

**Lamb, Thomas**

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**From:** Scott Swinden <HSSWINDE@gov.ns.ca>  
**Sent:** Thursday, March 06, 2008 11:45 AM  
**To:** Lamb, Thomas  
**Subject:** Fwd: Fundy Gypsum comments  
**Attachments:** Wildlife Division Comments Millers Creek Mine Extension, Fundy Gypsum EAR Mar 08.wpd

>>> Julie K Towers 2008-03-06 10:52 AM >>>

Hello Sarah. Here are the Wildlife Division comments on Fundy Gypsum EA.

Scott, I called yesterday to discuss. I'm in Kentville all day if you want to reach me. Essentially, there are some significant concerns about the **layout of the mine as it could impact several wetlands and species at risk, not the project per se.**

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**WILDLIFE DIVISION COMMENTS****RE: FUNDY GYPSUM'S MILLER'S CREEK MINE ENVIRONMENTAL ASSESSMENT****DATE: March 6, 2008****General Points:**

Gypsum soils are not especially rare in Nova Scotia, however the deepest gypsum deposits and highest degree of surface exposed soil and rock is more localized within the area surrounding Windsor and throughout Hants County. This same combination of factors that lead to the economic desirability of the area for mining, also affect the suitability of the habitats for many wild species; some of which are unique in this province. For reasons not entirely clear, Windsor and the surrounding area have an extremely rich diversity of rare plant species, some of which have a disjunct distribution and are geographically isolated from other populations as far away as Maine (e.g. Ram's-Head Lady Slipper). A few species occur nowhere else in Nova Scotia (e.g. Leatherwood, Maidenhair Fern), while still others have the highest density by number anywhere in the province (Yellow Lady Slipper). Such aggregations of species in this region tend to be rather clumped and associated with forest habitats (Yellow Lady Slipper, Ram's-Head Lady Slipper, Hepatica), and/or wetlands (e.g. Bloodroot, Black Cherry, Blue Cohosh, Showy Lady Slipper).

The diversity of species-at-risk and those of conservation concern, including vascular plants and lichens within the area proposed for development by Fundy Gypsum - is especially rich. One Endangered plant listed under the Nova Scotia Endangered Species Act (Ram's-head Lady Slipper), and six others listed under the Nova Scotia General Status of Wild Species including two RED listed species (Round Leaved Hepatica and Eastern Leatherwood) and four YELLOW listed species (Canada Buffalo-Berry, Thimbleweed, Yellow Lady Slipper and Black Ash) all occur within the proposed development footprint. Six species of rare lichens are also found within the proposed development area. At least three species of vascular plants not currently listed under the NS Endangered Species Act are strong candidates for legal listing and either have formal status assessments already underway (e.g. Black Ash) or impending (e.g. Round-leaved Hepatica).

**Issues:**

- (1) Ram's-Head Lady Slipper (*Cypripedium arietinum*), listed as Endangered under the NS Endangered Species Act, occurs within the proposed development area. This area is recognized as extremely important as it is the largest population of the species in Nova Scotia. The proponent intends to protect most of these plants in a conservation area. However the specifics of the protection that may be afforded are not defined in the EA Registration (EAR) document and about 40 plants border a wetland (#12) that will be negatively impacted by the proposed development. Information provided by the proponent is insufficient to assess immediate or long-term impacts to these plants with changes to the surrounding topography, vegetation and hydrology around wetland #12.
- (2) Although not yet listed under any species-at-risk legislation, more than half of the known provincial population (by number) of Yellow Lady Slipper (*Cypripedium parviflorum*) occurs



within the proposed development area. Although the proponent in the EAR proposes to protect about 500 plants within a conservation area, the remaining 500 plants would be lost to development. Such a loss would reduce the provincial population of Yellow Lady Slipper by a full third and would likely result (pending a formal Status Assessment) in their being listed as Threatened or Endangered under legislation overseen by the Minister of Natural Resources.

(3) A status report for Black Ash is currently in preparation and will be reviewed by the Nova Scotia Species at Risk Working Group appointed by the Minister of Natural Resources, under the NS Endangered Species Act - likely by fall 2008. Loss of the 25+ Black Ash trees on site as proposed in the EAR may be in contravention to the Endangered Species Act if the species is listed..

(4) The proponent states a significant adverse effect to wetlands only occurs in wetlands which have been determined to be of significant value (page 103). We believe this is a misrepresentation in the application of the Environment Act which considers alterations to all wetlands as significant, and requires proponents to apply the mitigative sequence to activities which may impact wetlands. The first step in this sequence is avoidance of wetlands.

