Finding of No Significant Impact

for the Issuance of a Long-Term Incidental Eagle Take Permit
for the Marigold Mine Project

Nevada

May 2024

U.S. Fish and Wildlife Service
U.S. Department of the Interior
2800 Cottage Way, Suite W-2606, Sacramento, CA 95825
Contact: fw8_eaglepermits@fws.gov

Introduction

The U.S. Fish and Wildlife Service (Service) received an application from the Marigold Mining Company (MMC; Applicant) requesting eagle take coverage under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668-668d and 50 Code of Federal Regulations [CFR] § 22.80) for incidental take of eagles and removal of one golden eagle nest at the Marigold Mine (Project). The Applicant will continue previously authorized mining activities at the Project. The Marigold Mine is located approximately 35 miles southeast of Winnemucca in Humboldt County, Nevada. The Project area has historically experienced intensive mining activities with similar contemporary levels of activities since authorization in 1988. The Applicant has requested a long-term (13-year) incidental take permit for golden eagles (*Aquila chrysaetos*) and to remove one of five known nests within a single territory under the Eagle Act; such that reoccurring disturbance may result in loss of annual productivity of one breeding pair at the Project. Issuance of a permit by the Service for take that is incidental to otherwise lawful activities under the Eagle Act constitutes a discretionary Federal action that is subject to the National Environmental Policy Act (NEPA; 42 United States Code [U.S.C.] §§ 4321 et seq.).

In accordance with the NEPA, we prepared an Environmental Assessment (EA) analyzing the environmental consequences of issuing permits for the take of golden eagles associated with the Project, as well as alternatives to this proposed action (Attachment 1). The EA assists the Service in ensuring compliance with the NEPA and in making a determination as to whether any "significant" effects to the environment not previously analyzed under the Service's Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016 (PEIS; USFWS 2016) could result from the analyzed actions, which would require preparation of an Environmental Impact Statement. Considering "significance" under NEPA is addressed by regulation 40 CFR § 1501.3, and requires we analyze the potentially affected environment and degree of the effects of the action. Effects of the action may be direct, indirect, or cumulative (40 CFR 1508.1(g)).

The Service's purpose in considering the proposed action of issuing an eagle incidental take permit is to fulfill our authority under the Eagle Act (16 U.S.C. §§ 668-668d) and its regulations (50 CFR § 22). Applicants whose otherwise lawful activities may result in take of eagles can apply for incidental eagle take permits so that their projects may proceed without potential violations of the Eagle Act. We may issue permits for eagle take that is associated with, but not the purpose of, an activity. Such permits can be issued by us when the take that is authorized is compatible with the Eagle Act preservation standard; it is necessary to protect an interest in a particular locality; and it is associated with, but not the purpose of, the activity; and it cannot be practicably avoided (50 CFR § 22.80 and 81 Federal Register [FR] 91494).

The need for this federal action is a decision on an eagle incidental take permit application from MMC that is in compliance with all applicable regulatory requirements set forth under the Eagle Act in 50 CFR § 22.

Proposed Action and Alternatives Considered

In the EA, the Service fully analyzed two potential courses of action, summarized below, to respond to the Applicant's request for an incidental eagle take permit.

Proposed Action

The Service proposed to issue a 13-year incidental eagle take permit, with associated conditions, to MMC for the loss of productivity resulting in 0.59 eagles per year, or 7.67 eagles during the course of the permit, with removal of one of five known nests at the same golden eagle territory. This loss of breeding productivity is derived from an estimated loss of 0.59 young fledged from each golden eagle breeding pair each year from the eagle population. The permit would require implementation of measures to avoid and minimize eagle take, monitoring of eagle territory occupancy and breeding productivity, and compensatory mitigation to fully offset the estimated take.

Alternative 1: No Action

Under the No-Action Alternative, the Service would take no further action on MMC's incidental eagle take permit application.

Public Scoping and Tribal Coordination

Scoping regarding issuance of eagle take permits was performed for the PEIS (USFWS 2016). This Finding of No Significant Impact and attached EA is being made public on the Service's regional webpage[1] following posting of the EA for at least 30 days of public review prior to the Service considering issuance of the permits.

To notify Tribes regarding potential issuance of the permit, the Service sent letters to eight federally recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles thought to adequately define the local area population of the eagles) of the Projects informing them of the received permit application and preparation of the EA and offering the opportunity for formal consultation regarding potential issuance of the permit. One Tribe responded through the Service's California Great Basin Regional Native American Liaison and a Government-to-Government in-person meeting for additional information was held March 24, 2023. The Tribal Council and tribal members expressed opposition to activities the BLM had already authorized for the Project and the Service's potential issuance of an incidental take permit. The Service takes these concerns seriously and has attempted to clarify that the current actions

[1] https://www.fws.gov/library/collections/pacific-southwest-region-nepa-documents-eagle-permits

proposed under this EA are intended to maintain MMC's compliance with the Eagle Act for previously authorized activities, and the resulting compensatory mitigation would serve to reduce population level impacts to golden eagles compared to conditions resulting from the No Action Alternative or permit denial. The Service received no response from any of the other Tribes contacted.

Selected Alternative

Based on review of the analyses detailed in the EA, the Service selected the Proposed Action of issuing a 13-year incidental eagle take permit to MMC for disturbance resulting in loss of productivity at one golden eagle breeding pair and the removal of one of five known nests within the territory, with the requirement to implement avoidance and minimization measures, conduct eagle monitoring, and provide compensatory mitigation to fully offset the estimated take.

Disturbance take of golden eagles is predicted to occur under all alternatives, however the Proposed Action fully offsets the take with required compensatory mitigation, and includes additional eagle breeding productivity monitoring, which would not be required under the No-Action Alternative.

The Proposed Action is consistent with the purpose and need for this Federal action and is in compliance with all statutory (16 U.S.C. §§ 668-668d) and regulatory requirements (50 CFR § 22.80 and 50 CFR § 13.21), including the criteria codified for permit issuance (50 CFR § 22.80(f)).

Determining Significance

When considering whether the effects of the Proposed Action are significant, regulations of the NEPA require agencies to "analyze the potentially affected environment and degree of the effects of the action" (40 CFR § 1501.3(b)). This includes considering the extent of the potentially affected area (national, regional, or local) and its resources, as appropriate to the specific action. Further considerations for the degree of the effects include both short- and long-term effects, both beneficial and adverse effects, effects on public health and safety, and effects that would violate Federal, State, Tribal, or local law protecting the environment (40 CFR § 1501.3(b)). Below we examine these considerations for the selected Proposed Action.

Potentially Affected Environment

For purposes of analyzing the selected Proposed Action, the appropriate affected environment associated with the Proposed Action is local and regional, because the Proposed Action does not affect statewide or national resource values. Analyses of effects at the local and regional scale are provided in the EA.

Golden eagles are the resource in the affected area most likely to be affected by the Proposed Action of issuance of the requested eagle take permit. One golden eagle breeding pair is currently nesting in the vicinity of the Project, which may be disturbed by MMC's current and future mining activities. However, as discussed in the EA and below, the Applicant will implement conservation measures to minimize the risk to eagles and will offset golden eagle take through compensatory mitigation.

Bald eagles (*Haliaeetus leucocephalus*) are known to occur in the region but are not expected to be affected by Project construction activities as no bald eagle nests have been identified in the vicinity of the Project. Bald eagles in the region may benefit from reduced electrocution risk due to the power pole retrofitting to be completed as offsetting compensatory mitigation for the authorized golden eagle take.

Migratory birds are not expected to be negatively affected by the Proposed Action of issuing an eagle take permit to the Applicant, however migratory birds may incidentally benefit from reduced electrocution risk due to the power pole retrofitting to be done for the eagle take permit.

Authorizing incidental eagle take is not expected to have effects to species protected by the Endangered Species Act (ESA) at the Project. Furthermore, no species listed under the ESA, or potential critical habitat, were found to be present within the Project boundary.

Eagles and their feathers are revered and considered sacred in many Native American traditions. Issuing a permit for disturbance take of eagles, is not expected to interfere with cultural practices and ceremonies related to eagles or to affect Native Americans' ability to obtain or use eagle feathers. Moreover, the Service requests any eagle feathers that are found be sent to our repository and, if in good condition, will be made available for these practices. Therefore, we do not anticipate any adverse effect on cultural resources from the Proposed Action.

Degree of the Effects

We have considered the following in evaluating the degree of the effects (40 CFR 1501.3(b)(2)), as appropriate, of the Proposed Action:

1) Both short- and long-term effects.

> Issuance of an eagle take permit for the Project does not set precedent for, or automatically apply, to other eagle take permit applications the Service is reviewing or could review in the future. Each permit request will be evaluated on a case-by-case basis. Therefore, the Proposed Action does not establish precedents for future actions or represent a decision in principle about a future action. Moreover, this Project will not limit the Service's discretion when processing future eagle take permit applications under the Eagle Act's permitting regulations.
>
> The analyses in the EA considered effects to golden eagles at varying temporal scales and considered effects to both local and regional golden eagle populations.

Short-Term Effects. Under the Proposed Action, issuance of an eagle take permit would authorize disturbance take and loss of productivity of one golden eagle pair at the Marigold Mine over a 13-year period. However, as described in the EA, the Applicant will implement measures to minimize disturbance to the eagles and decrease the chance of take and will fully offset the estimated take with compensatory mitigation. Analyses provided in the EA indicate the authorized take will have no significant effect on the local eagle population, and as the take will be fully offset with compensatory mitigation, the take will also have no significant effect on regional eagle populations.

Long-Term Effects. Despite disturbance to the eagle pairs, the Project's activities are not expected to have additional long-term effects to eagles as only one of five known golden eagle nests would be physically removed because of the Proposed Action, and the take will be fully offset with compensatory mitigation.

The analyses in the Service's PEIS on issuing incidental eagle take permits provides information and greater certainty in understanding the risks and effects to eagles of issuing incidental eagle take permits now and into the future. Furthermore, surveying and monitoring of eagles that would be required under the Proposed Action provides information and increased certainty in our future assessments of risk to eagles from similar projects and human activities.

2) Both beneficial and adverse effects.

Beneficial Effects. As described in the EA, the Proposed Action includes power pole retrofitting as mitigation for take of eagles. Such retrofits are anticipated to protect eagles from electrocution. As the number of retrofits to be done for mitigation is calculated at a 1.2 to 1 ratio, these avoided eagle electrocutions will more than offset Project-related take of eagles, thereby benefiting the eagle population as a whole. Power pole retrofits are also expected to benefit bald eagles and other raptors that may be susceptible to electrocution. Required monitoring of eagle breeding productivity will also be beneficial as it will support the Service's understanding of impacts from similar projects and human activities in the vicinity of nesting golden eagles. Furthermore, issuance of an incidental eagle take permit will allow the Applicant to operate in compliance with the Eagle Act.

Adverse Effects. As described in the EA, under the Proposed Action the Applicant would implement conservation measures to minimize the risk to eagles. However, the loss of annual productivity of up to one golden eagle breeding pair in the vicinity of the Project may occur due to disturbance from their associated activities over the 13-year permit period. The Applicant will offset this eagle take through compensatory mitigation. This will ensure that the impacts of issuing an eagle take permit on the local and regional golden eagle population will not be significant.

3) Effects on public health or safety.

The Proposed Action would include mitigating eagle take by retrofitting power poles to prevent eagle electrocutions. As eagle and other raptor electrocutions on power poles can

start fires, decreasing eagle and other raptor electrocutions could benefit human safety by reducing fire risk.

4) Effects that would violate Federal, State, Tribal, or local law protecting the environment.

The Proposed Action, issuance of an incidental take permit under the Eagle Act, does not violate any known Federal, State, Tribal, or local law or requirement imposed for the protection of the environment. In addition, the Proposed Action is consistent with applicable Eagle Act, MBTA, and ESA regulations, policies, and programs.

Finding of No Significant Impact

The Service's Migratory Bird Program concludes, based on the analyses outlined in the EA and the information provided above, that the Proposed Action would not cause significant effects on the environment based on criteria established by regulations, policy, and analysis. We conducted analyses of effects at the Project, local area eagle population, and regional Eagle Management Unit scales, and assessed the degree of these effects. The selected Proposed Action is unlikely to have significant impacts on eagles because a significant population-level effect for bald eagles is not expected, all reasonably foreseeable take of golden eagles will be fully offset, cumulative effects do not exceed levels deemed to be incompatible with the preservation of eagle populations, and the Proposed Action meets the Eagle Act's preservation standard and all regulatory requirements (16 U.S.C. §§ 668-668d, 50 CFR § 22.6, 50 CFR § 22.80).

Based on the findings discussed herein, we conclude that the Proposed Action is not a major federal action and will result in no significant impacts to the environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in 40 CFR 1501.3. Therefore, preparation of an EIS to further analyze possible effects is not required pursuant to NEPA Section 102(2)(c), and our environmental review under NEPA is concluded with this finding of no significant impact.

Digitally signed by DANIEL BLAKE
Date: 2024.05.31 11:29:17 -07'00'

Daniel Blake
Chief, Migratory Bird Program
Pacific Southwest Region
U.S. Fish and Wildlife Service

References

16 United States Code (U.S.C.) §§ 668-668d. Title 16 - Conservation; Chapter 5a - Protection and Conservation of Wildlife; Subchapter II - Protection of Bald and Golden Eagles. Available online: http://uscode.house.gov

40 Code of Federal Regulations (CFR) § 1501.3. Title 40 - Protection of Environment; Chapter V - Council on Environmental Quality; Subchapter A – National Environmental Policy Act Emplementing Regulations; Part 1501 – NEPA and Agency Planning; Section (§) 1501.3 – Determine the appropriate level of NEPA review. Available online: https://www.ecfr.gov

42 United States Code (U.S.C.) §§ 4321 et seq. Title 42 - the Public Health and Welfare; Chapter 55 - National Environmental Policy; Subchapters I (Policies and Goals) and II (Council on Environmental Quality); Sections (§§) 4321 et seq. Available online: http://uscode.house.gov

42 United States Code (U.S.C.) §§ 4332. Title 42 - the Public Health and Welfare; Chapter 55 - National Environmental Policy; Subchapter I - Policies and Goals; Section (§) 4332 – Cooperation of agencies; reports; availability of information; recommendations; international and national coordination of efforts. Available online: http://uscode.house.gov

43 Code of Federal Regulations (CFR) § 46.325. Title 43 – Public Lands: Interior; Subtitle A – Office of the Secretary of the Interior; Part 46 – Implementation of the National Environmental Policy Act of 1969; Section (§) 46.325 – Conclusion of the environmental assessment process. Available online: http://uscode.house.gov

50 Code of Federal Regulations (CFR) § 13.21. Title 50 - Wildlife and Fisheries; Chapter I - United States Fish and Wildlife Service, Department of the Interior; Subchapter B - Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants; Part 13 - General Permit Procedures; Section (§) 13.21 – Issuance of permits. Available online: https://www.ecfr.gov

50 Code of Federal Regulations (CFR) § 22. Title 50 - Wildlife and Fisheries; Chapter I - United States Fish and Wildlife Service, Department of the Interior; Subchapter B - Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants; Part 22 - Eagle Permits. Available online: https://www.ecfr.gov

81 Federal Register (FR) 91494. 2016. Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests. Vol. 81, No. 242. December 16, 2016. pp 91494-91554. Available online: https://www.federalregister.gov/

US Fish and Wildlife Service (USFWS). 2016. Programmatic Environmental Impact Statement for the Eagle Rule Revision. December 2016. Available online: https://www.fws.gov/migratorybirds/pdf/management/FINAL-PEIS-Permits-to-Incidentally-Take-Eagles.pdf

Attachment 1

Environmental Assessment for the Issuance of Long-Term Incidental Eagle Take Permits for the Marigold Mine Project

Environmental Assessment

for the Issuance of a Long-Term Incidental Eagle Take Permit
for the Marigold Mine Project

Nevada

May 2024

U.S. Fish and Wildlife Service
U.S. Department of Interior
2800 Cottage Way, Suite W-2606, Sacramento, CA 95825
Contact: Joseph Barnes | joseph_barnes@fws.gov

TABLE OF CONTENTS

List of Figures

List of Appendices

1.0 Introduction

This Environmental Assessment (EA) has been prepared pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321 et seq.) to analyze the environmental consequences of the United States Fish and Wildlife Service (Service) issuing an incidental eagle take permit for the take of golden eagles (*Aquila chrysaetos*) associated with the Marigold Mine Project (Project). Issuance of an incidental eagle take permit (permit) by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] §§ 22.75 and 22.80) constitutes a major federal action that is subject to the NEPA (42 U.S.C. §§ 4336e, 40 CFR § 1508.1(q)). This EA assists the Service in ensuring compliance with the NEPA, analyzing the potentially affected environment, considering the degree of the effects of the action, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for our decision whether to issue an incidental eagle take permit.

The Applicant, Marigold Mining Company (MMC), is requesting Eagle Act take coverage for construction and operational activities associated with the Project. MMC is an affiliate of SSR Mining Inc. The Applicant has requested a 13-year incidental take permit with authorized nest removal for golden eagles under the Eagle Act at the Project. The Applicant's Eagle Conservation Plan (ECP) (Appendix A) is the foundation of the permit application for the Project. The Applicant is requesting a permit for reoccurring disturbance to and loss of annual productivity from breeding golden eagles for up to 13 times over no more than 13 years and to remove one of five known nests within a single territory. The nest proposed for removal exists adjacent to previously mined substrate (i.e., highwall) that would be removed during authorized mining activities. This EA evaluates whether issuance of the incidental eagle take permit will have significant impacts on the existing human environment.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016 (PEIS; USFWS 2016a). Accordingly, this EA tiers from the 2016 PEIS. Project-specific information not considered in the PEIS (USFWS 2016a) will be considered in this EA as described below.

1.1 Purpose and Need

The Service's purpose in considering the Proposed Action is to fulfill our authority under the Eagle Act (16 U.S.C. §§ 668–668d) and its regulations (50 CFR § 22). Applicants whose otherwise lawful activities may result in take of eagles can apply for incidental eagle take permits so that their projects may proceed without potential violations of the Eagle Act.

The need for this federal action is a decision on an incidental eagle take permit application submitted by MMC that is in compliance with all applicable regulatory requirements set forth under the Eagle Act in 50 CFR § 22. The decision must comply with all applicable regulatory requirements and be compatible with the preservation of eagles.

1.2 Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 U.S.C. §§ 668–668d) and its regulations (50 CFR § 22). The PEIS has a full list of authorities that apply to this action (USFWS 2016a; Section 1.6, pages 7-12), which are incorporated by reference here.

The Eagle Act authorizes the Service to issue incidental eagle take permits only when the take cannot be practicably avoided and it is compatible with the preservation of each eagle species (known as the Eagle Act's "preservation standard"), which is defined in regulations as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species" (50 CFR § 22.6). The Service may issue incidental eagle take permits for eagle take that is associated with, but not the purpose of, an activity and it is necessary to protect an interest in a particular locality (50 CFR § 22.80 and 81 Federal Register [FR] 91494). It may also issue permits for take of alternate golden eagle nests during a resource development or recovery operation if the taking is compatible with the preservation of golden eagles (50 CFR § 22.75).

1.3 Background

The Project is located approximately three miles south of Valmy, Nevada in the southeastern portion of Humboldt County, Nevada (Figure 1-1). Located on the northern end of the Battle Mountain-Eureka Trend, mining activities began in the Project area in 1927 when three claims were staked that would later be named the Marigold Mine. The original Plan of Operations (Plan) for Marigold Mine was authorized by the Bureau of Land Management (BLM) in a Record of Decision in July 1988. Since that time, several amendments leading to the current authorized operations were analyzed in numerous NEPA documents and permits. Activities within the Project area have expanded periodically since production began in 1988. A recent expansion, the Mackay Optimization Project Final EIS, was approved by the BLM Winnemucca District, Humboldt River Field Office in September 2019 (BLM 2019). The most recent expansion, the Valmy Development Project Final EA, was approved by the BLM Winnemucca District, Humboldt River Field Office in April 2023 (BLM, 2023).

Within the vicinity of the authorized and existing disturbance (Figure 2-1), four nest sites (NP-01-A, NP-02-A and B, NP-03-A, and NP-06-A), thought to represent one breeding pair's territory, are located on rock outcrops within a one-mile radius of authorized disturbance and a two-mile radius of proposed blasting (Figure 3-1).

1.4 Scoping, Consultation, and Coordination

This EA incorporates by reference the scoping performed for the PEIS (USFWS 2016a; Chapter 6, page 175). The draft EA will be made public on the Service's Pacific Southwest Region webpage[1] for 30 days to solicit public comments.

The Applicant worked closely with the Service to develop the ECP in support of its application to avoid, minimize, and mitigate adverse effects on eagles.

1.5 Tribal Coordination

Tribal participation is an integral part of the NEPA and the National Historic Preservation Act (NHPA) process, as well as a key component of determining whether to issue an eagle take permit. Cultural and religious concerns regarding eagles were analyzed in the PEIS (USFWS 2016a), and tribal consultation was already conducted for the PEIS (USFWS 2016a). The PEIS (USFWS 2016a) identified tribal coordination as an important issue for subsequent analysis, given the cultural importance of eagles to the tribes. In accordance with Executive Order 13175, Consultation and Coordination with Tribal Governments (65 Federal Register 67249, November 9, 2000), NHPA Section 106 (54 U.S.C. § 306108; 36 CFR Part 800), and the Service's Native American Policy, the Service consults with Native American tribal governments whenever actions taken under the authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with the American Indian Religious Freedom Act.

The Service sent letters on March 16, 2023 to eight federally recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles, thought to adequately define the species' local area population [LAP]) of the Project, informing them of the received permit application and preparation of this EA, and offering the opportunity for formal consultation regarding potential issuance of the permit. In addition, comments from tribes are also encouraged and welcomed during the 30-day comment period on the EA. One tribe responded through the Service's California Great Basin Regional Native American Liaison and a Government-to-Government in-person meeting for additional information was held March 24, 2023. The tribe's Council was in opposition to authorized activities for the Project and to potential issuance of an incidental take permit. The Service takes these concerns seriously and has attempted to clarify that the current actions proposed under this EA are intended to maintain MMC's compliance with the Eagle Act for previously authorized activities, and the resulting compensatory mitigation would serve to reduce population level impacts to golden eagles compared to conditions resulting from the No Action Alternative or permit denial. The Service received no response from any of the other tribes contacted.

[1] https://www.fws.gov/library/collections/pacific-southwest-region-nepa-documents-eagle-permits

2.0 Proposed Action and Alternatives

2.1 Alternative 1: Proposed Action

Under this alternative, the Service would propose to issue a nest removal and an incidental eagle take permit with associated conditions to the Applicant for the reoccurring disturbance to and loss of annual productivity of golden eagles at the Project, as allowed by regulation. The duration would be for up to 13 years. The Service estimated the loss of breeding productivity due to disturbance from Project activities to be a maximum total of 7.67 eagles lost from the golden eagle population. The permit would require implementation of measures to avoid and minimize eagle take, monitoring of eagle breeding productivity, and compensatory mitigation to fully offset estimated take.

Under this alternative, all monitoring and adaptive management measures, minimization measures, and detection and reporting measures outlined in Section 2.3 would be permit requirements.

2.1.1 Compensatory Mitigation

Compensatory mitigation to fully offset authorized take would be conducted within the Pacific Flyway Eagle Management Unit (EMU). The Applicant would provide the compensatory mitigation at the required 1.2:1 ratio (50 CFR § 22.80(f)) by retrofitting electric utility poles, as discussed in the 2016 PEIS. The intent would be to minimize the potential for eagle electrocutions and ensure that the effects of eagle incidental take are offset at the population level.

The permit would require mitigation for the annual disturbance take of one breeding territory for up to 13 years at the Marigold Mine. The amount of compensatory mitigation required for the lost productivity has been determined through the Service's Golden Eagle Resource Equivalency Analysis (REA) (USFWS 2018). Long-term eagle incidental disturbance take permits require the Service to conduct five-year reviews. Therefore, the Project must commit to mitigate the first five years of take at the time of permit issuance. At each five-year check in, data collected during the previous five years will be used to determine if further compensatory mitigation will be required in the following five years. For the first five-year portion of the permit period, MMC would contribute compensatory mitigation in an amount equal to the power pole retrofit of one of the following, or a combination of both:

- 111.10 poles (avoided loss from retrofits maintained and effective for 10 years); or
- 48.35 poles (avoided loss from retrofits maintained and effective for 30 years).

Based on the results of monitoring described in Section 2.3.1 for the Project, during the five-year review process, the Service would evaluate if disturbance take occurred for each known breeding territory within one mile of a golden eagle nest (two miles for blasting) each year. If eagles in these breeding territories do not produce successful young, the Service would assume MMC's activities prevented eagles from successfully breeding and a disturbance take incident occurred. If MMC confirms no Project activity occurred within one-mile of a golden eagle nest, or blasting within two miles of nests, from December 15 – April 15, the Service would determine no take occurred whether or not young were produced that year. The Service would consider use of alternate nests

within a given territory, and shifting territory dynamics, when evaluating whether take occurred as a result of MMC's mine-related activities. After assessing how many take incidents occurred during the first five years, the Service would then evaluate how much compensatory mitigation might be either credited or owed for each successive five-year period remaining within the permit duration.

2.2 Alternative 2: No Action

Under the No Action Alternative, the Service would take no further action on MMC's permit application.

2.3 Common to All Alternatives

This section describes components of the Project that are the same for the Proposed Action and No Action Alternative, and whether or not a permit is issued. If the Proposed Action is taken and the Service issues a permit, these measures would become permit requirements.

2.3.1 Monitoring

The Applicant would implement all measures required by other agencies and jurisdictions to conduct the activity at this site, including applicant-committed environmental protection measures (ACEPMs). The Applicant would implement all conservation measures and monitoring commitments summarized in the ECP. Monitoring will be implemented over the life of the Project. Upon issuance of a take permit, monitoring would be conducted in accordance with permit stipulations and by a third-party monitor. **Table 2-1** presents a summary of the ACEPMs with monitoring and a schedule for implementation at the Project.

Table 2-1 Marigold Mine Project ACEPM Monitoring Schedule

ACEPM	Monitoring Actions	Duration
ACEPM 1	MMC will conduct up to three eagle nest surveys on an annual basis within a four-mile buffer of the Project boundaries and within all suitable habitats prior to ground disturbance if construction or surface disturbing activities occur from December 15 through July 31. These surveys are intended to identify territory-holding eagles (e.g., by territorial defense behavior, nest building or maintenance, or breeding activity), contribute to territory delineation, assess nest sites within the areas to be disturbed, and determine productivity or breeding success at in-use nests. Survey methods (i.e., aerial or ground-based) are flexible to cover all known nests and suitable nesting habitat within the four-mile Project boundary buffer but outside the appropriate one or two-mile disturbance buffer. Territory occupancy ground surveys will be conducted within the golden eagle territory within disturbance buffers of the Marigold Mine in February – mid-March (i.e., the preferred survey window) to assess golden eagle territory occupancy and document in-use nests as appropriate. This survey effort will focus on the known territory subject to incidental disturbance take (i.e., nest sites NP-01-A, NP-02-A and B, NP-03-A), and on any subsequently discovered golden eagle nests within the appropriate disturbance buffer. MMC will coordinate with the USFWS prior to the ground surveys occurring to communicate existing	Annually until Permit Expiration

ACEPM	Monitoring Actions	Duration
	conditions on the ground that may prohibit ground surveys to some nest sites (e.g., heavy snow, access concerns, golden eagle disturbance, etc.). This communication prior to ground surveys being conducted will allow for flexibility in the monitoring requirements based on conditions at the site during the preferred survey window. MMC would coordinate with the USFWS and the BLM to discuss monitoring as the season progresses and assess if monitoring requirements need to be modified based on site conditions, access concerns, or potential disturbance to nesting golden eagles. The second survey will be conducted aerially, with the preferred survey window of April 15–30. These surveys will comply with the Pagel et al. (2010) protocol to clarify territory occupancy and evaluate all nests for in-use status. Ground survey observations will focus in the areas around nests, nest cliffs, and other suitable nesting habitat. Specific observation criteria used for the ground survey for establishing golden eagle territory occupancy include: a. An adult eagle within 500 meters of a nest within the territory, when the bird is clearly in view of the nest, and when the eagle's presence is clearly not a rapid pass-over of the nest. b. Two adults, or an adult and a sub-adult bird paired within the territory. c. Reproductive or territorial behavior within the territory: i. Courtship behavior, undulating flight, copulation ii. Territorial defense iii. Nest building behaviors (stick carrying, nest maintenance). A follow-up aerial or ground survey will be conducted for in-use nests during the previous surveys. Success at golden eagle nests is determined by nestlings greater than 51 days old, which is primarily late-May and peaking mid-June.	
ACEPM 2	If new nests are identified within the territories that are part of the disturbance take permit during the 13-year term of the take permit, MMC will coordinate with the USFWS regarding the new nests, and they will be monitored as discussed above, concurrently with the other nests within the territory that is part of the disturbance take permit. If new nests are identified within one mile of disturbance, or two miles of blasting, that are outside of the currently known territory, MMC will inform and coordinate with the USFWS and the BLM regarding the new nest sites that are outside the territories with a disturbance take permit. Unless a disturbance take permit is in place, golden eagle nests with concern for potential disturbance should be considered not in-use for a given breeding season if they are confirmed not in-use on April 15 or later. Prior to April 15, they are considered potentially in-use unless an alternate nest within the same territory is already confirmed in-use, and spatial disturbance buffers (one-mile for surface disturbance or two-mile for blasting) would be adhered to until nests are confirmed not in-use,	Annually until Permit Expiration

ACEPM	Monitoring Actions	Duration
	after July 31 if nests are in-use, or 4 weeks after nestlings fledge if monitoring confirms approximate fledging date.	

2.3.2 Adaptive Management

Continued monitoring will inform the Applicant on the status of existing nests as well as if new nests are being constructed near the Project and its associated activities. If monitoring determines that there are multiple takes occurring in a given year and that the Applicant is approaching its take permit limits (i.e., up to 13 takes over no more than 13 years), adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take (no surface-disturbing activities within one mile of an in-use/occupied nest). If avoidance is not practicable, the Applicant may request a permit amendment from the Service. Additionally, at the five-year review of the permit, the Service may consider additional adaptive management strategies if necessary.

2.3.3 Minimization Measures

The Applicant has currently implemented the following measures that may also minimize impacts to golden eagles, which were committed to as ACEPMs in their latest EIS (BLM 2019).

- MMC will prevent access of birds and bats to cyanide solutions in process ponds by utilizing bird balls or netting.
- MMC will conduct monitoring and will manage cyanide concentrations of the process solutions.
- MMC will enforce speed limits of 10 miles per hour (mph) around facilities and 35 mph on haul roads.
- MMC will practice proper management of the waivered-Class III landfill.
- MMC has formalized procedures for verbal and written reporting of wildlife mortalities to the Nevada Department of Wildlife (NDOW).
- In the event that a power pole is identified as the cause of the mortality of a flying bird due to electrocution, the pole will be marked and upgraded to be Avian Power Line Interaction Committee (APLIC)-compliant. If the mortality is determined to be due to a direct strike with the line or pole, the line or pole will be marked using an appropriate device.
- MMC will implement their Bird and Bat Conservation Strategy and ECP.
- Exploration drilling activities will not occur within one mile of an in-use golden eagle nest unless additional coordination with the Service, NDOW, and the BLM determines that a reduced buffer could be applied.

2.3.4 Detection and Reporting Measures

Eagle injuries, mortalities, and previously undocumented eagle nests would be detected through incidental observations by MMC personnel and contractors. Although the Project's activities are not expected to result in injury or mortality to eagles, MMC field staff will be advised to remain alert for eagles within the Project boundary and access roads at all times to improve the probability that injuries and mortalities do not go undetected. The detection of any new nest sites or territories would occur through incidental observations and any monitoring that occurs.

In the event that a new eagle nest is detected within proximity to Project activities, the MMC Environmental Department or designee would record the circumstances and conditions associated with the observation. Among the information recorded and reported to the Service would be the date and time of the detection, the Global Positioning System location (North American Datum 83), the status of the nest, and the species.

If MMC personnel or their contractors encounter a golden eagle injury or mortality within the Plan boundaries, they must report the incident to the MMC Environmental Representative. Personnel and must not handle dead or injured eagles unless specifically directed to do so by the Service. In the event of an eagle injury, MMC's Environmental Representative would notify the Service and NDOW immediately (the same business day) and in the event of mortality, notification would occur by the next business day.

2.4 Other Alternatives Considered but Not Evaluated in this Environmental Assessment

The Service considered other alternatives based on communication with the Applicant but concluded that these alternatives did not meet the purpose and need underlying the action because they were not consistent with the Eagle Act and its regulations, were impracticable for the Applicant to carry out, or would not meet other statutory authorities. Therefore, the Service did not assess the potential environmental impacts of those alternatives. Below is a summary of the alternatives considered but eliminated from further review.

2.4.1 Alternative 3: Deny Permit

Under this alternative, the Service would deny the permit application because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 CFR § 13.21 and/or the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 CFR § 22.75 and/or § 22.80.

Our permit issuance regulations at 50 CFR § 13.21(b) set forth a variety of circumstances that disqualify an Applicant from obtaining a permit. None of the disqualifying factors or circumstances denoted in 50 § CFR 13.21 apply to MMC. We next considered whether the Applicant meets all issuance criteria for the type of permit being issued. For eagle take permits, those issuance criteria are found in 50 CFR § 22.80(f). For eagle nest removal permits relevant to the Project, those issuance criteria are found in 50 CFR § 22.75(c). MMC's application meets all the regulatory issuance criteria and required determinations for eagle take permits under 50 CFR §§ 22.75 and 22.80.

When an Applicant for an incidental eagle take permit is not disqualified under 50 CFR § 13.21 and meets all the issuance criteria of 50 CFR §§ 22.75 and 22.80, denial of the permit is not a reasonable option. Therefore, this alternative, denial of the permit, was eliminated from further consideration.

3.0 Affected Environment

This section describes the current status of the environmental resources and values that are affected by the Proposed Action and alternatives.

3.1 Bald Eagles

Bald eagles (*Haliaeetus leucocephalus*) are known to occasionally occur in the region, but do not breed there and are not expected to be affected by activities associated with the Project; therefore, disturbance and loss of territory of bald eagles are not expected to result from the Project (BLM 2019). Although this document addresses both bald eagles and golden eagles, because bald eagle presence in the Project area is minimal, they are not expected to be affected by construction, operations, and maintenance of the Project; therefore, disturbance and loss of territory of bald eagles are not expected to result from the Project, and the Applicant has not requested bald eagle take authorization under the proposed incidental eagle take permit.

3.2 Golden Eagles

General information on the population trends, distribution, and habitat of golden eagles are detailed in the PEIS (USFWS 2016a: Sections 3.3 and 3.4). This section more specifically describes the golden eagle population in the Project area.

3.2.1 Project Area Habitat

Foraging Habitat

Vegetation communities in the Project area (Marigold Mine Project Plan of Operations boundary and a surrounding four-mile radius) have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover types (USGS 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the Project area (Table 3-1). Golden eagle prey species, such as black-tailed jackrabbits (*Lepus californicus*), mountain cottontails (*Sylvilagus nuttallii*), larger diurnal rodents, and snakes are commonly found in many of the vegetation communities present in the Project area.

Table 3-1 SWReGAP Vegetation Communities within the Project Area

Vegetation Community	Acres	Percent of Project Area
Inter-Mountain Basins Big Sagebrush Shrubland	156,287.7	37.99%
Inter-Mountain Basins Greasewood Flat	92,044.4	22.37%
Great Basin Xeric Mixed Sagebrush Shrubland	47,589.9	11.57%
Inter-Mountain Basins Mixed Salt Desert Scrub	40,021.1	9.73%
Inter-Mountain Basins Montane Sagebrush Steppe	18,625.2	4.53%
Invasive Annual Grassland	12,542.6	3.05%
Inter-Mountain Basins Semi-Desert Grassland	8,000.8	1.94%
Inter-Mountain Basins Playa	7,638.8	1.86%
Great Basin Pinyon-Juniper Woodland	5,935.8	1.44%
Inter-Mountain Basins Cliff and Canyon	5,782.3	1.41%

Vegetation Community	Acres	Percent of Project Area
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	4,949.4	1.20%
Recently Mined or Quarried	4,261.0	1.04%
Agriculture	1,825.2	0.44%
Invasive Annual and Biennial Forbland	1,670.2	0.41%
Inter-Mountain Basins Big Sagebrush Steppe	1,443.1	0.35%
Developed, Medium - High Intensity	999.2	0.24%
North American Arid West Emergent Marsh	581.3	0.14%
Barren Lands, Non-specific	517.8	0.13%
Open Water	289.6	0.07%
Developed, Open Space - Low Intensity	194.7	0.05%
Inter-Mountain Basins Semi-Desert Shrub Steppe	133.7	0.03%
Invasive Perennial Grassland	46.0	0.01%
Rocky Mountain Aspen Forest and Woodland	22.7	0.01%
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	20.0	0.00%
Total	**411,423**	**100%**

Source: USGS 2011

Other habitat types that are believed to represent important golden eagle foraging habitats in the region include wetlands, natural water sources, and meadows. Wetlands and springs provide a reliable water source for eagle prey and, therefore, allow higher concentrations of eagle prey. There are multiple seeps, springs, stock troughs, and intermittent and ephemeral drainages through the Project area. These habitats occur throughout the Battle Mountain Range and at the Humboldt River. Meadow habitats, agricultural alfalfa pivots, and pastures in the Project area support large populations of rodents and lagomorphs. These habitats occur at ranches in the Humboldt River Valley.

Nesting Habitat

Within the Project area, various rock outcrops, mine highwalls, and transmission towers associated with overhead powerlines were identified as areas with nesting golden eagles. Cliff and rock outcrops exist in the Buffalo Mountains to the west, the Battle Mountains to the south, and the Tobin Mountains to the southwest, and there are multiple open pits throughout the Project area. The transmission towers used for nesting by golden eagles are located in the Humboldt River Valley in the northern portion of the Project area and continue south into Buffalo Valley.

Other Topographic Features Attractive to Eagles

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are also suitable for soaring. Saddles or low points on ridge lines or near riparian corridors may serve as flight paths.

3.2.2 Project Area Golden Eagle Population

The golden eagle nesting territories within a 10-mile radius of the Project were delineated based on surveys conducted in 2012, 2013, 2015, 2018, 2020, and 2021. A total of 14 distinct territories have been delineated based on proximity of nests to one another and concurrent in-use status of adjacent nests (Stantec 2022). Appendix B, which is the Marigold Mine 2022 Raptor Survey Report (Western Biological 2022), summarizes the golden eagle territories and their 2022 status within the Project vicinity. Note, the timing and methods employed during the 2022 raptor surveys (i.e., initial aerial survey in April) do not allow for an assessment of territory occupancy, but instead were only able to assess individual nest in-use status at the time of the surveys (e.g., document breeding attempts). The breeding rate for known territories ranged from 14 percent in 2022 (two of 14 territories with in-use nests) to 66.7 percent in 2012 (two of three territories in-use). The proportion of territories within the Project vicinity that attempted to breed in 2022 was below the range presented by Steenhof et al. (1997), which was 38 to 100 percent, and McIntyre and Adams (1999), which was 33 to 90 percent (for pairs that laid eggs). There are limited data for fledged young in the Project vicinity.

Territories Within the Project's Plan Boundary

One known territory occurs within the Plan boundary (Figure 3-1). There are four nest sites, consisting of five nests, located on rock outcrops within the territory (NP-01-A, NP-02-A and B, NP-03-A, and NP-06-A) with two located inside of the Plan boundary (NP-03-A and NP-06-A) and two outside (NP-01-A and NP-02-A and B). One of the five nests, NP-06-A, is located within the disturbance footprint for the Valmy Pit and is proposed for removal. Nest site NP-02-A and B is located outside of the Plan boundary but within one mile of surface disturbance. NP-01-A is also outside of the Plan boundary but within two miles of pit blasting. Activities indicating an in-use nest or likely breeding at the territory were documented in 2013, 2015, 2018, and 2020, while it was not confirmed occupied in 2021. Survey effort did not provide confirmation the territory ever produced eggs or young (Stantec 2021).

3.2.3 Project Eagle Population Stressors

Habitat

Reduction of habitat as a result of direct mining disturbance has the potential to impact golden eagles. Specifically, impacts to functional shrublands that support prey base populations could negatively impact golden eagles by reducing foraging habitat.

Mining Activities

Active mining operations include exploration, drilling, blasting, excavation, and hauling. Risks to golden eagles include unintentional disturbance from activity near nest sites, such as noise and visual irritation from mining and exploration activities and vehicular traffic on roads. Other risks include nesting on highwalls of active pits, which may cause nest abandonment due to the mining operations within the pit.

Mining processes and facilities that use hazardous materials and chemicals pose a risk to wildlife species, including golden eagles. MMC uses a variety of hazardous materials, such as fuels and reagents, in mining and processing activities.

Utilities

Electrical utility infrastructure present on the mine includes power poles, power lines and guy wires, transformers, and transfer stations. Utility structures pose a risk to perching birds, including raptors such as golden eagles, and may cause mortality through accidental collisions and electrocutions. Larger birds that inhabit open habitat appear to be at greater risk for electrocution due to the lack of abundant natural perches and nesting sites (APLIC & USFWS 2005). Electrocution occurs when a bird completes an electric circuit by simultaneously touching two energized parts, or an energized part and a grounded part, of the electrical structure. Inadequate conductor and/or phase spacing may allow birds to bridge electrical parts, which results in electrocution. Birds of all sizes are at-risk, especially on utility hardware such as transformers, which have many energized parts in close proximity to one another (APLIC & USFWS 2005).

Vehicle Collisions

Mobile equipment (i.e., vehicles) used in operations at the Project or traveling to or from the Project could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging golden eagles, which in turn could be injured or killed by vehicle collision. Due to the speed limits placed on equipment operating at the Project (10 mph unless otherwise posted and 35 mph for haulage equipment on haul roads), the potential for golden eagle mortality due to vehicle collision on the mine site is low. Additional traffic controls can be implemented by MMC as necessary through direct communication regarding road hazards. Additionally, no eagle mortalities due to vehicle collision have been reported at the Project. The greater risk for vehicle mortality is on area roads outside of the mine (e.g., Interstate 80), which are outside of MMC's control, due to higher speeds and additional traffic.

3.3 Migratory Birds

Effects to migratory birds have been analyzed in the PEIS (USFWS 2016a). A variety of migratory birds have been identified in the Plan boundary; however, issuance of the proposed permit is not anticipated to significantly affect one or more species of migratory birds. Additionally, MMC has ACEPMs to reduce potential impacts to migratory birds within the Plan boundary (BLM 2019).

3.4 Species Listed under the Endangered Species Act

There are no federally threatened or endangered species listed under the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. §§ 1531-1544), or potential habitat, within the Plan boundary (BLM 2019).

3.5 Cultural and Socio-economic Interests

Bald and golden eagles are important symbols of United States history and are sacred to many Native American cultures. Some Native American cultures utilize eagles, eagle feathers, and other eagle parts for religious practices and cultural ceremonies. Outside of rituals and practices, wild

eagles as live beings are deeply important to many tribes (Lawrence 1990, as cited by USFWS 2016a). Numerous tribes confirmed the importance of wild eagles during scoping and tribal consultation for the PEIS. The Proposed Action or considered alternatives would not impact cultural or socioeconomic interests beyond the impacts already discussed in the PEIS. Therefore, cultural and socioeconomic interests have not been analyzed further in this EA.

3.6 Climate Change

Climate change was considered in the PEIS (USFWS 2016a; Section 3.9, page 144) and is incorporated by reference here.

