

## Ioneer's Buckwheat Protection Plan Summary: Proposed Conservation Measures for Tiehm's Buckwheat and Critical Habitat



### Introduction and Background

Ioneer's Rhyolite Ridge Lithium-Boron Project (Project) is located in Esmeralda County Nevada, approximately 160 miles southeast of Reno in the Silver Peak Range. On December 15, 2022, the U.S. Fish and Wildlife Service (USFWS) listed Tiehm's buckwheat as endangered species under the Endangered Species Act (ESA) and designated approximately 910 acres of critical habitat for Tiehm's buckwheat.

Critical habitat are areas identified by the USFWS as essential for a listed species conservation. These areas do not have to include land occupied by the listed species. For Tiehm's buckwheat, critical habitat includes the approximately 10 acres of occupied habitat suitable for the species and approximately 900 acres of surrounding land that has been identified because of their potential to support pollinators and pollinator habitat for Tiehm's buckwheat. As described by the USFWS, "*critical habitat is a tool that supports the continued conservation of imperiled species by guiding cooperation within the federal government.*" Designation of critical habitat only affects federal agency actions or federally funded or permitted activities. It does not establish a refuge, reserve, preserve, or other conservation area and projects are able to proceed, though sometimes with modification, to minimize effects and avoid adversely modifying critical habitat.<sup>1</sup> The ESA Section 7 consultation for the Project involving the BLM, DOE, and USFWS is being carried out to ensure that the potential effects of the Project do not jeopardize the continued existence of Tiehm's buckwheat OR adversely modify critical habitat such that it would no longer function as intended by its designation. The USFWS is ultimately responsible for making this determination in their biological opinion that will be issued at the end of the ESA Section 7 consultation and prior to the conclusion of the BLM/DOE National Environmental Policy Act (NEPA) review of the Project.

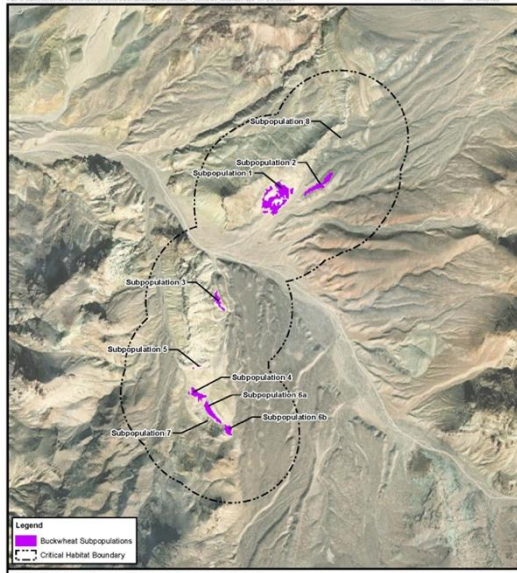
Ioneer began working with the USFWS and the BLM to provide for conservation of the species long before the listing of the species or the designation of critical habitat. These efforts included proposals for conservation actions related, and not related to the Project. On a voluntary basis, Ioneer has been, and continues to implement certain conservation actions not related to the Project, such as ongoing demographic monitoring, seed collection and seed banking, construction of a green house, and propagation of Tiehm's buckwheat. Ioneer has committed to continuing these and other studies throughout the life of the Project.



Tiehm's buckwheat at Ioneer's Conservation Center, May 2023

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<sup>1</sup> <https://www.fws.gov/project/critical-habitat>



Once the public process associated with the permitting of the Project commenced, loneer’s and the agencies’ focus has been on providing the necessary information to support this effort. One of the documents requested of loneer was the development of specific applicant proposed conservation measures (APCMs) to outline the activities being proposed by loneer to avoid and minimize Project impacts to Tiehm’s buckwheat and its critical habitat. This information provides a key element of the BLM’s biological assessment which has been submitted to the USFWS to initiate formal consultation required by the ESA. Below is a summary of loneer’s proposed conservation measures described more fully in loneer’s [Buckwheat Protection Plan: Applicant Proposed Conservation Measures for Tiehm’s Buckwheat and its Critical Habitat](#) (the Buckwheat Protection Plan).

### **loneer Proposed Conservation Measures**

The conservation measures loneer has proposed were developed with input from the USFWS and BLM. These measures reflect substantial changes in proposed quarry development, overburden storage facility design, and other infrastructure, as well as other specific conservation measures related to mine operations and reclamation to avoid and minimize impacts to Tiehm’s buckwheat and its designated critical habitat.

