ADDENDUM D9A:

DOCUMENTATION OF CONTACT WITH
THE USFWS AND WNDD

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

NOV 16 2006

In Reply Refer To:
ES-61411/Mines/WY07TA0032

Roger Schoumacher
TRC Mariah Associates Inc.
Project Manager
605 Skyline Drive
Laramie, WY 82070-8909

Dear Mr. Schoumacher:

This is in response to your letter dated October 25, 2006, received in our office on October 26, requesting a list of threatened, endangered, proposed, and candidate species for a proposed *in situ* uranium recovery project in Campbell and Johnson counties, Wyoming (T75-76W, R43-44N). We are providing you with information on (1) threatened, endangered and candidate species, (2) migratory birds, (3) wetlands and riparian areas, (4) sensitive species, and (5) water quality. The U.S. Fish and Wildlife Service (Service) provides recommendations for protective measures for threatened and endangered species in accordance with the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Protective measures for migratory birds are provided in accordance with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703, and the Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668. Wetlands are afforded protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956, as amended, 70 Stat. 1119, 16 U.S.C. 742a-742j.

In accordance with Section 7(c) of the Act, my staff has determined that the following listed species may be present in the proposed project area in Campbell and Johnson counties, Wyoming. We would appreciate receiving information as to the current status of each of these species within the proposed project area.

SPECIES	STATUS	HABITAT
Bald eagle (*Haliaeetus leucocephalus*)	Threatened	Found throughout state
Black-footed ferret (*Mustela nigripes*)	Endangered	Prairie dog towns
Ute ladies'-tresses orchid (*Spiranthes diluvialis*)	Threatened	Seasonally moist soils and wet meadows of drainages below 7000 feet elevation

Bald eagle: While habitat loss and human disturbance remains a threat to the bald eagle's full recovery, most experts agree that its recovery to date is encouraging. Adult eagles establish life-long pair bonds and build large nests in the tops of large trees near rivers, lakes, marshes, or other wetland areas. During winter, bald eagles gather along open water to forage and night roost in large mature trees, usually in secluded locations that offer protection from harsh weather. Bald eagles often return to use the same nest and winter roost year after year. Because bald eagles are particularly sensitive to human disturbance at their nests and communal roosts, protective buffers should be implemented around these areas [Buehler et al. 1991, Greater Yellowstone Bald Eagle Working Group (GYBEWG) 1996, Montana Bald Eagle Working Group (MBEWG) 1994, Stalmaster and Newman 1978, U.S. Fish and Wildlife Service (USFWS) 1986].

In Wyoming, bald eagle nest buffer recommendations include avoiding project-related disturbance and habitat alteration within 1 mile of bald eagle nests. The nesting season occurs from February 1 to August 15 and bald eagle nest buffers should receive maximum protection during this time period. For some activities (construction, seismic exploration, blasting, and timber harvest), a home range buffer may include potential foraging habitat for 2.5 miles from the nest (GYBEWG 1996). We recommend that you contact the U.S. Fish and Wildlife Service to determine the potential impact of your activity to nesting bald eagles if your project will cause disturbance within one of these nest buffer areas.

A communal roost is defined as an area where six or more eagles spend the night within 100 meters (328 feet) of each other (GYBEWG 1996). For bald eagle communal winter roosts, we recommend that disturbance be restricted within 1 mile of known communal winter roosts during the period of November 1 to April 1. Additionally, we recommend avoiding disturbance and habitat alteration within 0.5 mile of active roost sites year round.

Disturbance sensitivity of roosting and nesting bald eagles may vary between individual eagles, topography, density of vegetation and intensity of activities. The buffers and timing stipulations, as described above, should be implemented unless site-specific information indicates otherwise (Stalmaster and Newman 1978, USFWS 1986). Modification of buffer sizes may be permitted where biologically supported and in coordination with the Service.

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Black-footed ferret: Black-footed ferrets may be affected if prairie dog towns are impacted. Please be aware that black-footed ferret surveys are no longer recommended in black-tailed prairie dog towns statewide. However, we encourage protection of all prairie dog towns for their value to the prairie ecosystem and the myriad of species that rely on them. We further encourage you to analyze potentially disturbed prairie dog towns for their value to future black-footed ferret reintroduction.

Ute ladies'-tresses: Ute ladies'-tresses (*Spiranthes diluvialis*) is a perennial, terrestrial orchid, 8 to 20 inches tall, with white or ivory flowers clustered into a spike arrangement at the top of the stem. *S. diluvialis* typically blooms from late July through August; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October. *S. diluvialis* is endemic to moist soils near wetland meadows, springs, lakes, and perennial streams where it colonizes early successional point bars or sandy edges. The elevation range of known occurrences is 4,200 to 7,000 feet in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows. Soils where *S. diluvialis* have been found typically range from fine silt/sand, to gravels and cobbles, as well as to highly organic and peaty soil types. *S. diluvialis* is not found in heavy or tight clay soils or in extremely saline or alkaline soils. *S. diluvialis* seems intolerant of shade and small scattered groups are found primarily in areas where vegetation is relatively open. Surveys should be conducted by knowledgeable botanists trained in conducting rare plant surveys. *S. diluvialis* is difficult to survey for primarily due to its unpredictability of emergence of flowering parts and subsequent rapid desiccation of specimens. The Service does not maintain a list of "qualified" surveyors but can refer those wishing to become familiar with the orchid to experts who can provide training or services.

Migratory Birds

The MBTA, enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs, except as permitted by regulations, and does not require intent to be proven. Section 703 of the MBTA states, "Unless and except as permitted by regulations ... it shall be unlawful at any time, by any means or in any manner, to ... take, capture, kill, attempt to take, capture, or kill, or possess ... any migratory bird, any part, nest, or eggs of any such bird..." The BGEPA, prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing. In addition, we have enclosed a list of Migratory Bird Species of Management Concern in Wyoming (Migratory Birds of High Federal Interest) for use in your analysis.

Work that could lead to the take of a migratory bird including an eagle, their young, eggs, or nests (for example, if you are going to construct roads, or power lines in the vicinity of a nest), should be coordinated with our office before any actions are taken. Removal or destruction of such nests, or causing abandonment of a nest could constitute violation of one or both of the above statutes. Removal of any active migratory bird nest or nest tree is prohibited. For golden eagles, inactive nest permits are limited to activities involving resource extraction or human

health and safety. Mitigation, as determined by the local Service field office, may be required for loss of these nests. No permits will be issued for an active nest of any migratory bird species, unless removal of an active nest is necessary for reasons of human health and safety. Therefore, if nesting migratory birds are present on, or near the project area, timing is a significant consideration and needs to be addressed in project planning.

If nest manipulation is proposed for this project, the project proponent should contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued for this project. No nest manipulation is allowed without a permit. If a permit cannot be issued, the project may need to be modified to ensure take of a migratory bird or eagle, their young, eggs or nest will not occur.

Wetland and Riparian Areas

Wetlands associated with streams, creeks, and rivers may be impacted by the proposed project. Wetlands perform significant ecological functions which include: (1) providing habitat for numerous aquatic and terrestrial wildlife species, (2) aiding in the dispersal of floods, (3) improving water quality through retention and assimilation of pollutants from storm water runoff, and (4) recharging the aquifer. Wetlands also possess aesthetic and recreational values. The Service recommends measures be taken to avoid and minimize wetland losses in accordance with Section 404 of the Clean Water Act, and Executive Order 11988 (floodplain management) as well as the goal of "no net loss of wetlands." If wetlands may be destroyed or degraded by the proposed action, those wetlands in the project area should be inventoried and fully described in terms of their functions and values. Acreage of wetlands, by type, should be disclosed and specific actions should be outlined to avoid, minimize, and compensate for all unavoidable wetland impacts.