4.0 Environmental Consequences

This section summarizes the effects on the environment of implementing the Proposed Action or alternatives to the action. The discussion of overall effects of the eagle incidental take permit program is provided in the PEIS (USFWS 2016a) and is incorporated by reference here. This section of this EA analyzes only the effects that were not analyzed in the PEIS that may result from the issuance of an eagle incidental take permit for this specific project. In this analysis, and in our consideration of take authorization for the Applicant, each incident of take results in loss of productivity for a single season for a single eagle breeding pair. Take that may result in injury or mortality of eagles is not expected nor would it be authorized under this permit. While the available data indicate one currently known breeding territory is most likely to be impacted by Project activities, as this pair has nests located in the vicinity of the Project, eagle populations are dynamic with shifting territory boundaries and eagle pairs may establish new nest locations. New territories and new nesting locations may be identified within or in proximity to the Project over the life of the permit. When considering the potential for effects to eagles from Project activities, we also took into account the possibility for golden eagle pairs to build nests in new locations that may be both closer or farther away from Project activities. Disturbance take authorization would only be necessary when breeding eagles have an in-use nest (see 50 CFR § 22.6 for "in-use nest" definition) within one mile of Project activities, or two miles of blasting, as nesting eagles within these distance buffers have an increased likelihood of disturbance.

4.1 Alternative 1: Proposed Action

In determining the significance of effects of the Project on eagles, the Service screened the Proposed Action against the analysis provided in the PEIS (USFWS 2016a) and the Service's 2016 report, *Bald and Golden Eagles: Status, Trends, and Estimation of Sustainable Take Rates in the United States* (USFWS 2016b). The Service also assessed Project-specific effects to eagles that were not covered in the PEIS analyses. These effects may occur at the project scale, at the local-area eagle population scale, and at the regional EMU scale.

4.1.1 Direct and Indirect Effects

Under the Proposed Action, the Applicant is requesting authorization for disturbance to and loss of annual productivity from breeding golden eagles for up to 13 incidents of take for no more than 13 years from the date of the issuance of the permit. Additionally, the Applicant is proposing removal of one nest site (NP-06-A) located within the disturbance footprint. Reports indicate that there is currently one breeding pair utilizing one territory that consists of five nests at four nest sites (NP-01-A, NP-02-A and B, NP-03-A, and NP-06-A). The location of the ore body occurs immediately beneath and around nest NP-06-A. Under the Proposed Action, we would issue a 13-year permit for the Project. The Proposed Action would authorize the removal of nest NP-06-A and disturbance to and loss of annual productivity from the remaining four nests. The take is unavoidable due to the location of the ore bodies that occur adjacent to the nests, as well as the economic factors that contribute to the profitable extraction of the minerals contained therein.

The Proposed Action could have a direct impact to the golden eagles in the breeding pair resulting from the presence of mining and exploration activities in close proximity to their nests, thus causing potential negative impacts to golden eagle breeding and nesting activities.

Disturbance of an occupied golden eagle territory is assumed to result in loss of annual productivity (i.e., number of young reared) from that territory. The Service uses an estimate of 0.59 golden eagle young fledged per occupied nesting territory per year (USFWS 2016c) to estimate loss of annual productivity.

Along with the monitoring and minimization measures outlined above, the Applicant would provide compensatory mitigation to offset the proposed take. The Service uses electric utility power pole retrofitting to offset authorized take of golden eagles. Electrocutions from power poles is known to be a major cause of eagle mortality. Power poles can be retrofitted by verified methods (such as insulating or covering electrical components or modifying pole elements to increase the distance between electrical components) to reduce the risk of electrocution to eagles, with the maintenance and efficacy of retrofits confirmed through post-installation inspections and monitoring. The effects of retrofitting power poles have been quantified "per eagle", allowing use of the Golden Eagle Resource REA to calculate the number of power pole retrofits needed to offset the authorized take of golden eagles (USFWS 2013).

The Service's REA (USFWS 2018) was used to calculate the required compensatory mitigation to offset disturbance of breeding golden eagles for up to 13 years. Based on the updated Eagle Act permit regulations, a compensatory mitigation ratio of 1.2 to 1 (1.2:1) is used. The 1.2 to 1 ratio for compensatory mitigation achieves a net benefit to golden eagle populations ensuring that regional eagle populations are maintained consistent with the preservation standard of the Eagle Act despite indications of declines in golden eagle populations (USFWS 2016a).

Long-term eagle incidental disturbance take permits require the Service to conduct five-year reviews. Therefore, the Project must commit to mitigate the first five years of take at the time of permit issuance. Using the REA, the Applicant would offset the first five years of estimated take of golden eagles at the Project by contributing to a Service-approved fund or an approved in-lieu fee program in the amount equal to retrofitting from 47 to 108 poles, depending on the type and expected longevity of each retrofit. As the implementation of compensatory mitigation would fully offset the estimated take for the Project, and would provide additional net benefit to eagle populations, there would be no significant negative impacts to eagle populations from issuing an eagle take permit under the Proposed Action.

The Eagle Act regulations require compensatory mitigation to be conducted in the same EMU in which the take occurs. The Project is located in the Pacific Flyway EMU. The site of power poles to be retrofitted has not yet been determined but would be in the Pacific Flyway.

In addition, the Proposed Action incorporates adaptive management and minimization measures as described in Section 2.3. The proposed ACEPMs would continue to be implemented but as permit stipulations to further reduce the risk of Project-related injury or mortality hazards to eagles within the Project boundary.

The Proposed Action meets the purpose and need as it is consistent with the Eagle Act and its regulations and adequately addresses the risk of take at the Project.

Bald Eagles

Although no significant adverse effects are foreseen, and take of bald eagles is not expected to occur at the Project (and would not be permitted), bald eagles in the region may benefit from avoidance and minimization measures established to reduce the risk to golden eagles. Bald eagles may benefit from compensatory mitigation actions provided to offset the take of golden eagles under the Proposed Action.

Migratory Birds

Issuance of an eagle take permit to the Project may also provide benefits to migratory birds. Power pole retrofits done as compensatory mitigation for the eagle take permit may minimize electrocution risk for raptors and other migratory birds, just as with eagles.

Species Listed under the Endangered Species Act

There are no federally threatened or endangered species or potential habitat within the Plan boundaries; therefore, no significant adverse effects are foreseen to endangered species as a result of the Project or issuance of an eagle take permit.

4.1.2 Cumulative Effects

The purpose of this cumulative effects evaluation is to identify situations where the eagle disturbance take proposed under the Proposed Action, combined with take from other present or foreseeable future actions and sources, may be approaching levels that are biologically problematic or that cannot reasonably be offset through compensatory mitigation. Effects of take may be cumulative at the project scale, at the LAP scale, and at the eagle EMU.

At the Project scale, the alteration of the eagle habitat from Project development could cause shifting in eagle pair territory boundaries in the vicinity of the Project, which could cause increased antagonistic interactions with surrounding eagle pairs, potentially creating a ripple-effect of impacts to eagles in areas surrounding the Project.

To ensure that eagle populations at the local scale are not depleted by cumulative take in the local area, the Service analyzed in the PEIS (USFWS 2016a) the amount of take that can be authorized while still maintaining LAPs of eagles. The LAP scale is defined for eagles as the median natal dispersal distance for the given species, which for golden eagles is a 109-mile radius (USFWS 2016b). In order to issue a permit, cumulative authorized take must not exceed five percent of a LAP unless the Service can demonstrate why allowing take to exceed that limit is still compatible with the preservation of eagles. The eagle incidental take permit regulations require the Service to conduct an individual LAP analysis for each permit application as part of our application review.

Therefore, the Service considered cumulative effects to the LAP surrounding the Project to evaluate whether the take to be authorized under this permit, together with other sources of permitted take and unpermitted eagle mortality, may be incompatible with the persistence of the Project's LAP. Data provided by the Applicant, data on other eagle take authorized and permitted by the Service, and other reliably documented unauthorized eagle mortalities have been

incorporated to estimate cumulative impacts to the LAP. The cumulative effects analysis was conducted as described in the Service's ECP Guidance (USFWS 2013).

The LAP for the Project was estimated to be 843.79 golden eagles. The five percent benchmark for authorized take of that LAP is 42.19 eagles, while current authorized take in the LAP, including that estimated to occur at the Project, is 1.51 golden eagles or 0.18 percent of the LAP per year. The take that would be authorized by this permit (0.59 golden eagles/yr), added to existing take, would not exceed one percent of the LAP, so it would not significantly impact the LAP (Appendix C). When considering reported unauthorized (i.e., unpermitted) take within the LAP, the 10-year average is 18.44 golden eagles, or 1.84 per year. With the issuance of this permit the combined permitted and reported unpermitted take is 3.35 golden eagles per year, which represents 0.4% of the LAP (Appendix C).

Additionally, take of eagles has the potential to affect the larger eagle population. Accordingly, the 2016 PEIS (USFWS 2016a) analyzed the cumulative effects of permitting take of golden eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting golden eagle populations. The Service established golden eagles could sustain population levels at a 10 percent take threshold. Unpermitted take levels essentially meet the 10 percent threshold; thus, there is no capacity for unmitigated take. Adult golden eagle populations are currently at an equilibrium level that would likely not sustain further unmitigated mortality (USFWS 2016a). The take that would be authorized by this permit will be offset by the compensatory mitigation that will be provided by the Applicant, so it will not significantly impact the EMU eagle population. The avoidance and minimization measures that would be required under the permit, along with the additional adaptive management measures, are designed to further ensure that the permit is compatible with the preservation of the golden eagle at the regional EMU population scale.

4.2 Alternative 2: No Action

4.2.1 Direct and Indirect Effects

The Service assumes the level of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, the Service would take no action on the permit application. A permit would not be issued, and compensatory mitigation would not be required. Under this alternative, direct impacts of the Project on the golden eagle population would be assumed to be disturbance to and loss of annual productivity from breeding golden eagles for up to 13 takes over 13 years. This take would not be offset by compensatory mitigation. The Applicant would continue to implement the monitoring and avoidance measures for the Project as described above; however, additional measures outside of those referenced in Appendix A, including compensatory mitigation, would not be implemented.

Should take of eagles occur under the No Action Alternative, the Applicant would be in violation of the Eagle Act. Because no measures would be required to avoid or minimize risk to eagles under this No Action Alternative, the risk to eagles is expected to be higher under this alternative as compared to the Proposed Action.

This alternative does not meet the purpose and need for the action because, by regulation (50 CFR § 13.21), when in receipt of a completed application, the Service must either issue or deny a permit

to the Applicant. The No Action Alternative does not meet the purpose and need for the action because it would result in the adverse, unmitigated effects to golden eagles described above, which are not compatible with the preservation of golden eagles.

Bald Eagles

The Applicant did not apply for take authorization for bald eagles, nor is take of bald eagles expected to occur from Project activities. Under the No Action Alternative, benefits that bald eagles might incur from minimization measures established under a golden eagle take permit to reduce the risk to golden eagles, as well as from compensatory mitigation actions provided to offset the take of golden eagles, would not occur.

Migratory Birds

Any incidental benefits to migratory birds from minimization measures and compensatory mitigation required under an eagle take permit would not be realized under the No Action Alternative.

Species Listed under the Endangered Species Act

There are no federally threatened or endangered species or potential habitat within the Plan boundaries; therefore no significant adverse effects would occur under the No Action Alternative.

4.2.2 Cumulative Effects

See Section 4.1.2 for the estimated cumulative effects within the LAP for this Project. The No Action Alternative would not alter estimated take of golden eagles for this previously authorized Project (BLM 2019 and 2023)).

4.3 Comparison of Effects of Alternatives

The main differences between the Proposed Action and the No Action Alternative are the issuing of a permit with compensatory mitigation requirements to offset the permitted take under the Proposed Action and the level of concurrent and post-construction monitoring that would occur (**Table 4-1**). The Service assumes the level of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, compensatory mitigation would not be required and the impacts to golden eagles would not be authorized or offset.

The Proposed Action is likely to have no significant impacts on golden eagles as there is no unmitigated take, and it meets all regulatory requirements and the conservation standard set forth in the 2016 PEIS (USFWS 2016a).

Table 4-1 Comparison of the Proposed Action and No Action Alternative

	Alternative 1: Proposed Action	Alternative 2: No Action
Eagle Take Levels	Loss of productivity from breeding golden eagles up to 13 times over 13 years.	Loss of productivity from breeding golden eagles up to 13 times over 13 years.

	Alternative 1: Proposed Action	Alternative 2: No Action
Avoidance and Minimization	MMC will continue to implement the measures to minimize impacts to golden eagles (Appendix A) at the Project including: vehicle speed limits; use of bird balls and netting, cyanide management, landfill management, and avoidance buffers.	Same as detailed under the Proposed Action, as the applicant is committed to these measures even without issuance of a permit.
Compensatory Mitigation	Retrofitting of power poles to offset the loss of annual productivity from breeding golden eagles for up to 13 takes for no more than 13 years from the date of the issuance of the permit.	None.
Detection and Reporting	MMC will continue to meet its BLM requirements from the 2019 EIS, implement the measures to minimize impacts to golden eagles including the reporting and detection system to ensure that personnel adhere to the appropriate actions should a previously unidentified nest, injured eagle, or deceased eagle be identified.	Same as detailed under the Proposed Action, as the applicant is committed to these measures even without issuance of a permit.
Unmitigated Eagle Take	None.	Loss of productivity from breeding golden eagles up to 13 times over 13 years.
Adaptive Management	If continued monitoring determines that there are multiple takes occurring in a given year and that the Applicant is approaching its take permit limits, adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take. If avoidance is not practicable, the Applicant may request a permit amendment from the Service. Additionally, at the five-year review of the permit, the Service may consider additional adaptive management strategies.	None.
Data Collection/Monitoring	MMC will conduct annual occupancy monitoring of golden eagle nests within four miles of the Plan boundary. MMC will also document any Project-related mortality, including monitoring the alignments of power lines for electrocuted birds within the Plan boundary, and monitoring hazardous waste-containing facilities for any failures of the mine's exclusion system for the life of the permit. MMC will also provide verbal and written reports of wildlife mortalities to NDOW. MMC will implement ACEPM 1 and ACEPM 2, as specified in Table 2-1.	MMC will conduct raptor nest surveys within areas to be disturbed if the disturbance would occur between December 15 and July 31. MMC will also provide verbal and written reports of wildlife mortalities to NDOW.
Company Liability for Eagle Take	None, if MMC is in compliance with permit conditions.	Yes.
Meets Eagle Act Regulatory Requirements	Yes.	No.

5.0 Mitigation and Monitoring

The Proposed Action incorporates measures to minimize and avoid impacts to the maximum degree practicable, as required by regulation. To ensure that regional eagle populations are maintained consistent with the preservation standard, regulations require that any golden eagle take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation at a 1.2:1 ratio. As golden eagle take limits for all EMUs were determined to be zero (USFWS 2016a), compensatory mitigation is necessary to offset any authorized take of golden eagles. The 1.2:1 ratio for compensatory mitigation achieves a net benefit to golden eagle populations, ensuring that regional eagle populations are maintained consistent with the preservation standard of the Eagle Act despite indications of declines in golden eagle populations (USFWS 2016a). As this would fully offset the estimated take, as well as provide an additional net benefit to eagle populations, there would be no significant effects to eagle populations from issuing an eagle take permit under the Proposed Action. Section 2.3 provides details of the compensatory mitigation and minimization measures that would be completed under the Proposed Action.

MMC will monitor eagle territory occupancy and nesting activities using independent, third-party monitors that report directly to the Service annually. At five-year intervals, the Service will review the eagle data and other pertinent information, as well as information provided by MMC and independent third-party monitors, assessing whether MMC is in compliance with the terms and conditions of the permit and has implemented all applicable adaptive management measures specified in the permit, and ensuring eagle take has not exceeded the amount authorized within that time frame. We will update fatality predictions, authorized take levels and compensatory mitigation, as needed, for future years of the permit. If authorized take levels for the period of review are exceeded in a manner or to a degree not addressed in the adaptive management conditions of the permit, based on the observed levels of take using approved protocols for monitoring and estimating total take, the Service may require additional actions including but not limited to: adding, removing, or adjusting avoidance, minimization, or compensatory mitigation measures; modifying adaptive management conditions; modifying monitoring requirements; and suspending or revoking the permit.

6.0 List of Acronyms and Abbreviations

Applicant-Committed Environmental Protection Measure	ACEPM
Avian Power Line Interaction Committee	APLIC
Bald and Golden Eagle Protection Act	Eagle Act
Bureau of Land Management	BLM
Code of Federal Regulations	CFR
Eagle Conservation Plan	ECP
Eagle Management Unit	EMU
Eagle Take Permit	permit
Endangered Species Act	ESA
Environmental Assessment	EA
Environmental Impact Statement	EIS
Local Area Population	LAP
Marigold Mine Project	Project
Marigold Mining Company	MMC
Miles Per Hour	mph
National Environmental Policy Act	NEPA
National Historic Preservation Act	NHPA
Nevada Department of Wildlife	NDOW
Plan of Operations	Plan
Programmatic Environmental Impact Statement	PEIS
Resource Equivalency Analysis	REA
Southwest Regional Gap Analysis Project	SWReGAP
United States Fish and Wildlife Service	Service
United States Code	U.S.C.

7.0 List of Preparers

- Josh Vittori, Project Manager, Nexus Environmental Consultants, Inc.
- Jen Sojka, Project Manager, Stantec Consulting Services Inc.
- Christine Johnson, GIS Specialist, Stantec Consulting Services Inc.
- Tamara Baker, Senior Environmental Specialist, Marigold Mining Company
- Joseph Barnes, Wildlife Biologist, U.S. Fish and Wildlife Service
- Heather Beeler, Wildlife Biologist, U.S. Fish and Wildlife Service

8.0 References

Avian Power Line Interaction Committee (APLIC) and United States Fish and Wildlife Service. 2005. Avian Protection Plan (APP) Guidelines. A Joint Document Prepared By The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC), and the United States Fish and Wildlife Service (USFWS). April 2005.

Bureau of Land Management (BLM). 2019. Mackay Optimization Project Final Environmental Impact Statement. DOI-BLM-NV-W010-2016-0002-EIS. September 2019.

Bureau of Land Management (BLM). 2023. Valmy Development Project Final Environmental Assessment. DOI-BLM-NV-W010-2022-0018-EA. March 2023.

Kochert, M. N. and K. Steenhof. 2002. Golden Eagles in the U.S. and Canada: Status, Trends, and Conservation Challenges. Journal of Raptor Research. 36(supplement):33-40.

McIntyre, C. L. and L. G. Adams. 1999. Reproductive characteristics of migratory Golden Eagles in Denali National Park, Alaska. Condor 101:115-123.

Stantec Consulting Services Inc. 2022. Sensitive Area Golden Eagle Information, Marigold Mine, Humboldt County, Nevada. Revised January 2022.

Steenhof, K., M. N. Kochert, and T. L. McDonald. 1997. Interactive effects of prey and weather on Golden Eagle reproduction. J. Anim. Ecol. 66:350-362.

United States Fish and Wildlife Service (USFWS). 2013. Eagle Conservation Plan Guidance. Module 1: Land-based Wind Energy Development. Version 2. April.

United States Fish and Wildlife Service (USFWS). 2016a. Programmatic Environmental Impact Statement for the Eagle Rule Revision.

United States Fish and Wildlife Service (USFWS). 2016b. Bald and Golden Eagles: Population Demographics and Estimation of Sustainable Take in the United States, 2016 Update. Division of Migratory Bird Management, Washington D.C., USA.

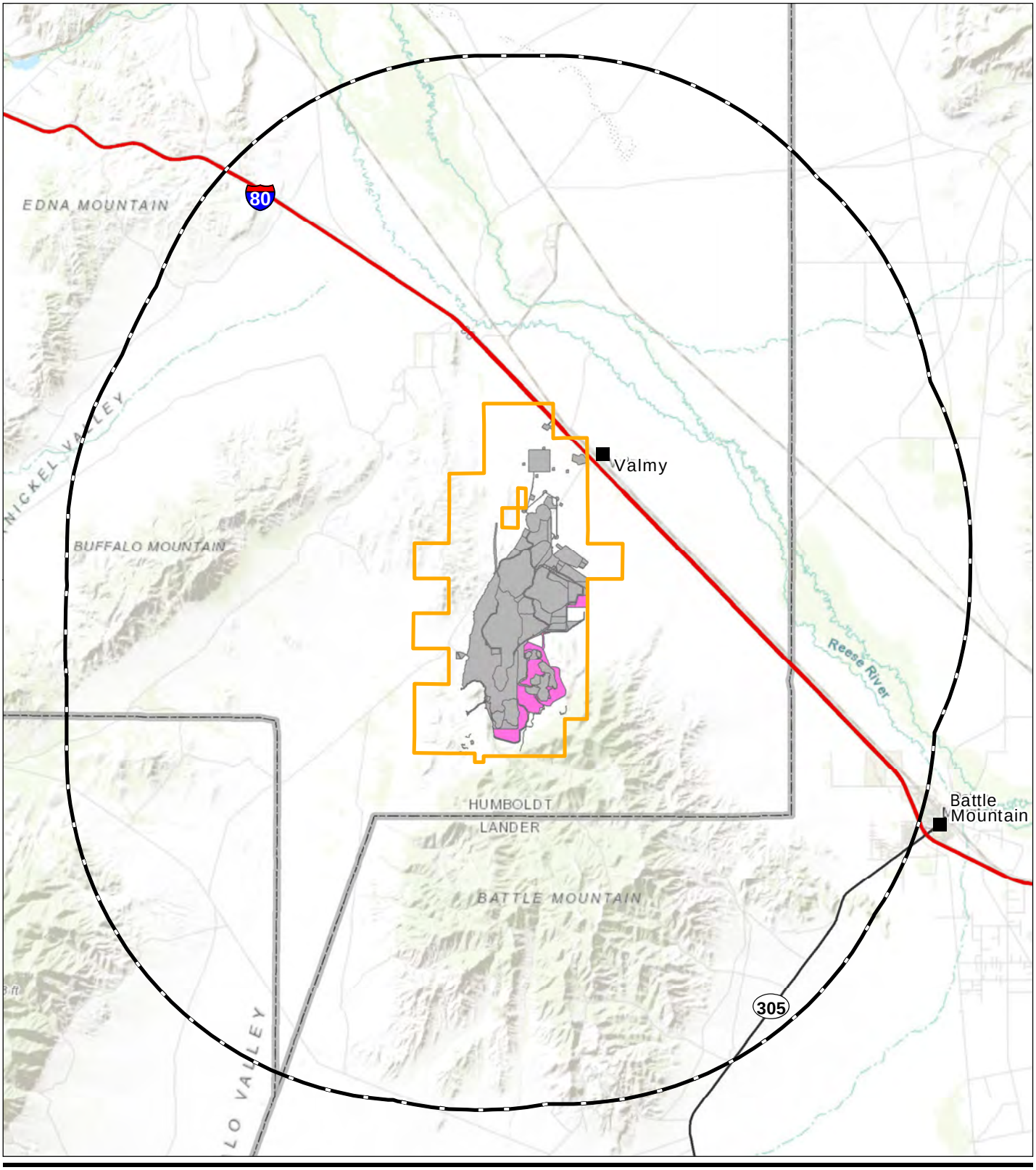
United States Fish and Wildlife Service (USFWS). 2016c. Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests. Federal Register 81:91494-91553.

United States Fish and Wildlife Service (USFWS). 2018. Golden Eagle Nest Disturbance Resource Equivalency Analysis (REA). October 22, 2018. Available online at: https://www.fws.gov/media/golden-eagle-nest-disturbance-resource-equivalency-analysis

United States Geological Survey (USGS). 2011. National Gap Analysis Program. Southwest Regional GAP Analysis Project—Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University. http://swregap.nmsu.edu/HMdatabase/landc_database_report.pdf

Western Biological. 2022. Marigold Mine 2022 Raptor Survey Report. October 2022.

Figures



Legend

- Plan of Operations Boundary
- 10-mile Radius of Plan Boundary (Study Area)
- Authorized Facilities
- Proposed Disturbance

N

Miles

0 2 4

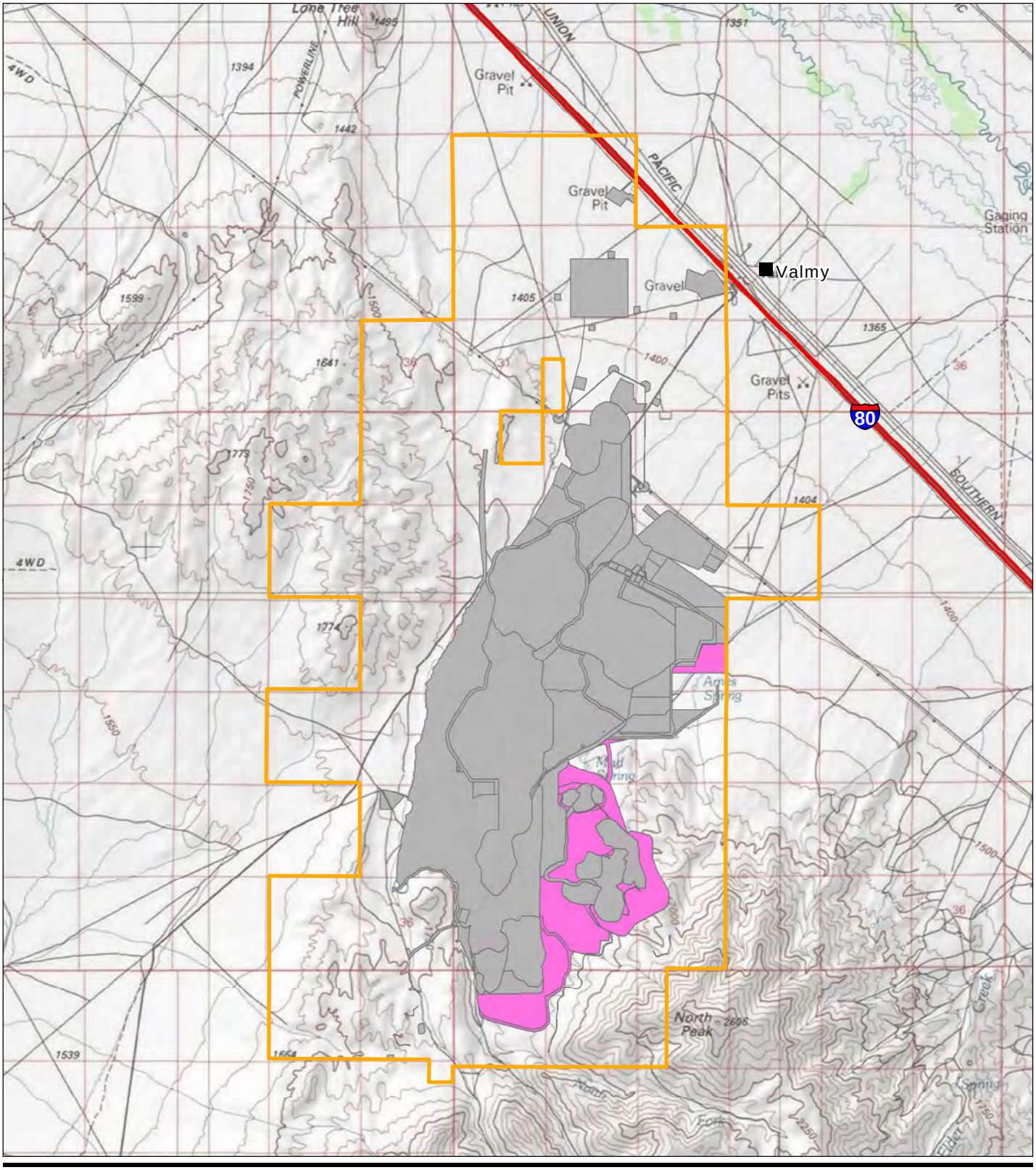
1 in = 4 miles

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 6/7/2021	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 1
Project Location and Study Area



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance

N

Feet

0 4,000 8,000

1 in = 8,000 feet

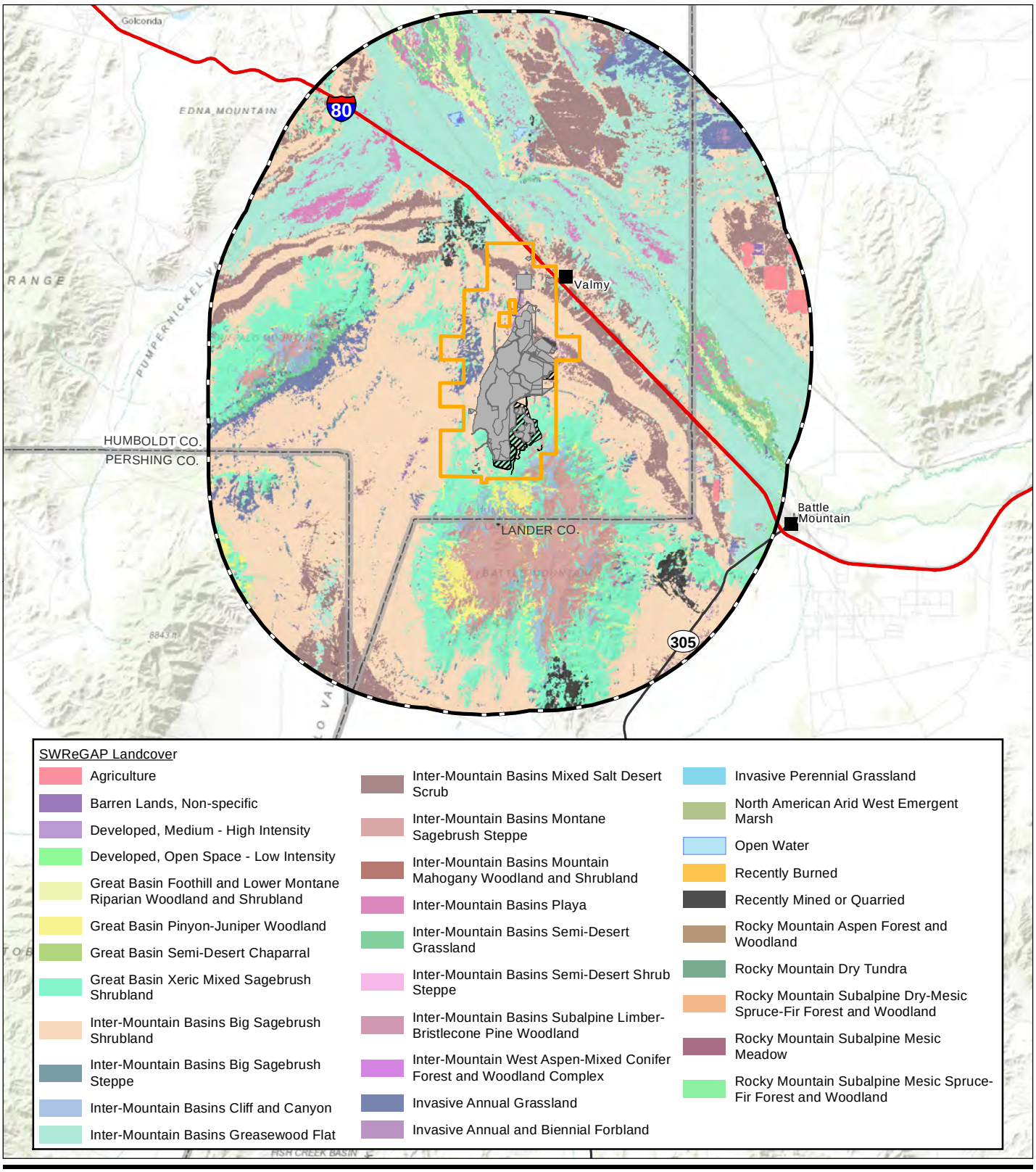
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 6/7/2021 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 2
Existing and Proposed Facilities



Legend

- Plan of Operations Boundary
- 10-mile Radius of Plan Boundary (Study Area)
- Authorized Facilities
- Proposed Disturbance

N

0 3 6 Miles

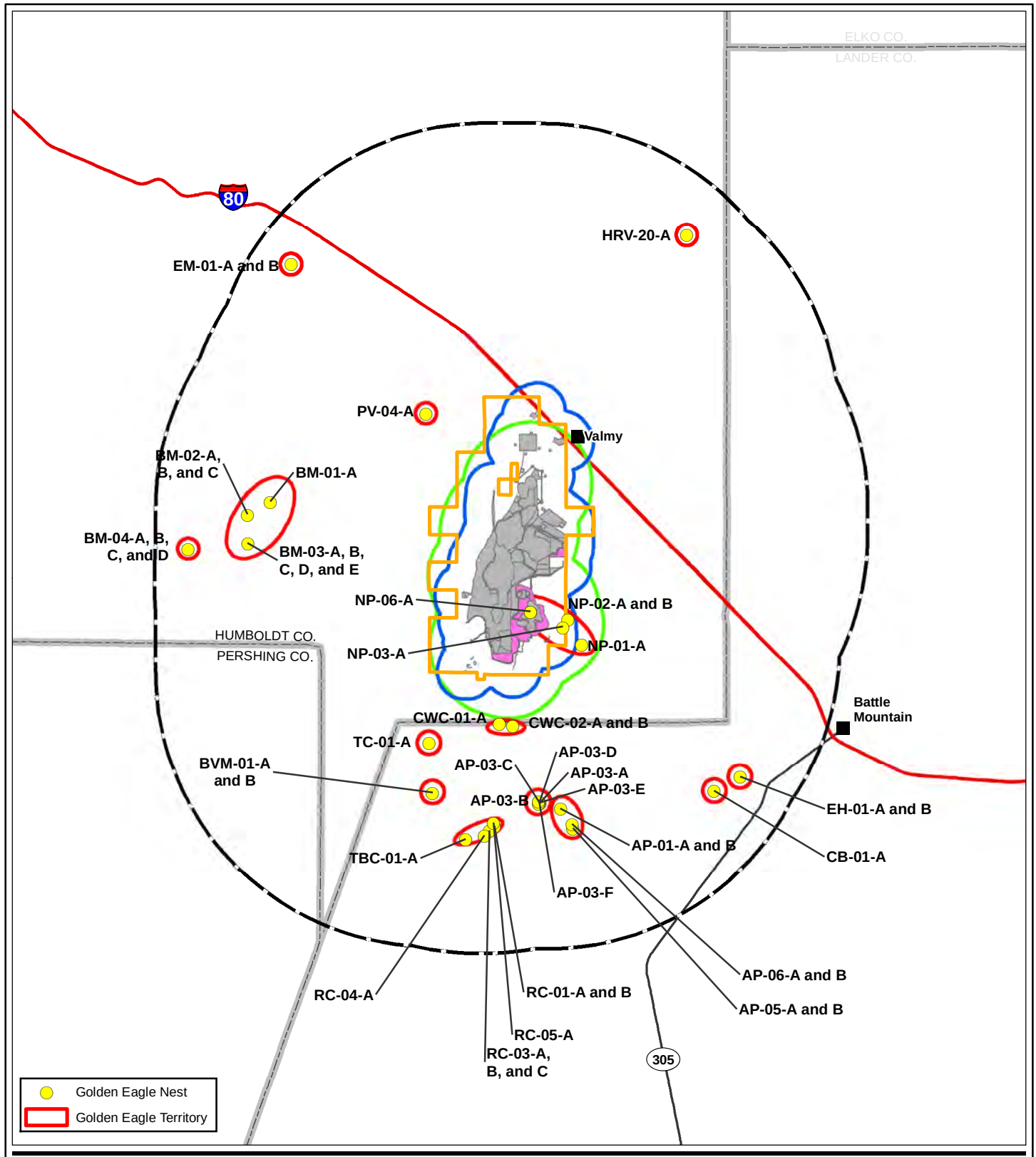
1 in = 6 miles

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 6/7/2021	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 3
Foraging Habitat Within Study Area



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed New Disturbance
- 10-mile Radius of Plan Boundary (Study Area)
- Authorized/Proposed Disturbance 1-mile buffer
- Authorized/Proposed Pit 2-mile buffer

N

0 2.5 5 Miles

1 in = 5 miles

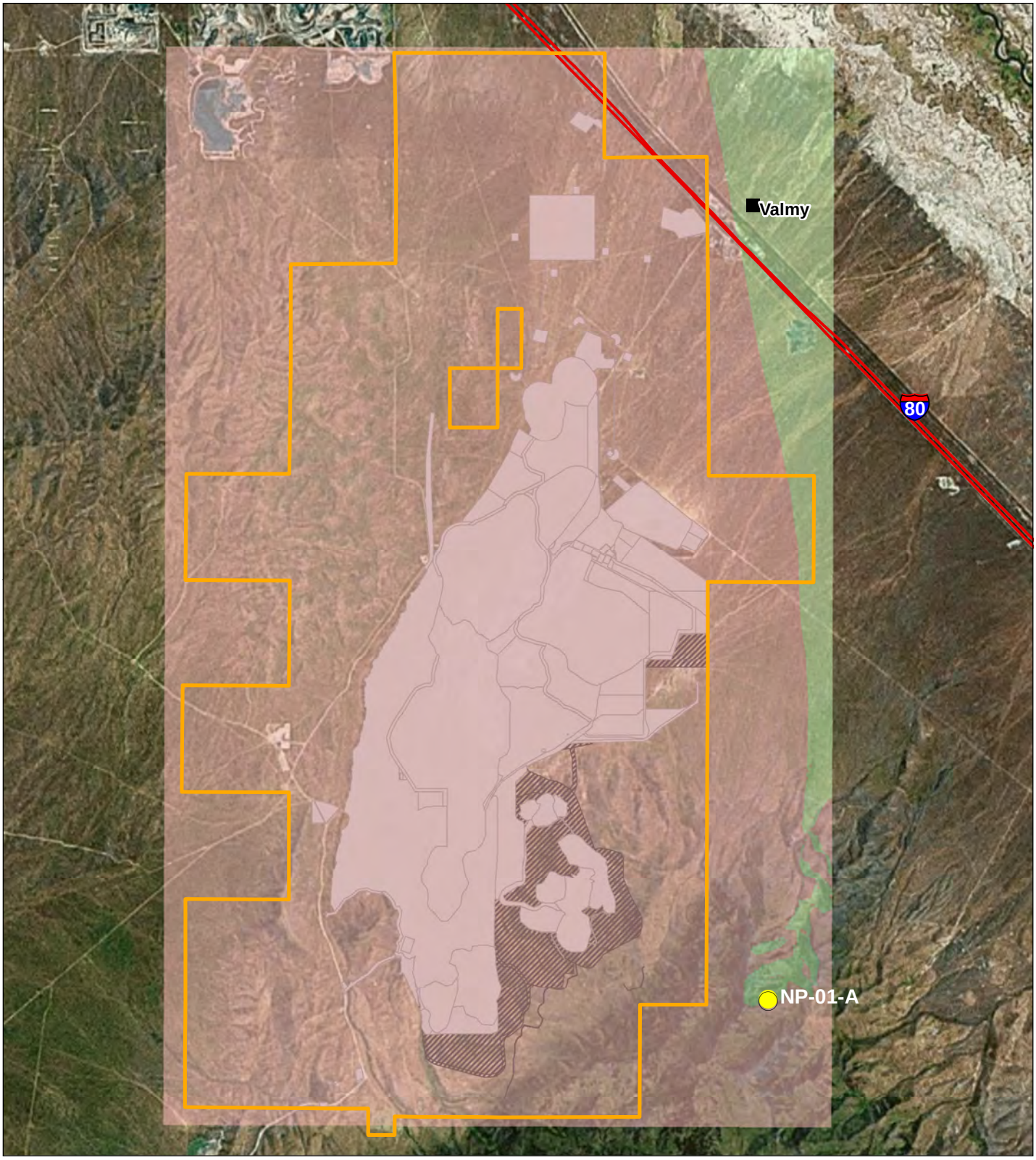
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 11/2/2021	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Information Report

Figure 4
Golden Eagle Nest Territories

Service Layer Credits:



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

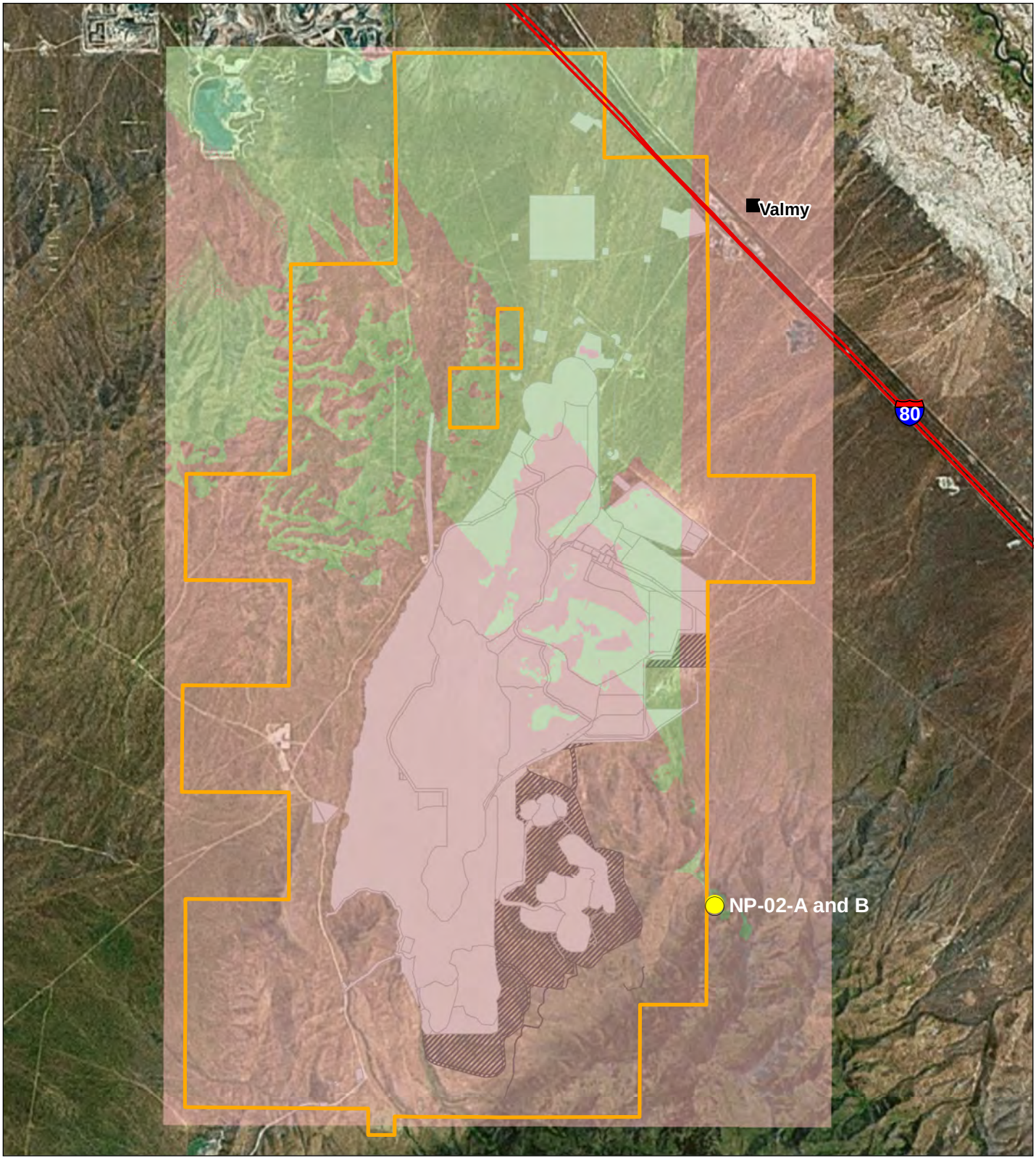
0 3,750 7,500 1 in = 7,000 feet

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 4/14/2022	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 5
NP-01-A Golden Eagle Nest Viewshed Results



