellowstone travelers.
Snake River (Recreational**)**	High private, institutional, and outfitted river use—renowned for activities dependent on larger water volumes throughout summer.	Provides easily accessible and attainable opportunities to a non-technical high-volume river with world class rapids within an 8-mile section of river.	Champagne, Big Kahuna, Lunchcounter Rapids and viewing areas; Taco Hole surfing opportunity for kayakers.
Willow Creek	Pack-in fishing trips, mountain biking, day use horse rides/hunting, Photography, backcountry skiing and viewing scenery.	Primitive setting outside designated wilderness. Broad meandering stream with braided channels	Longest designated Natl Recreation Trail in the region.
Wolf Creek	Hunting, hiking, horseback riding.	Primitive wild setting accessed directly from high traffic river and highway. Challenging remote feel.	Mountain goats, low-elevation pikas. Palisades Wilderness Study Area.

Cultural Values

Evaluation Criteria

Prehistoric –The river or area within the river corridor contains a site where there is evidence of occupation or use by Native Americans. Sites must have unusual characteristics or exceptional human interest value. Sites may have national or regional importance for interpreting prehistory: may be rare and represent where a culture or cultural period was first identified and described; or may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare or sacred purposes. Of particular significance are sites or features listed in, or eligible for inclusion in, the National Register of Historic Places as regionally or nationally significant.

Examples: Travel routes; camping sites; fishing sites; settlements; ceremonial sites

Historic – The river or area within the river corridor contains a site or feature associated with a significant event, an important person, or a cultural activity of the past that was rare, unusual or one-of-a-kind in the region. A historic site and/or feature in most cases is 50 years old or older. Some cultural values may be displayed as place names. Of particular importance are sites or features listed in, or are eligible for inclusion in the National Register of Historic Places as regionally or nationally significant.

Examples: Dude ranches; travel routes; camping sites; river crossings; iconic landscapes(?)

Traditional Use – The river or areas within the river corridor contains regionally unique location(s) of importance to Indian tribes (religious activities, fishing, hunting, and gathering). Locations may have unusual characteristics or exceptional cultural value being integral to continued pursuit of such activities. Locations may have been associated with treaty rights on ceded lands or activities unprotected by treaty on ceded lands or in traditional territories outside ceded lands.

Examples: fish, river-related flora and fauna (TBD)

Eligible or listed on the National Register of Historic Places –

The quality of significance in American history is present in districts, sites, buildings, structures and objects. A particular property could be significant at the national, regional or local level, but they should be:

- Associated with events that have made a significant contribution to the broad patterns of our history; or
- Associated with the lives of persons significant in our past; or
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

The National Register is the Federal government's official list of historic properties worthy of preservation. The register is administered by the National Park Service. Nominations for listing historic properties come from State Historic Preservation Officers. A property that is listed on the National Register has gone through the formal nomination process and has been accepted by the Keeper of the National Register.

A property is considered Eligible for the National Register if it meets one of the above evaluation criteria. The Federal Agency who manages the land on which a property is located makes a recommendation concerning the eligibility of property, and the State Historic Preservation Office concurs with that recommendation. A property that is eligible for the National Register has the same protective status as a property that is listed on the National Register.

River Segment	**CULTURAL ORV Criteria**				
	ORV Evidence	**Documented prehistoric/historic sites and/or Traditional Use**	**Eligible for the National Register of Historic Places**	**Listed on the National Register of Historic Places**	**Determination**
Bailey Creek	This river segment does not contain any documented cultural outstandingly remarkable values				
Blackrock Creek	Prehistoric sites Travel route for early trappers and explorers Old Military Road Old Blackrock Office Continued traditional use by tribes	**Y**	**Y**		ORV
Buffalo Fork	Rosencrans Cabin Historic District	**Y**	**Y**	**Y**	ORV for area surrounding district
Crystal Creek	This river segment does not contain any documented cultural outstandingly remarkable values				
Granite Creek	Granite Hot Springs Pool & Bathhouse. ORV for area surrounding the hot springs	**Y**	**Y**		ORV for area surround hot springs

