

October 25, 2022

Sent via Email

**The Honourable Steven Guilbeault,
Minister of Environment and Climate Change**

Fontaine Building, 12th floor
200 Sacré-Coeur Blvd
Gatineau, QC, K1A 0H3
ministre-minister@ec.gc.ca

Dear Minister Guilbeault:

Re: Petition for an Emergency Order Recommendation for the Northern Spotted Owl

We are legal counsel to the Wilderness Committee (the “Petitioner”).

The Petitioner has retained us for the purpose of demanding that you recommend an emergency order be issued pursuant to s. 80 of the *Species at Risk Act*¹ for the northern spotted owl (*Strix occidentalis caurina*) (the “**Spotted Owl**”).

With only four known owls in the wild in British Columbia, three of which were only recently released from captivity, the Spotted Owl unquestionably faces imminent threats to its survival and recovery. The grounds for the emergency order are set out in the attached petition, and are summarized as follows:

- The Spotted Owl (which, in Canada, only resides in southwestern British Columbia) is an endangered species under SARA. The Spotted Owl is currently on the brink of extirpation from Canada, having experienced extreme recent population declines and serious and ongoing habitat degradation and loss, along with numerous secondary threats.
- A recovery strategy for Spotted Owl was released in 2006, but did not spatially identify critical habitat. In this 2006 Recovery Strategy, your predecessor committed to

¹ [Species at Risk Act, 2002, c 29](#) [SARA]

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completing a habitat action plan within a year that would include fully identifying critical habitat.² No habitat action plan was released.

- In 2006, the same year the Recovery Strategy was released, when there were less than two dozen owls remaining in the wild, Environment Canada officials recommended to your predecessor that an SARA emergency order be issued.³ In response, the Government of British Columbia (the “**Province**”) committed to several actions, including protection for all occupied sites, population enhancement, and broader habitat identification and protection.⁴ These commitments satisfied then Minister Rona Ambrose that there was no longer an imminent threat to the species’ survival and recovery and she did not recommend an emergency order to Cabinet.⁵
- Unfortunately, many of the Province’s commitments – particularly critical habitat identification and protection – went unfulfilled. **Prior to the release of three captive owls into the wild this summer, there was only one known Spotted Owl remaining in the wild.**⁶
- In March 2021, in response to a petition for an emergency order by the Wilderness Committee, the Province put in place temporary 1-year logging deferrals for the Spuzzum and Utzlius watersheds, the home of the last remaining wild owls in Canada (the “**Deferrals**”). In March 2022, the Deferrals were renewed for another one-year period; however, no permanent protection of these watersheds is in place.
- In October 2021, Canadian Wildlife Service (“**CWS**”) released to Indigenous governments for consultation a draft amended recovery strategy that spatially identified Spotted Owl critical habitat (the “**Draft Recovery Strategy**”).
- Despite repeated assurances that publication of the proposed recovery strategy for public consultation is forthcoming, CWS has yet to publish a finalized amended recovery strategy and critical habitat maps, as required by SARA. **Publication of Spotted Owl critical habitat maps is now 15 years late.**
- The precipitous decline of Spotted Owl populations is undeniably due to habitat loss, primarily caused by commercial logging. It is further uncontroversial that survival and recovery of the species, by way of reintroduction of bred captive owls into areas of critical habitat, depends on the immediate cessation of commercial logging in critical habitat.
- Despite this, the Province continues to authorize logging in suitable Spotted Owl habitat, causing further habitat loss, disturbance and degradation. **There are presently 452 approved or pending cutblocks overlapping fully or partially with areas identified**

² Environment Canada, [Recovery Strategy for the Northern Spotted Owl \(*Strix occidentalis caurina*\) in British Columbia \(2006\)](#) (Environment Canada, Ottawa, ON) [2006 Recovery Strategy].

³ **Appendix, Tab 1:** *Western Canada Wilderness Committee, et al v Canada* (application filed September 15, 2006), Vancouver, FC T-1681-06, Excerpts of Certified Tribunal Record, produced pursuant to Rule 318 of the *Federal Court Rules* [2006 Emergency Order Record], Excerpt 5, “Memorandum to the Minister of the Environment from the Deputy Minister”, dated April 26, 2006 (MIN-82502) at p 6.

⁴ 2006 Emergency Order Record, Excerpt 4.

⁵ 2006 Emergency Order Record, Excerpt 1, at p 7.

⁶ Ministry of Land, Water and Resource Stewardship and Spuzzum Nation, [“World’s first recovery effort sees spotted owls released into the wild for the first time”](#) (21 October 2022).

as suitable Spotted Owl habitat. Many of these cutblocks (if not most), likely overlap with critical habitat identified in the Draft Recovery Strategy. Additionally, at least five of these cutblocks are also in close proximity to areas identified by the Province as priority for the release of captive owls.⁷

- Any commercial logging within critical habitat is an imminent threat to the survival and recovery of the species. This is particularly the case for any logging that occurs near areas planned for the release of owls.

In light of the circumstances set out in this petition, the Petitioner submits the Spotted Owl unquestionably faces imminent threats to its survival and recovery as contemplated by s. 80(2) of SARA. As such, you have a mandatory legal duty to recommend to the Governor in Council that it issue an emergency order that protects, at minimum, critical habitat identified in the Draft Recovery Strategy.

Further details are set out in the attached petition. As noted in the petition, the Petitioner demands a s. 80 emergency order recommendation by November 24, 2022. We look forward to your prompt response.

Sincerely,



Rachel Gutman
Counsel for Wilderness Committee



Andhra Azevedo
Counsel for Wilderness Committee

Encl: Petition for Emergency Order for the Northern Spotted Owl with Appendix

Copied to: Daniel Wolfish (ECCC), Blair Hammond (ECCC), Ken Brock (ECCC), Jennifer Psyllakis (BC Ministry of Forests).

⁷ Appendix, Tab 14, Letter from Ecojustice to CWS and Jennifer Psyllakis (Province of BC), “re Recovery Strategy Delays and Logging in Suitable Habitat” (August 5, 2022). at p 5, fn 11.

**Petition for an Emergency Order for the Northern Spotted Owl
Under s. 80 of the *Species at Risk Act***

To the Honourable Steven Guilbeault, Minister of Environment and Climate Change

On behalf of the Wilderness Committee (the “Petitioner”)

Prepared by Ecojustice



The Petitioner

The Wilderness Committee (formerly the Western Canada Wilderness Committee) is one of British Columbia’s oldest wilderness and wildlife conservation organizations. For nearly three decades, it has worked to protect the northern spotted owl (*Strix occidentalis caurina*) (the “**Spotted Owl**”) and its habitat. It has a demonstrated longstanding interest in the administration of and compliance with the *Species at Risk Act* (“**SARA**”). For example, it has brought several lawsuits under *SARA* to protect at-risk species, including the Spotted Owl.⁸ Moreover, as described in more detail below, Wilderness Committee has made two previous petitions for an emergency order for the Spotted Owl, in 2004 and 2020 (the “**2004 Petition**” and “**2020 Petition,**” respectively) and demanded the release of a *SARA*-compliant recovery strategy for Spotted Owl in 2019 (the “**2019 Demand Letter**”). Wilderness Committee has attached the 2020 Petition and the 2019 Demand Letter, along with relevant supplementary materials, in support of this current petition for an Emergency Order.

The Spotted Owl is on the Brink of Extirpation

In 1986, the Committee on the Status of Endangered Wildlife in Canada (“**COSEWIC**”) designated the Spotted Owl as “endangered”, meaning that the species is “threatened with imminent extirpation throughout all or a significant portion of its Canadian range.” Spotted Owl was one of the species first listed as endangered when the *SARA* came into force in 2003.

The Government of British Columbia (the “Province”) has prioritized the continuation of clearcut logging – a primary threat to the Spotted Owl – over necessary conservation actions to protect and recover the species.⁹ Indeed, notwithstanding federal intervention between 2004 and 2007 (which was in response to the 2004 Petition),¹⁰ the Province has protected the Spotted Owl and its habitat only to the extent that it did not jeopardize timber supply.¹¹

Consequently, Canada’s Spotted Owl population is on the brink of extirpation.¹² As the attached expert reports (Hobbs 2019 and Hobbs 2020) detail, the Spotted Owl population in BC has undergone a sustained and precipitous decline.¹³

⁸ See e.g., [Western Canada Wilderness Committee, et al v Canada \(Fisheries and Oceans\), 2014 FC 148](#); [Alberta Wilderness Association, et al v Canada \(Environment\), 2009 FC 710](#); [Western Canada Wilderness Committee, et al v Canada \(Minister of Environment\)](#) (application filed December 5, 2005), Vancouver, FC T-2150-05 (application discontinued September 12, 2006).

⁹ **Appendix, Tab 2**, Hobbs, J. 2019, *Spotted Owl Survival and Recovery in British Columbia: Expert Report [Hobbs 2019]* at pg 11-12, 21-25.

¹⁰ 2006 Emergency Order Record.

¹¹ Hobbs 2019 at pg 21-25.

¹² *SARA*, 2(1), “extirpated species” means “a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild”; **Appendix, Tab 3**, Letter from Ecojustice to Honourable Catherine McKenna, “re Habitat Action Plan for Northern Spotted Owl pursuant to *Species at Risk Act*” (May 8, 2019) [**Habitat Action Plan Letter**]; Hobbs 2019 at pg 7-10.

¹³ See e.g., Hobbs 2019 at pg 9-10.

In October 2021, CWS released a draft amended recovery strategy to Indigenous governments (the “Draft Recovery Strategy”).¹⁴ The Draft Recovery Strategy provides the following description of historic Spotted Owl population trends:

Before European settlement, the Canadian Spotted Owl population likely did not exceed 500 breeding pairs, or ~10% of the global population (Blackburn et al. 2002). In 1991, it was estimated at fewer than 100 potential breeding pairs (Dunbar et al. 1991; Dunbar and Blackburn 1994) and by 2002 it had declined further to fewer than 33 (Blackburn and Godwin 2003). A survey of 10 previously-occupied sites in 2020 found one pair and one single owl at two sites (J. Gillis pers. comm. 2020). This represents an ~99% decline from historical levels in Canada, with Canada now supporting <0.01% of the global (combined Canada and U.S.A.) population.¹⁵

In November 2020, when Wilderness Committee last petitioned for an emergency order, there were three Spotted Owls remaining in the wild, which included a breeding pair in the Spuzzum Creek watershed and a single male owl in the Utzlius watershed.¹⁶ Both watersheds are located within the traditional territory of the Spuzzum First Nation (Spô’zêm’).

The male owl of the breeding pair and the male owl in the Utzlius watershed have since disappeared. Prior to BC releasing three owls from captivity this summer, there was only one known Spotted Owl in the wild in Canada. There are now four owls in the wild, including the three recently released owls.¹⁷ As described below, both the survival and recovery of the species now depends on the successful reintroduction of individuals bred in the Province’s captive breeding program into intact suitable habitat.

The Identification of Spotted Owl Critical Habitat is Fifteen Years Late

Spotted Owl survival and recovery is dependent on the protection of mature and old-growth forest habitat. Despite this, the federal government has delayed finalizing the identification of critical habitat (i.e., the habitat necessary for survival and recovery) for about 15 years. With four Spotted Owls remaining in the wild, the species is arguably one of the most at-risk in Canada.

In May 2019, Ecojustice sent the 2019 Demand Letter on behalf of the Petitioner to your predecessor, Minister Catherine McKenna, demanding that she publish a SARA action plan that, among other things, identified Spotted Owl critical habitat. At the time of this demand, the identification of critical habitat was at least 12 years overdue.¹⁸ The Petitioner retained Spotted Owl expert, Jared Hobbs, M.Sc. / R.P. Bio. to provide an expert report to attach to the 2019

¹⁴ **Appendix, Tab 4**, Environment and Climate Change Canada, *Amended Recovery Strategy for the Spotted owl subspecies (*Strix occidentalis caurina*) in Canada [Draft]* (2021) (Ottawa, Canada) [**Draft Recovery Strategy**].

¹⁵ Draft Recovery Strategy at pg 2.

¹⁶ **Appendix, Tab 5**, Letter from Ecojustice to Minister Wilkinson (October 14, 2020) Petition for an Emergency Order [**2020 Petition**].

¹⁷ Ministry of Land, Water and Resource Stewardship and Spuzzum Nation, [“World’s first recovery effort sees spotted owls released into the wild for the first time”](#) (21 October 2022).

¹⁸ 2006 Recovery Strategy at pg 17, 23, 53: “Habitat Action Plan: to define survival and recovery habitat, review and evaluate effectiveness of SOMPs, and provide recommendations of additional habitat recovery actions (within a year of release of the recovery strategy).”

Demand Letter detailing, among other things, what is required to support Spotted Owl survival and recovery in order to reach the population goal set out in the 2006 Recovery Strategy.¹⁹

Minister McKenna responded with a commitment to prioritize “completion of an updated, SARA-compliant recovery document for the Spotted Owl in the shortest feasible timeframe.”²⁰ Over three years later, an amended recovery strategy has yet to be published. This means the federal government has failed to finalize the identification of critical habitat for Spotted Owl for the last 15 years.

This past winter, CWS told the Petitioner that a recovery strategy would be available for public comment by the spring of 2022. We are now well into the fall and representatives of CWS and the Province have informed us that the amended recovery strategy will again be delayed and that there is no firm timeline for publication.

However, as set out above, in October 2021, CWS released the Draft Recovery Strategy to Indigenous governments, which includes maps of critical habitat. The critical habitat in the Draft Recovery Strategy demonstrates the minimum habitat that must be protected for the survival and recovery of the Spotted Owl based on best available science.

Logging of Critical Habitat is a Primary Threat to Spotted Owl Survival and Recovery

Despite the precarious state of the species, the Draft Recovery Strategy states that with the reintroduction of captive owls, it is technologically and biologically feasible to restore a stable population of Spotted Owl of 250 mature individuals.²¹ The feasibility of Spotted Owl recovery therefore depends on two related factors: 1) the continuation of a captive breeding and reintroduction program (that has been operated by British Columbia since 2007) and 2) actions taken to “protect and restore sufficient Spotted Owl habitat.”²² Specifically, the Draft Recovery Strategy states that meeting the recovery goals in the short-term requires that “human-caused threats that would cause loss of the habitat needed for recovery (i.e., the critical habitat)” “immediately cease”.²³

Both Hobbs opinions, the 2006 Recovery Strategy, and the Draft Recovery Strategy all confirm that Spotted Owl are an old-growth dependent species, requiring large home ranges of suitable mature and old-growth forested habitats.²⁴ It is undisputed that commercial logging is both a primary cause of Spotted Owl population declines and threat to the ongoing survival and recovery of the species.

¹⁹ 2006 Recovery Strategy at pg 23: “The recovery goal for the Spotted Owl is to provide enough suitable habitat, spatially distributed in a way that it can support and sustain a minimum of 250 mature owls throughout its natural range”

²⁰ **Appendix, Tab 6:** Letter from Minister McKenna to Ecojustice (June 28, 2019) responding to Habitat Action Plan Letter [**Minister McKenna Response**] at pg 1.

²¹ Draft Recovery Strategy at pg 18.

²² Draft Recovery Strategy at pg 18.

²³ Draft Recovery Strategy at pg 19.

²⁴ **Appendix, Tab 7,** Hobbs, J. *Expert Opinion Regarding Application of Interim Measures within the Spuzzum Creek Watershed* (September 13, 2020) J Hobbs Ecological Consulting Ltd., File JHEC-2020-32 [**Hobbs 2020**] at pg 5.

As set out in the Draft Recovery Strategy:

Logging has had severe impacts on Spotted Owl, including direct loss of old forest habitat (loss of nesting, roosting, and foraging habitat attributes) and fragmentation (COSEWIC 2008, Chutter et al. 2004)²⁵

[...]

Improved forestry practices on Crown Land under the *Forest and Range Practices Act* as well as Spotted Owl-specific habitat protection initiatives under the Spotted Owl Management Plans (1 and 2) have partially reduced forestry impacts on Spotted Owl and other old forest-dependent species [...] However, a large amount of nesting and foraging class habitat within the Spotted Owl's range still falls within the unprotected portions of the Timber Harvesting Land Base, and harvesting continues to both remove and isolate habitat.²⁶

When Mr. Hobbs was again retained in 2020 to prepare an opinion for the Petitioner on the implications of commercial forest harvesting activities in the Spuzzum Creek watershed for the survival of the few remaining owls in the wild, he provided the following description of the significant impacts of commercial logging on survival and recovery of Spotted Owl:

[...] commercial forest harvest is most commonly and unarguably identified as the primary threat to Spotted Owl (Chutter et al. 2004), as clear-cut practices result in removal of large areas of coniferous forest. Conventional commercial forestry practices typically result in large areas of complete forest removal (i.e., clear-cuts) with an obvious direct effect upon the amount, distribution, quality (i.e., fragmentation) and abundance of available suitable Spotted Owl habitat.²⁷

Further Mr. Hobbs writes that, "conservation of suitable Spotted Owl habitat is fundamental to species survival, and to population persistence and recovery."²⁸

Simply put, the survival and recovery of the species depends on the survival of the few remaining wild owls and the success of reintroduction. Reintroduced Spotted Owl and their offspring will not survive without sufficient connected habitat. The habitat necessary for the survival and recovery of the species has already been identified in the Draft Recovery Strategy. While the federal government delays publishing of the Draft Recovery Strategy, the Province continues to authorize the logging of high-quality Spotted Owl habitat, and likely critical habitat, acutely jeopardizing both the survival and recovery of the species.

²⁵ Draft Recovery Strategy at pg 14.

²⁶ Draft Recovery Strategy at pg 14 (emphasis added).

²⁷ Hobbs 2020 at pg 5.

²⁸ Hobbs 2020 at pg 5 (emphasis added); Hobbs 2019 at pg 11-12, 16-19.

