
Provincial Red and Blue Listed Species Management within the North Island Timberlands Defined Forest Area

Northern Goshawk



Adult male goshawk



Table of Contents

Table of Contents 2

Introduction 3

Red- and Blue-listed Species of Possible Forestry Concern within the North Island Timberlands defined forest area 3

 Red List 5

 Blue list 5

Species Comments..... 5

 Red-listed Taxa 6

 Northern Goshawk (*laingii* subspecies) 6

 Marbled Murrelet..... 7

 Vancouver Island Wolverine 7

 Keene’s Long-eared Myotis..... 8

 Blue-Listed Taxa..... 8

 Great Blue Heron (Coastal subspecies-*fannini*)..... 8

 Roosevelt Elk..... 9

 Townsend’s Big-eared Bat 9

 Northern Pgymy-Owl *swarthi* (Vancouver Island) subspecies 9

 Ermine *anguinae* (Vancouver Island) subspecies 10

 Red-legged Frog..... 10

 Western Screech-Owl *kennicotti* (coastal) subspecies 10

Discussion..... 10

Literature Cited..... 11



Introduction

Habitat protection for species at risk has become a major issue in integrated forest management. Certification requires that forest managers know which species at risk are present on their tenure and which of these are possibly further imperiled by management activities. Adequate habitat protection for the latter is mandatory.

The BC Conservation Data Centre has assigned rare and endangered species or subspecies (taxa) within the Province to Red and Blue lists, depending on the degree of risk. Red-listed taxa are most seriously at risk. If still present, they are either endangered—facing a real risk of local loss or extinction, or threatened—slightly less at risk but still a concern. Blue-listed taxa face a lower risk, but they are still vulnerable because they have population characteristics that make them particularly sensitive to human activities or natural events. The concern is that they could become red-listed if factors responsible for their decline are not addressed. Some managed species such as Grizzly Bear or Roosevelt Elk are blue-listed. Yellow-listed species are secure and not at risk from extinction.

The Conservation Data Centre has specified which red and blue taxa are present in each Forest District (see <http://srmapps.gov.bc.ca/apps/eswp>). McLaughlin (2002) examined the lists for the Campbell River Forest District in order to determine which taxa were actually present in the North Island Timberlands, and of these, which could possibly be affected by forest management operations. This review identified the following as warranting special consideration:

Red List

- Northern Goshawk *laingi* (Queen Charlotte) subspecies
- Marbled Murrelet
- Vancouver Island Wolverine
- Keene's Long-eared Myotis

Blue List

- Great Blue Heron *fannini* (coastal) subspecies
- Roosevelt Elk
- Townsend's Big-eared Bat
- Northern Pygmy-owl
- Ermine *anguinae* subspecies
- Red-legged Frog

The present review re-examines the Campbell River Forest District lists in order to determine whether any new taxa have been added since the original review was completed and whether any different forest management practices are required.

Red- and Blue-listed Species of Possible Forestry Concern within the North Island Timberlands defined forest area

Table 1 shows all Red- and Blue-listed vertebrate taxa, which occur, within the Campbell River Forest District. Not all of these are present within the North Island Timberlands defined forest area. Moreover, many of those that are present are unlikely to be affected by forest management operations. Table 1 also includes one Yellow-listed Identified Wildlife species, the Turkey Vulture.

In reviewing Table 1, there are two primary objectives:

1. Determine which of these groups occur within North Island Timberland's defined forest area, and, of these, which could conceivably be affected by forestry operations.
2. Outline specific habitat requirements of the groups. Ultimately, it will be important to determine if reserve areas set aside in landscape unit planning will be adequate in meeting their habitat needs.

In order to identify those species on the Campbell River Forest District Red and Blue lists which are present on the North Island Timberlands operational area and possibly affected by forest management operations, the following taxa have been dropped. Additional information for selected species is provided in Appendix 1.