River Segment	CULTURAL ORV Criteria				
	ORV Evidence	**Documented prehistoric/historic sites and/or Traditional Use**	**Eligible for the National Register of Historic Places**	**Listed on the National Register of Historic Places**	**Determination**
Gros Ventre River	Prehistoric Sites (Stone Circles, Petroglyphs) Chester Aurthur Expedition Historic homesteads	**Y**	**Y**		ORV
Hoback River	Early Trapper route Stinking Springs Rock Shelter	**Y**	**Y**		ORV
Pacific Creek	Prehistoric campsites	**Unevaluated**			
Shoal Creek	This river segment does not contain any documented cultural outstandingly remarkable values				
Snake River (Lower segment)	This river segment does not contain any documented cultural outstandingly remarkable values				
Willow Creek	This river segment does not contain any documented cultural outstandingly remarkable values				
Wolf Creek	This river segment does not contain any documented cultural outstandingly remarkable values				

Ecological / Wildlife Values

River-related ecological and wildlife resources were evaluated on three criteria:

- Special wildlife/habitat/ecological attributes
- Ecological function
- Species diversity/abundance

Information regarding each of these criteria was collected for all 12 segments and analyzed to determine the aggregate value of the resource in each segment. The regional significance of the designated segments was determined by comparing them to other rivers within the Greater Yellowstone Ecosystem; in many cases, the national significance is more important than the regional significance.

River Segment	**ECOLOGICAL/WILDLIFE ORV CRITERIA**				
	Special wildlife/habitat/ ecological attributes	Ecological function	Species diversity/abundance	Rare, Unique, or Exemplary	Deter-mination
Bailey Creek	-Seasonal neotropical, waterfowl, shorebird migrations associated with Bailey Lake and riparian zones. -Corridor use by migrating elk and moose.	This segment contributes to the ecological function of the entire lower Snake River system. -Relatively complete faunal and floral assemblage -Beaver activity enhances ecological function and species diversity and abundance.	-High wildlife diversity and abundance due to Bailey Lake and several riparian zones. -T & E diversity is moderate due to a lack of grizzly bears and few gray wolves and lynx -Trumpeter swans, bald eagles, beaver, passerines.	Y	ORV
Blackrock Creek	- Seasonal use and stop-over area for neotropical, waterfowl, shorebird migrants. -Used by migrating elk, mule deer, and moose.	-Relatively complete faunal and floral assemblage that is enhanced by an extensive and continuous riparian zone along the creek.	-High wildlife diversity associated with extensive riparian zones, including sandhill cranes, many waterfowl, bald eagles, and osprey. -T & E: Very important area for grizzly bears, gray wolves, and Canada lynx.	Y	ORV
Buffalo & Soda Forks	-Important migration corridor and breeding habitat for neotropical migrants, waterfowl, and shorebirds. -One of the longest moose (35 miles) and elk (55 miles) migrations in North America. -Movement corridor for wolverines and river otters.	-Diverse and vast wilderness headwaters that support extreme habitat diversity: braided streams, backwaters, hanging valleys, steep canyons, and high-elevation plateaus. -Extensive, broad riparian zones. -Pristine; few or no exotic flora and fauna; management for natural processes.	-T &E: Grizzly bears gray wolves (very abundant); occasional Canada lynx. -Moose, elk, wolverines, river otters. -Spotted sandpipers, American dippers, trumpeter swans, Harlequin ducks (rare), bald eagles.	Y	ORV
Crystal Creek	-High bird and amphibian diversity associated with micro topography on landslides throughout	-Low anthropogenic impact due to its seasonal remoteness. - Complete ecological	Similarly to the Gros Ventre River, the area is an important breeding ground and	Y	ORV