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

0 3,750 7,500 1 in = 7,000 feet

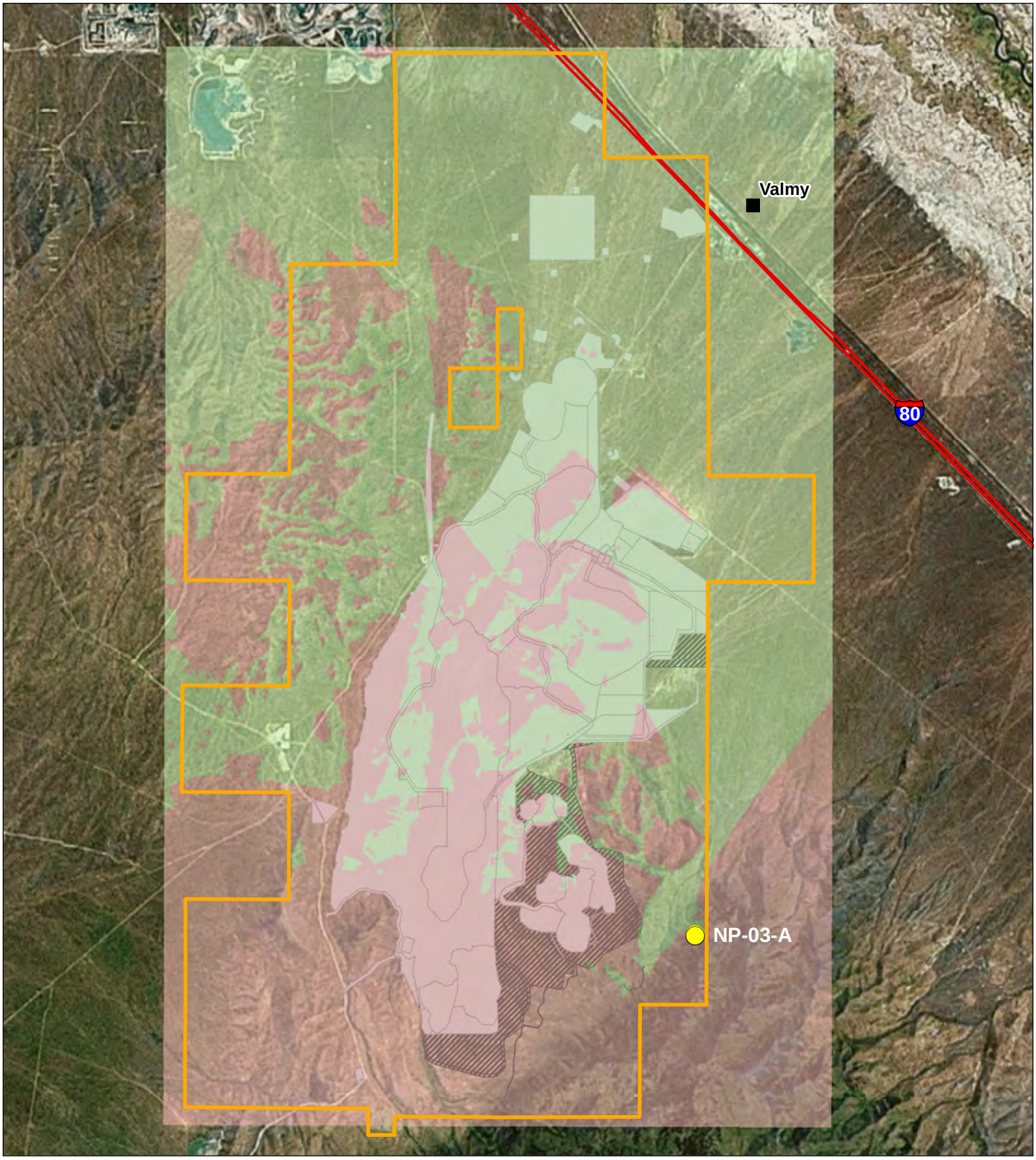
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 4/14/2022 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 6
NP-02-A and B Golden Eagle Nest Viewshed Results



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

0 3,750 7,500 1 in = 7,000 feet

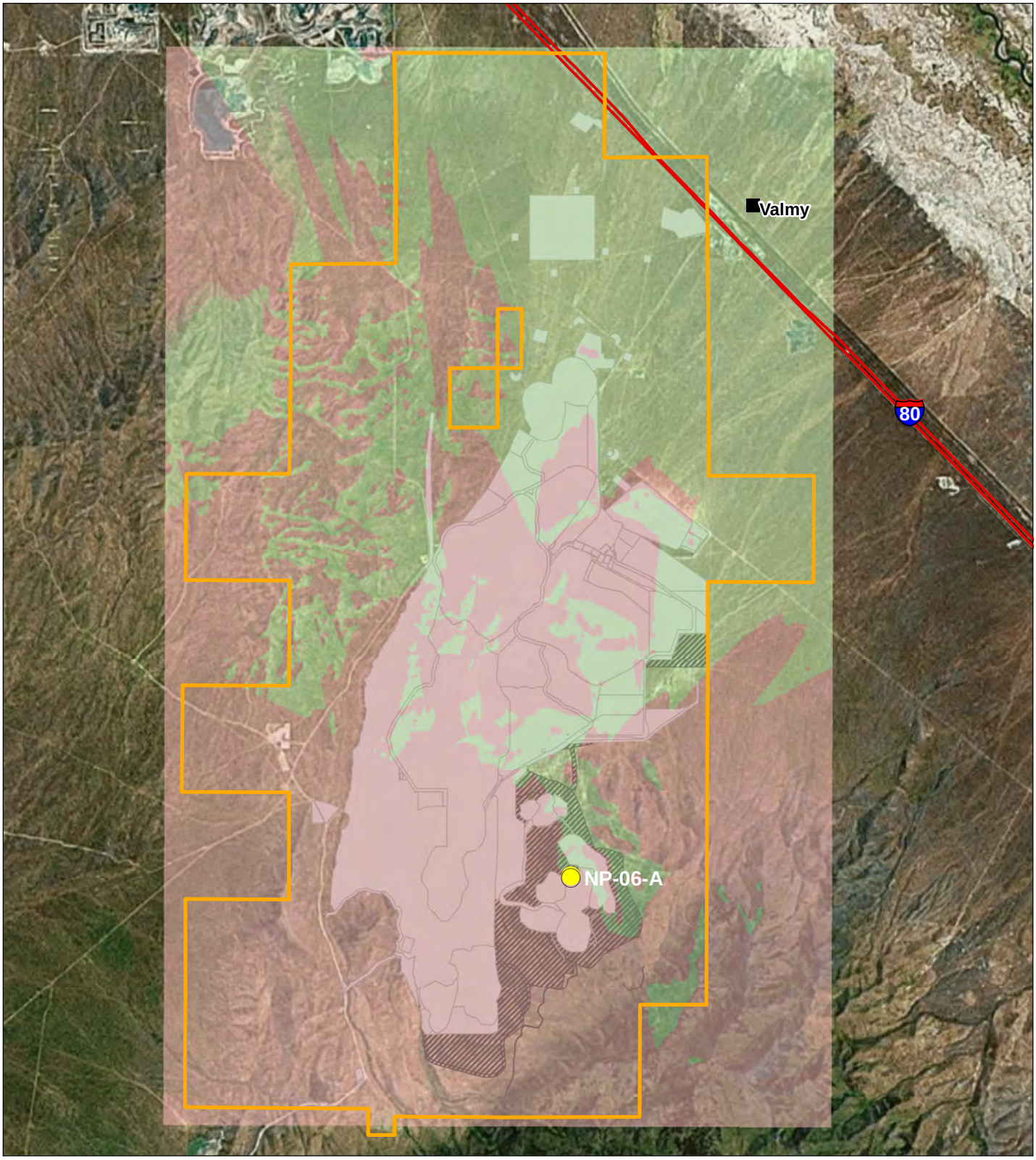
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 4/14/2022 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 7
NP-03-A Golden Eagle Nest Viewshed Results



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

0 3,750 7,500 1 in = 7,000 feet

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 4/14/2022 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 8
NP-06-A Golden Eagle Nest Viewshed Results

Appendix A
Eagle Conservation Plan
Marigold Mine Project

EAGLE CONSERVATION PLAN
MARIGOLD MINE PROJECT
HUMBOLDT COUNTY, NEVADA

SSR Mining Inc.
Marigold Mine
P.O. Box 160
Valmy, Nevada 89438

Revised May 8, 2024

TABLE OF CONTENTS

TABLES

GRAPHS

FIGURES

ACRONYMS AND ABBREVIATIONS

BGEPA	Bald and Golden Eagle Protection Act of 1940, as amended
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
ECP	Eagle Conservation Plan
IAPP	Industrial Artificial Pond Permit
Marigold	Marigold Mine Project
MMC	Marigold Mining Company
mph	miles per hour
NDOW	Nevada Department of Wildlife
Plan	Plan of Operations
Project	Marigold Mine Project
study area	Project footprint and a surrounding 10-mile buffer area
SWReGAP	Southwest Regional Gap Analysis Project
USFWS	United States Fish and Wildlife Service

1.0 PURPOSE OF THIS PLAN

The purpose of this Eagle Conservation Plan (ECP) is to support application(s) for a golden eagle (*Aquila chrysaetos*) nest take permit and an incidental take permit under the Bald and Golden Eagle Protection Act of 1940, as amended (BGEPA). This ECP supersedes any other ECPs currently implemented at the Marigold Mine Project (Marigold). Specifically, Marigold Mining Company (MMC), a wholly owned subsidiary of SSR Mining Inc., is requesting a take permit be issued by the United States Fish and Wildlife Service (USFWS) under 50 Code of Federal Regulations [CFR] § 22.75 and 50 CFR § 22.80. Specifically, MMC is requesting the following in their take permit request:

- Directly/physically removing one golden eagle nest that is located on a pit highwall proposed to be mined through under 50 CFR § 22.75; and
- Indirectly disturbing one golden eagle breeding pair's nesting territory from nearby mining activities (noise, human presence, vehicle presents, etc.) for up to 13 years under 50 CFR § 22.80.

Marigold is an existing mine located in Humboldt County, Nevada (**Figure 1**) that is authorized by the Bureau of Land Management (BLM) Winnemucca District, Humboldt River Field Office. Mining activities at Marigold are otherwise lawful activities.

The BGEPA (as amended) prohibits the "take" of bald and golden eagles.[1] BGEPA defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb,"[2] and prohibits take of individuals and their parts, nests, or eggs. Specifically, "disturb" is defined as "means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."[3] USFWS has issued permitting regulations (50 CFR Part 22) under BGEPA to allow for the lawful take of eagles and nests.

MMC has prepared this ECP to support a BGEPA eagle take permit application. This ECP provides the necessary support materials to accompany an eagle nest take and incidental (disturbance) take permit application(s) and demonstrates that the proposed take is compatible with the preservation of golden eagles and the issuance criteria in 50 CFR § 22.75 and § 22.80. This ECP will accompany the eagle nest take permit application request.

An application for a take permit for nest take (50 CFR 22.75) requires the information listed below. Also provided is a reference to where in this ECP that information is provided.

- Location details regarding the nest(s) proposed for take and project activities. Specifically, the following three requirements:
    - Appropriately scaled maps that delineate the areas of resource development or recovery operation and identify the exact location of each golden eagle nest proposed for take in

[1] 16 U.S.C. § 668(a).
[2] *Id*. § 668c.
[3] 50 CFR § 22.3.

decimal degrees (see Sensitive Area Golden Eagle Information Report for Marigold Mine [Stantec, 2022]).

    - A map and digital photographs that show the location of the nest in relation to buildings, infrastructure, and human activities (see Sensitive Area Golden Eagle Information Report for Marigold Mine [Stantec, 2022]).

    - A map with the location of the property, including the city, county, and State (see Sensitive Area Golden Eagle Information Report for Marigold Mine [Stantec, 2022]).

- A statement that the proponent has obtained all required State or tribal permits or approvals to conduct this activity (see Section 2).

- A description of the resource development or recovery operation in which the proponent is engaged (see Section 2).

- Details regarding the number of golden eagle nests proposed for take and how they were determined to be inactive (see Section 4). Provide copies of the monitoring report(s) indicating nest is inactive (to be provided closer to when actual nest take occurs).

- Describe the property on which the taking is proposed, with reference made to its exact geographic location (see Section 2 and Figure 4).

- Describe each activity to be performed during the resource development or recovery operation that involves the taking of a golden eagle nest (see Sections 2 and 4).

- Details on the length of time the permit is to be valid, including the start and end dates of the resource development or recovery operation (see Sections 2 and 4).

- Description of the intended disposition of each nest proposed for take, including a statement if the proponent is willing to donate any nests for scientific or educational purposes (see Section 4).

- A statement indicating any proposed mitigation measures that are compatible with the resource development or recovery operation to encourage golden eagles to reoccupy the site. If the establishment of one or more nest sites is proposed, provide a description of the materials and methods to be used and the exact location of each artificial nest site. Mitigation measures may include reclaiming disturbed land to enhance golden eagle nesting and foraging habitat, relocating in suitable habitat any inactive golden eagle nest taken, or establishing one or more nest sites (see Sections 5.1 and 5.2).

- Confirmation that the proponent will keep all records for at least three years, and the physical address of where they will be kept (see Section 4).

An application for a take permit for incidental take (50 CFR 22.80) requires the information listed below. Also provided is a reference to where in this ECP that information is provided.

- The duration of the permit (see Section 1).

- A description of the Project activity as it relates to eagles, including:

    - A description of the activity (see Sections 2 and 5);
    - The dates the activity will start and is projected to end (see Section 1);
    - An explanation of why the take of eagles is necessary, including what interests will be protected by the Project or activity (see Sections 2, 5, and 8); and

    - The location of the activity, including maps, photographs, and geographic coordinates, as appropriate (see Figures).

- Information about eagle activity relevant to the Project activity, including:

    - A description of the type of eagle activity (e.g., nesting, roosting, important use area, etc.) (see Sections 3 and 4);
    - Location of the eagle activity, including geographic coordinates and, as appropriate, maps, digital photographs, and other information (see Sensitive Area Golden Eagle Information Report for Marigold Mine [Stantec, 2022]);
    - History of the nest use, roost area, or important use area, if known (see Section 4 and Sensitive Golden Eagle Information Report for Marigold Mine [Stantec, 2022]); and
    - If known, the specific distance and locations of nests and other eagle-use areas from the Project footprint (see Section 4 and Sensitive Area Golden Eagle Information Report for Marigold Mine [Stantec, 2022]).

- If take is in the form of disturbance, information about the following:

    - Whether the activity will be visible to eagles in the eagle-use areas or whether there are visual buffers such as screening vegetation or topography that blocks the view (see Figures 5 through 8);
    - The extent of existing activities in the vicinity that are similar in nature, size, and use to your activity and the distance between those activities and the important eagle use areas (see Section 2 and Figures);

- A detailed description of all avoidance, minimization, mitigation, and monitoring measures incorporated into the planning for the activity will be implemented to reduce the likelihood for take of eagles (see Sections 6 and 7).

- Project-specific monitoring and survey protocols, take probability models, and any other applicable data quality standards and all the data thereby obtained (see Sections 6 and 7 and Sensitive Area Golden Eagle Information Report for Marigold Mine [Stantec 2021]).

2.0 INTRODUCTION AND BACKGROUND

2.1 MINE HISTORY

MMC owns and operates Marigold. MMC is a wholly owned subsidiary of SSR Mining Inc. Located on the northern end of the Battle Mountain-Eureka Trend, mining activities began in the Project area in 1927 when three claims were staked that would later be named the Marigold Mine. The original Plan of Operations (Plan) for Marigold was authorized by the BLM in a Record of Decision in July 1988. Since that time, several amendments leading to the current authorized operations were analyzed in numerous National Environmental Policy Act documents and agency authorizations. Activities within the Project area have expanded periodically since production began in 1988.

2.2 AUTHORIZED FACILITIES

The following are existing and authorized mine facilities at Marigold, totaling 8,145.4 acres. As applicable, SSR has obtained all required State or tribal permits or approvals to conduct these activities. Some of these features have not yet been constructed.

- **Open Pits and Waste Rock Facilities** – Open pits: 5-North Pit, Antler Pit, Basalt Pit, Mackay Pit, Mackay North Pit, Mud Pit, Northwest 29 Pit, and Valmy Pit. Waste Rock Facilities: 5-North, Northeast, Northwest, Northwest Expansion, Resort, Section 8, South, Top Zone, V1, V2/V3, V5, and V6.

- **Heap Leach and Processing Facilities** – Cells 1 through 24 and associated process ponds, storm water ponds, conveyance ditches, carbon column trains, storage tanks, tailings disposal facility, and plant facilities.

- **Dewatering Facilities** – Dewatering wells, pipelines, and rapid infiltration basins.

- **Ancillary Support Facilities** – Growth-medium stockpiles, surface-water diversion structures, Trout Creek catchment, infill disturbance, reagent and hazardous waste materials management, sanitary and solid waste disposal, roads, and fencing and security.

- **Exploration Areas** – 409.4 acres of existing or authorized disturbance including access roads, drill pads, and sumps.

2.3 PROPOSED FACILITIES

MMC is in the process of expanding its operation into recently acquired areas associated with the Valmy project. In general, proposed facilities would be similar to those authorized yet extend further south and consist of additional open-pit mining. A preliminary layout of the proposed facilities is shown on **Figure 2** and totals 1,092 acres. This ECP and the proposed take discussed herein took into account the proposed disturbance for the Valmy project. No additional take beyond what is described in this ECP is anticipated.

3.0 AREA HABITATS

The Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy, Version 2 recommends that an analysis of potential impacts on nesting golden eagles include the Project footprint itself and a surrounding 10-mile buffer area (study area) (**Figure 1**).

3.1 FORAGING HABITAT

Vegetation communities in the study area have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover types (**Figure 3**) (USGS, 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the study area. **Table 1** presents the total acres of the vegetation communities within the study area. Golden eagle prey species, such as black-tailed jackrabbits (*Lepus californicus*), mountain cottontails (*Sylvilagus nuttallii*), larger diurnal rodents, and snakes are commonly found in many of the vegetation communities present in the study area.

Table 1 SWReGAP Vegetation Communities within the Study Area

Vegetation Community	Acres	Percent of Study Area
Inter-Mountain Basins Big Sagebrush Shrubland	156,287.7	37.99%
Inter-Mountain Basins Greasewood Flat	92,044.4	22.37%
Great Basin Xeric Mixed Sagebrush Shrubland	47,589.9	11.57%
Inter-Mountain Basins Mixed Salt Desert Scrub	40,021.1	9.73%
Inter-Mountain Basins Montane Sagebrush Steppe	18,625.2	4.53%
Invasive Annual Grassland	12,542.6	3.05%
Inter-Mountain Basins Semi-Desert Grassland	8,000.8	1.94%
Inter-Mountain Basins Playa	7,638.8	1.86%
Great Basin Pinyon-Juniper Woodland	5,935.8	1.44%
Inter-Mountain Basins Cliff and Canyon	5,782.3	1.41%
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	4,949.4	1.20%
Recently Mined or Quarried	4,261.0	1.04%
Agriculture	1,825.2	0.44%
Invasive Annual and Biennial Forbland	1,670.2	0.41%
Inter-Mountain Basins Big Sagebrush Steppe	1,443.1	0.35%
Developed, Medium - High Intensity	999.2	0.24%
North American Arid West Emergent Marsh	581.3	0.14%
Barren Lands, Non-specific	517.8	0.13%
Open Water	289.6	0.07%
Developed, Open Space - Low Intensity	194.7	0.05%
Inter-Mountain Basins Semi-Desert Shrub Steppe	133.7	0.03%
Invasive Perennial Grassland	46.0	0.01%
Rocky Mountain Aspen Forest and Woodland	22.7	0.01%
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	20.0	0.00%
Total	**411,423**	**100%**

Other habitat types that are believed to represent important golden eagle foraging habitats in the region include roads and wetlands, natural water sources, and meadows. Wetlands and springs provide a reliable

water source for eagle prey and, therefore, allow higher concentrations of eagle prey. There are multiple seeps, springs, stock troughs, and intermittent and ephemeral drainages through the study area. These habitats occur throughout the Battle Mountain Range and at the Humboldt River. Meadow habitats, agricultural alfalfa pivots, and pastures in the study area support large populations of rodents and lagomorphs. These habitats occur at ranches in the Humboldt River Valley. Both paved (e.g., Interstate 80) and non-paved roads are located within the study area. Golden eagles frequently feed on carrion, which can be found along roads, especially during winter; golden eagles consume fresh carrion during nesting season (Kochert and Steenhof, 2002).

3.2 NESTING HABITAT

Within the study area, various rock outcrops, mine highwalls, and transmission towers associated with overhead powerlines were identified as areas with nesting golden eagles. Over the last nine years of surveys, 31 golden eagle nests have been documented in the study area constituting 14 territories (**Figure 4**). In 2021, five of the nests were documented in-use, all of which were either on rock outcrops, transmission towers, or highwalls. Cliff and rock outcrops exist in the Buffalo Mountains to the west, the Battle Mountain to the south, and the Tobin Mountains to the southwest, and there are multiple open pits throughout the study area. The transmission towers used for nesting by golden eagles are located in the Humboldt River Valley in the northern portion of the study area and continue south into Buffalo Valley.

3.3 TOPOGRAPHIC FEATURES ATTRACTIVE TO EAGLES

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Saddles or low points on ridge lines or near riparian corridors may serve as flight paths. Nearby perch and roost sites may also attract eagles. As described above, the area surrounding the Project represents golden eagle potential foraging habitat, though the value of this habitat varies in quality. Cliffs and outcrops occur in the Buffalo Mountains to the west, the Battle Mountain to the south, and the Tobin Mountains to the southwest. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are suitable for soaring. Habitats surrounding the Project include perch and roost sites, and the area is suitable golden eagle nesting and foraging habitat as described above.

4.0 PROPOSED NEST REMOVAL AND DISTURBANCE TAKE

A major component of the risk assessment is to identify Project activities that could result in take. MMC is requesting take authorization to remove one nest and to cause ongoing disturbance take of other nests that are part of the same territory and are located within two miles of blasting activities and/or one mile of surface disturbance activities.

Nest sites within one mile of approved surface disturbance, two miles of approved blasting, and/or within the approved disturbance footprint (applicable to nest removal) are provided in **Table 2**. Nest sites with two or more closely situated nests (e.g., multiple nests on the same outcrop and adjacent to each other) are labeled as A for the first nest, B for the second nest, and so forth. For the purposes of this ECP and the take permit application(s), these nests in close proximity are considered to be one nest site.

A viewshed analysis has been conducted from each of the nests in **Table 2** using Geographic Information System tools and is presented as **Figures 5** through **8** to illustrate the portions of anthropogenic activity that are within line-of-sight from the golden eagle nests proposed for disturbance take. Additional information regarding the location and historic monitoring data of these nests is provided in the Sensitive Area Golden Eagle Information Report for Marigold Mine (Stantec, 2022).

Take resulting in the loss of one golden eagle territory is being requested as a result of intentional nest removal and incidental disturbance take from Project activities that would result in loss of productivity (i.e., prevent eagles from successfully breeding/rearing young).

Nest take in the form of nest removal would occur to NP-06-A within two years of the permit being issued. MMC would dispose of the nest and keep all files on record at Marigold Mine for up to three years.

Incidental disturbance to the remaining known nests in the breeding pair's territory would occur for up to 13 years. The take is unavoidable due to the location of the ore bodies that occur adjacent to the nests, as well as the economic factors that contribute to the profitable extraction of the minerals contained therein. MMC is committed to coordinating unavoidable take with the USFWS and completing required mitigation with the goal of achieving a stable or increasing nesting population of golden eagles. Because MMC is applying for an incidental take permit for each of the nests in this breeding territory, these impacts would be fully offset through mitigation (see Section 8.0), and surface and blasting activities would not be restricted in the one- and two-mile buffers of these nests, respectively, upon issuance of the take permit.

Table 2 Nests Within One Mile of Disturbance or Two Miles of Pit Blasting

Territory Nests	Nest ID	Within Surface Disturbance Footprint	Within One Mile of Surface Disturbance	Within Two Miles of Pit Blasting	Territory with Nest(s) Outside of One- and Two-Mile Buffer
NP-01-A, NP-02-A and B, NP-03-A, and NP-06-A	NP-01-A	No	No	**Yes**	No
	NP-02-A and B	No	**Yes**	**Yes**	
	NP-03-A	No	**Yes**	**Yes**	
	NP-06-A	**Yes**	**Yes**	**Yes**	

4.1 TERRITORIES WITHIN DISTURBANCE BUFFERS

4.1.1 NP-01-A, NP-02-A and B, NP-03-A, and NP-06-A

Four nest sites, NP-01-A, NP-02-A and B, NP-03-A, and NP-06-A, are believed to be part of the same breeding territory. Two nests (NP-03-A and NP-06-A) are within the Plan boundary; NP-06-A is located within the disturbance footprint for the Valmy Pit and is proposed for removal. Nest site NP-02-A and B is outside of the Plan boundary but within one mile of surface disturbance. NP-01-A is within two miles of pit blasting. Specific details about each nest are discussed below.

NP-01-A was found in 2013 and was identified as a golden eagle nest. The nest was in-use in 2015 and 2020. The nest has been surveyed five times (2013, 2015, 2018, 2020, and 2021) with an in-use rate of 40 percent. It is unknown if the nest ever produced eggs or young. The nest is located on a rock outcrop.

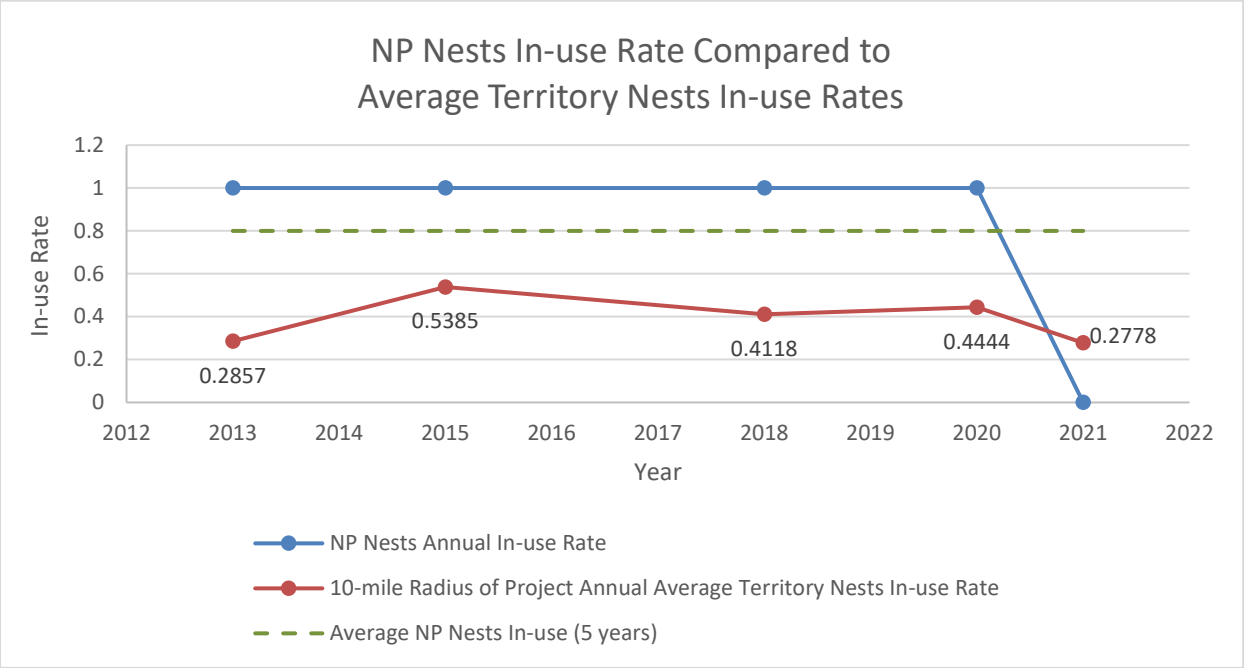
NP-02-A and B was found in 2013 and was in use by golden eagles. The nest was in-use in 2013 and 2018. The nest has been surveyed five times (2013, 2015, 2018, 2020, and 2021) resulting in an in-use rate of 40 percent. It is unknown if the nest ever produced eggs or young. The nest was located on a rock outcrop but was documented as fallen during 2020 and 2021 nesting surveys.

NP-03-A was found in 2015 and was identified as a golden eagle nest. The nest has been surveyed four times (2015, 2018, 2020, and 2021) and has never been in use giving it an in-use rate of zero percent. The nest is located on a rock outcrop.

NP-06-A was found in 2018 and was identified as a golden eagle nest. The nest has been surveyed three times (2018, 2020, and 2021) and has never been in use giving it an in-use rate of zero percent. The nest is located on a rock outcrop near a highwall.

Overall, breeding within the territory was confirmed in 2013, 2015, 2018, and 2020, or four times over the five years it has been surveyed. Use of the territory has been above average compared to the other territories in the 10-mile radius of the mine. **Graph 1** presents the NP nests territory status per year compared to the average for the territories defined with the study area.

Graph 1 NP Nest Territory Use



5.0 RISK ASSESSMENT

This section presents a discussion of the assessment of the level of risk from the Project to the golden eagle breeding population in the vicinity. Potential disturbance-creating activities include mining, processing, exploration, administrative, and support processes; authorized mining activities are listed in Section 2.0. The greatest risk factor to golden eagles associated with an active mining operation is likely to occur during the courtship, nesting, and fledging season. This is especially true when golden eagle breeding territories are located within the Plan boundary or nearby, as is the case for the territory proposed to be affected by nest removal and incidental take, which is described in Section 4.0.

A summary of proposed take to golden eagles anticipated from activities associated with the Project is provided in **Table 3**. Discussion of the risk that could be posed by the mine to golden eagles is described below.

Table 3 Summary of Impacts to Eagles

Eagle Impact	Marigold Impacts
Direct take (morality)	None anticipated, low risk: Sections 5.2, 5.3, and 5.4
Indirect take (loss of productivity from disturbance)	Section 4.0: One golden eagle breeding pair's territory; take permit application submitted to USFWS
Habitat loss	Section 5.1
Territory loss (number of territories)	Section 4.0: One golden eagle breeding pair's territory; take permit application submitted to USFWS
Nest removal (number of nests for each territory involved)	One nest in a territory of four nest sites total (four nests at three nest sites would remain but would be subject to indirect take as described above); take permit application submitted to USFWS

5.1 HABITAT-RELATED RISKS

Reduction of habitat as a result of direct mining-related surface disturbance has the potential to impact golden eagles. Specifically, impacts to functional shrublands that support jackrabbit populations could influence prey availability to golden eagles, especially during the breeding season when adults are foraging routinely to provide adequate food for their young. In the study area, Marigold is limited to owning or controlling lands within the Plan boundary. Authorizations from federal and state agencies to mine in Nevada are tied to strict requirements to conduct reclamation after mining is complete as well as to conduct concurrent reclamation of surface disturbance when feasible. Reclamation includes regrading and seeding disturbed areas with a preapproved seed mix in order to establish desired vegetation communities in the previously disturbed areas. Reclamation requirements on the majority of surface disturbance (i.e., open pits are not typically reclaimed) will in time assist in converting disturbed areas to vegetation communities that once again support golden eagle prey.

5.2 MINE OPERATIONS-RELATED RISKS

Active mining operations include exploration, drilling, blasting, excavation, hauling, etc. Risks to golden eagles include unintentional disturbance from activity near nest sites, such as noise and visual irritation from mining and exploration activities and vehicular traffic on roads. Other risks include nesting on highwalls of active pits, which may cause nest abandonment due to the mining operations within the pit. Mining has

occurred in the area since 1927, and blasting is a part of daily operations at Marigold. Blasting typically occurs during daylight hours once per day Monday through Thursday. On occasion, there may be two blasts in one day and blasting on Friday, Saturday, or Sunday. Current controls include strict safety procedures (e.g., barricading off the blast area, sirens prior to blasting, etc.) that account for human health and safety (which is likely conferred to wildlife health and safety) and monitoring and reporting policies in the event of wildlife incidents.

Highwalls at Marigold represent a cliff-face analog and, as such, could be used as golden eagle nesting habitat. While ongoing operations at the mine would be expected to dissuade eagles from nesting in the active mine areas, it is possible eagles could nest on a pit highwall while the mine or pit is active. A nest on an active pit highwall would be at direct risk from mining operations (blasting and excavating) or may be deserted following the onset of a nesting attempt, representing a take. Conversely, once mining operations cease, remaining pit highwalls would be potentially suitable golden eagle nesting habitat, as some of these areas are not scheduled for reclamation.

5.3 UTILITIES-RELATED RISKS

Electrical utility infrastructure present on the mine includes power poles, power lines and guy wires, transformers, and transfer stations. Utility structures pose a risk to perching birds, including raptors such as golden eagles, and may cause mortality through accidental collisions and electrocutions. Larger birds that inhabit open habitat appear to be at greater risk for electrocution due to the lack of natural perches and nesting sites (APLIC & USFWS, 2005). Electrocution occurs when a bird completes an electric circuit by simultaneously touching two energized parts, or an energized part and a grounded part, of the electrical structure. Inadequate conductor and/or phase spacing may allow birds to bridge electrical parts, which results in electrocution. Birds of all sizes are at-risk, especially on utility hardware such as transformers, which have many energized parts in close proximity to one another (APLIC & USFWS, 2005). Risk for avian electrocution on distribution lines increases when (1) the distance between conductors is less than the wingspan or height of a landing or perching bird or (2) hardware or equipment cases are grounded and in close proximity to energized conductors, parts, or jumper wires (APLIC & USFWS, 2005). MMC has committed to constructing new or modified transmission lines to follow APLIC guidance (BLM, 2019).

5.4 PROCESS-RELATED RISKS

Mining processes and facilities that use hazardous materials and chemicals pose a risk to wildlife species, including golden eagles. MMC uses a variety of hazardous materials, such as fuels and reagents (e.g., sodium cyanide), in mining and processing activities. MMC has several permits in place to manage the transport and use of hazardous chemicals on site. These permits include:

- Nevada Hazardous Materials Storage Permit, FDID No. 08907, issued by Nevada State Fire Marshal;
- Water Pollution Control Permit (including Petroleum Contaminated Soils Permit) No. NEV0088040;
- Department of Transportation Hazardous Materials Registration No. 0061818550430AC;
- Liquefied Petroleum Gas – Class 5 License No. 5-3482-01; and
- Environmental Protection Agency RCRA ID Number NVD986766954.

Solid waste and hazardous materials are managed under MMC's Solid and Hazardous Waste Management Plan and integrated Emergency Response Plan to address release of fluids from facilities. The sections of these two plans that address chemical releases contain procedures for the control of leaks or spills. Continued operation in accordance with these documents assists in keeping spills localized and contained to allow for efficient cleanup. MMC has the necessary spill containment and cleanup equipment and trained personnel available at the site to quickly respond to minor releases.

Hazardous materials storage tanks require secondary containment sufficient to hold 110 percent of the volume of the largest tank within the containment system. Management of tanks and vessels comply with manufacturer's recommendations, state and federal regulations, and BMPs. Hazardous substances are handled in accordance with applicable Mine Safety and Health Administration or Occupational Safety and Health Administration regulations (Titles 30 and 29 of the CFR).

Cyanide on-site transportation, storage, handling, and use are carried out in accordance with the International Cyanide Management Code. MMC is a signatory company for the International Cyanide Management Code, which is a voluntary program for manufacturers, transporters, or users of cyanide (e.g., gold mining companies) that focuses exclusively on safe and responsible manufacturing, transportation, and use/management of cyanide and cyanide solutions. The processing pad facilities are operated as zero-discharge and in accordance with fluid management, emergency response, and monitoring plans established by MMC, Nevada Division of Environmental Protection permit conditions, the Nevada BLM Cyanide Management Plan, and the International Cyanide Management Code.

To minimize the potential for wildlife mortality due to chemical exposure, areas potentially containing hazardous materials that could be toxic to wildlife and domestic animals are fenced and covered (e.g., netting, bird balls, etc.) to prevent access as required by Marigold's Industrial Artificial Pond Permit (IAPP) and Special License and Permit No. 39502 issued by Nevada Department of Wildlife (NDOW) (NDOW, 2020). Coverings and fences installed to prevent access by wildlife are monitored routinely to check for breaches. Areas managed under IAPPs are monitored frequently to check the condition of the wildlife exclusion features and to search for evidence of wildlife mortalities.

5.5 VEHICLE COLLISION-RELATED RISKS

Mobile equipment (i.e., vehicles) used in operations at Marigold or traveling to or from Marigold could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging golden eagles, which in turn could be injured or killed by vehicle collision. Due to the speed limits placed on equipment operating at Marigold (10 miles per hour [mph] around pedestrian areas and 35 mph for all other roads, unless otherwise posted), the potential for golden eagle mortality due to vehicle collision on the mine site is low. Additional traffic controls can be implemented by MMC as necessary through direct communication regarding road hazards. Additionally, no eagle mortalities due to vehicle collision have been reported at Marigold.

The greater risk for vehicle mortality is on area roads outside of the mine (e.g., Interstate 80), which are outside of MMC's control. The higher risk is due to higher speeds and additional traffic. Although MMC has no control over non-mine regulated roads, MMC employees and contractors are provided information on safe driving practices.

6.0 AVOIDANCE AND MINIMIZATION MEASURES

6.1 CONSERVATION MEASURES

Prior to Project initiation and prior to Project expansion, the USFWS recommends surveys be conducted out to 10 miles from a Project to inventory nests, delineate likely golden eagle territories, assess occupancy status of nests, and gather information about breeding effort. Ongoing golden eagle survey/monitoring efforts may then be reduced from 10 miles to four miles from a project (USFWS 2022).

MMC conducted surveys within 10 miles of the Project in 2013, 2015, 2020, 2021, and 2022. These surveys focused on completing a thorough inventory of nests and capturing information regarding nest use, productivity, and success, if possible. The territories described in this ECP were prepared with the information gathered during these surveys. As such, MMC does not propose additional surveys out to 10 miles, unless coordination with the USFWS or Project planning would determine the 10-mile buffer is necessary.

MMC will conduct up to three eagle nest surveys on an annual basis within a four-mile buffer of the Plan boundaries and within all suitable habitats prior to ground disturbance if construction or surface disturbing activities occur from December 15 through July 31 (USFWS 2022). These surveys are intended to identify breeding adult birds (i.e., by territorial defense behavior), contribute to territory delineation, assess nest sites within the areas to be disturbed, and determine productivity or breeding success at in-use nests. Details of each survey are provided below:

- The USFWS recommends the first survey be a ground survey focused on surveying suitable habitat/known nests in January/February/March prior to egg-laying to assess territory occupancy or potentially assess if territories have been abandoned (USFWS 2022). Specific observational criteria used for establishing early-season golden eagle territory occupancy are:
    - An adult eagle within 500 meters of a nest within the territory, when the bird is clearly in view of the nest, and when the eagle's presence is clearly not a rapid pass-over of the nest;
    - Two adults, or an adult and a sub-adult bird paired within the territory; or
    - Reproductive or territorial behavior within the territory including:
        - Courtship behavior, undulating flight, or copulation;
        - Territorial defense; or
        - Nest building behaviors (stick carrying, nest maintenance).
- The USFWS recommends the second survey evaluate all suitable habitat within the four-mile buffer to identify previously undocumented nests and focus on assessing which nests are in-use (i.e., which pairs have attempted breeding). This survey would also evaluate all nests for evidence of territory/area occupancy (e.g., nest maintenance/decoration in the form of fresh material detected). These surveys would be conducted aerially. The second survey would occur no less than 30 days following the first survey and is recommended to be completed in March/April. Because the USFWS uses April 15 as their cutoff for when they would consider any unused nests to not be in-use that breeding season, MMC will target their second survey for April 15 through 30. Based on the surveys completed and the results of those surveys, spatial disturbance avoidance buffers could be removed after April 15 (USFWS 2022).

- The USFWS recommends the third survey be conducted at those nests determined to be in-use in the breeding year to assess breeding success and productivity. This survey may be a ground survey or aerial survey targeted for May/June.

For in-use golden eagle nests not associated with a BGEPA take permit, MMC will place a one-mile activity avoidance buffer (two miles for blasting or substantially loud noises) around an in-use eagle nest and consult with the USFWS on avoidance of surface-disturbing activities, blasting, and new operations that could disturb the nesting eagles. The USFWS recommends waiting four weeks from when young fledge a nest to resume activity within avoidance buffers (USFWS 2022).

MMC will prevent access to cyanide solutions in process ponds by utilizing bird balls or netting.

MMC will conduct monitoring and will manage cyanide concentrations of the process solutions.

MMC will enforce speed limits of 10 mph around pedestrian areas and 35 mph for all other roads, unless otherwise posted.

MMC will practice proper management of the waivered-Class III landfill.

MMC will implement its formalized procedures for verbal and written reporting of wildlife mortalities to the NDOW.

In the event that a power pole is identified as the cause of the mortality of a flying bird due to electrocution, the pole will be marked and upgraded following APLIC guidance. If the mortality is determined to be due to a direct strike with the line or pole, the line or pole will be marked using an appropriate device.

MMC will implement its Bird and Bat Conservation Strategy and this ECP. This ECP replaces all previous versions.

For nests not associated with a BGEPA take permit, exploration drilling activities will not occur within one mile of an in-use golden eagle nest unless additional coordination with the USFWS, NDOW, and the BLM determine that a reduced buffer could be applied.

Where potential golden eagle nesting or foraging habitat is documented, MMC will conduct habitat reclamation after operations in an area are complete and when no future activities are planned, typically within one calendar year from the time of disturbance. Reclamation will be conducted outside of the nesting and breeding season (breeding season defined here as December 15 through July 31) (USFWS 2022), when feasible. Seed mixes and plant types will be coordinated with local natural resource managers to ensure selection of appropriate species, including seedings and plantings, that provide for diverse vegetation which encourages habitat diversity and supports abundant prey populations.

Should MMC be unable to avoid impacts that would be considered an unauthorized take of golden eagle(s) under the BGEPA, it would coordinate with the USFWS, NDOW, and the BLM.

7.0 MONITORING AND ADAPTIVE MANAGEMENT

Golden eagle surveys have been conducted in the vicinity of the Plan boundary periodically since 2012. Recent inventory and monitoring efforts have followed Pagel et al. (2010), which was the standard golden eagle survey protocol accepted by the USFWS and recommends a 10-mile survey buffer. USFWS recommends that the 10-mile survey area be used for initial baseline surveys, surveys preceding project expansion, or potential contingencies based on unique situations, and may be reduced to four-miles based on the project specifics (USFWS 2022). Because MMC has conducted several surveys out to the 10-mile radius, surveys moving forward will occur within the reduced, four-mile radius. Surveys focus on completing a thorough inventory of nests within the recommended radius and capturing information regarding nest use, productivity, and success. MMC will continue to conduct golden eagle nesting surveys to gather data on nests in the vicinity of the Project, as appropriate. Monitoring objectives include:

- To track use of nests within the Plan boundary and surrounding area;
- To further delineate and refine the understanding of eagle territories in the surrounding area; and
- To assess breeding success and productivity at in-use nests.

For adaptive management purposes, verification of implemented avoidance and minimization measures as provided in Section 6.0 is necessary. MMC currently has a monitoring and reporting system for incidents related to wildlife fatality as part of the wildlife management plan and IAPPs, as required by NDOW. Any incident that results in wildlife fatality or death, including golden eagles, must be reported.

MMC will continue to monitor the area golden eagle population for additional golden eagle nests within the USFWS recommended radius. During the life of the mine, MMC recognizes the possibility for new construction of golden eagle nests within the Plan boundary and Project vicinity. MMC would not take a golden eagle nest, either by physically removing a nest or indirectly, without legally obtaining golden eagle take permit from the USFWS. Continued monitoring will inform MMC on the status of existing nests as well as if new nests are being constructed near the Project and other Project associated activities. If monitoring determines that MMC is approaching take permit limits, adaptive management would be implemented. First, MMC would apply avoidance buffers on in-use nests to prevent incidental take (no surface-disturbing activities within one mile and no blasting within two miles of an in-use nest during breeding season including early courtship through post fledging nest dependency (i.e., December 15 through July 31) (USFWS 2022). If avoidance is not practicable, MMC may request a permit amendment from the USFWS. Additionally, at the five-year review of the permit, the USFWS may consider additional adaptive management strategies, if necessary, in coordination with MMC.

8.0 MITIGATION

The amount of mitigation required as a result of proposed take is determined by using the USFWS Golden Eagle Resource Equivalency Analysis (REA) (USFWS, 2018). In the REA, the permitted take value is input based on the year take and mitigation would start, the number of breeding pairs disturbed, and the total years of take proposed. The REA then yields two separate output values. The first value if for 10 years of effectiveness for retrofit. The second value is for 30 years of effectiveness for retrofit.

