Comment submitted to the Canadian Impact Assessment Registry and the Provincial Department of Environment and Climate Change regarding the Fifteen Mile Stream Open-pit Goldmine Project (reference number 80152)

Introduction

My name is Shanni Bale. I have a master's degree in landscape ecology and conservation GIS from Dalhousie University and an honours undergraduate degree in biology from Acadia university. I have also devoted many years of both my professional and personal life to biodiversity conservation. As a nature lover and resident of Nova Scotia, I am deeply concerned with the pending development of an open-pit goldmine at Fifteen Mile Stream. While Atlantic Gold, the multinational corporation that submitted the proposal for the Fifteen Mile Stream Mine Project (and is behind the development of other open-pit mines in the area), is engaged in a vast greenwashing campaign to convince the federal government, provincial government, and Nova Scotian citizens that their proposed mine will be ecological sustainable, reading Atlantic Gold's own Environmental Impact Statement[1] and Project Report[2] makes clear that this mine will in fact be devastating on local ecology, on surface and groundwater quality, and on Nova Scotia's greenhouse gas reduction emissions targets.

The proposed location of the Fifteen Mile Stream open-pit goldmine is in the middle of the Liscomb Game Sanctuary, an area that is so environmentally sensitive that hunting is not even permitted (Figure 1). It is also within the vicinity of numerous wilderness areas and nature reserves, thereby affecting habitat connectivity, the loss of which is widely accepted to be among the biggest drivers of species extinctions[3,4]. Furthermore, the mine location sits within a delicate network of watercourses and wetlands and has grave direct and indirect implications for both (Figure 1). For example, to facilitate mine construction, Atlantic Gold plans to realign the Seloam Brook, which has the potential to alter the local hydrological cycle and destroy important fish habitat[1]. Atlantic Gold also plans to destroy almost 700 thousand m^2 of wetlands, an area which equates 552 Olympic swimming pools. These and other mining-related activities will result in alterations to the groundwater table that are so severe that the water level will not return to normal levels for 100 years.

Unfortunately, I work both a full-time and a part-time job, and did not have the time to complete a comprehensive environmental impact assessment submission that touches upon the myriad of negative environmental impacts which will inevitably result from the construction of an open-pit goldmine at Fifteen Mile Stream. Rather, due to the aforementioned time limitations, I will use my submission to highlight the issue nearest and dearest to my heart: the expected impacts on migratory bird populations in Nova Scotia.

