



Consultants in Natural Resources and the Environment

Wildlife Report and Biological Evaluation East Boulder Mine Stage 6 Tailings Storage Facility Expansion Project

Prepared for—

Montana Department of Environmental Quality
1520 East Sixth Avenue
Helena, Montana 59620

USDA Forest Service, Custer Gallatin National Forest
3710 Fallon, Suite C
Bozeman, Montana 59718

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188
ERO Project #10503

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Introduction

This wildlife report and biological evaluation (BE) analyzes direct, indirect, and cumulative effects on federally listed and proposed species, Regional Forester sensitive species, Management Indicator Species (MIS), Montana species of concern, and migratory birds for the East Boulder Mine Stage 6 Tailings Storage Facility Expansion Project (Project). The regulatory framework for this analysis is described below for each species category.

Issue Statements

This section includes issues pertaining to sensitive wildlife species that have been identified for detailed analysis. “An issue is a statement of cause and effect linking environmental effects to actions” (Forest Service Handbook 1909.15).

Issue Statement: The removal of habitat in previously undisturbed areas of the permit boundary and presence of construction equipment could adversely affect sensitive species.

Project Description

Stillwater Mining Company (SMC) applied for Amendment 003 (amendment) to Operating Permit Number 00149 issued by the Montana Department of Environmental Quality (DEQ) and a revision to the Plan of Operations (plan revision) approved by the U.S. Forest Service (Forest Service) Custer Gallatin National Forest (CGNF). The proposed amendment and plan revision for the East Boulder Mine (Proposed Action or Project) would authorize SMC to expand the Tailings Storage Facility (TSF) to Stage 6, which would raise the TSF an additional 14 feet in elevation. The Project would not result in a change to the 396.99-acre permit area (Project area). The East Boulder Mine is approximately 23 miles south of Big Timber, Montana, in Sweet Grass County (Figure 1).

Currently, the East Boulder Mine comprises an underground platinum and palladium mine, access tunnels, plant site facilities, a lined TSF and other ancillary facilities to support the operation. Waste rock from the underground mine is fully used in ongoing construction for the TSF embankments. Reclamation is conducted according to SMC’s Consolidated Operations and Reclamation Plan (CORP [SMC 2016]) and, to the extent practicable, is completed concurrent with mining operations to control erosion and the spread of noxious weeds. Concurrent reclamation has occurred since the start of operations in 2002, with a focus on the powerline corridor, soil stockpiles, cut and fill slopes, borrow areas, percolation pond slopes, and TSF embankment slopes. The current reclamation status within the permit boundary is

provided in the Operating Permit Annual Reports. Mine operation through 2017 included reclamation on 39.36 acres.

Under the No Action Alternative, DEQ and the CGNF would not approve SMC’s application for implementation of the Project. The No Action Alternative effectively represents current conditions and the full construction of TSF embankment Stages 4 and 5, which were permitted and analyzed in the East Boulder Mine Project Final Environmental Impact Statement (FEIS) (Montana Department of State Lands [DSL] et al. 1992). Impacts of the No Action Alternative are not expected to vary beyond those considered in the 1992 FEIS and the 2012 FEIS for SMC’s Revised Water Management Plans and Boe Ranch LAD (DEQ and Forest Service 2012a).

Under the Proposed Action Alternative, DEQ would approve Amendment 003 and the CGNF would approve the revised Plan of Operations to authorize construction of the Stage 6 TSF expansion. The proposed amendment and the plan of operations revision would expand the existing 243.88-acre disturbance area to 286.85 acres and would authorize SMC to expand the TSF to Stage 6, raising the height of the impoundment 14 feet above Stage 5 to an elevation of 6,344 feet. Mining activities and operation of the TSF would be extended from 2027 to 2033 at current fill rates.

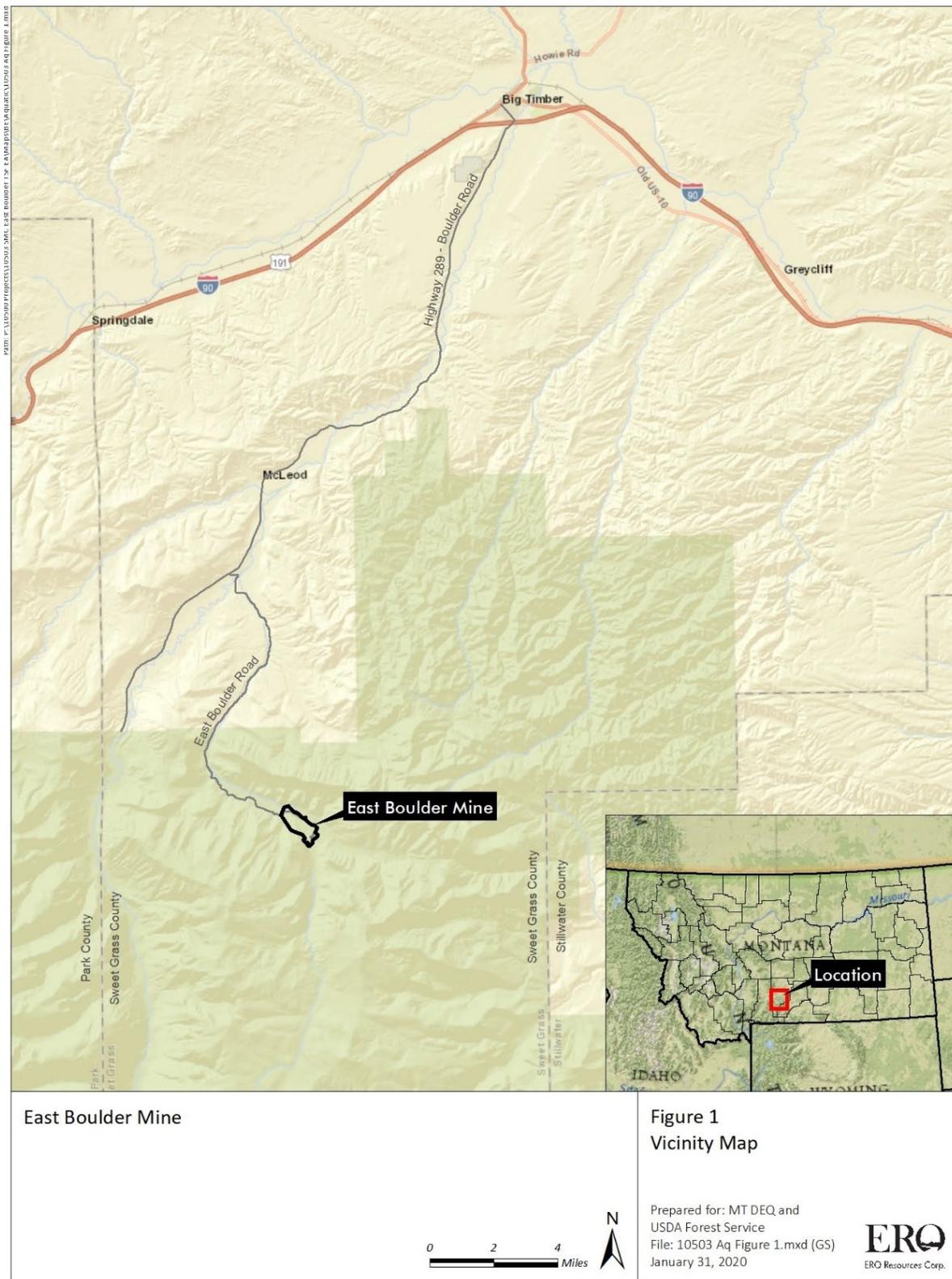
All Project activities would occur within the existing 396.99-acre permit boundary and would disturb 56.74 acres within the proposed 286.85-acre disturbance boundary; in terms of the existing 243.88-acre bonded disturbance area, 41.13 acres within and 15.61 acres outside the existing 243.88-acre bonded disturbance area would be disturbed. The 41.13 acres in the previously permitted area were evaluated in the 1992 FEIS and 2012 FEIS. Project disturbances would result from building and widening an access road; relocating an access road and other infrastructure including a fence around the TSF; constructing a borrow area, stockpile area, and stormwater diversions; and widening the TSF embankment (Table 1; Figure 2).