The REA assumes a 1:1 mitigation ratio; however, the support documents for the BGEPA permit regulations (USFWS, 2016) identify a compensatory mitigation ratio of 1.2:1. Accordingly, the output number of power poles under MMC's proposed take scenario, one breeding pair's territory for the first authorized five-year period, that would require retrofit are as follows:

- 111.10 (rounded up to 112) for 10 years of avoided loss from retrofits; or
- 48.35 (rounded up to 49) for 30 years of avoided loss from retrofits

With the goal of achieving a stable or increasing nesting population of golden eagles, a mitigation measure would be implemented to compensate for the removal of nests and the possible loss of breeding territories. As such, MMC will contribute to a USFWS-approved fund an amount equal to the power pole retrofit obligation, or commit to undertake the retrofit itself, for either the 10- or 30-year avoided loss values.

9.0 REFERENCES

Avian Power Line Interaction Committee (APLIC) and United States Fish and Wildlife Service. 2005. Avian Protection Plan (APP) Guidelines. A Joint Document Prepared By The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC), and the United States Fish and Wildlife Service (USFWS). April 2005.

Bureau of Land Management (BLM). 2019. Mackay Optimization Project Final Environmental Impact Statement. DOI-BLM-NV-W010-2016-0002-EIS. September 2019.

Kochert, M. N. and K. Steenhof. 2002. Golden Eagles in the U.S. and Canada: Status, Trends, and Conservation Challenges. Journal of Raptor Research. 36(supplement):33-40.

Nevada Department of Wildlife (NDOW). 2013b. Industrial Artificial Pond Permit and Special License and Permit number: S 3666. State of Nevada, Department of Wildlife, Winnemucca, Nevada. August 8, 2013.

Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations. Division of Migratory Bird Management, U.S. Fish and Wildlife Service. February 2010.

Stantec Consulting Services Inc. 2018a. 2018 Golden Eagle and Raptor Nesting Survey Greater Phoenix Mine Lander County, Nevada. Prepared for Newmont USA Limited. Prepared by Stantec Elko, Nevada Office. Stantec Project Number 203720802. July 30, 2018.

Stantec Consulting Services Inc. 2018b. 2018 Golden Eagle and Raptor Nesting Survey Buffalo Mountain Project Humboldt County, Nevada. Prepared for Newmont USA Limited. Prepared by Stantec Elko, Nevada Office. Stantec Project Number 203720872. November 9, 2018.

Stantec Consulting Services Inc. 2020. 2020 Raptor Nest Survey Marigold Mine Project Humboldt County, Nevada. Prepared for SSR Mining Inc. Prepared by Stantec Elko, Nevada Office. Stantec Project Number 203721702. May 22, 2020.

Stantec Consulting Services Inc. 2022. Sensitive Area Golden Eagle Information Marigold Mine Humboldt County Nevada. May 28, 2021. Revised January 2022.

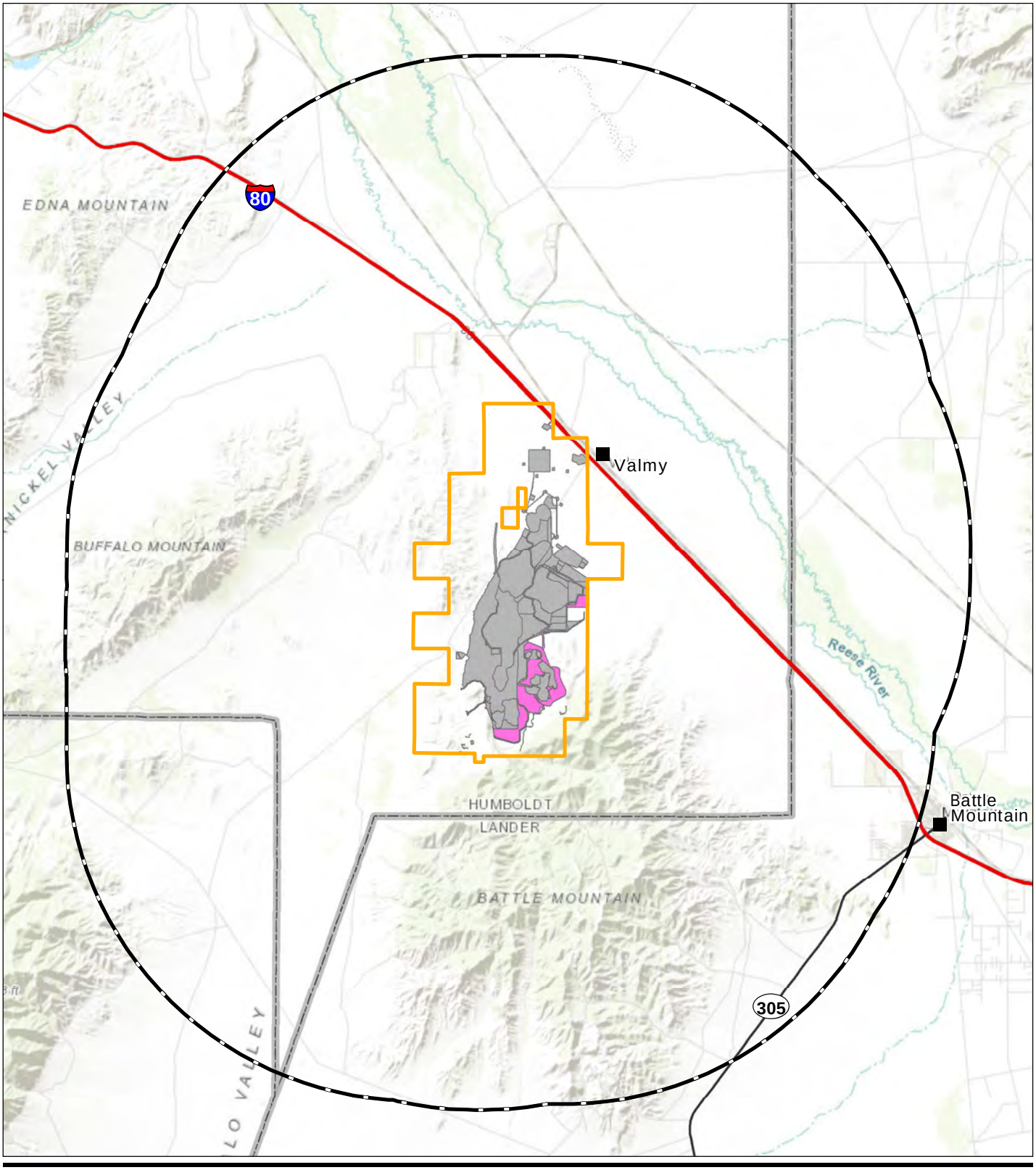
United States Fish and Wildlife Service (USFWS). 2016. Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests. Action: Final rule. 50 CFR Parts 13 and 22. December 16, 2016.

United States Fish and Wildlife Service (USFWS). 2018. Golden Eagle Nest Disturbance Resource Equivalency Analysis (REA). October 22, 2018. Available online at: https://www.fws.gov/media/golden-eagle-nest-disturbance-resource-equivalency-analysis

United States Geological Survey (USGS). 2011. National Gap Analysis Program. Southwest Regional GAP Analysis Project—Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University. http://swregap.nmsu.edu/HMdatabase/landc_database_report.pdf

United States Fish and Wildlife Service (USFWS). 2022. Comments from USFWS, Joe Barnes, on the Eagle Conservation Plan, Marigold Mine Project, Humboldt County, Nevada. Revised May 6, 2022. Comments provided December 28, 2022.

FIGURES



Legend

- Plan of Operations Boundary
- 10-mile Radius of Plan Boundary (Study Area)
- Authorized Facilities
- Proposed Disturbance

N

Miles

0 2 4

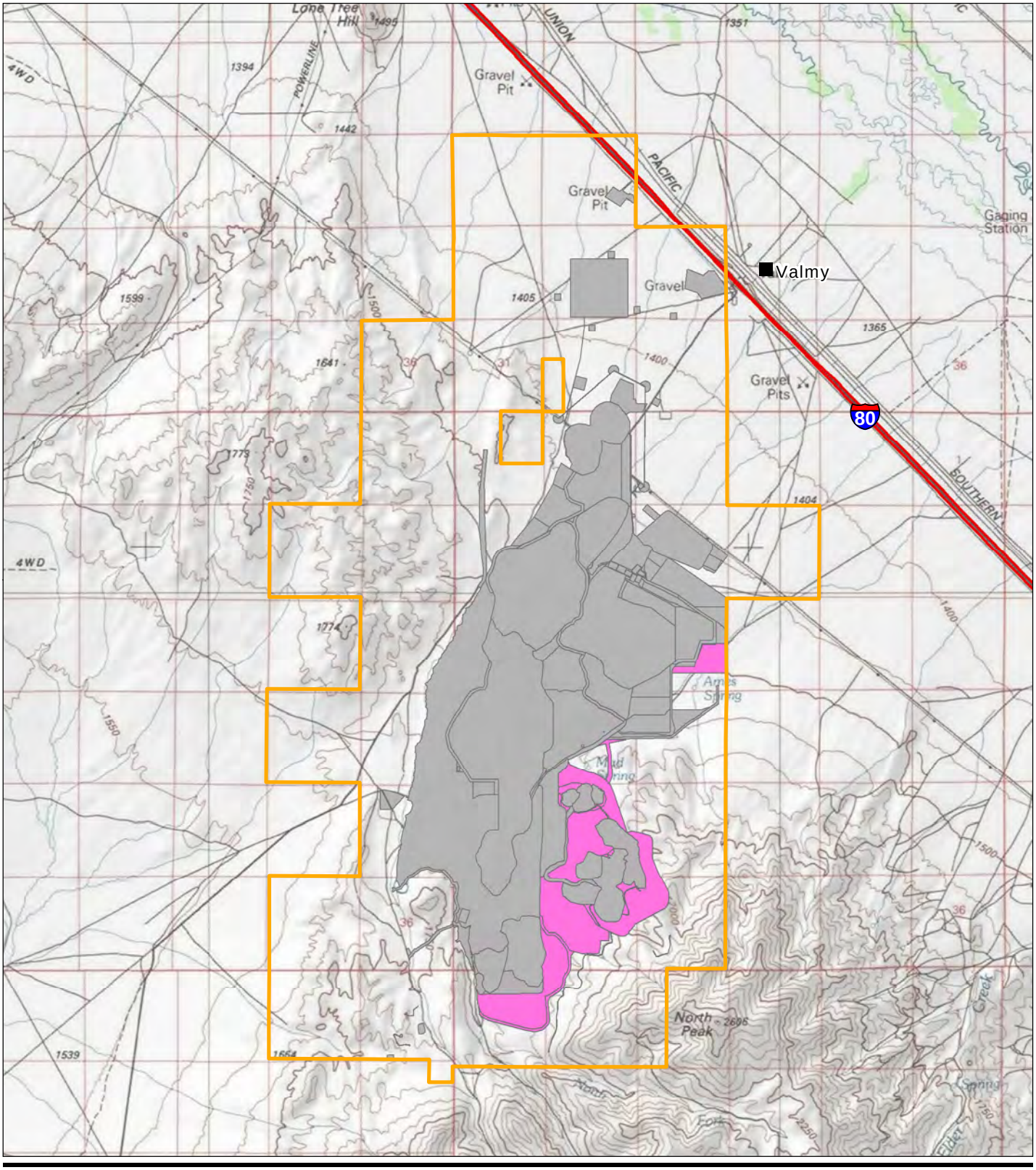
1 in = 4 miles

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 6/7/2021	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 1
Project Location and Study Area



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance

N

Feet

0 4,000 8,000

1 in = 8,000 feet

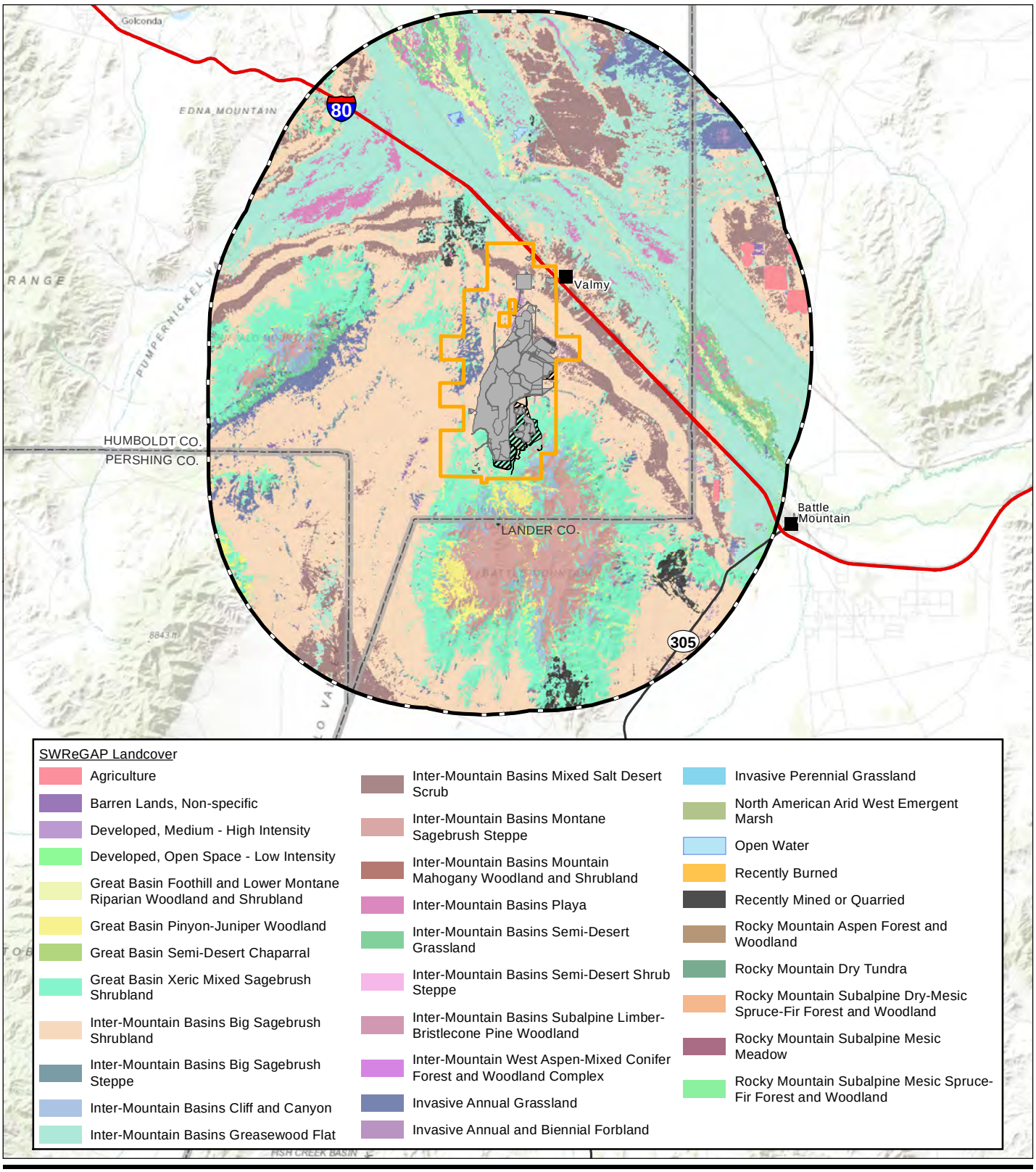
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 6/7/2021 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 2
Existing and Proposed Facilities



Legend

- Plan of Operations Boundary
- 10-mile Radius of Plan Boundary (Study Area)
- Authorized Facilities
- Proposed Disturbance

N

0 3 6 Miles

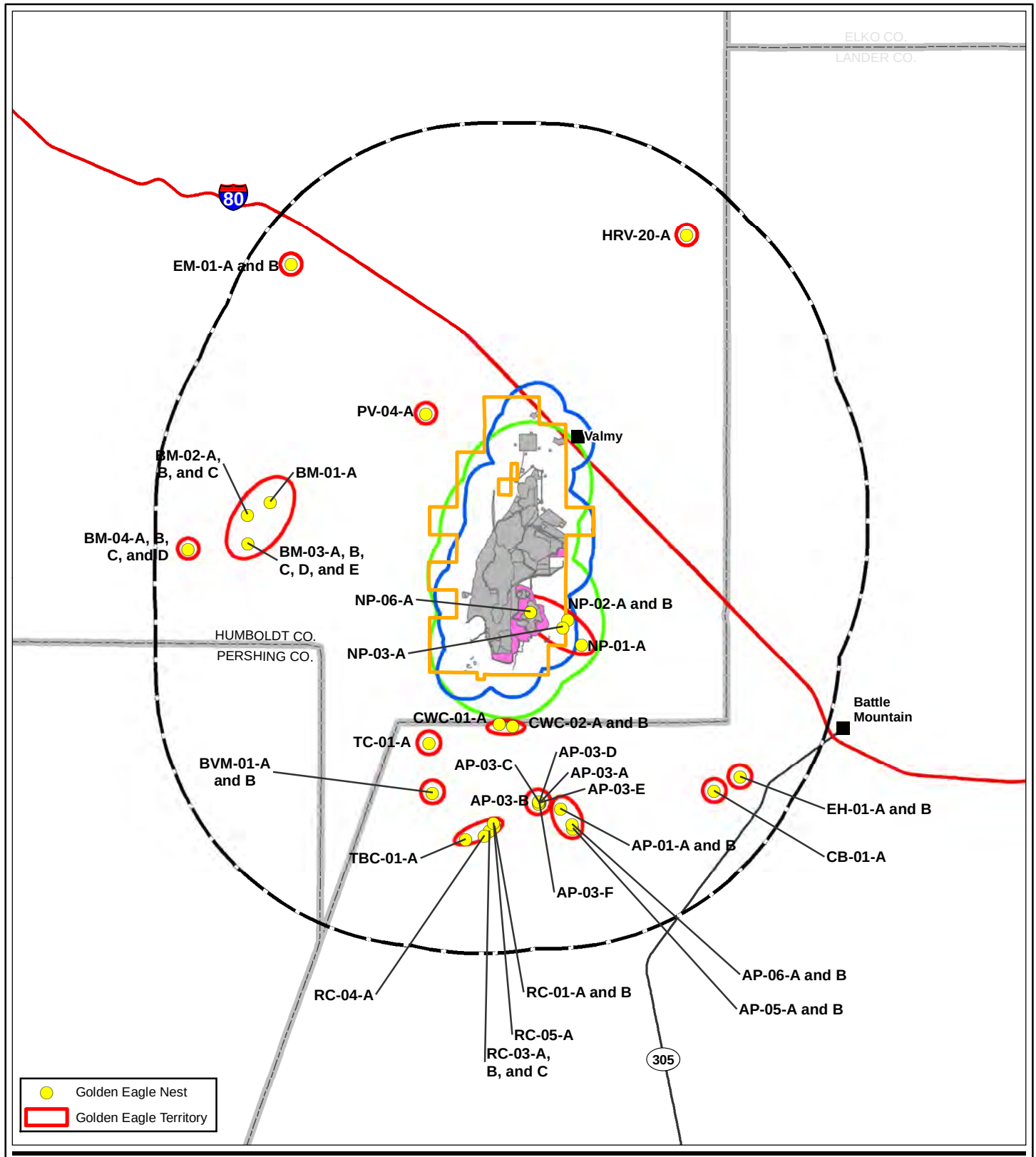
1 in = 6 miles

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 6/7/2021	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 3
Foraging Habitat Within Study Area



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed New Disturbance
- 10-mile Radius of Plan Boundary (Study Area)
- Authorized/Proposed Disturbance 1-mile buffer
- Authorized/Proposed Pit 2-mile buffer

N

0 2.5 5 Miles

1 in = 5 miles

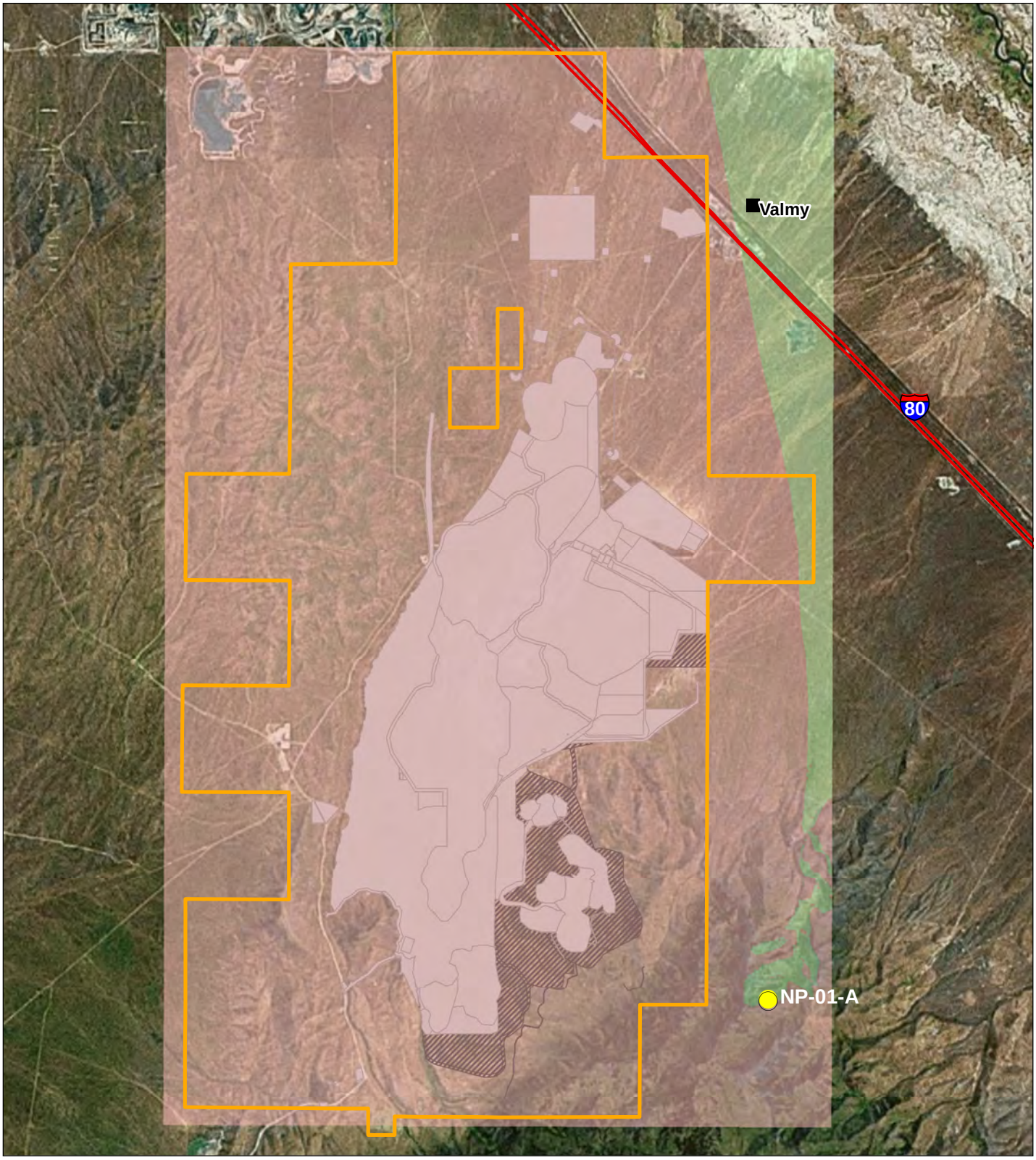
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 11/2/2021	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Information Report

Figure 4
Golden Eagle Nest Territories

Service Layer Credits:



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

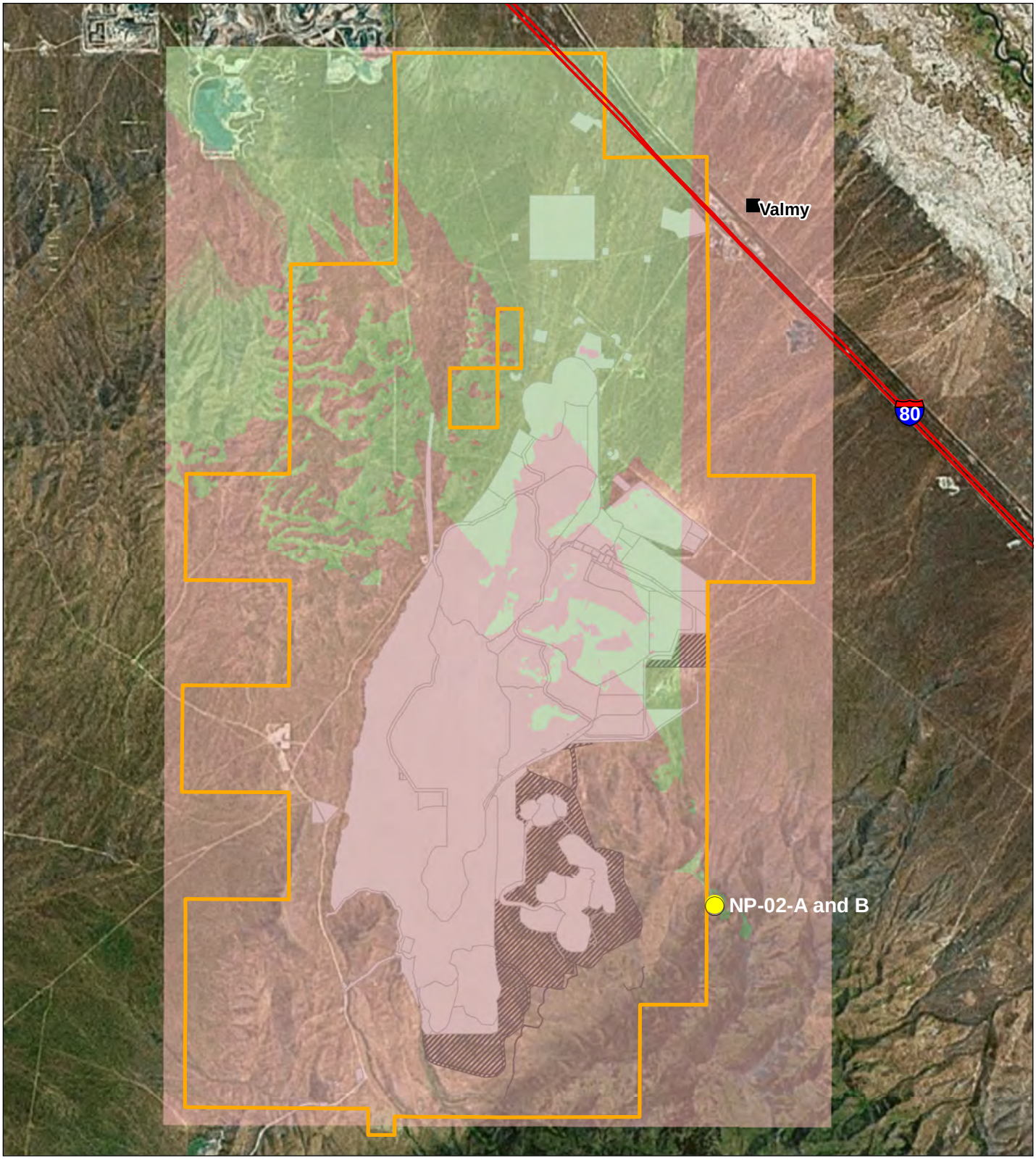
0 3,750 7,500 1 in = 7,000 feet

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 4/14/2022	PROJECT NO: 203722002	

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 5
NP-01-A Golden Eagle Nest Viewshed Results



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

0 3,750 7,500 1 in = 7,000 feet

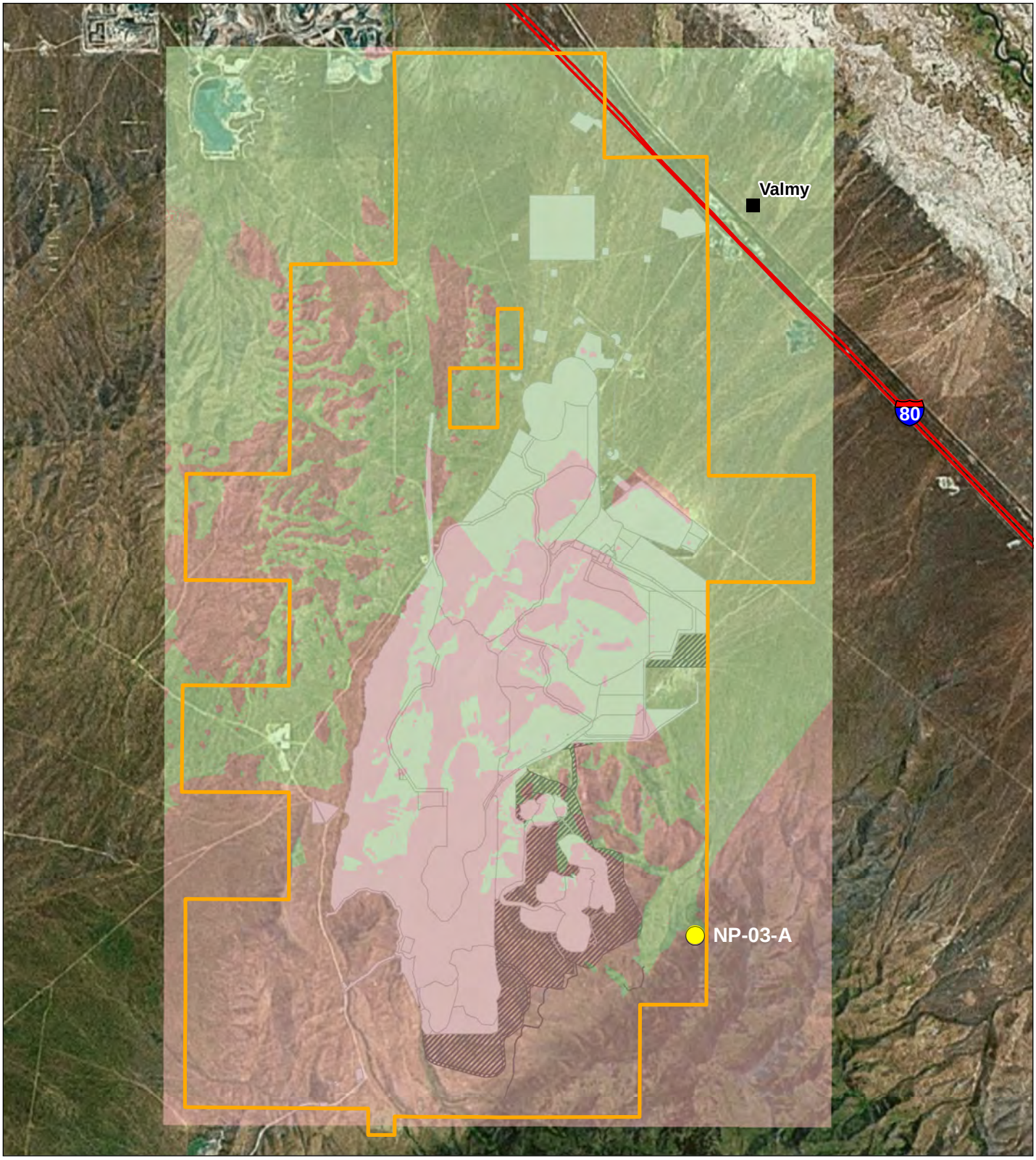
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 4/14/2022 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 6
NP-02-A and B Golden Eagle Nest Viewshed Results



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

0 3,750 7,500 1 in = 7,000 feet

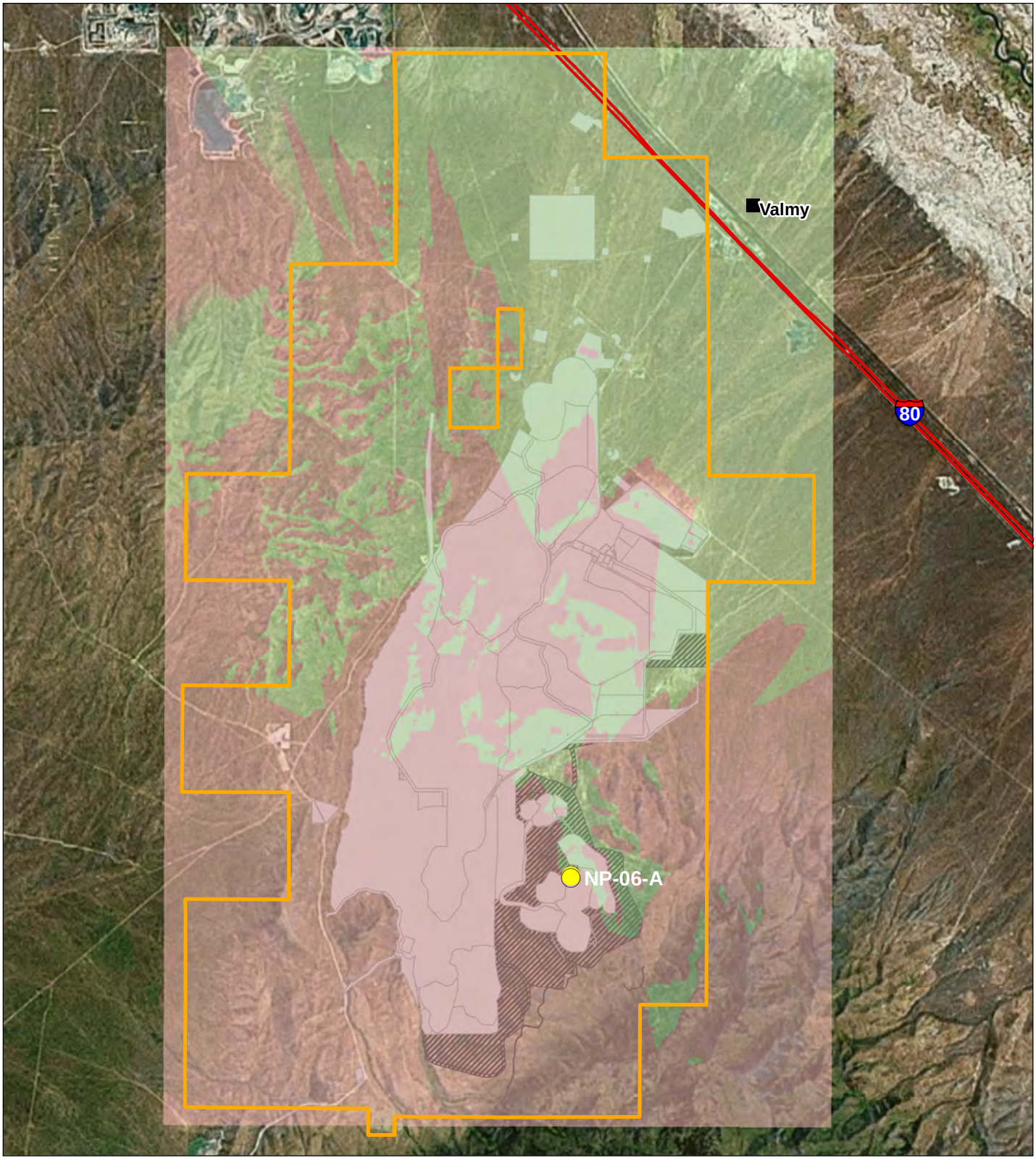
Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 4/14/2022 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 7
NP-03-A Golden Eagle Nest Viewshed Results



Legend

- Plan of Operations Boundary
- Authorized Facilities
- Proposed Disturbance
- Not Visible
- Visible
- Golden Eagle Nest

N

Feet

0 3,750 7,500 1 in = 7,000 feet

Humboldt County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: JT | 2ND REVIEW: DE

DATE: 4/14/2022 | PROJECT NO: 203722002

SSR Mining Inc.
Marigold Eagle Conservation Plan

Figure 8
NP-06-A Golden Eagle Nest Viewshed Results

Appendix B
2022 Raptor Survey Report
Marigold Mine Project

Marigold Mine 2022 Raptor Survey Report

Report Prepared for:

SSR MINING MARIGOLD

Report Prepared by:

WESTERN BIOLOGICAL

October 2022

Marigold Mine 2022 Raptor Survey Report

SSR Mining, Inc.

P.O. Box 160
Valmy, Nevada 89438

Western Biological

P.O. Box 634
Elko, Nevada, USA 89803
775-385-6594

October 2022

Table of Contents

Tables

Figures

Appendices

1.0 INTRODUCTION

The Marigold Mining Company (MMC) contracted Western Biological (WB) to perform raptor nesting surveys to meet the requirements of the Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), Nevada Mining Association (NvMA), and Eagle Conservation Plan (ECP) for annual monitoring compliance for Marigold Mine. The BLM has issued guidance for conducting raptor surveys and recommends utilization of the survey methodologies set forth in *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (Pagel et al. 2010). These protocols were used for both the aerial raptor nesting surveys and the ground raptor nesting surveys at nest sites which had the potential to be impacted by mining or exploration activities.

The Marigold Mine Project (Project) is located in Humboldt County, Nevada, approximately 12 miles northwest of Battle Mountain and 15 miles southeast of Golconda Summit, Nevada (Figure 1). The area included in the survey includes the Marigold Plan of Operation (PoO), the Trenton Canyon Mine and Exploration PoOs, and the Buffalo Valley PoO, plus a 10-mile buffer around these areas (Figure 2). The total survey area encompasses approximately 527,890 acres or 825 square miles. Elevation of the area ranges from approximately 4,400 feet above mean sea level (amsl) to almost 8,800 feet amsl. The mountains within the project area are Battle Mountain and Buffalo Mountain. The Project area includes public lands administered by the BLM Winnemucca District/Elko District and Battle Mountain Field Offices.

2.0 BACKGROUND

To comply with the Bald and Golden Eagle Protection Act (BGEPA) 1940, as amended and the Migratory Bird Treaty Act of 1918 (MBTA), as amended, the BLM requires permittees to conduct annual monitoring and inventory surveys for raptor nests. In accordance with USFWS and NvMA guidance for operations of this size and nature, a survey covering a 10-mile buffer around active operations is required for documenting eagle habitat and occupancy, though a smaller subset of that area is relevant for other raptor species.

These surveys are conducted annually for the Project to comply with the MMC Eagle Conservation Plan (ECP). Additionally, protection measure AB-1 requires a 1-mile buffer around in-use raptor nests for Project activities and a 2-mile buffer for blasting. As such, WB conducted ground observations at nest sites within those buffers with the potential to be impacted by activities.

The *Winnemucca District Survey Protocols and Information for Golden Eagles, Bald Eagles, and Raptors* (May 2020) suggests that the first aerial raptor survey should be completed by the end of February to determine initial nesting activity and/or territory establishment. The second flight should be conducted in early April to visit known nests and search for new nests.

However, because the intent of these surveys is to determine nest occupancy as opposed to courtship behavior or territory occupancy; based on WB's experience conducting raptor surveys as well as review of the 2020 and 2021 Marigold Raptor Survey Reports, WB recommended conducting the surveys later in the breeding season to yield more definitive data on nest occupancy.

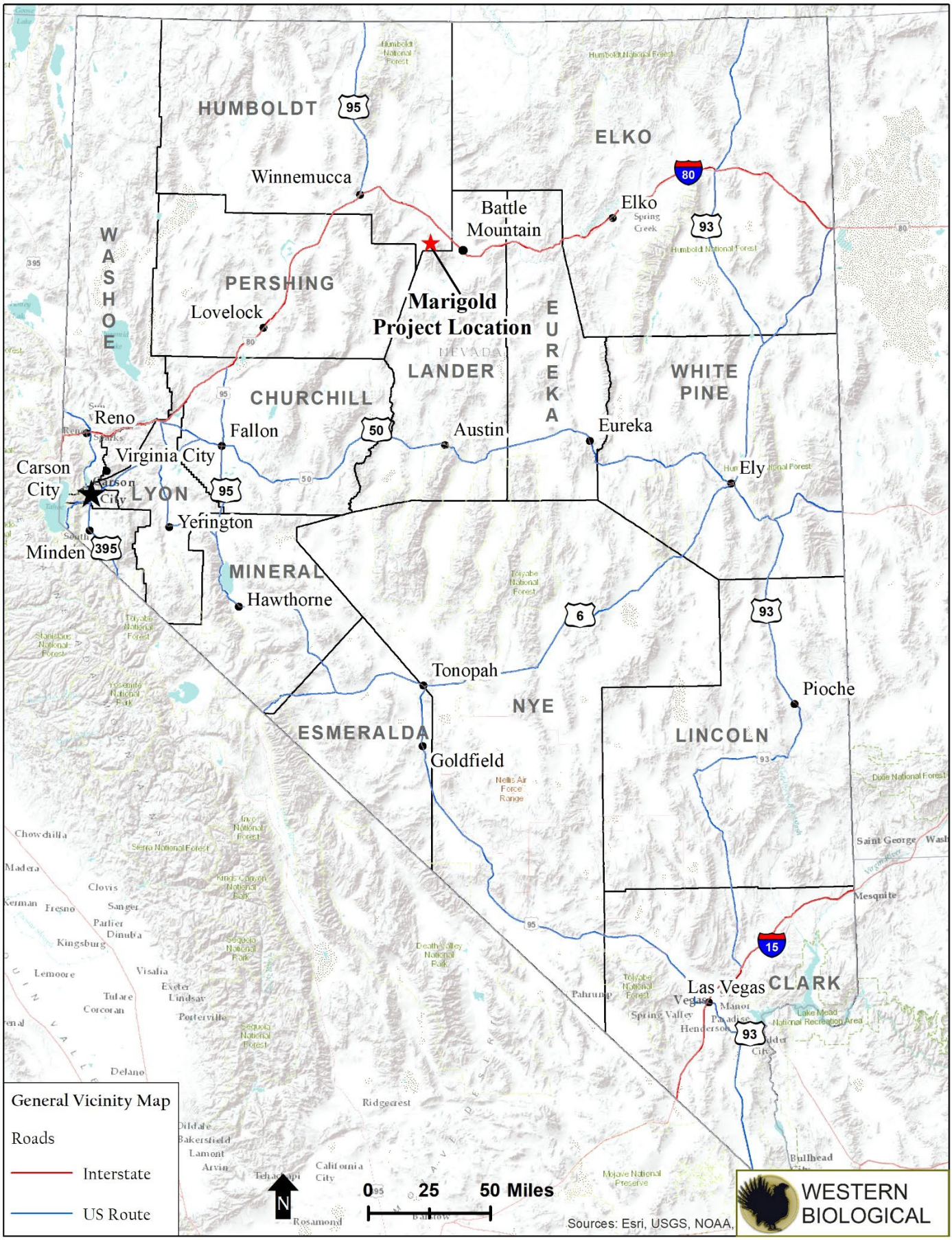


Figure 1: Marigold Mine - General Vicinity Map

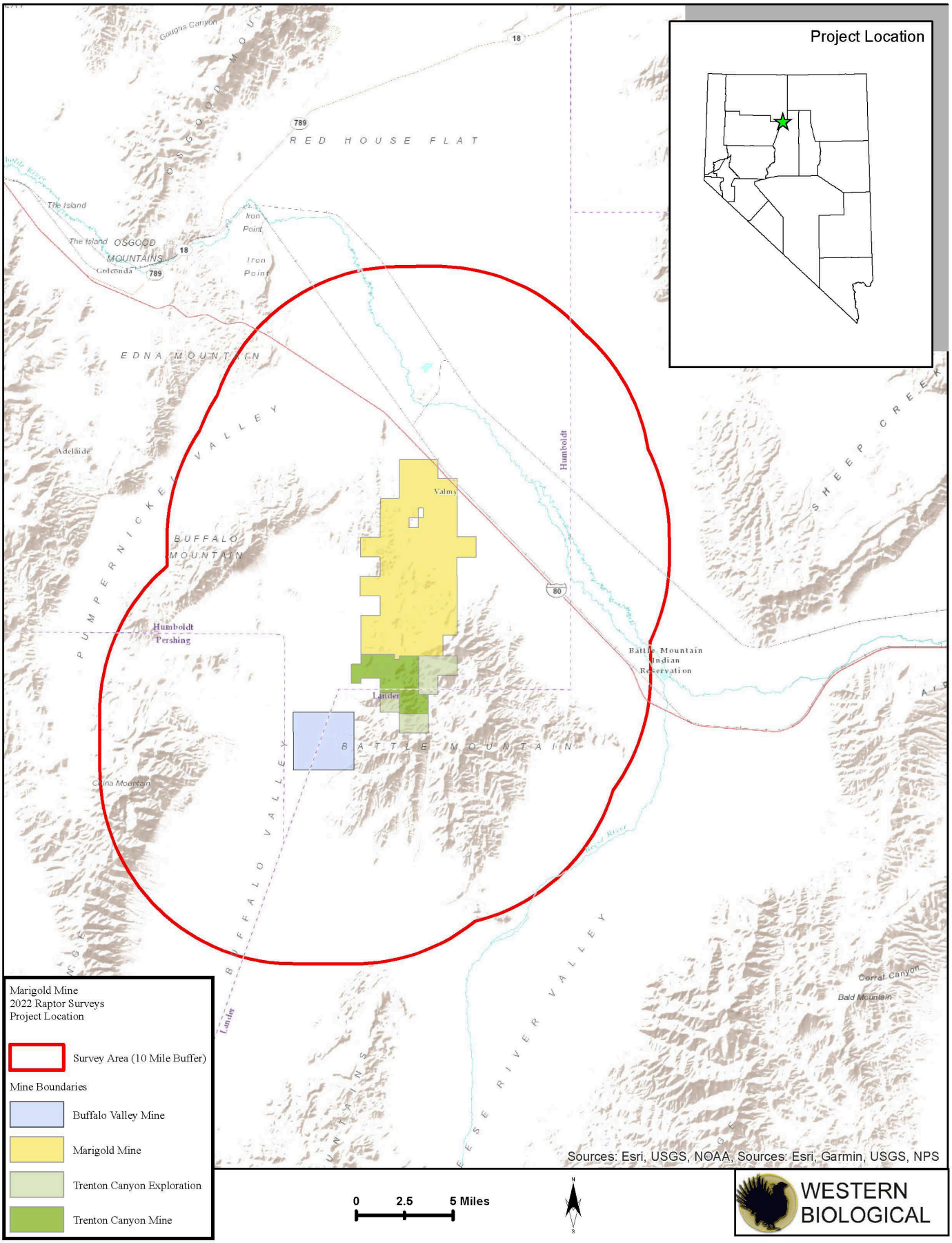


Figure 2: Marigold Mine Project and 2022 Raptor Survey Area

In compliance with Pagel et. al 2010, "Flights may occur preferentially during a) late courtship, b) egg-laying though hatch, and/or c) when the young are between 20 and 51 days old".