The APCMs have continued to evolve and expand as the USFWS, BLM and loneer have worked closely to identify and address potential Project impacts to Tiehm’s buckwheat and impacts to critical habitat. These changes have been reflected in the changes to the Buckwheat Protection Plan since the draft plan was provided to the USFWS and BLM in June of 2023.<sup>2</sup> We anticipate that this collaborative effort will produce additional refinements and enhancements to the Plan as the ESA Section 7 consultation proceeds. The current version of the Buckwheat Protection Plan (Amended March 2024) includes 15 APCMs that loneer has or will be taking to protect Tiehm’s buckwheat while providing minerals essential to address global environmental issues.

- APCM-1. Avoidance of Tiehm’s Buckwheat and Designated Critical Habitat.
- APCM-2. Geotechnical Design of the Quarry Walls to Provide Appropriate Margins of Safety.
- APCM-3. Geotechnical Monitoring.
- APCM-4. Establish Fencing and Signage to Protect Tiehm’s buckwheat and Critical Habitat Designated for Tiehm’s buckwheat.
- APCM-5. Restrict Public Access to the County Road.
- APCM-6. Development of a Pollinator Habitat Reclamation Program Within Critical Habitat.
- APCM-7. Control of Nonnative, Invasive, and Noxious Species.
- APCM-8. Light Management to Minimize Adverse Impacts to Pollinators.
- APCM-9. Dust Control and Monitoring of fugitive dust emissions within Tiehm’s Buckwheat Subpopulations.
- APCM-10. Remove fencing and debris from the three UNR transplant experimental sites that are located within Tiehm’s buckwheat critical habitat.

<sup>2</sup> Buckwheat Protection Plan within Supplemental Environmental Report of the Draft Environmental Impact Statement: [https://eplanning.blm.gov/public\\_projects/2012309/200540745/20108286/251008286/13\\_rr\\_ser\\_tes\\_20240415\\_508.pdf](https://eplanning.blm.gov/public_projects/2012309/200540745/20108286/251008286/13_rr_ser_tes_20240415_508.pdf)

- APCM-11. Utilize blasting mats when any blasting is to occur proximate to Tiehm’s buckwheat subpopulations and trim blasting techniques and charge delays.
- APCM-12. Demographic and Recruitment Monitoring.
- APCM-13. Develop an ERTI-Specific Environmental Awareness Program for Project Employees, Contractors, and Guests.
- APCM-14. Monitor Stormwater Control Measures for Project Activities Located in or with the Potential to Discharge to Critical Habitat.
- APCM-15. Critical Habitat and Subpopulation Monitoring.

Seven of the proposed actions are briefly summarized below. A more detailed description of all plan elements can be found [here](#).

**Avoidance of Tiehm’s Buckwheat and Designated Critical Habitat (APCM-1)** – Loneer has redesigned significant parts of its Plan of Operations since their original submission in 2020 to avoid impacts to Tiehm’s buckwheat subpopulations and avoid and minimize impacts to designated critical habitat. This has been an iterative process, requiring extensive evaluation of slope stability, quarry sequencing, collection of additional geotechnical data, and iterative quarry wall stability assessment along with revision of appropriate mitigative measures to achieve stability requirements.

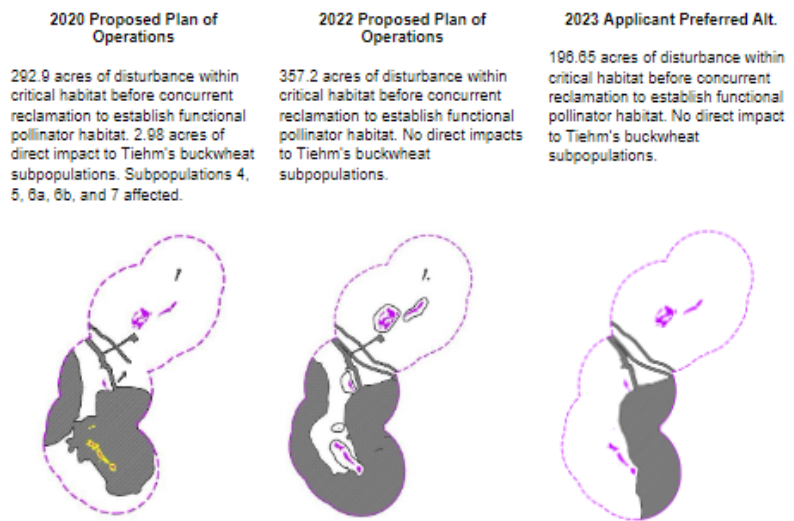


Figure 1: Overview of changes to avoid direct impacts to Tiehm’s buckwheat subpopulations (purple) and to minimize impacts to critical habitat.

**Development of a Pollinator Habitat Reclamation Program Within Critical Habitat (APCM-6)**

– As part of the proposed concurrent reclamation plan, the loneer will enhance reclamation efforts inside of critical habitat to foster faster recovery of pollinator habitat.