Table 1. Proposed Project Disturbance.

Project Activities	<i>Existing 243.88-acre Bonded and Permitted Disturbance Area</i>		<i>Proposed 286.85-acre Disturbance Area</i>
	Project Disturbance Within Permitted and Bonded Disturbance Area (acres)	Project Disturbance Outside Permitted and Bonded Disturbance Area (acres)	Project Disturbance within Expanded Disturbance Area (acres)
Lewis Gulch Road Improvements	3.62	2.62	6.24
East Boulder Road and Associated Infrastructure Relocations (Guard House, wildlife exclusion fence, etc.)	5.50	0.72	6.22
Storm Water Runoff Diversion	0.33	1.03	1.36
Soil Stockpile Area “E”	0.00	8.05	8.05
Stage 6 Borrow Area	9.25	3.19	12.44
Stage 6 Embankment	22.79	0.00	22.79
Total	41.13	15.61	56.74

Source: Knight Piésold Ltd. 2020, Appendix A, Drawing No. 0010

Note: acreages are approximate due to rounding.



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Figure 1. Vicinity Map

Additional information on the Project can be found in the Environmental Assessment prepared jointly by the Forest Service and DEQ.

Regulatory Framework

The Forest Service is obligated under certain federal and state laws and regulations to evaluate and take action regarding the Proposed Action. Although not an exhaustive list, the laws, regulations, and executive orders (EOs) summarized below are key to the Project; compliance with these laws and regulations is demonstrated in the Environmental Consequences section.

National Forest Management Act of 1976/1987 Gallatin Forest Plan (as amended)

The National Forest Management Act of 1976 (NFMA) requires the development, maintenance, and, as appropriate, revision of land and resource management plans (forest plans) for units of the National Forest System. Forest plans provide for the multiple use and sustained yield of renewable resources in accordance with the Multiple-Use Sustained-Yield Act of 1960 and protection of species. The 1987 Gallatin Forest Plan, as amended (Forest Service 2015), represents the land and resource management plan required by NFMA. The Gallatin Forest Plan sets forth the CGNF direction for managing the Gallatin portion of the CGNF, as it was developed prior to combining the two forests. Goals of the Gallatin Forest Plan include providing for “orderly and environmentally acceptable exploration and development of minerals.” Additionally, the Gallatin Forest Plan states it will recognize existing and future rights to prospect, develop, and mine on National Forest lands open to mineral entry in the implementation of the Forest Plan (Forest Service 2015).

Management Area 8, which includes the Project area, includes the following applicable standard:

Wildlife and Fish—Provide for fish and wildlife habitat improvement when consistent with management area goals. Project plans would incorporate considerations for fish and wildlife.

Sensitive species are managed under the authority of NFMA as well and are administratively designated by the Regional Forester. FSM 2670.22 requires the maintenance of viable populations of native and desired nonnative species and to avoid actions that may cause a species to become threatened or endangered. The NFMA directs the Forest Service to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives” [16 USC 1604(g)(3)(B)]. Providing ecological conditions to support diversity of native plant and animal species in the planning area satisfies the statutory requirements. The Forest Service’s focus for meeting NFMA requirements and implementing regulations is on assessing habitat to provide for a diversity of species.

Locatable Minerals – 36 CFR 228, Subpart A

Federal regulations at 36 CFR 228, Subpart A set forth the rules and procedures that enable use of the surface of National Forest System lands in connection with operations authorized by mining laws. The

Forest Service approves Plans of Operations under these regulations, and developed them to ensure that mining-related activities are conducted in a manner that minimizes adverse environmental impacts on Forest Service surface resources. Review of each Plan or Operations or plan revision is coordinated with DEQ and other appropriate agencies.

These regulations also specifically authorize the Forest Service to calculate and hold a reclamation bond for approved mining operations on National Forest System lands. 36 CFR 228.8 requires that the Forest Service ensure that all operations will be conducted so as, where feasible, to minimize adverse environmental impacts on National Forest System surface resources, including those to wildlife habitat (36 CFR 228.8(e)).

Endangered Species Act

The Endangered Species Act (ESA; 16 USC § 1531 *et seq.*) protects threatened and endangered species and their designated critical habitat. Section 7(a)(4) of the ESA requires federal agencies to confer with the USFWS on any agency action that is likely to jeopardize the continued existence of any species proposed for listing or result in the adverse modification of critical habitat proposed to be designated. If a federal agency's biological assessment (BA) analysis indicates that the action is not likely to adversely affect the continued existence of proposed species or result in the destruction or adverse modification of proposed critical habitat, and the USFWS concurs, then the consultation is informal, and the USFWS would issue a concurrence letter as the conclusion of the process. The Forest Service has prepared a BA for terrestrial species (grizzly bear, northern lynx, and wolverine) and submitted it to the USFWS for informal consultation.

