



wildsight

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Wildsight is an environmental conservation organisation based in BC's East Kootenay region that is working to protect biodiversity, promote the protection of sensitive environments, and increase sustainability in our communities. We write in response to the invitation for comments on the Record Ridge Industrial Mineral Mine proposal. Wildsight has a long history of protecting biodiversity through conservation of land and water resources, and the opportunity to provide feedback on the proposed project is appreciated.

Mining has long been of importance to the provincial economy, and while we are fortunate to have these natural resources, it is of great importance that we recognize the enormous negative environmental impacts that mineral extraction projects are capable of. West High Yield Resources' (WHY) prospective mine at Record Ridge is a particularly problematic proposal, as it has managed to include environmental issues on both local and national levels, challenged our provincial mine permitting laws, pitched experimental and unproven magnesium mining practices, and bring into question how we see critical minerals and what we are willing to sacrifice to extract them.

Impacts to Endangered Species and Ecological Communities

The Mountain Holly Fern (*Polystichum scopulinum*) is an evergreen perennial fern that was designated as threatened under Schedule 1 of the *Species at Risk Act* in 2006 (S.C. 2002, c.29). There are only two known occurrences of the Mountain Holly Fern in BC and only four in Canada, as they are dependent on a rare set of ultramafic soil and xeric microclimate conditions to be present for survival¹. These conditions lead to the formation of fragmented and highly vulnerable populations of plants, with the potential for human activities to quickly cause extirpation and significant national habitat loss.

The recovery feasibility summary contained within the Canada's 2017 Mountain Holly Fern Recovery Strategy² found that the recovery of *P. scopulinum* was feasible, but stated the primary threat to the species in BC was mineral exploration. Ultramafic rocks that form the soils in which they reside often house precious metal deposits, and currently both of the known BC

¹ COSEWIC Assessment and Status Report on the Mountain Holly Fern (*Polystichum scopulinum*) in Canada, https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_mountain_holly_fern_e.pdf

² Recovery Strategy for the Mountain Holly Fern (*Polystichum scopulinum*) in Canada – 2017, <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/recovery-strategies/mountain-holly-fern-2017.html#toc11>

populations have active mineral claims placed directly upon their habitats. The Recovery Strategy goes on to classify the threat of mining and quarrying processes as “extreme”. As per the threat classification scheme and footnotes provided within the strategy, mining and mineral exploration would be inferred to result in Mountain Holly Fern population declines by 15 to 75% within the area of concern.

Within their permit application, maps show known Mountain Holly Fern populations a mere 20m from the proposed open pit, and 10 identified locations within the regional study area (RSA)³. It is stated that “risk of edge effects to mountain holly fern is moderate in magnitude” as well as “edge effects are anticipated to occur continuously throughout all phases, peaking particularly during construction and closure activities”. Furthermore, it is also written that “Removal of vegetation and ecosystems from the terrestrial Surface Footprint is not avoidable; therefore, the risk is unavoidable for vegetated ecological communities (including plants of potential importance to First Nations).”. These statements clearly communicate knowledge that mining operations will harm a threatened species, violating Section 32(1) of Canada’s *Species at Risk Act*⁴ which prohibits the killing or harming of threatened species such as the Mountain Holly Fern. The fact that a threatened species with very limited available habitat is present within the proposed mine site should warrant the completion of a full environmental assessment, and to do otherwise would constitute a failure on the part of the BC government to protect our biodiversity and preserve some of our most vulnerable habitats.

BC to date has done nothing to protect their threatened Mountain Holly Fern populations, and has instead continued to sell mineral exploration rights and encourage exploration within their habitat. While Quebec chose to protect this sensitive ecosystem by forming a national park around their only known Mountain Holly Fern population, BC continues to roll the dice on the survival of this vulnerable species. Mineral exploration and road building has likely already harmed the fern in BC, and the allowance of further development in these sensitive areas could lead to complete extirpation. Therefore, we call for an investigation into the status and health of the Mountain Holly Fern at Record Ridge, in order to better characterize the population and inform whether mineral exploration or harvesting activities should be allowed in the area.