Shifting the flights to occur during the "egg-laying through hatch" and "young between 20 and 51 days old" periods, as opposed to the previous "late courtship" and "egg-laying through hatch" periods, yields more definitive data regarding nest occupancy and productivity during the nesting season. WB coordinated the revised survey timing with NDOW.

3.0 OBJECTIVE AND METHODS

3.1 Objective

The general objective for the raptor nest monitoring is to identify in-use raptor nests within 10 miles of the Project Area, to comply with recommended buffers between mining and exploration activity and in-use nests, and to avoid any accidental "take" of birds protected by the BGEPA and/or MBTA.

3.2 Methods

Historic datasets were reviewed prior to the 2022 aerial surveys to determine known nest sites, to identify areas to search for new nests, and to help determine the flight path.

The surveys were conducted when winds were less than 20 miles per hour (mph), and visibility was adequate to view the nests and the terrain. Surveys were conducted by helicopter with pilot and two observers. The primary observer recorded the nest data and obtained Universal Transverse Mercator (UTM) coordinates of the nesting sites[1] using a hand-held Global Positioning System (GPS) unit (the on-board tracking system was also used to record tracks during the flights). The secondary observer took photographs of the nests, looked for nests, and kept track of nests observed on previous surveys.

Surveys were conducted at low flight speeds to facilitate observation. After the April flight, the flight track was reviewed to determine if any potential habitat areas were missed, and these areas were included in the May survey.

Data collected included the species of raptor, nest type, number of adults observed, nest substrate, tree species (if a tree-nest), nest status, nest contents, nestling feather development (if chicks were present), and habitat, as well as any other pertinent notes regarding the nest or observation. Surveys were conducted in the morning and extended into early afternoon. This methodology is in accordance with the *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (USFWS 2010a), as recommended by the *BLM Nevada Statewide Wildlife SurveyProtocols* (2014).

---

[1] Often there will be multiple nests in close proximity to one another. These are typically built as alternate nests for one breeding pair and are considered part of one territory. Because of the close proximity of the nests, only one waypoint is taken for the nesting site, since it is impossible to differentiate multiple waypoints on top of each other for consistent nest naming and subsequent data collection. Therefore, WB refers to each waypoint as a nesting site, even though there may be more than one nest. Due to the territoriality of raptors during nesting, typically only one of the nests at each nesting site may be active in any given year.

The surveys were focused in areas with habitat for tree- and cliff- nesting raptors, specifically known golden eagle nests within the Project area. While it is acknowledged that numerous transmission lines fall within the 10-mile buffer which provide potential nesting sites for some bird species, these artificial nesting subsidies were not the focus of the surveys. However, when raptor species nested on transmission lines within the 1- and 2-mile buffers associated with mining and blasting activities, those nests were monitored from both the helicopter and the ground.

To maintain consistency in data collection, WB used the raptor nest IDs as established in previous surveys and followed the recommended naming convention for new nest discoveries. Additionally, WB has adopted the terms and definitions of eagle nest status as defined in the Programmatic Environmental Impact Statement (PEIS) for the Eagle Rule Revision (USFWS, 2016), and has extrapolated those definitions to define the status of all raptor nests detailed herein.

- An **In-Use** Nest is characterized by the presence of one or more eggs, dependent young, or adults on the nest in the past 10 days during breeding season.
- An **Alternate** Nest is one of potentially several nests within a nesting territory that is not an in-use nest at the current time. When there is no in-use nest, all nests in the territory are alternate nests.
- A **Territory** is the area containing one or more nests within the home range of a mated pair, regardless of whether such nests were built by the current resident pair.

4.0 RESULTS

The survey area for 2022 was flown on April 9-10 and May 11-12, 2022. Table 1 includes data for the two flights and the nest sites are displayed on Figure 3. The area surveyed was approximately 527,890 acres or 825 square miles.

Historic data for the project area was reviewed prior to surveys, known nest sites were visited during both 2022 flights, and searches for new nests took place during both flights. Winds were unusually strong throughout the nesting season; therefore, surveys were conducted when conditions were most appropriate. In some instances, nest locations were not able to be surveyed due to weather conditions and the implications to operational safety.

A total of 299 nest sites were previously documented in this survey area, however, 143 were preemptively removed due to being documented as "Not Found", "Fallen", or "Destroyed" during multiple previous surveys (Stantec, 2020; ERM, 2021). An additional 62 nest sites were removed after the April flight as they were documented as "No Visual", "Fallen", or they occurred on transmission line poles outside of the 2-mile blasting buffer and were determined not to be Golden Eagle nesting sites (Table 1). Six new nest sites were located in 2022, totaling 100 nest sites documented during the 2022 surveys (Table 1).

Of the 100 nest sites surveyed, 40 were confirmed in-use (40%). Six of the confirmed in-use nests were golden eagle (*Aquila chrysaetos*) nests, six were ferruginous hawks (*Buteo* regalis), two were red-tailed hawk nests (*Buteo jamaicensis*), one was a prairie falcon (*Falco* mexicanus), and 25 were common raven nests (*Corvus corax*).

Of the 100 total nest sites, 55 alternate sites were located, of which 21 could be attributed to golden eagles (21%), 3 could be attributed to common ravens (3%), and 31 could not be attributed to any specific species and were therefore classified as "Unknown" (31%). Many of the alternate, unknown nest sites were likely old golden eagle nests that had either fallen apart and could not be positively identified as golden eagle nests, or have been used by other raptors, which often changes the configuration of the nest. Additionally, 4 nest sites were classified as "Unknown" status due to adults being present during one or both flights and/or the nest appearing maintained but empty. One nest was documented as "Failed" due to it being in-use during the April flight and no longer useable on the May flight.

A large portion of the survey area consisted of valley floor (Buffalo Valley), either big sagebrush or salt desert shrub vegetation, the Interstate 80 and railroad corridors, and numerous in-use mine sites. These areas were not the focus of the surveys as the nests of raptor species that nest in these vegetation types (e.g., burrowing owl, *Athene cunicularia*) are not readily detected by aerial flights and the anthropogenic nesting subsidies within these areas are not typically considered golden eagle nesting habitat in this region.

Ground surveys were conducted at two in-use raptor nests within 2 miles of the Project which had the potential to be impacted by mining activities. Those reports were submitted to MMC separately.

Photos of nest sites are included in Appendix A.

Table 1: Summary of 2022 Raptor Survey Data

Nest Location	#Nests	Species	Status	Nest Substrate	April Note(s)	May Note(s)
AP-01-A			Removed		No visual 2020, 2021, or 2022	-
AP-02-A	1	Golden Eagle	Unknown	Cliff/Outcrop	Nest empty	Nest empty
AP-03-A			Combined		Only 1 of 6 nests visualized but downy chick at back and pair flying	2 nests both alternate
AP-03-A, B	2	Golden Eagle	In-use	Cliff/Outcrop	Only 1 of 6 nests visualized but downy chick at back and pair flying	2 nests both alternate
AP-03-B			Combined		Only 1 of 6 nests visualized but downy chick at back and pair flying	2 nests both alternate
AP-03-C			Removed		Only 1 of 6 nests visualized but downy chick at back and pair flying, not found 2020 or 2022	-
AP-03-E			Removed		Only 1 of 6 nests visualized but downy chick at back and pair flying	-
AP-03-F			Removed		Only 1 of 6 nests visualized but downy chick at back and pair flying, not found 2021 or 2022	-
AP-04-A	1	Common Raven	In-use	Cliff/Outcrop	1 adult incubating	Nest empty
AP-05-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	Covered in snow
AP-06-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	Covered in snow
AP-07-A			Removed		No visual	-
AP-08-A			Removed		No visual, 4 raven flying nearby	-
BAM-01-A	1	Unknown	Unknown	Cliff/Outcrop	Prairie Falcon perched	-
BAM-02-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Nest empty
BAM-03-A			Removed		No visual	No visual, wind
BAM-04-A			Removed		No visual, not found 2021 or 2022	-
BM-01-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Nest empty
BM-02-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	Covered in snow
BM-03-A, B, C, D	4	Golden Eagle	Alternate	Cliff/Outcrop	Whitewash no nest	4 nests, degraded and some covered in snow

BM-04-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Covered in snow
BM-05-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Degraded	-
BM-06-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	Nest empty
BM-07-A	1	Common Raven	In-use	Cliff/Outcrop	No visual, tiny outcrops	3 eggs in nest
BM-08-A	1	Common Raven	In-use	Cliff/Outcrop	RTHA nearby but nothing on nest	1 CORA adult incubating
BM-09-A		Unknown	Removed	Cliff/Outcrop	No visual on nests but pair of PRFA flying, not found 2020 or 2022	-
BM-10-A			Removed		No visual	No nest seen, but adult RTHA flushed off rocks
BM-11-A	1	Unknown	Alternate	Cliff/Outcrop		Nest covered in snow
BM-12-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Nest empty
BM-13-A			Removed		No visual	-
BV-03-A	1	Common Raven	In-use	Power Pole	Empty but well maintained	Downey chicks, adult incubating
BV-04-A	1	Common Raven	In-use	Power Pole	Adult incubating	1 adult flying, 1 incubating
BV-05-A		Unknown	Removed	Power Pole	-	Nest on power pole outside 1 mile buffer
BV-28-A			Removed		No nest	-
BV-299-A	1	Common Raven	In-use	Tree	1 adult incubating	-
BV-300-A	1	Ferruginous Hawk	In-use	Power Pole	1 adult incubating	1 adult incubating
BV-30-A			Removed	Cliff/Outcrop	Degraded	Nest fallen, not usable, remove
BV-31-A	1	Common Raven	Alternate	Tree	Small tree nest	-
BV-32-A			Removed		No nest, not found 2021 or 2022	-
BV-47-A			Removed		Fallen. No visual, not found 2020, 2021, or 2022	-
BV-48-A	1	Unknown	Unknown	Cliff/Outcrop	Nest in shadow unsure of content adult PRFA flying	-
BV-49-A	1	Prairie Falcon	In-use	Cliff/Outcrop	Perched on nest	1 adult incubating

BV-50-A			Removed		Fallen no visual, not found 2021 or 2022	-
BV-53-A	1	Common Raven	In-use	Cliff/Outcrop	1 adult flying	-
BV-57-A			Removed		Not found	Not Found
BVM-02-A			Removed		Pit, no visual	-
CB-01-A	1	Golden Eagle	Alternate	Pit Wall	Nest empty	Nest empty
CB-02-A	1	Common Raven	In-use	Pit Wall	Degraded	No photo, one adult incubating
CBR-01-A	1	Unknown	Alternate	Cliff/Outcrop	Nest fell?	2 nests, 1 fell
CBR-02-A	1	Unknown	Alternate	Power Pole	Nest empty	Nest empty
CBR-03-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Nest empty
CBR-04-A	1	Ferruginous Hawk	In-use	Power Pole	1 adult incubating	1 adult incubating
CBR-05-A	1	Ferruginous Hawk	In-use	Power Pole	No visual	1 adult incubating
CBR-303-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Nest empty
CCA-01-A	1	Unknown	Alternate	Cliff/Outcrop	Nest too small for eagle but adult flying nearby	Nest empty but GOEA flying
CHC-01-A			Removed		No visual	-
CHC-02-A	1	Golden Eagle	In-use	Cliff/Outcrop	Eggs in nest, adult incubating	
CHC-03-A	1	Golden Eagle	In-use	Cliff/Outcrop	Eggs in nest, adult flying	Snow covered but adult incubating
CHC-04-A			Removed		No visual	-
CHC-05-A			Removed		No visual	-
CHC-06-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	Nest intact
CHC-07-A	1	Unknown	Alternate	Cliff/Outcrop	No visual	Updated UTM/nest intact
CWC-01-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Rocks in nest	Covered in snow
CWC-03-A			Removed		No visual, not found 2020, 2021, or 2022	-
CWC-04-A			Removed	Cliff/Outcrop	Small degraded	Barely a nest, just a few sticks, remove
EH-01-A, B	2	Golden Eagle	Alternate	Cliff/Outcrop	Rocks in back of nest	2 old nests

EH-02-A			Removed	Cliff/Outcrop	No visual, not found 2020, 2021 or 2022	-
EH-03-A			Removed	Cliff/Outcrop	Degraded	-
EM-01-A, B	1	Common Raven	In-use	Cliff/Outcrop	CORA adult flushed	GOEA nest empty but small stick nest above left has CORA (incubating) on it
EM-02-A	1	Prairie Falcon	Failed	Cliff/Outcrop	1 adult incubating	Rocks fell in nest
EM-08-A			Removed		No nest, not found 2020, 2021 or 2022	-
GL-01-A	1	Unknown	Alternate	Cliff/Outcrop	Hard to get photo, glare, and wind	
GL-02-A	1	Unknown	Alternate	Cliff/Outcrop	No visual	Covered in snow
GL-03-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Nest empty
HC-01-A	1	Golden Eagle	Unknown	Cliff/Outcrop	No visual due to wind in canyon	Only 1 nest, full of snow. Adult GOEA flying nearby
HRV-08-A	1	Common Raven	In-use	Power Pole	No visual	One adult incubating
HRV-20-A	1	Common Raven	In-use	Power Pole	Adult nearby	-
HRV-298-A	1	Common Raven	In-use	Power Pole	adults in vicinity	-
HRV-29-A	1	Common Raven	In-use	Power Pole	One adult incubating	-
HRV-301-A	1	Ferruginous Hawk	In-use	Power Pole	1 adult incubating	1 adult flying, 1 incubating
HRV-302-A	1	Unknown	Alternate	Power Pole	Nest empty	Nest empty
HRV-39-A			Removed	Power Pole	No nest, not found 2020, 2021 or 2022	-
HRV-40-A			Removed		No visual fallen?, not found 2020, 2021 or 2022	-
HRV-41-A	1	Unknown	Alternate	Power Pole	No visual	-
HRV-46-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Degraded	Degraded
HRV-47-A	1	Common Raven	In-use	Power Pole	No visual	1 adult incubating
HRV-48-A, B	2	Common Raven	In-use	Structure	Radio tower	2 nests on tower/adult flying

HRV-49-A	1	Ferruginous Hawk	In-use	Power Pole	1 adult incubating	2 downy chicks, adult flying
HRV-60-A	1	Red-tailed Hawk	In-use	Power Pole	No nest	1 adult incubating
HRV-65-A	1	Common Raven	In-use	Power Pole	Adult incubating	-
HRV-66-A	1	Common Raven	In-use	Power Pole	2 adults flying	-
LC-01-A			Removed		No visual on group of 5 waypoints	-
LC-02-A			Removed		No visual on group of 5 waypoints	-
LC-03-A and B			Removed		No visual on group of 5 waypoints	-
LC-04-A			Removed		No visual on group of 5 waypoints	-
LC-05-A			Removed		No visual on group of 5 waypoints	-
LCC-01-A			Removed		No visual, not found 2020, 2021 or 2022	-
LCC-02-A	1	Common Raven	Alternate	Cliff/Outcrop	Nest empty	Nest empty
LCC-03-A, B, C	3	Unknown	Alternate	Cliff/Outcrop	3 degraded nests	3 degraded nests
LCC-04-A			Removed		LCC-04-A and LCC-05-A same location	-
LCC-05-A			Removed		No visual. Whitewash on outcrop but no nest seen	-
LCC-06-A	1	Common Raven	In-use	Cliff/Outcrop		Above whitewash, no photo due to wind, adult incubating
LCC-07-A			Removed		No visual, not found 2020, 2021 or 2022	-
LCC-08-A, B	2	Unknown	Alternate	Tree	Cottonwood. Owl present but starting to degrade	2 nests, both empty and not maintained
LCC-09-A			Removed		No visual	-
LCC-10-A			Removed		No visual, not found 2020, 2021 or 2022	-
LCC-11-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Empty but well maintained	Nest empty
MIS-04-A	1	Ferruginous Hawk	In-use	Power Pole	Large stick nest empty and starting to fall	1 adult incubating
MIS-06-A	1	Common Raven	In-use	Power Pole	1 adult incubating	-

MIS-08-A	1	Common Raven	In-use	Power Pole	1 adult incubating	-
MIS-09-A	1	Common Raven	In-use	Power Pole	1 adult flying	-
MIS-16-A	1	Common Raven	In-use	Structure	2 adults flying	-
MM-01-A			Removed		No visual, on dump, no cliff	Dump, no nest habitat
NFT-01-A			Removed		Whitewash no nest, nest fell in 2020	-
NP-01-A	1	Golden Eagle	Alternate	Cliff/Outcrop		Covered in snow
NP-03-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty but adult nearby	Covered in snow
NP-04-A	1	Unknown	Alternate	Cliff/Outcrop	No visual	Covered in snow
NP-06-A	1	Unknown	Alternate	Cliff/Outcrop	No visual on nest but adult PRFA flying	Covered in snow
NP-07-A	1	Unknown	Alternate	Cliff/Outcrop	Whitewash no nest	Nest empty
NP-08-A			Removed		No visual, not found 2020, 2021 or 2022	-
NP-09-A	1	Golden Eagle	Alternate	Cliff/Outcrop		Covered in snow
NP-10-A	1	Unknown	Alternate	Pit Wall		Covered in snow
PC-02-A			Removed		No visual, not found in 2020 or 2022	-
PC-03-A, B	2	Golden Eagle	In-use	Cliff/Outcrop	No visual	2 nests, both degraded, but one in-use. No adults seen, only chicks. Assume GOEA based on size
PC-04-A			Removed		No visual	-
PC-05-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	Nest empty
PC-06-A	1	Golden Eagle	In-use	Pit Wall	Pit wall, whitewash, possibly bird on nest but can't get down in pit due to wind	Debris pile below nest/ 1 adult incubating
PV-01-A, B, and C			Removed		Duplicate of PV-23-A, B (59)	-
PV-02-A	1	Unknown	Alternate	Cliff/Outcrop	Nest empty	Nest empty
PV-03-A	1	Common Raven	Alternate	Cliff/Outcrop	Small stick nest likely CORA	Nest empty

PV-09-A	1	Unknown	Alternate	Power Pole	No visual	Nest intact
PV-19-A	1	Unknown	Alternate	Cliff/Outcrop	Degraded	Degraded
PV-23-A, B	2	Common Raven	In-use	Cliff/Outcrop	Duplicate 230	Chicks in nest, 2 nests
PV-24-A	1	Unknown	Alternate	Power Pole	No nest	Baling twine in nest/Intact
RC-01-A, B	2	Golden Eagle	Alternate	Cliff/Outcrop	Small nest above big nest	Both nests empty
RC-03-A, B, and C			Alternate		-	Nests 246-248-249-250-251-252-258-259-260-261 same cluster, flown both surveys
RC-04-A	1	Golden Eagle	Alternate	Cliff/Outcrop	No stick nest seen but eagle perched near whitewash scrape	No nest seen
RC-05-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Degraded	Degraded
RC-06-A			Removed		No visual	Nests 246-248-249-250-251-252-258-259-260-261 same cluster, flown both surveys, not found 2020, 2021 or 2022
RC-07-A			Removed		-	Nests 246-248-249-250-251-252-258-259-260-261 same cluster, flown both surveys, not found 2020, 2021 or 2022
RR-02-A	1	Common Raven	In-use	Power Pole	1 adult incubating	-
RR-03-A			Removed		No visual	Nests 246-248-249-250-251-252-258-259-260-261 same cluster, flown both surveys, not found 2020, 2021 or 2022
RR-04-A			Removed	Power Pole	No nest	-
TBC-01-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	Nest empty
TBC-02-A			Removed		No visual	Nests 246-248-249-250-251-252-258-259-260-261 same cluster, flown both surveys, not found 2020, 2021 or 2022
TBC-03-A			Removed		-	Nests 246-248-249-250-251-252-258-259-260-261 same cluster, flown both surveys

TBC-04-A	1	Golden Eagle	Alternate	Cliff/Outcrop	Nest empty	No photo
TC-01-A	1	Unknown	Alternate	Cliff/Outcrop	No visual	nest intact
TC-02-A	1	Golden Eagle	In-use	Cliff/Outcrop	1 adult incubating	Downy chicks in nest
TC-03-A	1	Unknown	Alternate	Power Pole	Nest empty	nest intact
TH-01-A	1	Common Raven	In-use	Structure	1 adult incubating	-
TH-06-A			Removed	Power Pole	No nest	Taken down by plant?
TRC-01-A			Removed		Same location as TRC-06-A (285)	-
TRC-02-A	1	Unknown	Alternate	Cliff/Outcrop	No visual	Covered in snow
TRC-03-A	1	Unknown	Alternate	Cliff/Outcrop	No visual	nest intact
TRC-04-A			Removed		No visual, not found 2021 or 2022	-
TRC-05-A			Removed		No visual, not found 2020, 2021 or 2022	-
TRC-06-A	1	Red-tailed Hawk	In-use	Cliff/Outcrop		2 eggs in nest, adult flying
VC-01-A	1	Common Raven	In-use	Pit Wall	Adult flying	-
WC-01-A			Removed		No visual	-
WC-03-A			Removed		No visual, not found 2020 or 2022	-
WC-04-A			Removed		No visual, not found 2021 or 2022	-

[1]Nest Site numbers refer to nest(s) locations on figures in Appendix.

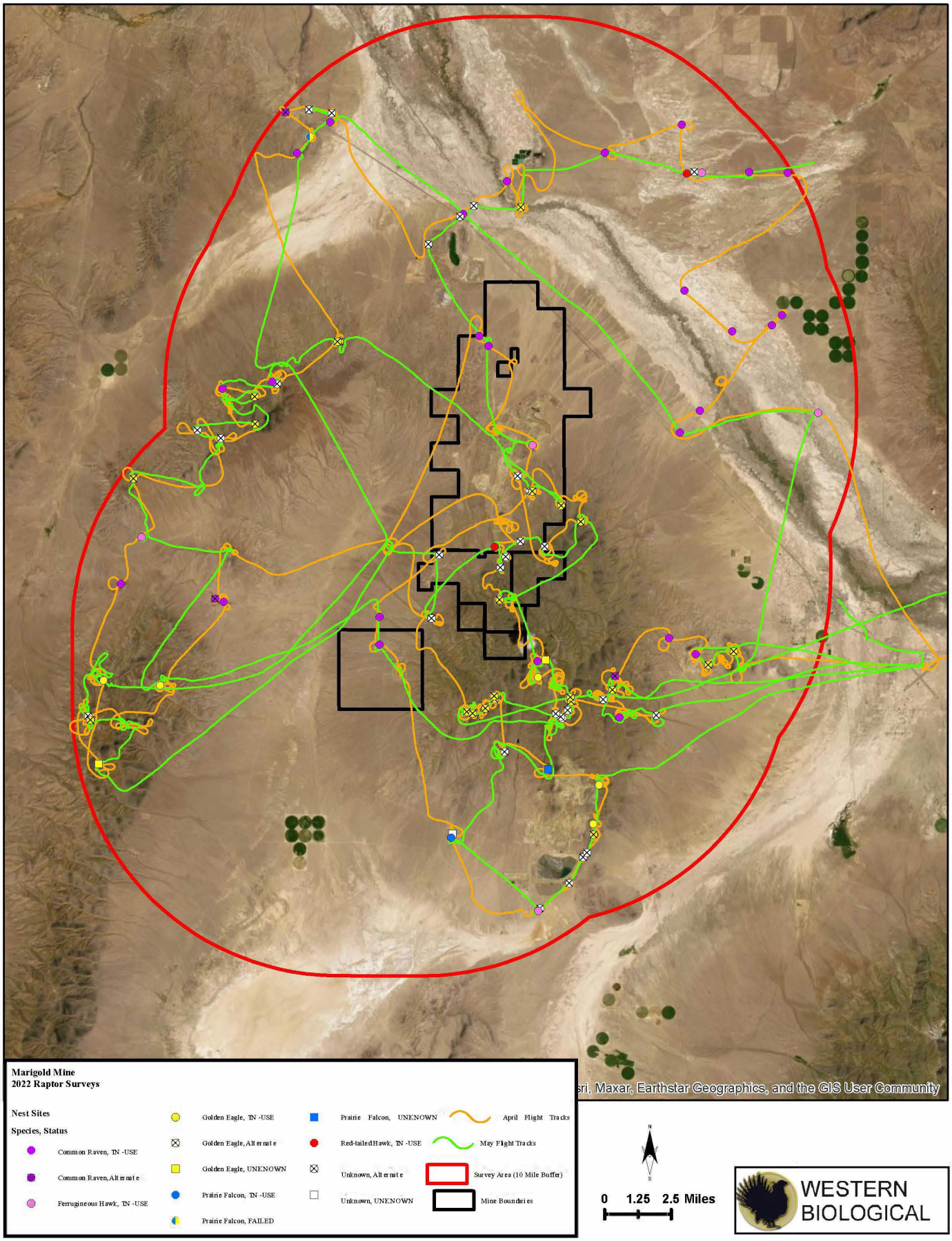


Figure 3: April and May 2022 Raptor Survey Results at Marigold Mine

5.0 DISCUSSION

The surveys focused on the mountainous areas where there are natural cliffs and rock outcrops and along the edge of the pinyon-juniper trees and the sagebrush community (Figure 3). The rocky ledges found in the cliffs and rock outcrops are prime nesting sites for golden eagles, red-tailed hawks, prairie falcons, and some species of owls. The pinyon-juniper/sagebrush interface is primary nesting habitat for ferruginous hawks, but this species will also use rock outcrops or rock spires.

The 100 nest sites in the 825 square miles of the survey area averaged 1 nest per 8.2 square miles. This is somewhat misleading with respect to the distribution of nests, as the nests were concentrated in the mountainous areas. However, many of the species forage in the valley areas; therefore, the area available from which to hunt prey is relatively large per in-use nest.

Forty nests were confirmed as in-use: six golden eagle, six ferruginous hawk, two red-tailed hawks, one prairie falcon, and twenty-five common ravens.

Golden eagle nests accounted for 27 of the 100 nest sites located and six of the eagle nest sites were in-use. The large number of alternate golden eagle nests may not be indicative of a decline in population in the area. These birds often build alternative nests during the courtship period, eventually using the alternative nest if the in-use nest becomes too large and unstable after many years of use. These large alternate nests persist for many years and can be used by other raptor species; therefore, the number of nests may increase (new nests) or decrease (abandoned nests that deteriorate) over time, even with a stable population.

Prairie falcon nests were most likely under-observed. This species often uses small ledges and does not build a nest but uses a scrape that is not easily detected. In these instances, the nest may only be located if the adult flies from the nest. However, prairie falcons will also use stick nests that have been abandoned by other raptors. These nests are more detectable. One prairie falcon nest was documented as "Failed" due to an adult observed incubating during the April flight and large rocks having fallen in the nest making it unusable during the May flight.

A large portion of the survey area consisted of the valley floor with salt desert shrub or sagebrush/bunchgrass communities and substantial anthropogenic features (i.e., mines, interstate, railroad, transmission lines, powerplant). While it is acknowledged that these anthropogenic features may provide nesting subsidies for common ravens and some raptors (i.e., ferruginous hawks, red-tailed hawks), golden eagles do not typically nest on these features in this region. Therefore, as discussed with Marigold personnel, transmission lines were not the focus of the surveys, particularly if they occurred >2 miles from mining activities. Features <2 miles from mining activities and/or those which occurred directly within the mine footprint were included in the survey as those nests had the potential to be impacted by mining activities.

Review of the 2020 and 2021 Marigold Raptor Survey Reports showed that no nests were documented as in-use during the February flight in either year, however numerous raptor nests were documented as in-use during the subsequent flight those years. Due to the early timing of those surveys, no data was available to determine a) which of those in-use nests successfully

hatched/fledged, b) which of those nests were abandoned, depredated, or otherwise failed and c) if any additional nests became occupied after the second flight. The 2020 report acknowledged that at least one raptor nest became occupied after the March flight, and that it was possible due to the early survey timing that more raptor nests became occupied after the surveys that year.

Conversely, WB proposed conducting the 2022 surveys during a later timeframe, still within the parameters of the Pagel et al. protocol, and approved by NDOW. As a result, WB documented 11 nests as in-use by raptors during each flight, 16 raptor nests in-use overall during the 2022 nesting season, and 1 of those nests as failed.

Additionally, nest NP-01-A was documented as in-use by a separate consultant conducting surveys for a nearby mine in March 2022. While the other consultant observed a golden eagle sitting on the nest in March, WB documented this nest as empty, therefore unoccupied in both April and May. In May, the nest was covered in snow and was clearly not in use. Because the snow was fresh from a recent storm, if the nest had been in-use, the adult would have been on the nest to protect the eggs/chicks. In fact, as observed on numerous other nests during that flight, when the nest was in-use, the back of the adult bird was covered in snow because they hadn't moved throughout the storm so they could keep the nest contents protected from the weather. The other consultant may have observed a practice nesting attempt of young birds, a failed nesting attempt of mature birds, or a bird perched/roosted on a nest.

WB strategically times surveys during the incubation and nestling periods to obtain concrete nest occupancy and productivity data. While the flights timed during courtship may provide data on territory occupancy and early/unsuccessful breeding attempts (which based on direct communication with Pagel are preferentially and more reliably observed from the ground) it runs the risk of basing important mitigation decisions on a failed breeding attempt or an occupied territory with no breeding attempt.

Based on observations of in-use nests across the state in May 2022, the majority of adults were still sitting on eggs, with a small percentage of nests having <1 week old downy chicks in them. Based on that nesting chronology, there is no possibility that NP-01-A hatched and fledged between the other consultant's March flight and WB's April flight.

These results demonstrate the importance of survey timing within the nesting season for properly documenting the occupancy and productivity of raptor nests in this area.

6.0 REFERENCES

ERM-West, Inc. 2021. *2021 Golden Eagle and Raptor Surveys, Marigold Mine, Trenton Canyon, and Buffalo Valley Plan of Operations.* Prepared by ERM Salt Lake City, Utah office. ERM Project Number 0586778. 6 May 2021.

Nevada Mining Association. 2018. *Golden Eagle Protection Best Practices, Nevada Mineral Exploration and Mining Industry*.

Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations*. Division of Migratory Bird Management, U.S. Fish and Wildlife Service. February.

Stantec Consulting Services Inc. 2020. *2020 Raptor Nest Survey Marigold Mine Project, Humboldt County, Nevada.* Prepared for SSR Mining Inc. Prepared by Stantec Elko, Nevada office. Stantec Project Number 203721702. 5 June 2020.

United States Department of the Interior, Fish and Wildlife Service, 2016. *Programmatic Environmental Impact Statement for the Eagle Rule Revision.*