Logging within Spotted Owl Critical Habitat

Despite the unequivocal link between commercial logging activities and the precipitous decline of the Spotted Owl and the recognition that recovery and survival is feasible (with the immediate protection of critical habitat), the Province continues to authorize logging of habitat throughout the Spotted Owl's range, primarily through BC Timber Sales.²⁹

In November 2020, Ecojustice, on behalf of the Wilderness Committee, submitted a petition for an emergency order after learning that only three owls likely remained in British Columbia: a breeding pair in the Spuzzum Creek watershed and a single male in the nearby Utzlius watershed. Incomprehensibly, the Province had authorized logging cutblocks within Spuzzum Creek watershed, threatening to remove an additional 460 ha of suitable habitat from the watershed containing the last remaining breeding pair of Spotted Owls.³⁰

In response to the petition, the Province put in place temporary 1-year logging deferrals for the Spuzzum Creek and Utzlius watersheds.³¹ On March 3, 2022, BC extended the deferrals for another one-year period.³² Despite being the home of the last wild Spotted Owls in Canada, neither watershed is permanently protected in full.

Approval of logging activities throughout high quality Spotted Owl suitable habitat, and likely critical habitat identified in the Draft Recovery Strategy, continues at an alarming rate today.

This spring, the Petitioner learned of three proposed cutblocks and an active road permit within an intact river valley south of the Nahatlatch River, called Teapot Valley. These cutblocks not only are located in areas identified by the Province as high quality Spotted Owl suitable habitat, but also critical habitat based on visually comparing maps contained in Part 7 of the Draft Recovery Strategy.³³

Similar cutblocks overlapping with high quality suitable habitat, and likely critical habitat, have also come to our client's attention in the East Anderson³⁴ and Lower Douglas Creek areas³⁵. With respect to the East Anderson area, this area is also high priority for future release of Spotted Owls as part of the Province's Spotted Owl release strategy. Further, the licensee, Teal Cedar, appears to be presently building a road to these proposed cutblocks, and in doing so, removing trees from within a long term Spotted Owl Wildlife Habitat area. With respect to the approved cutblocks in the Lower Douglas Creek area, these cutblocks are within a managed forest Spotted Owl Wildlife Habitat Area.

²⁹ Hobbs 2020 at pp 5-7; Hobbs 2019 at pp 33-38.

³⁰ 2020 Petition at pg 7; Hobbs 2019 at pg 7.

³¹ **Appendix, Tab 8**, OIC 145/2021 (*Forest Act*).

³² **Appendix, Tab 9**, OIC 120/2022 (*Forest Act*).

³³ **Appendix, Tab 10**: Map of Proposed Logging in Spotted Owl Suitable Habitat in Intact Teapot Valley South of Nahatlatch River, prepared October 2022 by Wilderness Committee.

³⁴ **Appendix, Tab 11**, Map of Proposed Logging in Spotted Owl Suitable Habitat in East Anderson Valley, prepared October 2022 by Wilderness Committee.

³⁵ **Appendix, Tab 12**, Map of Approved Logging in Spotted Owl Suitable Habitat in Lower Douglas Creek, prepared October 2022 by Wilderness Committee.

The discovery of these cutblocks spurred our client to conduct mapping of all Spotted Owl suitable habitat³⁶ and then overlay that area with proposed or approved cutblocks. **There is a staggering 452 approved or pending cutblocks within Spotted Owl suitable habitat** (see map in Appendix, Tab 13).³⁷

CWS has refused to provide the Petitioner with the GIS data for the critical habitat identified in the Draft Recovery Strategy. The Petitioner has therefore used suitable habitat in its mapping. This suitable habitat mapping uses the same criteria used to identify for identifying suitable habitat in the Draft Recovery Strategy. Further factors were then applied to identify critical habitat from this suitable habitat. As such, we cannot definitively say whether these cutblocks are within the Spotted Owl critical habitat identified in the Draft Recovery Strategy habitat. However, visually comparing the maps suggests that much of this approved and pending logging is set to occur within Spotted Owl critical habitat identified in the Draft Recovery Strategy.

When Wilderness Committee produced a map in 2020 similar to that in Tab 13 of the Appendix, there were over 300 cutblocks approved or pending within Spotted Owl suitable habitat.³⁸ The significant increase in planned logging activity between 2020 and 2022 is demonstrative that the Province is continuing to fail to adequately protect the species. Unless the federal government intervenes immediately, the only conceivable future for the Spotted Owl will be extirpation.

The Minister must recommend an emergency order

SARA is intended to prevent extinction of wildlife species and provide for their recovery.³⁹ SARA also implements Canada's international commitment to conserve biological diversity and do its part to halt the trend towards species extinction.⁴⁰ This is a particularly relevant consideration for the Spotted Owl, as it is a highly endangered species with habitat requirements primarily comprised of low elevation old growth forests,⁴¹ which are ecologically significant and host numerous other at-risk flora and fauna.⁴²

SARA includes many tools to protect and recover species, including the power to issue an emergency order for the protection of a listed wildlife species and its habitat. As stated in s. 80(2) of SARA, the Minister "must" recommend an emergency order if he or she is "of the opinion" that there is an imminent threat to either recovery or survival of the species. This is mandatory language that requires the Minister to act when there is an imminent threat. The phrase "of the opinion" does not free the Minister from the obligation to make the

³⁶ **Appendix, Tab 13**, Wilderness Committee Mapping of Pending and Approved Cutblocks in SPOW Suitable Habitat. Suitable habitat mapping by Wilderness Committee used the 2004 CSORT habitat suitability criteria that was also applied in the Hobbs 2019 Expert Report. This was the habitat suitability criteria used as a factor in the Draft Recovery Strategy to then identify critical habitat.

³⁷ Pers. Comm. Geoff Senichenko, Wilderness Committee, Research and Mapping Coordinator.

³⁸ Pers. Comm. Joe Foy, 22 May 2020.

³⁹ SARA, s 6.

⁴⁰ SARA, preamble; [Environmental Defence Canada v Canada \(Fisheries and Oceans\), 2009 FC 878](#) at para 38.

⁴¹ Hobbs 2019 at p 16.

⁴² Hobbs 2019 at pp 16-19.

recommendation to Cabinet where the precondition is met (i.e. when the Minister is, or reasonably should be, of the opinion that there are imminent threats to survival or recovery).

The Federal Court has confirmed, based on the plain meaning of *SARA*, its preamble, and its legislative history, that “subsection 80(2) is triggered by threats to recovery or survival, or both”, and that “imminent threats need not be guaranteed to materialize”.⁴³

While neither “recovery” nor “survival” are defined under *SARA*, Environment and Climate Change Canada in its 2020 “Policy on Recovery and Survival” defines both terms as follows:

Recovery of a species at risk under *SARA* is interpreted to mean: A return to a state in which the risk of extinction or extirpation is within the normal range of variability for the species, as indicated in part by its population and distribution characteristics. This is informed by the species’ natural condition in Canada, which is defined as its condition prior to the significant impact of human activities that led to the species being listed as Endangered, Threatened, or Extirpated under *SARA*.⁴⁴

[...]

A species at risk will be considered to have an acceptable likelihood for long-term survival in Canada when it has achieved a stable (or increasing) state, exists in the wild in Canada, and is not at significant risk of extirpation or extinction.⁴⁵

The Spotted Owl unequivocally faces an imminent threat to both survival and recovery.

There are now only four owls left in the wild, three which were only recently released from captivity and face an uncertain future. As there is no longer a wild breeding pair, both recovery and survival of the species depends upon the success of Province’s captive breeding program in reintroducing owls in the wild.

Reintroduction of captive owls can only contribute to survival and recovery based on successful release, which in turn, requires a sufficient network of suitable habitat for released owls and their offspring. As articulated by the Draft Recovery Strategy, recovery of the species (i.e. a stable population of 250 individuals) requires the immediate cessation of the loss of critical habitat.⁴⁶

The federal and provincial governments have both contributed to the delay in identifying and protecting the critical habitat of Spotted Owl. However, you as federal Minister have the ultimate responsibility to ensure that species are protected from imminent threats to their survival and recovery. A key purpose of an emergency order is to protect habitat necessary for survival and recovery while awaiting a recovery strategy.⁴⁷

⁴³ *Adam v Canada (Environment)*, 2011 FC 962 [*Adam*] at paras 38-39.

⁴⁴ Environment and Climate Change Canada, *Species at Risk At Policies: Policy on Recovery and Survival* (Ottawa, 2020) at 2, online: https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/policies/Pg-RecoverySurvivalRetablissementSurvie-v00-2021Mar-eng.pdf [**ECCC Policy**].

⁴⁵ ECCC Policy at pg 5.

⁴⁶ Draft Recovery Strategy at pg 19.

⁴⁷ *Adam v Canada (Environment)*, 2011 FC 962 at paras 38 and 39.

As Minister, you have the best available science available to you – in fact, it is already assembled in the Draft Recovery Strategy. The critical habitat identified in the Draft Recovery Strategy is the minimum amount of habitat required for the survival and recovery of the species – the Draft Recovery Strategy notes that further acoustic critical habitat identification is still needed to achieve the population and distribution objectives.⁴⁸ In order to uphold the precautionary principle, you must protect all of the critical habitat identified in the Draft Recovery Strategy in order to keep the survival and recovery of Spotted Owl feasible, even if the final Recovery Strategy may make slight changes to critical habitat identification. The 452 cutblocks pending and approved by British Columbia within Spotted Owl suitable habitat, and likely critical habitat, is simply antithetical to the survival and recovery of the species.

As CWS has refused to release its draft critical habitat mapping, part of your duty to make an imminent threat assessment under s. 80 of *SARA* for Spotted Owl is to confirm the Petitioner's assessment that approved and pending cutblocks in the map at Tab 13 of the Appendix overlap with the critical habitat identified in the Draft Recovery Strategy.

The mere fact of there being only four owls remaining in the wild is on its face an emergency. There is simply no reasonable basis for the Minister to conclude that the species does not face an imminent threat to its survival and recovery when logging continues in areas that the Minister's scientists have identified as habitat necessary for the species survival and recovery. As such, the Minister **must**, pursuant to ss. 80 (2) of *SARA*, recommend an emergency order.

Actions requested

The Petitioner submits that, based on the foregoing, you must fulfill your statutory duties as set out in s. 80(2). To do otherwise would be unlawful, unreasonable and inconsistent with the stated purposes of *SARA*, the intent in enacting the provisions at issue, and the precautionary principle.

As such, you must recommend that Cabinet make a s. 80 order that identifies the critical habitat in the Draft Recovery Strategy for Spotted Owl (October 2021) as habitat necessary for the survival and recovery of Spotted Owl and prohibits all commercial logging in that habitat. This emergency order must continue in force until the Province and Canada have agreed upon and implemented equivalent or stronger permanent protection of all critical habitat for Spotted Owl identified in a *SARA* compliant Final Recovery Strategy or Action Plan.

Timing of Minister's recommendation

In light of the imminent threats to the Spotted Owl's survival and recovery, the Petitioner requires that you recommend an emergency order to the Governor in Council under s. 80(2) no later than November 24, 2022. In the absence of such a recommendation, the Petitioner will have to consider whether legal action is necessary to address this urgent situation.

⁴⁸ Draft Recovery Strategy at p 23.

Appendix

Tab 1: *Western Canada Wilderness Committee, et al v Canada* (application filed September 15, 2006), Vancouver, FC T-1681-06, Excerpts of Certified Tribunal Record, produced pursuant to Rule 318 of the *Federal Court Rules*

Tab 2: Hobbs, J. 2019, *Spotted Owl Survival and Recovery in British Columbia: Expert Report*

Tab 3: Letter from Ecojustice to Honourable Catherine McKenna, “re Habitat Action Plan for Northern Spotted Owl pursuant to *Species at Risk Act*” (May 8, 2019)

Tab 4: Environment and Climate Change Canada, Amended Recovery Strategy for the Spotted caurina subspecies (*Strix occidentalis caurina*) in Canada [Draft] (2021) (Ottawa, Canada)

Tab 5: Letter from Ecojustice to Minister Wilkinson, “re Petition for an Emergency Order (October 14, 2020)

Tab 6: Letter from Minister McKenna to Ecojustice, responding to Habitat Action Plan Letter (June 28, 2019)

Tab 7: Hobbs, J. *Expert Opinion Regarding Application of Interim Measures within the Spuzzum Creek Watershed* (September 13, 2020) J Hobbs Ecological Consulting Ltd., File JHEC-2020-32

Tab 8: OIC 145/2021 (*Forest Act*)

Tab 9: OIC 120/2022 (*Forest Act*)

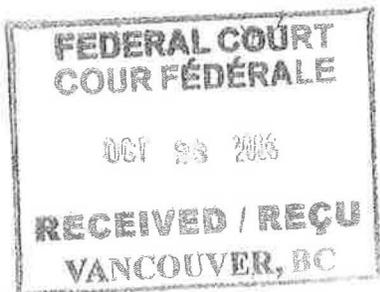
Tab 10: Map of Proposed Logging in Spotted Owl Suitable Habitat in Intact Teapot Valley South of Nahatlatch River, prepared October 2022 by Wilderness Committee

Tab 11: Map of Proposed Logging in Spotted Owl Suitable Habitat in East Anderson Valley, prepared October 2022 by Wilderness Committee

Tab 12: Map of Proposed Logging in Spotted Owl Suitable Habitat in Lower Douglas Creek, prepared October 2022 by Wilderness Committee

Tab 13: Map of Pending and Approved Cutblocks in Spotted Owl Suitable Habitat, prepared October 2022 by Wilderness Committee

Tab 14: Letter from Ecojustice to CWS and Jennifer Psyllakis (Province of BC), “re Recovery Strategy Delays and Logging in Suitable Habitat” (August 5, 2022)



Court File No. T-1681-06

FEDERAL COURT

BETWEEN:

WESTERN CANADA WILDERNESS COMMITTEE,
DAVID SUZUKI FOUNDATION, FORESTETHICS and
ENVIRONMENTAL DEFENCE CANADA

Applicants

and

MINISTER OF THE ENVIRONMENT

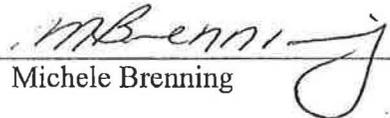
Respondent

RULE 318 CERTIFICATE

I, the undersigned, Michele Brenning, Director General, Canadian Wildlife Service, Environment Canada, do hereby certify that the materials listed in Appendix A and attached hereto, constitute all of those documents requested by the Applicants pursuant to Rule 317 which are relevant to this Application and which are in the possession of the Minister of the Environment, the tribunal whose order is the subject of this application, but which are not in the possession of the Applicant, other than those for which production is objected to pursuant to Rule 318(2).

Copies of all the documents listed are attached. I further certify that the attached copies constitute true and complete copies of such materials.

DATE: October 20, 2006


Michele Brenning

TO: The Applicants
c/o A. Devon Page
Sierra Legal Defence Fund
#214 - 131 Water Street
Vancouver, British Columbia V6B 4M3
Tel: (604) 685-5618
Fax: (604) 685-7813

AND TO: Federal Court Registry

Appendix A

To Certificate of Michele Brenning

Documents Provided Pursuant to Rule 318 FC Rules

#	Date	Subject	Attachments
1	August 16, 2006	News Release: <i>Federal Environment Minister Supports British Columbia Efforts to Protect the Endangered Northern Spotted Owl</i>	None
2	August 16, 2006	Signed letters from the Minister of the Environment to: - the Honourable Pat Bell, Minister of Agriculture and Lands, British Columbia; and - Devon Page, Counsel, Sierra Legal Defence Fund.	None
3	August 4, 2006	Memorandum to the Minister of the Environment from the Deputy Minister (MIN87052).	(I) News Release dated April 28, 2006: <i>B.C. Announces Spotted Owl Recovery Action Plan</i> (II) Draft of letter from the Minister of the Environment to the Honourable Pat Bell, Minister of Agriculture and Lands, British Columbia (III) Draft of letter from the Minister of the Environment to Devon Page, Counsel, Sierra Legal Defence Fund (IV) Memorandum to the Minister of the Environment from the Deputy Minister, dated June 20, 2006 (MIN85130) and attachments: (i) Draft letter from the Minister of the

			<p>Environment to the Honourable Pat Bell, Minister of Agriculture and Lands, British Columbia</p> <p>(ii) Draft letter from the Minister of the Environment to Devon Page, Counsel, Sierra Legal Defence Fund</p> <p>(iii) Summary of the Northern Spotted Owl Recovery Strategy</p> <p>(iv) Scientific assessment of the Status of the Northern Spotted Owl in British Columbia</p> <p>(v) Analysis of BC's Commitments with respect to the Spotted Owl</p> <p>(vi) Letter from the Honourable Pat Bell, Minister of Agriculture and Lands, British Columbia to the Minister of the Environment, dated May 8, 2006</p> <p>(vii) Summary of Sierra Legal Defence Fund Recommendations for Spotted Owl</p> <p>(viii+ix) Routing Slips</p>
4	April 26, 2006	Memorandum to the Minister of the Environment from the Deputy Minister (MIN82502).	<p>(I) PowerPoint presentation: "Northern Spotted Owl: Brief for Minister Ambrose"</p> <p>(II) Scientific assessment of the Status of the Northern Spotted Owl in British Columbia</p> <p>(III) Analysis of BC's Commitments with respect to the Spotted Owl</p>
5	April 13, 2006	Memorandum to the Minister of the Environment from the Deputy Minister (MIN81878).	<p>(I) PowerPoint presentation : "Northern Spotted Owl: Preliminary Brief for Minister"</p> <p>(II) Routing Slip</p> <p>(III) Approval/Consultation Form</p>
6	April 6, 2006	"Advice to Minister" from Liam Stone	None

7	March 24, 2006	Advice to Minister of the Environment from Liam Stone	None
8	March 23, 2006	Memorandum to the Minister of the Environment from the Deputy Minister (MIN80785).	Routing slip

Excerpt 1

**Memorandum to the Minister of the
Environment from the Deputy
Minister, dated
June 20, 2006 (MIN85130)**



20 2006

PROTECTED
MIN- 85130

MEMORANDUM TO MINISTER

STATUS OF THE SPOTTED OWL

(For Decision)

PURPOSE

To provide you with new analysis to help inform your opinion on the status of the Northern Spotted Owl in British Columbia and whether or not to recommend an Emergency Order under subsection 80(2) of the *Species at Risk Act* (SARA). A proposed letter to Minister Bell and a proposed letter to the Western Canada Wilderness Committee, the David Suzuki Foundation, ForestEthics, Environmental Defence Canada and Sierra Legal Defence Fund (SLDF) are attached for your signature (should you form an opinion that there is no imminent threat).