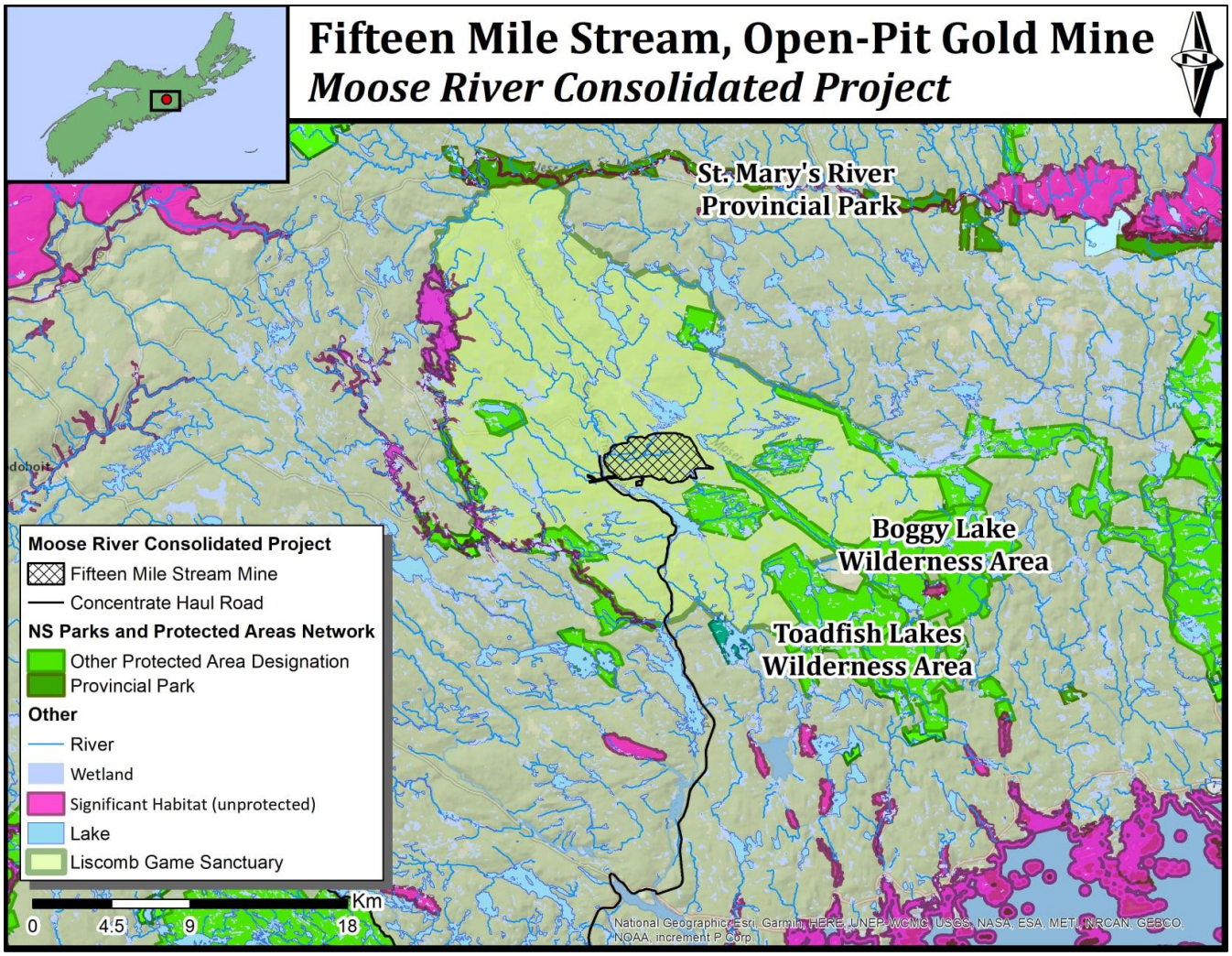

Figure 1. Map of the proposed Fifteen Mile Stream Mine and surrounding area

Impacts of the Fifteen Mile Stream Goldmine on Migratory Birds in Nova Scotia

Atlantic Gold's own Fifteen Mile Stream Mine Environmental Impact Assessment states that avian abundance and diversity is high in the proposed mine area[1]. It also notes that 69 bird species which are protected under Canada's *Migratory Bird Convention Act* occur in Fifteen Mile Stream and are likely to be affected by mine development[1]. This includes 23 species which are considered to be at-risk or of conservation concern in the province of Nova Scotia[2] (Table 1).

Table 1. Bird species of conservation concern that are found within the proposed Fifteen Mile Stream project area

Common name	Latin name	Migratory species	Federal SARA status	Nova Scotia Endangered Species Act	COSEWIC assessment status	ACCDC* SRank (rarity rank)
American kestrel	*Falco sparverius*					Vulnerable (breeding population)

American robin	*Turdus migratorius*					Vulnerable (non-breeding population)
Bay-breasted warbler	*Dendroica castanea*					Vulnerable to apparently secure (breeding population)
Black-backed woodpecker	*Picoides arcticus*					Vulnerable to apparently secure
Boreal chickadee	*Poecile hudsonica*					Vulnerable
Canada warbler	*Wilsonia canadensis*		Threatened	Endangered	Threatened	Vulnerable (breeding population)
Common nighthawk	*Chordeiles minor*		Threatened	Threatened	Threatened	Imperiled (breeding population)
Evening grosbeak	*Coccothraustes vespertinus*		No status	Vulnerable	Special Concern	Vulnerable to apparently secure (breeding population); Vulnerable (non-breeding population)
Gray jay	*Perisoreus canadensis*					Vulnerable
Greater yellowlegs	*Tringa melanoleuca*					Vulnerable (breeding population); Vulnerable to apparently secure (migrant population)
Northern goshawk	*Accipiter gentilis*				Not at risk	Vulnerable to apparently secure
Olive-sided Flycatcher	*Contopus cooperi*		Threatened	Threatened	Threatened	Imperiled (breeding population)
Pine siskin	*Carduelis pinus*					Imperiled to vulnerable
Purple finch	*Carpodacus purpureus*					Vulnerable to apparently secure (non-breeding population)
Red-breasted merganser	*Mergus serrator*					Vulnerable to apparently secure (breeding population)
Red-breasted nuthatch	*Sitta canadensis*					Vulnerable to apparently secure (breeding population)
Ruby-crowned kinglet	*Regulus calendula*					Vulnerable to apparently secure (breeding population)
Red crossbill	*Loxia curvirostra*					Vulnerable to apparently secure (breeding population)

Spotted sandpiper	*Actitis macularius*					Vulnerable to apparently secure (breeding population)
Swainson's thrush	*Catharus ustulatus*					Vulnerable to apparently secure (breeding population)
Tennessee warbler	*Vermivora peregrina*					Vulnerable to apparently secure (breeding population)
Wilson's Snipe	*Gallinago delicate*					Vulnerable (breeding population)
Yellow-bellied Flycatcher	*Emipdonax flaviventris*					Vulnerable to apparently secure (breeding population)

*The Atlantic Canada Conservation Data Centre (ACCDC) maintain the most comprehensive & up-to-date biodiversity database in Atlantic Canada. Their data are widely used by both provincial and federal governments, industry, NGOs, and researchers to inform conservation planning and environmental management. The Atlantic Canada Conservation Data Centre (with NatureServe) use existing information and in-house expertise to rank species rarity and conservation status.