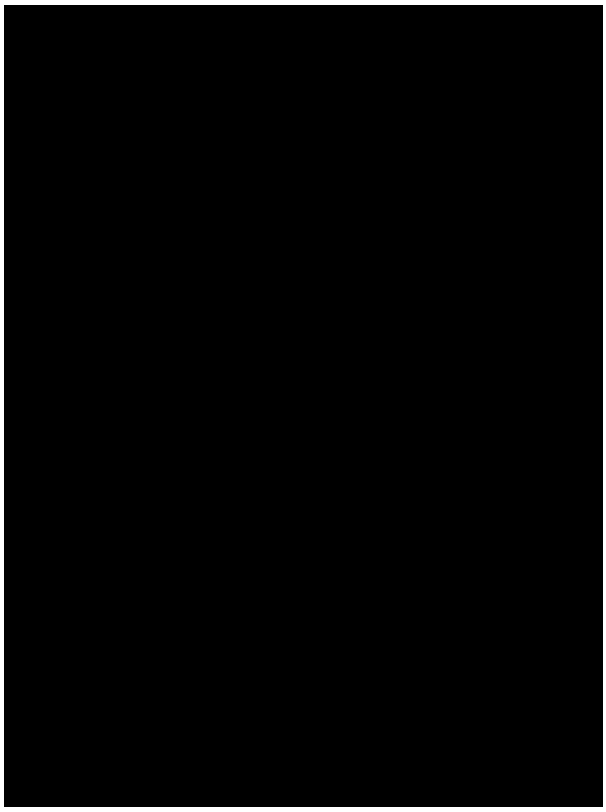
Appendix A

Nest Photos – April and May 2022

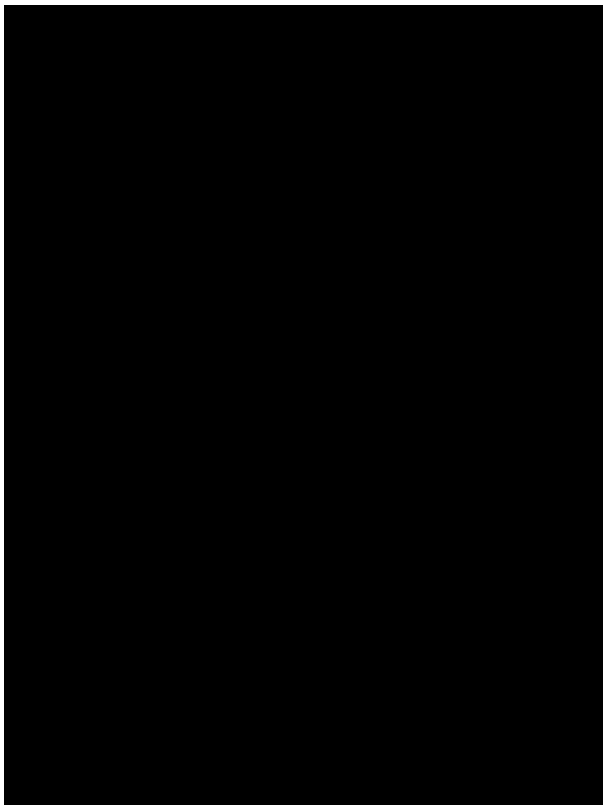
WESTERN BIOLOGICAL

Marigold Raptor Photo Report

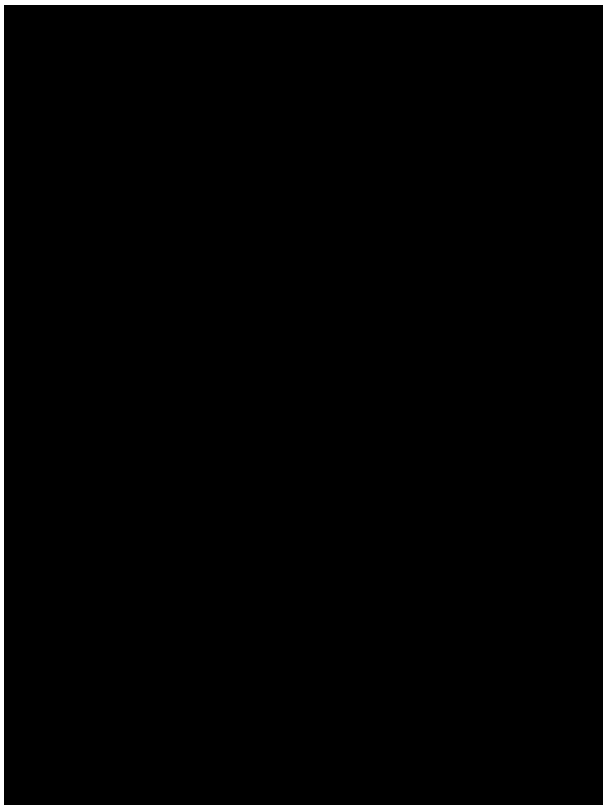
Nest location Species Status of nest



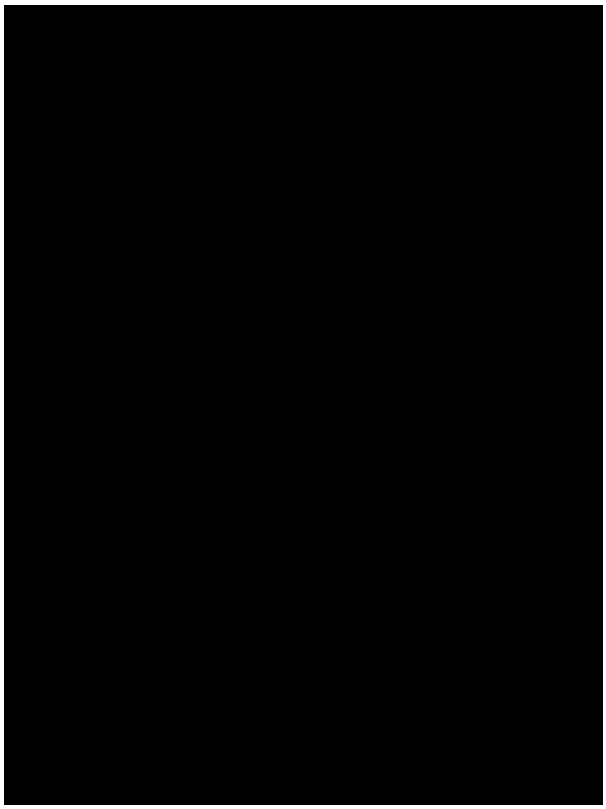
AP-02-A Golden Eagle Unknown



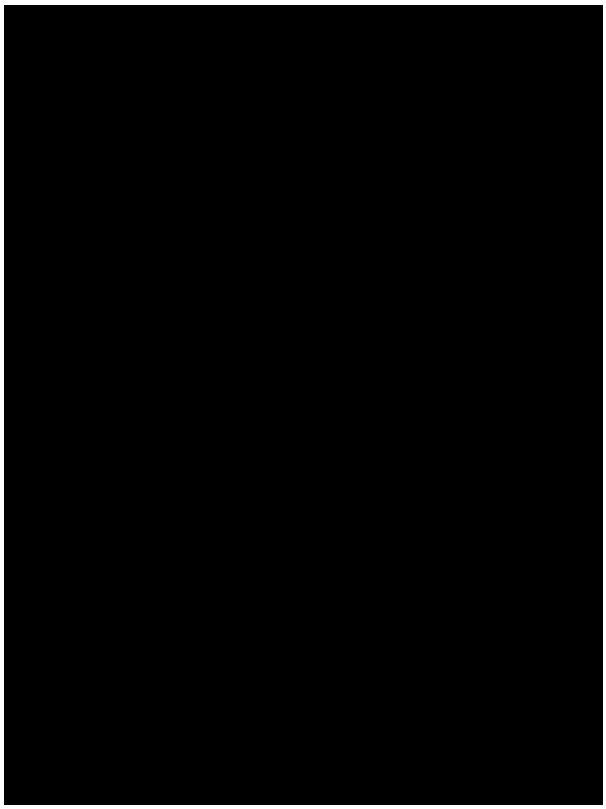
AP-03-A,B Golden Eagle In-Use



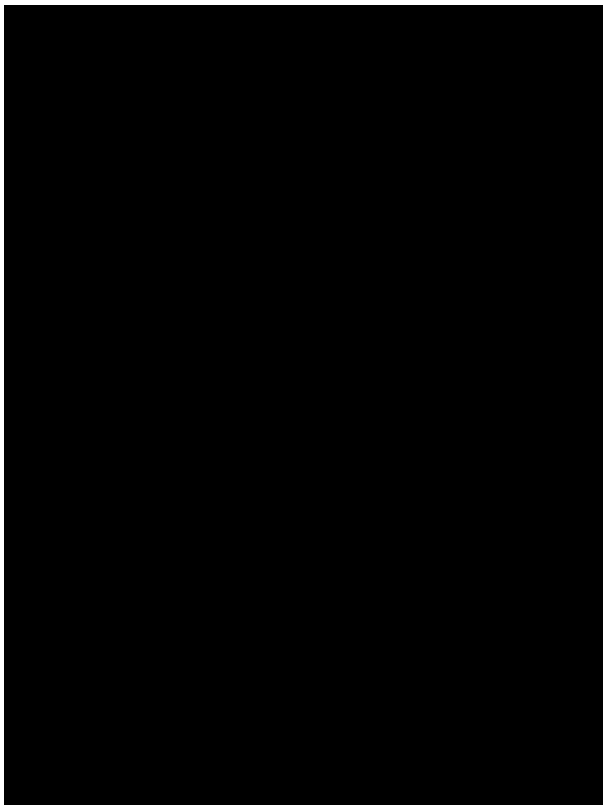
AP-04-A Common Raven In-Use



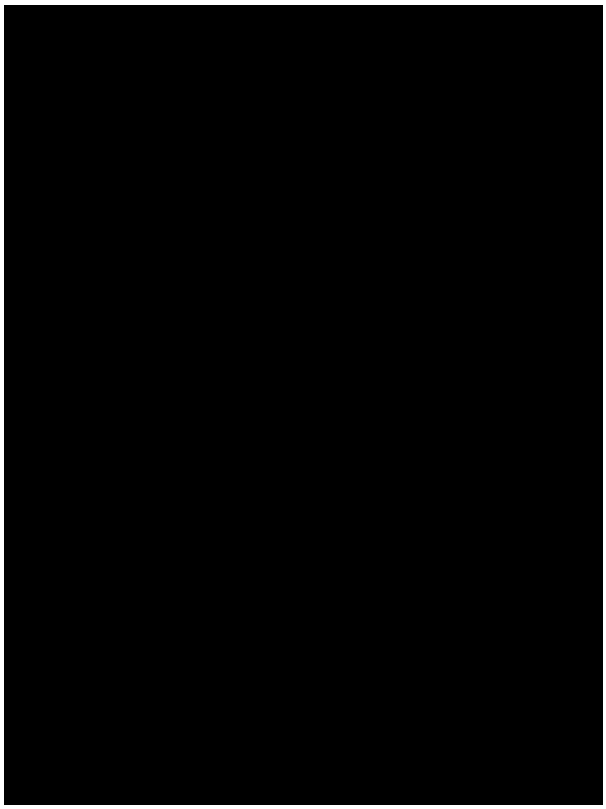
AP-05-A Golden Eagle Alternate



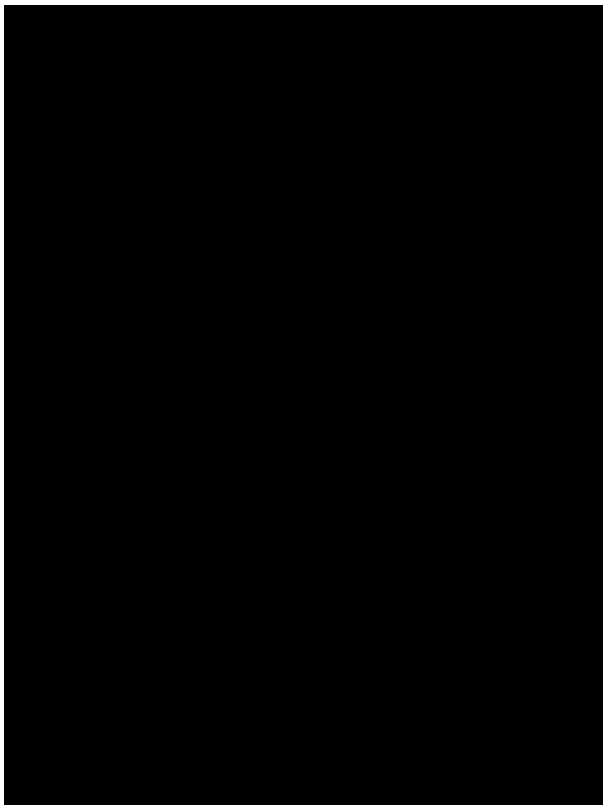
AP-06-A Golden Eagle Alternate



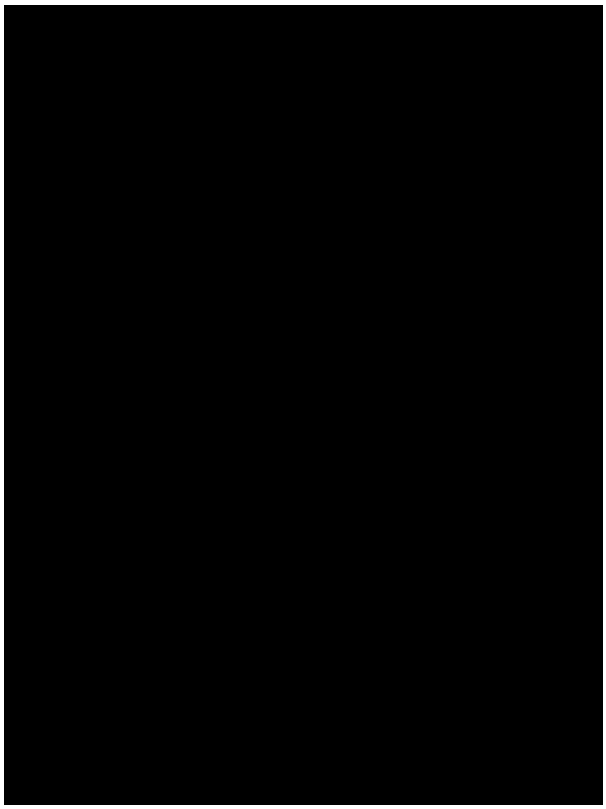
BAM-01-A Unknown Unknown



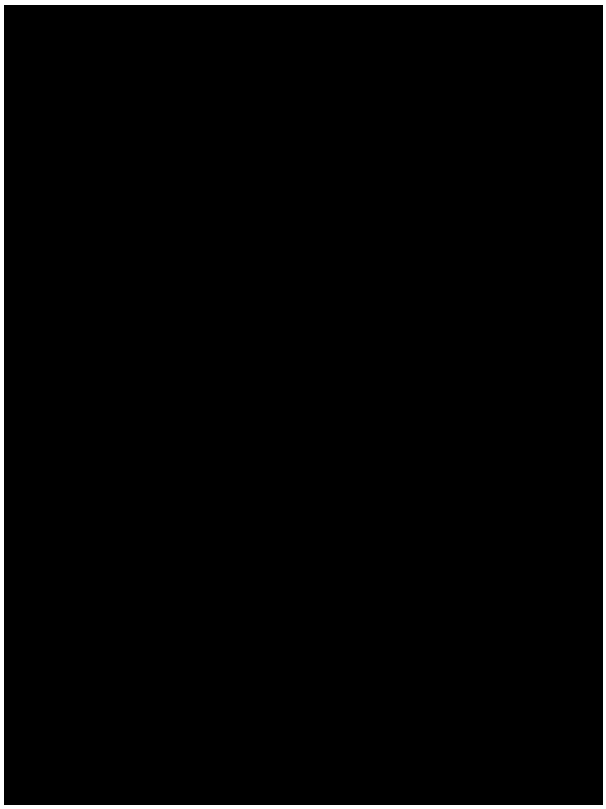
BM-01-A Unknown Alternate



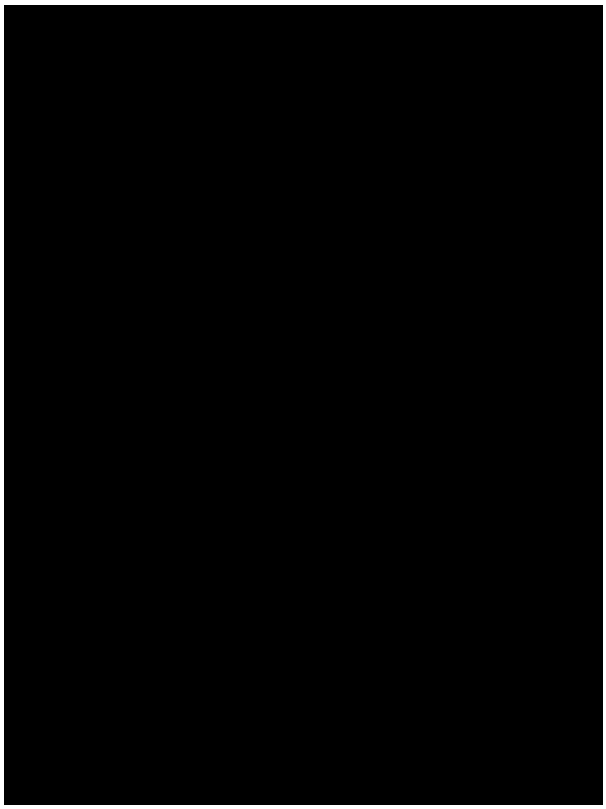
BM-02-A Golden Eagle Alternate



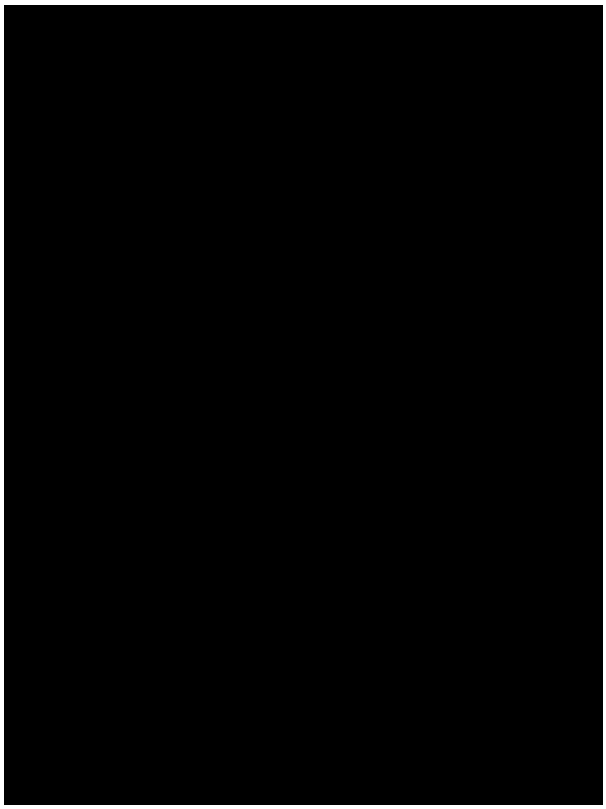
BM-03-A,B,C,D Golden Eagle Alternate



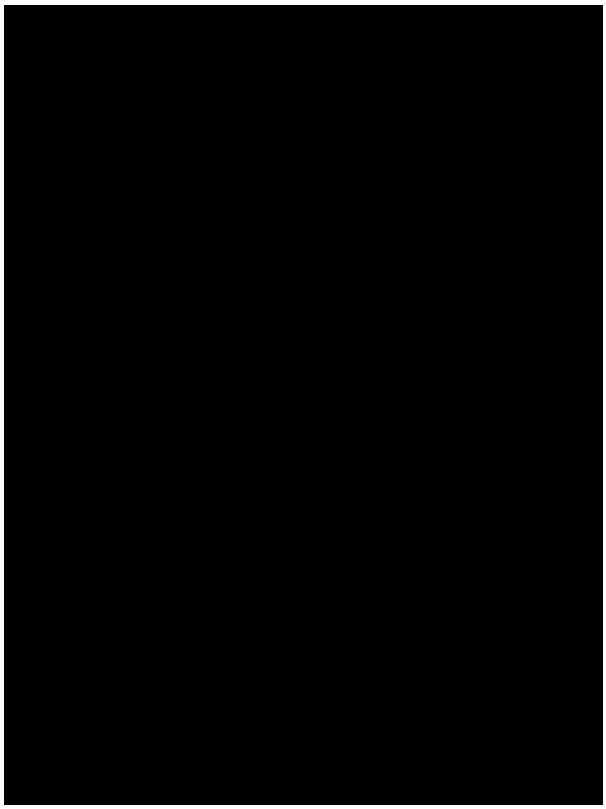
BM-04-A Unknown Alternate



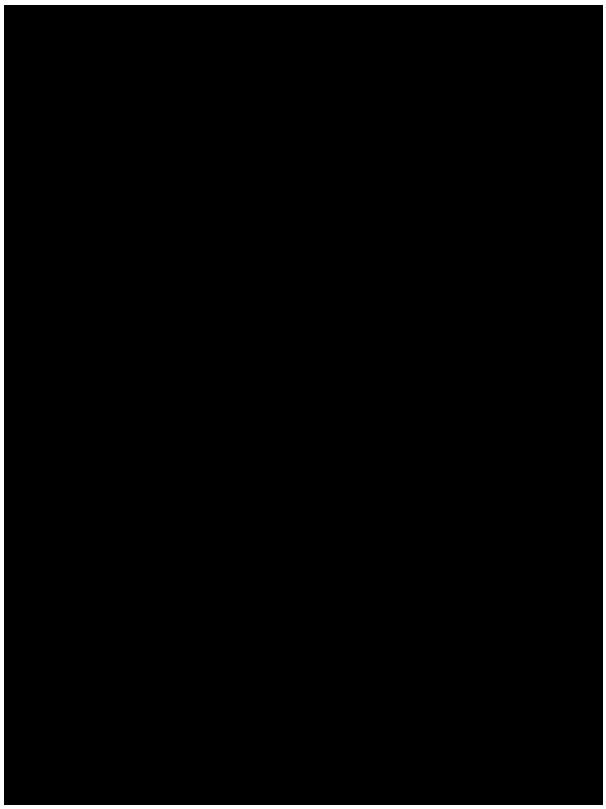
BM-05-A Golden Eagle Alternate



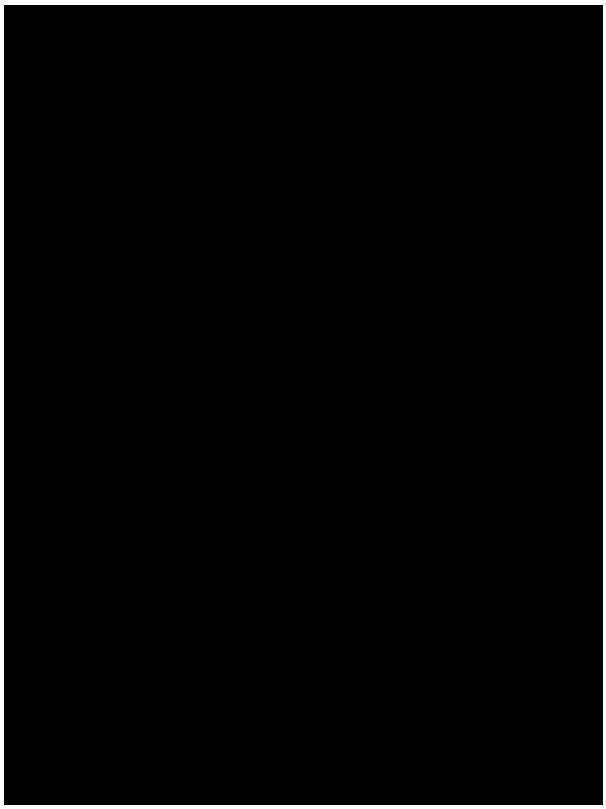
BM-06-A Golden Eagle Alternate



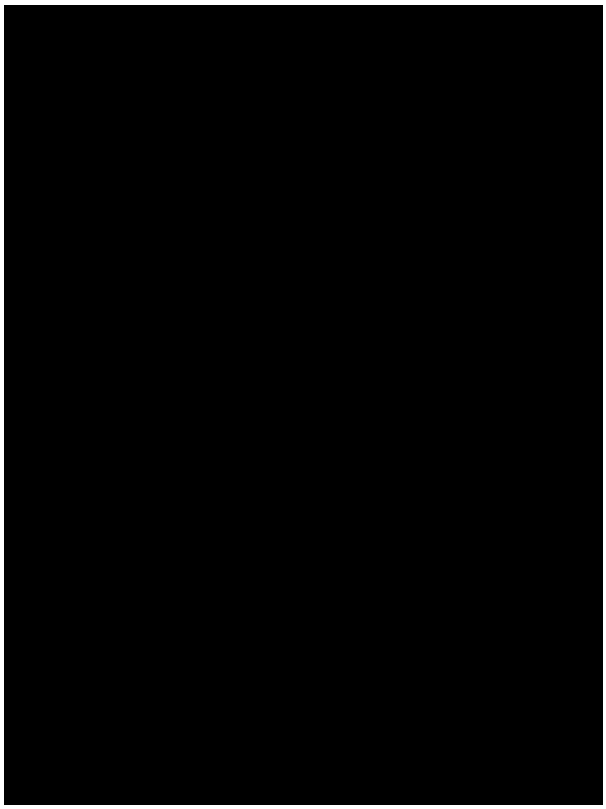
BM-07-A Common Raven In-Use



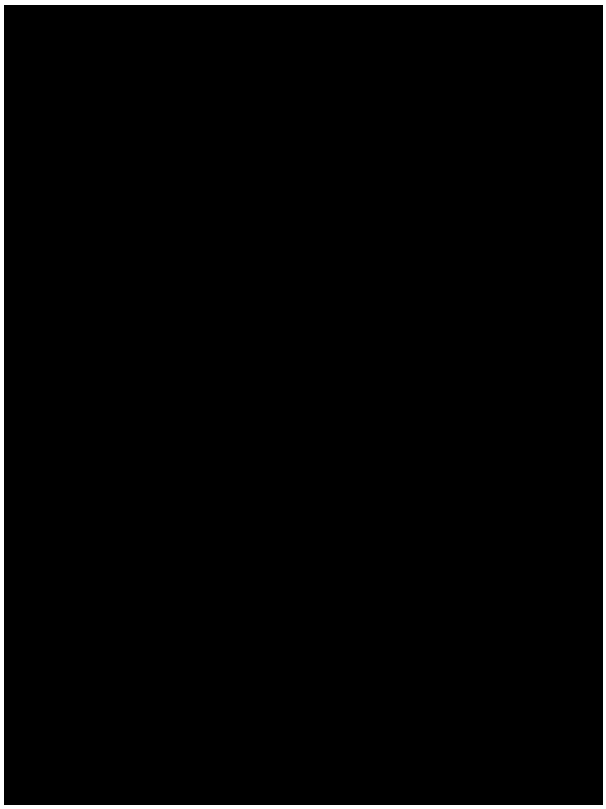
BM-08-A Unknown Alternate



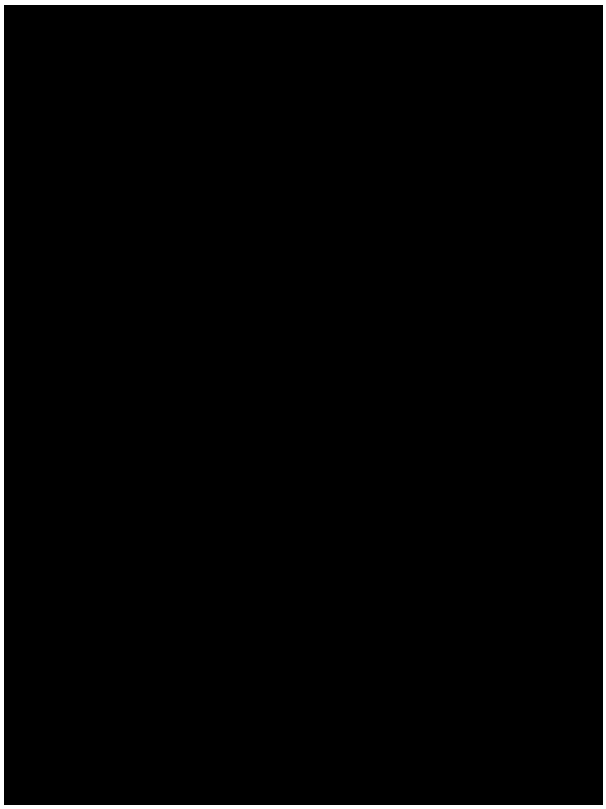
BM-11-A Unknown Alternate



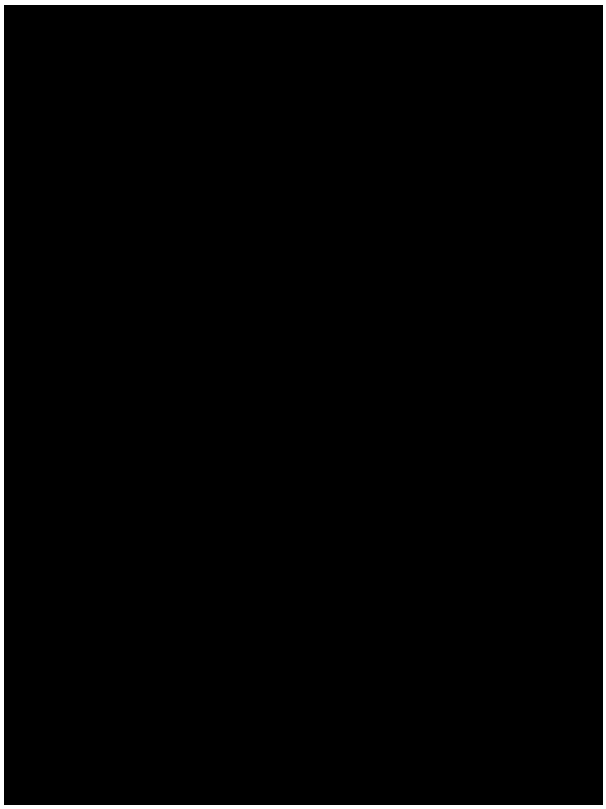
BM-12-A Unknown Alternate



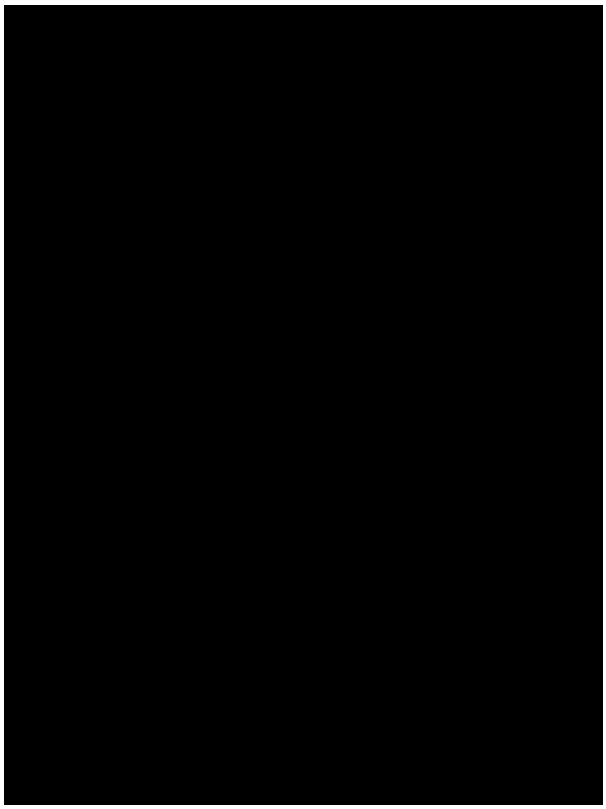
BV-02-A Common Raven In-Use



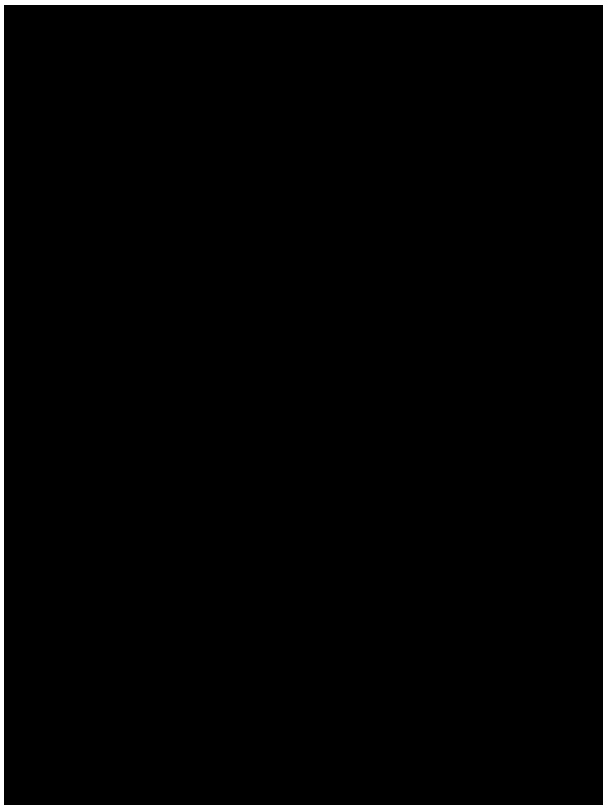
BV-03-A Common Raven In-Use



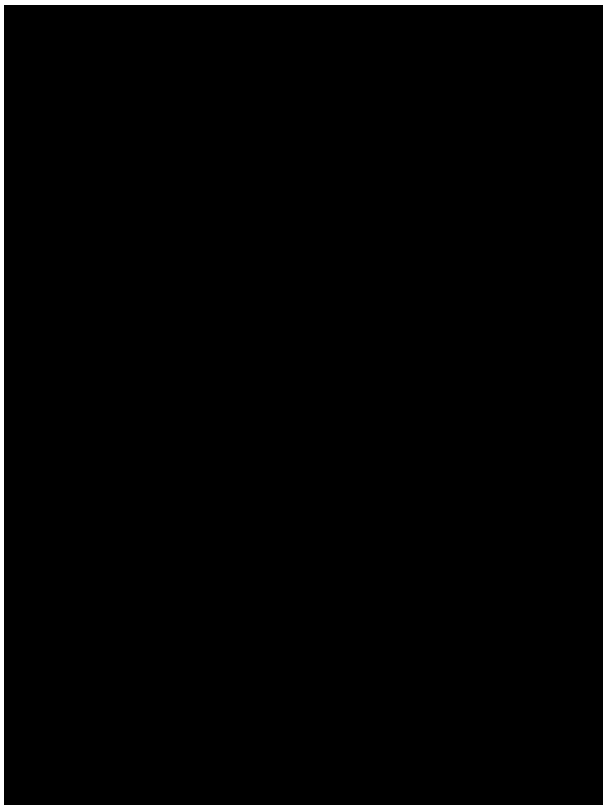
BV-04-A Common Raven In-Use



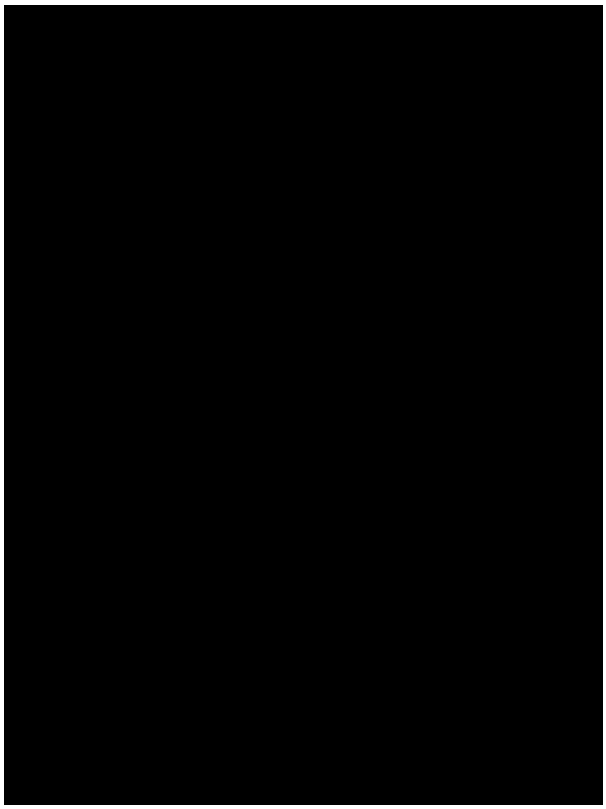
BV-05-A Ferruginous Hawk In-Use



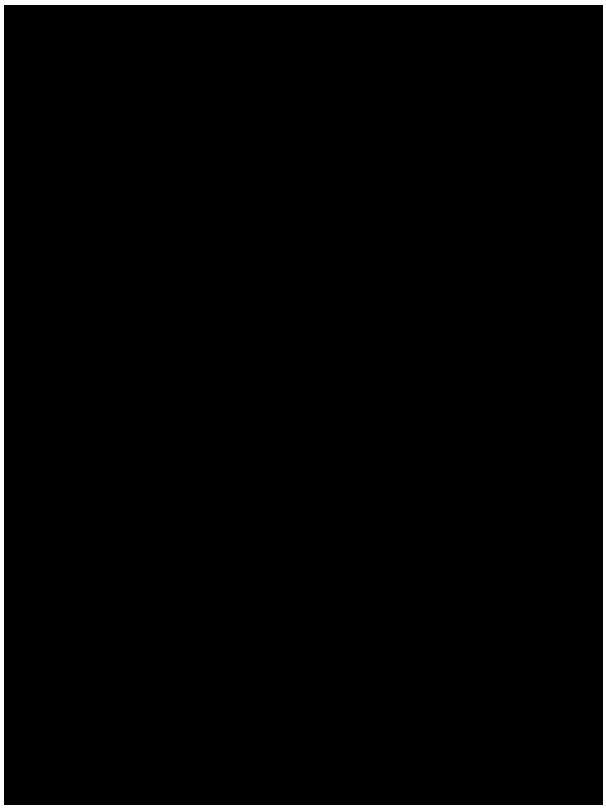
BV-48-A Unknown Unknown



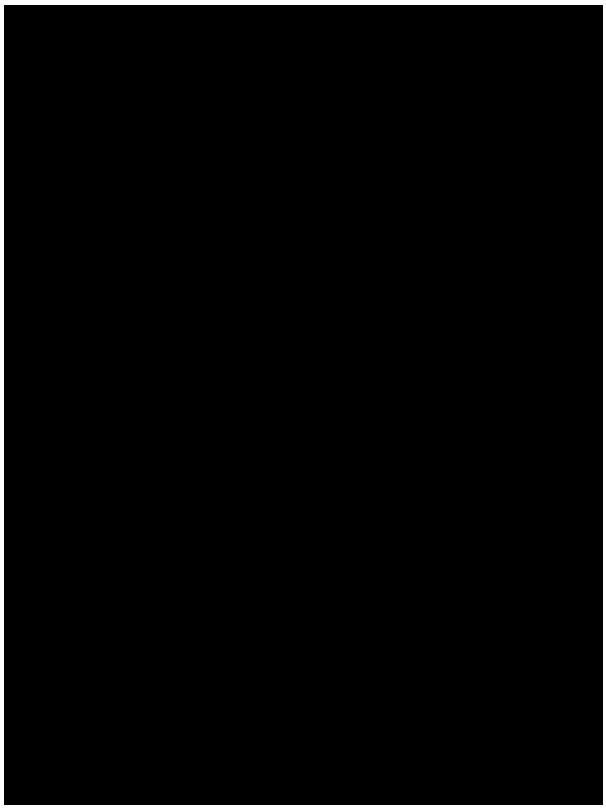
BV-49-A Prairie Falcon In-Use



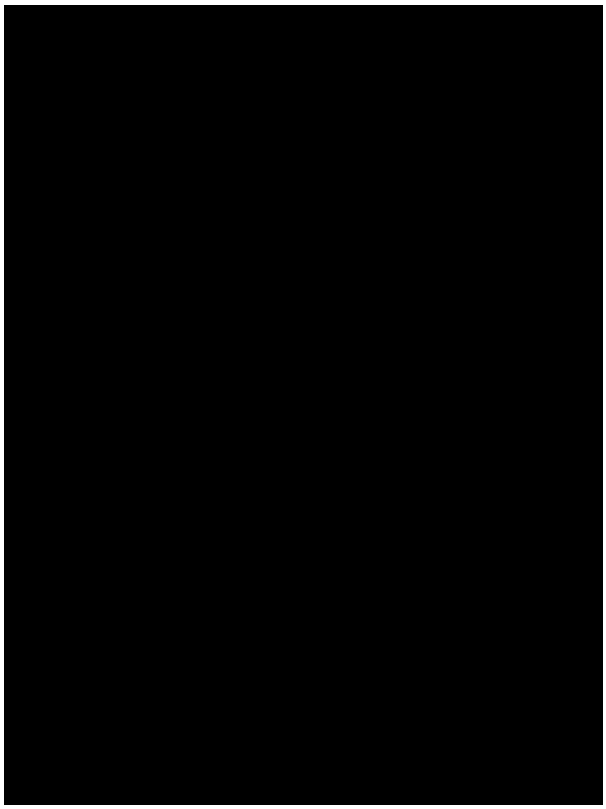
CB-01-A Golden Eagle Alternate



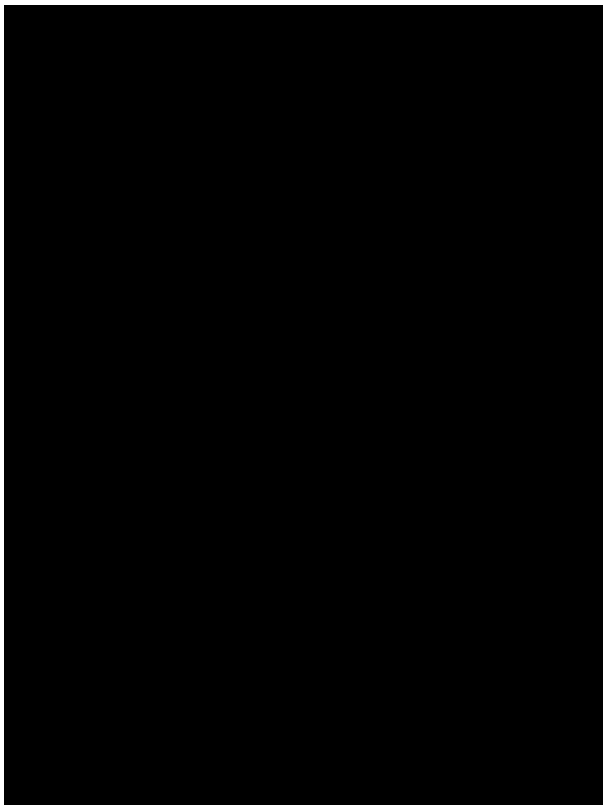
CB-02-A Common Raven In-Use



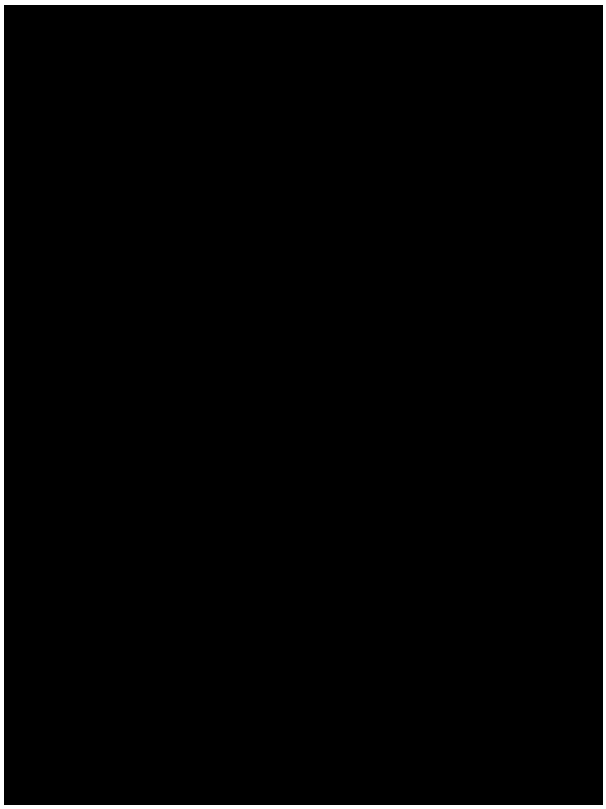
CBR-02-A Unknown Alternate



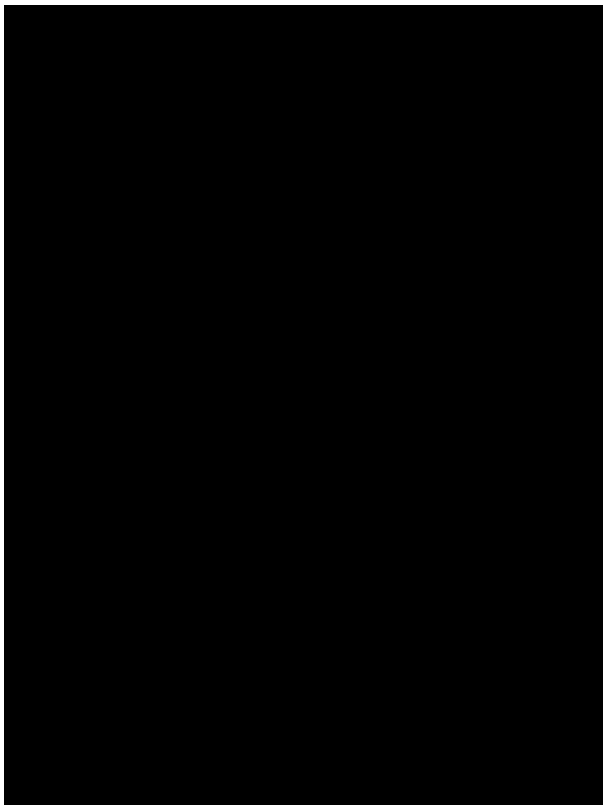
CBR-03-A Unknown Alternate



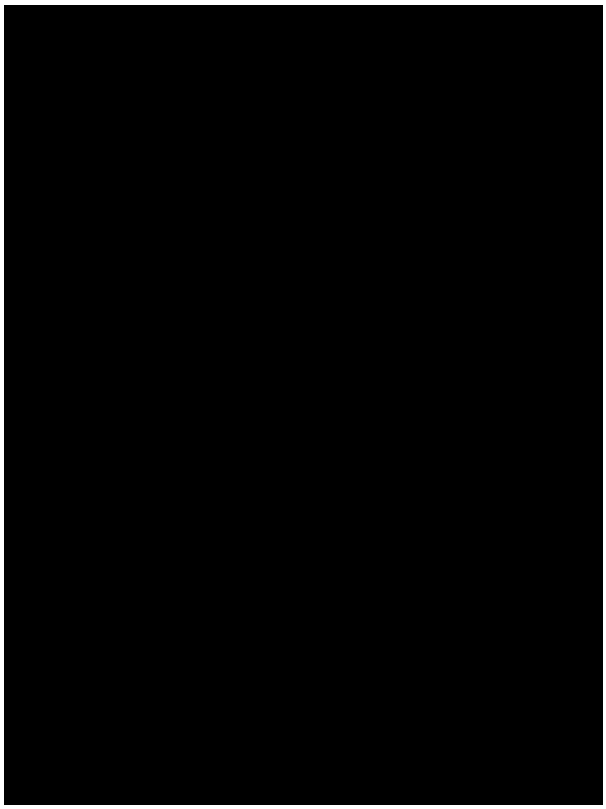
CBR-04-A Ferruginous Hawk In-Use



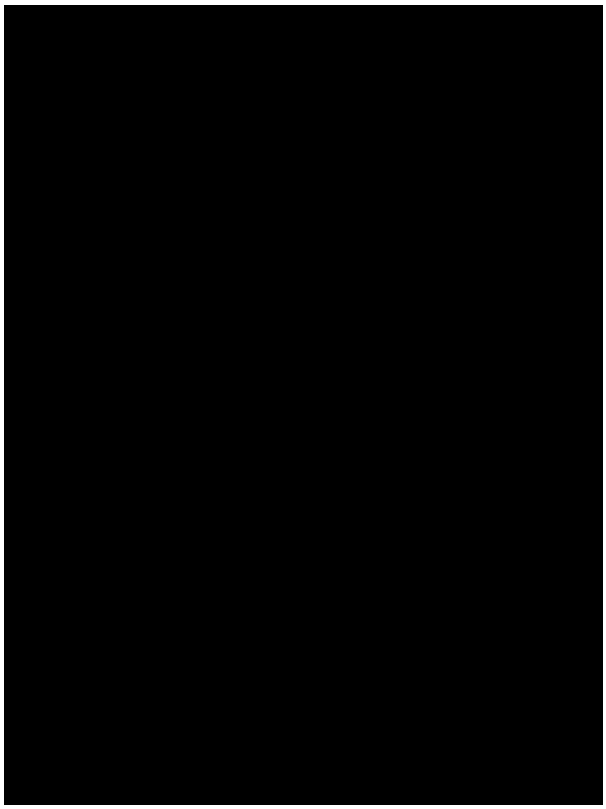
CBR-05-A Ferruginous Hawk In-Use



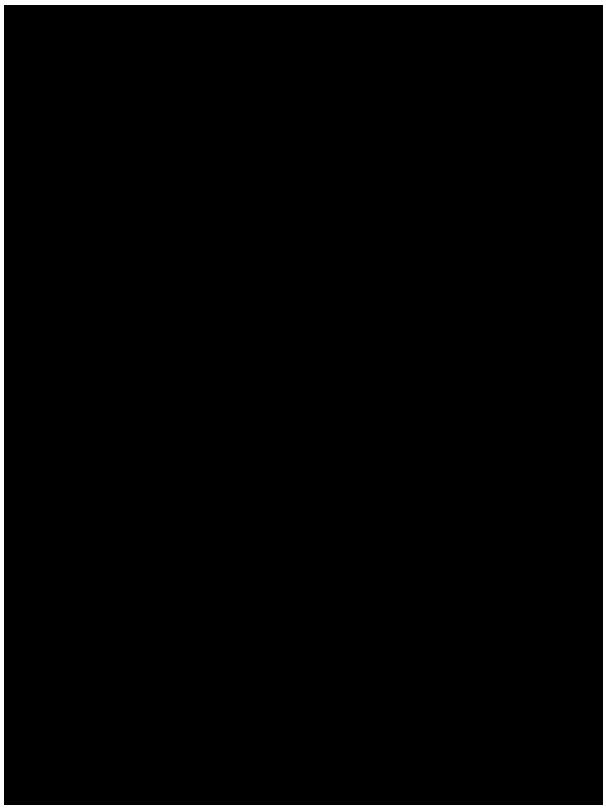
CBR-06-A Unknown Alternate



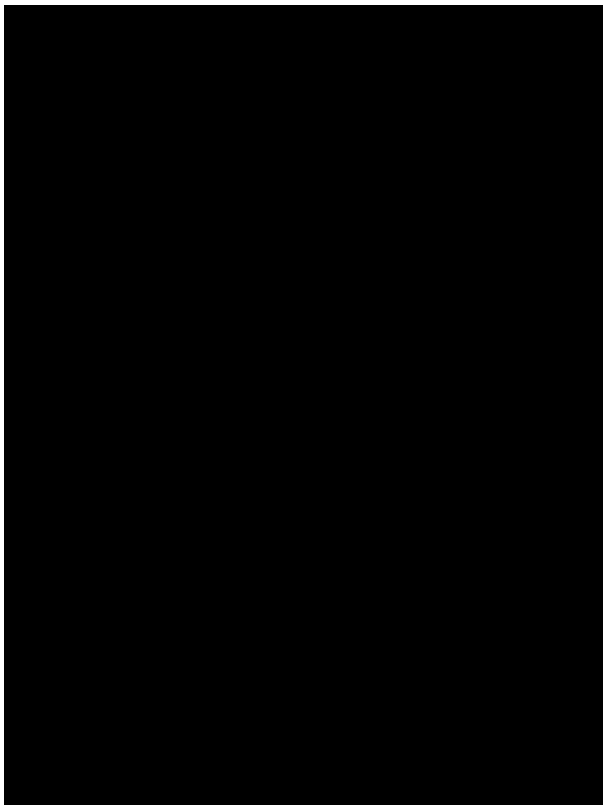
CHC-02-A Golden Eagle In-Use



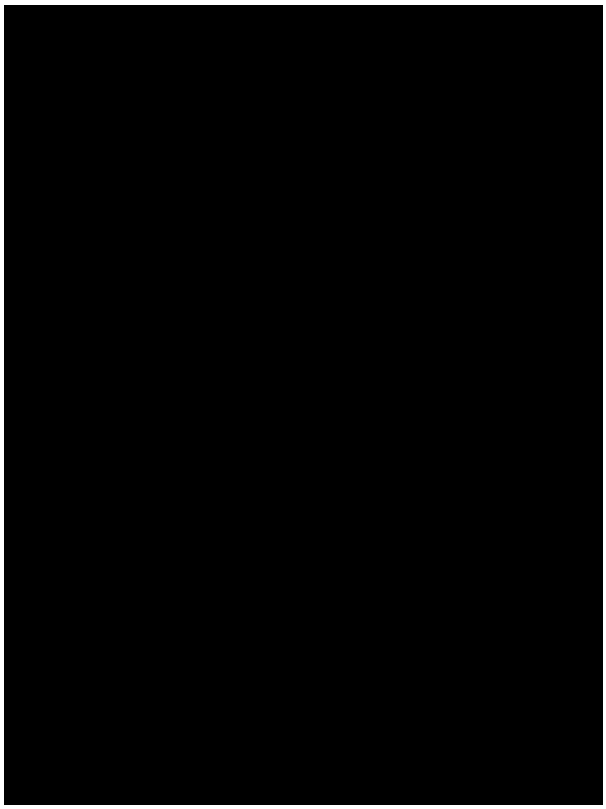
CHC-03-A Golden Eagle In-Use



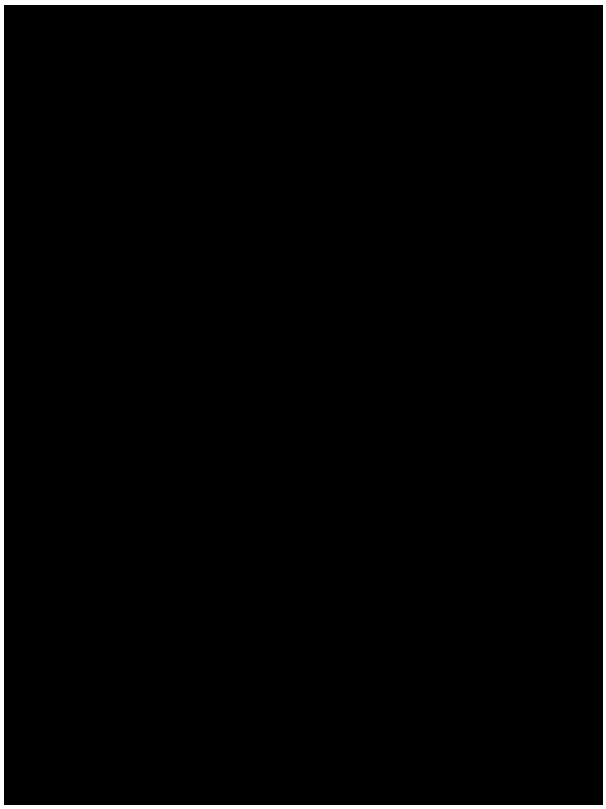
CHC-06-A Golden Eagle Alternate



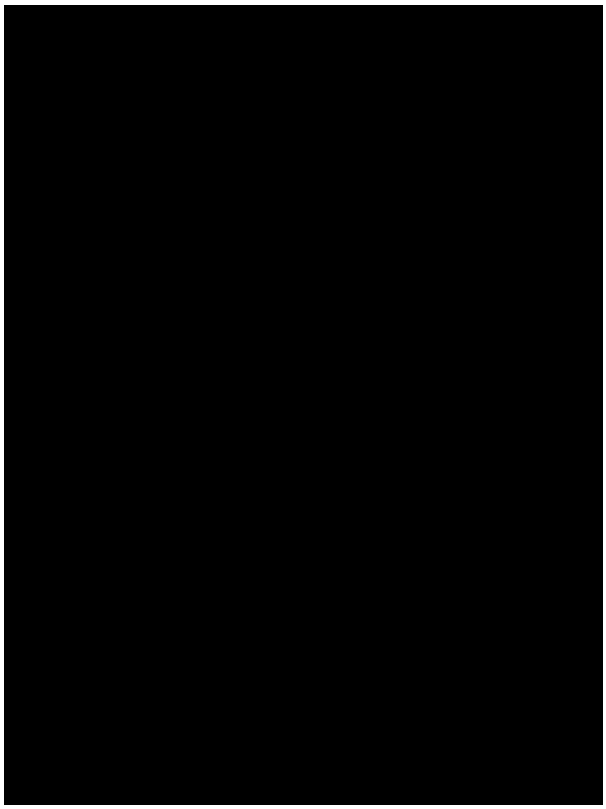
CHC-07-A Unknown Alternate



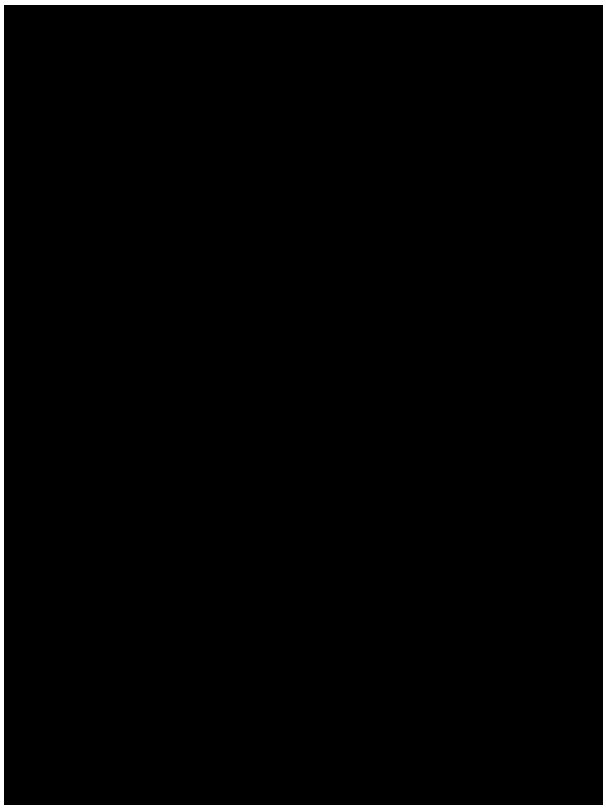
CWC-01-A Golden Eagle Alternate



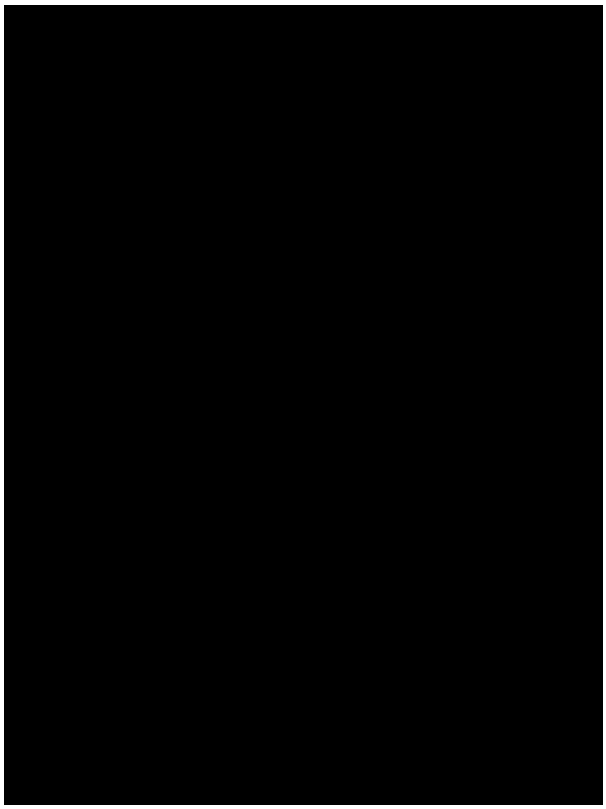
EH-01-A,B Golden Eagle Alternate



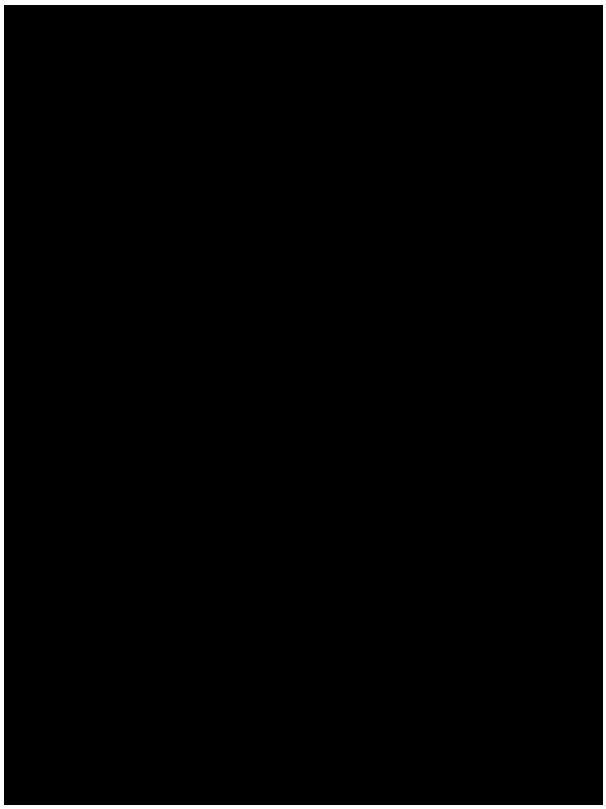
EM-01-A,B Common Raven In-Use



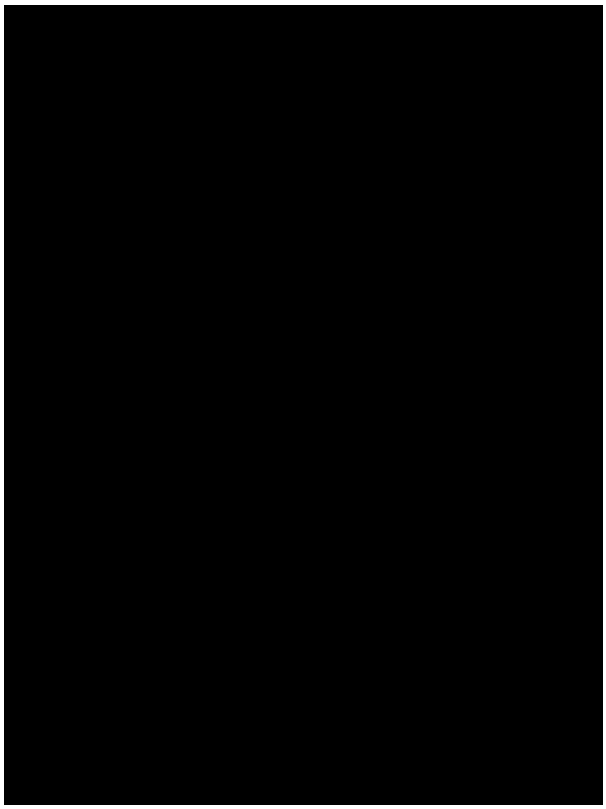
EM-02-A Prairie Falcon Failed



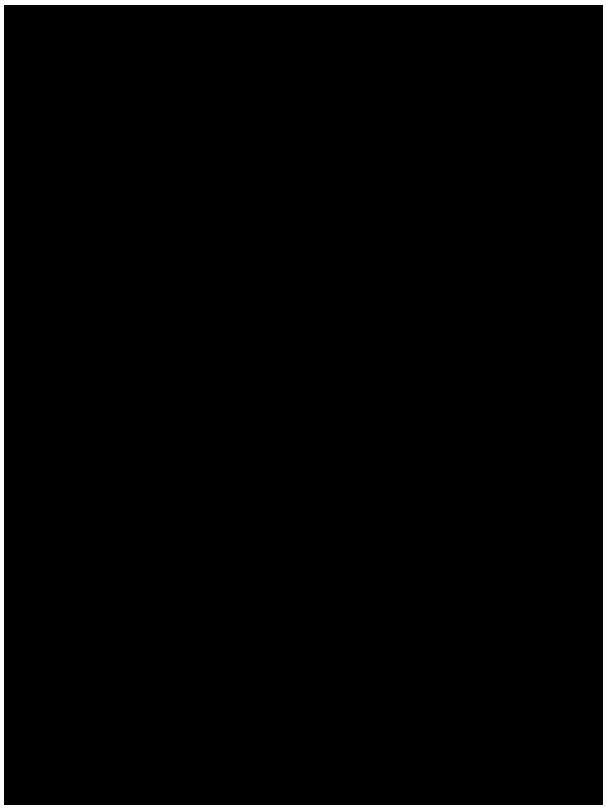
GL-01-A Unknown Alternate



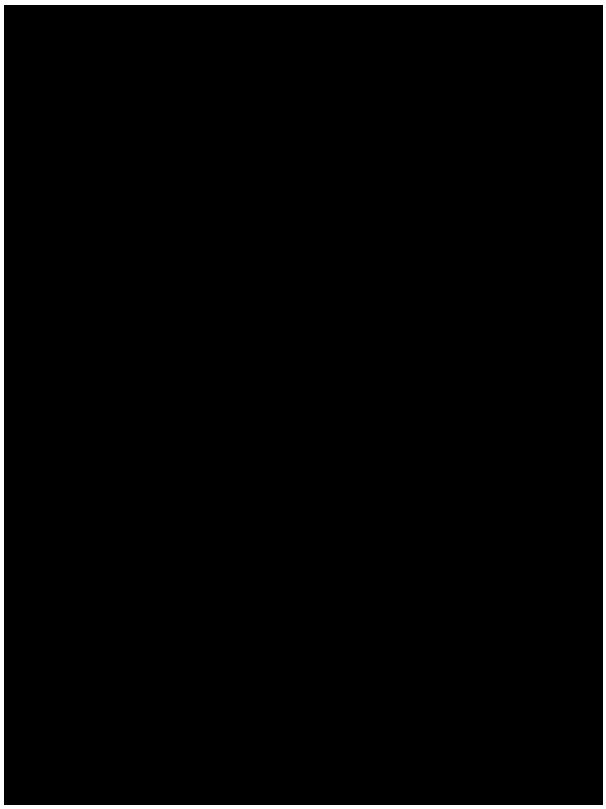
GL-02-A Unknown Alternate



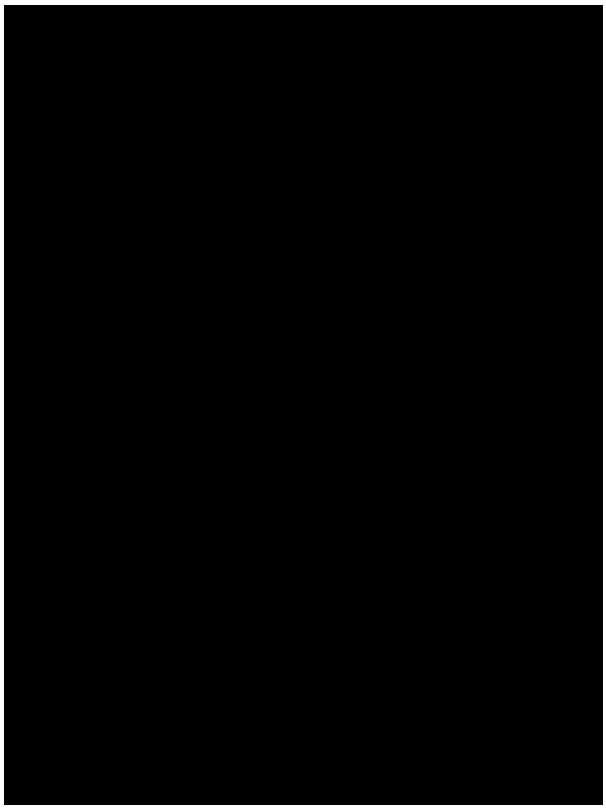
GL-03-A Unknown Alternate



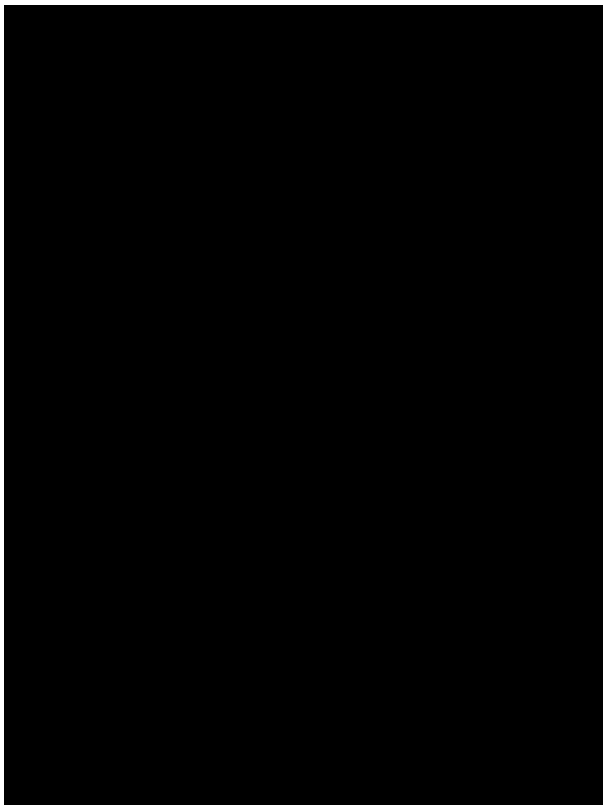
HC-01-A Golden Eagle Unknown



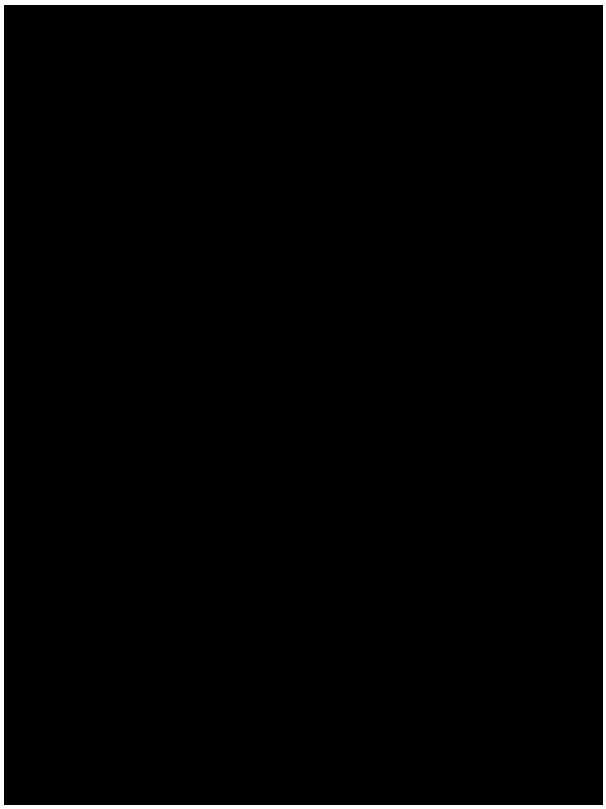
HRV-01-A Ferruginous Hawk In-Use



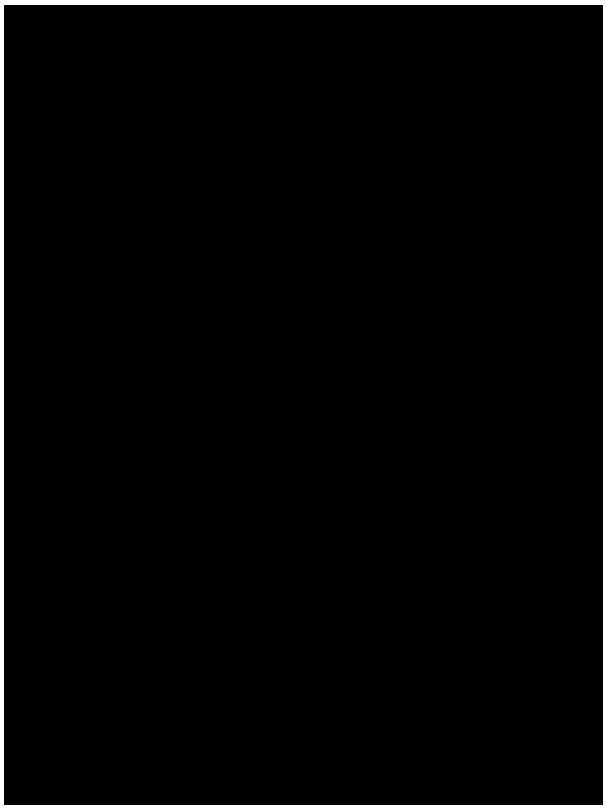
HRV-02-A Unknown Alternate



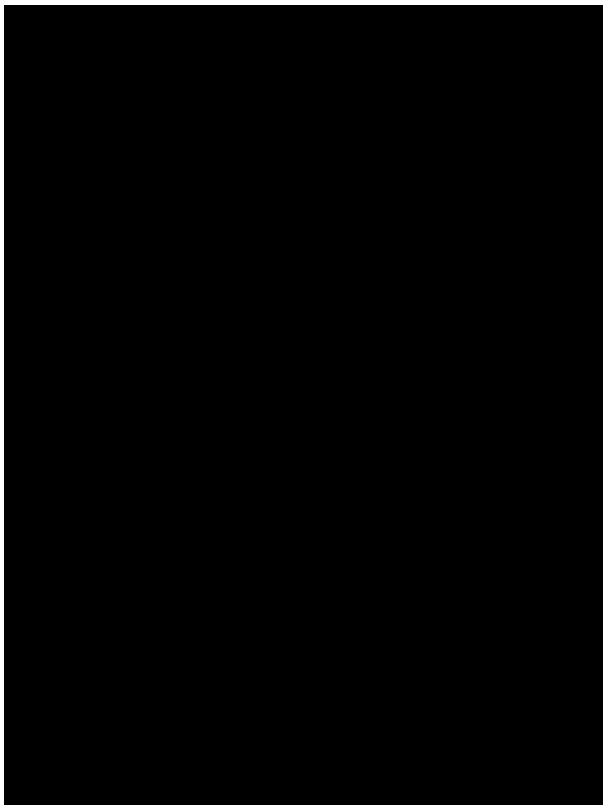
HRV-08-A Common Raven In-Use



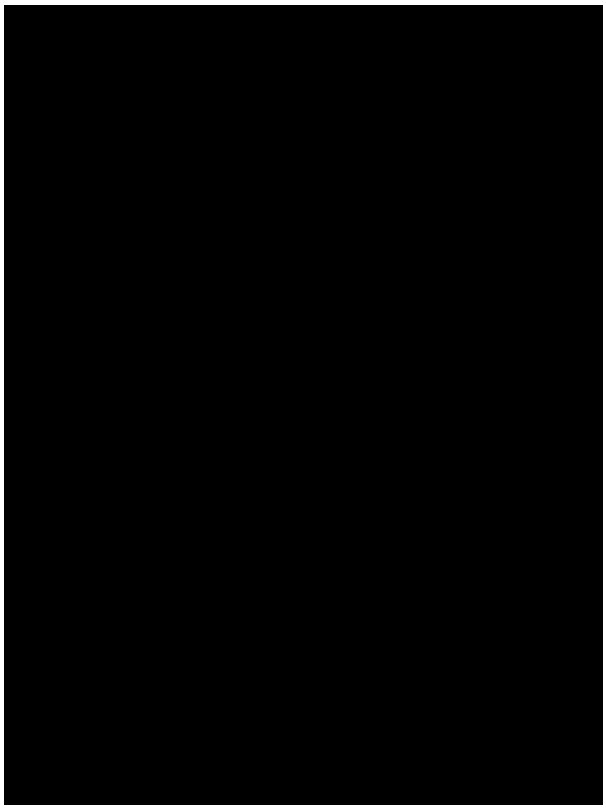
HRV-29-A Common Raven In-Use



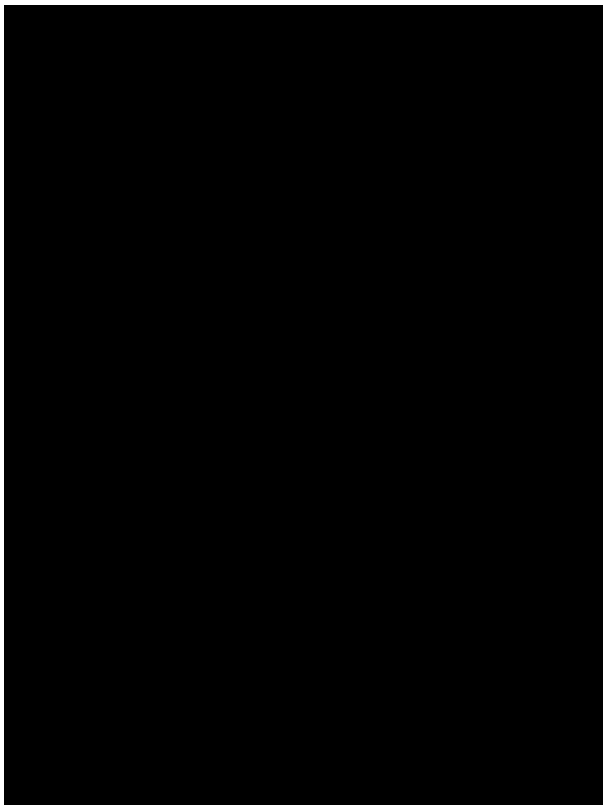
HRV-41-A Unknown Alternate



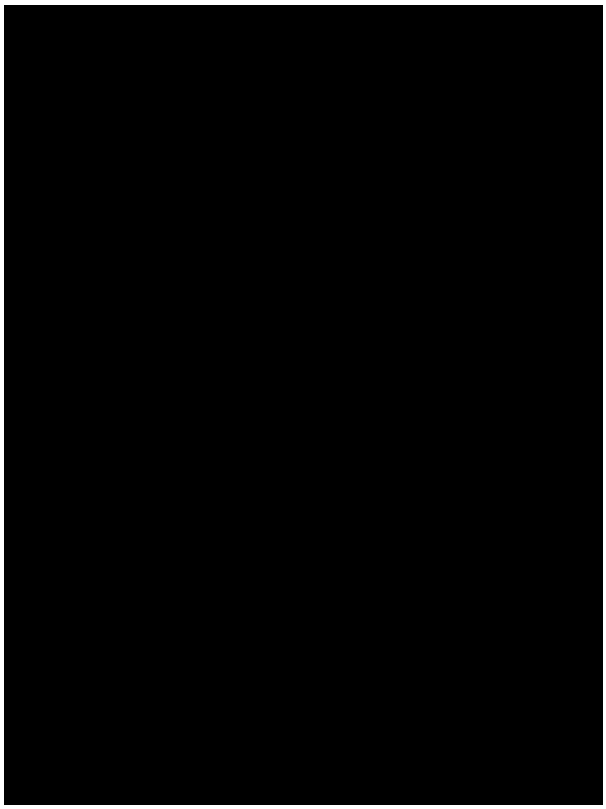
HRV-47-A Common Raven In-Use



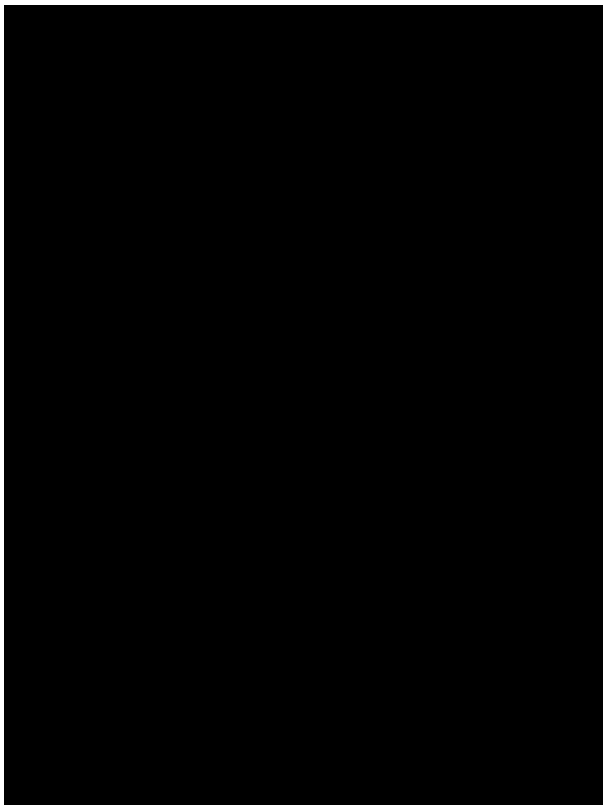
HRV-48-A,B Common Raven In-Use



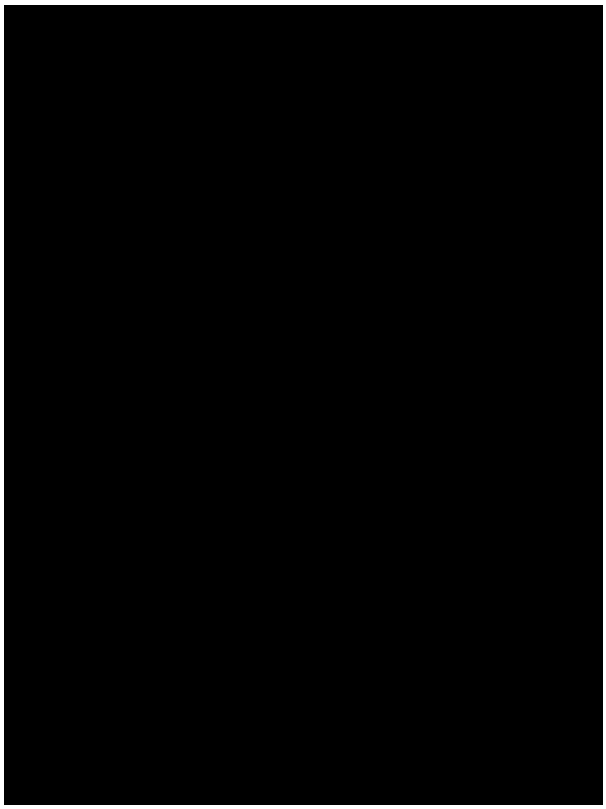
HRV-49-A Ferruginous Hawk In-Use



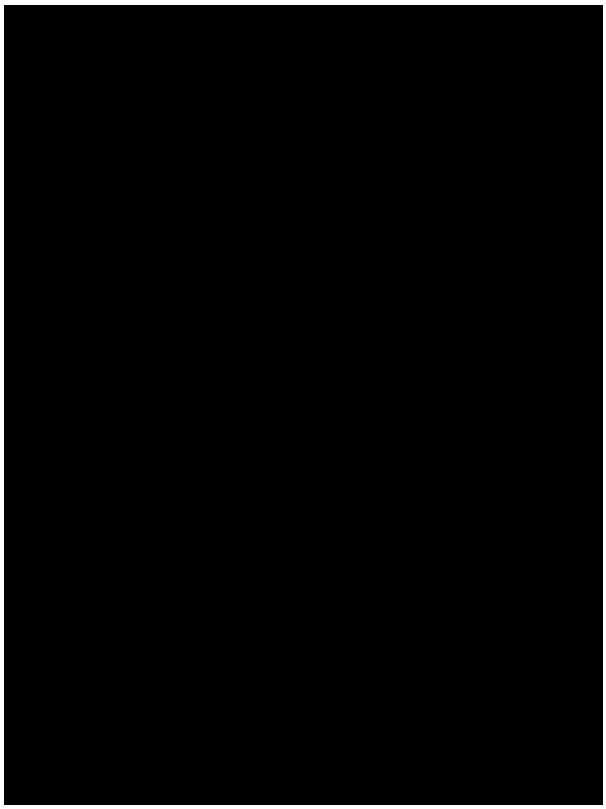
HRV-60-A Red-tailed Hawk In-Use



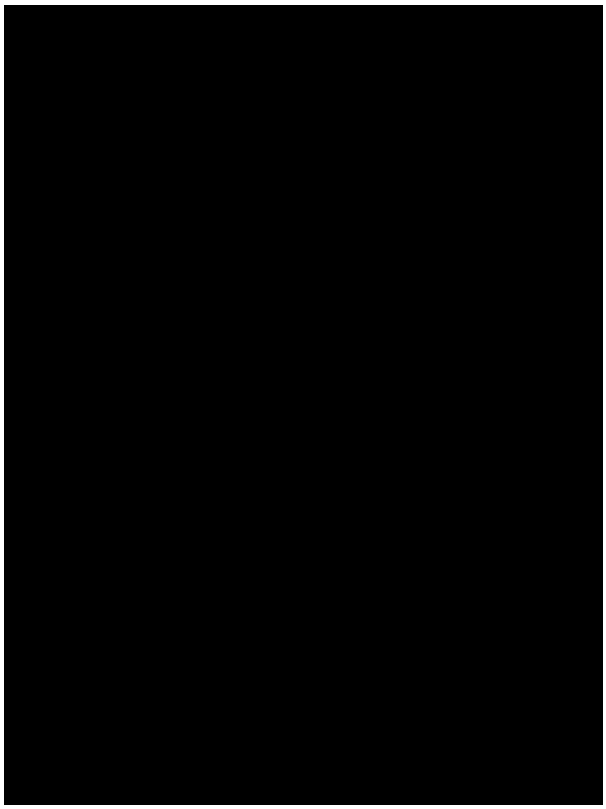
HRV-298-A Common Raven In-Use



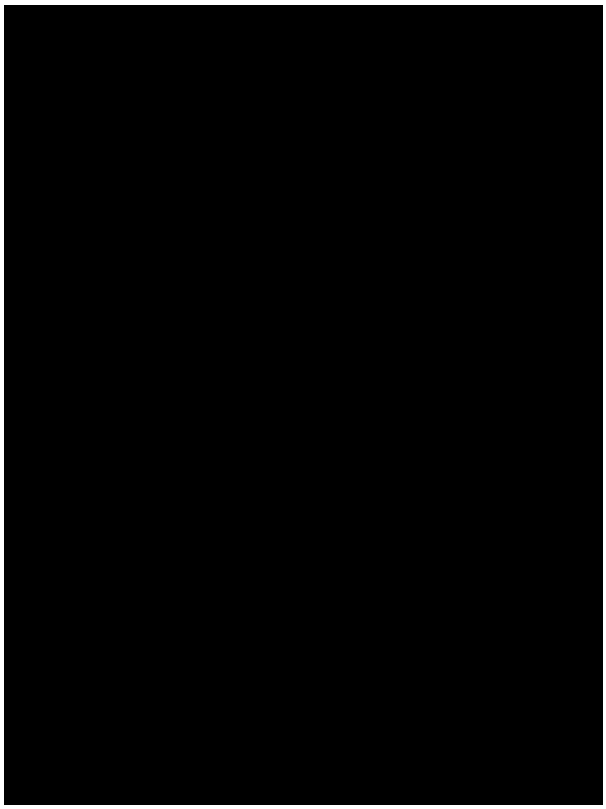
LCC-06-A Common Raven In-Use



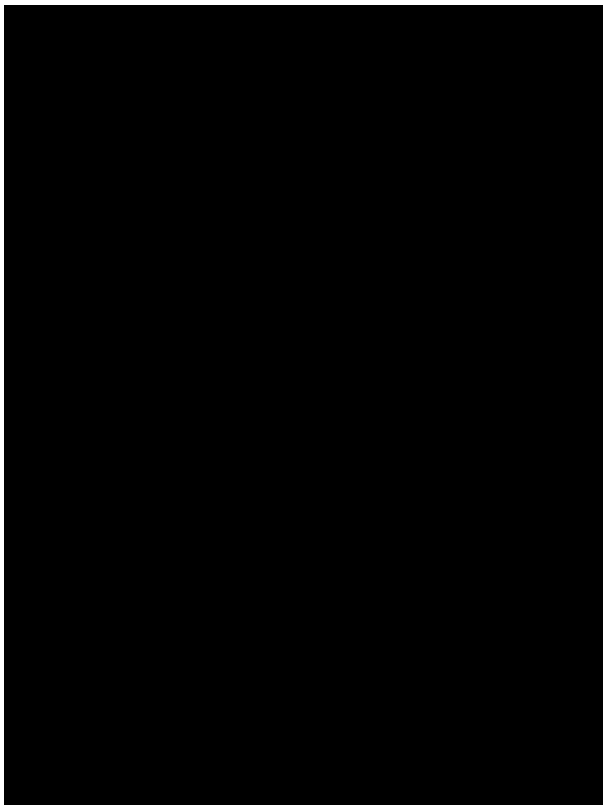
LCC-08-A,B Unknown Alternate



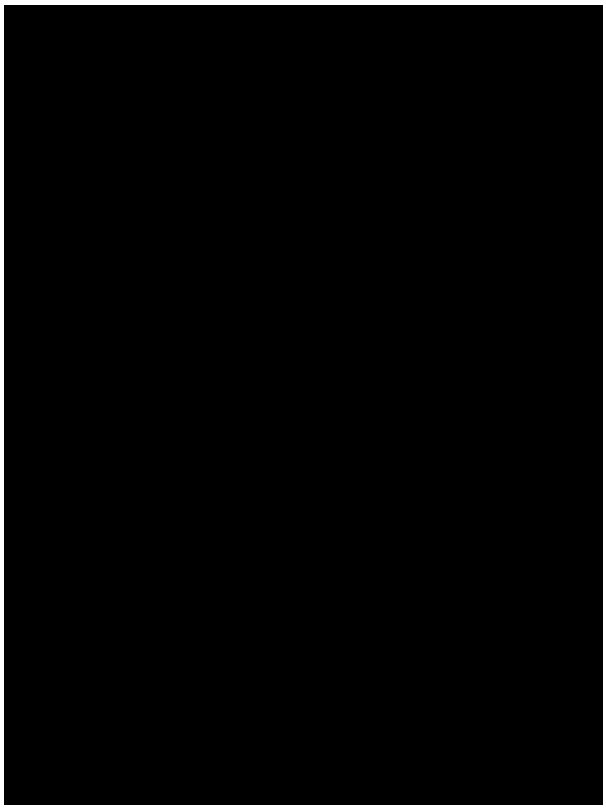
LCC-11-A Golden Eagle Alternate



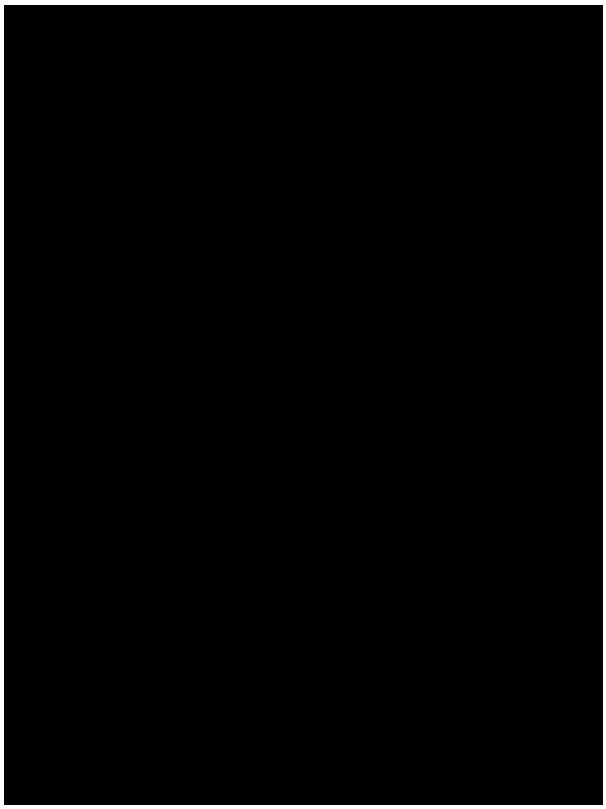
MIS-04-A Ferruginous Hawk In-Use



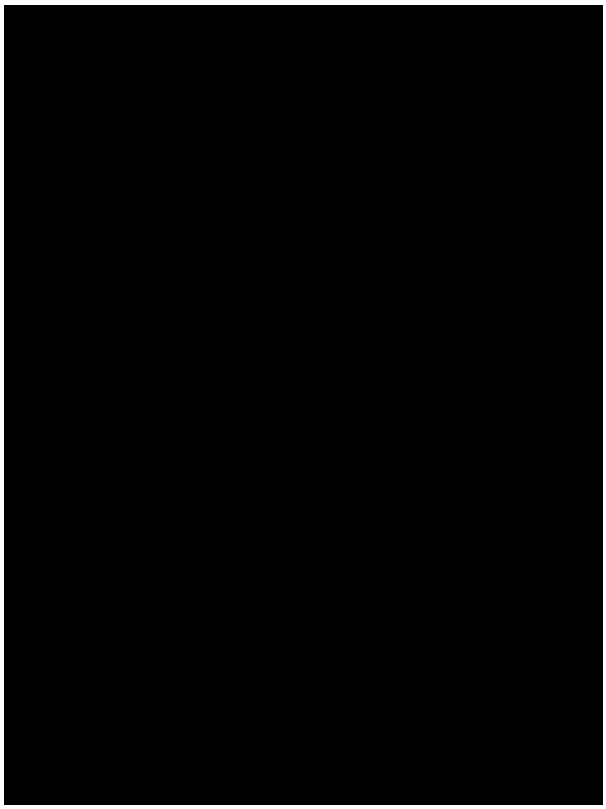
NP-01-A Golden Eagle Alternate



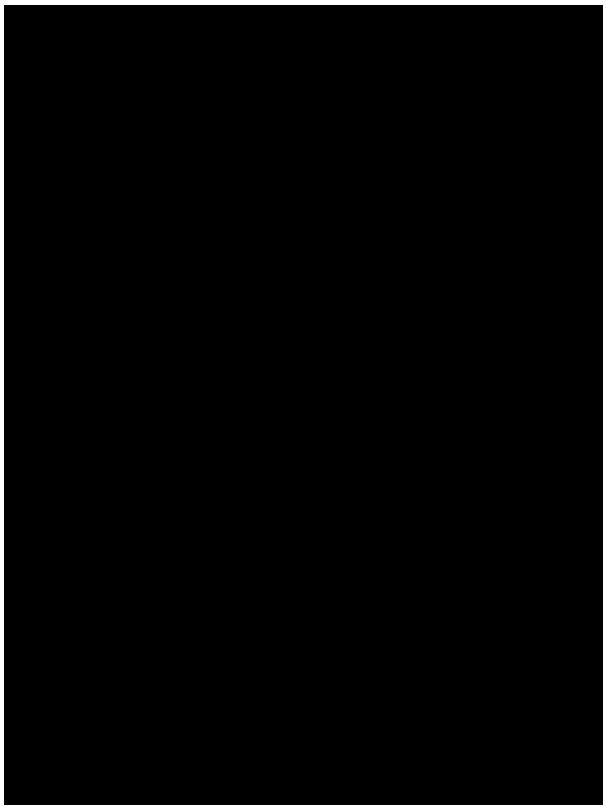
NP-03-A Golden Eagle Alternate



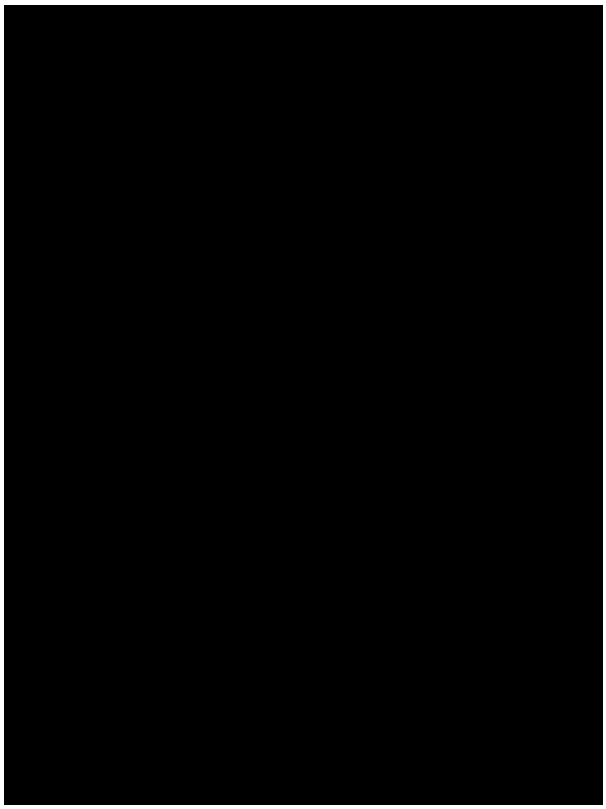
NP-04-A Unknown Alternate



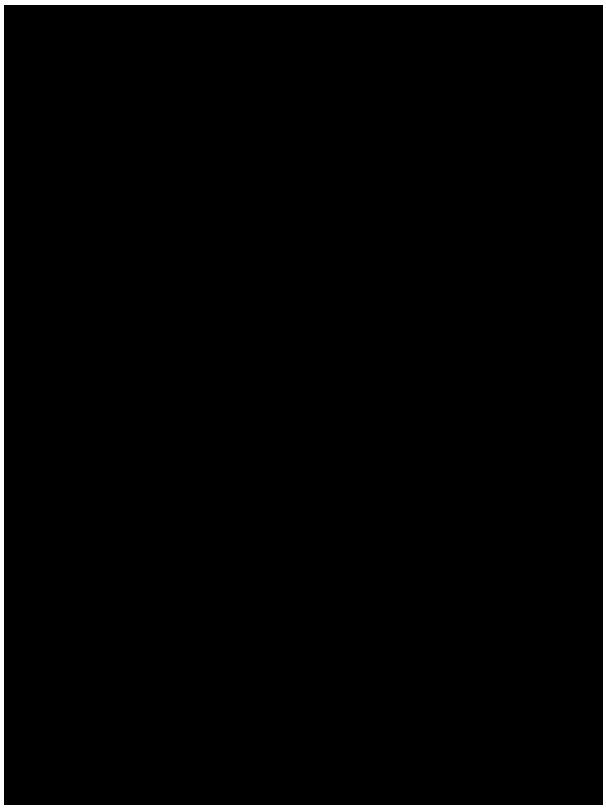
NP-06-A Unknown Alternate



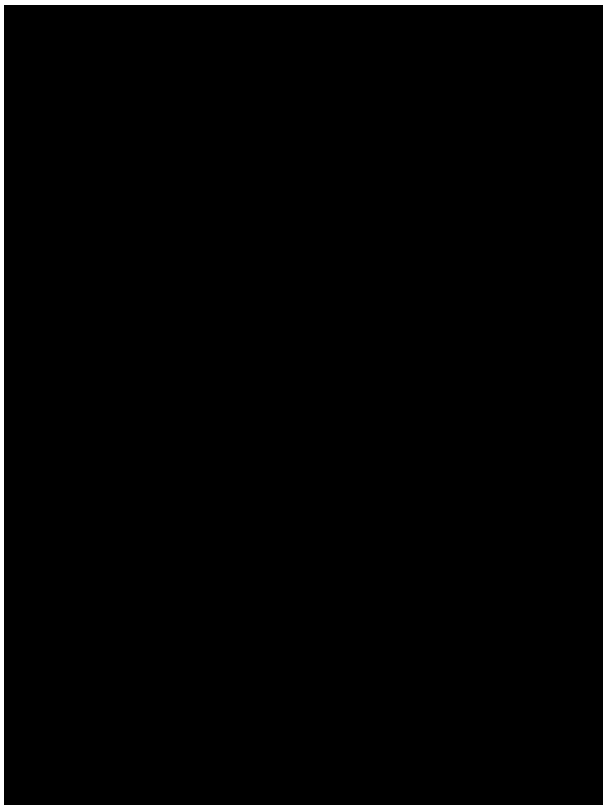
NP-07-A Unknown Alternate



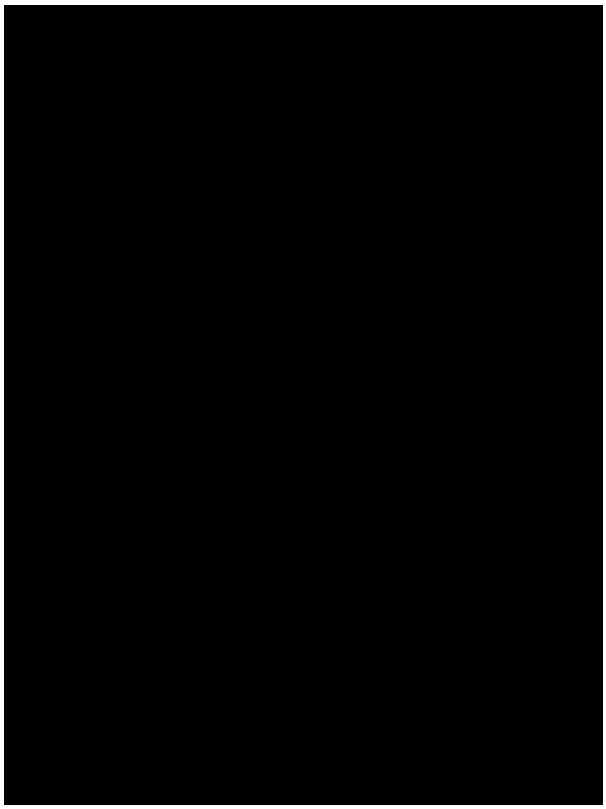
NP-09-A Golden Eagle Alternate



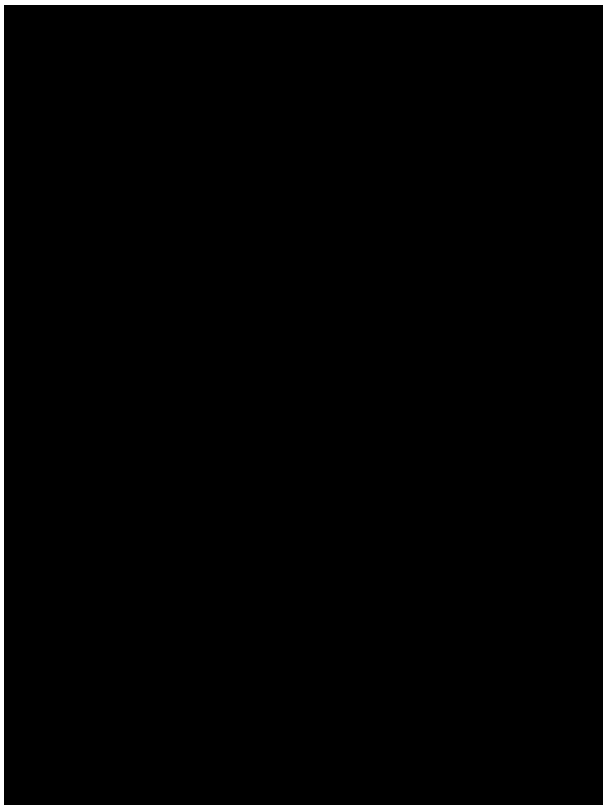
NP-10-A Unknown Alternate



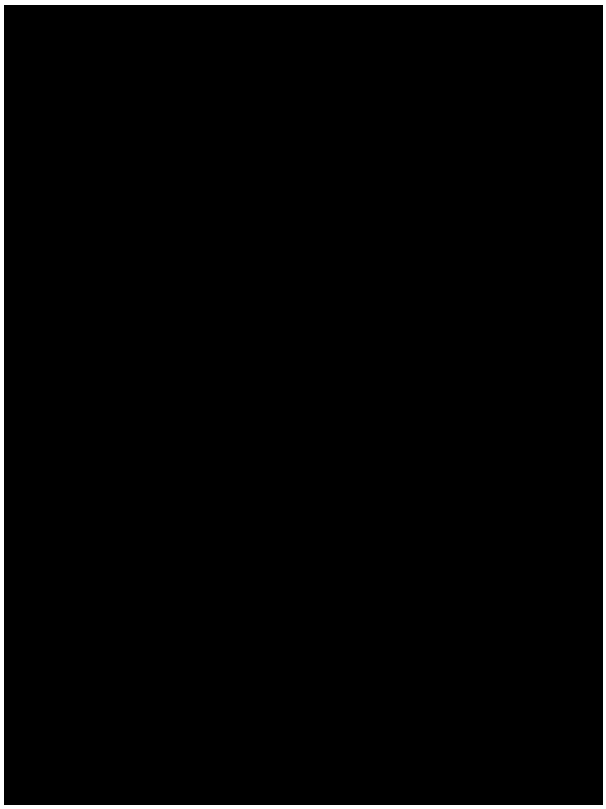
PC-03-A,B Golden Eagle In-Use



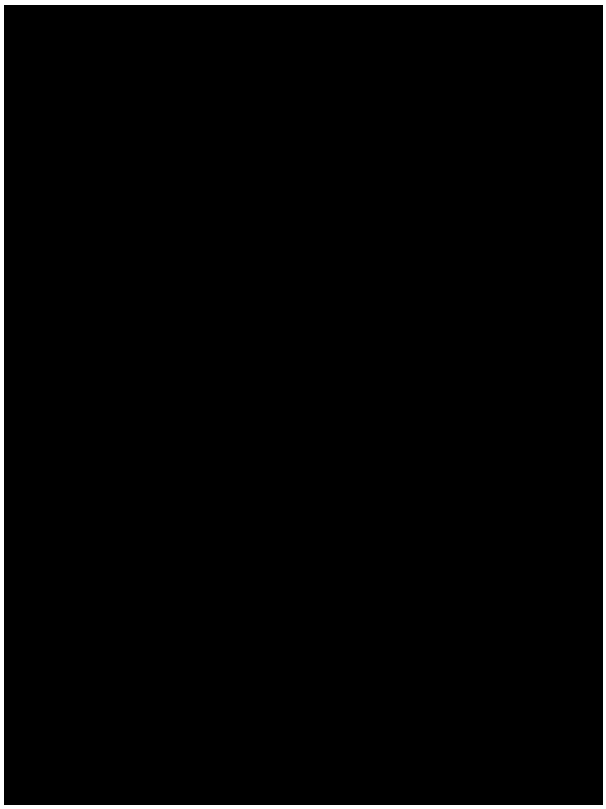
PC-05-A Golden Eagle Alternate



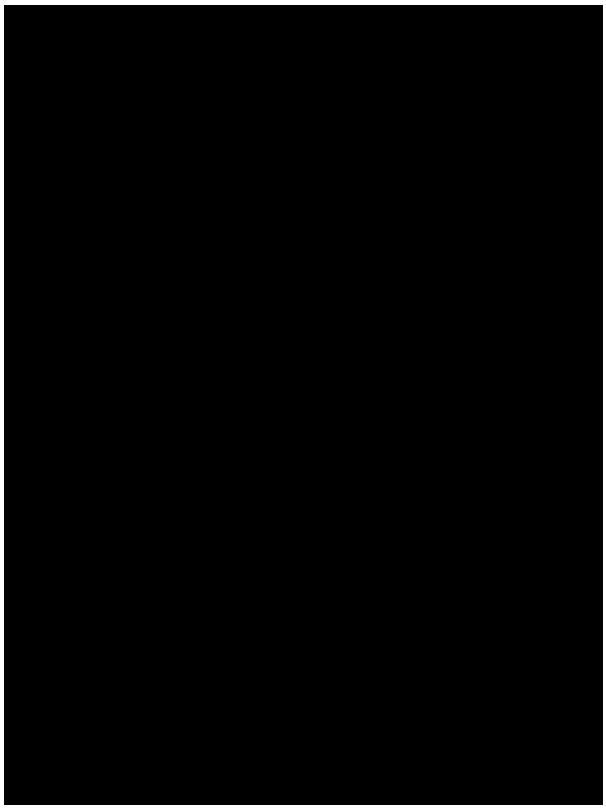
PC-06-A Golden Eagle In-Use



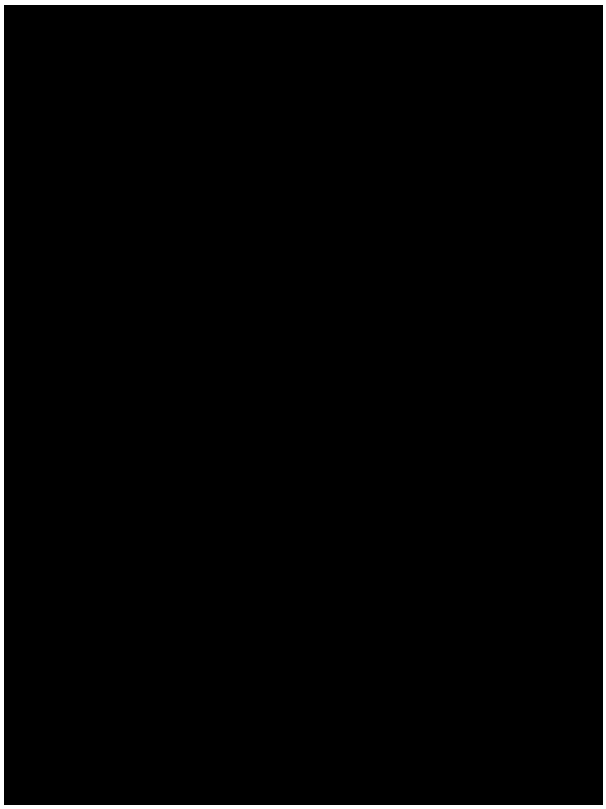
PV-02-A Unknown Alternate



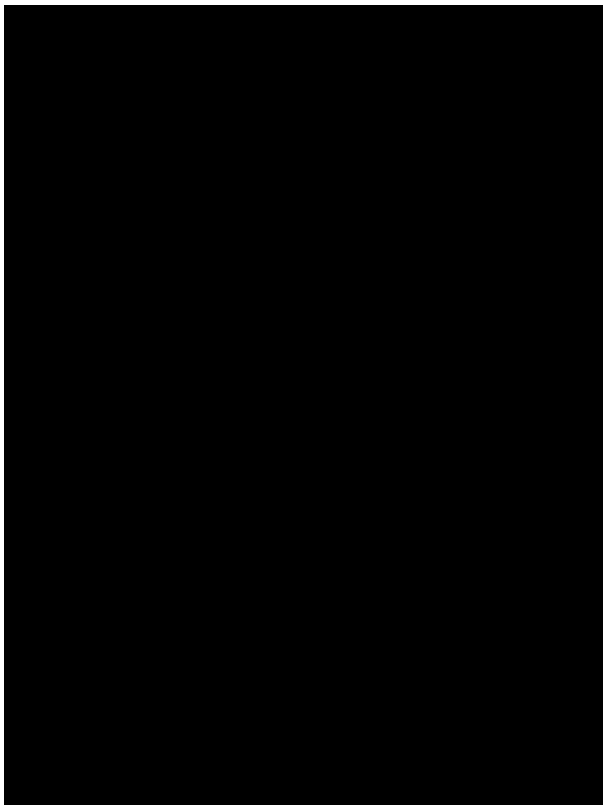
PV-03-A Common Raven Alternate



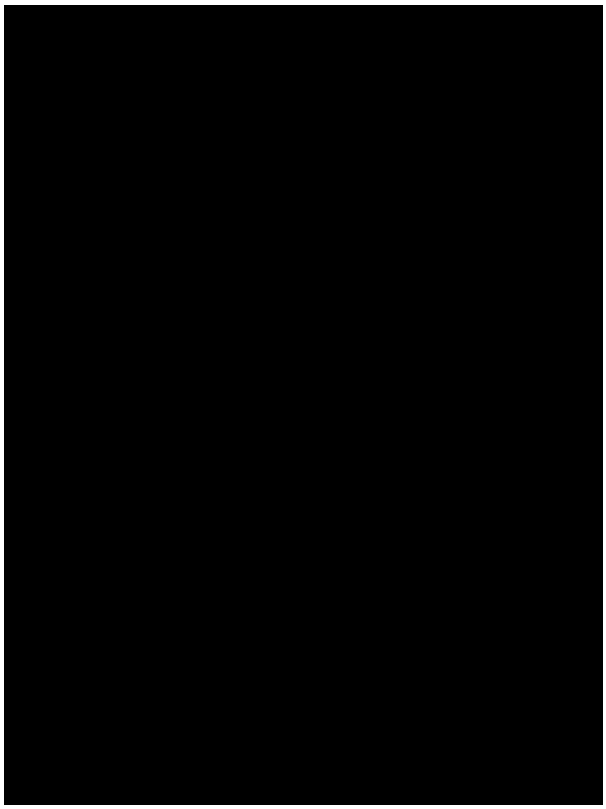
PV-09-A Unknown Alternate



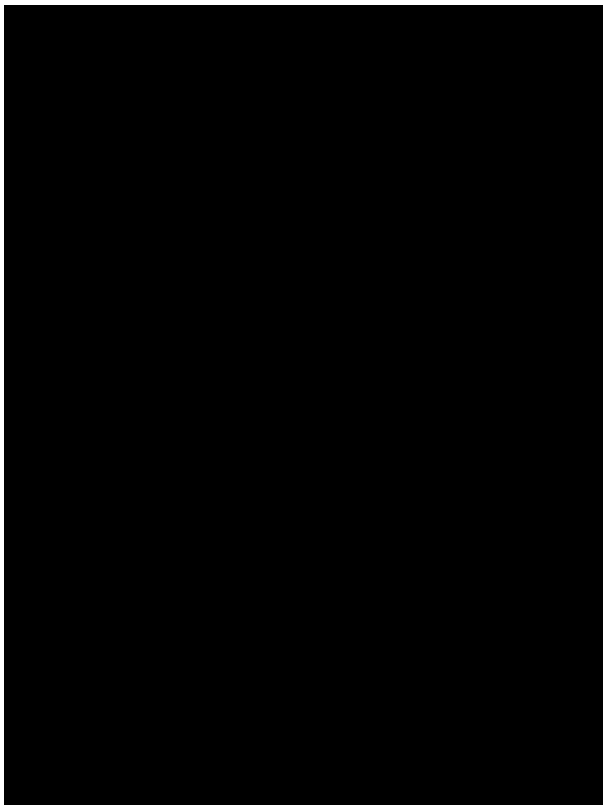
PV-19-A Unknown Alternate



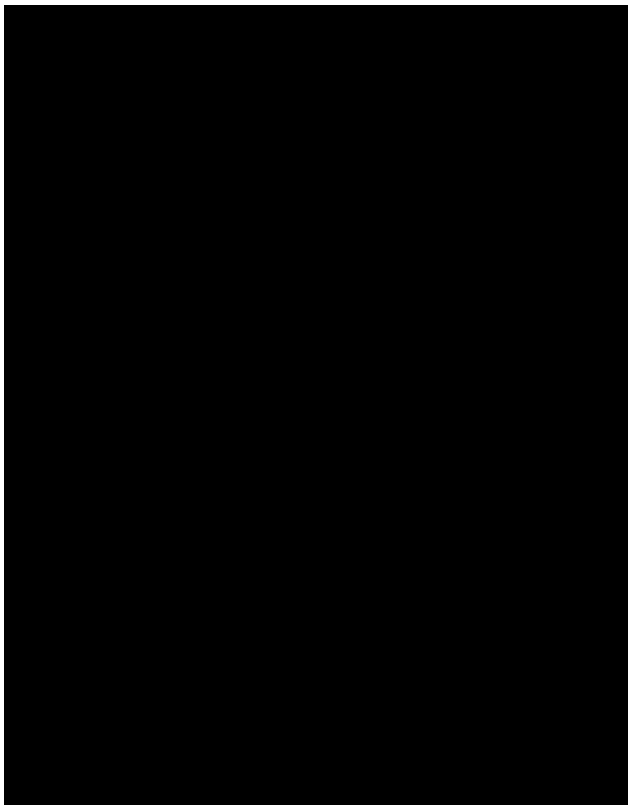
PV-23-A,B Common Raven In-Use



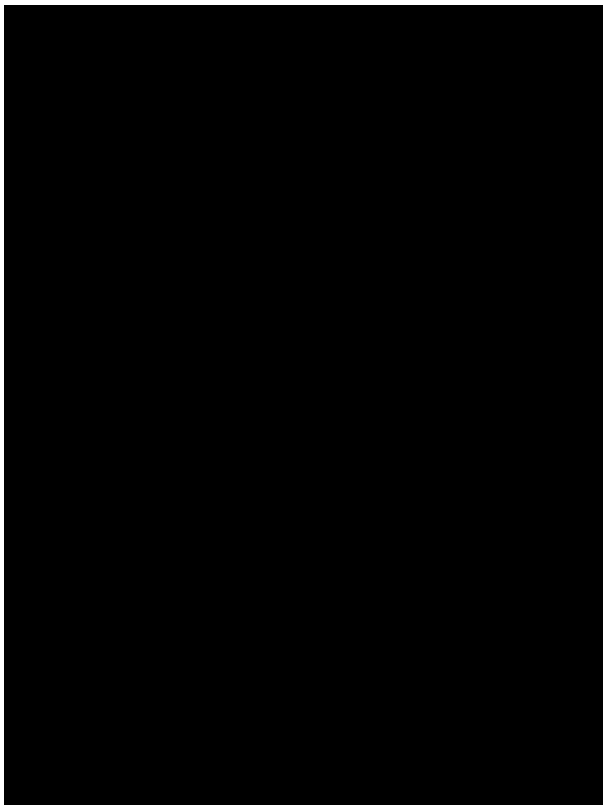
PV-24-A Unknown Alternate



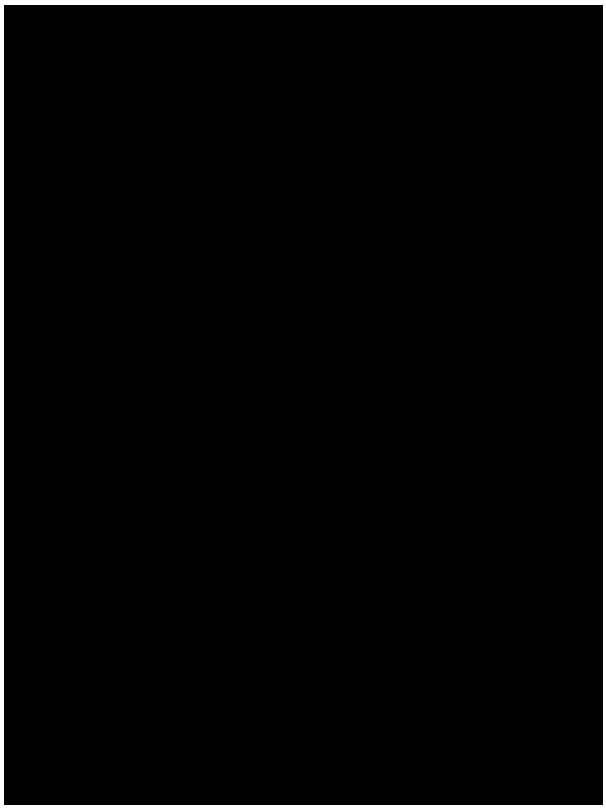
RC-01-A,B Golden Eagle Alternate



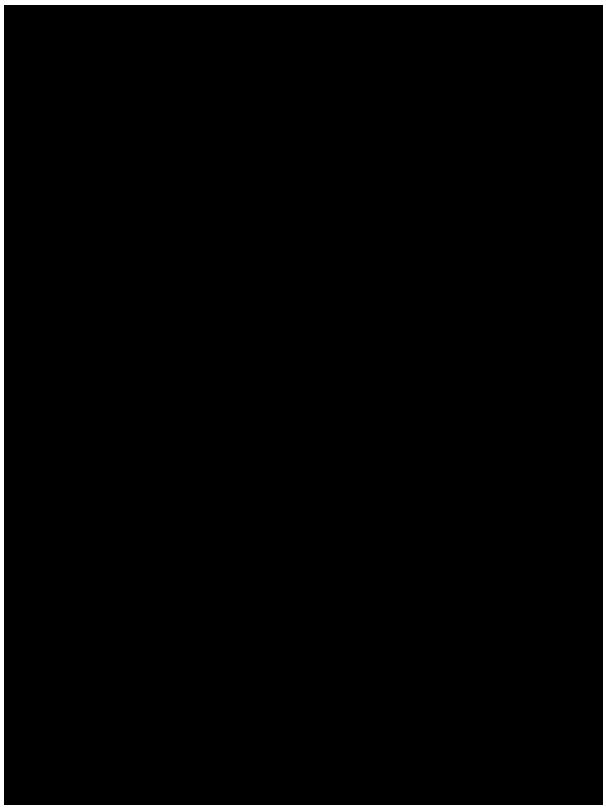
RC-04-A Golden Eagle Alternate



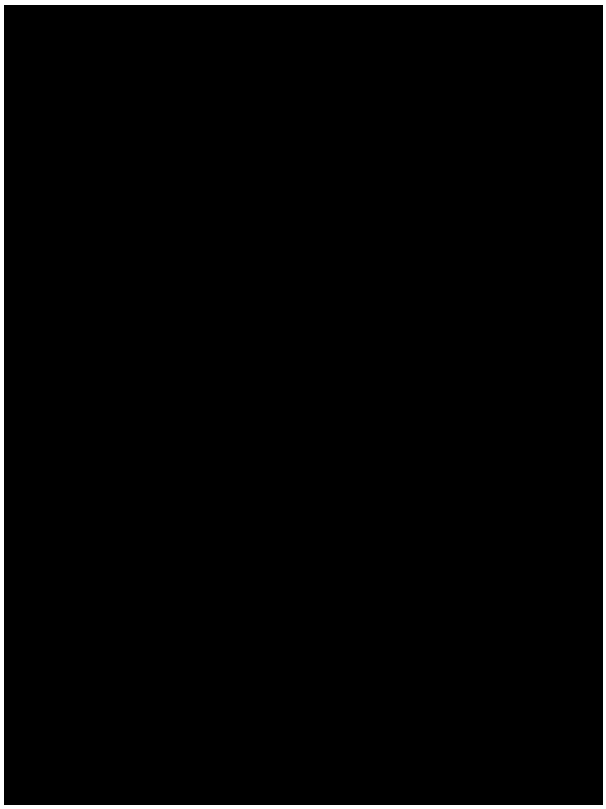
RC-05-A Golden Eagle Alternate



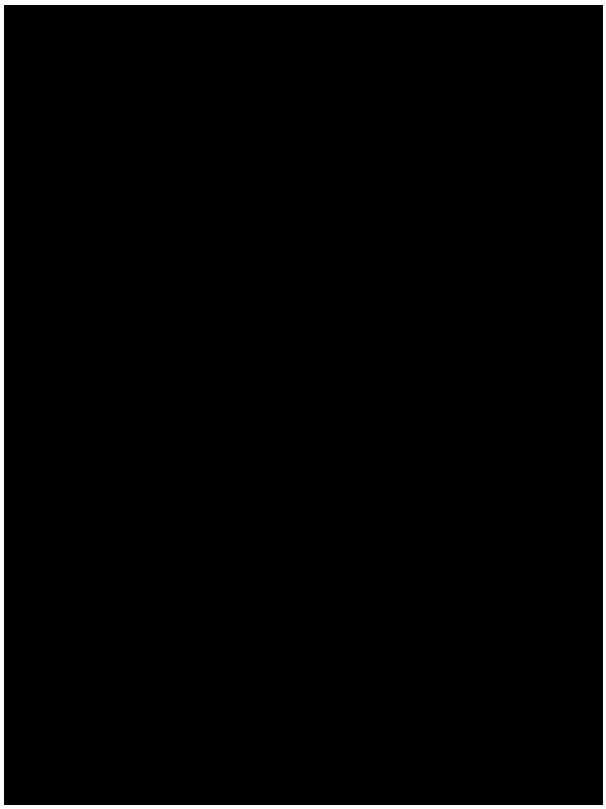
TBC-01-A Golden Eagle Alternate



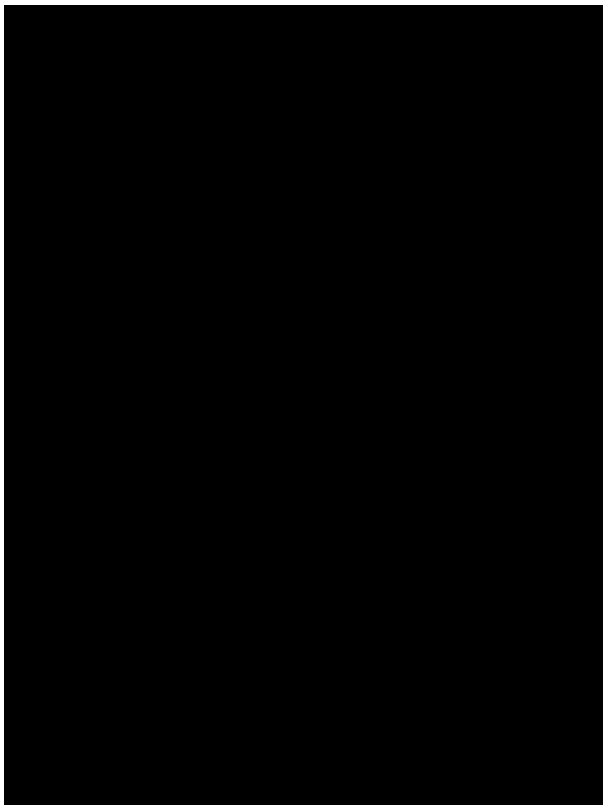
TBC-04-A Golden Eagle Alternate



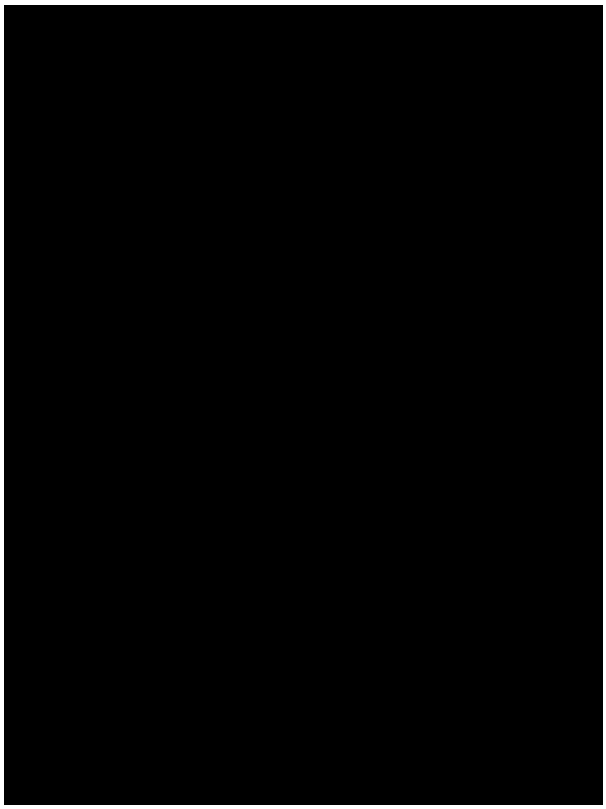
TC-01-A Unknown Alternate



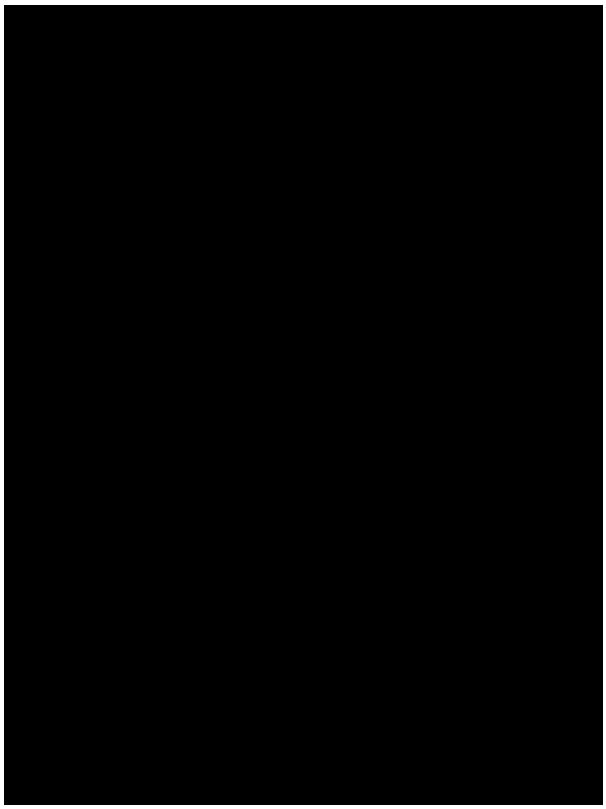
TC-03-A Unknown Alternate



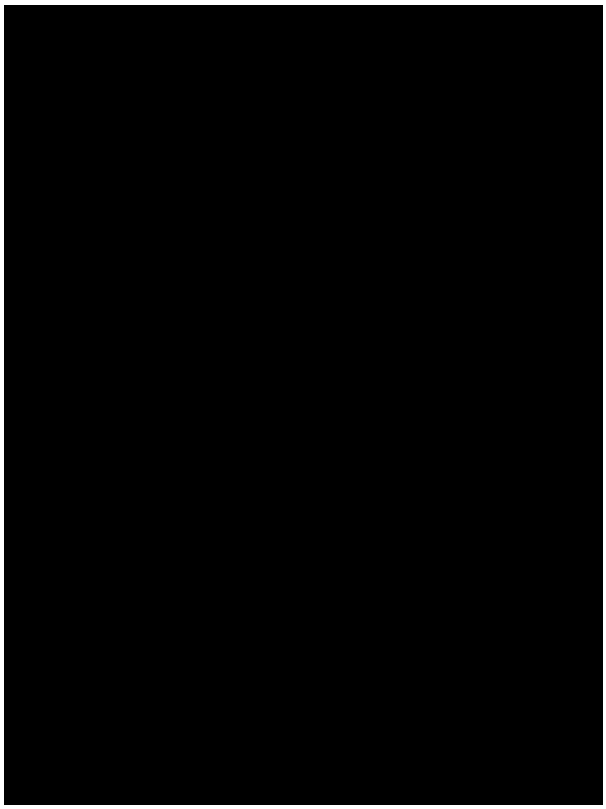
TC-02-A Golden Eagle In-Use



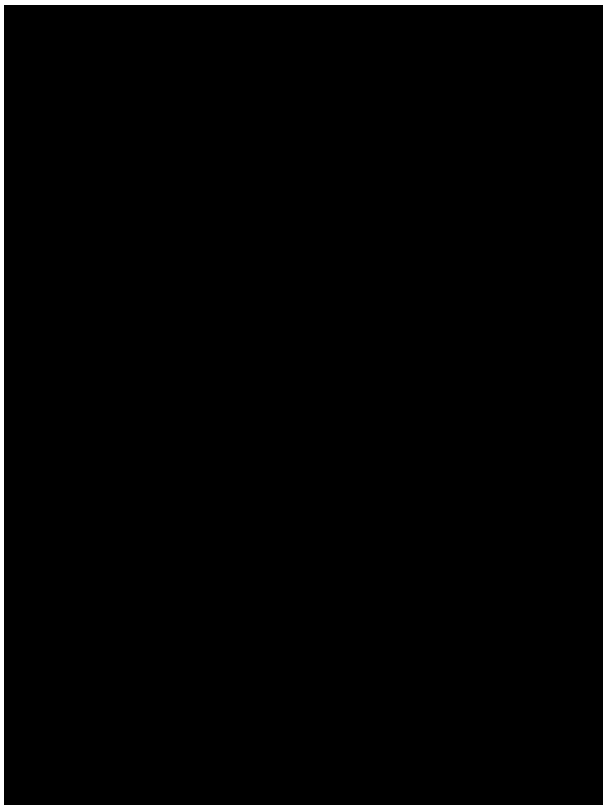