Migratory Bird Treaty Act of 1918 (as amended) and Executive Order (EO) 13186

Under the Migratory Bird Treaty Act, it is illegal to take any migratory bird, their eggs, their parts, or any bird nest except as permitted (such as waterfowl hunting licenses, falconry licenses, or bird banding permits) by the USFWS. In addition, EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires federal agencies to ensure that environmental analyses evaluate the effects of federal actions and agency plans on migratory birds, with emphasis on species of concern.

Environmental Consequences

Analysis Area

The analysis area for the wolverine, Canada lynx, and grizzly bear varies by species and is described in the biological assessment (BA) prepared by the CGNF for the Project (CGNF 2020). The analysis area for all other special status animal species is the Project area plus a 1-mile buffer (Figure 3). The Project area is the area directly affected by the proposed action (Figure 2). The analysis area was extended to 1 mile because noise, disturbance, and displacement can extend beyond the Project area and because the range of wildlife species can be expansive.

Cumulative Effects

Cumulative effects are addressed individually for each species below. Ongoing and reasonably foreseeable activities that could contribute to cumulative effects include recreation, livestock grazing, timber management, and future mining activity. There is a conceptual proposal being developed for a future expansion at the East Boulder Mine. Engineering design and facility locations for this expansion are not finalized at this time. Because details of the potential future expansion are not available at this time, we cannot fully consider future proposals in this analysis effort. However, continued mining activity and expansion of the existing facilities are reasonably foreseeable actions at the developed East Boulder Mine.

Effects of the No Action Alternative on all Wildlife Species Analyzed

Under the No Action Alternative, Amendment 003 and the revised East Boulder Mine Plan of Operations would not be approved. No additional surface disturbance, noise, human activity, or additional expansion of the TSF would occur beyond what is currently authorized under DEQ Operating Permit 00149 and the currently approved plan of operations. Impacts on wildlife for the larger, original East Boulder Mine Project area were described in the 1992 FEIS (DSL et al. 1992) and the 2012 FEIS (DEQ and Forest Service 2012a). Mine-related human activity would not increase under the No Action Alternative. Mining activities would continue for an additional 7 years, ending in 2027. Reclamation and post-closure monitoring activities would continue for up to 8 years following the end of operations. The total duration of surface disturbance and human activities associated with the No Action Alternative would span approximately 15 years. Currently permitted surface disturbance would be reclaimed in accordance with the reclamation plan detailed in the Consolidated Operations and Reclamation Plan document (SMC 2016). Therefore, there would be no additional adverse impacts on wildlife resources. However, reclamation would seek to reestablish wildlife habitat as the post-mining use.

Because the No Action Alternative would not result in any additional impacts, no cumulative impacts would occur.

Effects of the Proposed Action

Construction of the Project would occur concurrently with mining activities occurring over approximately seven years, beginning in 2020. Expansion of the TSF would allow the mine to remain active for approximately eight years beyond the current plan of operations, from the end of 2027 through 2033 at current production rates (Knight Piésold 2020). Reclamation of all disturbed areas are anticipated to be completed within approximately eight years after completion of operations. Therefore, the surface disturbance and human activities associated with the Proposed Action would span approximately 21 years before reclamation would be completed.

Implementation of the Proposed Action would result in a total of 56.74 acres of disturbance within the proposed 286.85-acre disturbance area; in terms of the currently permitted disturbance area (Figure 2), 41.13 acres would be disturbed within and 15.61 acres would be disturbed outside of the currently permitted disturbance area. The 41.13 acres within the existing permitted disturbance area are already

disturbed, mostly unvegetated, and, thus, provide low-quality habitat for wildlife. The 15.61 acres of new disturbance would occur mostly within mixed conifer stands of Douglas-fir and lodgepole pine in areas adjacent to the existing mine; approximately 1.48 acres of this new disturbance is within already developed/unvegetated areas (Lewis Gulch Road prism), so direct impacts would be limited to approximately 20 acres. Vegetation would be removed in these areas for access road and infrastructure relocation, including construction of a stormwater runoff diversion, temporary soil stockpile, and borrow area.

Species-specific impacts for federally listed and proposed species, Forest Service sensitive species, MIS; and state species of concern are described below.