Furthermore, a graminoid grassland community was identified within the surface footprint, with about 5.5 ha of overlap. This ecological community is red-listed at rank S1S2 within BC⁵, indicating it is imperiled or critically imperiled⁶. While this in itself gives little protection to the ecological community within BC law, allowing this mine to move forward without an environmental assessment would directly contradict the province’s commitment to

³ Record Ridge Industrial Mineral Mine Project Joint Mines Act and Environmental Management Act Permit Application, [https://nrs.objectstore.gov.bc.ca/iteczn/65b440c77c6b1c00222b5cf1/\(b\)%20RRIMM%20Joint%20MEMA%20Application%20October%202023%20FINAL.pdf](https://nrs.objectstore.gov.bc.ca/iteczn/65b440c77c6b1c00222b5cf1/(b)%20RRIMM%20Joint%20MEMA%20Application%20October%202023%20FINAL.pdf)

⁴ Species At Risk Act, <https://laws-lois.justice.gc.ca/eng/acts/S-15.3/FullText.html>

⁵ BC Conservation Data Center: Ecological Community Summary, <https://a100.gov.bc.ca/pub/eswp/speciesSummary.do?id=312227>

⁶ BC Conservation Status Ranks, <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre/explore-cdc-data/status-ranks>

protect biodiversity with the recent Biodiversity and Ecosystem Health Framework announcement.

In June of last year Wildsight petitioned Minister Guilbeault from Environment and Climate Change Canada to issue an emergency order pursuant to s. 80 of the *Species at Risk Act*. Subsequent correspondence with Canadian Wildlife Service staff indicated that while the BC Environmental Assessment Office was reviewing the project description no activity related to the project can occur, and thus the Mountain Holly Fern is safe. However, this contradicts Canada's Mountain Holly Fern Recovery Strategy, which, as mentioned above, lists mineral exploration as the largest threat to the fern in BC. Mineral exploration can and already has occurred at Record Ridge under existing permits, and we can only hope that damage to this vulnerable fern species and the red-listed grassland communities have been limited. We urge the BC EAO to call for a full environmental assessment of the site, including an investigation into the Mountain Holly Fern and the red-listed grassland community before any further damage to their habitat is permitted.

Improper Permit Designation

Classification as an "Industrial Mineral" is favourable to mine operators, in that they are required to satisfy less stringent environmental and operational requirements than mineral mines in order to receive permitting. Under BC's Reviewable Projects Regulation⁷, identification as an industrial mineral is defined by inclusion in the very specific list of 11 minerals/categories. Despite WHY resource's targeted mineral not appearing on this list, the proponent has chosen to apply as an industrial mineral mine in an attempt to circumvent the need for an environmental assessment under the act.

In a response letter to the Environmental Assessment office's inquiry into why the project chose to inaccurately classify itself as an industrial mineral mine⁸, the proponent attempts to justify this by arguing that existing legislation is incorrect and should be changed in order to accommodate their own definition of industrial mineral, which they also fail to meet without making great logical leaps and omitting key information. Their stated definition for what an industrial mineral should be is: "geological materials which are mined for their commercial value, which are not fuel (fuel minerals or mineral fuels) and are not sources of metals (metallic minerals). They are used in their natural state or after beneficiation either as raw materials or as additives in a wide range of applications.". WHY Marketing materials identify alloying and metallurgy as uses of magnesium⁹. Furthermore, in an investor-focused webinar hosted by WHY resources on Jan 17th 2024, they stated that they have achieved a partnership with a

⁷ Environmental Assessment Act Reviewable Projects Regulation,
https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/243_2019

⁸Letter From Frank Marasco Jr. to Chris Trumpy,
<https://projects.eao.gov.bc.ca/api/public/document/65807d2943f0690023569f2e/download/RRIMM%20EAO%20Notification%20Response%202023-12-11.pdf>

⁹WHY Resources "Record Ridge Project" document,
<https://edityr8x9wf.exactdn.com/wp-content/uploads/2023/11/Corp-Presentation-RR-Mining-Nov-2023-Final-1.pdf>

third party to produce magnesium ingots from their product. This clearly indicates an awareness that serpentinite ore can be considered a source of metal.

Even ignoring the obvious argument that magnesium is indeed a metal, WHY processing diagrams identify both nickel and iron as marketable products made in their proposed production facility from serpentinite ore¹⁰. Therefore, not only do they fail to meet BC's legislated definition of what an industrial mineral is, they also fail to meet their own substituted definition.