SUMMARY

- BC recently provided new information about measures being taken to protect the Northern Spotted Owl. The province is committing to immediate and longer-term actions to reverse the decline in owl numbers, protect occupied spotted owl area, and secure habitat for recovery. BC has also confirmed that no logging will be taking place in areas occupied by the owl in 2005.
- Furthermore, Environment Canada has recently received the province's Recovery Strategy for the owl, which will be posted on the SARA registry in early July for a 60-day comment period in accordance with SARA requirements. The Strategy was prepared by the Canadian Spotted Owl Recovery Team (CSORT), which consisted of provincial and federal biologists, as well as experts from academia, industry and Washington State. A summary of the Recovery Strategy is attached to this memo (Appendix 1).
- Departmental biologists have updated the science assessment on the status of the owl previously submitted to you (attached in Appendix 2) and an analysis of commitments made by the province of British Columbia has been prepared (attached in Appendix 3) to assist you in forming your opinion on whether the species faces an imminent threat to its survival or recovery.

CURRENT STATUS

You were provided with a memo (82502) to guide the formation of your opinion as to whether or not the owl faces imminent threats to its survival or recovery. Subsequently, you received a letter dated May 8, 2006 from Minister Bell (attached Appendix 4). In this letter, he outlined BC's plans to protect active spotted owl areas, enhance the owl population and identify and protect suitable habitat to support a growing number of owls.

Environment Canada



Environment Canada staff have spent considerable time assessing and confirming information received from BC Ministry staff to determine the specifics behind the actions described by Minister Bell. The BC commitments are analyzed and summarized in this memorandum (Appendix 3).

Spotted Owl Status:

In 2004, 28 individual owls were found, including 3 juveniles. In 2005, 23 individual owls were found but one has since died, indicating that there are only 22 known individual Spotted Owls left in Canada, of which only 6 were pairs in 2005. As of May 23, 2006, 10 individual owls have been found; however, the 2006 inventory is not yet completed.

Under the accepted survey protocol, a Spotted Owl site is considered "active" until surveys do not detect an owl for 2 consecutive years. As of May 23, 2006, 2 owls have been sighted in areas outside of the 2005 sites; at least 1 of these owls seems to have been among the 22 owls seen in 2005, but found in a different place in 2006. The survey protocol used in 2005 resulted in an 80 to 90 percent chance of detecting an owl if 1 were present. The 2006 survey is ongoing. Until the 2006 survey is complete, areas where the owls were sighted in 2004, but not in 2005, would be considered active. It is also possible that new owls will be found.

CONSIDERATIONS

Science assessment

A science assessment of the status of the owl is attached as Appendix 2. A brief summary is in Annex 1 (Supplemental Information) of this memorandum.

BC's Planned Actions

Actions to Immediately Protect Active Spotted Owl Areas

You will recall that memo 82502 advised that the immediate concern was the potential for logging in 9 areas where the owl was found in 2005. In his letter, Minister Bell confirmed that no logging is taking place in these 9 areas in the immediate future and that BC will ensure no future logging will occur in them. The province committed to do so by:

- redirecting proposed timber harvesting,;
- securing habitat around sites where owls were observed in 2005, and, if necessary;
- using their legislative authorities to prevent forest harvesting within areas set aside for spotted owls.

BC has since identified alternative harvesting areas for forest licensees which are in less suitable owl habitat.

BC's commitment to suspend timber harvest, however, does not necessarily extend to those sites occupied in 2004, or to new sites where owls are found in surveys in 2006 or beyond. BC has said they will inventory the 2004 sites this year and that they will "quickly act to remove any immediate threats and immediately ensure additional protection or management" for any additional owl sites that are found to be occupied, in consultation with the new science team that

BC has committed to put in place in the coming weeks. In the meantime, other sites identified as being occupied in the 2004 or 2006 surveys will have, at a minimum, the protection afforded by the 1997 Spotted Owl Management Plan (SOMP). The SOMP requires leaving at least 67 percent of the forest cover within owl areas, and protecting a 500 m buffer around nesting sites.

There is one area (Fire Creek) where 43 hectares are currently being logged in an area where an owl was sighted in 2004 survey but was not sighted in 2005 and has not yet been sighted in 2006 (the survey has not yet been completed within this area). The level of logging taking place in Fire Creek is within the rules of the SOMP (i.e. well less than the 33 percent that can be removed under the SOMP rules).

There may also be logging in the fall in another area (the Lillooet site, see Appendix 3, page 2) where an owl was found in 2004 and 2006, but not in 2005. BC has advised us that they will consult with the new science team before any logging takes place and follow any recommendations they may make.

BC has indicated to EC officials that they have not yet secured the full budget needed to conduct the 2006 survey but are seeking funding from other sources, including Industry. Given the importance of the survey, EC has offered funding through the work planning exercise being done under the Canada-BC SARA Bilateral Agreement.

The issues regarding the adequacy of protection of the remaining owls will be in how and when BC takes actions. To be successful, they will have to diligently follow the recommendations of the science team and move quickly to ensure adequate protection. Protection will have to cover all remaining owls which means that the 2006 survey must be done properly and that BC must follow the protocol of considering a site active until two successive surveys demonstrate otherwise, as BC has informed us they will do.

BC is demonstrating concrete action: on June 13, BC advised us of another step that has been taken toward achieving the goal of protecting remaining owls. Their Deputy Minister of Environment signed off legal orders under the Government Actions Regulation of the *Forest and Range Practices Act* to establish Wildlife Habitat Areas over the 9 2005 owl sites totaling just over 23 000 ha. The general Wildlife Measures for these areas prohibit: forest harvesting, road construction, removal of trees harvested to address worker safety or danger trees adjacent to currently existing roads, and salvage harvesting. The BC government will be making a public announcement on this legal protection in the coming weeks.

Actions to Reverse the Decline in Spotted Owl Numbers

Minister Bell indicates that the province will "immediately invest in an aggressive" program to halt the current population decline. Precise actions are still to be determined, in consultation with members of a science team which is being established and will include Environment Canada officials. Actions may include moving single owls to facilitate potential breeding pairs, captive breeding, competitor management, and prey enhancement. The effectiveness of the actions will be evaluated after five years. The province hopes to have an action plan from the

new science team on population enhancement recommendations by the end of August. They have also indicated that they intend to implement the recommendations as soon as they are available and to ensure an adequate monitoring program to evaluate success.

Actions to Secure Recovery Habitat

There are currently 388 000 ha of suitable habitat configured in large enough patches to be used for Spotted Owls. This means that there is more than enough forest of the appropriate age to support up to 250 owls, which is the recovery goal. However, less than half of this suitable habitat is currently protected and it is also highly fragmented. Approximately one third is fully protected in parks, less than one third is being managed through SOMP, and the remainder of the suitable habitat is not protected (approximately 100 000 ha).

BC has confirmed to EC that their intent is to act on the advice of the science team to identify the best habitat required to achieve the recovery goals, including the amount required in the appropriate configuration, and give this habitat proper protection using their legislative authorities. The total amount of suitable habitat does not all have to be available immediately as the population will take time to grow and the recovery goal will take decades to achieve. However, as suitable habitat is a minimum of 80 to 100 years old, action is required now to ensure that enough habitat in the right spatial distribution will be available as required.

It will take proper planning for BC to successfully balance owl protection with their policy commitment to not affect the timber supply. BC has noted that there will be challenges of ensuring adequate habitat of the right age and structure in 20 to 30 years, but note that this could be achieved with proper planning. BC will have to diligently follow the recommendations of the science team and move quickly to ensure adequate habitat protection for a growing number of owls.

BC's Recovery Strategy

A recovery strategy for the owl has been prepared for BC by the Canadian Spotted Owl Recovery Team (CSORT). CSORT consisted of experts from government, industry and academia, led by the BC government. The BC government has submitted to EC the recovery strategy for posting on the SARA registry for the 60-day comment period. The measures outlined in Minister's Bell letter to you are consistent with the themes of the Recovery Strategy.

The Recovery Strategy states that an action plan will be complete in 2006 and recommends that the BC government identify critical habitat by 2007. This is consistent with Minister Bell's indication to you that it would take about a year for the science team to identify the necessary critical habitat. A summary of the Recovery Strategy is attached (Appendix 1).

Departmental staff has reviewed the commitments in Minister Bell's letter and have provided an analysis, drawing upon the recommendations in the draft Recovery Strategy prepared for BC by the Canadian Spotted Owl Recovery Team (CSORT). This table is attached as Appendix 3.

Summary

BC's plan for action, if carried out under the direction of a science team and within the proposed timeframes as indicated, and their proposed actions will allow for protection of all occupied sites, longer-term habitat protection and population enhancement. They have already taken steps to protect the sites occupied in 2005. You should be aware, however, that BC has been known to delay or not take actions that were recommended by previously constituted science teams. They also face a number of resource constraints. This is why it will be essential that EC be an active member of the new science team and use this process, plus the management committee associated with the Canada-BC SARA Bilateral Agreement to continue to advise and monitor BC's actions. Should we become concerned of a lack of action or disregard for valid scientific advice, we will inform you.

OPTIONS

Under *SARA*, if you are of the opinion that the owl faces imminent threats to its survival or recovery, you are obliged to make a recommendation to the Governor-in-Council for an Emergency Order. The Governor-in-Council decides whether or not to make the Order.

We have assessed reports and statements by SLDF and their clients that describe their rationale and approach to protect and recover the owl (see a summary in Appendix 5). This is the basis of their application for judicial review. Their recommendations, including the protection of large areas of old growth forest, have been considered in the formation of options and our recommendation.

1. Form the opinion that there is no imminent threat to the survival or recovery of the remaining owls.

General Considerations

There is no major threat now to the survival of the known owls from logging in the coming weeks. BC has identified alternate cut-blocks for affected licensees that had rights within the 2005 sites and their Environment Deputy Minister signed off legal orders that will prohibit timber harvesting in the sites occupied in 2005.

There are 43 hectares of logging now within Fire Creek where an owl was found in 2004, but not in 2005 and not yet in 2006. There is one other site where harvesting could take place in the fall but BC has said that they will consult with the new science team and follow their recommendations before any logging takes place.

BC has also said they will inventory the 2004 and 2005 sites this year using their science-based surveying protocol (the same protocol as followed in 2005) and that they will "quickly act to remove any immediate threats and immediately ensure additional protection or management" for any additional owl sites that are found to be occupied, in consultation with the science team. There are no other impending activities that would threaten the known owls or their territories. BC has also committed to take other measures to halt the population decline (such as captive breeding and competitor management).

BC has two mechanisms to continue to monitor progress, participation in the new science team and the management committee of the Canada-BC SARA Bilateral Agreement. Through these mechanisms we can provide advice to BC and react quickly to inform you if new concerns arise.

2. Form the opinion that there is an imminent threat to the owl's survival or recovery and recommend that the Governor-in-Council make an Emergency Order

General Considerations

While there is more than enough habitat currently available for the 22 owls and BC has taken action to protect the sites occupied in 2005, more needs to be done to secure habitat for the long-term recovery. For the long-term recovery, the most advantageous habitat (in terms of quality, quantity and spatial configuration) must be identified and protected.

BC has committed to doing the appropriate planning with the science team over the next year and committed to protect the habitat required for both long-term recovery and any additional owls found in the 2006 survey that are not being protected by the measures covering the sites occupied in 2005.

It would not be possible to put immediately in place a federal Order to protect the best habitat required for the long-term recovery. The work of the science team needs to proceed first to identify the best habitat.

BC and the forest sector would strongly object to a federal Order that prohibits logging in potentially suitable owl habitat. Such an Order would likely lead to compensation claims.

3. Wait to form an opinion until the BC action plan has been completed

You could choose to wait to form an opinion regarding the imminent threat to recovery of the Spotted Owl pending assessment of the effectiveness of BC's actions and initial results of the plans for recovery habitat and population enhancement. However, it would be very difficult to explain why you are waiting to form an opinion, given the steps that BC took in response to your discussions with Minister Bell to address immediate risks, and the considerable time BC officials have spent assessing and confirming the specifics of these steps.

RECOMMENDATION

I recommend that you form the opinion that there is no imminent threat to the survival or recovery of the Northern Spotted Owl in light of the information available about the status of the owl and the actions being taken or committed to by the province of BC.

I further recommended that you:

- send the attached reply to Minister Bell outlining your views on the status of the owl and your support for/expectations regarding BC's commitments.
- send the attached letter to the Sierra Legal Defence Fund informing them of your decision.


Michael Horgan

I concur,

Rona Ambrose

Attachments (8)

Drafting Officer's Name: K. Torck
Branch/Division: ESR
Phone No: 819-994-8174
Date Drafted: June 14, 2006

Excerpt 2

**Memorandum to the Minister of the
Environment from the Deputy
Minister, dated
June 20, 2006 (MIN85130),
Attachment (iii) Summary of
Northern Spotted Owl Recovery
Strategy**

Summary of the Northern Spotted Owl Recovery Strategy

Recovery Strategy approach and style

The recovery strategy, submitted to BC in April 2004 by CSORT (Canadian Spotted Owl Recovery Team), takes an “enabling” approach – it describes things that are important to do, but does not constrain government by specifying exactly what should or should not be done. The strategy has been written by consensus and it is SARA-compliant (although needs some clarification in an Addendum around critical habitat). The strategy has been updated through a letter from COSRT to BC government on February 7, 2006. This strategy has the support of the experts and industry, and is based on science. The next step is to complete the action plan. The strategy was submitted to EC for approvals on April 4, 2006. It is planned to be posted on the SARA registry in July, in accordance with SARA timelines.

Recovery Strategy Contents

Background and Threats [compatible with SARA, S.41(1)(b)]: The recovery strategy contains comprehensive sections on distribution, population abundance, biologically limiting factors and threats to the species.

Recovery Feasibility [compatible with SARA, S.40]: The recovery strategy has a 4 page discussion of feasibility that concludes that while there are significant challenges, recovery is feasible. The update letter from CSORT clarifies feasibility in regard to draft federal policy guidance, resulting in a justification compatible with SARA.

Recovery Goal: The recovery goal is “to down-list the Spotted Owl in BC from its current Endangered status by establishing a stable or increasing, self-sustaining population (more than 250 mature individuals) that is distributed throughout its natural range.” The goal is ambitious (but technically feasible) and will take decades to achieve. Suitable habitat needs to be managed on a minimum 80 year rotation, so a longer planning horizon is justified.

Recovery Objectives and Strategies to meet them [compatible with SARA, S.41(1)(d)]:

- to immediately stop the population decline to prevent extirpation;
 - immediately protect all Spotted Owls and the habitat they occupy (including find all Spotted Owls);
 - identify and conserve sufficient survival habitat to maintain the current population
- to increase the population size to a self-sustaining level;
 - population assessment (including monitoring the population trend and determining the minimum viable population size)
 - population augmentation (including juvenile over wintering, translocations, and captive breeding – it doesn’t prefer any one technique)
 - increase survivorship and fecundity (through augmenting prey, supplemental feeding of juveniles, and competitor/predator control – again it doesn’t express a preference);
- to conserve and restore sufficient habitat to support the population;
 - Habitat supply modeling
 - identify and conserve critical habitat
 - developing habitat management guidelines
 - promote habitat and population stewardship; financial support; adaptive management; public awareness; and solutions to socio-economic consequences

- to increase communications, partnering, and funding to support the first three objectives.

Habitat Identification, Critical Habitat, and Schedule of Studies [compatible with SARA, S.41(1)(c) and [SARA S. 41(1)(c.1)], although see below]: The recovery strategy contains a number of sections on habitat, including: general, nesting, foraging, roosting, and dispersal habitat; recovery, survival, and critical habitat; habitat protection; and habitat trends.

The critical habitat section provides a partial definition of critical habitat: "it would be prudent to consider all suitable habitat within currently occupied Long-term Activity Centres to be critical habitat . . . currently occupied is defined as having Spotted Owls (pairs or singles) present during the immediately previous or current breeding season", it goes on to include all occupied sites (not just those in LTACs) and newly discovered sites; "suitable habitat" is defined in an Appendix. Including this partial definition of critical habitat in the document was the subject of much debate and the definition included is one that all the members of the recovery team could support. BC has since directed the recovery team to not spatially identify critical habitat, but rather to provide a "recipe" that BC can use in their determination of critical habitat. The recovery strategy was updated with an Appendix in April 2006 to reflect that direction: it states that "Recommendations regarding the amount and distribution of CH . . . will be included in the Habitat Action Plan", however the intention is to not be specific about the amount, distribution, and connectivity of habitat patches in the action plan. Section 49(1)(a) of SARA requires an identification of critical habitat in action plans, and presumably BC will add this identification to the action plan.

The strategy also appends the Interim Recommendations prepared by CSORT in January 2003 that outlined recommendations for management of SPOW while the recovery strategy was under development and decisions were being made.

The Schedule of Studies, appended to the Strategy in April 2006, outlines what is required to complete the identification of critical habitat in the Action Plan. Most of these studies have already been completed by CSORT, as has a draft Action Plan. The Schedule of Studies states that the Action Plan, with guidance for BC to spatially identify critical habitat, will be complete in 2006 and that BC would then have the information they needed to identify critical habitat and a revised habitat management plan by 2007.

Identification of Activities Likely to Result in Destruction of Critical Habitat [compatible with SARA S. 41(1)(c)]: The Strategy states that activities such as logging, mining, other resource development, urban and rural development, transportation and utility corridors, and natural disturbances (forest fires and insect outbreaks) would likely destroy critical habitat.

Socio-economic considerations: The recovery strategy contains a 5 page section that discusses socio-economic costs and benefits in a general way. SARA requires an evaluation of socio-economic costs and benefits in the action plan, but not of a recovery strategy.

Knowledge Gaps [compatible with SARA, S.41(f)]: An appendix lists research topics such as demography, population trends, modeling, competition, habitat enhancement, and prey.

Statement of When Action Plans will be Completed [compatible with SARA, S.41(1)(g)]: States it will be within a year of the release of the recovery strategy. CSORT has already produced a draft action plan that does not spatially define critical habitat, but does provide specific practical recommendations on the amount of habitat required, the priority for habitat protection, and ways to enhance connectivity and LTAC suitability.

Prepared by David Cunnington and Trish Hayes, June 1, 2006.