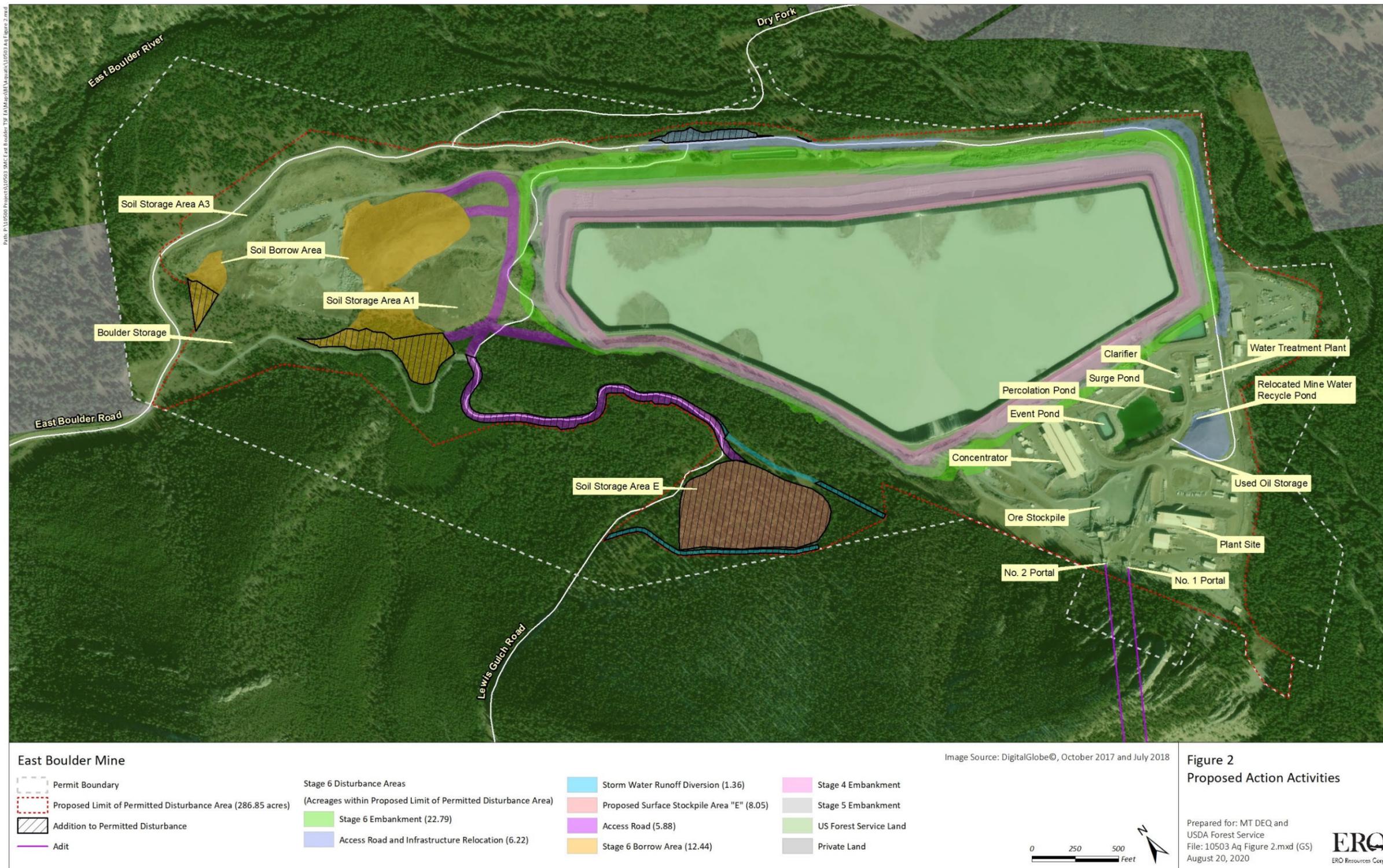


Figure 2. Proposed Action Activities

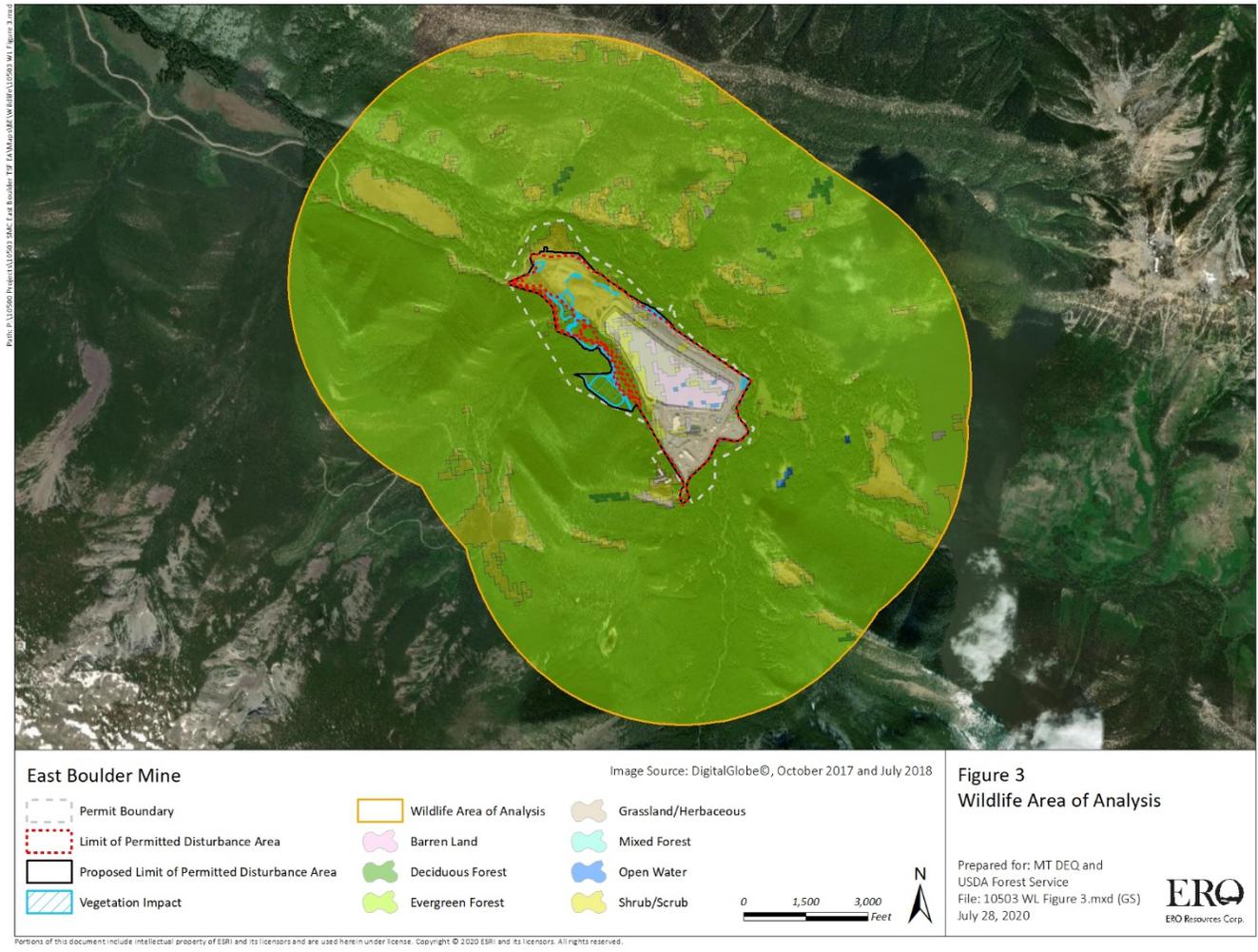


Figure 3. Wildlife Area of Analysis.

