BRITISH COLUMBIA   Ministry of Forests   Cranbrook, BC   MEMORANDUM

File: 44150-01 - FRX

July 19, 2022

To: Todd Goodsell, Project Assessment Director, Environmental Assessment Office

From: Irene E. Teske, RPBio, Ministry of Forests Wildlife biologist – Technical Advisor for Bighorn sheep.

Re: FRX Environmental Assessment / Readiness Decision – Concerns related to bighorn sheep high elevation grassland winter range loss due to proposed coal mining development

After reviewing the documents submitted thus far regarding the Fording River Extension Project (Castle), I felt that important information should be provided prior to the Readiness Decision.

Due to deep snow conditions, winter range for bighorn sheep in the Elk Valley consists of high elevation south and west facing windswept slopes with adjacent escape terrain. These slopes contain rare red listed grassland ecosystems that provide high quality and accessible forage (Smyth 2014, Poole et al. 2016; Cameron et. al. in prep). Winter range is the most important habitat type for bighorn sheep in the Elk Valley (Poole 2013).

Coal mining activity results in permanent loss of natural high elevation winter ranges for blue-listed bighorn sheep. Properly functioning high quality winter ranges are vitally important for continued survival of bighorn sheep in the Elk Valley. High quality winter ranges comprise only 2.7% of the Elk Valley from Henretta to Elkview, which emphasizes the limited amount of occupied winter ranges in the area (Poole 2013). Large scale removal of native winter ranges would likely result in a bighorn sheep population decline (Poole 2013) as this grassland ecosystem is irreplaceable and highly selected by sheep (Poole et al. 2018). Bighorn sheep use of mine altered properties occurs primarily during the non-winter months with only 10-18% use occurring during the winter months (Poole 2013).

Sheep wintering on Castle, Todhunter, and Imperial Ridges move mainly among these 3 ranges. Castle Mt comprises approximately 18% of the prime high elevation grassland winter range within the east side of the Elk Valley and 60% of the Castle-Todhunter-Imperial complex (draft UWR mapping). Therefore, permanent loss of Castle Mt winter range due to coal mining activities would result in sheep being displaced and concentrated on the 2 smaller remaining ridges. This would ultimately result in decreased habitat condition due to overgrazing by both bighorn sheep and elk. Portions of this complex are currently experiencing overgrazing habitat conditions.

Castle Mt exists within an assembly of prime winter ranges (Castle/Todhunter/Imperial/Ewin Ridges) that are still intact and mostly undisturbed (except for exploration roads). The Castle-Todhunter- Imperial Ridge-Ewin Ridge complex contains approximately 45% of the total number of sheep from Henretta to Elkview (MOF unpubl. Data; Teck unpubl. data).

Approximately 25-30 sheep use Castle during the winter, of which the majority are rams (MOF unpubl. Data; Teck unpubl. data). Allowing adult males to utilize winter habitats that are separate from females will likely reduce competition and improve fitness of adult females and offspring (Geist and Petocz 1977).

Most (79%) of the bighorn sheep along the east side of the Elk Valley were found to be migratory and with high fidelity to winter ranges (88%) (Poole 2013). It is important to maintain migratory behaviour which allows sheep to utilize and be familiar with a variety of habitats. When a negative event occurs, non-migratory sheep may experience a more substantial impact than migratory sheep (Lowrey et. al. 2019).

Cumulative effects analysis has provided data on habitat loss. From 1980s to 2015, Rank 4 (highly preferred – natural grasslands) bighorn sheep winter range habitat declined overall by 30% due to loss or alteration along the East side of the Elk Valley. Loss was most severe in the Fording and Ewin Creek subpopulations resulting in a High Hazard rating (Poole et.al 2018). Rank 4 habitat is irreplaceable.

An update and scenario analysis was conducted to assess hazard of bighorn sheep in the Elk Valley in 2021 (Marcotte et al, 2021). Rank 3 and 4 winter range habitat was assessed as very high hazard in the Fording and Ewin Creek subpopulations. All rank winter range habitat went from a current condition of moderate hazard for Fording subpopulation and low hazard for Ewin to very high and moderate hazard, respectively, with the proposed FRX included in the modelling.

The winter of 2021-22, in the Elk Valley, was an unusually severe winter with freeze thaw events that caused icy and compact snow conditions. Upper slopes were not windswept, and forage was mostly unavailable at high elevation which is extremely unusual. Sheep were forced to use habitats that occurred at low-mid slope which appeared to allow foraging but did increase the risk of predation (Lewis 2022; snow survey results 2022). Therefore, more, not less, winter range habitat is required to sustain bighorn sheep especially during extreme winters which unfortunately may be more prevalent with climate change.

Please consider these significant concerns when assessing this proposed project.

Sincerely

Irene E. Teske, RPBio, Wildlife biologist

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