Excerpt 3

**Memorandum to the Minister
of the
Environment from the Deputy
Minister, dated
June 20, 2006 (MIN85130),
Attachment (iv) Scientific
Assessment of the Status of
Northern Spotted Owl in
British Columbia**

Scientific Assessment of the Status of Northern Spotted Owl in British Columbia

The following is a scientific assessment of the current situation of the Northern Spotted Owl (Spotted Owl) in British Columbia (BC). This review draws heavily upon the work of the Canadian Spotted Owl Recovery Team (CSORT) which was established by the Province of British Columbia in 2002. CSORT is comprised of individuals from academia, provincial, federal and regional governments, industry and the State of Washington. Several of these biologists (provincial, academic and US) have direct experience with Spotted Owls. Input from a biologist with experience with Spotted Owls from the environmental non-government community was included in CSORT's draft recovery strategy. Canadian Wildlife Service (CWS) staff have attempted to acquire a good understanding of the situation and of Spotted Owl biology, however, CWS does not have a Spotted Owl nor forest management expert on staff. This assessment has attached a summary of the draft *Northern Spotted Owl Recovery Strategy* (2004) and its 2006 update that has been transmitted to Environment Canada by the Province of British Columbia for consideration for adoption under Section 44 of SARA.

General Status

The (Northern) Spotted Owl occurs in the Pacific Northwest region of North America, with the Canadian portion (southwest mainland of BC) accounting for approximately 8% of the global range (Chutter et al. 2004). The total global population is estimated as 3000-6000 pairs. Throughout its range it is associated with mature late-successional coniferous and mixed-coniferous forests characterized by a multi-layered, multiple aged, relatively closed canopy with numerous snags and woody debris (Chutter et al 2004).

The Spotted Owl is listed as Endangered in Canada, as Threatened nationally in the United States (US) and as Endangered in Washington State. The Spotted Owl is declining in the US at an annual rate of 3.9% (7% in Washington State) (Franklin et al. 1999). It is believed that the Spotted Owl population in the US continues to decline despite habitat protection measures due to lingering effects of historic habitat loss, exacerbated to an unknown extent by the effects of Barred Owls (Buchanan pers. comm.).

Island Marmot, an endangered herbivore. Ensuring the survival of young SPOW, a higher level predator, will be even more challenging than for marmots

Experience in the US shows that measures to address the Spotted Owls decline will likely not have immediate, measurable results⁴. The Canadian population will likely experience a similar response pattern in terms of measurable results as actions are implemented; however the Canadian population will be less able to accommodate short-term population fluctuations.

Summary

The Spotted Owl population in BC is at high risk of extirpation from Canada (over 90% decline from historic levels), but recovery is considered to be biologically feasible by the CSORT. Recovery of the Spotted Owl requires immediate measures to ensure the survival of the current population. Also, survival of the species and its eventual recovery requires additional landscape-oriented measures to ensure recovery options remain, to allow for a reversal in population trend, and to support an eventual "recovered" population. Habitat loss and fragmentation, both direct effects and indirect consequences, are the root cause for the state of this species. Any recovery plan that is to succeed must adequately address both of these issues. This is compounded by the fact that Spotted Owls require forests that are a minimum of 80-100 years old. A key fact is that currently suitable mature forest habitat that is cut now will take at least this long to become suitable Spotted Owl habitat again. Thus, cutting permits approved in 2006 constrain conservation or management options for most of the next century.

BC has been managing Spotted Owls under SOMP for almost 10 years and the population has continued to decline at a high rate and recruitment has been zero in the past 3 years. With only 22 owls left, management under SOMP is clearly inadequate. Provincial biologists have concluded that habitat protection afforded by SOMP is inadequate to stabilize the owl population, and that additional management actions are necessary to prevent extirpation which is "imminent" if current trends continue (Blackburn and Godwin 2003; Blackburn *et al.* 2002). It is important that the currently occupied sites are fully protected until a longer-term plan is in place, the habitat requirements are fully understood, and the population is stable and increasing. Full protection of the currently occupied sites has been recommended by CSORT since January 2003 (CSORT 2003; Chutter *et al.* 2004).

Ensuring that the currently occupied sites are fully protected is critically important to the survival of the remaining 22 birds, but this action alone does not address the high probability of extirpation, nor the longer-term issue of ensuring adequate quantity, quality and spatial configuration of habitat to recover the Spotted Owl. **Population enhancement work will not be successful in the long-run if adequate habitat does not exist to support the growing population. This issue must be addressed through the identification and protection of critical habitat. Information is available to complete this analysis (CSORT 2005) and it is possible to complete it within the next 12 months.** In addition to protecting habitat now, additional habitat needs to be

⁴ The main US habitat protection effort takes place in federal forests, primarily managed under the Northwest Forest Plan (Courtney *et al.* 2004). On state and private lands, management of Spotted Owl habitat includes Habitat Conservation Plans, forest practices regulations, and some areas that are essentially exempt from protection under state rules (Pierce *et al.* 2005). While habitat protection measures in the majority of the Spotted Owl range on federal forests has generally been successful, it has been more difficult to protect habitat on state and private land.

recruited to attain the long-term recovery goal and deal with fragmentation and connectivity issues.

The second essential component to ensure recovery of the Spotted Owl is population enhancement to help overcome survivorship and recruitment issues. Although very important for recovery of this species, enhancement is not straightforward, and efforts need to be assessed and designed by scientists with expertise in the pertinent areas. It is also important to reiterate that population enhancement should only be undertaken if habitat protection and management is also addressed; direct intervention such as these are usually only attempted as a last resort after all else has failed (Blackburn *et al.* 2002). Embarking on a population enhancement program without adequately protecting sufficient habitat in the appropriate spatial configuration will likely fail as habitat options for the future (or at least the next 80 to 100 years) will have been lost.

The CSORT has produced a draft Action Plan that outlines the actions necessary to recover the Spotted Owl. It includes recommendations for habitat protection, population augmentation, population monitoring and socio-economic analysis. It includes a description of a model that is capable of spatially identifying critical habitat while considering economic factors. A report on the model methodology and some results will be published shortly. The CSORT has also produced a set of recommended actions with respect to population enhancement and has stressed the importance of obtaining appropriate scientific advice prior to embarking on such a program (CSORT 2005). According to the Schedule of Studies in the Recovery Strategy, the Action Plan will be complete in 2006. BC has committed to produce a plan within one year.

Prepared by Trish Hayes and Dave Cunnington, Species at Risk Section, Pacific and Yukon with input and review by Dr. Kathy Martin, Science and Technology Branch

April 12, 2006, revised April 25, 2006, updated on May 31, 2006

Excerpt 4

**Memorandum to the Minister
of the Environment from the Deputy
Minister, dated June 20, 2006 (MIN85130),
Attachment (vi) Letter from the
Honourable Pat Bell, Minister of
Agriculture and Lands, British Columbia
to the Minister of the Environment, dated
May 8, 2006**



REC'D - DCU - DOE
MAY 15 2006
RECU - UCM - MDE

MAY 08 2006

Reference: 140660

FAXED

The Honourable Rona Ambrose, MP, PC
Minister of Environment
Wellington St
Ottawa ON K1A 0A6

Dear Minister Ambrose:

Let me first take this opportunity to thank you for our recent communications regarding spotted owl. As we discussed, the survival and recovery of spotted owl is an important issue for both of our governments. (That is why the province has embarked on a comprehensive plan to recover spotted owls in British Columbia.)

On April 28th British Columbia announced its \$3.4M, five-year plan to address the survival and recovery of spotted owls in southwest B.C. This plan recognises the urgency of the situation and aims to put in place owl enhancement measures while at the same time securing currently occupied owl sites outside parks and ensuring that recovery habitat required for owls is in place.

This is a comprehensive plan that builds on three main themes:

1. *Reverse the Decline in Spotted Owl Numbers*

The province will immediately invest in an aggressive spotted owl enhancement program to attempt to halt the current population decline. The precise actions necessary will be quickly determined by an expert science team built around the current Canadian Spotted Owl Recovery Team (CSORT) on which members of your staff participate. It is expected that potential enhancement activities may include translocation, captive breeding, competitor management and prey enhancement. This is a necessary, short-term step to secure a stable spotted owl population that will be evaluated for its effectiveness after five years.

.../2

2. *Immediately Protect Active Spotted Owl Areas*

In consultation with affected forest licensees, the province has acted to address all currently approved timber harvesting at nine locations where owls were detected in 2005 outside of provincial parks. We can confirm that no critical spotted owl habitat is at risk from approved forest harvesting in the short-term (i.e., next two months). This provides time to work with the forest harvesting companies to find alternative harvesting sites for them and, as necessary, prepare and implement any actions necessary under the *Forest or Forest and Range Practices Act* to remove any future threat posed by future forest harvesting.

Over the next two months, staff will:

- a) Assess future forest harvesting plans and, where necessary, re-direct proposed timber harvesting to suitable areas where no spotted owls have been detected during surveys over the past few years.
- b) Secure active spotted owl habitat around sites where owls were observed in 2005 using tools under the *Forest and Range Practices Act*.
- c) Apply Part 13 of the *Forest Act* as necessary to prevent forest harvesting within areas set aside for spotted owls.

3. *Secure Recovery Habitat*

Over the next year, the province will engage forest tenure holders and First Nations to - within the context of the recovery action plan and as directed by the science team - assess how the 204,000 ha currently managed for spotted owl under the 1997 Spotted Owl Management Plan (SOMP) can be reallocated on the land base to provide better long-term recovery opportunities for spotted owl. The intention of this work is to ensure that on-the-ground management activities are well aligned with enhancement and protection measures to contribute more effectively to long-term recovery.

While this work is underway, all 204,000 ha of the 363,000 ha not already fully protected in parks will continue to be managed under the strict forest retention requirements for areas already identified as spotted owl habitat. Within these areas, forest harvesting must maintain 67% of old growth forest cover and maintain at least 50% of the forest in a natural state. Further, a 500m no-harvesting buffer must be maintained around all known nesting sites.

In summary, British Columbia is actively implementing its spotted owl recovery plan through population enhancement, protection of active spotted owl habitat by ensuring that no harvesting takes place, and by securing large areas of spotted owl habitat through aggressive forest retention management practices. These specific actions are based on the recommendations of the Canadian Spotted Owl Recovery Team (CSORT) and are consistent with the Recovery Strategy recently submitted to you for inclusion in the SARA Registry

under sec.44 of the *Species at Risk Act*. They are also consistent with the best science currently available and, when taken together, we believe these actions provide the best opportunity for recovering spotted owls in British Columbia.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pat Bell', with a stylized flourish at the end.

Pat Bell
Minister

pc: Honourable Rich Coleman
Minister of Forests and Range

Honourable Barry Penner
Minister of Environment

Dana Hayden, Deputy Minister
Office of the Premier

Excerpt 5

**Memorandum to the Minister
of the Environment from the
Deputy Minister, dated April 26,
2006 (MIN-82502) and
attachments**



APR 26 2006

SECRET
MIN-82502

MEMORANDUM TO MINISTER

SPOTTED OWL
(For Decision)

PURPOSE

To provide you with information to help inform your opinion on the status of the Northern Spotted Owl in British Columbia and whether or not to invoke an Emergency Order under subsection 80(2) of the *Species at Risk Act* (SARA).

SUMMARY

- The British Columbia government has approved - but not yet announced or put into effect immediate and long-term measures to protect the Northern Spotted Owl and its habitat. Suspending logging in known owl habitat, a key measure approved by the BC Cabinet, is not expected to be in effect before the end of May 2006 at the earliest.
- Logging will likely occur in some owl-occupied areas before the end of May, potentially affecting up to 7 of the 22 known owls.
- In the Department's view, protecting those sites known to be occupied is critically important to the survival of the remaining owls; additional measures will be required in the longer term to ensure the owl population recovers.
- The Sierra Legal Defence Fund has asked the federal court to require you to form an opinion on whether the owl faces an imminent threat to its survival or recovery.
- If you are of the opinion that there is an imminent threat to the owl, you are obligated to recommend an emergency order to protect the owl. Such an order could be made before the end of April or in early May.
- A scientific assessment of the status of the owl and an analysis of the BC government's proposed immediate and long-term actions are attached.

CURRENT STATUS

The Northern Spotted Owl is in decline in Canada. Based on survey information, only 22 owls are known to survive in British Columbia, down from an estimated 200 in 1991, and from an historical estimate of nearly 1000. Loss of owl habitat (old growth forest) is thought to be the main reason for the owl's decline. A science assessment of the status of the owl is attached as Attachment 1.

Under the *Canada-British Columbia Agreement on Species at Risk*, BC has the lead role in protecting the Spotted Owl. As the owl is listed as endangered under the *Species at Risk Act*, overall accountability for the species under SARA is the Minister of the Environment's responsibility. BC has been leading on the development of a recovery strategy for the owl, with

Environment Canada logo



an expert multi-stakeholder group, since 2002. However, BC's efforts to date have not prevented recent logging of some occupied Spotted Owl habitat nor established effective mechanisms to recover the population in the long-term. Provincial biologists have indicated that "it is reasonable to assume that extirpation (disappearance of the owl from Canada) is imminent if the observed annual rate of decline continues". Departmental scientists support this conclusion.

ENGOs have called for the Minister of Environment to use the powers of Section 80 of SARA to protect the species. The Sierra Legal Defence fund, representing a group of four ENGOs, has launched legal action to require the federal government to intervene. Specifically, they have asked the federal court to compel you to use your authority to request an emergency order to protect the owl.

Under SARA, if you, as Minister of the Environment, are of the opinion that a listed species faces imminent threats to its survival or recovery then you must make a recommendation to the Governor in Council for an emergency order to provide for the protection of the species. The Governor in Council decides whether or not to make the order. An order could prohibit the killing of the owl and activities, including logging, which would impact owl habitat in designated areas. If in the future you are of the opinion that the imminent threat no longer exists you must recommend that the Governor in Council remove the emergency order.

You may choose to provide compensation as a result of any "extraordinary impact" from the application of an emergency order. [REDACTED]

On March 30, the British Columbia Cabinet approved immediate and long-term measures to protect the Northern Spotted Owl and its habitat. Specifically:

- "immediately" suspending forest harvesting in all areas where owls were sighted in 2005 surveys, plus one area where an owl was sighted in 2004 - 5 of these sites are already protected in provincial parks; the other 9 are not protected and have active timber licenses and/or potentially longer term cutting plans;
- revising existing Spotted Owl management areas to better protect Spotted Owls without impacting timber supply targets;
- population enhancement (captive breeding, translocations, predator control) monitoring and evaluation in 5 years

BC is finalizing their owl recovery strategy. EC has recently commented on the strategy and the final version is expected to be transmitted to EC in time to meet the SARA deadline of June 2006.

Under provincial law, BC will need a legal order to suspend current logging and to accept no further logging applications in the occupied owl areas noted above that are not protected. The province is working towards having their legal order in place by the end of May 2006, following required consultations and Cabinet approval. However, complexities in gathering necessary information and efforts to identify alternative logging areas for licensees may delay the order until late June.

Until the BC order is in place, four companies and one woodlot owner may choose to exercise their logging rights and proceed with plans to harvest in 5 of the unprotected areas. These areas are within the range of seven of the known owls. The province had hoped to encourage licensees to voluntarily cease logging in those areas. However, indications are that companies will not cease voluntarily, and logging may even be taking place now. The current Spotted Owl Management Plan still applies and offers some protection by limiting logging activities around nests and preserving a minimum of suitable habitat, but it is not clear to what extent these guidelines are fully implemented or whether this will ensure the owls are undisturbed.

Due in part to negative reactions to the plan from three of the affected companies, BC is planning further consultations and has delayed announcement of their decision (originally planned for April 12) indefinitely.

A more detailed analysis of the approved BC actions is attached as Attachment 2.

The application in Federal Court for a judicial review of the delay in forming an opinion under s. 80 (2) continues to date.



CONSIDERATIONS

Science assessment

With such a small Canadian population, survival of every remaining bird in BC is very important. Based on current population trends, projections are that the owl could become extirpated within a year.

Even if all remaining birds do survive, sufficient quality and quantity of habitat needs to be available in the long term to sustain a viable population. Other measures to protect habitat and to enhance the population will also be needed. However, while recovery is biologically feasible, it is not guaranteed because the effectiveness of these population enhancement measures has not been demonstrated.

Spring is the breeding season for the owl. Logging over the next six to eight weeks could place stress on the seven owls known to live in the unprotected areas and affect their chances of survival or reproduction. The risk relates both to the potential disturbance due to logging and destruction of habitat. Spotted owls require forests that are over 80 years old. Currently suitable owl habitat that is cut now will take at least 80 years to become suitable breeding habitat again.

A science assessment of the status of the owl is attached as Annex II.

OPTIONS

As noted above, under *SARA*, if you are of the opinion that the owl faces imminent threats to its survival or recovery you are obliged to make a recommendation to the Governor in Council for an emergency order. The Governor in Council decides whether or not to make the order.

There are three options possible: (1) continue to wait to form an opinion, (2) form an opinion that there is no imminent threat to the owl; or (3) form the opinion that there is an imminent threat to the owls' survival or recovery and recommend that the Governor in Council make an emergency order. Our detailed assessment is attached in the Annex of this memo. **In summary, we feel that unless BC were to act now, either to have their order in place immediately or to publicly announce their plans to protect the owls' habitat, that options (1) and (2) are not viable.** There are, however, implications to moving forward with an emergency order as described below.

General Considerations

Implications of an Emergency Order for Federal-Provincial Relations

To date, there has been a shared expectation that the province will manage the recovery of the Northern Spotted Owl. BC may object to an emergency order and perceive it as unwarranted federal intervention. They may go as far as to challenge the federal authority for an emergency order. An emergency order may make other provinces nervous about federal intervention in other cases.

Senior departmental officials have discussed a federal order with their provincial counterparts. Some senior BC officials have indicated that they could accept a targeted federal emergency order to bridge the gap until a provincial order is in place (Option 3a described in the Annex I section of this note); however, others have indicated that BC would object. BC has indicated that they definitely would view a broader federal order as intrusive (Option b described in the Annex I section of this note) given that they expect their own order will be ready soon that will offer similar protection.

It would be important to emphasize in communications that the federal order will be removed as soon as the BC order is in place.

Implications of an Emergency Order for aboriginal relations

First Nations would not be directly affected by an emergency order, but they will be interested in what it might mean for other potential owl habitat. There may be some concern that a federal emergency order undermines the provincial obligation to consult with First Nations.