- Marine species **(A)**—Cassin's Auklet, Common Murre, Grey Whale, Humpback Whale, Killer Whales (3 populations), Northern Right Whale, Northern Sea Lion, Sea Otter, Surf Scoter, Tufted Puffin
- Fish or other species protected by riparian habitat protection guidelines **(B)**—Cutthroat Trout, Dolly Varden, Common Water Shrew, Eulachon Western Brook Lamprey
- Canada Goose (*occidentalis* subspecies **(C)**—the Dusky Canada Goose) This subspecies breeds mainly on the Copper River delta, Alaska and winters primarily in the Willamette valley, Oregon. Substantial numbers stop on open grassy foraging areas on Vancouver Island during the southward migration. Not a forestry issue.
- Coastal Mainland species within the Campbell River Forest District, but not found on Vancouver Island **(D)**—Coastal Tailed Frog, Fisher, Grizzly Bear, Wolverine *luscus* subspecies)
- Western Bluebird (Georgia Depression Population) **(E)**—Formerly abundant in southwestern BC. Now extremely rare possibly because of competition for nest cavities from European Starlings and English Sparrows. Does not breed within North Island Timberlands tenure.
- Band-tailed Pigeon **(F)**—Fairly common on the south coast. Listed because of a marked reduction in breeding distribution. Does not breed within North Island Timberlands tenure.
- Other listed birds which do not breed within North Island Timberlands tenure **(G)**—(Breeding distribution from Campbell *et al.* 1989, 1989, 1997, 2001). Also see Cannings *et al.* (1999) and Fraser *et al.* (1999). American Bittern, Barn Owl, Green Heron, Pine Grosbeak, Purple Martin, Short-eared Owl
- White-tailed Ptarmigan **(H)**—Breeds in the alpine zone within North Island Timberlands tenure. Not a forestry concern.
- Turkey Vulture **(I)**—Probably breeds in rocky areas within North Island Timberlands tenure. Yellow listed. Not a forestry concern. If an active nest is found on the ground in proposed logging areas, protect with a VR patch.
- Vancouver Island Marmot **(J)**—The largest colony on Vancouver Island occurs on Mount Washington. Despite intensive searches, no active colonies have been found on North Island Timberlands tenure.

There are four red-listed and seven blue-listed species present within North Island Timberlands tenure and possibly affected by forest management operations (red and blue highlights, respectively, on Table 1). Note that since the original review was completed, the Western Screech-owl *kennicottii* has been added to the blue list because it is scarce, poorly known and possibly declining. Because it is a secondary cavity nester, retention of snag patches, wherever possible, will be the most important habitat protection action. No other measures are indicated.

Red List

- Northern Goshawk *laingi* (Queen Charlotte Islands) subspecies
- Marbled Murrelet
- Vancouver Island Wolverine
- Keene's Long-eared Myotis

Blue list

- Great Blue Heron *fannini* (Coastal) subspecies
- Roosevelt Elk
- Townsend's Big-eared Bat
- Northern Pygmy Owl
- Ermine (*anguinae* subspecies)
- Red-legged Frog
- Western Screech-owl (*kennicottii* subspecies)