Riparian or streamside areas are a valuable natural resource and impacts to these areas should be avoided whenever possible. Riparian areas are the single most productive wildlife habitat type in North America. They support a greater variety of wildlife than any other habitat. Riparian vegetation plays an important role in protecting streams, reducing erosion and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. In view of their importance and relative scarcity, impacts to riparian areas should be avoided. Any potential, unavoidable encroachment into these areas should be further avoided and minimized. Unavoidable impacts to streams should be assessed in terms of their functions and values, linear feet and vegetation type lost, potential effects on wildlife, and potential effects on bank stability and water quality. Measures to compensate for unavoidable losses of riparian areas should be developed and implemented as part of the project.

Plans for mitigating unavoidable impacts to wetland and riparian areas should include mitigation goals and objectives, methodologies, time frames for implementation, success criteria, and monitoring to determine if the mitigation is successful. The mitigation plan should also include a

contingency plan to be implemented should the mitigation not be successful. In addition, wetland restoration, creation, enhancement, and/or preservation does not compensate for loss of stream habitat; streams and wetlands have different functions and provide different habitat values for fish and wildlife resources.

Best Management Practices (BMPs) should be implemented within the project area wherever possible. BMPs include, but are not limited to, the following: installation of sediment and erosion control devices (e.g., silt fences, hay bales, temporary sediment control basins, erosion control matting); adequate and continued maintenance of sediment and erosion control devices to insure their effectiveness; minimization of the construction disturbance area to further avoid streams, wetlands, and riparian areas; location of equipment staging, fueling, and maintenance areas outside of wetlands, streams, riparian areas, and floodplains; and re-seeding and re-planting of riparian vegetation native to Wyoming in order to stabilize shorelines and streambanks.

Greater Sage-Grouse:
As you know, the Service has determined that the greater sage-grouse (*Centrocercus urophasianus*) is unwarranted for listing at this time. However, the Service continues to have concerns regarding sage-grouse population status, trends and threats, as well as concerns for other sagebrush obligates. The following information is provided for your use in the evaluation of proposed actions and their potential effects to the sage-grouse.

Greater sage-grouse are dependent on sagebrush habitats year-round. Habitat loss and degradation, as well as loss of population connectivity, have been identified as important factors contributing to the decline of greater sage-grouse populations rangewide (Braun 1998, Wisdom et al. 2002). Therefore, any activities that result in loss or degradation of sagebrush habitats that are important to this species should be closely evaluated for their impacts to sage-grouse. If important breeding habitat (leks, nesting or brood rearing habitat) is present in the project area, the Service recommends no project-related disturbance March 1 through June 30, annually. Minimization of disturbance during lek activity, nesting, and brood rearing is critical to sage-grouse persistence within these areas. Likewise, if important winter habitats are present, we recommend no project-related disturbance November 15 through March 14.

We recommend you contact the Wyoming Game and Fish Department to identify important greater sage-grouse habitats within the project area and appropriate mitigative measures to minimize potential impacts from the proposed project. The Service recommends surveys and mapping of important greater sage-grouse habitats where local information is not available. The results of these surveys should be used in project planning, to minimize potential impacts to this species. No project activities that may exacerbate habitat loss or degradation should be permitted in important habitats.

water be re-injected

Water Quality

High selenium concentrations can occur in wastewater from in situ mining of uranium ore as uranium-bearing formations are usually associated with seleniferous strata (Boon 1989). Boon (1989) reported that uranium deposits in Converse County, Wyoming, can contain up to 4,500 μg/g (ppm) of selenium. In situ mining of uranium is done by injecting a leaching solution of native ground water containing dissolved oxygen and carbon dioxide into the uranium-bearing formation through injection wells. The leaching solution dissolves selenium present in the formation. The disposal of this wastewater can expose migratory birds to selenium which is known to cause impaired reproduction and mortality in sensitive species of birds such as waterfowl.

The in situ mining wastewater is typically disposed of through deep-well injection or discharge into large evaporation ponds. Another disposal option that is not commonly used involves land application using center-pivot irrigation after treatment for removal of uranium and radium.

In 1998, the Service conducted a study of a grassland irrigated with wastewater from an *in situ* uranium mine and found that selenium was mobilized into the food chain and bioaccumulated by grasshoppers and songbirds (Ramirez and Rogers 2002). Disposal of the *in situ* wastewater through irrigation is not recommended by the Service due to the potential for selenium bioaccumulation in the food chain and adverse effects to migratory birds. Additionally, land application may result in the contamination of groundwater and eventually seep out and reach surface waters. Additionally, the selenium-contaminated groundwater could seep into low areas or basins in upland sites and create wetlands which would attract migratory birds and other wildlife.

The Service is also concerned with the potential for elevated selenium in evaporation ponds receiving *in situ* wastewater. Waterborne selenium concentrations ≥ 2 μg/L are considered hazardous to the health and long-term survival of fish and wildlife (Lemly 1996). Additionally, water with more than 20μg/L is considered hazardous to aquatic birds (Skorupa and Ohlendorf 1991). Chronic effects of selenium manifest themselves in immune suppression to birds (Fairbrother et al. 1994) which can make affected birds more susceptible to disease and predation. Selenium toxicity will also cause embryonic deformities and mortality (See et al. 1992, Skorupa and Ohlendorf 1991, Ohlendorf 2002)

If submerged aquatic vegetation and/or aquatic invertebrates are present in evaporation ponds with high waterborne selenium concentrations, extremely high dietary levels of this contaminant can be available to aquatic migratory birds. Ramirez and Rogers (2000) documented selenium concentrations ranging from 434 to 508 μg/g in pondweed (*Potamogeton vaginatus*) collected from a uranium mine wastewater storage reservoir that had waterborne selenium concentrations ranging from 260 to 350 μg/L. The potential for wastewater disposal to mobilize selenium through terrestrial and aquatic food chains should be assessed to assist in selecting a wastewater disposal option which would avoid or minimize impacts to fish and wildlife resources.

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We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species and migratory birds. When the lead Federal agency for this project is determined, please coordinate with the Buffalo Field Office of the BLM or the Nuclear Regulatory Commission (NRC) in Arlington, Texas. If you have further questions regarding our comments or your responsibilities under the Act, please contact Jan McKee of my staff at the letterhead address or phone (307) 772-2374, extension 242.

Sincerely,

Patricia Deibert

for Brian T. Kelly
Field Supervisor
Wyoming Field Office

cc: NRC, Arlington, Texas
WDEQ, Land Quality Division, Sheridan, WY,
WGFD, Cheyenne, WY, Statewide Habitat Protection Coordinator (V. Stelter)
WGFD, Lander, WY, Non-game Coordinator (B. Oakleaf)

Enclosure

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Enclosure 1

Migratory Bird Species of Management Concern in Wyoming

(Migratory Birds of High Federal Interest)

Based on the *Wyoming Bird Conservation Plan* (Cerovski et al. 2000)

May 2, 2002

U.S. Fish and Wildlife Service, Wyoming Field Office,
4000 Airport Parkway, Cheyenne, Wyoming 82001

The Wyoming Field Office of the U.S. Fish and Wildlife Service (Service) has compiled the following list from the ongoing work among State and Federal agencies, non-governmental organizations, and the interested public that produced the Wyoming Bird Conservation Plan. This list will now serve as the Service's list of Migratory Bird Species of Management Concern in Wyoming, in place of the previous list based on the Migratory Nongame Birds of Management Concern in the United States: the 1995 List. The Wyoming Bird Conservation Plan identified priority species based on a number of criteria (see below) using the best information available for these generally un-studied species. In many cases, this list reflects identified threats to habitat because no information is available on the species population trends. In some cases it reflects identified population declines though no causal factors have been identified.