Potential Requests for Compensation

The invoking of a federal emergency order could potentially result in a request to the federal government for compensation. The *Species at Risk Act* allows for compensation for losses due to any "extraordinary impact" of an order. [REDACTED]

[REDACTED] Companies will likely request compensation. The value of the timber in approved cutting blocks that would fall within the targeted federal order is approximately \$170,000. These figures do not include infrastructure investments estimated to be as much as \$900,000, or other economic losses in spin-off sectors. The broader order would potentially affect a total value of the harvestable timber in all 9 unprotected areas, which is estimated at \$3.5 million. However, logging rights to these areas have not yet been allocated and it may be possible for the province to substitute allocations outside of owl habitat.

BC can provide compensation as a result of a provincial order, but under the Forest Act this would not occur for four years. The province typically compensates only for lost timber value.

It is possible that affected companies may seek both provincial and federal compensation. A targeted federal order (Option 3a described in the Annex I section of this note) would likely limit claims for federal compensation.

Legal Considerations

[REDACTED]

[REDACTED]

[REDACTED]

DEPARTMENTAL POSITION

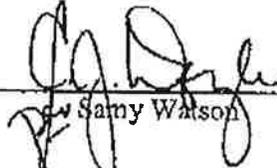
EC officials have completed an analysis of the status of the owl. The science assessment, coupled with the immediate risk of logging in 5 occupied owl sites during the month of May and possibly beyond, provides a strong basis for you to form the opinion that there is an imminent threat to the survival of the owl.

The planned BC order, once introduced, should adequately protect all currently occupied owl sites. This will help remove any risk of imminent threat to the owl's recovery. We will review the details of the draft BC order as soon as it is available to confirm this.

RECOMMENDATION

We recommend that you form the opinion that there is an imminent threat to the survival of the owl, and recommend that the Governor in Council make an emergency order as soon as possible to prevent logging of the approved cut blocks in 5 active owl areas (Option 3a in the Annex I section of this note).

We further recommend that you review the situation in June to consider whether or not BC has taken the steps necessary to foster the longer-term recovery of the owl.



S. Watson

BACKGROUND

Legal Proceedings

In February 2004 the Sierra Legal Defense Fund asked the federal Minister of Environment to recommend that the Governor-in-Council issue an Emergency Order pursuant to Section 80 of SARA to provide for the protection of the Spotted Owl. In response, the former Minister wrote to the BC Premier on May 4, 2004 outlining the federal government's expectations for prompt action by the province and indicating that the absence of such action could compel the Minister to invoke the Emergency Order provisions. Minister Anderson noted that "the species appears to be facing an imminent threat of extirpation." The province responded on December 21, 2004 with commitments to action in nine major activity areas, from additional Spotted Owl research, to voluntary actions by the forest industry, to the implementation of a spotted owl management plan. However, these efforts did not prevent recent logging of occupied owl habitat or the continued decline of the population nor did they establish mechanisms to recover the population in the long term.

On December 5, 2005, The Sierra Legal Defense Fund (SLDF) filed an application for judicial review with the Federal Court Trial Division to compel the Minister to form an opinion and make a recommendation to the Governor in Council (GIC) for an Emergency Order pursuant to subsection 80(2) of the SARA to protect the Northern Spotted Owl. This application continues to date and



Recovery Strategy

The Minister of the Environment is the competent minister responsible for ensuring a recovery strategy is developed. SARA allows the Minister to adopt an existing plan or parts of an existing plan, such as one developed by a provincial government. The Spotted Owl Recovery Team is finalizing the recovery plan. The Minister of the Environment must publish a proposed "recovery strategy" for the Spotted Owl by June 5, 2006. The BC government is expected to forward the final plan to the Minister before the June deadline.

Drafting Officer's Name:
Branch/Division:
Phone No:
Date Drafted:

SUPPLEMENTAL INFORMATION

Options Analysis

1. Continue to wait to form an opinion

General considerations

No additional scientific information is expected in the short term that would further inform your opinion. However, you may choose to wait to form your opinion until there is certainty about the logging plans of the companies with valid permits or until the BC actions are announced and in place. In the meantime, logging may occur in owl areas.

BC is hoping to have an order in place by May 31, but complexities in the process and the need to return to Cabinet could result in delays into June or beyond.

Legal Considerations

[REDACTED]

[REDACTED]

2. Form the opinion that there is no imminent threat to the owl

General Considerations

The advice of EC scientists does not support such an opinion. Destruction or alteration of habitat within sites currently occupied by the owl could represent an immediate threat to the survival of the last remaining birds. Loss of any of the remaining owls would significantly increase the likelihood that the owl would disappear from Canada in the short term.

Legal Considerations

[REDACTED]

[REDACTED]

3. Form the opinion that there is an imminent threat to the owl's "survival or recovery" and recommend that the Governor in Council make an emergency order

An emergency order could be in place by the end of April or early May and could prohibit logging immediately in designated areas. The order could be removed once a provincial order is in place that protects all areas of concern.

A federal emergency order could:

- a) target stopping the approved logging specifically in those 5 active owl areas where there is potential for logging now until the BC order is in place which is threatening the survival and breeding of up to 7 owls immediately; OR
- b) protect all 9 active owl areas, regardless of whether there are currently valid timber permits (as HC plans to do through its own orders). This would address the immediate threat of logging and also preserve habitat needed for the survival of the remaining owls.

Spotted Owl Survival and Recovery in British Columbia: Expert Report



Prepared for: Wilderness Committee
Requested by: Ecojustice

Prepared by: Jared Hobbs M. Sc. / R. P. Bio
J Hobbs Ecological Consulting Ltd.
Date: February 14, 2019

J Hobbs Ecological Consulting Ltd.
J Hobbs Ecological Consulting Ltd.

Preface

Wilderness Committee (WC) is formally requesting the federal Minister of Environment and Climate Change (the “Minister”) fulfill her obligation to publish an Action Plan for the northern spotted owl (*Strix occidentalis caurina*) (“spotted owl”) as required in the *Species at Risk Act* (the “Petition”). If the Minister fails to accede to this demand within an acceptable timeline, WC may file an application for judicial review with the Federal Court seeking to compel the Minister to do so (the “Lawsuit”).

This report provides an expert opinion for use in the Petition and Lawsuit. In the preparation of this report I have responded to questions with independence and objectivity and in a manner that does not advocate for any position taken by the WC despite being retained by that organization.

1. Name, address and area of expertise

My full name is Jared Hobbs; I am the director of J Hobbs Ecological Consulting Ltd. (Pender Island, British Columbia (BC)). My area of professional expertise is wildlife biology with a specialized focus on management of species at risk. I have over 25 years of relevant species at risk experience conducting ecological assessments to inform conservation and management and have worked professionally on spotted owl conservation and management throughout the duration of my professional career.

2. Qualifications, employment, and educational experience in my area of expertise

My first formal work experience with spotted owls began in May 1997. I was retained by the BC Provincial Government as a field technician tasked with conducting acoustic lure (i.e., call-playback) surveys for northern spotted owl. This initial work marked the beginning of a 15-year term of employment with the BC Provincial Government. In addition to my work in government, I continued to study and work on spotted owls independently in the United States (US) and Mexico in pursuit of content for a book I published on the northern spotted owl (Hobbs, J. and R.J. Cannings, 2007). During this period my proficiency in finding spotted owls and their nests, and my understanding of the ecology, conservation and management of spotted owls (range-wide) grew rapidly.

During this period (1997-2002) I was employed by the Provincial government as a full-time species-at-risk biologist; tasked as the provincial lead for field implementation of the Identified Wildlife Management Strategy (IWMS). My bailiwick included implementation of conservation and management for 82 species (including spotted owl). In this position my role was to identify occurrences of rare species in BC to promote legal designation of Wildlife Habitat Areas (WHAs).

To fulfill program objectives for spotted owl, between 2002 and 2006, I led a field survey program conducting spotted owl inventory within the Cascades, Chilliwack and Sea-to-Sky Natural Resource District (NRD) and provided scientific advice to the Canadian Spotted Owl Recovery Team (CSORT). In this capacity I played a strong role in the development of the BC Recovery Strategy for the Northern Spotted Owl (Chutter et al. 2004), and in the development of a companion document: Guidance and Some Components of Action Planning for the Northern spotted owl in BC (Chutter et al. 2007). Both

documents were produced to inform and guide spotted owl action plan development by the Provincial Government.

To further inform development of the BC spotted owl recovery strategy I also revised and improved a new habitat suitability model to more accurately identify spotted owl habitat within the species' range in BC¹. This revised model was adopted by CSORT as a more accurate and more appropriate model to be used by Cortex Consulting for predictive Spatially Explicit Landscape Event Simulation (SELES) modelling. The SELES model, using the new habitat suitability model I had developed, was used to define recovery planning objectives, in particular habitat management objectives, for spotted owl in BC. In addition, in 2005, I co-authored new Provincial spotted owl survey standards (endorsed and published by the Resource Inventory Standards Committee (RISC)) to ensure more specific guidance to spotted owl survey efforts and to incorporate a hierarchical ruleset for determination of spotted owl occupancy and productivity at newly detected active sites.

Finally, after a prolonged (phased) process commencing 2006 and continuing into 2009 (with the release of Best Management Practices for Managing Spotted owl Habitat (Blackburn et al 2009)) SARCO released the BC spotted owl recovery action plan to provide guidance for spotted owl habitat management in BC within revised SOMP1 spatially designated areas called Special Resource Management Zones (SRMZs). These SRMZs were eventually legally designated, under IWMS, in 2011 (Chilliwack NRD) and 2013 (Sea-to-Sky NRD) as Wildlife Habitat Areas (WHAs). I was assigned a role on the Spotted Owl Habitat Management Team to support development of SOMP2. In this capacity I shifted my focus towards providing support during development of a second (new) spotted owl (habitat) management plan (SOMP2) that was eventually formalized in 2006 (Cascades NRD), 2011 (Chilliwack NRD) and 2013 (Sea-to-Sky NRD) with prescriptive guidance for forestry presented as Best Management Practices by Blackburn et al (2009).

In 2013, I resigned from the Provincial government but retained an academic interest in spotted owl recovery in BC and continued to lead spotted owl field inventory for several clients as a consultant. For further details of my experience and expertise managing species at risk please see my CV (attached).

¹ the former 1996 BC spotted owl model (developed and applied, by I. Blackburn during development of the first iteration of the Spotted Owl Management Plan (SOMP1) adopted values for habitat attributes relevant to US literature; this failed to recognize and incorporate refinement of values more relevant in the BC/Canada portion of the species' range.

Recent Publications and Reports (Chronological)

- Nagorsen, D., Lausen, C., Brigham, M., and Hobbs, J. 2019. Field Guide to Bats of BC. Manuscript in prep.
- Hobbs, J., C.C. Helbing, C. Goldberg, I. Adams. 2018. Ecology and Distribution of Rocky Mountain tailed frog using eDNA methods in Eastern BC. PlosOne. Manuscript in Prep.
- Hobbs, J., J. M. Round, C.C. Helbing. 2018. Expansion of the known distribution of the coastal tailed frog, *Ascaphus truei*, in British Columbia, Canada using robust eDNA detection methods. PlosOne. Manuscript in Prep.
- Veldhoen, N., Hobbs, J., Ikonomou, G., Hii, M., Lesperance, M., and Helbing, C.C. 2016. Implementation of novel design features for qPCR-based eDNA assessment.
- Hobbs, J. and C. Goldberg. 2016. Standard Operating Procedure. Environmental DNA Protocol for Freshwater Aquatic Ecosystems. V2.0. Prepared for B.C. Ministry of Environment. 1-25.
- Livezey, K.B, M.F. Elderkin, P. A Cott, J. Hobbs and J. P. Hudson. 2008. Barred owls eating worms and slugs: the advantage in not being picky eaters. *Northwestern Naturalist*. 89: 185-190.
- Smith, J., G.D. Sutherland, D.T. O'Brien, F.L. Waterhouse, J.B. Buchanan; J. Hobbs and A.S. Harestad. 2008. Relationships between Elevation and Slope at Barred Owl Sites in Southwestern British Columbia. Research Section, Coast Forest Region, BC Ministry of Forests and Range. Nanaimo, BC. Technical Report TR-040.
- Hobbs, J., 2007, "Thermal Ecology of the Northern Pacific Rattlesnake." Masters of Science Thesis: Simon Fraser and Royal Roads University
- Hobbs, J. and Cannings, 2007, "The Spotted Owl – Shadows in an Old Growth Forest" (Book), Douglas and McIntyre. ISBN: ISBN 978-1-55365241-0.

3. WC has asked me to provide an opinion, based on my qualifications, on the following questions:

1. What is the history, population trend, and current status of the Spotted Owl in Canada?
2. What are the key threats to survival and recovery of the Spotted Owl?
3. What are the ecological requirements for the Spotted Owl, and which of these are key to their recovery in British Columbia?
4. How should ecological requirements influence recovery actions?
5. How has British Columbia managed for Spotted Owl survival and recovery? Please provide a chronology.

6. In reference to the BC Habitat Management Practices document and any other relevant materials you are aware of, how has British Columbia managed and protected Spotted Owl habitat since the release of the Recovery Strategy?
7. How has British Columbia's management and protection of habitat affected the survival or recovery of the Spotted Owl?
8. How has British Columbia managed key threats to Spotted Owl habitat?
9. How has British Columbia's management of key threats to the habitat affected the survival or recovery of Spotted Owl?
10. How has British Columbia managed key threats, other than to habitat, of the Spotted Owl?
11. How has British Columbia's management of these key threats affected the survival or recovery of the Spotted Owl?
12. In reference to the BC Habitat Model, how has British Columbia defined and described Spotted Owl habitat?
13. Does the BC Habitat Model identify and define Spotted Owl critical habitat as required by the SARA (that is, "habitat that is necessary for the survival or recovery of [the Spotted Owl]" identified "to the extent possible, based on the best available information") ("Critical Habitat")?
14. If you answered "no" to question 13, what is the Critical Habitat for the Spotted Owl as required by the SARA?
15. How is the Critical Habitat you define and describe different and similar to the BC Habitat Model?
16. How should the threats to Critical Habitat be managed to maximize the likelihood the Spotted Owl will survive and recover?
17. Can Critical Habitat be logged so as to enhance or not jeopardize the Spotted Owl's survival and recovery?
18. What are the key activities (such as habitat enhancement, predator control, prey augmentation, etc.) which should and should not accompany management and protection of Critical Habitat to maximize the likelihood the Spotted Owl will survive and recover?
19. The authors of the Recovery Strategy determined that the survival and recovery of the Spotted Owl was at the time technically and biologically feasible. Is the survival and recovery of the Spotted Owl in British Columbia still technically and biologically feasible?
20. Attached is a document prepared by the Canadian Spotted Owl Recovery Team ("CSORT") that we refer to as the Action Plan Guidance. What is your understanding of the nature of this document?

21. The CSORT states in the Action Plan Guidance that it was drafted to “identify reasonable actions required to protect and recover the Northern Spotted Owl in Canada” (at page v). How does BC’s current approach to protecting and recovering the Spotted Owl exceed, meet, or fall short of these actions?

4. Acronyms, Abbreviations, and Definitions

Acronym/Abbreviation/Term	Definition
AAC	Annual Allowable Cut
Age Class	Assignment used by BC Government to denote the age of forest cover. Forests are assigned an age class (1-9) based on estimated age, since origin, of the forest.
Allee Effect	Negative relationship between population density and population growth rate: illustrated by negative effects on juvenile recruitment
ASL	Above Sea Level
BACI	Before/After-Control/Impact
BEC Zone	Broad Ecosystem Classification Zone
BGC Unit	Bio-geoclimatic Unit
BCCF	BC Conservation Foundation
BCTS	BC Timber Sales
BMP	Best Management Practice
Capable Habitat	Used to refer to habitat that is forested, or capable of becoming forested, through maturation (or succession). Generally young forests (below 120 years, or age class 7) are regarded as capable, but not currently suitable, for use by spotted owl (as breeding or foraging habitat).
Cat-I (Category-Information)	Used to identify proposed cut-blocks being advanced, as “information”, to the BCMFLNRORD district manager for approval to harvest. Once approved a Cat-I block becomes a Cat-A (approved) block and is advanced for commercial forest harvest.
CDF	Coastal Douglas-Fir
CH	Critical Habitat
Class A (spotted owl) habitat	Habitat rated as suitable for breeding/nesting use by northern spotted owl in BC.
Congeneric	Belonging to the same genus
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSORT	Canadian Spotted Owl Recovery Team
CWD	Course Woody Debris
CWH	Coastal Western Hemlock
DBH	Diameter at Breast Height
ECCC	Environment and Climate Change Canada
FMA	Forest Management Area
FRPA	Forest and Range Practices Act

GWM	General Wildlife Measure
GVRD	Greater Vancouver Regional District
HCA	Habitat Conservation Area
HEP	Habitat Enhancement Procedure
HSI	Habitat Suitability Index
HVR	Heavy Volume Removal
HWR	Harvest with Retention
IDF	Interior Douglas-Fir
IWMS	Identified Wildlife Management Strategy
LRMP	Land and Resource Management Plan
LTAC	Long-term Owl Activity Centre
LTOHA	Long-term Owl Habitat Area
LVR	Light Volume Removal
MFHA	Managed Future Habitat Area
MS	Montane Spruce
MOU	Memorandum of Understanding
NRD	Natural Resource District
NSOBP	Northern Spotted Owl Breeding Program
NWFMP	Northwest Forest Management Plan
Old Growth (forest)	In reference to late seral, or mature forest; generally greater than age class 8 (141-250 years of age) and often greater than age class 9 (>251 years of age).
PP	Ponderosa Pine
RISC	Resource Inventory Standards Committee
SARA	Species at Risk Act
SARCO	Species at Risk Coordination Office
SELES	Spatially Explicit Landscape Event Simulation
Stochastic	Randomly determined
SOHA	Spotted Owl Habitat Area
SOMIT	Spotted Owl Management Interagency Team
SOMP1	1997 – 2007 Spotted Owl Management Plan (original)
SOMP2	2009-2019 Spotted Owl Management Plan (revised)
Suitable Habitat	In reference to estimated or perceived foraging and nesting habitat for spotted owl based on consideration of several habitat attributes including BGC Zone, age-class, stand height, and crown (or canopy) closure.
SRMZ	Special Resource Management Zone
Sympatric	Co-occurring, existing in the same geographic area
THLB	Timber Harvesting Land Base
VRI	Vegetation Resource Inventory
WC	Wilderness Committee
WHA	Wildlife Habitat Area

5. Detailed Responses to Questions 1-21

1. What is the history, population trend, and current status of the Spotted Owl in Canada?

Synopsis: Pre-European contact the population of northern spotted owl in BC is estimated at 500 pairs. The owl's historic distribution in BC (or Canada) extends from the international border east to Manning Park and north along the Cascades to Lillooet, and along the Coastal ranges to Bute Inlet. The first written recorded spotted owl detection in BC is from 1903. Between 1909 and 1965 spotted owls were recorded at 18 additional locations within their range. No trend data exists prior to 1991; however, monitoring efforts between 1991 and 2002 demonstrated an annual population decline of up to 10.4% per year. Surveys between 2002 and 2018 suggest an even more rapid rate of population decline. As of 2018, the remaining extant population of spotted owl in BC is restricted to three single owls in the Chilliwack NRD.