Table 1. Red- and Blue-listed animal taxa within Campbell River Forest District

Scientific Name	English Name	Status			
		Global	Subnational	COSEWIC	BC Status
<i>Botaurus lentiginosus</i>	American Bittern (G)	G4	S3B,SZN		BLUE
<i>Columba fasciata</i>	Band-tailed Pigeon (F)	G4	S3S4B,SZN		BLUE
<i>Tyto alba</i>	Barn Owl (G)	G5	S3	SC (NOV 2001)	BLUE
<i>Branta canadensis occidentalis</i>	Canada Goose, <i>occidentalis</i> subspecies (C)	G5T2T3	S1N		BLUE
<i>Ptychoramphus aleuticus</i>	Cassin's Auklet (A)	G4	S2S3B,S4N		BLUE
<i>Ascaphus truei</i>	Coastal Tailed Frog (D)	G4	S3S4	SC (MAY 2000)	BLUE
<i>Uria aalge</i>	Common Murre (A)	G5	S2B,S4N		RED
<i>Sorex palustris brooksi</i>	Common Water Shrew, <i>brooksi</i> subspecies (B)	G5T2	S2		RED
<i>Oncorhynchus clarki clarki</i>	Cutthroat Trout, <i>clarki</i> subspecies (B)	G4T4	S3S4SE		BLUE
<i>Salvelinus malma</i>	Dolly Varden (B)	G5	S3S4		BLUE
<i>Musella erminea anguinae</i>	Ermine, <i>anguinae</i> subspecies	G5T3	S3		BLUE
<i>Thaleichthys pacificus</i>	Eulachon (B)	G5	S2S3		BLUE
<i>Martes pennanti</i>	Fisher (D)	G5	S3		BLUE
<i>Ardea herodias fannini</i>	Great Blue Heron, <i>fannini</i> subspecies	G5T4	S3B,S4N	SC (1987)	BLUE
<i>Butorides virescens</i>	Green Heron (G)	G5	S3S4B,SZN		BLUE
<i>Eschrichtius robustus</i>	Grey Whale (A)	G3G4	S2N	NAR (1987) NE PACIFIC POPULATION	BLUE
<i>Ursus arctos</i>	Grizzly Bear (D)	G4	S3	SC (MAY 2002)	BLUE
<i>Megaptera novaeangliae</i>	Humpback Whale (A)	G3	S1N	T (1985)	BLUE
<i>Myotis keenlii</i>	Keene's Long-eared Myotis	G2G3	S1S3	SC (1988)	RED
<i>Orcinus orca</i> pop. 2	Killer Whale (Northeast Pacific offshore population) (A)	G4G5TUQ	S3	SC (NOV 2001)	BLUE
<i>Orcinus orca</i> pop. 1	Killer Whale (Northeast Pacific resident population) (A)	G4G5T3Q	S2	E southern population; T northern population (NOV)	RED
<i>Orcinus orca</i> pop. 3	Killer Whale (West Coast transient population) (A)	G4G5T4Q	S2	T (NOV 2001)	RED
<i>Brachyramphus</i>	Marbled Murrelet	G3G4	S2B,S4N	T (NOV 2000)	RED

		Status			
<i>mammoratus</i>					
<i>Accipiter gentilis laingi</i>	Northern Goshawk, <i>laingi</i> subspecies	G5T2	S2B,S2N	T (NOV 2000)	RED
<i>Glaucochloa gairdneri swainsoni</i>	Northern Goshawk, <i>swainsoni</i> subspecies	G5T2Q	S1		BLUE
<i>Eubalaena glacialis</i>	Northern Right Whale (A)	G1	SH	E (1990)	RED
<i>Eumetopias jubatus</i>	Northern Sea Lion (A)	G3	S2B,S3N	NAR (1987)	RED
<i>Pinicola enucleator carlottae</i>	Pine Grosbeak, <i>carlottae</i> subspecies (G)	G5T3	S3B,S2N		BLUE
<i>Progne subis</i>	Purple Martin (G)	G5	S2B		RED
<i>Ursus arctos</i>	Black Bear (A)	G4	S1,S4	SC (MAY 2000)	BLUE
<i>Canis lupus moschoti</i>	Wolverine (A)	G4T4	S2,S3		BLUE
<i>Enhydra lutris</i>	Sea Otter (A)	G4	S2	T (May 2000)	RED
<i>Asio flammeus</i>	Short-eared Owl (G)	G5	S3B, S2N	SC (1994)	BLUE
<i>Melanitta perspicillata</i>	Surf Scoter (A)	G5	S3B,S4N		BLUE
<i>Urolophus harrisi</i>	Tufted Puffin (A)	G5	S2,S3		BLUE
<i>Fratercula cirrhata</i>	Tufted Puffin (A)	G5	S3B,S4N		BLUE
<i>Cathartes aura</i>	Turkey Vulture (I)	G5	S4		Yellow
<i>Marmota vancouverensis</i>	Vancouver Island Marmot (J)	G1	S1	E (May 2000)	RED
<i>Sialia mexicana</i> pop. 1	Western Bluebird (Georgia Depression population) (E)	G5T?Q	SHB,S2N		RED
<i>Lampetra richardsoni</i> pop. 1	Western Brook Lamprey, (Morrison Creek population) (B)	G5T1Q	S1	E (May 2000)	RED
<i>Otus kernicottii kernicottii</i>	Western Screech Owl, <i>kernicottii</i> subspecies	G4TNR	S3	SC (May 2000)	BLUE
<i>Lagopus leucurus saxatilis</i>	White-tailed Ptarmigan, <i>saxatilis</i> subspecies (H)	G5T3	S3		BLUE
<i>Gulo gulo luscus</i>	Wolverine, <i>luscus</i> subspecies (D)	G4T4	S3	SC (1989) WESTERN POPULATION ONLY	BLUE
<i>Gulo gulo vancouverensis</i>	Wolverine, <i>vancouverensis</i> subspecies	G4T1Q	SH	SC (1989)	RED

