

SPECIES OF FAUNA RECORDED DURING SITE VISITS
(September 2002 - November 2002)

Amphibians and Reptiles

Since the study was conducted during late autumn when amphibians and reptiles would be expected to be hibernating, it was not surprising that none was observed during our work on or adjacent to the proposed pit site.

Birds

No bird species at risk was observed on or adjacent to the proposed pit site during our late autumn study.

Bird species and numbers recorded during our 10 November 2002 search of the proposed pit site and adjacent forest are presented in Table 1. None is considered a species at risk. While most of the species recorded are year-round residents and may nest on or adjacent to the site, these represent only a subset of the birds that may actually nest here, most migratory birds having left the area by the time our field work was conducted.

Table 1. Bird Species Recorded On and Adjacent to Proposed Pit Site-10 November 2002

Species	Where Recorded		Total
	On Site	Adjacent Site	
Sharp-shinned Hawk	0	1 *	1 *
Ring-necked Pheasant	0	1	1
Ruffed Grouse	0	1	1
Downy Woodpecker	1	2	3
Hairy Woodpecker	1	1	2
Blue Jay	2	0	2
American Crow	2	3	5
Common Raven	2	0	2
Black-capped Chickadee	4	8	12
Brown Creeper	2	3	5
Red-breasted Nuthatch	1	4	5
Golden-crowned Kinglet	3	4	7
Purple Finch	1	0	1
Pine Siskin	0	1	1
American Goldfinch	2	0	2
TOTAL	21	29	50

* observed on 21 September 2002

Mammals

No mammal species at risk was observed during our visits.

Table 2 lists the nine mammal species whose presence was documented either on the site, or immediately adjacent to the site, either by observation or by sign (tracks, scats, food caches, burrows, etc.). American Beaver and Muskrat were confined to the pond, formed by the damming (by humans) of Tupper Lake Brook, situated to the northeast of the pit site.

Our ability to detect non-arboreal mammal species on 10 November 2002 was enhanced by the remains of the heavy snowfall that had occurred on 6-7 November 2002 that still covered the ground. The abundance of tracks encountered suggested a good population of White-tailed Deer using the area. On the other hand, Varying Hare populations appeared to be rather low with only a single set of tracks being observed in the forest east of the pit site and none on the pit site.

Survey work was conducted during the season when bats would be in hibernation. There are no known caves on the property where bats might hibernate.

Table 2. Mammals and Mammal Sign Observed

Species	On Site		Adjacent Site	
	Observed	Sign	Observed	Sign
Varying Hare	-	-	-	√ (little)
American Red Squirrel	2	√	5	√
American Beaver	-	-	-	√
Muskrat	-	-	1	√
American Porcupine	-	√	1	√
Coyote	-	√	-	√
Raccoon	-	√	-	√
Striped Skunk	-	√	-	√
White-tailed Deer	2	√ (much)	-	√ (much)

AMPHIBIAN AND REPTILE, BREEDING BIRD, AND MAMMAL
SPECIES AT RISK IN NOVA SCOTIA

Following are lists of amphibian and reptile, breeding bird, and mammal species currently considered at risk in Nova Scotia and assessments of their possible occurrence, at or adjacent to the property leased by Lawson Bennett Trucking Ltd., based on our surveys, habitat preferences of these species, and their known distributions.

Amphibians and Reptiles

Amphibian Species	Status Colour	Possible Occurrence At or Adjacent to Site
Four-toed Salamander	yellow	highly unlikely
Reptile Species	Status Colour	Possible Occurrence At or Adjacent to Site
Blanding's Turtle	red	highly unlikely
Wood Turtle	yellow	unlikely
Northern Ribbon Snake	yellow	highly unlikely

Breeding Bird Species	Status Colour	Possible Occurrence At or Adjacent to Site
Peregrine Falcon	red	highly unlikely
Piping Plover	red	n/a
Roseate Tern	red	n/a
Common Loon	yellow	n/a
Black-crowned Night-Heron	yellow	highly unlikely
Northern Goshawk	yellow	possible
Common Tern	yellow	n/a
Arctic Tern	yellow	n/a
Razorbill	yellow	n/a
Atlantic Puffin	yellow	n/a
Long-eared Owl	yellow	possible
Short-eared Owl	yellow	unlikely
Purple Martin	yellow	highly unlikely
Eastern Bluebird	yellow	unlikely
Bicknell's Thrush	yellow	highly unlikely
Vesper Sparrow	yellow	highly unlikely
"Ipswich" Savannah Sparrow	yellow	highly unlikely
Nelson's Sharp-tailed Sparrow	yellow	highly unlikely
Bobolink	yellow	unlikely
Eastern Meadowlark	yellow	highly unlikely

Mammal Species	Status Colour	Possible Occurrence At or Adjacent to Site
Eastern Cougar	(status evaluation deferred)	highly unlikely
American Marten	red	highly unlikely
Lynx	red	highly unlikely
Moose	red	unlikely
Eastern Pipistrelle	yellow	possible
Fisher	yellow	unlikely
Gaspe Shrew	yellow	highly unlikely
Hoary Bat	yellow	possible
Little Brown Bat	yellow	possible
Long-tailed Shrew	yellow	highly unlikely
Northern Long-eared Bat	yellow	possible
Red Bat	yellow	possible
Silver-haired Bat	yellow	possible
Southern Flying Squirrel	yellow	unlikely

IMPACT OF AGGREGATE PIT OPERATIONS

Nature of Potential Impacts

The main impacts of aggregate extraction operations on wildlife are:

- 1) the direct removal of habitat
- 2) an increase in noise levels and hence disturbance of wildlife in adjacent habitats.