Federally Listed and Proposed Species

Section 7 of the Endangered Species Act (ESA, PL 93-205, as amended) directs federal agencies to ensure that actions authorized, funded, or carried out on National Forest lands, such as approval of a revised Plan of Operations, are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of habitat of their critical habitat (16 USC 1536). CGNF is required to consult with the United States Fish and Wildlife Service (USFWS) on Forest Service determinations of effects on federally listed/proposed species and critical habitat in accordance with the ESA, its implementation regulations (50 CFR 402.13), and Forest Service Manual 2671.4. A BA was prepared by the CGNF and submitted to the USFWS (CGNF 2020) for informal consultation. A brief summary of the CGNF determination for each species is provided below. Additional information on impacts for North American wolverine, Canada lynx and its critical habitat, and grizzly bear is provided in the BA (CGNF 2020). Table 2 lists the species that occur or may occur on the CGNF and effects determinations under the Proposed Action.

Table 2. Effects determinations for the Proposed Action for federally listed and proposed wildlife species that may occur on the CGNF.

Species	Status	Habitat/Range	Proposed Action Effects Determination
Wolverine <i>Gulo luscus</i>	Proposed Threatened	High-elevation alpine and cold boreal forests that receive enough winter precipitation to reliably maintain deep persistent snow late into the warm season.	Determination: May affect, will not jeopardize the Distinct Population Segment (DPS) of the North American wolverine Rationale: Habitat occurs in the Project area and wolverines may be present; however, impacts at the population level scale would be insignificant and discountable.
Canada lynx <i>Lynx Canadensis</i>	Threatened	Mesic mid- to high-elevation forests including Engelmann spruce, subalpine fir, lodgepole pine, and possibly Douglas-fir. Also uses aspen when mixed with or adjacent to suitable conifer forests. Needs areas of dense understory cover for foraging and mature forests with large coarse woody debris for denning.	Determination: May affect, not likely to adversely affect Rationale: Habitat occurs in the Project area and lynx may be present; however, impacts and habitat loss would be insignificant and discountable.
Canada lynx Critical Habitat	Designated		Determination: May affect, not likely to adversely affect Rationale: Primary constituent elements (PCEs) occur in the Project area and in the Lynx Analysis Unit (LAU); however, impacts on critical habitat would be insignificant and discountable.
Grizzly bear <i>Ursus arctos horribilis</i>	Threatened	Coniferous and aspen forests, grasslands, shrublands, open parklands, riparian areas, and wet meadows.	Determination: May affect, not likely to adversely affect Rationale: Habitat occurs in the Project area and grizzly bears may be present. Impacts on grizzly bears and their habitat would be insignificant and discountable.

Species	Status	Habitat/Range	Proposed Action Effects Determination
Northern long-eared myotis <i>Myotis septentrionalis</i>	Proposed Threatened	Caves, abandoned mines, live trees, and snags. May occur on the eastern portion of CGNF.	Determination: No effect Rationale: Potential habitat is present; however, the closest known occurrence is 300 miles northeast of the Project area.
Whooping crane <i>Grus americana</i>	Endangered	Wetlands; a migrant in eastern Montana.	Determination: No effect Rationale: No habitat is in or near the Project area.

Source: USFWS 2020

North American Wolverine

Approximately 66.1 acres of modeled wolverine dispersal and foraging habitat would be removed. Given the large home range size of an individual wolverine, effects on foraging habitat at a population level scale would be insignificant. A BA was prepared for the Proposed Action as part of Section 7 consultation under the ESA (CGNF 2020). In the BA, CGNF determined that implementation of the proposed Project activities would not jeopardize the continued existence of the DPS of the North American wolverine based on the following rationale:

- The Project would not contribute to the identified primary or secondary threats to the wolverine DPS.
- None of the proposed activities are considered a threat to the DPS.
- The individual Project activities on 66.1 acres and cumulative actions would result in small-scale disturbances in relation to the large wolverine home range size, and wolverines are able to adjust to and co-exist with moderate levels of disturbance.
- Project effects and cumulative actions would not result in barriers to dispersing individuals.

Canada Lynx

Approximately 22.5 acres of lynx habitat would be removed, including 0.7 acre of multistory habitat that provides snowshoe hare habitat. Up to 6.1 acres of stand initiation structural stage that provides snowshoe hare habitat and up to 4.2 acres of other structural stage may be removed. Project activities would not be expected to impede lynx movements. Low speed limits for vehicular traffic on the roads approaching the mine are strictly enforced, reducing the likelihood of vehicle strike and injury. The BA prepared for the Project determined that the Proposed Action may affect, but is not likely to adversely affect, the Canada lynx based on the following rationale (CGNF 2020):

- There are no known resident lynx in the East Boulder LAU. Transient lynx are possible.
- Up to 22.5 acres of lynx habitat would be modified by the Project in the East Boulder LAU including 6.1 of the limited stand initiation snowshoe hare habitat in the LAU, 0.67 acres of multistory habitat, and 4.2 acres of Other structural stage habitat in the LAU.
- There would be no effects on denning habitat.
- Disturbance to lynx from Project activities is possible; however, there is ample, quality, alternate habitat for lynx in adjacent wilderness, Inventoried Roadless Area, and nonwilderness areas.
- Project activities would not result in barriers to lynx movement through the Project area or LAU.
- The Project is in compliance with the Northern Rockies Lynx Management Direction.

- Cumulative effects do not contribute to overall effects in a way that is detrimental to lynx recovery.

Canada Lynx Critical Habitat

Approximately 6.8 acres of stand initiation, early stand initiation, and multistory habitat, which are PCEs of lynx critical habitat, would be removed. No denning habitat, also a PCE, would be removed. In the BA, the CGNF (2020) determined that the Proposed Action may affect, but is not likely to adversely affect, Canada lynx critical habitat based on the following rationale:

- The Project is in Critical Habitat Unit 5 and would result in modification of 6.8 acres of stand initiation habitat that is available in the critical habitat boundary in the East Boulder LAU. This minor amount of snowshoe hare habitat affected would not reduce or remove understory vegetation in boreal forest stands, significantly reduce the quality of snowshoe hare habitat, or cause permanent loss or conversion of the boreal forest on a landscape level scale.
- There would be no permanent loss or conversion of boreal forest at a landscape level scale.
- No denning habitat or matrix would be impacted.
- Forest roads would not impede lynx travel between patches of boreal forest.
- There would be no cumulative effects on lynx critical habitat.