The reclamation goals are informed by reference ecosystems but consider how ecological conditions are changed by quarry development. The overall goal of the reclamation is to support the restoration of ecosystem processes and function. Specifically, reclamation efforts inside of critical habitat will be enhanced to accelerate the establishment of habitat suitable for the various life history stages of the diverse pollinator guild that supports Tiehm’s buckwheat (Functional Habitat). As described in the Buckwheat Protection Plan, several methods to enhance the establishment of vegetation within critical habitat will be evaluated during the early phases of concurrent reclamation. These methods will include, but may not be limited to, soil amendments to facilitate establishment of soil biome, establishment of biological soil crusts, enhanced (diversity and quantity) seed mixes, containerized plantings, supplemental irrigation approaches, and salvaged succulents. The validation and the effectiveness of these various methods will be refined and optimized during early phase reclamation efforts, mine years 3 to 18, and prior to implementation of reclamation efforts within critical habitat which will begin in Year 19 once buttresses have been constructed to provide for long term stability of the west quarry wall.

**Control of Nonnative, Invasive, and Noxious Species (APCM-7)** – loneer will implement a non-native, noxious, and invasive weed species control program within the operations footprint with a particular focus on saltlover

(collectively ‘weeds’) for the life of the Project. Areas of existing disturbance will be evaluated on an annual basis to determine the relative level of infestation and required weed control efforts. Weed treatment will be achieved using herbicide treatments and where appropriate, mechanical removal techniques. Timing of weed control activities is important to the overall success of the effort. Application will take advantage of post emergence when weeds are small and growing rapidly, but prior to the blooming period to prevent seed development.

**Light Management to Minimize Adverse Impacts to Pollinators (APCM-8)** – Loneer will use dark sky lighting best management practices throughout the operations area to minimize the effects of lighting on pollinators and other wildlife that may be present in the area. These efforts would utilize hooded stationary lights and lighting plants. Lighting will be directed onto the pertinent site only and away from adjacent areas not in use, with safety and proper lighting of the active work areas being a priority. As appropriate and when color rendering is not critical or an important part of the job task, the use of sub-500 nanometer lighting spectra will be limited by using 500nm filtered LED fixtures or pure narrow-band amber LED lamps or their equivalent. To help guide efforts to minimize the potential adverse effects of light from operations on adjacent ecosystems, a qualified light management consultant will be retained to assist Loneer with implementation of this APCM. As a first principle, the implementation of this requirement must comply with safety requirements prescribed by the Mine Safety and Health Administration.

**Dust Control and Monitoring of fugitive dust emissions within Tiehm’s Buckwheat Subpopulations (APCM-9)** – The Air Quality Impact Analysis (AQIA) prepared for the Project has shown that primary and secondary air quality standards are met during the life of the mine project. Contour maps of expected emissions show that within critical habitat, including the subpopulations dust emissions will be less than the primary standards (Trinity Consultants 2024b). Fugitive dust will be controlled on roadways and other areas of disturbance within the Project in accordance with the Project’s Air Quality Operating permit and expected dust deposition from haul truck traffic along the haul road where it is closest to buckwheat subpopulations 3 and 6 is estimated to be significantly below trigger values established by dust studies conducted on another endangered plant in Nevada.

Loneer is aware of no studies that look at the effects of dust on Tiehm’s buckwheat and proposes as part of this APCM to fund research using Tiehm’s buckwheat plants growing in its greenhouse and, if authorized, in situ studies at the site. Such a study would further our understanding of the physiology and growth of Tiehm’s buckwheat, and the data will be used to refine thresholds for implementation of management strategies.

**Demographic and Recruitment Monitoring (APCM-12)** – Loneer will collect quantitative data will be along previously established transects on an annual basis to estimate the number of plants in each subpopulation and track changes in population density, flower production, and size structure. Every four years a full census of the subpopulations will be conducted. As part of currently authorized endangered species recovery permit (ESPER2424938) issued to WestLand Resources Inc., Tiehm’s buckwheat seed collection efforts will continue in accordance with the currently accepted standards determined by the Center for Plant Conservation. These collections will inform long term monitoring of seed viability in support of the demographic monitoring outlined in this APCM. Viability determinations shall be made by the Ray Selling Berry Seed Bank and Plant Conservation Program where the collected seeds are conserved.

**Critical Habitat and Subpopulation Monitoring (APCM-15)** – On a quarterly basis, Loneer will engage qualified biological monitors to monitor, on foot, the conservation fencing surrounding undisturbed critical habitat and document general condition of critical habitat, including the Tiehm’s buckwheat subpopulations. Monitoring efforts will focus on qualitative assessments of general habitat condition, whether or not the fencing constructed as part of APCM-4 is intact or in need of repair, and if there have been any unauthorized encroachments or disturbance.