Foundational Report Advances Knowledge of Tiehm's Buckwheat Conservation

Ioneer Acknowledges University of Nevada, Reno Report Detailing Findings from 13 Month Study

RENO, January 22, 2021 – Ioneer USA Corporation ('Ioneer' or the 'Company'), an emerging lithium – boron supplier, alongside the University of Nevada, Reno ('UNR') today announced key findings from a research report authored by UNR scientists. Importantly, the report greatly advances existing knowledge of Tiehm's buckwheat and creates the foundation for future efforts to ensure long term protection, and uplift of the plant in its natural habitat at Rhyolite Ridge.

As the first study of its type to be completed for Tiehm's buckwheat and the first study of any kind on the plant in over 10 years, UNR's report represents a major step forward in the understanding of this species.

"We have been incredibly fortunate to have the highly regarded UNR research team, headed by Professor Elizabeth Leger, working with us to improve the scientific community's understanding of the Tiehm's buckwheat population at Rhyolite Ridge," said Ioneer's President, Bernard Rowe. "Looking ahead, we are committed to continuing research with commercial and academic experts and are excited to learn more about how to uplift the species – especially in the face of threats like the herbivory damage that occurred last fall."

Over the course of 13 months, UNR researchers studied the Tiehm's buckwheat population at Rhyolite Ridge and surrounding environment. UNR scientists evaluated the abundance and diversity of arthropods (e.g. insects and spiders) around the plant populations, the importance of pollination for seed set, how seedlings responded to soil variation, and the viability of greenhouse propagation and seedling transplant into the wild.

Consistent with the Company's commitment to the environment and desire to ensure a sustainable buckwheat population at Rhyolite Ridge, Ioneer will expand the scope of its work and transition monitoring efforts to commercial research partners who are assisting in the development of protection and conservation efforts while also continuing to collaborate with academic researchers to determine the best ways to preserve this species for generations to come. Ioneer greatly appreciates the exceptional work the UNR research team has completed.

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Please see below for additional information about the UNR study and its implications.

Key Elements of the Study:

- Assess the abundance and diversity of arthropods (e.g. insects and spiders) around the plant populations
- Assess the importance of pollination for seed set
- Assess how seedlings respond to soil variation
- Test the viability of greenhouse propagation and seedling transplant into the wild
- Count and monitor existing plants

Key Findings:

Arthropod diversity

- The arthropod community within and around Tiehm's buckwheat is abundant and diverse and there is a high turnover in composition over time

Pollination

- Pollinators appear to be highly attracted to Tiehm's buckwheat and play an important role in the pollination of the plant
- Open-pollination (as opposed to self-pollination) was shown to significantly increase seed production, with beetles, wasps, and flies the most likely important pollinators
- The presence of a pollinator community is considered important in maintaining population viability

Soil Variation

Soil samples from 21 sites were collected and analysed to test how Tiehm's buckwheat seedlings respond to soil variation. Samples were collected in areas where Tiehm's buckwheat is currently growing (occupied sites) and from nearby (300 feet to one mile) sites where no Tiehm's buckwheat are growing (unoccupied sites). Seeds were planted in each soil sample from the occupied and unoccupied sites and grown in a common garden greenhouse.

Three key measures were recorded for each seedling:

- Emergence – number of days until seedlings emerged
- Survival – number of days that seedlings survived
- Total Biomass – above and below ground biomass calculated by harvesting, drying and weighing plant components

A fourth parameter, Growth Index, was calculated by multiplying the three key measures.

- Soil chemical and physical properties differed between occupied and unoccupied sites, though there was high variation and overlap between the two types
- Unoccupied sites performed best for emergence and survival while occupied sites performed best for total biomass. That said, there were both occupied and unoccupied sites within the top 3 performers for all tests.
- Seedlings responded to different components of soil variation at different life stages: they were sensitive to sand, manganese, and aluminum during emergence, and to sulfur, phosphorus, zinc, organic matter, and copper during later survival and growth.
- The tests led to the identification of a set of soil conditions that are most favorable for the growth of Tiehm's buckwheat.

Propagation and Seedling Transplant

This part of the study tested the viability of greenhouse propagation and seedling transplants at three unoccupied locations within the broader range of Tiehm's buckwheat using methods developed for a close relative of the plant. A total of 958 seedlings were transplanted into the wild in April 2020, at three separate sites located 300m to 500m north of the existing buckwheat population.

- The tests were successful and showed that it is possible to propagate Tiehm's buckwheat seedlings in the greenhouse and transplant them into the wild
- Growing them in field soils from occupied habitat promoted high root allocation that was likely beneficial for transplant survival
- Early transplant survival was promising, and comparable to that observed in previous UNR experiments with E. crosbyae (i.e., another rare mat buckwheat endemic to Nevada
- Two months after transplant into the wild, the best performing site had a survival rate of 83%.
- The tests indicated that slope, aspect, and basic soil properties are all important considerations for transplant survival.
- Seedlings planted into a site whose properties most closely approximated their natural habitat had the highest early survival

Unfortunately, a major herbivory event occurred two months after transplant and all but a few plants were destroyed, resulting in early termination of the test.

Implications for Tiehm's Buckwheat Protection and Conservation

Ioneer believes the UNR study results clearly demonstrate the opportunity to expand and uplift the plant population at Rhyolite Ridge. It is very encouraging that neighbouring areas with similar physical and soil attributes have been identified and that they appear to be well suited for outplanting of seedlings.

Tiehm's buckwheat at Rhyolite Ridge grows in clay-rich soils developed over specific interbedded sedimentary strata and their distribution closely follows the distribution of this strata. The rocks have been mapped and analysed in great detail by Ioneer and their surface extent is well known. They extend over a distance of at least 5km and greater than 50% of which is unoccupied by Tiehm's buckwheat.

The variations in soil type and chemistry are reflecting the geochemical and mineralogical variations in the underlying sedimentary rocks. The soils are residual soils (i.e., that have not been transported by erosional processes) and therefore closely reflect the underlying geology.

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About Rhyolite Ridge and Ioneer

Ioneer Ltd is the 100% owner of the Rhyolite Ridge Lithium-Boron Project located in Nevada, USA, the only known lithium-boron deposit in North America and one of only two known such deposits in the world. Rhyolite Ridge is expected to become a globally significant, long-life, cost-effective source of lithium and boron vital to a sustainable future.

Rhyolite Ridge's unique mineralogy allow lithium and boron to be extracted in a low-cost and environmentally sustainable manner. The Project's commercial viability is made possible by having both lithium and boron revenue streams.

Lithium is vital to enable technologies that combat climate change and reduce carbon emissions. It is a critical component for batteries essential to electric vehicles, and the conversion of intermittent green energy to base load power. The US Department of Interior listed lithium as a critical mineral in Executive Order 13817 (Federal Register, 83 FR 7065). There is only one producing lithium mine in the USA and no new projects are under construction. Rhyolite Ridge will help address the over-reliance on South American and Chinese supply to the lithium-ion battery industry.

Boric Acid is also a very important material for clean technologies and sustainability and is only produced in a few locations globally. It is used in over 130 applications, including permanent magnets for electric cars and wind turbines, advanced glass for televisions, computers, handheld devices and solar panels. Over 70% of global boron reserves are located in Turkey with Rhyolite Ridge well positioned to geographically rebalance supply in the USA.