Grizzly Bear

There would be no effects on whitebark pine, a grizzly bear food source, or denning habitat because none occurs in the Project area. About 16.91 acres of mixed conifer stands of Douglas-fir and lodgepole pine would be removed as a result of the Proposed Action. Activities involving heavy equipment and personnel would occur year-round for five to seven years in the Project area. These activities would occur during periods when bears may be active in the Project area. However, these activities would occur within 0.3 mile of open roads in nonsecure habitat. While there would be a slight increase in noise and personnel disturbance during periods when bears may be active, it would be concentrated in a small area adjacent to the TSF and mine site, which already have active mining operations 7 days a week, 24 hours a day. In the BA for the Project, CGNF (2020) determined that the Proposed Action may affect, but is not likely to adversely affect, the grizzly bear based on the following rationale:

- Project activities would not occur in grizzly bear secure habitat.
- Disturbance would be temporary and would last for the period while activities are occurring. Given the scale at which grizzly bear use the landscape and the availability of habitat in the Boulder Bear Analysis Unit (BAU), it is expected that grizzly bears would quickly adapt by shifting their use to adjacent areas.
- The food storage order enforcement would reduce potential for mortality of grizzly bears due to human conflicts or food rewards.
- The cumulative effects of the Project on the grizzly bear would be insignificant.

Regional Forester Sensitive Species

As described above in the Regulatory Framework, sensitive species are managed under the authority of NFMA and are administratively designated by the Regional Forester. FSM 2670.22 requires the maintenance of viable populations of native and desired non-native species and to avoid actions that may cause a species to become threatened or endangered. Table 3 lists Regional Forester sensitive species (U.S. Department of Agriculture Forest Service 2011) that are known or have potential to occur in the Project area and the effects from the Proposed Action.

Table 3. Proposed Action effects determinations for Regional Forester sensitive species.

Regional Forester Sensitive Species	Habitat	Proposed Action Effects Determination
American peregrine falcon <i>Falco peregrinus</i>	Breeding habitat is steep, high, large cliffs without human disturbance for nesting.	Determination: No impact Rationale: Potentially suitable habitat exists along the Boulder and East Boulder rivers. Although habitat is available nearby, no recent observations of peregrines in or near the area have been documented. There would be no cumulative effects because there would be no direct or indirect effects.
Bald eagle <i>Haliaeetus leucocephalus</i>	Large trees/snags near large lakes, reservoirs, and rivers. Populations of bald eagles have increased statewide and on the CGNF.	Determination: No impact Rationale: Bald eagles are known to nest along the Yellowstone and Boulder rivers. Bald eagles have been observed during the winter along the East Boulder River; however, no potential nesting or foraging habitat would be affected by the Proposed Action. There would be no cumulative effects because there would be no direct or indirect effects.
Bighorn sheep <i>Ovis canadensis</i>	Cliffs, mountain slopes, and rolling foothills. Minimal snow depth is important in winter for foraging; high-quality green forage is most important in spring and summer. Immediate or nearby cliff-rocky areas are important year-round. Semiopen to open vegetation types are preferred, often on south aspects.	Determination: No impact Rationale: Potential habitat is present in the action area; however, bighorn sheep are not known to occur in the action area (Montana Natural Heritage Program (MTNHP) 2020). Impacts on habitat would occur in coniferous forest adjacent to the existing mining operations, which is not preferred habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Black-backed woodpecker <i>Picoides arcticus</i>	Primary habitat is burned forested areas or areas with high insect and disease; secondary habitat is late-seral and old-growth conifer forests. Although black-backed woodpeckers occur on the CGNF, they are rarely observed.	Determination: No impact Rationale: No burned forest areas or old-growth forest would be affected by the Project. There would be no cumulative effects because there would be no direct or indirect effects.
Flammulated owl <i>Otus flammeolus</i>	Ponderosa pine and mixed conifer forests with meadows.	Determination: No impact Rationale: There are no records of this species in or near the action area (MTNHP 2020). In addition, the proposed Project would not affect suitable habitat for this species. There would be no cumulative effects because there would be no direct or indirect effects.

Regional Forester Sensitive Species	Habitat	Proposed Action Effects Determination
<p>Gray wolf <i>Canis lupus</i></p>	<p>Rocky Mountain forested and nonforested habitat generalist. Primary prey is elk.</p>	<p>Determination: No impact Rationale: Mule deer and elk, which provide prey for wolves, are likely to occur in the action area. However, the area immediately around the mine, including new disturbance, is unlikely to be used extensively by wolves due to the ongoing disturbance and human presence at the mine. The Project would not affect potential wolf foraging conditions. There would be no cumulative effects because there would be no direct or indirect effects.</p>
<p>Harlequin duck <i>Histrionicus histrionicus</i></p>	<p>Fast-moving water in riparian streams.</p>	<p>Determination: No impact Rationale: Harlequin ducks were documented about 6 miles west of the mine in 2011 (MTNHP 2020) and could potentially occur in streams in the action area; however, no impacts on this species or its habitat are expected because no impacts on riparian areas or streams would result from the Project. There would be no cumulative effects because there would be no direct or indirect effects.</p>
<p>Townsend's big-eared bat <i>Corynorhinus townsendii</i></p>	<p>Caves or crevices, mines, buildings, bridges, live trees with cracks or sloughing bark, and snags.</p>	<p>Determination: No impact Rationale: There are no records of Townsend's big eared bat in the action area or surrounding areas (MTNHP 2020). There would be no cumulative effects because there would be no direct or indirect effects.</p>
<p>Trumpeter swan <i>Cygnus buccinator</i></p>	<p>Nesting habitat includes marshes, lakes, beaver ponds, and oxbows and backwaters of rivers. Suitable habitat must include approximately 100 yards or more of open water for takeoff from the water's surface.</p>	<p>Determination: No impact Rationale: There are no records of trumpeter swans in the action area or surrounding areas (MTNHP 2020). Trumpeter swans are unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>

Management Indicator Species

Regulations at 36 CFR 219.19(a)(1) require that certain vertebrate and/or invertebrate species present in the area be identified as MIS in the planning area for the Gallatin Forest Plan and that these species be monitored, as "their population changes are believed to indicate the effects of management activities." Monitoring of MIS and determinations of population change occur at the forest planning level. The MIS for the Gallatin National Forest are bald eagle, grizzly bear, elk, northern goshawk, and pine marten. Table 4 describes the habitat requirements and effects determinations for the Proposed Action on MIS.

Table 4. Proposed Action effects determinations for Management Indicator Species.