Furthermore, in another fallacious attempt to justify inclusion as an industrial mineral mine, they go on to reason that the simplicity of on-site ore processing workflows should be taken into account, and state that they intend to sell their ore off to a third party in the short term and then perform their refining processes offsite in the longer term. This is done in an attempt to draw attention from the intense refining and processing requirements, which includes multiple separate leaching phases with hydrochloric acid and sodium hydroxide, pyrohydrolysis, calcination, roasting, and precipitation using chlorine gas or sulfuric acid¹¹. The processing plant is estimated to use 230 tonnes of chlorine gas, 12 tonnes of Sodium Thiosulfate, and 7 tonnes of sodium hydroxide per year, with processing plant construction being projected to cost \$250 million USD in capital costs alone. The fact that all this complex and chemical-intensive processing is planned to be done off site is not a valid argument for designating serpentinite as an industrial mineral.

Furthermore, the stated production volume in many of their promotional materials as well as their original summary documents is 249,000 tonnes per year, just 1000 tonnes below what is automatically considered a reviewable project under the regulation. This clearly demonstrates yet another attempt to bypass existing legislative protections and avoid an environmental assessment. Later alterations to the plan included dropping the proposed production limit to 200,000 tonnes per year, likely in order to avoid triggering the regulated production capacity threshold 15% variability clause as stated in 5(1)(b) of the Reviewable Projects Regulation. This drop in capacity limit may be sufficient to avoid an environmental assessment if the proposed project was in fact an industrial mineral mine, but the fact remains that serpentinite does not appear on the Reviewable Projects Regulation's clear and concise list of eligible industrial minerals, and should thus be subject to the much lower reviewable project production limit of 75,000 tonnes per year under the more accurate Mineral Mines project category.

The two year permit they are officially applying for also contrasts poorly with materials available on their website, which pitch potential mine life anywhere from 20 to over 170 years. This clearly signals intentions to bypass environmental review legislation and permitting protocols by incrementally increasing production and project scope. Given these factors,

¹⁰WHY Resources MgO plant document,

<https://edityr8x9wf.exactdn.com/wp-content/uploads/2023/11/Corp-Presentation-MgO-Plant-Nov-2023-Final-1.pdf>

¹¹ Pre-Feasibility Study for Record Ridge Magnesite Production Plant,

https://edityr8x9wf.exactdn.com/wp-content/uploads/2023/09/Revised-for-Website-C23601_WHY_-RECORD-RIDGE-PROJECT_FINAL_PFS-REPORT-KPM-BUMIGEME.pdf

allowing this mine to move forward without an environmental assessment would constitute both a failure to the local environment, but also a failure to uphold the purpose and intention behind the Environmental Assessment Act and the Reviewable Project Regulation. Allowance of a mine proponent such as this to freely identify with whatever mine classification category has the most permissive environmental regulations and allowing them to purposefully avoid triggering threshold values by incrementally creeping up scope of operations would weaken BC's regulatory authority and endanger some of our most vulnerable and rare wildlife habitats.

Mine Operation Concerns

A wide array of concerns from locals and other stakeholders exist, ranging from concerns about dust and asbestiform mineral extraction, to noise and dust issues associated with mining, blasting and ore transportation processes, and many more. While the mine proponent has indicated limited intentions to mitigate these concerns, little in the way of tangible commitments have been made.

One major area of concern revolves around the use of explosives as a means of ore extraction, given the close proximity of the site to private residences and farms as well as the town of Rossland. While the proponent has stated that mechanized ore extraction equipment may be used, they are careful in all cases to avoid precluding the use of explosives as the primary ore extraction method. Given the company's lack of experience in mine operation, their questionable competency and the likelihood of their ability to follow through with claims and promises such as these should be carefully considered. Similarly, public concerns on transport corridors and resulting traffic increases were responded to with promises to "discuss potential mitigation measures, such as route optimization, speed restrictions, road maintenance, and improvement."¹² Unfortunately, a mine proposal that involves highway trucks hauling out virtually all of the produced ore with no on-site concentration processing steps will always cause large increases in traffic, road wear, and noise, with nearby communities being the most affected. No amount of speed restrictions will prevent the ~80 ore truck trips per day passing through these local communities from impacting residents.