The following tables and explanatory text are taken directly from the Wyoming Bird Conservation Plan (Cerovski et al. 2000). For more information on this listing process, this report is available from the Service's Wyoming Field Office, 4000 Airport Parkway, Cheyenne, Wyoming 82001; or Wyoming Game and Fish Department (WGFD), Nongame Branch, 260 Buena Vista, Lander, Wyoming 82520.

Table 1. **Level I Species (Conservation Action)**. Species clearly needs conservation action. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population, and the need for additional knowledge through monitoring and research into basic natural history, distribution, etc.

Species	PIF Score[a]	AI[b]	PT[c]	Primary Habitat Type(s)
Mountain Plover[d]	28	4	3	Shortgrass Prairie, Shrub-steppe
Trumpeter Swan	26	3	3	Wetlands
Sage Grouse	26	5	3	Shrub-steppe
McCown's Longspur	26	3	2	Shortgrass Prairie, Shrub-steppe
Baird's Sparrow	26	2	3	Shortgrass Prairie
Ferruginous Hawk	23	4	3	Shrub-steppe, Shortgrass Prairie

Table 1. **Level I Species (Conservation Action)**, continued.

Species	PIF Score[a]	AI[b]	PT[c]	Primary Habitat Type(s)
Brewer's Sparrow	23	5	5	Shrub-steppe, Mountain-foothills Shrub
Wilson's Phalarope	22	3	5	Wetlands
Franklin's Gull	22	3	3	Wetlands
Sage Sparrow	22	5	2	Shrub-steppe, Mountain-foothills Shrub
Swainson's Hawk	21	3	3	Plains/Basin Riparian
Long-billed Curlew	21	2	3	Shortgrass Prairie
Short-eared Owl	20	3	3	Shortgrass Prairie
Northern Goshawk	19	4	3	High Elevation Conifer, Mid Elevation Conifer, Aspen
Peregrine Falcon	19	3	3	Specialized (cliffs)
Burrowing Owl	19	3	4	Shortgrass Prairie
Forster's Tern	19	2	3	Wetlands
Bald Eagle	18	3	3	Montane Riparian, Plains/Basin Riparian
Upland Sandpiper	18	2	2	Shortgrass Prairie
Black Tern	18	3	3	Wetlands
Whooping Crane	n/a	n/a	n/a	Wetlands
Piping Plover	n/a	n/a	n/a	Wetlands, Aquatic

[a] From the PIF Priority Database (Carter et al. 1997).
[b] AI = Area Importance (from the PIF Priority Database, Carter et al. 1997).
[c] PT = Population Trend (from the PIF Priority Database, Carter et al. 1997).
[d] Species in all capital letters previously appeared on the Service's 1995 list.

Table 2. **Level II Species (Monitoring).** The action and focus for the species is monitoring. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population, species whose population trend is unknown, species that are peripheral for breeding in the habitat or state, or species for which additional knowledge is needed.

Species	PIF Score[a]	AI[b]	PT[c]	Primary Habitat Type(s)
Calliope Hummingbird	23	5	3	Mid Elevation Conifer, Montane Riparian
Lewis' Woodpecker	23	3	3	Low Elevation Conifer, Plains/Basin Riparian
Cassin's Kingbird	22	3	3	Juniper Woodland, Plains/Basin Riparian
Lark Bunting	22	4	4	Shortgrass Prairie, Shrub-steppe
American White Pelican	21	3	3	Aquatic
Williamson's Sapsucker	21	3	3	Mid Elevation Conifer
Black-backed Woodpecker	21	3	3	Mid Elevation Conifer, High Elevation Conifer
Gray Flycatcher	21	3	3	Juniper Woodland, Mountain-foothills Shrub
Juniper Titmouse [d]	21	3	3	Juniper Woodland
Dickcissel	21	3	3	Shortgrass Prairie
Chestnut-collared Longspur	21	2	3	Shortgrass Prairie
Harlequin Duck	20	3	3	Montane Riparian
Snowy Plover	20	3	3	Wetlands
Black-chinned Hummingbird	20	2	3	Plains/Basin Riparian, Shrub-steppe
Rufous Hummingbird	20	2	3	Mid Elevation Conifer
Red-naped Sapsucker	20	3	2	Aspen
Three-toed Woodpecker	20	4	3	Mid Elevation Conifer, High Elevation Conifer
Willow Flycatcher	20	3	4	Montane Riparian, Plains/Basin Riparian
Hammond's Flycatcher	20	2	3	High Elevation Conifer with Aspen, Montane Riparian
Cordilleran Flycatcher	20	3	3	Montane Riparian, Mid Elevation Conifer
Pygmy Nuthatch	20	3	3	Low Elevation Conifer
Marsh Wren	20	3	4	Wetlands
American Dipper	20	3	3	Montane Riparian

Table 2. **Level II Species (Monitoring)**, continued.

Species	PIF Score[a]	AI[b]	PT[c]	Primary Habitat Type(s)
Plumbeous Vireo	20	3	3	Mid Elevation Conifer, Low Elevation Conifer
Townsend's Warbler	20	3	3	High Elevation Conifer, Mid Elevation Conifer
Dusky Flycatcher	19	3	2	Low Elevation Conifer, Aspen, Mountain-foothills Shrub
Western Bluebird	19	3	3	Juniper Woodland, Low Elevation Conifer
Sage Thrasher	19	5	2	Shrub-steppe
Grasshopper Sparrow	19	3	5	Shortgrass Prairie, Shrub-steppe
Bobolink	19	2	3	Shortgrass Prairie, Shrub-steppe
Common Loon	18	3	3	Wetlands
Black-billed Cuckoo	18	2	3	Plains/Basin Riparian
Red-headed Woodpecker	18	2	3	Plains/Basin Riparian, Low Elevation Conifer
Yellow-billed Cuckoo	18	3	3	Plains/Basin Riparian
Eastern Screech-Owl	18	3	3	Plains/Basin Riparian
Western Screech-Owl	18	3	3	Plains/Basin Riparian
Great Gray Owl	18	3	3	Mid Elevation Conifer, High Elevation Conifer
Boreal Owl	18	3	3	High Elevation Conifer
Broad-tailed Hummingbird	18	2	2	Montane Riparian, Plains/Basin Riparian, Mid Elevation Conifer
Western Scrub-Jay [d]	18	3	3	Juniper Woodland
Loggerhead Shrike	18	3	3	Shrub-steppe
Vesper Sparrow	18	5	4	Shrub-steppe
Lark Sparrow	18	3	4	Shrub-steppe
Golden-crowned Kinglet	17	3	3	High Elevation Conifer
MacGillivray's Warbler	17	3	1	Montane Riparian, Plains/Basin Riparian
Ash-throated Flycatcher [d]	16	2	3	Juniper Woodland
Bushtit [d]	16	3	3	Juniper Woodland
Brown Creeper	16	3	3	Mid Elevation Conifer, High Elevation Conifer
Merlin	15	3	3	Low Elevation Conifer
Sprague's Pipit	n/a	n/a	n/a	Grassland, Plains/Basin Riparian, Shortgrass Prairie
Barn Owl	n/a	n/a	n/a	Shortgrass Prairie, Urban
White-faced Ibis	n/a	n/a	n/a	Wetlands, Aquatic

Table 2. **Level II Species (Monitoring)**, continued.