Distribution in BC:

The historic distribution of spotted owl in BC is from the international border, from Vancouver continuing east to Manning Park (east gate and Lightning Lake (Campbell 2014)) and continuing north along the Cascades and Coastal ranges north to Carpenter Lake, northwest of Lillooet. The first written records of spotted owl detected in BC was recorded in 1903 by Delbert Grovnor Boyd Ryder at Mount Lehman; this was closely followed by a specimen from Chilliwack in 1909 (Campbell 2014). Between 1909 and 1965, spotted owls were reliably recorded at 18 additional locations (including four nest records) between Bute Inlet and Powell River along the west coast and as far east as Lightning Lake in Manning Park in the Cascades. There are no confirmed records on Vancouver Island; however, Clark reported repeated observations of spotted owl south of Courtenay in 1910 (as described in Campbell et al. 2014). The western extent of the species' range in BC was never well defined as no formal survey has ever been conducted within large portions of the species' former range within the Sunshine Coast NRD despite several confirmed records (near Bute Inlet) as documented by W. Campbell (Campbell 2014). The current 2018 extant population is restricted to only three sites near Boston Bar (Dulc 2018).

Appearance and Taxonomy:**Northern Spotted Owl****California Spotted Owl****Mexican Spotted Owl**

The northern spotted owl is a mid-sized brown owl with no ear-tufts and brown eyes. Individuals weigh between 600-800 grams, with a body length of 55cm and a wingspan of 150 cm. Within North America, there are three recognized subspecies: the northern spotted owl (*S. o. caurina*), the California spotted owl (n nominate subspecies) (*S. o. occidentalis*), and the Mexican spotted owl (*S. o. lucida*). Only the northern spotted owl is found in British Columbia (BC); this subspecies is the focus of this report; it is referred to hereafter simply as “spotted owl”.

Conservation Status:

By the mid 1980’s, concern over noted declines within the US, and suspected in BC, motivated increased attention in Canada. In 1984, protection for the species was recommended to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Campbell 2014) and by 2000 the owl’s status was confirmed as Endangered based on an updated report by Kirk (1999) (as cited in Campbell 2014). The spotted owl was first designated as Endangered in Canada by COSEWIC in 1986 (Chutter et al. 2004). This status was reconfirmed in 1999 and again in 2002. Spotted owl was listed on Schedule One of the federal *Species at Risk Act* in 2004. In BC, spotted owl is red-listed by the Conservation Data Center, and is recognized as a “Priority 1” under Goal 3 of the BC Conservation Framework (to maintain the diversity of native species and ecosystems). Spotted owl is also identified by the BC Ministry of Environment in the Category of Species at Risk and as a priority species for conservation and management under the Government Actions Regulation component of the Forest and Range Practices Act (Blackburn and Godwin 2004). As such, sites detected on Crown land are entitled to consideration for protection through the designation of Wildlife Habitat Areas (WHAs) to conserve and maintain habitat values.

Status of the Captive Breeding Population:

A captive breeding program was initiated in 2006 with the goal of releasing 20 young per year between 2006 and 2026 (I. Blackburn pers. com.) with an originally projected 2019 goal of 240 owls bred and released. To date the program has produced eight young (one of which was blind and incapable of flight); the same program has removed ten spotted owls from the wild population in the same time period to augment breeding stock (including at least one that died within 24-hours of capture from blunt force trauma). Release goals are not publicly available and are not currently anticipated in 2019; to date no captive bred spotted owls have been released in BC. There are currently 21 owls in captivity (including eight captive bred juveniles, ten adults removed from the wild in BC, and four owls brought in from rescue centres in the United States (US)).

Population Trend in BC:

- **Long-term Trend (1903-1991):** Trend data is not available prior to 1991. Historic population estimates (pre-European contact) estimated as many as 500 pairs of northern spotted owl in BC (Blackburn et al. 2002). Large declines from historic population levels have occurred in BC over the past 50-100 years.
- **Short-term Trend (1991-2002):** Evaluation of short-term trends between 1992 and 2001 confirmed at least 64 occupied sites in British Columbia within the Sea-to-Sky, Chilliwack, and Cascades NRD. Analysis of the occupancy of owls at 40 of these sites in the Chilliwack and Sea-to-Sky forest districts between 1992 and 2001 confirmed a population decline of about 49% at an average annual rate of 7.2% (Blackburn et al. 2002). In 2002, Chutter et al. (2004) suggested a similar sharp population decline in BC (35%) resulting in an overall decline of 67% between 1992 and 2002 at an average rate of 10.4% per year (Chutter et al. 2004).
- **Overall Trend (1903-2018):** Regardless of subtle differences in reported rates of population decline, based on the historic population estimate of about 500 potential breeding pairs of owls (Blackburn et al. 2002), the current population estimate suggests that the population may have declined by as much as 99% since European settlement (**Figure 1**).

Population trends were not monitored using consistent monitoring protocols after 2002 - instead, more widespread surveys were conducted to document new occurrences on the landscape and to determine productivity and survivorship of juvenile spotted owls (Hobbs 2004a, 2004b, Hausleitner 2005, Hausleitner 2006). As such, a graph of known occupied sites per year between 2002 and 2018 shows a fluctuating trend, however, this fluctuation is a reflection of allocation of effort rather than a fluctuation in number of owls (**Figure 2**). Survey information collected between 2002 and 2018 suggests that the rate of population decline likely increased after 2002 (Hobbs 2004, 2005, Hausleitner 2007, Gillis 2016a, Gillis 2016b, Dulc 2018 (unpublished monitoring data provided by I. Blackburn 2017)).

Despite measures to control barred owl and extensive efforts from the BC spotted owl captive breeding program, the BC population of spotted owl has now declined to a current population of three single (non-paired) owls in 2018. Few areas of large contiguous old-growth forest habitat remain on the landscape in BC in a condition suitable for occupancy by spotted owls (Chutter et al. 2004).

Continued population decline and current status indicate that spotted owls are critically imperiled in BC. There are currently no remaining known extant spotted owl sites in the Cascades Natural Resource

District (NRD) and the Sea-to-Sky NRD²; in the Chilliwack NRD there are only three remaining single owls (no pairs). The remaining extant sites in BC are all restricted to the Fraser sub-population (J. Gillis, pers. comm., 2018 as cited in Dulc 2018).

Figure 1: Estimated number of occupied survey areas (n=40) from 1992-2002 (from Blackburn and Godwin 2003, as cited in Chutter et al. 2004).

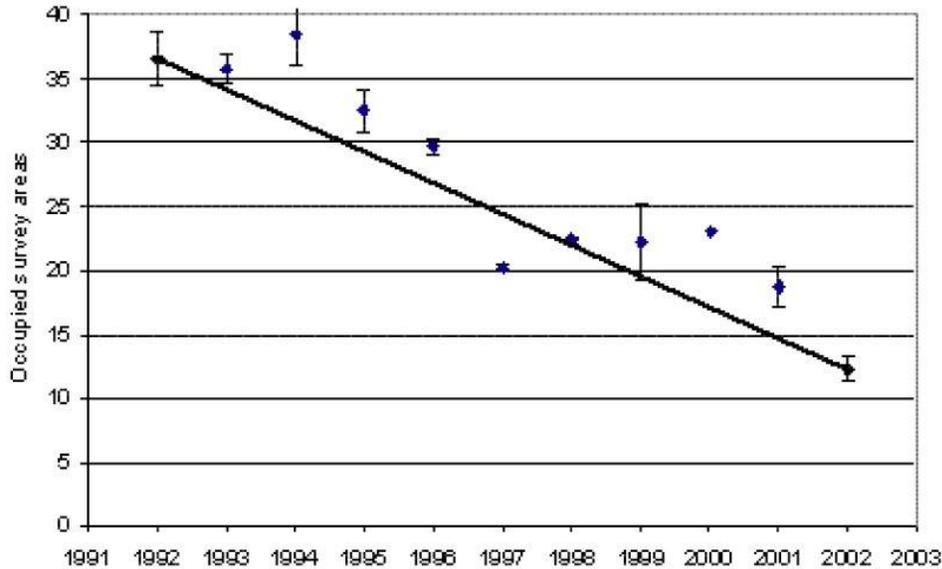
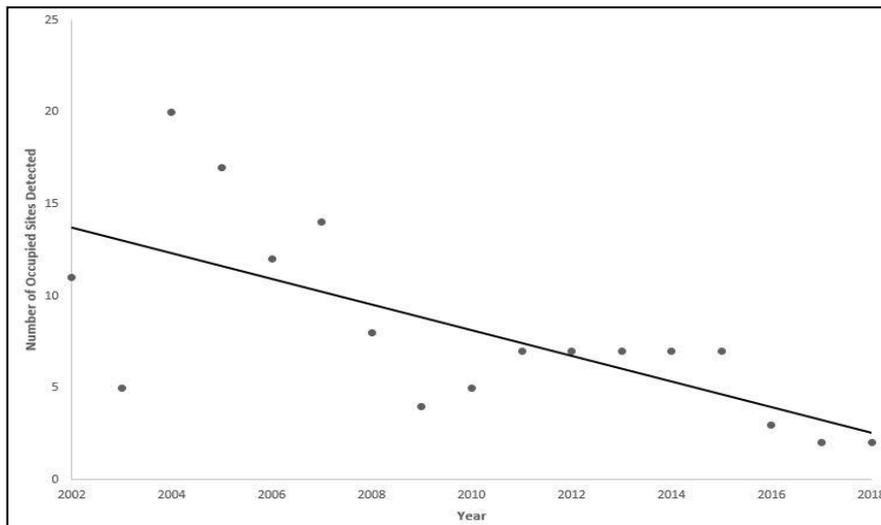


Figure 2: Estimated number of occupied sites from 2002-2017 (unpublished monitoring data provided by I. Blackburn 2017).



² Within the Lillooet and Squamish sub-populations, inventory efforts since 2004 have documented a 100% decrease in occurrences; no spotted owls were detected in this sub-population in 2016 or 2017 surveys (Dulc 2018).

2. What are the key threats to survival and recovery of the Spotted Owl?

Synopsis: Key threats to spotted owl survival and recovery include further loss and fragmentation of old-growth habitat, competition from barred owls, predation, climate change, disease, and negative effects from environmental and genetic factors. Of these, the primary threat is loss of habitat. Spotted owl prey abundance and availability is influenced by available suitable forested habitat; spotted owl reproduction and survival are directly influenced by habitat loss. Commercial forest management practices create fragmented landscapes and exacerbate a secondary threat in the form of barred owl competition and depredation, and a tertiary threat of depredation by great horned owl and northern goshawk. Natural environmental disturbances are considered quaternary threats but are still significant given the small population size of spotted owls.

In the treatment of “Threats to the Species” (P.12) of the spotted owl Recovery Strategy the authors distinguished primary factors from secondary factors based on the duration of the effect and assigned threat priority as follows: *“The original population decline is believed due to the loss and fragmentation of old-growth habitat to urban and rural development, and forestry activities. This loss of habitat resulted in diminished quantity and quality of habitat, reduced connectivity of owl sites across the landscape, increased isolation from the larger population in the United States, and likely heightened negative effects of stochastic events associated with very small populations. Current known and potential threats include further loss and fragmentation of habitat, competition from barred owls, predation, climate change, disease and negative effects from environmental and genetic factors.”* (From Chutter et al. (2007)). I agree with the classification and assignment of priority as described in the recovery strategy; however, I also considered guidance from the Canadian Environmental Assessment Agency (2013) to describe significance of each threat by examining magnitude, extent, duration, reversibility and frequency. I have followed this more fulsome approach in the summaries of each threat presented below.

Primary Threat: Loss of Habitat:

High magnitude (i.e., severe influence), large extent (i.e., range-wide), prolonged duration (i.e., not readily reversible) and frequent (i.e., occurs commonly).

Spotted owls are specialists – they persist by foraging on two key species that they hunt within the canopy of a mature forest. The northern spotted owl occupies large home ranges (2,800 – 3,400 ha) within suitable forested habitats (**Figure 3**). Reproduction and survival are strongly affected by fluctuations in prey abundance and availability; both attributes are negatively affected by loss of old-growth forest habitat (**Figure 4**). Commercial forest harvest is most commonly identified as the primary threat to spotted owl (Chutter et al. 2004), as clear-cut practices result in removal of large areas of coniferous forest. Conventional commercial forestry practices typically result in large areas of complete forest removal (i.e., clear-cuts) with an obvious direct effect upon the amount, distribution (i.e.,

fragmentation) and abundance of available suitable spotted owl habitat. This directly impacts spotted owl abundance at the landscape level³.



Figure 3: Spotted owl territory within Stein Provincial Park. This illustrates ideal spotted owl habitat conditions in BC.



Figure 4: Upper Pitt watershed illustrating typical landscape conditions on the THLB within the owl's range in BC.

³ In the past, urban encroachment within the Lower Mainland region likely displaced spotted owls but the influence of urban encroachment is no longer proximal to any active owl territories.

Secondary Threat: Competition from Barred Owls:

High magnitude (i.e., severe influence), large extent (i.e., range-wide), prolonged duration (i.e., not readily reversible) and frequent (i.e., occurs commonly).

In addition to direct loss of habitat, forest harvest promotes and exacerbates a more recent secondary threat; competition, and to a lesser extent, depredation, from the northern barred owl (*Strix varia varia*) (hereafter referred to as barred owl) (**Figure 5**). Unlike spotted owls, barred owls forage along the edge of a forest, hunting prey in forest openings. Barred owls are referred to as a “generalist” species in ecology (i.e., a species with general foraging requirements that can capitalize on a wider variety of prey) (Livezey et al. 2008). By converse, spotted owls are referred to as a “specialist” species (i.e., a species with specific foraging requirements that specialize on feeding on a relatively limited number of key prey items). As forest harvest increases the area of ‘edge’ habitat, relative to the area of available interior forested habitat⁴, foraging conditions are optimized for barred owl. These distinct ecologies are apparent when considering diet, home range size, fecundity, and survivorship in response to environmental perturbation.

Available literature from Oregon and California suggests that barred owl prey diversity is up to three times greater than spotted owl (Diller et al. 2016,). As such, barred owls persist within relatively smaller home ranges (600 ha) and exploit a more diverse prey base. Suitable prey for barred owl includes amphibians, other birds, and a diversity of small mammals (i.e. mice, voles, tree squirrels (including flying squirrel (*Glaucomys sabrinus*)) and bushy-tailed woodrat (*Neotoma cinereus*)) whereas spotted owls tend to specialize, feeding almost exclusively on woodrats and flying squirrels. The barred owl’s less restrictive diet allows it to forage within a range of forest types including younger forests and mixed species stands. Barred owls can select for alternate prey species when their populations of their preferred prey decline or fluctuate giving barred owls a competitive advantage over spotted owls when they co-occur in suitable forested habitat (Livezey and Flemming 2009).

Forested landscapes with a mosaic of forest age-classes are created by commercial forest harvest practices (**Figure 3**). Under the current fragmented age class structure in BC the barred owl has a competitive advantage (Livezey and Flemming 2009, Weins et al. 2014 as cited in Gillis 2016a). Barred owls have been observed displacing spotted owls from habitats (Diller et al. 2016); barred owls have also been recorded depredating both juvenile and adult spotted owls (Dark et al. 1998, Leskiw and Gutierrez 1998 as cited in Gillis 2016a). Fecundity and survivorship of adult spotted owls are both negatively affected by barred owls when they co-occur within 0.8 km of territory centres (Gillis 2016a). Recruitment and survivorship of juvenile spotted owls is also affected in areas where barred owls are established (Diller et al. 2016). In a long term (1985-1996) study that sampled 386 marked juvenile spotted owls 26.2% of the 386 marked juvenile spotted owls died from starvation (Forsman et al. 2002). Starvation induced mortality is undoubtedly exacerbated by barred owls (Diller et al. 2016).

⁴ Edge-effect is an ecological term used to describe the influence of increased edge-to-interior ratios in mature (primary, or old growth) forests. As mature forest is harvested and replaced by cleared openings the ratio of interior to edge habitat is reduced.

In summary, as barred owl abundance increases there is a concomitant increased level of competition for prey and security habitat. The more aggressive barred owl tends to displace both resident and non-resident (dispersing) spotted owls. In response, spotted owls will move to avoid barred owl thus subjecting themselves to increased thermo-energetic costs as they disperse from high-value foraging habitats (Diller et al. 2016) to sub-optimal habitats with fewer resources. This often results in mortality from starvation in dispersing juvenile spotted owls (**Figure 6**).



Figure 5: Barred owl in mixed age forest.



Figure 6: Emaciated (dead) juvenile spotted owl.

Tertiary Threat: Increased Predation Risk

High magnitude (i.e., severe influence), large extent (i.e., range-wide), prolonged duration (i.e., not readily reversible) but low frequency (i.e., occurs irregularly)

Fragmented forest landscapes (i.e., forests with a mosaic of age classes as created by commercial forest harvest practices) may also favor (for reasons similar to those described above for barred owl) great horned owl (*Bubo virginianus*) and northern goshawk (*Accipiter gentilis*) population abundance. As forest harvest increases edge-to-interior forest ratios more favourable habitat conditions for great horned owls are created. This not only affects competition for limited prey resources, but also affects predation rates. Avian predation on spotted owls is largely attributed to great horned owl and northern goshawk (Forsman et al. 2002). This is further exacerbated for dispersing spotted owls as increased movement, during dispersal, places spotted owls at greater risk of depredation by great horned owls. In a long term

(1985-1996) study that sampled 386 marked juvenile spotted owls 68% died from predation; 67 of 83 (81%) of the depredated owls were attributed to avian predators (Forsman et al. 2002).

