

February 3, 2023

Bureau of Land Management
Attn: Rhyolite Ridge Lithium-Boron Mine Project
50 Bastian Road
Battle Mountain, NV 89820
BLM_NV_BMDO_TFO_NONRENEWABLE@blm.gov

To the Bureau of Land Management:

RE: Scoping Comments on the Rhyolite Ridge Lithium-Boron Mine Project Environmental Impact Statement, DOI-BLM-NV-B020-2021-0020-EIS.

We are 102 scientists who study plant diversity in North America. We hereby submit scoping comments on the Rhyolite Ridge Lithium-Boron Mine Project based on the revised Plan of Operations (POO) that was submitted by Ioneer in July of 2022 and presented by the BLM for public scoping.

The Rhyolite Ridge Lithium-Boron Mine POO provides information on a “Buckwheat Protection Plan” (Ioneer 2022, Appendix I), and a Noxious and Invasive Species Plan (Ioneer 2022, Appendix J). Scoping comments on these components of the POO are provided below.

On December 16, 2022, the U.S. Fish and Wildlife Service listed Tiehm’s buckwheat (*Eriogonum tiehmii*) as endangered under the U.S. Endangered Species Act, and designated 910 acres of critical habitat to protect it (USFWS 2022a). The critical habitat designation protects the entire known range of the species, including a 500 meter buffer surrounding each subpopulation, which contains components of the physical and biological features that are essential to its conservation and that may need special management or protection (USFWS 2022b). The designated critical habitat for Tiehm’s buckwheat includes “the pollinator community and its requisite native vegetation assembly.”

The “Buckwheat Protection Plan” fails to protect *Eriogonum tiehmii* (Tiehm’s buckwheat) and its critical habitat.

The POO includes a “buckwheat exclusion area” (BEA) implementing a buffer of only 13–127 ft (4–39 m; Ioneer 2022) with significant portions of critical habitat alarmingly close to an open quarry pit, overburden storage facility, haul roads, work yard, and an explosive storage area. In the final rule to list Tiehm’s buckwheat, the service stated the following:

“The combination of the quarry development and over-burden storage facilities are projected to disturb and remove up to 38 percent of critical habitat for this species, impacting pollinator populations, altering hydrology, removing soil, and risking subsidence.”

The creation of an open pit quarry that is located only four meters from individual plants and a rock waste storage facility immediately adjacent to the largest known subpopulation (6) which is known to hold approximately 50% of all individuals in the global population (USFWS 2022b, Fraga 2021) would create numerous adverse impacts to plants, habitat, and the long term survival of the species. We provide supporting information for the numerous impacts to Tiehm's buckwheat based on the POO and oppose any plan that fails to adequately address these elements:

- Dust and pollution deposition within the critical habitat
 - Dust deposition can impact plant health by limiting reproduction, reducing light availability, CO₂ assimilation, and thus reducing photosynthetic capacity (Wijayratne et al. 2009,). It can also reduce transpiration leading to higher leaf temperatures and reduced water use efficiency (Sharifi et al. 1997). The Project has the potential to greatly increase dust deposition on Tiehm's buckwheat plants from the construction of new facilities, use of access roads, and the creation of overburden storage areas. A prior study found plants growing within 1 km of unprotected mining stockpiles were in degraded habitats and highly impacted by dust deposition (Padgett et al. 2007). The Center for Biological Diversity and Dr. Fraga proposed an Area of Critical Environmental Concern (ACEC) surrounding the Tiehm's buckwheat habitat (total of 4,015 acres) in 2021. The proposed ACEC included a one mile protective buffer (1609 meters) which is more likely to be successful to help ameliorate the negative effects caused by dust and pollution than the 4 meter buffer proposed by Ioneer or the 500 meter buffer designated as critical habitat.
- Impacts to pollinators within the critical habitat
 - Habitat loss, modification, and fragmentation have severe consequences not only for rare plant populations, but also for their pollinators. Reduction and limitation of pollinator service can be detrimental to rare plant populations that rely on cross pollination for successful reproduction and recruitment of fit offspring (Neel et al. 2001). In a prior study, significantly lower species richness and counts in non-bee insect flower visitors were detected within disturbed areas when compared to non-disturbed areas (Grotsky et al. 2021). A study investigating arthropod and pollinator diversity and abundance found that Tiehm's buckwheat receives a relatively large number of insect visitors when flowers are open in May and June (McClinton et al. 2022). Like many other species of *Eriogonum*, Tiehm's buckwheat appears to be pollinated by a diversity of generalist species, with 12 orders, 73 families and 130 species documented at Tiehm's buckwheat sites in just one season of sampling.

- Spread of invasive plant species within the critical habitat
 - Exploration has already significantly increased the spread and cover of invasive plant species within Tiehm's buckwheat critical habitat including *Halogeton glomeratus*, *Salsola tragus* and *Amaranthus albus* (Fraga 2021). A study examining leachate of *Halogeton* mulch found significant soil alteration including: increases in pH, exchangeable sodium, potassium, magnesium, electrical conductivity, and decreases in water percolation (Eckert and Kinsinger 1960). High salts are known to inhibit micro-organisms aiding nitrification, which depresses plant growth. *Halogeton glomeratus* does not form mycorrhizal associations and does well in mine waste (e.g. overburden) with diminished or eliminated vesicular-arbuscular mycorrhizae present in overburden soils (Paveck 1992).
- Cumulative impact within the critical habitat.
 - In its latest POO, Ioneer has stated its preferred method of mitigation is avoidance of extant buckwheat populations. However, given the significant potential impacts for Tiehm's buckwheat of mining near its habitat, outlined in this letter, it is unacceptable to allow mining near the buckwheat. The Service designated a 500 meter buffer surrounding Tiehm's buckwheat based on the foraging behavior of a single type of pollinator- solitary bees. Far more pollinators than solitary bees have been detected in Tiehm's buckwheat's habitat, and it's unclear that the solitary bee is an appropriate proxy for other pollinators (McClinton et al. 2022). Additionally, as described above, dust deposition and other factors can have significant effects on Tiehm's buckwheat which extend beyond 500 meters. In order to avoid the worst impacts of mining from the Rhyolite Ridge Mine or other future mining proposals, it is most appropriate to designate a one mile buffer around Tiehm's buckwheat. This would be 4,015 acres of protected area surrounding the extant buckwheat populations.
 - We request for the BLM to disclose and analyze for all direct and indirect impacts to plants and habitat of the POO. In addition, a full range of alternatives need to be identified and evaluated including the exclusion of all mining activities within the designated critical habitat, and a one mile buffer alternative as proposed by the Center for Biological Diversity and Dr. Fraga.

On behalf of the many people who study, work with, and love plants everywhere we urge the BLM to incorporate basic conservation principles using the best available science to ensure that Tiehm's buckwheat is not adversely impacted and can continue to survive and thrive in its habitat where it has lived for millenia.

Sincerely,

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