Information Request 36

Response to Information Request 36

IR 36 – Impacts to Wildlife in the Mine Development Area

References:

EIS, Section 2.7.5
EIS, Table 2.7.5-1 (Effects Tracking Table and Aboriginal Issues of Concern)
EIS, Table 2.7.5-2 (Comparison of 2009 and 2012 Mine Development Areas (MDA) for Trapping Areas)

Related Comments:

CEAR # 290 (Tsilhqot'in National Government)

Rationale:

The EIS (p. 1277) states that "as a result of less hectares being proposed for disturbance in the New Prosperity project relative to the 2009 proposal, less impact on local wildlife populations is expected, which is relevant to those species historically targeted for trapping in the Fish Lake watershed… with the preservation of the Fish Lake area, trapping areas for all species assessed by Ehrhart-English are less impacted; with the exception of the cougar trapping…"

The EIS (Table 2.7.5-2, p. 1277) shows that, compared to the trapping area previously identified, the New Prosperity mine development area will impact anywhere from 4.4% to 100% of that area for certain species. It also shows that 5 of the 12 species listed: coyote, wolverine, fisher, bobcat, and cougar would have their affected area increased or remain the same compared to the 2009 mine development area.

The EIS (Table 2.7.5-1, p. 1234) states that "it is now possible for wildlife to physically move between the open pit and TSF, although sensory disturbance from adjacent operations and the TSF access road will still reduce wildlife use of this area."

The Tsilhqot'in National Government (p.51) state that "the company does not consider the impact of 'reduced wildlife use of this area' on Tsilhqot'in hunting and trapping activities, although it is clearly a critical factor." The Panel wishes to better understand the nature of impacts to wildlife used by First Nations and their significance.

Information Requested:

With regards to the impacts to wildlife in the mine development area, the Panel requests that Taseko:

a. Provide an assessment of the sensory disturbance that wildlife would experience in the mine development area along with the predicted impact on local abundance and availability for each species.

Information Request #36a

With regards to the impacts to wildlife in the mine development area, the Panel requests that Taseko:

Provide an assessment of the sensory disturbance that wildlife would experience in the mine development area along with the predicted impact on local abundance and availability for each species.

Response Summary

The local abundance and availability of some species, such as grizzly bear, wolverine, cougar, lynx and bobcat, is likely to be reduced for the duration of construction and operation of mining activities. Other species, such as mule deer, geese, rabbits, coyote and beaver, are more likely to be tolerant toward human-based activities and potential effects are more likely to be restricted to a smaller area. For many species, including ungulates, bear and furbearing species, effects related to sensory disturbance are predicted to decrease over time with habituation to routine disturbances. Mule deer, moose, grizzly bear, black bear, birds including waterfowl, and furbearers such as marmot and coyote, are common near active mine areas and on reclaimed portions of operating mines in BC. For all species, habitat use adjacent to the MDA is predicted to return to baseline conditions in the post-closure phase. Potential effects for each species are discussed below.

Discussion

Section 2.6.4 of the 2012 EIS provides a summary of known current use of the proposed mine site area for hunting by the Tsilhqot'in. Figures 2.7.5-3, 4, 5, and 6 in Section 2.7.5 of the 2012 EIS illustrate the hunting and trapping areas east of the Taseko River impacted by the previous 2009 project's MDA in comparison to the 2012 New Prosperity MDA. With the preservation of the Fish Lake area, hunting and trapping areas for most species, including marten, coyote, beaver and muskrat, are substantially less affected in the 2012 MDA.

Sensory disturbance to wildlife was a consideration in determining the spatial boundaries for assessments and in predicting effects on key indicator's habitat availability, and is discussed for each species in Volume 5 of the 2009 EIS/Application, and in Section 2.7.2.8 of the 2012 EIS.

Sensory disturbance resulting from mine construction, operation and associated human activity is primarily auditory (i.e. noise) but may include olfactory (i.e., smell) as well as visual (i.e., light) and tactile (i.e., vibration) disturbances. Within a certain zone of influence, sensory disturbance may result in the loss or alteration of available habitat due to displacement or avoidance, or decreased or less effective use due to effects such as impaired auditory signaling.