Species Comments

Red-listed Taxa

Northern Goshawk (*laingi* subspecies)

The Queen Charlotte (*laingi* or coastal) subspecies. Characterized by darker colouration and relatively small size. Occurs on the Charlottes, Vancouver Island and SE Alaska. The mainland subspecies (*atricapillus* –lighter colouration, larger) occurs elsewhere in BC. Unclear whether coastal mainland birds are *laingi* or *atricapillus*.

Recorded in almost every forest type on the coast, but prefers areas with larger trees, high canopy closure (more than 60%) and open forest floors (less cover for ground prey). Sea level to 2300 m. Prey abundance is probably the most important distribution factor. Preys mainly on medium-sized forest birds such as grouse, jays, thrushes and woodpeckers or mammals such as red squirrels. Dense, young second growth is avoided. Cannot predict where they will occur.

Train personnel to recognize adults and nests. Look for large stick nests in deciduous or coniferous trees. (Figure 1). Deciduous nests tend to be main tree crotches. Coniferous nests are often on one of the lowest branches below the canopy and near the main stem. Nests can be 1 m in diameter and up to 0.4 m in height. Pencil-sized twigs are the most common structural material.

If an active nest is observed, report it. Cease falling near active nests. Interim habitat protection guidelines require 200 m radius leave areas (12 ha) around active nests. More detailed habitat protection measures may be implemented in goshawk Wildlife Habitat Areas (WHAs).



Figure 1. Northern Goshawk Nest

Marbled Murrelet

Listed because of concerns for depletion of old-growth nesting habitat. Pelagic, but nests on thigh-diameter mossy limbs in old growth forests. Desolation Sound research indicates a preference for steep terrain and higher elevations. Smaller patches are used.

Train forest workers to identify murrelets seen or heard during operations. Murrelets are dark, robin-sized birds with a long, tapered beak and webbed feet—the only forest bird with webbed feet. Their “KEER” calls sound like weak seagulls. If birds or eggs are found, report observations. Key areas may require murrelet WHAs. A significant forestry concern.

Vancouver Island Wolverine

A rare and poorly-known subspecies of wolverine occurring only on Vancouver Island. There have been only four sight records on Vancouver Island since 1980. Solitary and wide-ranging. Formerly distributed over all of Vancouver Island, they are now restricted to inaccessible areas of the central mountain ranges and the west coast. If they occur within North Island Timberlands tenure, they are most likely in headwater areas of major watersheds. The impact of forest harvesting and related activities on movement patterns and landscape utilization is unclear. Red-listed because of low numbers and inadequate knowledge about population and habitat trends.

Existing reserve areas in mountains should provide adequate isolation for the few individuals that may be present. Other specific habitat protection measures are not warranted.

Keene's Long-eared Myotis

A rare and poorly-known medium-sized (84 mm body length) bat in coastal forests of North America from Washington to south-eastern Alaska. Only fifteen occurrences have been recorded in BC (Nagorsen and Brigham, 1993).

The most distinctive features are the long ears that extend beyond the nose when pressed forward. Indistinguishable in the field from the more common Western Long-eared myotis. Solitary. May use tree cavities, rock crevices and small caves as summer roosting sites.