River Segment	ECOLOGICAL/WILDLIFE ORV CRITERIA				
	Special wildlife/habitat/ ecological attributes	Ecological function	Species diversity/abundance	Rare, Unique, or Exemplary	Deter-mination
	and broad riparian zones in the lower half of the segment. -1st designated pronghorn migration corridor that benefits by riparian vegetation and water sources along the creek.	assemblage, including two threatened carnivores and Canada lynx, an occasional visitor. -Low frequency of exotic flora and fauna away from disturbed sites such as trail and roads.	movement corridor for migratory birds. Bighorn sheep, pronghorn, elk, mule deer, moose, (occasional), bald eagles, golden eagles, osprey, trumpeter swans; 1 pair nesting peregrines. -T & E: gray wolves, grizzly bears, Canada lynx (occasional).		
Granite Creek	-One nesting pair of peregrine falcons within .30 miles of the creek. This pair likely uses the riparian zones along the creek for foraging.	-Riparian zones in the lower section are likely impacted by anthropogenic activity, including the road, parking areas, camping areas.	-Wildlife diversity and abundance is enhanced by several large riparian zones along the creek in the lower section, and two small ones in the upper section. -Waterfowl, bald eagles, peregrine falcons. -T & E: gray wolves, grizzly bears (occasional).	Y on natl scale	ORV
Gros Ventre River	-High bird and amphibian diversity associated with micro topography on landslides and broad riparian zones. -1st designated pronghorn migration corridor that benefits by riparian vegetation and water sources along the river.	-Low anthropogenic impact due to its seasonal remoteness. - Complete ecological assemblage, including two threatened carnivores and Canada lynx, an occasional visitor. -Low frequency of exotic flora and fauna away from disturbed sites such as trail and roads. -Livestock grazing levels are modest and have minimal effect on species composition and age structure.	-Species diversity is high owing to several broad riparian zones along the river and the pristine condition of the landscape. The area is an important breeding ground and movement corridor for migratory birds. Bighorn sheep, pronghorn, elk, mule deer, moose, bison (occasional), bald eagles, golden eagles, osprey, several species of hawks, boreal owls, trumpeter swans, chorus frogs, spotted frogs, tiger salamanders, two pairs of nesting peregrines. -T & E: gray wolves,	Y	ORV

River Segment	ECOLOGICAL/WILDLIFE ORV CRITERIA				
	Special wildlife/habitat/ ecological attributes	Ecological function	Species diversity/abundance	Rare, Unique, or Exemplary	Deter-mination
			grizzly bears, Canada lynx (occasional).		
Hoback River	-Migration corridor and winter range for bighorn sheep, deer, elk, and moose.	-Traffic and highway improvements may lead to high levels of mortality for ungulates such as bighorn sheep and impede migrations.	-Bald eagle foraging and nesting -Wintering area for bighorn sheep, elk, deer, moose -High diversity of mammals and raptors, including cougars, bobcats, red-tailed hawks. T & E: gray wolves, occasional grizzly bears.	Y	ORV
Pacific Creek	Same as Buffalo and Soda Forks	Braided along entire length with scattered riparian zones, backwaters, and ponds, particularly in the middle section. -Part of a vast wilderness headwaters (see Buffalo and Soda Forks)	Same as Buffalo and Soda Forks	Y	ORV
Shoal Creek	Strong diversity of wildlife associated with broad riparian zones and backwater areas (beaver dams, boreal toads, chorus frogs). Goshawk and harlequin duck nesting.	-Ecological integrity is preserved because of the pristine condition of the segment.	-T & E: gray wolves and occupied grizzly bear habitats. -Elk, deer, moose, black bears. - Numerous passerines and neotropical migrants associated with the riparian zones.	Y	ORV
Snake River (recreatl)	-Exceptional viewing of numerous raptors (bald eagles, osprey), waterfowl, mountain goats, and moose. -Migration corridor for neotropical migrants, waterfowl, and shorebirds. -Elk migration corridor and winter range.	-Extensive riparian communities and deciduous forests along the river corridor (upper section). Adjacent uplands support sagebrush steppe, grassland steppe, and conifer forests. Few or no exotic fauna. -Abundant snags for raptor perching and backwaters for foraging. -Some disturbance	-Exceptionally high wildlife diversity. -T & E: gray wolves and occasional grizzly bears, -River otters, cougars, black bears, wolverines (occasional) - Trumpeter swans, common ravens, magpies. Prairie and peregrine falcons.	Y	ORV