American Bittern	n/a	n/a	n/a	Wetlands, Aquatic
Common Tern	n/a	n/a	n/a	Wetlands, Aquatic
Purple Martin	n/a	n/a	n/a	Wetlands, Aquatic/Basin Riparian, Montane Riparian

[a] From the PIF Priority Database (Carter et al. 1997).
[b] AI = Area Importance (from the PIF Priority Database).
[c] PT = Population Trend (from the PIF Priority Database).
[d] Nicholoff, S. 2002. Wyoming Bird Conservation Plan, Version 1.1. Wyoming Partners In Flight and Wyoming Game and Fish Department, Lander. In press.

Wyoming Partners In Flight Process for Prioritizing Species

Wyoming Partners In Flight participants developed the current list of priority species based on a combination of the seven criteria in the national Partners In Flight Priority Database (Carter et al. 1997). This database serves as a defensible method of prioritizing both species and habitats in need of conservation. The criteria include Wyoming-dependent and Wyoming-independent factors. The Wyoming-independent criteria are constant over a species' range and do not vary for each species. The Wyoming-dependent criteria were the key components used to prioritize species and their conservation action needs. In the absence of any more rigorous statewide surveys, Breeding Bird Survey data dating back to 1968 were used to determine population trends in Wyoming.

Criteria

Within each criterion below, a species was given a rank score ranging from 1 to 5, with 1 being the least critical rank and 5 the most critical. Each ranked species could potentially receive a low score of 7 and a high score of 35. However, setting conservation goals based only on total score could be misleading; therefore, each total score was reviewed in conjunction with its component parts. In Wyoming, species were initially ranked using total score, area importance, and population trend.

1. Relative Abundance (RA) - The abundance of a bird, in appropriate habitat within its entire range, relative to other bird species. This criterion gives an indication of a species' vulnerability to withstand cataclysmic environmental changes. A low score would indicate a higher relative abundance, therefore reducing the risk of complete extirpation from losses in one or more regions. Higher scores indicate a lower relative abundance, thus more vulnerability to drastic losses or population changes.

2. Breeding Distribution (BD) - A relative measure of breeding range size as a proportion of North America [defined as the main body of the continent, excluding Greenland, through Panama and the islands of the Caribbean, comprising an area of 22,059,680 km^2 (National Geographic Society 1993)], and as such it provides an index of a species' vulnerability to

random environmental events. High scores indicate localized breeding, thus a higher likelihood of serious decline from drastic environmental changes. Low scores indicate wide breeding distribution, therefore less likelihood of extirpation. Used for breeding birds only.

3. Non-breeding Distribution (ND) - A relative measure of non-breeding, or winter, range size as a proportion of North America, and as such it provides an index of a species' vulnerability to random environmental events. High scores indicate localized distribution on the non-breeding grounds. Low scores indicate wide distribution on the non-breeding grounds, therefore less likelihood of extirpation. Used for wintering birds only.

4. Threats on Breeding Grounds (TB) - The ability of a habitat in an area to support populations of a species in that area. Two factors are considered here: 1) each species' demographic and ecological vulnerability (the potential inability of a species to recover from population loss by normal reproductive effort due to low reproductive rate, high juvenile mortality, or both; and the level of ecological specialization of a species and, hence, its potential inability to withstand environmental change), and 2) habitat loss or disruption (a combination of the amount of habitat or conditions necessary for survival and reproductive success that has been lost since 1945, and the amount that is anticipated to be lost in the future). High scores indicate either a large loss of habitat or a species that is an extreme ecological specialist. Low scores indicate a stable or increasing habitat or a species that is an ecological generalist. Used for both breeding and wintering birds.

5. Threats on Non-breeding Grounds (TN) - Range-wide threats on non-breeding, or winter, grounds. This is scored using the same criteria as threats on breeding grounds but reflects non-breeding issues, including migratory habitat. Used for wintering birds only.

6. Population Trend (PT) - The overall population trend of each species assigned independently for each state, province, or physiographic area. This criterion must meet two thresholds, reliability and magnitude, to warrant either a very high or very low score. When possible, a score was assigned using BBS data, which incorporated a population trend uncertainty score based on the statistical validity of the BBS data (i.e. a species must be detected on a minimum of 14 BBS routes per state for population trends to have statistical significance). This criterion was chosen to alert managers to species with modest, but certain, population declines.

7. Area Importance (AI) - The abundance of a species within a state, province, or physiographic area relative to its abundance throughout its range. This criterion helps direct conservation efforts toward areas that are most important to a species' survival. Area Importance is scored locally; therefore, high scores indicate that a large proportion of the species' breeding or winter range occurs in Wyoming, or a species is using a habitat that is only available in Wyoming. Low scores indicate that a small proportion of the species' range occurs in Wyoming, or the preferred habitat is widespread across its range. Used for both breeding and wintering birds.

Priority Species

Priority bird species in Wyoming were identified from the PIF Priority Database (Carter et al. 1997) and by qualitative, informed decisions. Those species with a total score of 18 or above, Area Importance (AI) of 3 or above, and/or Population Trend (PT) of 3 or above from the database, or with a total score less than 18 but of significant local interest were identified as the highest priority species. However, as more information becomes available, the highest priority species for Wyoming may change, as this is a dynamic database that allows for updated information to be periodically inserted and reviewed. The primary habitat type or types required for breeding were identified for each species to determine the highest priority habitat types for the state.

Literature Cited

Carter, M. F., W. C. Hunter, D. N. Pashley, J. S. Bradley, C. S. Aid, J. Price, and G. S. Butcher. 1997. Setting landbird conservation priorities for states, provinces, and physiographic areas of North America. Partners In Flight Priority Database Final Report, Colorado Bird Observatory, Brighton.

Cerovski, A., M. Gorges, T. Byer, K. Duffy, and D. Felley. 2000. Wyoming Bird Conservation Plan, Version 1.0. Wyoming Partners In Flight, Lander, WY.

Nicholoff, S. 2002. Wyoming Bird Conservation Plan, Version 1.1. Wyoming Partners In Flight and Wyoming Game and Fish Department, Lander. In press.

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UNIVERSITY OF WYOMING

Wyoming Natural Diversity Database
Department 3381 • 1000 E. University Avenue • Laramie, WY 82071
(307) 766-3023 • fax (307) 766-3026 • e-mail: wndd@uwyo.edu • www.uwyo.edu/wyndd

30 March 2006

Roger Schoumacher
TRC Mariah Associates, Inc.
605 Skyline Drive
Laramie, WY 82070

Dear Roger,

Attached are the results of your request for documented rare species occurrences in T43-44N R74-77W, Johnson and Campbell Counties, Wyoming. A buffer of adjacent townships was also queried to provide adequate information for the appropriate application of these data. The Excel spreadsheet summarizes the results of your request.

Data are in the form of ArcView shapefiles in UTM zone 12 NAD83. The attached Data Dictionary goes over file naming conventions and defines the column headings of the fields included in your shapefiles. For additional information about abbreviations in the shapefiles please refer to the Codes and Definitions portion of our website at http://uwadmnweb.uwyo.edu/WYNDD/.

