

APPENDIX I
BUCKWHEAT PROTECTION PLAN

Tiehm's Buckwheat (*Eriogonum tiehmii*) Protection Plan

July 2022





IONEER RHYOLITE RIDGE LLC

**RHYOLITE RIDGE LITHIUM-BORON PROJECT
ESMERALDA COUNTY, NEVADA**

Tiehm's Buckwheat (*Eriogonum tiehmii*) Protection Plan

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RHYOLITE RIDGE LITHIUM-BORON PROJECT
TIEHM’S BUCKWHEAT (*ERIOGONUM TIEHMI*) PROTECTION PLAN**

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APPENDIX

Figure 1. Tiehm’s Buckwheat Subpopulations and Exclusion Fencing

EXECUTIVE SUMMARY

The purpose of this Tiehm's Buckwheat Protection Plan (Plan) is to describe the applicant-committed environmental protection measures (EPMs) for Tiehm's buckwheat (*Eriogonum tiehmii*) that are proposed for the Rhyolite Ridge Lithium-Boron Project (Project) by the Project proponent, Ioneer Rhyolite Ridge LLC (Ioneer). The EPMs described in this Plan are intended to minimize potential impacts to Tiehm's buckwheat associated with Project development and increase the likelihood of the survival of this species into the foreseeable future.

The United States (US) Fish and Wildlife Service (Service) received a petition to list Tiehm's buckwheat under the Endangered Species Act of 1973, as amended (ESA), as an endangered or threatened species, and to concurrently designate critical habitat on October 7, 2019. On June 4, 2021, the Service announced its 12-month finding on a petition to list Tiehm's buckwheat as an endangered or threatened species under the ESA. The Service determined, after a review of what the Service stated was the best available scientific and commercial information then available, that the petitioned action to list Tiehm's buckwheat, a plant species native to Nevada in the US, was warranted. On October 7, 2021, the Service issued a proposed rule (86 Fed. Reg. 55775) to list Tiehm's buckwheat as endangered under the ESA. And on February 3, 2022, the Service proposed designation of critical habitat for Tiehm's buckwheat (87 Fed. Reg. 6101). The Nevada Division of Forestry (NDF) received a petition to add Tiehm's buckwheat to the State list of fully protected species of native flora in Nevada Administrative Code (NAC) 527.010, also on October 7, 2019. The NDF is currently in the process of reviewing the species for listing under their state regulations.

The Service has identified several threats to Tiehm's buckwheat that it deems as potential consequences of mining activities (Service 2021). These potential threats include:

1. Habitat modification through destruction and physical removal of existing subpopulations of Tiehm's buckwheat;
2. Dust deposition from increased vehicular traffic;
3. Spread and establishment of non-native invasive plant species; and
4. Increased risk of extinction due to the effects of catastrophic events on small populations.

The EPMs Ioneer presents herein focus on addressing these potential threats identified by the Service to Tiehm's buckwheat that are related to Project activities.

Summary of Tiehm's Buckwheat EPMs:

1. **Avoidance:** Avoidance of all subpopulations of Tiehm's buckwheat by the Project. Quarry development and other mine related activities would be located to avoid surface disturbance within the Tiehm's buckwheat subpopulations and exclosure fencing would be constructed as a physical and visual barrier between mining activities and the subpopulations. The distance between the mapped subpopulation boundaries and the

proposed fence line varies between 12 and 305 feet. Activities, except EPMs authorized by this Plan of Operations/Nevada Reclamation Permit Application (Plan of Operations) and other approved conservation activities, would not occur within the fenced enclosure and Tiehm's buckwheat subpopulations, and could not occur until an amendment to the Plan of Operations is submitted and processed by the Bureau of Land Management and Nevada Division of Environmental Protection Bureau of Mining Regulation and Reclamation, including engagement with the Service under Section 7 of the ESA.