Determining the zone of influence and degree to which sensory disturbance associated with human activities may affect wildlife is influenced by a variety of factors such as time of day,

species, age and sex class, habitat type, topography and degree of habituation (see Section 6.2.2.5, Volume 5, 2009 EIS/Application). In addition, the extent of sensory disturbance effects is likely to vary around different parts of the footprint depending on the level of activity and Project components.

The potential for sensory disturbance to wildlife adjacent to the MDA (i.e., within the zone of sensory disturbance) is discussed for mule deer, moose, and waterfowl in Section 2.7.2.8 of the 2012 EIS. Some sensory effects will be expected for mule deer and moose, particularly during construction and early years of operation. Ungulate use (mule deer, moose, sheep, elk) of reclamation on operating mines is common, potentially enhanced by no-shooting zones and use of legumes in reclamation seed mixes, with animals being so abundant, extra measures for protecting shrub and tree seedlings from excessive browsing on newly reclaimed sites is required.

Sensory effects on Grizzly bear are expected, particularly during construction and early years of operation. Grizzly bear and black bear presence is commonly observed on mines in BC and in Alberta foothills Cristescu, 2013), enhanced with the inclusion of clovers in reclamation seed mixes.

The high abundance and wide diversity of birds, including waterfowl, is documented at Highland Valley Copper (Howie 2006). The attraction of geese to newly seeded reclamation sites, particularly if in close proximity to ponds, is common place. Tolerance of geese to human-based activities is high.

The abundance of marmot, which in turn contribute to high coyote presence, both species being tolerant to human-based activities, are common on active mine areas in BC, to a point where wildlife-human interaction measures are required in Environmental Management Plans.

There were 12 furbearer species of particular interest to the Tsihlqot'in as identified in the *William Case* and in the Ehrhart-English (1994) report. The local abundance and availability of some species (e.g., wolverine, cougar, lynx and bobcat) is likely to be reduced for the duration of construction and operation of mining activities. Other species (e.g., rabbits, coyote and beaver) are more likely to be tolerant toward human-based activities and potential effects are more likely to be restricted to a smaller area. A summary of the responses of furbearers to sensory disturbance in general and a description of the potential effects on their local abundance and availability around the MDA is presented in Table 36A-1.

For many furbearing species, effects related to sensory disturbance are predicted to decrease over time with habituation to routine disturbances (Jalkotzy et al. 1997). Extensive experience at operating mines in BC indicate habituation to routine disturbances, particularly once reclamation is underway, by mule deer, moose, grizzly bear, black bear, coyote, and waterfowl. All species habitat use adjacent to the MDA is predicted to return to baseline conditions in the post-closure phase.

Table 36A-1. Summary of Effects of Human Induced Sensory Disturbance on Furbearers

Species	Response to Human Disturbance	Potential Effects on Local Abundance and Availability during Mine Life
Wolverine	This species is very sensitive to disturbance, particularly from roads and winter recreational activities (Weir 2004), and around natal dens, where active dens may become abandoned (Jalkotzy et al. 1997). Human activity (e.g., logging, roads, mining) may displace or alter movement paths in highly modified landscapes (Lofroth 2001, Austin et al. 2000) Wolverines often avoid entering young (<25 yr) cutblocks (Weir 2004). Wolverines appear to prefer areas greater than 1,100 m from active roads, though this species has been detected within 100 m of Trans-Canada Highway (Austin 1998)	In the absence of more specific information, it is proposed that local abundance and availability may be reduced within 1,100 m of the MDA.
Cougar	Cougars can avoid active logging sites by approximately 1,000 m for up to 6 years, which may be related to a lack of prey (Jalkotzy et al. 1997, Van Dyke et al. 1986). However, this species does not always avoid human activity and associated disturbance (see review Jalkotzy et al. 1997, Jalkotzy and Ross 1995).	In the absence of more specific information, it is proposed that local abundance and availability may be reduced within 800 m of the MDA.
Lynx	Eurasian lynx consistently avoids areas within 200 m of roads and houses when resting. Conflicting findings exist for Canada lynx – some studies indicate tolerance to human presence while others indicate avoidance of areas with high levels of disturbance; there is also conflicting evidence on whether or not they actively avoid crossing highways (Apps 2000, McKelvey et al. 2000, Mowat et al. 2000, Sunde et al. 1998, Jalkotzy et al. 1997). Lynx in winter and summer often travel along road right-of-ways (< 15 m wide), where adequate cover is present on both sides (Jalkotzy et al. 1997). This species may be attracted to road edges because their primary prey, snowshoe hare, is attracted to the forbs, grass, and shrubs (review in Jalkotzy et al. 1997).	In the absence of more specific information, it is proposed that local abundance and availability may be reduced within 200 m of the MDA.
Marten	This species appears to be sensitive to disturbance at the landscape level, with detection rates declining with increasing levels of disturbance (seismic lines, pipelines, wellheads, roads/highways, and agriculture) in Alberta (Moses et al. 2002). In northern Alberta, track data demonstrated no consistent positive or negative responses to habitats adjacent to pipeline-related clearings, although the actual cleared areas were generally avoided (Jalkotzy et al. 1997). In the northern Rocky Mountains of British Columbia, marten appeared to be unaffected by newly cut seismic lines (Jalkotzy et al. 1997). One study found evidence of road avoidance when comparing track transects within 400 m of a road to transects 800 m – 1,000 m away. Other studies have found no avoidance of roads or other types of human use areas (Robitaille and Aubry 2000, Baldwin and Bender 2008; Zielinksi et al. 2008, Mowat 2006). Zielinski et al. (2008) reported that in California, landscape-scale distribution of marten was not affected by off-highway vehicles.	Given the wide range in possible avoidance behaviour, it is proposed that local abundance and availability may be reduced within 400 m of the MDA.
Bobcat	There is evidence that bobcats can tolerate low-levels of disturbance (i.e., lightly-used road network) though avoidance appears increased with traffic levels, suggesting an approximate 100 m buffer on disturbance corridors (Jalkotzy et al. 1997, Lovallo and Anderson 1996)	Habitat use may be reduced within 100 m of the MDA.