Comments from our botanist, Bonnie Heidel (307-766-3020, bheidel@uwyo.edu), and zoologist, Doug Keinath (307-766-3013, dkeinath@uwyo.edu), will be forwarded to you as soon as they have an opportunity to review the requested area and formulate responses. These files provide further information regarding potential species occurrences in the area as well as habitat information. We have no documentation of vegetation communities that we track in the area of interest.

Recommended citation:
Wyoming Natural Diversity Database. 2005. Data compilation for R. Schoumacher, completed March 30, 2006. Unpublished report. Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.

WYNDD would benefit greatly from the sharing of any new information on species locations that result from your project. Please contact us about our data trading policy, which would help your organization reduce costs while improving and updating our database.

We will send you a bill under separate cover for $50.00 (Tier 1 Data Request: 8 Townships x 625 taxa = 5000 (<6251)).

Thank you for your data request. Please do not hesitate to call if you have any questions about the search. We ask that you not disseminate these data, except to the Wyoming Department of Environmental Quality, without our permission.

Sincerely,
Melanie Arnett
Database Specialist
(307) 766-2296
arnett@uwyo.edu

D9A-17

ZOOLOGICAL COMMENTS
Wyoming Natural Diversity Database

Prepared for: Roger Schoumacher - TRC Mariah Associates, Inc.
Date: 31 March 2006
Project Description: WDEQ mine permit for an in-situ uranium mine. T43-44N R74-77W, Johnson and Campbell Counties, Wyoming

HABITAT NOTES:

Towns: The request area is ca 10-33 miles west of Wright.
Water: The Belle Fourche and Dry Fork Powder Rivers flow through the request area along with the following creeks: All Night, Big Willow Bullwhacker, Cottonwood, East Fork Bullwhacker, Fourmile, Greasewood, House, Little Bullwhacker, Little Willow, Mud Spring, North Cottonwood, North Fourmile, North Prong Willow, Seventeenmile, South All Night, South Prong Pumpkin, West Fork Bullwhacker, and Willow. At least 15 small reservoirs and/or ponds/lakes are found in the request area.
Habitat: The request area consists of Grass Riparian, Irrigated Crops, Mixed-Grass Prairie, Ponderosa Pine, and Wyoming Big Sage Steppe.
Approximate Elevation: 4,400-6,000 ft.

ZOOLOGY COMMENTS:

Please report new occurrences of any of these species to WYNDD so that our database continues to be current and useful to future requesters. Thank you!

These data represent what we currently have in our Biotics database as well as our informed opinion about what might occur in the request area if local habitat is appropriate (**species documented in our Biotics database are presented in bold face type**). Please note that absence of a species occurrence in our database is not proof that the species in question does not exist there. It is highly possible that people have never looked for, or reported, information on the species in question in the request area. Our data for private land is particularly sparse, so absence of observations on private parcels should be viewed with caution. Also, please note that (in general) only animals likely to breed or winter near the project area have been included in this list. Other animals, particularly migratory birds, may use portions of the study area in other seasons. Finally, this list includes only species that we actively track in our database, the full list of which can be found on our website (http://uwadmnweb.uwyo.edu/wyndd/).

Prepared by: Melanie Arnett, Database Specialist, arnett@uwyo.edu
Direct questions to: Doug Keinath, Zoologist; dkeinath@uwyo.edu

D91A-18

Bold = Documented in our Biotics database. * = Documented request area.

Sensitive BIRDS Documented or Potentially in Request Area				
Common Name	**Scientific Name**	**Heritage Rank**	**Management Status**	**Habitat Notes**
Bald eagle	Haliaeetus leucocephalus	G4/S3B/S5N	USFWS ESA Threatened (T, AD), WGFD CWCS, WGFD NSS2	Wooded areas usually along rivers, lakes, reservoirs. Sometimes in open country
Ferruginous hawk*	**Buteo regalis**	**G4/S4B/S5N**	**WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS3**	**Open grasslands and shrublands**
Golden eagle*	**Aquila chrysaetos**	**G5/S3B**		**Open grasslands and shrublands esp. around cliffs and canyons**
Merlin	Falco columbarius	G5/S4	WGFD CWCS, WGFD NSS3	Open woodlands, grasslands, and shrublands sometimes in cities in winter
Greater sage grouse*	**Centrocercus urophasianus**	**G4/S4**	**USFWS ESA Petitioned, WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS2**	**Sagebrush basins and foothills, generally close to water**
Sandhill crane	**Grus canadensis**	**G5/S3B/S5N**	**WGFD CWCS, WGFD NSS3**	**Meadows, marshes, shorelines, and grain fields**
Mountain plover	**Charadrius montanus**	**G2/S2**	**USFWS ESA Listing Denied, S-USFS R2, WGFD CWCS, WGFD NSS4**	**Sparse shortgrass or mixed grass prairie. Also in short-sagebrush plains. Often associated with prairie dog towns.**
American avocet	Recurvirostra americana	G5/S3B		Marshes, ponds, and shores, esp. alkaline areas
Long-billed curlew	Numenius americanus	G5/S3B	WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS3	Meadows, pastures, shorelines, and marshes
Black tern (Breeding colonies)	Chlidonias niger	G4/S1	S-USFS R2, WGFD CWCS, WGFD NSS3	Ponds, lakes, reservoirs, and marshes
Yellow-billed cuckoo	Coccyzus americanus	G5/S1	USFWS ESA Candidate (C), WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS2	Deciduous woods and thickets, usually along large streams
Short-eared owl*	**Asio flammeus**	**G5/S2**	**S-USFS R2, WGFD CWCS, WGFD NSS4**	**Open grasslands, meadows, marshes, and farmland, especially around tall grass or weeds**
Eastern screech owl	Otus asio	G5/S3		Wooded river and stream bottoms, usually with cottonwoods
Burrowing owl*	**Athene cunicularia**	**G4/S3**	**WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4**	**Plains and basins, often associated with prairie dog towns**
Chimney swift	Chaetura pelagica	G5/S3B		Cities and towns, usually over buildings
Williamson's sapsucker	Sphyrapicus thyroideus	G5/S2		Old-growth conifer forest, especially a mixture of spruce and lodgepole pine
Loggerhead shrike*	**Lanius ludovicianus**	**G4/S3**	**WY BLM SSL, S-USFS R2**	**Open country with scattered trees and shrubs**
Canyon wren	Catherpes mexicanus	G5/S2S3		Rocky canyons and cliffs
American dipper	Cinclus mexicanus	G5/S4		Fast flowing rocky streams mostly in mountains, moves to lower elev. streams and rivers in winter
Sage thrasher*	**Oreoscoptes montanus**	**G5/S5**	**WY BLM SSL, WGFD CWCS, WGFD NSS4**	**Tall sagebrush and greasewood**
Sage sparrow	**Amphispiza belli**	**G5/S3**	**WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4**	**Medium to tall sagebrush shrubland**
Baird's sparrow	Ammodramus bairdii	G4/S1B?/SZN	WY BLM SSL, WGFD NSS4	"Mid-grass" prairie and meadows
Grasshopper sparrow*	**Ammodramus savannarum**	**G5/S4**	**S-USFS R2, WGFD CWCS, WGFD NSS4**	**"Mid-grass" prairie, tall-grass prairie, hay meadows, and open savanna.**
Clay-colored sparrow*	**Spizella pallida**	**G5/S3B**		**Brushy riparian areas and brushy woodland edges**