Quaternary threats: Random Stochastic Events (including fire)

High magnitude (i.e., severe influence), low extent (i.e., localized), short duration (i.e., temporary) and infrequent (i.e., occurs irregularly).

Natural stochastic events also affect owl survival and recovery. Typically, these include natural environmental disturbances including fire, landslides, and unusual weather patterns as a result of climate change (Dulc 2018). These threats become more serious, and more likely to result in extirpation, when population sizes are small as these populations have reduced resilience to cope with change.

Unfortunately, decades of fire suppression have altered the tree species composition, structure and spatial distribution of conifer forests in at the drier (Cascades) and transition (Sea-to-Sky) NRD. Literatures from Washington suggests increased canopy cover and fuel loading on the forest floor has continued to intensify and expand risk from catastrophic wildfire events (Buchanan 2016). As a consequence, fires in these altered conditions are more intense and often remove substantial areas of forest resulting in landscape conditions that are unsuitable (or less suitable) for use by spotted owls. In summary, fire suppression has served to create spotted owl habitat in some areas but has altered forest attributes towards an unsustainable condition; in these modified forests large fires and impacts of insects and disease are more likely to degrade or destroy portions of these forests (Buchanan 2016). The U.S. Fish and Wildlife Service acknowledged the need to address this risk by proactively managing dry forest landscapes (Buchanan 2016).

3. What are the ecological requirements for the Spotted Owl, and which of these are key to their recovery in British Columbia?

Synopsis: Key ecological requirements include protection from predators; access to nesting and roosting habitat features; and access to suitable foraging habitat that features high prey availability and accessibility (i.e., open stands to allow flight within and beneath the forest canopy). These attributes are typically associated with old-growth forests (generally no less than 120-140 years old in the CWH and IDF bio-geoclimatic zones). As such, conservation of suitable spotted owl habitat is fundamental to species recovery.

Ecological Requirements:

Spotted owls are upper trophic level avian specialists that rely on forest characteristics typically associated with old-growth forests. Forest age class is an important attribute; however, several other forest attributes are also required. These include appropriate stand (tree) height, appropriate canopy closure, low stem density (approximately 240 stems/hectare (ha)), vertical structural heterogeneity, healthy understory component and presence of coarse woody debris. These structural attributes provide security habitat (i.e., protection from predators and the environment (e.g., inclement weather)), nesting and roosting structures; relatively high prey availability and accessibility; and suitable foraging conditions that permit flight within and beneath the forest canopy. The specific structural attributes that influence habitat quality varies between ecosystems and topography but, generally speaking, suitable spotted owl foraging habitat is comprised of mature forest at \geq age class 6 (least 100 - 120 years old) and below 1,200m elevation. Spotted owl nesting habitat is typically associated with old growth forested habitat \geq age class 8 (141-250 years of age) or age class 9 (>251 years of age)

In the northern part of their range spotted owls “*consistently select nest stands surrounded by a greater proportion of old or mature forest than are randomly available in the landscape*” (Manley et al. 2003). Although there is some variation across the range of the species, northern spotted owl habitat is described by consensus in the literature as late-seral (i.e., old-growth) coniferous forests with uneven aged trees that create a multilayered canopy and an average stem density of approximately 200 – 240 stems per hectare (Chutter et al. 2004, Blackburn et al. 2009). At a general level, habitat suitability includes consideration of (horizontal and vertical) structural complexity, tree species, canopy closure, stand (stem) density and stand height. The response to Question 12 provides additional detail regarding specific measurements of key forest habitat attributes used by CSORT to define and identify spotted owl habitat in BC.

As secondary cavity nesters, spotted owls are dependent on tree deformities that are most abundant in old-growth forests. Spotted owls’ nest in large natural cavities (broken limbs resulting in a cavity that creates access into the bole), broken topped trees with a hollow top into the core of the tree (referred to as chimney nests) or platforms created by mistletoe clusters and abandoned northern goshawk nest structures. As medium-sized owls, spotted owls require relatively large tree deformities for nesting and roosting, these typically occur in large diameter trees (>75 cm Diameter at Breast Height (DBH)) (Forsman et al. 1984, Thomas et al. 1990, Buchanan et al. 1993). In Washington and Oregon, mean

diameter of nest trees varied from 59-141 cm DBH with smaller trees used more frequently in drier ecosystems (Manley et al. 2003). In BC, spotted owl nests have been reported in two bio-geoclimatic (BGC) zones: the wetter ecosystem is referred to as the Coastal Western Hemlock (CWH) BEC zone and the drier ecosystems are referred to as the Interior Douglas-fir (IDF) BEC zone at elevations of 368-1,120 m above sea level.



Broken-top (or Chimney) nests occur in trees with a large bole; with an average age of 700 year. Once cut, these trees can't be quickly replaced.



In drier portions of the owl's range large diameter trees are scarce; abandoned platform nests may be used if available.

Forest structure is also critical to ensure that spotted owls have sufficient access to prey. Spotted owls need particular forest characteristics to locate and capture their prey, and as specialists (feeding predominantly on flying squirrel and bushy-tailed woodrat), they require a high abundance of prey species (see response to Question 11). Flying squirrel and bushy-tailed woodrat occur in higher densities in forested areas with diverse shrub cover, coarse woody debris, or nearby rocky talus (Gutierrez 1995) (see Question 11-3). As such, mature forested areas with these characteristics are required for persistence of spotted owls on the landscape.

Spotted owl persistence and survival requires breeding, foraging and dispersal habitats that are generally recognized to occur within large contiguous areas of old-growth forest in the CWH and IDF biogeoclimatic zone. Conservation of old-growth forested habitat within the known historic range of the species is essential to spotted owl recovery as these habitats provide nesting and roosting habitat and access to prey items with appropriate forage conditions. Spotted owl habitat has been described consistently in the BC Recovery Strategy (Chutter et al. 2004) and in the COSEWIC spotted owl species account (2008), as follows:

General Habitat:

The Canadian Spotted Owl Recovery Team (Chutter et al. 2007) identified three habitat types based on ecological subregions: maritime, sub-maritime and continental. High-quality habitat is characterized as mixed coniferous forests >200 years old, at elevations below 1,200 m with abundant large diameter and tall trees (Chutter et al. 2007). These forests feature uneven-aged, multi-layered canopies, and include numerous large trees with broken tops, deformed limbs, and large natural cavities in the bole of veteran trees. Snags are typically abundant, as is downed woody debris. These habitat characteristics are found naturally in old-growth forests in the maritime and sub-maritime areas. In interior areas spotted owls have been observed using younger forest stands where structural components typical of old-growth forests have been created by disturbances such as fire, wind or selective logging (COSEWIC 2008).

Breeding Habitat:

Old-growth trees are used for nesting, either in contiguous old-growth stands or in remnant old-growth patches (Thomas et al. 1990; Forsman and Giese 1997; Ripple et al. 1997 as cited in COSEWIC 2008). Nest sites are typically located in dense, multi-layered, older forests with 85-90% canopy closure (Gutiérrez et al. 1995). Spotted owl exhibit high philopatry (fidelity) to breeding areas (territory cores); re-using the same nest grove for their entire life, and often over successive generations.



Nest tree in breeding habitat at Sockeye Creek; nested in broken top tree for at least two years in 2004 and 2005.

Foraging Habitat:

Northern spotted owl foraging habitat occurs in forests with high canopy closure and complex structure (Gutierrez et al. 1995). Owls primarily forage in old-growth or mixed-aged stands (with mature and old-growth trees) and use a wider variety of habitat for foraging than for nesting or roosting (Thomas et al. 1990 as cited in COSEWIC 2008). Telemetry studies in BC, Oregon and Washington suggest that old-growth forests provide superior foraging habitat relative to maturing stands, young stands provided marginal habitat and clear-cuts were totally unsuitable for use as foraging habitat by spotted owl (Thomas et al. 1990; Forsman et al. 1984; Carey et al. 1990; Carey et al. 1992 as cited in COSEWIC 2008).

Dispersal Habitat:

Juvenile owls undergo natal dispersal in the fall. To be successful, dispersing owls require protection from predators and security habitat for shelter during inclement weather. They also need abundant and available prey to meet high thermo-energetic demands experienced during dispersal. Old-growth (and mature) forests are thought to provide ideal conditions for dispersal; however, dispersing owls may use a fragmented mosaic of various-aged forests, clear-cuts, roads, and non-forested areas (likely by necessity, and to their detriment, as these habitats are encountered) (Forsman et al. 2002, Hobbs 2004, Hobbs 2005).

Breeding-age owls also occasionally disperse, especially young unpaired females, to find new territories or to move between alternate territories (Forsman et al. 2002). The quality (stand structure, degree of fragmentation, topography) of dispersal habitat is likely an important factor in survival of dispersing birds (Forsman et al. 2004). Large non-forested valleys and large water bodies are known barriers to dispersal (Forsman et al. 2002a).

In BC, I used radio-telemetry to track seven dispersing juvenile spotted owls between 2003-2006. I confirmed use, by dispersing juvenile owls, of old-growth forested habitats (Hobbs 2004, 2005). I demonstrated that although dispersing juveniles were able to move through suboptimal habitats (including early seral forest, severely burned areas, and across large waterbodies (Hobbs 2005)) the effects on survivorship were negative. None of the owls I tracked, during dispersal, survived to reach adulthood. Starvation was the main cause of mortality (n=6) followed by predation (n=1). Similar studies in the US, with larger sample size, confirmed decreased survival with increased use of fragmented forest during dispersal (Forsman et al. 2004).

4. How should ecological requirements influence recovery actions?

Synopsis: As a species whose ecological requirements are determined by the availability and distribution of old-growth forest habitat, any measure of recovery action demands the protection of suitable habitat in sufficient quantity. Secondary actions such as captive breeding and control of barred owl populations should be undertaken once sufficient habitat conservation has been achieved.

Recovery actions, and associated effort and cost, should, ideally, be proportionately allocated in accordance with the sensitivity of the species to key threats (see Question 2). Compromising actions or effort allocated towards conservation or protection of habitat in favour of maintaining forest harvest targets (set by Annual Allowable Cut (AAC)) on the timber harvesting land base (THLB)) is counter-productive when attempting to recover a species whose persistence is directly linked to old-growth forest habitat availability and distribution on the landscape. This principle is stated and supported by a consensus in the scientific understanding in guidance provided to SARCO by the CSORT in 2004 (refer to Chutter et al. 2004-Appendix 1C (P.62))



Logging truck loaded with former owl habitat on route to the mill on the Harrison FSR.



Clear-cuts in former spotted owl habitat near Lillooet, BC.

It is also prudent to consider secondary threats (competition from barred owl) in addition to conservation of suitable habitat in sufficient quantity to ensure recovery. Augmenting natural populations of spotted owls (through captive breeding and release, or diet supplement), and controlling the effects of barred owls on spotted owls at occupied sites, are logical next-steps. Augmentation of spotted owl populations through captive breeding, and control of barred owls at occupied sites, is not sufficient to ensure recovery of spotted owls in BC in the absence of adequate habitat protection.

Triage management requires that recovery of any wild population of a species will be restricted by the most limiting factor. For spotted owl effective recovery requires sufficient attention is afforded to all key threats.

5. How has British Columbia managed for Spotted Owl survival and recovery? Please provide a chronology.

Synopsis: The following bullet points outline the chronology of Spotted Owl survival and recovery management in BC:

- 1990: Canadian Spotted Owl Recovery Team (CSORT) was established to develop a national recovery plan in response to 1986 COSEWIC designation. In 1991 the Province initiated surveys to assess population trend, and in 1995 accepted a management option with the lowest associated socio-economic impact.
- 1997: Initial implementation of Spotted Owl Management Plan (SOMP1), carried out between 1997-2007. In 1997 CSORT was replaced by the Spotted Owl Management Interagency Team (SOMIT) as a result of CSORT's refusal of SOMP1 based on its shortcomings (predicted 60% probability of halting decline).
- 2002: Review of SOMP1 (leading to SOMP2) begins with re-establishment of CSORT; primary challenge of SOMP1 recognized as the area based 'cap' to mitigate impact to forest sector at no greater than 4.5% to the THLB. This cap was carried forward and applied during development of SOMP2.
- 2006-2009: Development of SOMP2, with initial focus on captive breeding of spotted owl and barred owl control. In 2006 the Province released a Recovery Action Plan recommending revised habitat management guidance.
- 2009: SRMZ boundary revisions completed. Best Management Practices released by the Province. There was a net change in managed habitat under SOMP1 (363,000 ha) versus SOMP2 (396,247ha); however, of the 396,247 ha purportedly being *managed* for spotted owl 208,025 ha (52.5%) is co-located within Parks, conservancies, eco-reserves, protected areas and already protected watersheds within the Greater Vancouver Regional District (GVRD). The remaining 188,222 ha being managed by the Province is comprised of a large proportion of previously logged former spotted owl habitat – only 95,117 ha (51 %) is currently suitable – and within that commercial logging of suitable owl habitat is permitted in 28,198 ha as these habitats occur within MFHAs.
- 2011: WHAs designated in the Chilliwack NRD to provide legal management directive for forest management to support spotted owl recovery in BC.
- 2013: WHAs designated in the Sea-to-Sky NRD to provide legal management directive for forest management to support spotted owl recovery in BC.
- 2009-current: Under SOMP2 the BC population continues to decline to three remaining owls in 2018.

In 1990 the first Canadian Spotted Owl Recovery Team (CSORT) was established to develop a national recovery plan. Formal surveys were initiated, by government, in 1991 to better understand the population trend of spotted owls in BC. Concern for potential for socioeconomic impacts quickly arose and began to influence development of management options. The Province insisted on development of management options that ranged from maximum to minimum habitat protection for spotted owls in BC. A report entitled Management Options for the Northern Spotted Owl in British Columbia presented six

management options (each adjusted to varying degrees to cater to socio-economic considerations). In 1995, after a provincial cabinet level decision, the premier's office announced adoption of the least precautionary (i.e., lowest socio-economic impact) plan to manage spotted owls using existing and new protected areas and enhanced forest conservation measures to promote recovery. This initial attempt at spotted owl recovery and management was implemented by the Province in 1997 as the first iteration of the Spotted Owl Management Plan (referred to as SOMP1) and was implemented informally, by the Province, between 1997-2007. When released in 1997, SOMP1 afforded management to 363,000 ha of suitable and capable forested habitat within Parks and on Crown THLB lands. At the time, only about half of that total area was currently suitable, with recruitment and enhancement of second growth stands required to increase this amount in areas with only capable habitat (Chutter et al. 2004). When SOMP1 was released, SOMIT (1997a) suggested that the amount of suitable habitat would not begin to increase for several decades, after which it was hoped that numbers of spotted owls would also begin to recover. The transpiring reality did not follow these projections.

By 2002, it was clear that spotted owls were (still) declining precipitously in BC under SOMP1 management. In October 2002, in recognition of the dramatic spotted owl population decline under SOMP1, a new CSORT was initiated to review the existing SOMP1 and, in 2004, to develop a recovery plan to meet the requirements of the federal *Species at Risk Act*.

Chilliwack and Sea-to-Sky NRD:

In 2006, development of a revised Spotted Owl Management Plan (referred to as SOMP2) was instigated by the Province within the Chilliwack and Sea-to-Sky NRDs (but not in the Cascades NRD). Initial recovery efforts outlined by the Province focused on augmentation (captive breeding of spotted owls) and on barred owl control (through translocation and lethal removal). The habitat component of SOMP2 was not fully implemented until much later in 2009.

During the 2006 recovery planning process it was again raised that the fragmented condition of remaining spotted owl habitat, and sparse distribution of potential breeding owls, as well as other biological limitations and threats, resulted in continued dramatic population decline (Chutter et al. 2004, Chutter et al. 2007). The population continued to decline precipitously under SOMP2 and is now facing imminent extirpation. SOMP2 is still in place today (2019) and currently provides management, by the Province, to afford (partial) protection to spotted owl habitat in the interest of spotted owl recovery in BC. The specific management attributes of SOMP1 and SOMP2 are detailed below.

SOMP1: The first Spotted Owl Management Plan (SOMP1) was released in 1997. As noted, the SORT did not endorse SOMP1 as it predicted only a 60% probability of halting the decline of the spotted owl in BC (Chutter et al. 2004); as such, the SORT disbanded shortly after the release of SOMP1. Regardless of the lack of scientific support, SOMP1 was implemented by the Province to provide a 60% probability that BC's spotted owl population would stabilize, and then recover, predicated on the requirement that there must be no significant impacts to timber supply and forestry employment (Chutter et al. 2004). After disbanding in 1997, the SORT was replaced by the Spotted Owl Management Interagency Team (SOMIT) (comprised of representatives from BC's ministries of Environment and Forests) to develop and implement SOMP1 in May 1997. SOMP1 was predicated on an area-based 'cap' to mitigate impact to the forest sector and was set to not result in an impact greater than 4.5% to the THLB.

Within the Sea-to-Sky and Chilliwack NRD, 21 Special Resource Management Zones (SRMZs) were established (two were later rescinded) that included 159,000 ha of protected areas and 204,000 ha of Crown forest land to be legally established as Resource Management Zones under the *Forest Practices Code of British Columbia Act*. It was originally intended to legally establish SOMP1 as a Higher-Level Plan but this did not take place. Nonetheless, SOMP1 was voluntarily implemented by forest companies between 1997-2007 before prescriptive measures under SOMP1 were replaced by Best Management Practices under SOMP2 in 2009 (Blackburn et al. 2009). Under SOMP1, the objective, within each SRMZ, was to maintain 67% of the gross forested area as suitable spotted owl habitat. Unfortunately, many of the SRMZs had less than the targeted 67% suitable habitat at the time of their establishment; this posed a recognized challenge with SOMP1. The Cascades NRD (formerly the Lillooet FD) was not included in SOMP1; as such, there was no protection afforded to spotted owl in the Cascades NRD until 2006 as the Cascades NRD was considered to be extra-limital based on a restricted scope of inventory. In 2014, R.W. Campbell presented evidence that the range of spotted owls in BC also likely included the Sunshine Coast NRD on the west coast (Campbell 2014); to date there have been no formal surveys conducted and no management afforded to spotted owl in this portion of their former range in BC.