The species has been Red-listed because of its apparent rarity and lack of knowledge about its basic biology. A possible forestry concern because the species may be dependent on tree cavities in old-growth or mature forests for roosting. Old growth leave areas and snag retention patches should provide adequate habitat protection. In the rare event that forest workers recover a specimen, send it to the Royal BC Provincial Museum, Victoria.

Blue-Listed Taxa

Great Blue Heron (Coastal subspecies-*fannini*)

Breeds and winters along the Pacific coast from southeast Alaska to Washington. Relatively widespread and numerous (4000-5000) in BC. However there are fewer than 30 active breeding colonies in the Province with more than 20 birds. Colonies are vulnerable to pollution, disturbance and habitat loss. Blue-listed because of colony vulnerability.

Great Blue Herons nest singly or in colonies—usually in the upper portion of the main tree canopy in undisturbed, mature deciduous, coniferous and mixed woodlands near shoreline foraging habitat in fresh or salt water. In coastal BC, nesting colonies are all within 8 km of suitable foraging areas, and most are within 3 km. There is no obvious tree species preference. Other than being relatively close to water, it is difficult to predict the location of nests.

Train forestry workers to recognize and report active colonies (Figure 2). Look for stick platform nests, up to a meter in diameter. Many large nests in close proximity, sometimes in one tree, is a good indication of heron nests. Since nests may be reoccupied in successive years and new nesting material is often added each year, new nests can seem remarkably makeshift while older ones may be as deep as they are wide. Crown land habitat protection guidelines near active colonies specify 100 m radius no-touch areas around the colony and no activity within 300 m from March to August 15. Nest trees are protected under the Wildlife Act.



Figure 2. Great Blue Heron Colony

Roosevelt Elk

Elk occur in coniferous forests of all ages, as well as in deciduous stands and non-forested habitats such as wetlands, vegetated slides and rock outcrops. There is no specific forest community preference. They favour wet areas on alluvial floodplains such as swamps, meadows, estuaries, seepage sites and riparian areas. The moist, rich soils here provide best growth of forage species. Alpine habitats are used very little (IWIFR 1990).

Elk are Blue-listed but unlikely to be threatened by forest management activities. Locally, they can be a serious problem to the establishment of western redcedar.

Townsend's Big-eared Bat

A medium-sized bat with enormous ears. It is widespread but sparse across most of southern BC. Blue-listed because of vulnerability to disturbance at maternal colonies and winter hibernacula. Associated with a variety of habitats from coastal forests to arid grasslands in the interior. On the coast, in summer it tends to roost in buildings. In winter it uses caves and mines (Nagorsen and Brightman 1993).

Not a serious forestry concern. Have crews report observations to the Royal BC Provincial Museum

Northern Pgy-my-Owl *swarthi* (Vancouver Island) subspecies

A small, cavity-nesting subspecies restricted to Vancouver Island and islands immediately adjacent to it. There is some dispute regarding its taxonomic distinctiveness from the coastal mainland subspecies. Widely but sparsely distributed. Relatively poorly inventoried. Likely over 100 occurrences widely scattered throughout Vancouver Island, but a greater search effort would undoubtedly find more.

They are secondary cavity nesters, preferring abandoned woodpecker holes and other natural tree cavities for nesting and roosting. They are found in mixed coniferous forests from sea level to approximately 1200 m elevation, often in steep terrain, not far from water.

Blue-listed because of unknown population status and concerns about loss of snags in second growth. Retention of old growth leave areas and smaller snag patches are essential.

Ermine *anguinae* (Vancouver Island) subspecies

Also known as the Short-tailed weasel. A subspecies of ermine restricted to Vancouver Island and possibly Salt Spring Island. Probably extremely scarce. Fewer than 20 occurrences have been recorded. Habitat requirements are poorly known, but coarse woody debris and thick understories, especially in riparian areas are thought to be important. The effects of large-scale timber harvest on movement and prey availability are not known.

Blue-listed primarily because of population status and unknowns about basic ecological needs.

Retention of old growth leave areas and protection of riparian corridors are necessary. Additional habitat protection is not warranted at this time.