River Segment	ECOLOGICAL/WILDLIFE ORV CRITERIA				
	Special wildlife/habitat/ ecological attributes	Ecological function	Species diversity/abundance	Rare, Unique, or Exemplary	Deter-mination
		effects of private development in upper section. -Pristine; few or no exotic flora and fauna.			
Willow Creek	Numerous broad riparian zones are well distributed along the creek.	-Strong habitat diversity owing to mix coniferous, riparian, and open parklands along the creek. -High ecological integrity due to pristine habitat.	-T &E: gray wolves - Numerous passerines and neotropical migrants associated with the riparian zones. -Cougars, black bears, bobcats, bald eagles, chorus frogs, boreal toads.	Y	ORV
Wolf Creek	-Bald eagles use the lower portion as part of a generalized movement corridor. -One broad riparian zone with backwaters and beaver dams in the lower end of the segment.	This is a narrow watershed with narrow riparian zones. Some parts of the creek bottom are impacted by trails.	Beaver, bald eagles, mountain goats, red-tailed hawks, neotropical migrants, raccoons.	Y on natl scale	ORV
Upper Snake River @ Fox Park	Same as Buffalo and Soda Forks	Same as Pacific Creek, and Buffalo Forks	-Important foraging area for grizzly bears and gray wolves.	Y	ORV

Fisheries Values

Fish were evaluated on four criteria:

- Species of concern present
- Diversity of native species
- Natural reproduction
- Habitat quality

Information regarding each of these criteria was collected for all 12 segments and analyzed to determine the aggregate value of the resource in each segment. The regional significance of the designated segments was determined by comparing them to other rivers within the Greater Yellowstone Ecosystem. A matrix was used to record and display findings, using a scale of 0-4, with a '3' indicating one of only a few this segment in the region (defined as the Greater Yellowstone Ecosystem), and a '4' indicating the most significant value in the region. Segments were found to have a fish ORV if they rated '4' for one or more criteria.

River Segment	**FISH ORV CRITERIA**				
	Species of Concern	Diversity of Native Species	Natural Reproduction	Habitat Quality	Determination
Bailey Creek	4- Snake River Cutt Brook Trout present	2-2 native species	3- occurs in lake and stream	3- good quality	ORV
Blackrock Creek	4- Snake River Cutt	3-5 native species	3- occurs in stream	3- good quality	ORV
Buffalo Fork	4-SRC-connects downstream tribs	4- seven species present	2- typical	2-typical	ORV
Crystal Creek	4- SRC	2-3 natives	3- early history of stocking	2-upper 3-lower has exceptional quality	ORV
Granite Creek	3-SRC;lower scenic reach 0-upper wild; stocked	3-3 natives 0-upper	2-typcial lower 0-upper wild	2-typcial lower 0-upper wild (high gradient)	Upper – N Lower- Maybe
Gros Ventre River	4-SRC connects downstream tribs 0-upper wild stretch; above ouzel falls no pop, non-native brook trout present	4-9 natives lower 1-non-native present in upper wild	3-large important system lower 2-typcial	2-typical 2-typical upper	ORV
Hoback River	4-SRC connector upstream tribs	4-9 natives	2-typical	2-typcial	ORV
Pacific Creek	4-SRC and N leatherside chubs present; Yellowstone Cutts also	4-10 natives	3-good	3-significant	ORV
Shoal Creek	3- below West Fork, strong SRC pop; some past stocking	1-2 natives	4-lower meadow and lake	3- good in lower meadow and lake	ORV
Snake River	4-SRC and bluehead sucker present; 4-SRC and Yellow Cutt in Wild seg.	4-12 natives	4-nationally significant both in rec and wild segments	4 in rec segment, 2 in wild segment	ORV