(5) The proponent has identified 16 wetlands within the project area, and 12 will be fully or partially lost with mining. Impacts to wetlands 10 and 12 can be avoided with slight changes to the southern boundary of the pit. Several wetlands (2, 3, 4, 15, 16) will be lost or impacted by the placement of the stockpiles on the east side of the project area. These impacts can be avoided if the footprints of the stockpiles are reduced, such as by moving overburden west across Ferry Road to the Bailey Quarry which will be undergoing reclamation. The documentation provided in Appendix D is cursory with respect to an analysis of wetland avoidance options and associated impacts to ecosystem services as they relate to project viability. Such an analysis is particularly relevant for the largest wetland (#1). Alterations made to the pit location to avoid impacts to endangered species or species of conservation concern, are not sufficient justification to alter a wetland as both species and their habitats are of importance.

(6) There is insufficient information in the EAR document to determine the extent and magnitude of the proposed project to surfacewater and groundwater impacts. Modelling undertaken by the proponent to predict prevailing site conditions and impacts has not been validated against site data. It is proposed to mitigate the loss of water catchment contribution to streamflow associated with the pit, by discharging water collected in stormwater and settling ponds to the lower reaches of the streams. However, seasonal and interannual discharge curves have not been calibrated for the streams. It is thus difficult to envisage how the proponent will replicate these patterns, and what criteria will be used to assess whether their water supply will mitigate downstream impacts with respect to water quantity. Similarly, predictions on impacts to wetlands with respect to surface and groundwater inflows and outflows are qualitative and need to be substantiated with quantitative estimates.

#### Recommendations:

(1) There is a high potential for long term negative impacts on endangered plants and other species with a high level of conservation concern should the project proceed as outlined in the



proponent's EAR document. Furthermore, incomplete documentation of the distribution of these species within the project area precluded our undertaking a full analysis of the implications of the proposed activity and mitigation options. We are concerned the Minister of Natural Resources will be unable to meet obligations under the Endangered Species Act if the project proceeds as outlined in the proponent's EAR document. We recommend that the project not be allowed to proceed as proposed until the details and requirements for protection of species-at-risk and their habitat can be formally agreed upon with the Government.

(2) We recommend the proponent commit to a monitoring and research program for Ram's-Head Lady Slipper within the proposed development area; and that the specific requirements for such a research/monitoring program for Ram's-Head Lady Slipper be developed and agreed to by NSDNR (Wildlife Division) and a recovery team (to be formed).

(3) Should the project proceed, the potential loss of 1/3 the total provincial population of Yellow Lady Slipper (by number of individuals) is not acceptable given that it would likely result in this species being listed as Threatened under the Nova Scotia Endangered Species Act. For this reason we recommend that the conservation area be expanded to incorporate habitat extending northward where the highest concentrations of Yellow Lady Slipper are within the proposed development footprint. The dimensions of the conservation area should be subject to additional study and final agreement with NSDNR (Wildlife Division).

(4) The western section of the proposed development footprint does not have the same predicted impacts to species at risk and wetlands. Subject to recommendation 3 and non-wildlife issues, initial pit development may be possible in the western part of the project area to allow sufficient time to study and propose mitigation to prevent impacts to species at risk or conservation concern.

(5) Given the proximity of more than 40 endangered Ram's-Head Lady Slipper plants to wetland #12, and the high potential for adverse effects resulting from changes to topography, vegetation and hydrology, we recommend wetland #12 be fully captured within the conservation area and additional modeling using on-site data be undertaken to assess mitigation options to ensure plant survival.

(6) The loss of wetlands as outlined in the proponent's EAR should not be approved until a thorough analysis of avoidance options and associated impacts to ecosystem services and project viability is undertaken and then reviewed and agreed upon by NSDEL and NSDNR.

(7) We recommend the proponent undertake a quantitative assessment of the proposed project's impacts to surface and groundwater inputs to streams and wetlands, identify mitigative options to maintain natural annual and interannual hydroperiods for streams and wetlands, and provide monitoring protocols to assess the efficacy of the mitigative options before approval is provided to the project.

(8) Should the project be approved, we recommend that a detailed site reclamation plan be developed early in the project's development, as this will significantly influence long term survival and function of species and systems in this unusual habitat type.

(9) We recommend that should the project proceed, future Industrial Approvals should be conditional upon a satisfactory and detailed review of the monitoring programs for species at risk and those of conservation concern by government regulators in NSEL and NSDNR.



**Lamb, Thomas**

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**From:** Lamb, Thomas  
**Sent:** Thursday, March 06, 2008 12:23 PM  
**To:** Don S Jones  
**Subject:** Fwd: Fundy Gypsum EA comments - From Wildlife Division  
**Attachments:** Wildlife Division Comments Millers Creek Mine Extension, Fundy Gypsum EAR Mar 08.wpd

Attach: Wildlife Division Comment March 6/2008

Hello Don,

Scott would like to discuss these comments this afternoon.

Tom

>>> Scott Swinden 2008-03-06 11:44 AM >>>

>>> Julie K Towers 2008-03-06 10:52 AM >>>

Hello Sarah. Here are the Wildlife Division comments on Fundy Gypsum EA.

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