2. **Protection, Awareness, and Education:** Protection of existing subpopulations with fencing and signage and education for all individuals involved in the Project. In addition, a secondary enclosure fence will be constructed and appropriate signage installed to clearly mark the limits of any designated critical habitat, if established, for the Tiehm's buckwheat and the limits of disturbance authorized by final plan approval in any designated critical habitat.
3. **Fugitive Dust Best Management Practices and Monitoring:** Best Management Practices (BMPs) would be employed to control fugitive dust emissions and monitor dust deposition in occupied subpopulations of Tiehm's buckwheat.
4. **Non-native, Invasive Plant Species Control and Prevention:** BMPs and targeted control efforts would be employed to limit the spread of invasive plant species and treat infestations as appropriate.
5. **Wildfire Awareness and Prevention:** Education of all individuals in emergency preparedness in relation to fire prevention and response, fire prevention systems included in the design of facilities, and the establishment of a Fire Brigade with personnel trained in wildland fire techniques.
6. **Reclamation/Restoration Habitat Reconstruction:** Measures and actions that are specific to the reclamation of Tiehm's buckwheat habitat and are focused on growth media salvage and placement and identification and development of additional habitat sites.

1 INTRODUCTION

The purpose of this Protection Plan (Plan) is to describe the applicant-committed environmental protection measures (EPMs) for Tiehm's buckwheat (*Eriogonum tiehmii*) that are proposed for the Rhyolite Ridge Lithium-Boron Project (Project) by the Project proponent, Ioneer Rhyolite Ridge Holdings LLC (Ioneer). The EPMs described in this Plan are intended to minimize potential impacts to Tiehm's buckwheat associated with Project development and increase the likelihood of the survival of this species into the foreseeable future. Ioneer continues to be committed to comprehensively addressing the threats to Tiehm's buckwheat in collaboration with the United States Fish and Wildlife Service (Service) and the Bureau of Land Management (BLM). Towards this end, Ioneer has funded, commenced, and would continue much of the data collection efforts to support this effort. Many of the management actions associated with this holistic approach; however, are not directly connected to addressing potential threats of the Project, the threats posed by herbivory in particular. As such, those conservation measures and management actions that go beyond those actions directly associated with Project development are not included in the Mine Plan of Operations for the Project.

Included herein is a brief discussion of the current regulatory status of Tiehm's buckwheat (Section 2) and a discussion of potential threats to the species from Project activities that outlines the explicit EPMs developed by Ioneer to address these threats (Section 3).

2 SPECIES INFORMATION

Tiehm's buckwheat is currently known to occur as a single population within the Silver Peak Range. The plants occur at eight discrete locations in the vicinity of the Project. Population estimates over the last few decades have ranged from approximately 17,000 individuals to 44,000 individuals. Many plants were killed or damaged by herbivores in 2020. The most recent population estimate in May 2021 was 24,174 plants (EMS, 2021). Collectively, the subpopulations occupy approximately 10 acres (EMS, 2020a).

The Service received an emergency petition to list Tiehm's buckwheat under the Endangered Species Act of 1973, as amended (ESA), as an endangered or threatened species, and to concurrently designate critical habitat on October 7, 2019. On June 4, 2021, the Service announced its 12-month finding on a petition to list Tiehm's buckwheat as an endangered or threatened species under the ESA. The Service has determined that the petitioned action to list Tiehm's buckwheat was warranted. On October 7, 2021, the Service published a proposed rule (86 Fed. Reg. 55775) to list Tiehm's buckwheat as endangered under the ESA. And on February 3, 2022, the Service proposed designation of critical habitat for Tiehm's buckwheat (87 Fed. Reg. 6101).

The Nevada Division of Forestry (NDF) received a petition to add Tiehm's buckwheat to the State list of fully protected species of native flora in Nevada Administrative Code (NAC) 527.010, also on October 7, 2019. On November 7, 2019, the NDF determined the petition submitted did not include sufficient information. The NDF subsequently initiated its own review of the species which is still in progress as of the writing of this Plan.

3 PROTECTION MEASURES TO ADDRESS POTENTIAL THREATS OF THE PROJECT

The Service identified several potential threats to Tiehm's buckwheat related to mining activities (Service 2021). These potential threats included direct impacts from potential mine development and operation, mineral exploration, and indirect impacts from disturbance related to the construction of access roads and other facilities. Ioneer has explicitly developed EPMs to address those threats that may be related to the development of the Project. This focus does not preclude Ioneer's commitment to comprehensively address these, and other non-Project related threats to Tiehm's buckwheat in collaboration with the Service and the Bureau of Land Management (BLM). Ioneer has funded, commenced, and would continue much of the data collection efforts to support this wholistic effort to conserve the species. The EPMs described in this section are intended to avoid and minimize potential impacts to Tiehm's buckwheat associated with Project development and operation.