TH-01-A Common Raven In-Use



TRC-02-A Unknown Alternate



TRC-03-A Unknown Alternate



TRC-06-A Red-tailed Hawk In-Use

Appendix B

Survey Figures

PV-09-A
BM-06-A
BM-05-A
HRV-298-A
HRV-48-A,B
HRV-49-A
NP-10-A
NP-06-A
NP-09-A
NP-03-A
NP-01-A
NP-04-A
NP-07-A
TRC-06-A
TC-03-A
TRC-02-A
TRC-03-A
CWC-01-A
BV-04-A
TC-02-A
TC-01-A
BV-03-A
AP-04-A
AP-02-A
AP-03-A,B
LCC-02-A
LCC-11-A
RC-05-A
RC-01-A,B
RC-04-A
AP-06-A
LCC-03-A,B,C
AP-05-A
TBC-01-A
TBC-04-A
GL-03-A
GL-02-A
GL-01-A
LCC-06-A
BAM-02-A

Marigold Mine
2022 Raptor Surveys
Nest Sites Labeled

2022 Nest Sites

Species, Status

- Common Raven, IN-USE
- Common Raven, Alternate
- Ferruginous Hawk, IN-USE
- Golden Eagle,IN-USE
- Golden Eagle, Alternate
- Golden Eagle, UNKNOWN
- Prairie Falcon, IN-USE
- Prairie Falcon, FAILED
- Red-tailed Hawk, IN-USE
- Unknown, Alternate
- Unknown, UNKNOWN
- 1 Mile Buffer
- Mine Boundaries

0 0.5 1 Mile

N
S

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

WESTERN BIOLOGICAL

HRV-20-A
HRV-29-A
HRV-60-A
HRV-301-A
HRV-08-A
HRV-66-A
TH-01-A
HRV-302-A
HRV-41-A
HRV-46-A
MIS-16-A
MIS-08-A
MIS-09-A
MIS-06-A
RR-02-A
MIS-04-A
HRV-65-A
VC-01-A
CB-02-A
EH-01-A,B
CB-01-A
CCA-01-A
LCC-08-A,B
BAM-01-A
PC-06-A
PC-03-A,B
PC-05-A
CBR-303-A
CBR-03-A
CBR-01-A
CBR-05-A
CBR-02-A
CBR-04-A

WESTERN BIOLOGICAL

0 1 2 Miles

N
S

Source: Esri, Maxar, Earth

Marigold Mine
2022 Raptor Surveys
Nest Sites Labeled (East)

2022 Nest Sites

Species, Status

- Common Raven, IN-USE
- Common Raven, Alternate
- Ferruginous Hawk, IN-USE
- Golden Eagle, IN-USE
- Golden Eagle, Alternate
- Golden Eagle, UNKNOWN
- Prairie Falcon, IN-USE
- Prairie Falcon, FAILED
- Red-tailed Hawk, IN-USE
- Unknown, Alternate
- Unknown, UNKNOWN
- Mine Boundaries
- Survey Area (10 Mile Buffer)

Marigold Mine
2022 Raptor Surveys
Nest Sites Labeled (West)

2022 Nest Sites

Species, Status

- Common Raven, IN-USE
- Common Raven, Alternate
- Ferruginous Hawk, IN-USE
- Golden Eagle, IN-USE
- Golden Eagle, Alternate
- Golden Eagle, UNKNOWN
- Prairie Falcon, IN-USE
- Prairie Falcon, FAILED
- Red-tailed Hawk, IN-USE
- Unknown, Alternate
- Unknown, UNKNOWN
- Mine Boundaries
- Survey Area (10 Mile Buffer)

PV-03-A
PV-02-A
PV-19-A
PV-23-A,B
EM-02-A
EM-01-A and B
TH-01-A
HRV-41-A
HRV-46-A
HRV-47-A
PV-24-A
BM-07-A
BM-08-A
BM-01-A
BM-02-A
BM-03-A,B,C,D
BM-04-A
BM-11-A
BM-12-A
BV-300-A
BV-53-A
BV-31-A
BV-299-A
CHC-02-A
CHC-03-A
CHC-07-A
CHC-06-A
HC-01-A
BAM-01-A
BV-48-A
BV-49-A
CBR-02-A
CBR-04-A
CBR-05-A

WESTERN BIOLOGICAL

0 1 2 Miles

N S

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Appendix C
Cumulative Effect Calculations
Marigold Mine Project

Marigold Valmy Expansion Project
Golden Eagle LAP and CE Analysis

Prepared by the U.S. Fish and Wildlife Service National Eagle Support Team
Date: 5 January 2023

Facility Information

Facility: Marigold Mine
Location: Humboldt and Lander Counties, Nevada, USA

Local Area Population and Cumulative Effect of Take

The Marigold Valmy Expansion project is located in Humboldt and Lander Counties, Nevada. The Pacific Southwest Region (R8) has requested a local area population (LAP) and cumulative effects of take analysis for golden eagles (*Aquila chrysaetos*). The Region provided an estimate of golden eagle take that may result in territory loss due to continual nest disturbance caused by project operations for the anticipated permit duration. The annual estimated take due to nest disturbance is 0.59 with a total estimated take of 7.67 for one golden eagle territory loss (Table 1).

The local area population (LAP) of golden eagles for the Marigold Valmy Expansion is approximately 843 individuals (USFWS Cumulative Effects Tool, run 05 January 2023). Estimated annual take of 0.59 golden eagles represents 0.07% of the LAP. There are three projects permitted for take of golden eagle that overlap with this LAP. The project take combined with the overlapping permitted take of golden eagles could result in a total annual take of 1.51 golden eagles representing 0.18% of the LAP (Table 2).

Take limits for golden eagles in all EMUs are set to zero; therefore, all permits for golden eagle take must incorporate offsetting compensatory mitigation after all appropriate and practicable avoidance and minimization measures are employed. Golden eagle take being considered under this application would require mitigation at a 1.2:1 ratio if authorized.

Table 1. Estimates of Golden Eagle Territory Loss, as provide by Region 8.

Marigold Valmy Expansion EA GOEA disturbance take	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**	**Y12**	**Y13**	**TOTAL**
Territory 11 (NP nests) Territory Loss	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	**7.67**
Total / yr	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**7.67**
Grand total for 13-year permit	**7.67**													
Highest total among years (for LAP)	**0.59**													

Table 2. Golden Eagle Local Area Population and Cumulative Effects Analysis Summary for the Marigold Valmy Expansion (current as of 05 January 2023).

US FWS Cumulative Effects Tool				
Summary Results (Golden Eagle)				
run 2023-01-05 15:32:26				
Focal Project: MarigoldMine				
Predicted eagle take (annual)	**0.59**			
Local Area Population (LAP) Estimates by Local Area Density Unit (LADU):				
Focal Project_Density Unit	**Estimated Number of Eagles**			
MarigoldMine_GREAT_BASIN	843.79			
MarigoldMine LAP (total)	843.79			
1% LAP Benchmark	8.44			
5% LAP Benchmark	42.19			
'Permitted' & 'Other' Projects with Overlapping LAPs:				
Project ID	**Estimated Annual Take**	**Percent Overlap With Focal Project**	**Overlapping Area (SqMi)**	**Overlapping Take**
Project 76086D	0.59	55.24%	20613.27	0.33
Project 53540D	0.59	80.55%	30063.83	0.48
Project 20776D	0.59	19.15%	7140.46	0.11
All Projects (total)	1.77			0.92
Results	**Number of Eagles**	**Percent of LAP**		
5% LAP Benchmark	**42.19**	5%		
Total Overlapping Take	0.92	0.11%		
Focal Project Predicted Take	0.59	0.07%		
Focal Project + Total Overlapping Take	**1.51**	**0.18%**		
Unpermitted Take Summary			**Discovery Period**	