Species	Habitat	Proposed Action Effects Determination
Bald eagle	Large trees and snags near large lakes, reservoirs, and rivers. Populations of bald eagles have increased statewide and on the CGNF.	<p>Determination: No impact</p> <p>Rationale: As described above, bald eagles are known to nest along the Yellowstone and Boulder rivers. Bald eagles have been observed during the winter along the East Boulder River; however, no potential nesting or foraging habitat would be affected by the Proposed Action. There would be no cumulative effects because there would be no direct or indirect effects.</p>
Grizzly bear	Coniferous and aspen forests, grasslands, shrublands, open parklands, riparian areas, and wet meadows. Management activities on the CGNF have increased secure habitat for grizzly bears, which may be contributing to the increasing occupation and populations of grizzly bears on the CGNF outside of the recovery zone.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: Project activities would not occur in grizzly bear secure habitat. Disturbance would be temporary and would last for the period while activities are occurring. Given the scale at which grizzly bear use the landscape and the availability of habitat in the Boulder BAU, it is expected that grizzly bears would quickly adapt by shifting their use to adjacent areas.</p> <p>The food storage order enforcement would reduce potential for mortality of grizzly bears due to human conflicts or food rewards. The cumulative effects of the Project to grizzly bear would be insignificant.</p>
Elk <i>Cervus canadensis</i>	Elk are generalist feeders, grazers, and browsers, foraging on a variety of grasses, forbs, and shrubs throughout the year. Most elk herds migrate between summer and winter ranges, with winter ranges typically occurring at lower elevations.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: Elk are likely to occur in the action area, and the Project would impact about 20 acres of potential habitat. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects on elk from the Proposed Action would be insignificant.</p>

Species	Habitat	Proposed Action Effects Determination
<p>Goshawk <i>Accipiter gentilis</i></p>	<p>Coniferous and mixed forest. Timber stands selected by goshawks for nesting are usually mature and old-growth forests with more than 60 percent closed canopy. Based on detection surveys, goshawks are present and well distributed across the CGNF, with more goshawks nesting on the Yellowstone Ranger District compared to other ranger districts. Goshawk populations appear to be stable.</p>	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species. Rationale: Suitable goshawk habitat is present in the action area. The Proposed Action would impact 20 acres of coniferous forest that may provide foraging habitat for goshawks, although they are unlikely to nest in the Project area due to the existing level of human disturbance. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects on the goshawk from the Proposed Action would be insignificant.</p>
<p>Pine marten <i>Martes americana</i></p>	<p>Pine martens are typically associated with subalpine and alpine coniferous forests. They prefer habitat associated with older growth mixed-aged stands and rarely venture far from forest cover.</p>	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species. Rationale: The Project would impact 20 acres of potential habitat for this species. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.</p>

Montana Species of Concern

MTNHP and the Montana Department of Fish, Wildlife, and Parks jointly maintain the list of Montana Animal Species of Concern (MTNHP 2020). These species are native to Montana and are considered “at risk” due to declining population trends, threats to their habitats, and/or restricted distribution. Table 5 lists Species of Concern for Sweet Grass County, not including species previously addressed above, and provides an effects determination for the Proposed Action.

Table 5. Montana species of concern for Sweet Grass County.

Species	Habitat	Proposed Action Effects Determination
<p>Black-tailed prairie dog <i>Cynomys ludovicianus</i></p>	<p>Flat, open grasslands and shrub/grasslands with low, relatively sparse vegetation.</p>	<p>Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>

Species	Habitat	Proposed Action Effects Determination
Eastern red bat <i>Lasiurus borealis</i>	Present across much of central and eastern Montana during the summer and fall, particularly in wooded and riparian areas.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: The Project would impact 20 acres of potential foraging habitat for this wide-ranging species. The proposed activities may affect potential habitat for this species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.</p>
Hoary bat <i>Lasiurus cinereus</i>	Migratory summer resident in Montana, occupying forested areas.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: The Project would impact 20 acres of potential habitat for this wide-ranging species. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.</p>
Little brown myotis <i>Myotis lucifugus</i>	Found in a variety of habitats across a large elevation gradient. Summer day roosts include attics, barns, bridges, snags, loose bark, and bat houses. Known maternity roosts in Montana are primarily buildings. Hibernacula include caves and mines.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: The Project would impact 20 acres of potential habitat for this wide-ranging species. Maternity roosts and hibernacula are unlikely to occur in the Project area. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.</p>
Merriam's shrew <i>Sorex merriami</i>	Occupies mostly arid sagebrush-grassland habitats in Montana.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>
Preble's shrew <i>Sorex preblei</i>	Occupies mostly sagebrush-grassland habitats in Montana, sometimes in openings surrounded by subalpine coniferous forest.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>

Species	Habitat	Proposed Action Effects Determination
Baird's sparrow <i>Centronyx bairdii</i>	Breeds in native mixed-grass and fescue prairie. Winters in grasslands.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Bobolink <i>Dolichonyx oryzivorus</i>	Breeds in open areas, preferring large fields with a mixture of grasses and broad-leaved plants.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Brewer's sparrow <i>Spizella breweri</i>	Sagebrush obligate species that depends almost exclusively on the sagebrush ecosystem.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Brown creeper <i>Certhia americana</i>	Prefers forests with many large live trees for foraging and large loose-barked (often dead or dying) trees for nesting. Uses a wider variety of wooded habitats in the winter, including deciduous forests, suburbs, parks, and orchards.	Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species. Rationale: The Project would impact 20 acres of potential habitat for this species. Nesting habitat is unlikely to occur in the Project area. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.
Cassin's finch <i>Haemorhous cassinii</i>	Breeds mostly between 3,000 and 10,000 feet in elevation. Often lives in mature conifer forests, but some breed in open sagebrush shrubland with scattered junipers.	Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species. Rationale: The Project would impact 20 acres of potential habitat for this species. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.
Chestnut-collared longspur <i>Calcarius ornatus</i>	Breeds on short-grass plains and prairies. Winters in open cultivated fields. Occurrence is not likely.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.