The Fifteen Mile Stream Mine Project Report[2] states that mine development will lead to numerous adverse effects that will be devastating to the bird species which breed, forage, and undertake migration staging in the project area (Table 2). A landmark 2019 study in *Science* reported that 64% of forest bird species have declined in North America since 1970 (amounting to 160 million birds lost)[5]. The effects listed in Table 2 make clear that, despite any mitigation measures undertaken by Atlantic Gold, the open-pit mine at Fifteen Mile Stream will further contribute to ongoing bird declines. (Note, however, that the seriousness of Atlantic Gold's commitment to mitigation measures is highly questionable, given that in discussing these measures, Atlantic Gold often tempers its language with qualifiers such as "where practiceable" and "whenever possible".)

Table 2. Threats to avian species noted in the Fifteen Mile Stream Project Report[2]

(1) Direct, long-term habitat loss as a result of clearing and grubbing of the open-pit, tailings-management facility, waste-rock-storage facility, and transmission line.
(2) Displacement of birds in areas of activity, including excavation and stockpiling of mined materials.
(3) Increase in dust levels from heavy machinery operation and a general increase in vehicular activity affecting vegetative growth and causing a decrease in prey populations.
(4) Bird injury and mortality from vehicular collisions.
(5) Disturbance resulting from anthropogenic noise and vibrations.
(6) Attraction and disorientation resulting from night-lighting.
(7) Bird injury and mortality resulting from exposure to hazardous products and deleterious substances
(8) Other effects

The most serious threat to avian populations listed in Table 2 is likely to be the permanent habitat loss that will occur as a result of mine development. Proponents of the open-pit mining project claim that this impact is not significant because plenty of suitable habitat for avian species exists in the wider region. However, many of the migratory forest birds listed in table 1 exhibit high site fidelity and are

particularly vulnerable to structural habitat changes. When these birds lose their territories, there is no evidence to suggest that they will breed elsewhere[6]. Furthermore, the development of the Fifteen Mile Stream Mine is far from the only threat to birds and other biodiversity in the area. As government EIA reviewers well know, this open-pit mine is only one of four that Atlantic Gold is developing on the eastern shore of Nova Scotia (with one of those, the Touquoy open-pit mine in Moose River, already in operation). Furthermore, this area, like the rest of the province, is also under continual assault from clear-cutting/even-aged forest harvesting that likewise devastates bird habitat (Figure 2). Indeed, the combined impacts of mine development and industrial forestry mean that birds have fewer and fewer places to go.