Most geologists do not even consider serpentinite to be a viable magnesium ore, as much more easily processed ores such as magnesite exist. Magnesite, a magnesium carbonate rock that has been mined for over 40 years by Baymag Resources at their Mt. Brussilof mine near Radium, BC¹³, is listed as an industrial mineral under the Reviewable Projects Regulation, unlike serpentinite. Serpentinite has an extremely limited history of use as a source of metals, most of which consist of experimental processing of asbestos mining tailings. Given the extensive processing steps necessary to extract magnesium from this mineral and the presence of much easier, simpler, and more energy efficient magnesium ores, it is unusual that this mine is even being proposed. Care must be taken to examine the intentions of this mine

¹² WHY Resources Community Comment Page, <https://whyresources.com/community-comments/>

¹³ BCGS Exploration and mining in the Southeast Region, British Columbia
https://cmscontent.nrs.gov.bc.ca/geoscience/PublicationCatalogue/InformationCircular/BCGS_IC2022-01-05.pdf

proponent, and whether or not we as a province wish to encourage experimental and unproven mining techniques. Unproven resources are especially risky in that site abandonment is possible if the proposed processing facility ends up failing to produce profitable magnesium products. Junior mining companies such as WHY have been shown time and time again to be at high risk of bankruptcy, which often results in abandonment of environmental duties and loss of any economic benefits that local communities may have enjoyed. We must carefully consider if the potential for a handful of seasonal jobs, limited tax revenues, and the production and refinement of critical minerals in another country is worth it for British Columbians and the land and water resources we are responsible for safeguarding.

Serpentinite associated deposits have however been mined in the past in Canada, not as a magnesium ore, but largely as a source of asbestos. Asbestiform minerals have been shown to be present in the serpentinites of Record Ridge, and pose virtually no risk of lung cancer when left undisturbed. However, the use of mining explosives, mechanical extraction equipment such as hydraulic rippers, and ore crushing equipment (all of which have been proposed for use at this site) have enormous potential to produce airborne asbestos fibers, which pose long term health risks not only to workers and nearby residents, but to anyone within several hundred kilometers of the mine. Fine mining dust (<2.5um diameter) has been shown to be able to travel hundreds to thousands of kilometers from mine sites and processing facilities¹⁴, and a significant portion of asbestos fibers commonly found in air samples taken from high exposure risk areas are within this particle size¹⁵. WHY's response to community concerns about airborne asbestos include claims to have tested air samples taken while "core boxes were disturbed"¹⁶. This is hardly representative of what would occur during mining operations, and can not be considered as reasonable evidence of safety.

Dust concerns are not limited to asbestiform minerals however, as there are measurable health risks involved with environmental dust exposure among communities living near quarry and mine sites. There is plentiful research to support claims that mining dust is harmful to not only mine workers, but anybody in the vicinity or downwind of mines¹⁷. WHY's promise to include a dust mitigation plan should only be considered as the bare minimum of mine operation in BC. Considering the proximity to communities such as Rossland and Paterson, as well as recreation trails such as the Seven Summits trail, which is less than 200m from the proposed mine site, dust from mining operations will always be an issue for both locals and tourists. Impacts to this trail specifically will go beyond dust however, as weekly blasting closures and a ~\$40,000 trail reroute project have both been proposed by WHY to accommodate the proximity of the mine to this popular trail. These projects of course only

¹⁴ Buseck, P. R., & Schwartz, S. E. (2003). Tropospheric aerosols. In Elsevier eBooks (pp. 91–142). <https://doi.org/10.1016/b0-08-043751-6/04178-5>

¹⁵ Boulanger, G., Andujar, P., Pairon, J., Billon-Galland, M. A., Dion, C., Dumortier, P., Brochard, P., Sobaszek, A., Bartsch, P., Paris, C., & Jaurand, M. (2014). Quantification of short and long asbestos fibers to assess asbestos exposure: a review of fiber size toxicity. *Environmental Health*, 13(1). <https://doi.org/10.1186/1476-069x-13-59>

¹⁶ WHY Resources Community Comment Page, <https://whyresources.com/community-comments/>

¹⁷ Oxman A.D., Muir D.C., Shannon H.S., Stock S.R., Hnizdo E., Lange H.J. Occupational Dust Exposure and Chronic Obstructive Pulmonary Disease. A Systematic Overview of the Evidence. *Am. Rev. Respir. Dis.* 1993;148:38–48. doi: 10.1164/ajrccm/148.1.38.

serve to reduce WHY's liability and will result in loss of rare landscapes, both for human enjoyment and wildlife habitat.

We at Wildsight urge that a full environmental assessment be required before any further exploration or mineral extraction processes are permitted. This mine proposal is problematic on many levels, and is more than deserving of an environmental assessment. Allowing this proposal to move forwards without a thorough examination of the impacts on threatened species and grassland communities would constitute a failure to protect our biodiversity and some of our most vulnerable species in a time where they are becoming increasingly threatened. Thank you for taking the time to read this letter, we look forward to hearing about any decisions made in this process in the future.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Wiebe', with a stylized, cursive script.

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