Brewer's sparrow*	**Spizella breweri**	**G5/S5**	**WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4**	**Sagebrush foothills and medium-height sagebrush in basins. Also, mountain mahogany hills.**
McCown's longspur*	**Calcarius mccownii**	**G5/S2**	**S-USFS R2, WGFD CWCS, WGFD NSS4**	**Sparsely vegetated shortgrass prairie**
Chestnut-collared longspur*	**Calcarius ornatus**	**G5/S1**	**S-USFS R2, WGFD CWCS, WGFD NSS4**	**Medium height grass, especially meadows around ponds**

Sensitive MAMMALS Documented or Potentially in Request Area				
Common Name	**Scientific Name**	**Heritage Rank**	**Management Status**	**Habitat Notes**
Dwarf shrew*	**Sorex nanus**	**G4/S4**	**WGFD CWCS, WGFD NSS3**	**Historically, found in alpine rubble slopes and conifer forests above 4,000 m. Sometimes found in prairie and pinyon-juniper at lower elevations.**
Long-legged myotis	Myotis volans	G5/S3	WGFD CWCS, WGFD NSS2	Found in conifer and deciduous forests. Roosts include tree and rock crevices, snages and buildings.
Long-eared myotis	Myotis evotis	G5/S4	WY BLM SSL, WGFD CWCS, WGFD NSS2	Found in conifer forests, especially ponderosa pine. Forage over water holes and possible openings in conifer forest. Roosts: caves, buildings, mines.
Silver-haired bat	Lasionycteris noctivagans	G5/S3	WGFD CWCS, WGFD NSS4	Occur in a wide variety of habitats across Wyoming. Roosts: trees, caves, mines, houses
Hoary bat*	**Lasiurus cinereus**	**G5/S4**	**WGFD CWCS, WGFD NSS4**	**Widespread and mobile, hoary bats are found in shrublands, grasslands, and aspen-pine forests near roosting habitat. Roosts: deciduous trees.**
Townsend's big-eared bat	Corynorhinus townsendii	G4/S2	WY BLM SSL, S-USFS R2, S-USFS R4, WGFD CWCS, WGFD NSS2	Hibernates and day-roosts in caves and mines and will use buildings as day roosts. Typical habitat includes desert shrublands, pinyon-juniper woodlands, and dry conifer forests, generally near riparian or wetland areas.
Wyoming ground squirrel	Spermophilus elegans	G5/S3S4	WGFD CWCS, WGFD NSS6	Found in open habitats from sage grasslands to alpine meadows.
Black-tailed prairie dog	Cynomys ludovicianus	G4/S2	USFWS ESA Listing Denied, S-USFS R2, WGFD CWCS, WGFD NSS3	Shortgrass prairie, usually with loose, sandy soils. Can form large, dense colonies.
Olive-backed pocket mouse	Perognathus fasciatus	G5/S4	WGFD CWCS, WGFD NSS3	Dry habitats ranging from gravelly soils to sandy areas of short grass prairies to sand dunes.
Swift fox*	**Vulpes velox**	**G3/S2**	**USFWS ESA Listing Denied, WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4**	**Swift foxes occupy shortgrass prairie, but can be found in sage-grasslands. They are particularly found in sparely vegetated areas such as prairie dog towns.**
RED FOX	Vulpes vulpes	G?/T1Q/S1		Red fox are found in intermixed communities of brush, streamsides, pastures, farmlands, and other open areas.
Common gray fox	Urocyon cinereoargenteus	G5/S2		Gray fox are usually found in deciduous forests, riparian areas, and shrubland in hilly country.
Black-footed ferret	**Mustela nigripes**	**G1/S1**	**USFWS ESA Endangered (E, EXPN), WGFD CWCS, WGFD NSS1**	**Black-footed ferrets always occur in or near prairie dog colonies, generally on short or mixed-grass prairie.**

Plains (eastern) spotted unk	Spilogale putorius interrupta	G5/T4/S3		Usually occur near riparian areas, but also found near human settlements (fence rows, barns, brush piles, etc.).

Sensitive HERPTILES Documented or Potentially in Request Area				
Common Name	**Scientific Name**	**Heritage Rank**	**Management Status**	**Habitat Notes**
Tiger salamander*	**Ambystoma tigrinum**	**G5/S4**	**WGFD CWCS, WGFD NSS4**	**Tiger salamanders can be found in fairly moist environments ranging from rodent burrows to window wells to burrows in sand dunes. Larvae found in intermittent streams, ponds, and lakes.**
Great plains toad	Bufo cognatus	G5/S3	WGFD CWCS, WGFD NSS4	Great Plains toads can be found in grassland communities near ponds and lakes.
Northern leopard frog*	**Rana pipiens**	**G5/S3**	**WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4**	**Found near permanent water in areas up to about 9,000 feet. Lower elevation sites are usually swampy cattail marshes and higher ones tend to be beaver ponds.**
Milk snake	Lampropeltis triangulum	G5/S3	WGFD CWCS, WGFD NSS2	Milk snakes can be found in woodlands along escarpments in prairie communities below about 6,000 feet.
Eastern yellowbelly racer	Coluber constrictor flaviventris	G5/T5/S4	WGFD CWCS, WGFD NSS4	The eastern yellow belly racer is found in woodland communities in the plains and foothills zones, usually in the vicinity of water.

Sensitive FISH Documented or Potentially in Request Area				
Common Name	**Scientific Name**	**Heritage Rank**	**Management Status**	**Habitat Notes**
Goldeye	Hiodon alosoides	G5/S2	WGFD CWCS, WGFD NSS2	Goldeye are found in large, often turbid rivers, as well as backwaters, marshes, and shallows in larger lakes and reservoirs. In Wyoming they occur in the Powder, Little Powder, and Missouri Rivers, as well as Clear Creek and Crazy Woman Creek.
Western silvery minnow	Hybognathus argyritis	G4/S2	WGFD CWCS, WGFD NSS1	The western silvery minnow generally inhabits larger rivers, perhaps slow-flowing and silty bottomed. In Wyoming it seems to occur in the Powder and Little Missouri River drainages, and has likely been extirpated from the Big Horn River by construction.
Finescale dace	Phoxinus neogaeus	G5/S2	S-USFS R2, WGFD CWCS, WGFD NSS1	Finescale dace live in "cool, weedy, small streams, ponds and small lakes". It is common in more northern reaches of the country, but in Wyoming has been found in the Niobrara River (near Nebraska) and in various places in Crook County.
Yellowstone cutthroat trout (Native populations)	Oncorhynchus clarki bouvieri	G4/T2/S2	USFWS ESA Listing Denied, WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS2	Historically Yellowstone cutthroat trout lived in lakes, rivers and streams of the Yellowstone River drainage (including Yellowstone Lake). Also found in the Snake, Tongue, Bighorn, and Clarks Fork Drainages.

Wyoming Natural Diversity Database

Data Request File Naming Conventions and Data Dictionary

Describes the column headings (see table) and **file naming conventions (words in bold)** for ArcView shapefiles (**.shp**) generated from our Biotics database.

A species or natural community is referred to as an Element.

eorep (Element Occurrence Representation)

An Element Occurrence (EO) is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. For species Elements, the EO often corresponds with the local population, but when appropriate may be a portion of a population (*e.g.*, long distance dispersers) or a group of nearby populations (*e.g.*, metapopulation). For community Elements, the EO may represent a stand or patch of a natural community, or a cluster of stands or patches of a natural community. Because they are defined on the basis of biological information, EOs may cross jurisdictional boundaries.