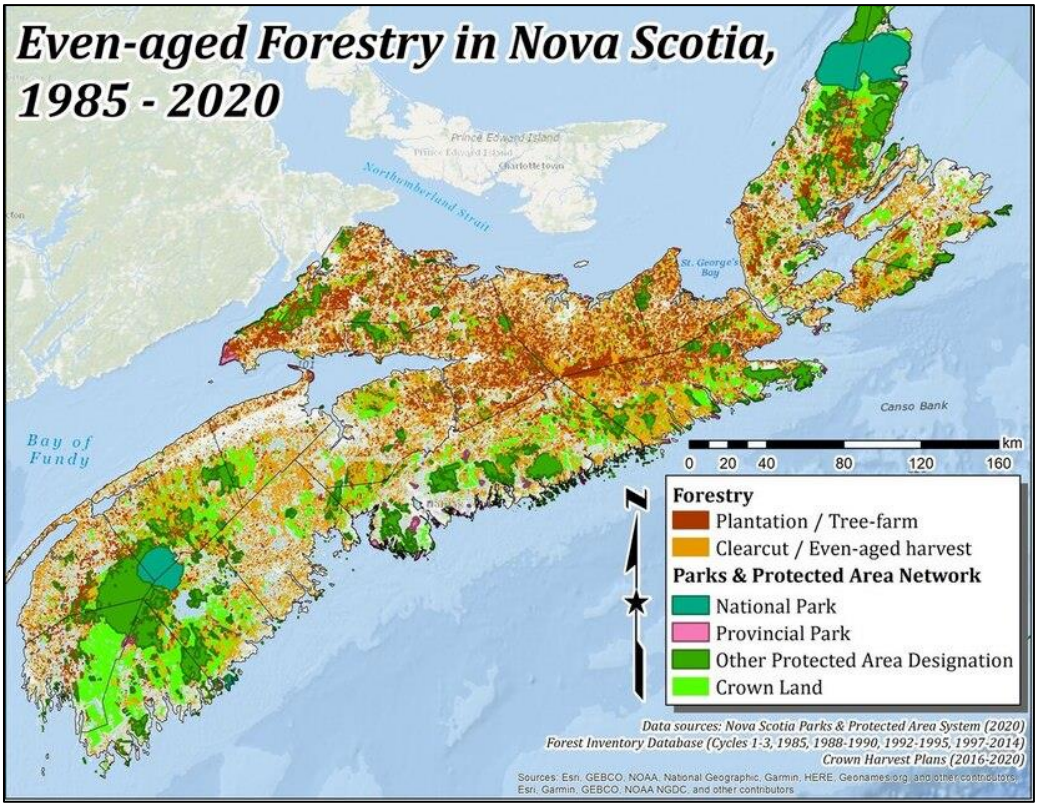

Figure 2. Clear-cuts in Nova Scotia between 1985-2020.

Atlantic Gold's Fifteen Mile Stream Project Report also makes the audacious claim that open-pit mine development will improve habitat suitability for edge-dependent species such as the imperiled Olive-sided Flycatcher[2]. This demonstrates a gross (and willful?) misunderstanding of avian ecology. Olive-sided Flycatchers, like other edge species, are aerial insectivores, and they prefer edge habitat due to the increased visibility it provides for hunting insects. The destruction of wetlands that will occur as a result of Mine Development are likely to have negative impacts on the insect population that Olive-sided Flycatchers depend on. Furthermore, numerous studies suggest that man-made edges actually decrease the fitness of edge-dependent bird species due to the increased predation that occurs in these areas[7,8].

Concluding Thoughts

Given Canada's *Migratory Bird Convention Act* and *Species at-risk Act* as well as Nova Scotia's *Endangered Species Act*, development of a gold-mine at Fifteen Mile Stream should absolutely not be allowed to go forward. As residents and environmental groups in the eastern shore of Nova Scotia

attest, the future of the area lies in tourism and small, local, community-based and value-added projects that are environmentally and socially sustainable.

As noted, unfortunately time constraints associated with multiple jobs prevented me from writing a comprehensive review as I would have liked. Nonetheless, I know that groups such as the Atlantic Salmon Federation, the Ecology Action Centre, the St. Mary's River Association, the Eastern Shore Forest Watch, and the Sierra Club have submitted excellent statements, which I endorse in full.

Both the Canadian federal government and the Nova Scotia provincial government have said that they are committed to doing better when it comes to protecting at-risk species. If this is any truth to this statement, the open-pit goldmine at Fifteen Mile Stream should be halted.

Citations

[1]Atlantic Mining Inc. NS. (February 2021). *Fifteen Mile Stream Environmental Impact Assessment*. Gold. Retrieved from: https://iaac-aeic.gc.ca/050/documents/p80152/138295E.pdf

[2]Atlantic Mining Inc. NS. (May 2018). *Fifteen Mile Stream Gold Project – Project Description.* Atlantic Gold. Retrieved from: https://iaac-aeic.gc.ca/050/documents/p80152/122802E.pdf

[3]Millenium Ecosystem Assessment. (2005). *Ecosystems and Human Well-Being: Synthesis*. Millennium Ecosystem Assessment Synthesis Report. Island Press, Washington, DC, USA.

[4]Crooks, K. R., C. L. Burdette, D. M. Theobald, S. R. B. King, M. Di Marco, C. Rondinini, and L. Boitani. (2017). Quantification of habitat fragmentation reveals extinction risk in terrestrial mammals. *Proceedings of the National Academy of Sciences USA*, *114*, 7635—7640.

[5]Rosenburg, K. V., Dokter, A. M., Blancher, P. J., Sauer, J. R., Smith, A. C., Stanton, J. C., Panjambi, A., et al. (2019). Decline of the North American avifauna. *Science, 366*(6461), 120-124, doi: 10.10.1126/science.aaw1313

[6]Staicer, C. (2020). *Migratory birds and forestry* [webinar]. Medway Community Forest Coop. https://www.youtube.com/watch?v=qZo0WWhWXsE&feature=youtu.be

[7]Robertson, B.A., & Hutto, R.L. (2007). Is selectively harvested forest an ecological trap for Olive-sided flycatchers? *The Condor, 109*(1). doi: 10.1650/0010-5422(2007)109[109:ISHFAE]2.0.CO;2

[8]Robertson, B.A., & Hutto, R.L. (2006). A framework for understanding ecological traps and an evaluation of existing evidence. Ecological Society of America, 87(5), 1075-1085. doi: 10.1890/0012-9658(2006)87[1075:AFFUET]2.0.CO;2