Species	Response to Human Disturbance	Potential Effects on Local Abundance and Availability during Mine Life
Fisher	This species appears to be sensitive to disturbance at the landscape level, with detection rates declining with increasing levels of disturbance (seismic lines, pipelines, wellheads, roads/highways, and agriculture) in Alberta (Moses et al. 2002). Fishers have been shown to avoid open areas of more than 25 m across (Jalkotzy et al. 1997). Fishers are most sensitive to disturbance during denning (Jalkotzy et al. 1997, Powell and Zielinksi 1994), although conflicting reports suggest that fishers are not strongly affected by anthropogenic disturbance at any season (Powell et al. 1997). Species has shown to avoid resting within 100 m of human disturbance (Seglund 1995)	Given the wide range in possible avoidance behaviour, it is proposed that local abundance and availability may be reduced within 800 m of the MDA.
Beaver	Limited information available in the literature; can inhabit urban areas where appropriate habitat exists (Baker and Hill 2003)	May be more tolerant of human activities than some other furbearers; in the absence of more specific information it is proposed that local abundance and available may be reduced within 50 m of the MDA.
Muskrat	Limited information available in the literature; inhabit urban riparian areas so may be relatively tolerant of environmental changes associated with human activities (Cotner and Schooley 2011).	May be more tolerant of human activities than some other furbearers; in the absence of more specific information it is proposed that local abundance and available may be reduced within 50 m of the MDA.
Rabbit/Snowshoe Hare	Limited information available in the literature; generally considered to have broad habitat requirements (Jalkotzy et al. 1997). Herb and shrub cover along roads may benefit snowshoe hare populations (Jalkotzy et al. 1997). Jackrabbits *(Lepus californicus)* are especially robust to disturbance and have been observed inhabiting areas around airports and runways (Johnson 1978, Johnson 1964).	May be more tolerant of human activities than some other furbearers; in the absence of more specific information it is proposed that local abundance and available may be reduced within 50 m of the MDA.
Coyote	Limited information available in the literature; frequently inhabit urban areas (Gehrt et al. 2009) including crossing roads (Jalkotzy et al. 1997).	May be more tolerant of human activities than some other furbearers; in the absence of more specific information it is proposed that local abundance and available may be affected within 50 m of the MDA.
Squirrel	Limited information available in the literature; disturbance buffer of 100 m has been suggested (Williams 2011)	In the absence of more specific information it is proposed that local abundance and available may be reduced within 100 m of the MDA.
Weasel	Limited information available in the literature; although effects may be similar to marten (see above)	In the absence of more specific information it is proposed that local abundance and available may be reduced within 200 m of the MDA.

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