An Element Occurrence Representation (EOREP) is a data management tool that has both spatial and tabular components including a mappable feature and its supporting database. EOs are typically represented by bounded, mapped areas (polygons) of land and/or water. EO Representations are most commonly created for current or historically known occurrences of natural communities or native species of conservation interest. They may also be created, in some cases, for extirpated occurrences. All EOREPs encompass one or more observations (Source Features).

source (Source Feature)

Source Features represent individual observations of a specific Element at a specific place and time. They can be represented by points (**source_pt**), lines (**source_line**), or polygons (**source_poly**). If certain criteria (e.g. "evidence of breeding" or "within X kilometers of another Source Feature of the same Element with no separation barriers") are met, individual Source Features are incorporated into an Element Occurrence Representation. Source Features that do not qualify for inclusion in an EOREP remain independent (INDEPEN_SF = Y).

We are currently in the process of revising our Source Feature attribute table according to the new data methodology in Biotics. Records that have yet to be revised will only contain identification numbers and the text "HDMS DEFAULT CONVERSION VALUES" in the DESCRIPTOR field. Note that the point Source Feature for these unrevised records is equivalent to the centroid of the EO (from the old BCD methodology). Observation and survey data for these records can still be found in the EO_DATA field in EOREP files (the EOREP and related SOURCE files can be cross-referenced using the 'EO_ID' field). Please bear with us during this transitional period.

data_sensitive (separate shapefiles are made for data that are sensitive in our Biotics database)

These records are provided at the township scale only. Data are considered sensitive if they meet one or more of the following criteria:

1. Records of Source Features and/or Element Occurrences on private land that are not documented in publicly available references, but for which WYNDD has permission from the land owner to archive and disseminate at the township level.
2. Records of Source Features and/or Element Occurrences submitted to WYNDD by an outside party who has requested that the data be treated as sensitive.
3. Source Features and/or Element Occurrences that are especially sensitive to disturbance, over-harvest, over-collection, intentional destruction, or unintentional destruction.
4. Element Occurrences that encompass one or more Source Features that are considered sensitive for any reason.

boundary - The shapefile that demarcates the boundary of the request and buffer areas.

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Precise information is not distributed for fields in italics: this applies to sensitive data records.

Biotics SOURCE	Biotics EOREP	DEFINITION
FEATURE_ID	FEATURE_ID	A unique identification code for the shape in Biotics.
DATA_SENS	DATA_SENS	Data are sensitive: Y - Yes. *Specific location is not released.* Data are found in separate shapefiles at the township scale. N - No.
Area	Area	Request or Buffer Area Request - Occurrence intersects the request area. Buffer - Occurrence intersects the buffer area only.
ELEM_TYPE	ELEM_TYPE	Taxonomic grouping of Element.
ELCODE	ELCODE	Element code assigned to each species by NatureServe.
SNAME	SNAME	Scientific name.
COMNAME	COMNAME	Common name.
G_RANK	G_RANK	Global Heritage rank assigned by NatureServe.
S_RANK	S_RANK	State Heritage rank assigned by WYNDD biologists.
USFWS_ESA	USFWS_ESA	Status under the United States Fish and Wildlife Service Endangered Species Act.
AGENCYSTAT	AGENCYSTAT	Status assigned by: United States Forest Service: S-USFS R2 - Sensitive in Region 2 S-USFS R4 - Sensitive in Region 4 Wyoming Bureau of Land Management: WY BLM SSL - On Sensitive Species List Wyoming Game and Fish Department: CWCS - Species part of Comprehensive Wildlife Conservation Strategy NSS1-NSS7 - Native Species Status with NSS1 being the most imperiled
TRACKSTAT	TRACKSTAT	Tracking Status: Y - Element tracked by WYNDD. W - Element watched for potential tracking.
	COUNTY	County name.
OBS_DATE	SURVEYDATE FIRST_OBS LAST_OBS	❖ SOURCE - OBS_DATE Observation date(s). ❖ EOREP - SURVEY DATE Date of the last known survey at this location. ❖ EOREP - FIRST_- and LAST_OBS The first and last date, respectively, the Element was observed at this location.
LOCATOR	TOWN_RANGE *SECTION*	❖ SOURCE - LOCATOR Township/Range/*Section* (format: 045N118W *Sec 23 SE4) and sometimes a brief description of specific location.* ❖ EOREP - TOWN_RANGE and *SECTION* Township/Range and *Section.*
TRS_NOTE	*TRS_NOTE*	*Township/Range/Section comments. Usually ¼ ¼ sections.*
OBSERVER		*Observer.* EOREP - nested in the EO_DATA field.
OBS_DATA	*EO_DATA_1* *EO_DATA_2 etc.*	*Details of each observation, including biological.* EOREP EO_DATA_2 etc... Long records are carried over into the next field.
LITERATURE	*BESTSOURCE*	❖ *SOURCE - LITERATURE* *Literature source for specific observation.* ❖ *EOREP - BESTSOURCE* *The best source of information for the EOREP.*
	SPECIMEN	*Specimen or voucher information.*
	MAPSHEET	*USGS 1:24000 state quad code.*
	DIRECTIONS_1 *DIRECTIONS_2 etc.*	*Directions to, or description of, the location.* EOREP DIRECTIONS_2 etc... Long records are carried over into the next field.
	GEN_DESC_1 *GEN_DESC_2 etc.*	*General habitat description for the location.* EOREP GEN_DESC_2 etc... Long records are carried over into the next field.
		Documentation comments.
	MIN_ELEV	*Minimum elevation in feet.*
	MAX_ELEV	*Maximum elevation in feet.*
	MANAGED_BY	*Land management area (i.e. agency land ownership).*
EO_ID	*EO_ID*	*Identification number for the Element Occurrence (EO).*

Biotics SOURCE	Biotics EOREP	DEFINITION
EO_NUM	*EO_NUM*	*Element Occurrence number for the Element.*
INDEPEN_SF		*Independent Source Feature:* *Y - Yes, Source Feature did not qualify for inclusion in an EOREP.* *N - No, Source Feature is part of an EOREP.*
SOURCE_ID		*Identification number for the Source Feature in Biotics.*
ID_CONFIRM	*ID_CONFIRM*	*Indicates whether identification has been confirmed by a reliable individual:* *Y - Yes* *N - No* *?/Q - Questionable* *U - Unknown*
BUFFERDIST *DIST_UNIT*	*PRECISION* *ACCURACY*	❖ *SOURCE - BUFFERDIST* *Estimated accuracy of the location given as a buffered distance (represented in the EOREP shapefile).* ❖ *SOURCE - DIST_UNIT* *Unit of distance measure for BUFFERDIST.* ❖ *EOREP - PRECISION* *Estimated precision of the data (old method, carried over from previous system; as records are updated in Biotics this value is deleted and the next field is populated):* *G - Low - within 7.5 km* *M - Medium - within 700* *S - High - within 20 m* ❖ *EOREP – ACCURACY* *Estimated accuracy of the data (new method, populated as data are updated in Biotics):* *Very High (>95%)* *High (>80%, <=95%)* *Medium (>20%, <=80%)* *Low (>0%, <=20%)* *Unknown*
	EO_RANK	*EO Rank; an estimate of the relative value or viability of the Element Occurrence.*
DESCRIPTOR	*EO_TYPE*	*A brief description of the Source Feature or Element Occurrence.* *When the DESCRIPTOR field in Biotics SOURCE files is populated with "HDMS DEFAULT CONVERSION VALUES", use the EOREP file to view data by cross-referencing EO_ID. We are currently in transition from the old BCD methodology to Biotics.*
	SURVEYTYPE	*Survey type.*
	SIZE_OF_EO	*Size of EO in acres unless otherwise noted.*
	INVENT_COM	*Inventory comments.*