3.1. Habitat Modification

3.1.1. Potential Threats

The Service considered this category of threats to broadly include activities that physically disturb, damage, or kill Tiehm's buckwheat, or degrade or destroy its habitat (Service 2021). Due to the proximity of the Project to extant subpopulations, there is concern that the construction of Project facilities and operation of Project activities and reclamation could result in the physical damage to the species and its habitat. This threat could be realized through surface disturbance from Project development, or from unintentional impacts to existing subpopulations from increased human activity in the vicinity of the subpopulations due to Project development and operation.

3.1.2. Environmental Protection Measures

Avoidance

Project design has avoided all direct impacts to all the subpopulations of Tiehm's buckwheat and the risk of inadvertent impacts to the subpopulations would be avoided by the construction of enclosure fencing around each of the subpopulations. All enclosure fencing around the subpopulations would have signs placed at regular intervals on the fence that states "Vegetation Control Area - No Admittance." Fencing would be constructed prior to any other construction activities for the Rhyolite Ridge project. The type of fencing and the wording on the signage would be subject to approval by the BLM.

In addition, and pending a potential final designation of critical habitat, a secondary enclosure fence would be constructed around those portions of any designated critical habitat that would not be impacted by the Project. The location and configuration of this fence cannot be determined until a final rule designating critical habitat is published by the USFWS. We anticipate

that this final rule would be published well in advance of final approval of the Project by the BLM and the USFWS.

The distance from the mapped subpopulation boundaries and the proposed primary enclosure fence line will range from 12 and 305 feet (Figure 1). The configuration of the fence set back from the subpopulations has been based on the specific topographic characteristics at each subpopulation and design requirements for project related activities. A biologist would be on site during fence installation and Tiehm's buckwheat individuals near the fence's perimeter would be flagged to ensure minimal disturbance to the species and its habitat. Enclosure fencing would be monitored regularly and Ioneer would maintain the fencing for the life of the Project.

Project activities would not occur within the established fence lines placed to protect Tiehm's buckwheat under the Plan of Operations/Nevada Reclamation Permit Application (Plan of Operations) and could not occur unless an amendment to the Plan of Operations is submitted and processed by the BLM and Nevada Division of Environmental Protection (NDEP) Bureau of Mining Regulation and Reclamation, including engagement with the Service under Section 7 of the ESA.

Protection, Awareness, and Education Program

Ioneer would develop a comprehensive employee training program to promote awareness of Tiehm's buckwheat and education of the natural history, threats, and these EPMs developed to address threats to the species. The primary focus will be around education and significance of the EPMs developed, the requirements for adherence to the EPMs, and the practical implications for their jobs. These trainings will be part of new employee site orientation and part of the annual site and safety refresher.

3.2. Dust Deposition

3.2.1. Potential Threats

The Service has identified dust deposition as a threat to Tiehm's buckwheat because it can negatively affect the physiological processes of some plants (Service 2021). The construction and operation of the Project would entail disturbance of existing vegetation to construct facilities and access roads, and to store mined materials. Operation of the Project would also result in increased traffic within the facility. As such, construction and operation of the Project has the potential to increase dust deposition in the areas adjacent to Project activities, including Tiehm's buckwheat subpopulations.

3.2.2. Environmental Protection Measures

Ioneer has developed the following Best Management Practices (BMPs) to be employed to control fugitive dust emissions from the Project and monitor dust deposition in occupied subpopulations of Tiehm's buckwheat. BMPs would include:

- Water trucks for road maintenance and dust control;
- Use of NDEP- and BLM-approved chemical dust suppressants (e.g., magnesium chloride [MgCl] mixed in water), where appropriate;
- Reduced speed limits (to be strictly enforced) on unpaved roads to the extent possible;
- Water sprays or bag houses at crusher and material drop points;
- Disturbed areas would be seeded with an interim seed mix developed in conjunction with the BLM
- When appropriate windbreaks or source enclosures would be constructed, and
- Minimize fugitive dust emissions from exposed, unvegetated surfaces.