River Segment	FISH ORV CRITERIA				
	Species of Concern	Diversity of Native Species	Natural Reproduction	Habitat Quality	Determination
Willow Creek	3-SRC present	1-2 natives	4-significant	4- excellent habitat	ORV
Wolf Creek	3-SRC present	1-3 natives	1-minimal	1-high gradient	No

Geologic Values

River-related geologic processes and features were evaluated on three criteria:

- Fluvial Geomorphology
- Geologic Scenic Features
- Geothermal Areas (Springs)
- Landslides/Debris Flows

Information regarding each of these criteria was collected for all 12 segments and analyzed to determine the aggregate value of the resource in each segment. The regional significance of the designated segments was determined by comparing them to other rivers within the Greater Yellowstone Ecosystem. A matrix was used to record and display findings, using a scale of 0-4, with a '3' indicating one of only a few of this feature in the region (defined as the Greater Yellowstone Ecosystem), and a '4' indicating the most significant value in the region. Segments were found to have a geologic ORV if they rated '3' or above for one or more criteria.

River Segment	GEOLOGIC ORV CRITERIA				
	Fluvial Geomorphology	Geologic Scenic Features	Geothermal Areas (Springs)	Landslides/Debris Flows	Determin ation
Bailey Creek	2: typical	2-3: Glacial features	1: none	3: Landslide, which dammed Bailey Lake	ORV
Blackrock Creek	2: Large groundwater influence	2: Breccia cliffs	1: none	2: Shallow landslides common	
Buffalo Fork River	3: Braided River, especially downstream from Turpin Meadows Noteworthy waterfalls (South Buffalo Fork)	3: Route of major ice sheet that flowed into Jackson Hole	1: none	1: no noteworthy ones	ORV

River Segment	**GEOLOGIC ORV CRITERIA**				
	Fluvial Geomorphology	Geologic Scenic Features	Geothermal Areas (Springs)	Landslides/Debris Flows	Determination
Crystal Creek	3: High bedload, braided & meandering stream	3: Scenic canyon above parking area Exposed sedimentary geology	1: none	4: Active landslide	ORV
Granite Creek	2: typical	3: Open door, Granite Falls, natural bridge, Turquoise Lake, classic glacial U-Shaped valley	3:Granite Hot Springs	1: none	ORV
Gros Ventre River	2: Upper reaches: meandering stream, oxbows	3: Lavender Hills, Grey Hills, Red Hills Exposed sedimentary beds	1	4: Gros Ventre Slide Upper & Lower Slide Lakes	ORV
Hoback River	2: Rapids	4: Exposed Wyoming Thrust Belt; exposed sedimentary geology; Battle Mtn; Hoback Shield; Hoback Canyon	2: Stinking Springs	2: Active landslides & debris flows	ORV
Pacific Creek	3: Parting of the Waters Braided stream channels	3: route of major ice sheet; conglomerates from Gros Ventre Mountains; paleo remains	1	1	ORV
Shoal Creek	3: Shoal Falls	3: Shoal Peak; exposed cliff bands; limestone caves; Shoal Lake (glacial tarn)	1	1	ORV
Snake River	4: Rapids: Big Kahuna, Lunch Counter, Champagne, Cottonwood, play holes (Taco, King's Wave) Depositional features, Snake River Canyon	4: Snake River Canyon Wyoming Thrust Belt exposure; Camp Davis geologic formation	2: Astoria Hot Springs	2: Active landslides & debris flows throughout the area	ORV

River Segment	**GEOLOGIC ORV CRITERIA**				
	Fluvial Geomorphology	Geologic Scenic Features	Geothermal Areas (Springs)	Landslides/Debris Flows	Determin ation
Willow Creek	2	2	1	1	
Wolf Creek	2	2	1	1	