TĀNGARO TUIA TE ORA
ENDANGERED SPECIES FOUNDATION

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Introduction

Tāngaro Tuia te Ora is on a mission to restore Aotearoa's unique biodiversity. We're collaborating with hāpori, iwi Māori, and partners to safeguard endangered species, restore waterways and maintain the health of te taiao. The Draft Critical Minerals List presents alarming risks to our ecosystems and biodiversity.

We contend that this Bill won't solve the problems it claims to address; instead, it threatens to intensify the risks to our vulnerable species and ecosystems. The proposed extraction of critical minerals will further jeopardise at-risk species and undermine our national and international reputation.

Concerns Regarding the Bill

1. **Exacerbating Environmental Degradation**
   The push for increased extraction of certain minerals will harm native ecosystems. We're in the midst of a global biodiversity crisis, with thousands of species in Aotearoa at risk, including 800 identified as high-risk by the Department of Conservation. This Bill ignores the urgent need to protect biodiversity, and expanding mining activities in sensitive areas could spell disaster for endangered species and ecosystems already struggling to survive.

2. **Impact on Ngāhere and Land-Based Biodiversity**
   Mining for critical minerals in ecologically sensitive areas poses a serious threat to Aotearoa's remaining ngahere and habitats crucial for endangered species. Open-pit mining and large-scale land disturbances will obliterate habitats for at least some native flora and fauna, including the keystone species essential for ecosystem health. The fragmentation of native forests will accelerate declines in endangered species, and the loss of vegetation will increase erosion and sedimentation, further threatening freshwater species.

3. **Marine and Coastal Biodiversity Risks**
   Extracting critical minerals from our seabed and offshore environments dramatically increases the risk of marine ecosystem degradation. Our deep waters harbour endemic and threatened species already vulnerable to human activities. The spectre of catastrophic oil spills and toxic discharges looms large, and these fragile ecosystems cannot withstand further pressures from offshore drilling and extraction.

4. **Cumulative Impacts on Endangered Species**
   We cannot overlook the cumulative impacts of this Bill on already declining species. The extractive industries will inflict cascading effects on Aotearoa's fragile ecosystems. Habitats lost to mining, dredging, or drilling are unlikely to recover within the lifetimes of many endangered species, leading to localised extinctions and pushing species closer to the brink. The lack of strong protections in this Bill for both terrestrial and marine environments overlook the critical need for conservation to be at the forefront of any development strategy.

5. **Undermining National and International Biodiversity Goals**
   This Bill contradicts national commitments to protect indigenous biodiversity and New Zealand's international obligations under agreements like the Convention on Biological Diversity. Instead of fostering policies that restore and regenerate native ecosystems, the focus on resource extraction will jeopardise efforts to rehabilitate te taiao, complicating our ability to meet biodiversity and climate goals.

Key Points of Opposition Regarding Aggregate and Sand

1. **Contradiction with Critical Mineral Criteria – Substitutes Exist**
   Aggregate and sand don't meet the criteria for critical minerals as outlined in the Wood Mackenzie Report[1] here in Aotearoa New Zealand. These materials are neither rare nor at risk of supply shortages, nor are they indispensable for producing critical products. Including aggregate and sand is inconsistent with established guidelines and lacks support from international practice.

   Sand and aggregate have a low supply risk rating, with ample substitutes available. Their inclusion in the critical minerals list is unnecessary and could lead to over-extraction from sensitive environments when alternatives can be sourced without harming ecosystems. New, substitute supplies have opened at Brookby quarry and alternative, sustainable sources have been developed, for example Kayasands.

   Sand and aggregates are also not included in the "International Partner Critical Minerals List" for the USA, UK, EU, Australia or Canada.

2. **Substitutes Exist**

   There are sustainable alternatives, such as *Kayasand*, that exist and that should be supported instead of destructive sand mining operations. New sand substitutes, by location and by input element and synthetic output products, mean that the demand for marine dredge sand has reduced markedly in the last few years.