The primary components of the monitoring program for fugitive dust would include the following:

- Unpaved roads would be monitored to verify that dust suppressant measures and speed limitations are effective.
- Disturbed areas such as temporary construction areas and stockpiles would be monitored to ensure that moisture control efforts, stockpile heights, and vegetative cover (where applicable), are effectively minimizing fugitive dust emissions.
- Inspection records would be maintained to document the observations of roads and disturbed areas, and to document dust control methods, such as the application of dust suppressant on unpaved roads.

The primary components of the dust deposition monitoring program would include the following:

- The installation of a sampler to collect wet and dry deposition samples adjacent to occupied Tiehm's buckwheat subpopulations. The sampler automatically covers the dry deposition sensor if it detects precipitation and collects the precipitation in the wet deposition sensor. Once the precipitation has ceased, the sampler automatically covers the wet deposition sensor, and the dry deposition sensor is uncovered to collect the dry sample.
- The wet and dry deposition samples would be collected after each precipitation event for analysis. Since precipitation is infrequent in the Project area, the dry deposition sample would be collected at least monthly for analysis.

3.3. Spread and Establishment of Non-native, Invasive Plant Species

3.3.1. Potential Threats

Ground disturbing activities associated with the construction and operation of the Project are a potential means for an increase in the spread on non-native, invasive plant species in the Project

area. The Service has identified the spread and establishment of non-native, invasive plant species as a threat to Tiehm's buckwheat through increased competition, displacement, and degradation of habitat (Service 2021). Currently, halogeton (*Halogeton glomeratus*) is the only invasive species recorded within some of the Tiehm's buckwheat subpopulations (EMS 2020). This species has been identified as a threat to Tiehm's buckwheat by the Service because of its potential to compete with Tiehm's buckwheat for necessary resources within the subpopulation areas.

3.3.2. Environmental Protection Measures

Ioneer has developed the following measures to be implemented during design, construction, operation, and closure of the Project that would reduce the threat of non-native, invasive plant species to the Tiehm's buckwheat population:

Implementation of the prevention, control, and treatment measures in the *Rhyolite Ridge Lithium-Boron Project Noxious Weed Monitoring and Control Plan* (EMS 2021). Weed treatment activities within the fenced Tiehm's buckwheat subpopulations would be limited to methods approved by the BLM and the Service during section 7 consultation for the project.

Following construction, areas such as cut-and-fill embankments and growth media stockpiles would be seeded with an interim seed mix developed in conjunction with the BLM. Concurrent reclamation would be implemented, to the extent possible, to accelerate stabilization of disturbed areas.

Areas outside of Tiehm's buckwheat subpopulations that have been treated to control noxious and invasive non-native weed species would be seeded with a BLM-approved species to compete with noxious and invasive non-native weed species. The density of seeding would be doubled in weed-infested areas to increase the cover of desirable vegetation to compete with the noxious and invasive weeds.

3.4. Increased Risk to Small Populations from Catastrophic Events

3.4.1. Potential Threats

Since Tiehm's buckwheat is currently known from only a few, small locations, the Service considers the risk of extinction of the species due to stochastic environmental events to be high (Service 2021). Although the Project has little influence on stochastic environmental events, the Service has identified the increased activity associated with the development and operation of the Project as a factor that may contribute to the inherent risk to Tiehm's buckwheat as a small population.

3.4.2. Environmental Protection Measures

Ioneer has developed three EPMs as part of the Project that would address the increased risk to small populations from catastrophic events. These measures focus foremost on 1) physical and

institutional controls to avoid unplanned direct impacts to Tiehm's buckwheat populations from mine related activities and personnel (see 3.1); 2) prevention and limitation of stochastic wildfire events; and 3) creation of suitable habitat to establish additional subpopulations of Tiehm's buckwheat. These measures would lessen the risk to Tiehm's buckwheat from stochastic events and promote the long-term conservation of the species. Wildland fire awareness and creation of additional habitat are discussed below.

Wildland Fire Awareness and Prevention

The following measures would be implemented during design, construction, operation, and closure of the Project that would reduce the threat of wildfire to the Tiehm's buckwheat population.