Removal of habitat generally leads to a decrease in the numbers of those species dependent upon that habitat. Noise can similarly lead to the exclusion of sensitive individuals or species from appropriate habitats or lead to increased mortality or depressed reproductive rates in those individuals occupying the disturbed habitats.

With the exception of some old pine trees that have been spared during previous harvests, the forest on the proposed pit site is similar to other early successional forests found in this part of the Annapolis Valley. As the pit expands into new areas, forest cover, and hence wildlife habitat, will be removed. While the loss of habitat is real, it is confined to an area of approximately 6 ha of habitats that are common in this area. At the same time as new sections of the pit are being opened up, exhausted areas will have the previously removed overburden replaced and natural regeneration will be allowed to occur. If normal successional processes occur, then, over an extended period of time, the habitats removed will be replaced by similar habitats.

The pit operator has laid out the boundaries of the pit such that they greatly exceed the setbacks from streams (100 ft.) recommended by the Nova Scotia Department of Natural Resources. The potential for direct impact of this operation on the streams flowing to the east and southwest of the pit site would appear to be minimal.

The greatest potential for impact by this operation on wildlife species at risk is from noise generated by pit activities, particularly crushing, and its impact on sensitive species at risk using habitats adjacent to the pit, particularly rare habitat afforded by the mature forest to the east of the site. For this reason, the study was extended beyond the boundaries of the pit site.

Amphibians and Reptiles

The only amphibian species at risk in Nova Scotia is the Four-toed Salamander. The two streams and the pond adjacent to the proposed pit site do not have the sphagnum borders required by this species for breeding. We therefore think it highly unlikely that this species would occur on this property.

Two of the three reptile species at risk, Blanding's Turtle and the Northern Ribbon Snake, are relic disjunct populations confined to central southwestern Nova Scotia. The third species, the Wood Turtle, is widely dispersed with most records coming from the northeastern mainland and southwestern Cape Breton. There are records from Hants County, at least one record from the Gaspereau River in Kings County and several (some very current) from the Annapolis River system but little information to support the presence of this species in the Cornwallis River drainage.

In their descent from the South Mountain, immediately to the south of the proposed pit site, the two streams that pass to the east and southwest of the site are quite fast-moving, not the "slow-moving, meandering interval streams" (Gilhen, 1984) preferred by Wood Turtles. Downstream from the pit site these streams might provide potential habitat for Wood Turtles. However, given the lack of evidence of Wood Turtles in the general area and the lack of suitable habitat immediately adjacent to the pit site, I believe it most unlikely that Wood Turtles would occur on the site.

Breeding Birds

Habitats adjacent to the proposed pit site provided potential nesting areas for two bird species at risk, the Northern Goshawk and the Long-eared Owl. While good potential nesting habitat was available for Northern Goshawks, potential nesting habitat for Long-eared Owls was somewhat marginal.

Nesting Northern Goshawks can have very large home ranges, sometimes exceeding 2000 ha. Although these home ranges can include a variety of habitats, the nest site is generally confined to very specific habitat. Their preferred nesting habitat is in large tracts of mature forest containing tall trees and having a somewhat open understory in which they can hunt. Disturbance within the vicinity of the nest site could lead to

increased nestling mortality or even nest abandonment in this species which is particularly sensitive to disturbance (Mark Elderkin, *pers. comm.*). As indicated earlier, the Nova Scotia Department of Natural Resources reserves the right to restrict activities within a 0.5 km radius of a Northern Goshawk nest site.

Potential nesting habitat for Northern Goshawks within the proposed pit area was, at best, marginal. Searches of the site revealed no Northern Goshawk nest structures and, indeed, no nest structures of any raptorial birds were seen. The systematic search of the mature forest immediately east of the proposed pit (Figure 2), where potential Northern Goshawk nesting habitat was considered to be good to very good, revealed no Northern Goshawk nest structures. Only one nest, believed to be that of a Red-tailed Hawk or a Common Raven, was found. The forested area to the southeast of the proposed pit is fairly extensive and our search was confined to an area within 0.5 km of the pit. It is possible that Northern Goshawks might nest within this forest but there was no indication that they had nested recently within 0.5 km of the proposed pit.

A search of patches of habitat, to the west of the pit site, that were considered to provide moderate potential for nesting Northern Goshawks also revealed no nest structures. Much of the area to the south of the proposed pit had been recently clear cut so no searches were done in this area.

I therefore consider it unlikely that any Northern Goshawks, either currently or within the recent past, nest within a 0.5 km radius of the proposed pit site, even though some attractive habitat exists within this area.

There is a small possibility that Long-eared Owls could nest on or, more likely, adjacent to the proposed pit site. Disturbance of nesting Long-eared Owls could result in increased mortality of young or even nest abandonment.