Species	Habitat	Proposed Action Effects Determination
Clark's nutcracker <i>Nucifraga columbiana</i>	Open coniferous forests between 3,000 and 12,000 feet in elevation.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: The Project would impact 20 acres of potential habitat for this species. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.</p>
Evening grosbeak <i>Coccothraustes vespertinus</i>	Breeds in mature and second-growth coniferous forests. In winter, lives in coniferous forest and deciduous forest as well as in urban and suburban areas.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: The Project would impact 20 acres of potential habitat for this species. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.</p>
Golden eagle <i>Aquila chrysaetos</i>	Open and semiopen country featuring native vegetation. Found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs.	<p>Determination: No impact</p> <p>Rationale: A golden eagle was observed during a site visit on January 9, 2020 along the East Boulder River about 6 miles below the mine. Although suitable foraging habitat is available in the more open country downstream, the area around the mine is not suitable habitat and no nests are known to occur in the action area. There would be no cumulative effects because there would be no direct or indirect effects.</p>
Great blue heron <i>Ardea herodias</i>	Freshwater habitats. Forage in grasslands and agricultural fields where they stalk frogs and mammals. Most breeding colonies are located within 2 to 4 miles of feeding areas, often in isolated swamps or on islands, and near lakes and ponds bordered by forests.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>

Species	Habitat	Proposed Action Effects Determination
Great gray owl <i>Strix nebulosa</i>	Pine and fir forests adjacent to montane meadows between 2,500 and 7,500 feet in elevation.	<p>Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species.</p> <p>Rationale: The Project would impact 20 acres of coniferous forest potential habitat for this species. Great gray owls are unlikely to nest in or near the Project area because of the ongoing human presence and disturbance at the mine. The proposed activities may affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.</p>
Greater sage-grouse <i>Centrocercus urophasianus</i>	Sagebrush obligate species using only sagebrush steppe ecosystems.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>
Green-tailed towhee <i>Pipilo chlorurus</i>	Dense, shrubby habitat. Usually do not live in unbroken forest. Also live in sagebrush shrub-steppe, often intermixed with shrubs and trees. May occur up to about 10,000 feet in elevation. In winter they move to dry washes, arroyos, mesquite thickets, oak-juniper woodland, creosote bush, and desert grasslands, typically below 4,000 feet in elevation.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>
Lewis's woodpecker <i>Melanerpes lewis</i>	Breeds in open ponderosa pine forests and burned forests with a high density of standing dead trees (snags), as well as woodlands near streams, oak woodlands, orchards, and pinyon-juniper woodlands.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>
Loggerhead shrike <i>Lanius ludovicianus</i>	Open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>
Long-billed curlew <i>Numenius americanus</i>	Areas with sparse, short grasses, including shortgrass and mixed-grass prairies as well as agricultural fields. After young leave the nest, they may move to areas with taller, denser grasses.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>
McCown's longspur <i>Rhynchophanes mccownii</i>	Sparse shortgrass plains, plowed and stubble fields, and bare or nearly bare ground.	<p>Determination: No impact</p> <p>Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.</p>

Species	Habitat	Proposed Action Effects Determination
Pacific wren <i>Troglodytes pacificus</i>	Forested habitats from sea level to 12,000 feet in elevation. Most common in old-growth evergreen forests, but also lives in deciduous forests, mixed evergreen and deciduous forests, and aspen stands.	Determination: May impact individuals or habitat but would not lead to a trend toward federal listing or cause a loss of viability to the population or species. Rationale: The Project would impact 20 acres of potential habitat for this species. The proposed activities may slightly affect potential habitat for the species but would not likely lead to a trend toward federal listing or a loss of viability for the species. When added to ongoing and reasonably foreseeable activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects from the Proposed Action would be insignificant.
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Occupies pinyon-juniper woodlands, sagebrush, scrub oak, chaparral, and ponderosa pine forests year-round.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Red-headed woodpecker <i>Melanerpes erythrocephalus</i>	Breeds in deciduous woodlands with oak or beech, groves of dead or dying trees, river bottoms, burned areas, recent clearings, beaver swamps, orchards, parks, farmland, grasslands with scattered trees, forest edges, and roadsides.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Sage thrasher <i>Oreoscoptes montanus</i>	Breeds exclusively in shrub-steppe habitats. During migration and wintering, uses arid or semiarid open country with scattered bushes, grasslands, and open pinyon-juniper woodlands.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Sprague's pipit <i>Anthus spragueii</i>	Breeds and winters in open grassland with good drainage and no shrubs or trees.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Veery <i>Catharus fuscescens</i>	Breeds in dense, damp, mostly deciduous woodlands, often near rivers, streams, and swampy areas.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.
Greater short-horned lizard <i>Phrynosoma hernandesi</i>	Sparse shortgrass and sagebrush with sun-baked soil.	Determination: No impact Rationale: This species is unlikely to occur in the action area due to a lack of suitable habitat. There would be no cumulative effects because there would be no direct or indirect effects.

Migratory Birds

Migratory birds include raptors, waterfowl, shorebirds, upland game birds, and songbirds. As discussed above in the Regulatory Framework, migratory bird species are protected under the International Migratory Bird Treaty Act of 1918 and EO 13186, which places an emphasis on species of concern. Effects on individual species of concern are summarized in Table 5 above.

If vegetation-clearing activities occur during the spring reproductive period (approximately April through mid to late July), injury, mortality, and/or reduced reproductive output could occur from tree falling and noise disturbance from heavy machinery. Displacement from foraging habitat may occur when activities occur in summer and fall. These effects would be short-term and localized and would not affect migratory birds at a population level scale. Effects from loss of 20 acres of mixed coniferous forest would occur over a period of decades until after reclamation is complete and trees have had time to regrow in the Project area.

When added to ongoing and reasonably foreseeable future activities including recreation, livestock grazing, timber management, and future mining activity, cumulative effects on migratory birds at the population level would be insignificant.

Responsibility for a Revised Biological Evaluation

This Biological Evaluation was prepared based on presently available information. If the Proposed Action is modified in a manner that causes effects not considered, or if new information becomes available that reveals that the Proposed Action may impact endangered, threatened, proposed, or sensitive species in a manner or to an extent not previously considered, a new or revised biological evaluation would be required.

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- Custer Gallatin National Forest (CGNF). 2020. Biological Assessment for the East Boulder Mine Stage 6 Tailings Storage Facility Expansion Project.
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U.S. Fish and Wildlife Service (USFWS). 2020. List of Threatened and Endangered Species for Custer Gallatin National Forest.
https://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/Forests/CusterGallatin_sp_list.pdf.