[1] https://www.mbie.govt.nz/dmsdocument/29467-draft-critical-minerals-list-for-public-consultation-september-2024-pdf

Kayasand - https://kayasand.com/

Kayasand plants utilise a specialist crusher and air screen technology developed by KEMCO in Japan. This technology was originally developed because of a ban on dredging that severely disrupted concrete sand supply in Japan. Since its launch in early 2000s, there are now over 300 plants in Japan, China and India.

In 2023 Kayasand opened the first V7 high-technology demonstration plant in Waikato, New Zealand showcasing this revolutionary crushing technology which:

- Recycles waste materials, turning glass, concrete, and quarry by-products into valuable sand for concrete production.
- Produces high-quality sand from quarry materials like basalt and greywacke using advanced crushing and grading technology
- Produces consistent quality – they cuboidal shape of Kayasand's product allows for up to 20% less cement in concrete production, reducing material use and emissions.
- Integrates recycled waste and cement substitutes like limestone filler and slag, contributing to a lower carbon footprint for the construction industry.

This is the type of innovative, sustainable solution that needs government investment and support so that it can scale and grow. More plants could operate in other regions of the country, where there are existing quarries. The Kayasand process uses crusher dust, which is a by-product of quarries, to create quality sand aggregates that can be used in concrete production. This would create new and sustainable jobs, provide local markets with quality concrete and reduce transportation costs.

There are also risks to dredging natural sand and then using it in concrete production. Sand taken from the ocean needs to be washed extensively to remove the saline content, which uses massive amounts of water. If it is not washed properly there are risks of remnant salt which can rust metal elements used in construction. Using aggregate sand produced through the Kayasand method produces a quality product which does not carry this risk.

Kaipara Limited

Kaipara Limited can meet the growing demands of Auckland's sand market through its operations at both the Brookby and Smythes quarries, which are well-established sources of high-quality aggregates and sand. The Brookby Quarry upgraded its main processing plant in 2024, which has significantly increased production capacity, enabling it to produce more sand, including manufactured sand. The Smythes Quarry also contributes to Auckland's sand supply. Brookby Quarry (Tāmaki) could produce concrete aggregates for 100 years, while the Smythes Quarry (Waikato) could last 1000 years.

3. **Environmental Risks to Marine and Freshwater Ecosystems**

Extracting aggregate and sand, especially through marine dredging, poses significant threats to our ecosystems. Offshore sand mining can severely disrupt marine habitats crucial for at-risk species through destructive dredging practices.

4. **Impact on Native Freshwater Species**

   Extracting sand and aggregate from riverbeds and coastal areas threatens our already precarious freshwater ecosystems, home to endangered species like the longfin eel and many other species of endangered fish. Habitat degradation, compounded by pollution and water abstraction, could push these species further towards extinction.

5. **Contrary to Te Mana o te Wai Principles**

   Including aggregate and sand contradicts the principles of Te Mana o te Wai, which prioritise the health of water bodies. This decision disregards the interconnectedness of freshwater and marine ecosystems, jeopardising the survival of species dependent on these systems. Protecting these ecosystems aligns with upholding Te Tiriti o Waitangi, as many vulnerable species hold deep cultural significance for iwi Māori.

6. **Unwarranted Fast-Tracking of Environmentally Damaging Projects**

   We're concerned that including aggregate and sand on the critical minerals list will enable harmful projects to be fast-tracked, circumventing proper environmental assessments. Extractive projects should undergo rigorous scrutiny, not be prioritised for expedited approval based on unfounded claims of supply risk.

Conclusion

In light of these serious concerns, Tāngaro Tuia te Ora vehemently opposes including mineral extraction activities that threaten biodiversity and endangered species in Aotearoa. We urge the government to reconsider the Critical Minerals List's scope and adopt a transparent, accountable strategy and process which genuinely prioritises all key stakeholder engagement.

A Bill that favours short-term economic gains from extractive industries over long-term environmental resilience will burden future generations with increased biodiversity loss and ecological degradation. In the face of unprecedented biodiversity loss and escalating impacts from climate change, we must prioritise sustainable alternatives to ensure an equitable, economically viable, long-term future for all life in Aotearoa.