Red-legged Frog

A fairly scarce and declining peripheral species occurring primarily on Vancouver Island and the Lower mainland. The range extends southward as far as California. It is blue-listed in BC because of population declines possibly due to habitat loss from logging and competition with green and bullfrogs.

The species is found in moist coniferous or deciduous forest and forested wetlands. It prefers the cool temperatures of coastal forests and breed in shaded ponds or slow streams. It may wander up to 300 m from breeding areas in wet weather, hiding under logs or debris to stay cool and damp. Adults may spend up to ten months of the year in upland-forested environments.

Habitat protection guidelines are under review. Apply riparian protection guidelines. Also leave 20 m to 30 m undisturbed windfirm buffer around identified breeding areas and smaller unclassified wetlands. Look for large egg masses in wet areas.

Western Screech-Owl *kennicotti* (coastal) subspecies

A small owl 18 cm to 25 cm long, slightly bigger than the pygmy-owl. Occurs on the BC Coast, including Vancouver Island. Most abundant on southern Vancouver Island and the Lower Mainland. No breeding records from the North Island Timberlands Defined Forest Area (Campbell *et al.* 1989) but it probably does occur there. Spring calling (suggesting breeding) has been reported in the Woss area of Vancouver Island (Conservation Data Centre, pers. Comm.). Calls are repeated whistles of a single pitch, increasing in frequency toward the end of the call. A secondary cavity nester.

Blue-listed because of low and probably declining numbers as well as perceived threats from logging (primarily loss of snags in second growth), urbanization and competition with barred owls. Retention of old growth leave areas including smaller snag patches is essential.

Discussion

In reviewing the habitat requirements of the 4 Red-listed and 7 Blue-listed taxa described above, resident in the North Island Timberlands operating area and possibly affected by forest management operations, nests of three bird species require particular attention—Northern Goshawk, Marbled Murrelet and Great Blue Heron.

Goshawks are widely, if sparsely, distributed across the forest landscape. Because their nest habitat selection is not determined by forest species composition, computer searches of likely areas will probably be unsuccessful. Moreover, there is no guarantee that broad habitat retention planning schemes such as OGMA's and ungulate winter ranges will adequately protect them. Nests will have to be protected individually, where and when they are found. Train crews to identify nests and protect them with appropriate buffers.

The situation is similar for Great Blue Herons except that most nests will be near foraging areas. If a nest is found, report it immediately to habitat protection authorities.

Identification of Marbled Murrelet nesting habitat is improving with results from the Desolation Sound research. These studies have shown that although murrelets in this heavily logged landscape did not have a definite forest community preference, they did prefer higher elevations and steeper slopes. These topographic parameters should be considered if murrelet WHAs are proposed. Instead of building stick nests, Murrelets simply lay their eggs on moss pads of thigh-diameter old-growth limbs. Consequently we are unlikely to find nests after logging. If crews find suspicious eggshells on the forest floor or observe murrelets flying near or under the canopy, nesting is possible. Given the high-profile nature of this species, have these observations checked out prior to harvesting. Eggs are hen-sized, pale olive-green to greenish-yellow in background colour, with irregular brown, black and purple spots, more widespread at the larger end of the eggs (Nelson and Harner, 1995).

Other species on the forestry-sensitive red and blue lists should be less of a concern. Red-legged frogs in lower elevation ponds and slow watercourses have identifiable habitat preferences and are amenable to habitat-specific protection. Observations of the two bat species, Keene's myotis and Townsend's Big-eared Bat are unlikely, but they should be reported. Keene's Myotis may be dependent on tree cavities in old-growth or mature forests for roosting. Old-growth leave areas and smaller retention patches with snags should provide adequate protection. This is also true for Pygmy-Owls and Western Screech-Owls.

Additional habitat protection for red- and blue-listed mammals is not warranted. The Vancouver Island wolverine is so scarce that forestry crews are most unlikely to see one. Mountainous, unloggable areas should provide adequate habitat reserves for the few animals which may be present. Riparian reserves and other leave areas will probably meet the habitat needs of emine. In contrast, protecting reforestation from elk will probably be more important than protecting elk habitat requirements during forest management activities.

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