Ioneer would establish a Fire Brigade that is composed of individuals across the site that would receive specialized fire-fighting training in areas with special materials (i.e., sulfur) or higher fire potential. The Fire Brigade would be organized by the Safety Manager. The Fire Brigade would include trained equipment operators that have wildland fire training with their respective equipment, namely bulldozers, graders, water trucks, and other fire suppression equipment to the fire location to conduct tactical firefighting methods and positions to extinguish the fire. Fire Brigade members from across the site would be trained on potential fire hazards, appropriate fire suppression methods, and actions that should be taken in the event of a fire at the Project. This training would include procedures and methods appropriate for fire suppression in proximity to the fenced Tiehm's buckwheat subpopulations.

A dedicated fire suppression vehicle would be prepared and maintained to ensure it is available to respond to any emergencies and would have personnel trained in its operation and on call 24 hours per day for the Project site. Water trucks used to support dust suppression efforts could also be used to support fire suppression activities, as needed.

If a major wildland fire occurs near or at the Project where there is a potential of loss of life, property, or Tiehm's buckwheat, then the General Manager, or their designee, would commandeer and direct the Fire Brigade. The General Manager, Environmental Manager, and/or designee would contact the BLM for additional assistance and relieve command and firefighting activities to the BLM Incident Command as appropriate.

Ioneer would not allow open fires within the Project area. Vegetated areas surrounding Project structures and activities would be kept clear and free of debris. Ioneer would immediately contact the appropriate firefighting entity in the event of a fire and report all wildland fires to BLM and other relevant agencies.

Vehicles and equipment operated on public and private lands and roads would meet appropriate wildfire preparedness requirements. These would include, but not be limited to, being equipped with approved spark arrestors, fire suppression tools, and other appropriate supplies. Power equipment would be equipped with fire extinguishers, buckets, and shovels.

In addition, Project vehicles would be equipped with radios and/or cellular telephones for fire preparedness and prevention, suppression operations, and emergency response purposes. Crew vehicles and equipment would also be supplied with an emergency communication list that would include emergency contact information for administering agencies.

Smoking would only be permitted in designated areas that are free of flammable materials and only if allowed by state or federal regulations.

Reclamation, Habitat Reconstruction, Propagation, and Seeding

These measures are specific to reclamation activities that target the creation of Tiehm's buckwheat habitat and are principally focused on growth media salvage and placement, as well as identification and development of habitat reconstruction sites.

The following are measures that would be implemented during design, construction, operation, and closure of the Project that would be applicable to the creation of Tiehm's buckwheat habitat:

Concurrent reclamation would be completed for facilities (or portions of facilities) that are no longer needed for operations as soon as practicable and where suitable and appropriate

Fugitive dust and other air emissions from disturbed and exposed surfaces would be controlled in accordance with NDEP regulations and other permits, as applicable.

Ioneer would establish (or reestablish) stable surface topographic and hydrologic conditions both during operations and after reclamation to be compatible with the surrounding landscape. Ioneer has designed stable fill and cut slopes and would implement measures to control erosion and sedimentation and manage surface water and earthen materials to minimize water quality impacts.

Surface soils suitable for Tiehm's buckwheat would be segregated and managed as a growth media resource, if appropriate, and retained for reclamation. Ongoing soils evaluations would be used to describe and refine our understanding of Tiehm's buckwheat growth media requirements.

Key habitat correlates would be identified and used to focus habitat reconstruction efforts. These efforts would be refined as appropriate from the result of seeding and transplant studies to optimize reconstruction activities to the extent practicable. Habitat reconstruction would include:

The soil profiles determined to contain the key habitat correlates for Tiehm's buckwheat would be salvaged and stockpiled during construction for later use in reconstruction efforts.

Appropriate sites to be the focus of reconstruction efforts would be identified considering topography and other characteristics that would maximize success of Tiehm's buckwheat establishment.

Direct seeding and transplantation of Tiehm's buckwheat using the approaches developed during Ioneer's ongoing research could be employed to establish Tiehm's buckwheat within reclamation areas.

Control and removal of both nonnative and native species may occur, in collaboration with the BLM, to aid the creation of Tiehm's buckwheat habitat.