Golden Eagle	**All Known**	**Reported Years**	2013-2022	
Anthropogenic Causes of Death				
Emaciation;Trauma	1	2014-2014	1	
Electrocution	168	1993-2023	138	
Shot	16	2014-2021	16	
Collision/electrocution	7	2014-2022	7	
Collision with vehicle	10	2002-2022	9	
Trapped	1	2021-2021	1	
Collision with wind turbine	6	2013-2015	6	
Unknown	92	2011-2022	90	
Determination pending	1	2014-2014	1	
Collision	3	2017-2021	3	
Other	7	2014-2022	7	
Collision with wire	5	2014-2018	5	
Other;Trauma	1	2015-2015	1	
Poisoned (pesticide);Trauma	1	2014-2014	1	
Trauma	10	1994-2022	8	
Poisoned (lead)	2	1993-2018	1	
Anthropogenic take 10-year average			**18.44**	
Natural Causes of Death				
Disease	3	2006-2017	1	
Emaciation;Starvation	3	2003-2014	2	
Starvation	1	2015-2015	1	

Appendix D
Response to Comments Table
Marigold Mine Project

Public Comment Response Table

Environmental Assessment for the Issuance of Long-Term Incidental Eagle Take Permits
Public Comment Period:

Comment Letter No.	Comment Number	Name/Entity	Comment	Response
1	1.1	Marigold Mining Company	The EA continues to refer to the permit as an "incidental" take permit, even though it will also be authorizing both incidental take through disturbance and intentional take in the form of nest removal. It is discussed in the EA that the permit will cover both incidental take and physical removal of one nest.	The permit that is considered by this EA is an incidental disturbance take permit for golden eagles. Included within the request for disturbance authorization is the removal of one of five known nests within the same territory that is considered vulnerable to disturbance take from previously authorized activities. Because all impacts are expected to be incurred on a single golden eagle territory, and because the removal of one nest within that territory is not expected to result in territory loss, any issued disturbance take permit authorizing impacts to breeding success will include nest removal.
1	1.2	Marigold Mining Company	- Section 2.3.1, Table 2.1, ACEPM1 – Confirm understanding of this statement… *Survey methods (i.e., aerial or ground-based) are flexible to cover all known nests and suitable nesting habitat within the four-mile Project boundary buffer but outside the appropriate one or two-mile disturbance buffer.* Its our understanding that either ground or aerial surveys may be used to survey for nests and suitable habitat anywhere in the four-mile Project boundary, but only outside of the one or two-mile disturbance buffers. Nests and habitat within the one or two-mile disturbance buffers are not subject to this flexibility and must have ground surveys completed first.	As noted in Section 2.3.1, Table 2-1 (ACEPM 1) in the EA, annual initial territory occupancy surveys will be required for the territory likely to be impacted by previously authorized mining activities. It is expected that initial occupancy surveys will be ground-based within the appropriate one and two-mile disturbance buffers, but there is some flexibility in survey approach based on logistics, climatic conditions, and any unforeseen issues encountered during the authorization period (e.g., "MMC will coordinate with the USFWS prior to the ground surveys occurring to communicate existing conditions on the ground that may prohibit ground surveys to some nest sites"). MMC would be required to inform and coordinate with USFWS and the BLM regarding any new, or previously unknown, nest sites discovered during the period of authorization. A stipulation of a disturbance take permit will be continued annual surveys of all suitable habitat within four miles of the project boundary, and ground-based or aerial surveys may be an option for nests and territories outside the appropriate disturbance buffer and the four-mile survey area. The USFWS intends to allow flexibility of survey methodology for those nests and territories based in part on location, logistics, weather, and ground conditions.
1	1.3	Marigold Mining Company	Section 3.2.3 – Should the section title be *Project Eagle Population Stressors* or *Project Area Population Stressors?*	The title for Section 3.2.3 should remain "Project Eagle Population Stressors". The section addresses perceived eagle population stressors in relation to habitat loss, mining activities, electrical utility infrastructure, and vehicle collision risks.
1	1.4	Marigold Mining Company	- Confirm understanding of this statement… *Disturbance take authorization would only be necessary when breeding eagles have an in-use nest (see 50 CFR § 22.6 for "in-use nest" definition) within one mile of Project activities, or two miles of blasting, as nesting eagles within these distance buffers have an increased likelihood of disturbance.* Its our understanding that this is referring to a newly discovered nest in the Project area and take authorization is only required for a newly discovered nest that is in-use and within the one or two-mile disturbance buffer. Newly discovered and in-use nests outside the one or two-mile buffers would not require take authorization.	Newly discovered golden eagle nests or territories outside the appropriate one or two-mile disturbance buffers, but within the four-mile survey area, would not need to be covered by this disturbance permit, but they will still be surveyed annually. The incidental disturbance take permit application, and supporting EA, account for negatively impacted breeding for a single golden eagle territory. If additional nests representing additional golden eagle territories are discovered within the appropriate one or two-mile disturbance buffers during the course of the authorized disturbance period then they will not be covered by a permit resulting from this EA. If it is determined that more than one golden eagle territory lies within the appropriate one or two-mile disturbance buffers of this mining project then the authorizing permit would need to be amended to account for additional golden eagle take for MMC to remain in compliance with the Bald and Golden Eagle Protection Act.