SHAPEFILE	AREA	ELEM_TYPE	ELCODE	SNAME
source_pt	Request	Amphibian	AAAAA01140	Ambystoma tigrinum
source_pt	Buffer	Amphibian	AAABH01170	Rana pipiens
source_pt	Request	Amphibian	AAABH01170	Rana pipiens
eorep	Buffer	Bird	ABNKC19120	Buteo regalis
source_line	Buffer	Bird	ABNKC19120	Buteo regalis
source_line	Request	Bird	ABNKC19120	Buteo regalis
source_line	Buffer	Bird	ABNKC22010	Aquila chrysaetos
source_line	Request	Bird	ABNKC22010	Aquila chrysaetos
source_pt	Buffer	Bird	ABNLC12010	Centrocercus urophasianus
source_line	Request	Bird	ABNLC12010	Centrocercus urophasianus
source_line	Buffer	Bird	ABNMK01010	Grus canadensis
data_sensitive	Buffer	Bird	ABNNB03100	Charadrius montanus
source_pt	Buffer	Bird	ABNNB03100	Charadrius montanus
source_pt	Buffer	Bird	ABNSB10010	Athene cunicularia
source_line	Request	Bird	ABNSB10010	Athene cunicularia
source_pt	Request	Bird	ABNSB10010	Athene cunicularia
source_line	Buffer	Bird	ABNSB13040	Asio flammeus
source_pt	Buffer	Bird	ABNSB13040	Asio flammeus
source_pt	Request	Bird	ABNSB13040	Asio flammeus
source_line	Buffer	Bird	ABPBK04010	Oreoscoptes montanus
source_pt	Buffer	Bird	ABPBK04010	Oreoscoptes montanus
source_line	Request	Bird	ABPBK04010	Oreoscoptes montanus
source_pt	Request	Bird	ABPBK04010	Oreoscoptes montanus
source_line	Buffer	Bird	ABPBR01030	Lanius ludovicianus
source_pt	Buffer	Bird	ABPBR01030	Lanius ludovicianus
source_line	Request	Bird	ABPBR01030	Lanius ludovicianus
source_line	Request	Bird	ABPBX94030	Spizella pallida
source_line	Buffer	Bird	ABPBX94040	Spizella breweri
source_pt	Buffer	Bird	ABPBX94040	Spizella breweri
source_line	Request	Bird	ABPBX94040	Spizella breweri
source_pt	Request	Bird	ABPBX94040	Spizella breweri
source_line	Buffer	Bird	ABPBX97020	Amphispiza belli
source_line	Buffer	Bird	ABPBXA0020	Ammodramus savannarum
source_pt	Buffer	Bird	ABPBXA0020	Ammodramus savannarum
source_line	Request	Bird	ABPBXA0020	Ammodramus savannarum
source_pt	Request	Bird	ABPBXA0020	Ammodramus savannarum
source_pt	Buffer	Bird	ABPBXA6010	Calcarius mccownii
source_line	Request	Bird	ABPBXA6010	Calcarius mccownii
source_pt	Request	Bird	ABPBXA6010	Calcarius mccownii
source_pt	Buffer	Bird	ABPBXA6040	Calcarius ornatus
source_line	Request	Bird	ABPBXA6040	Calcarius ornatus
source_pt	Request	Bird	ABPBXA6040	Calcarius ornatus
eorep	Request	Mammal	AMABA01130	Sorex nanus
source_pt	Request	Mammal	AMABA01130	Sorex nanus
eorep	Request	Mammal	AMACC05030	Lasiurus cinereus
source_pt	Request	Mammal	AMACC05030	Lasiurus cinereus
source_pt	Buffer	Mammal	AMAJA03030	Vulpes velox
data_sensitive	Request	Mammal	AMAJA03030	Vulpes velox
source_pt	Request	Mammal	AMAJA03030	Vulpes velox
source_pt	Buffer	Mammal	AMAJF02040	Mustela nigripes
eorep	Buffer	Flowering Plant	PDFAB0F150	Astragalus barrii

source_pt	Buffer	Flowering Plant	PDFAB0F150	Astragalus barrii

COMNAME	G_RANK	S_RANK	USFWS_ESA
Tiger salamander	G5	S4	
Northern leopard frog	G5	S3	
Northern leopard frog	G5	S3	
Ferruginous hawk	G4	S4B,S5N	
Ferruginous hawk	G4	S4B,S5N	
Ferruginous hawk	G4	S4B,S5N	
Golden eagle	G5	S3B	
Golden eagle	G5	S3B	
Greater sage grouse	G4	S4	Petitioned
Greater sage grouse	G4	S4	Petitioned
Sandhill crane	G5	S3B,S5N	
Mountain plover	G2	S2	Listing Denied
Mountain plover	G2	S2	Listing Denied
Burrowing owl	G4	S3	
Burrowing owl	G4	S3	
Burrowing owl	G4	S3	
Short-eared owl	G5	S2	
Short-eared owl	G5	S2	
Short-eared owl	G5	S2	
Sage thrasher	G5	S5	
Sage thrasher	G5	S5	
Sage thrasher	G5	S5	
Sage thrasher	G5	S5	
Loggerhead shrike	G4	S3	
Loggerhead shrike	G4	S3	
Loggerhead shrike	G4	S3	
Clay-colored sparrow	G5	S3B	
Brewer's sparrow	G5	S5	
Brewer's sparrow	G5	S5	
Brewer's sparrow	G5	S5	
Brewer's sparrow	G5	S5	
Sage sparrow	G5	S3	
Grasshopper sparrow	G5	S4	
Grasshopper sparrow	G5	S4	
Grasshopper sparrow	G5	S4	
Grasshopper sparrow	G5	S4	
McCown's longspur	G4	S2	
McCown's longspur	G4	S2	
McCown's longspur	G4	S2	
Chestnut-collared longspur	G5	S1	
Chestnut-collared longspur	G5	S1	
Chestnut-collared longspur	G5	S1	
Dwarf shrew	G4	S4	
Dwarf shrew	G4	S4	
Hoary bat	G5	S4	
Hoary bat	G5	S4	
Swift fox	G3	S2	Listing Denied
Swift fox	G3	S2	Listing Denied
Swift fox	G3	S2	Listing Denied
Black-footed ferret	G1	S1	Endangered (E, EXPN)
Barr's Milkvetch	G3	S3	

Barr's Milkvetch	G3	S3

AGENCYSTAT	TRACKSTAT
WGFD CWCS, WGFD NSS4	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS3	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS3	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS3	Y
	W
	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS2	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS2	Y
WGFD CWCS, WGFD NSS3	W
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, S-USFS R2	Y
WY BLM SSL, S-USFS R2	Y
WY BLM SSL, S-USFS R2	Y
	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	W
S-USFS R2, WGFD CWCS, WGFD NSS4	W
S-USFS R2, WGFD CWCS, WGFD NSS4	W
S-USFS R2, WGFD CWCS, WGFD NSS4	W
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WGFD CWCS, WGFD NSS3	W
WGFD CWCS, WGFD NSS3	W
WGFD CWCS, WGFD NSS4	W
WGFD CWCS, WGFD NSS4	W
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WY BLM SSL, S-USFS R2, WGFD CWCS, WGFD NSS4	Y
WGFD CWCS, WGFD NSS1	Y
S-USFS R2	Y