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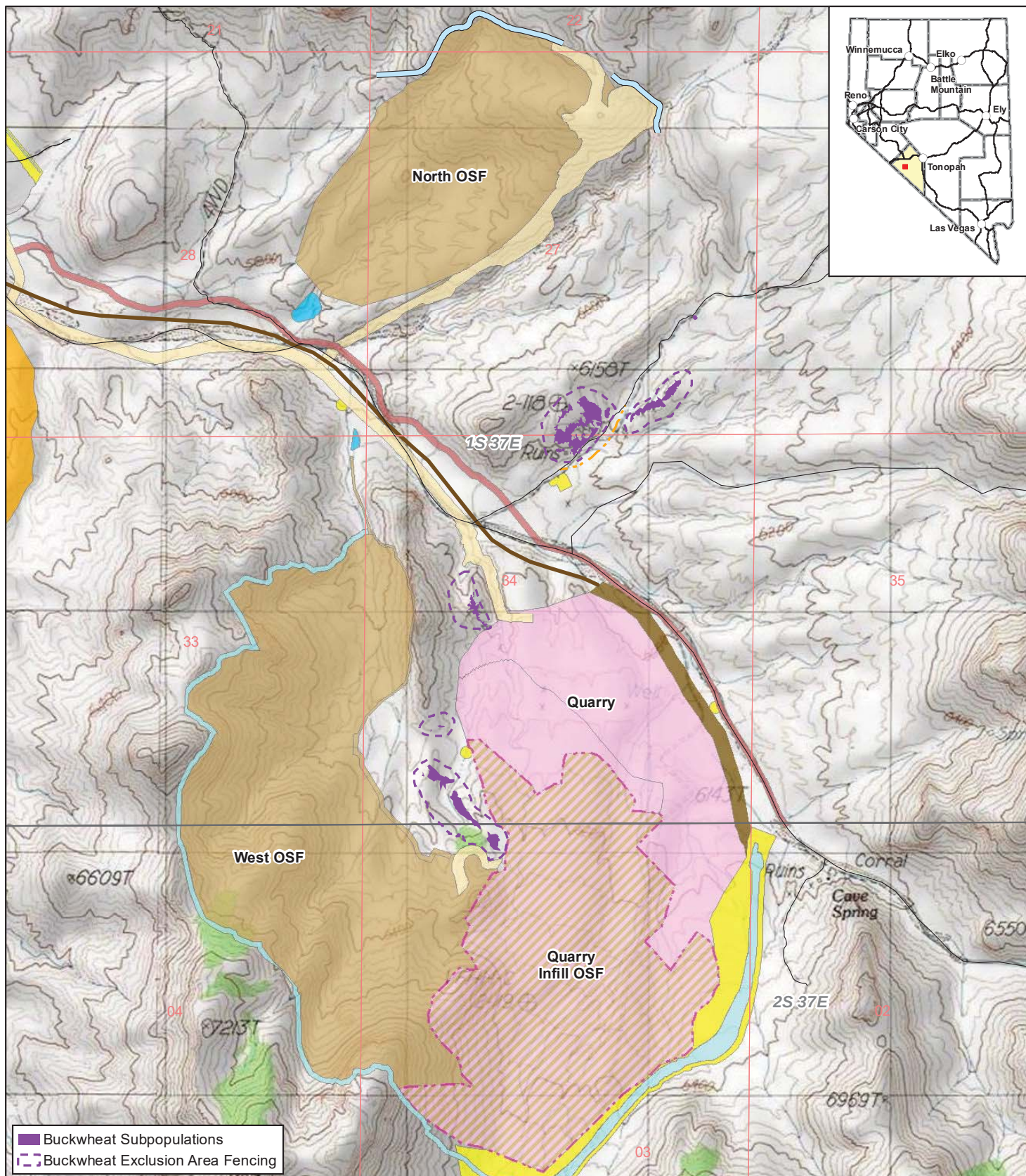
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APPENDIX



Explanation

- Existing Road
- - - Exclusion Area Road Reroute



0 500 1,000 Feet N

IONEER RHYOLITE RIDGE LLC

RHYOLITE RIDGE MINE PROJECT

Tiehm's Buckwheat Subpopulations and Exclusion Areas

Label: Figure 1
 Date: 07/13/2022
 Base Map: USGS 7.5' quad: Rhyolite Ridge
 File Name: 2198T_RRTBWPP_Fig1_ExclusionAreas.mxd

Drawn By: TLF
 Project No.: 2198