By 2002, a precipitous population decline (10.4% per year) was noted in trend monitoring data (Chutter et al. 2007). In 2002, I conducted a complete inventory within the Cascades NRD. My inventory results demonstrated that the population of spotted owls within the Cascades NRD was indeed extant and was, at the time, the most robust population of spotted owl remaining in the Province despite exclusion of management consideration under SOMP1⁵.

In a final attempt to halt the decline a renewed (second) Canadian Spotted Owl Recovery Team (CSORT) was re-established in 2002 with the intent of developing a recovery strategy to identify additional actions required to prevent extirpation. The second attempt was released as SOMP2 by the Province. The intent was to recover spotted owl in BC. Although SOMP2 was announced in 2006, habitat protection measures were not completed until much later.

SOMP2: In 2006, under direction from the BC MOE/MFLNRO and with oversight from the Species at Risk Coordination Office (SARCO) the Province released its Recovery Action Plan for spotted owl habitat management. These actions were implemented with the purported intent of preventing extirpation of spotted owls from BC. The SARCO spotted owl recovery action plan included considerations for captive breeding of spotted owls, barred owl control and partial inclusion (under SOMP2) of habitat management actions recommended by CSORT⁶.

SARCO released the BC spotted owl recovery action plan to provide guidance for spotted owl habitat management in BC within revised SOMP1 spatially designated areas called Special Resource Management Zones (SRMZs). The SRMZ boundary revisions and associated Best Management Practices

⁵ In 2006, additional consideration was afforded to spotted owl habitat conservation to accommodate new survey results in the Cascades NRD (J. Hobbs pers obs). This was achieved through designation of three new Wildlife Habitat Areas (WHAs) as enabled under the Government Actions Regulation (GAR).

⁶ CSORT recommendations were clearly presented and rationalized in the 2004 BC Spotted Owl Recovery Strategy document (Chutter et al 2004) and the 2007 Guidance and Action Planning document (Chutter et al 2007).

(BMPs) for forest harvest activities were not completed until three years later (2009). All SRMZs were subsequently legally designated in 2011 (Chilliwack NRD) and 2013 (Sea-to-Sky NRD) as Wildlife Habitat Areas (WHAs)⁷.

The habitat management guidance of the Provincial Recovery Action Plan is summarized by Blackburn et al. (2009) to include “*Evaluating and revising SOMP 1 (SRMZ boundaries) to ensure better protection for Spotted Owls and their habitat, within existing timber supply impacts*”. There was a net change in managed habitat under SOMP1 (363,000 ha) versus SOMP2 (396,247ha). Of the 396,247 ha purportedly being *managed* for spotted owl (within WHAs) 208,025 ha (52.5%) is located within Parks, conservancies, eco-reserves, protected areas and already protected watersheds within the Greater Vancouver Regional District (GVRD). The remaining 188,222 ha being *managed* for spotted owl is largely comprised of previously logged former spotted owl habitat – only 95,117 ha (51 %) is currently suitable – and within that logging is permitted in 28,198 ha of MFHA areas (a designation that permits intensive forest harvest).

This intricate and complicated management, including new prescriptive guidance for commercial forest harvest of spotted owl habitat within these areas, was authored by the Province (Blackburn et al. 2009) and is now referred to as SOMP2⁸. This initiative represents the Province’s Recovery Action Plan component, under SOMP2, to address conservation of spotted owl habitat in BC.

Cascades NRD:

In addition to revisions to SRMZ boundaries from SOMP1 to SOMP2 in the Chilliwack and Sea-to-Sky NRD the Provincial Recovery Action Plan for habitat conservation also included separate management, under the Identified Wildlife Management Strategy, for the Cascades NRD. This had an even more restrictive 1% ‘cap’ on impacts to the THLB. The Province stated an intention to Protect “*the known (2005) Spotted Owl locations by establishing nine Wildlife Habitat Areas (WHAs; approximately 23,000 ha) to protect 100% of the forests found within each WHA*” (as quoted from Blackburn et al. 2009) yet only 45% of the area within WHAs was actually suitable for spotted owl – the remaining area had been previously logged. In addition, and despite the Province’s stated intent, several extant sites documented between 2002 and 2005 were not afforded protection; they were disregarded from consideration for WHA designation by the Province (SARCO) without transparent criteria or justification. This point was contested internally by M. Chutter and myself, but our concerns were never addressed by SARCO or the Province. By the time the legal designations were accepted in 2009 (Cascades NRD) only six WHAs were established for spotted owl in the Cascades NRD, including three in 2006 (before SOMP2) was released (Copper, Bounder and Enterprise Creek); and three in 2012 (Mowhokam, Nesikep and Lost Valley). This falls short of the Province’s commitment to establish nine WHAs in the Cascades NRD when SARCO announced SOMP2.

⁷ WHAs were designated, by the Province, in 2006 (Cascades NRD), 2011 (Chilliwack NRD) and 2013 (Sea-to-Sky NRD).

⁸ Management guidance under SOMP2 was later formally legalized as General Wildlife Measures (GWMs) (prescriptive management requirements applied within WHAs as mandated under the *Forest and Range Practices Act*) for application within WHAs.

Sunshine Coast NRD:

The historic and current distribution of spotted owl in the Sunshine Coast NRD is unconfirmed as no formal surveys, for spotted owl, have ever been conducted despite verified and documented (published) accounts of spotted owl in this district (Campbell 2014). To date, no management consideration has been afforded to the Sunshine Coast NRD.

6. In reference to the BC Habitat Best Management Practices document (Blackburn et al. 2009) and any other relevant materials you are aware of, how has British Columbia managed and protected Spotted Owl habitat since the release of the Recovery Strategy (2006)?

Synopsis: SOMP2 was predicated on a principle of no-net loss to timber revenue relative to SOMP1 despite the obvious indication, as evidenced by the owl's decline, that the level of protection afforded to suitable habitat was insufficient to stabilize or reverse the declining population trend. SOMP1 was openly rejected by SORT; SOMP2 was also internally criticized at the time of its announcement in 2006. I (and others) openly raised concern when SOMP2 was announced but the Province was unwavering in their commitment to maintain timber harvest levels consistent with levels allowed under SOMP1.

The release of the 2006 Recovery Strategy resulted in a prolonged three-year process of revisions to SOMP1 SRMZ habitat management areas in the Chilliwack and Sea-to-Sky NRD. In 2009, the Province released a document recommending Best Management Practices (BMP) to provide voluntary compliance with prescriptive guidance for licensees harvesting within spotted owl management areas. The Province also approved three more WHAs in the Cascades NRD, in addition to three WHAs I submitted (approved in 2006) as part of an independent planning process.

Two years later (in 2011), within the Chilliwack NRD, the Province converted SOMP2 SRMZs to WHAs to afford legal management under the Forest and Range Practices Act. In 2013, this conversion was completed for SOMP2 SRMZs in the Sea-to-Sky NRD. Within managed areas, two management designations were recognized:

- 1) Managed Future Habitat Areas (MFHAs): the primary purpose of the MFHA is to provide timber harvesting opportunities by allowing Harvest with Retention (clear cuts with retention patches); and,
- 2) Long-term Owl Habitat Areas (LTOHAs): The primary purpose of the LTOHA is to recover and sustain the Spotted Owl population to prevent extirpation of the species. Harvest is permitted in these areas with the objective of enhancing habitat.

In describing the areas being managed for spotted owl habitat, under SOMP2, the Province is circumspect regarding the distinction between capable (i.e., disturbed (i.e., previously harvested) areas of immature forest that are not currently suitable for spotted owl but, with the passage of decades, have potential to mature into suitable habitat) and suitable habitat (old-growth forest currently suitable for use by spotted owl). An independent analysis of currently suitable habitat available within SOMP2 designations revealed that only 51% of the SOMP2 managed areas are considered currently suitable for use by spotted owl. In addition, these management areas represent only 31% of the available spotted owl Class A (breeding and nesting) habitat remaining on THLB today.

When SARCO announced the Province's Recovery Action Plan in 2006 the initial focus (until 2009) was limited to efforts afforded to spotted owl population augmentation and implementation of barred owl control measures. Barred owl control measures were purportedly focused on areas anticipated to be targeted for eventual release of captive-bred spotted owls (no captive bred spotted owls have been released to date). Barred owl control measures were also purportedly focused on extant spotted owl territories with intent to increase recruitment of breeding pairs and to improve nesting success of active breeding pairs. The habitat protection component of SOMP2 (as announced in 2006) was completed three years later.

In describing current management, the Province reports that *"As part of the Provincial Government's Spotted Owl Recovery Action Plan, the Province of British Columbia has protected 305,000 ha of forest for the spotted owl"* (Gillis 2016a) (**Figure 7**). The derivation of this estimate is uncertain as there was no supporting reference provided. As such, Wilderness Committee (WC) completed an independent GIS based analysis at my request. This analysis demonstrates that a total area of 396,247 ha is currently mapped within "managed areas" (under SOMP2 and under the Identified Wildlife Management Strategy⁹ (IWMS)) by the Province. At a glance this effort appears laudable; however, closer analysis shows that these designations include 208,025 ha (52.5%) of mapped areas that occur within already existing conservation designations (e.g., Provincial Parks and municipal watersheds). In terms of actual forested area, on the THLB, that was set-aside for management the conservation gain, for spotted owl, is significantly lower. Only 188,222 ha of harvestable forested area (i.e., crown land on the Timber Harvesting Land Base (THLB)) was designated for spotted owl habitat management under SOMP2. This figure is eroded even further when I considered management prescriptions within the 188,222 ha of designated management areas on the THLB, as 64,238 ha (34%) occurs within Managed Future Habitat Areas (MFHAs) whose *"primary purpose is to provide for timber harvesting opportunities"* (Blackburn et al 2009). In this context this is **very** misleading accounting – whilst the province claims 396,247 ha is being managed for spotted owl only the areas inside LTOHAs and WHAs, on the THLB, were actually protected for spotted owl habitat conservation and these areas only amount to 123,984 ha (or 31%) of the area purportedly afforded focused (special) management for spotted owl by the Province under SOMP2.

Taken further, the WC also analyzed the amount of habitat that is currently suitable for breeding use (Class A habitat) within the SOMP2 areas; this results in an even more disheartening statistic (**Table 1 and Figure 7**). There are two SOMP2 two management designations within SOMP2 spotted owl WHAs in the Chilliwack and Sea-to-Sky NRD; these are described and summarized below.

1. **Managed Future Habitat Areas (MFHAs) (total area = 64,238 ha):** Only 28,198 (44%) of the total area of MFHAs remains as suitable habitat for use by spotted owl. The remaining 56% has been

⁹ The IWMS is a component of the Forest and Range Practices Act (FRPA) that allows focused habitat management to species listed on the Category of Species at Risk through the designation of Wildlife Habitat Areas (WHAs). WHAs can be legally designated, as orders under FRPA, where recognized habitat features occur on Provincial Crown land.

previously harvested and affords no current benefit to the owl. Commercial forest harvest of remaining spotted owl habitat is encouraged within these (MFHA) areas.

2. Long-Term Owl Habitat Areas (LTOHAs) (total area = 103,823 ha): Only 57,851 ha (56%) of the total area of spotted owl WHAs remains as suitable habitat for use by spotted owl. The Province states that *“The primary purpose of the LTOHA is to recover and sustain the Spotted Owl population to prevent extirpation of the species”* (Blackburn et al. 2009) yet 44% of these areas have been previously disturbed and thus afford no current benefit to the owl.

Within the Cascades NRD there was an initial commitment to designate nine WHAs, in addition to the 31 SRMZs (converted to WHAs) under SOMP2 in the Chilliwack and Sea-to-Sky NRD. This commitment was never met – only six WHAs (total area = 20,161 ha) were designated within the Cascades NRD. Within these WHAs only 9,068 ha (45%) is currently comprised of suitable habitat for use by spotted owl (**Table 1 and Figure 8**).

In total, there were 31 SRMZs (later converted to WHAs in 2011 (Chilliwack NRD) and 2013 (Sea-to-Sky NRD) established under SOMP2 (**Table 1**) and six WHAs in the Cascades NRD. The Province’s inclusion of habitats that were already protected within existing conservation designations (e.g., Provincial Parks) or within lands managed by the Greater Vancouver Regional District (GVRD)¹⁰ provides a misleading measure of conservation commitment, by the Province, towards spotted owl recovery. Similarly, the Province’s quantification of habitat being managed for spotted owl is also misleading; the data in **Table 1** illustrates that in reality only 51% of the habitat being managed under SOMP2 (including the Cascades NRD) is actually currently suitable for use by spotted owls and only 66,919 ha (16.8%) of Class A habitat protected on the THLB by SOMP2 is actually suitable for use by spotted owl today.

Restrictive habitat conservation measures are a legacy that undermined both SOMP1 and SOMP2. Under SOMP1 the Province imposed an area-based ‘cap’ to ensure that the impact of habitat management measures did not to exceed 4.5% of the THLB harvest allocation in the Chilliwack and Sea-to-Sky NRD. The same limit used for SOMP1 was also applied during delineation of habitat management designations for SOMP2 and is referred to as the ‘no net loss’ policy. This was recognized by SORT (for SOMP1) and by CSORT (for SOMP2) as a fundamental challenge to recovery. Regardless of this recognition, implementation of SOMP2 proceeded and these restrictions are reflected in current habitat management by the Province.

¹⁰ It is challenging to resolve the discrepancy in the Provinces reported estimate of forest managed for spotted owl (305,000 ha) with the actual area within mapped management units.

Table 1: Summary of SRMZs and WHAs including the area of each SRMZ or WHA designation and the percentage of currently suitable spotted owl habitat that remains within each designated area.

SRMZ Name	Designation	WHA ID	Prescription	Area (ha)	% Suitable
Liumchen Creek	LTOHA A	2-497	Harvest to Enhance	983	24%
Elk Creek	LTOHA A	2-501	Harvest to Enhance	2,590	45%
Stokke Creek	LTOHA A	2-505	Harvest to Enhance	3,261	56%
Speyum Creek	LTOHA A	2-507	Harvest to Enhance	3,240	52%
Mowhokam Creek	LTOHA A	2-508	Harvest to Enhance	1,725	64%
Tantalus	LTOHA A	2-517	Harvest to Enhance	198	9%
Manning/Sumallo	LTOHA B	2-494	Harvest to Enhance	4,355	57%
Hornet/Clear	LTOHA B	2-503	Harvest to Enhance	3,150	54%
Spuzzum/Urquhart	LTOHA B	2-506	Harvest to Enhance	3,672	60%
Douglas	LTOHA B	2-518	Harvest to Enhance	3,878	68%
Chilliwack Lake/Depot Creek	LTOHA C	2-495	Harvest to Enhance	3,031	40%
Coquihalla/Sowaqua	LTOHA C	2-498	Harvest to Enhance	9,608	60%
Ure Creek	LTOHA C	2-520	Harvest to Enhance	1,959	58%
Birkenhead	LTOHA C	2-523	Harvest to Enhance	9,124	46%
Nahatlatch River	LTOHA D	2-509	Harvest to Enhance	8,349	53%
Glacier/Tuwasus	LTOHA D	2-519	Harvest to Enhance	5,247	78%
Twin One/Twin Two	LTOHA D	2-521	Harvest to Enhance	4,543	55%
Silverhope Creek	LTOHA E	2-496	Harvest to Enhance	7,064	56%
Tincup Creek	LTOHA E	2-510	Harvest to Enhance	3,254	64%
Anderson/Utzlius	LTOHA G	2-502	Harvest to Enhance	21,379	55%
Lillooet River	LTOHA A	2-522	Harvest to Enhance	3,215	50%
	TOTAL LTOHA			103,823	56%
Sasquatch	MFHA A	2-499	Harvest with Retention	2,465	8%
Hornet/Clear	MFHA A	2-503	Harvest with Retention	3,255	38%
Ure Creek	MFHA A	2-520	Harvest with Retention	3,926	50%
Liumchen Creek	MFHA B	2-497	Harvest with Retention	512	0%
Trethewey Creek	MFHA B	2-504	Harvest with Retention	10,971	52%
Douglas	MFHA B	2-518	Harvest with Retention	672	74%
Birkenhead	MFHA B	2-523	Harvest with Retention	4,822	38%
Chehalis	MFHA C	2-500	Harvest with Retention	11,949	42%
Tantalus	MFHA C	2-517	Harvest with Retention	4,899	31%
Twin One/Twin Two	MFHA D	2-521	Harvest with Retention	1,816	39%
Glacier/Tuwasus	MFHA F	2-519	Harvest with Retention	5,934	58%
Cheakamus	MFHA X	2-524	Harvest with Retention	6,338	51%
Wedgemount/Green	MFHA X	2-525	Harvest with Retention	6,679	42%
	TOTAL MFHA			64,238	44%
Boulder West	WHA	3-034	No future harvest	3,955	44%
Copper Creek	WHA	3-035	No future harvest	3,239	48%
Enterprise Creek	WHA	3-036	No future harvest	3,398	42%
Mowhokam	WHA	3-158	No future harvest	2,614	42%
Nesikep	WHA	3-159	No future harvest	2,997	54%
Lost Valley - Anderson	WHA	3-160	No future harvest	3,958	41%
	TOTAL WHA			20,161	45%

In summary, in the Province's estimate of area of habitat being *managed* for spotted owl there is no distinction between **capable** (i.e., previously harvested areas that, with time, may acquire suitable habitat attributes) and currently **suitable** habitat. This distinction is critical to recovery as areas comprised of early seral forest that are merely *capable* of becoming suitable habitat with the passage of time does not favour spotted owl recovery in the short-term. This issue is exemplified in **Figure 7**. It is readily apparent that the WHA boundary (red and blue shaded areas) depicting the managed area for spotted owl) contains little currently suitable Class A forested habitat for spotted owls (as indicated in green).

The WC GIS analysis of currently suitable Class A habitat within all THLB areas managed for spotted owl under SOMP2 (188,222 ha) demonstrates that only 95,117 hectares (51 %) represents currently suitable Class A habitat (**Table 2**).

This GIS analysis was next extended to determine the area of Class A suitable habitat for spotted owl that currently occurs on the THLB within the defined range of the species. In total there is 314,959 ha of suitable spotted owl habitat remaining on the THLB in BC. Less than 31% of available spotted owl Class A habitat on the THLB (within the defined range) is currently being managed¹¹ for spotted owl recovery within Provincially designated spotted owl habitat management afforded to only three (of four) NRDs that historically supported spotted owl in BC.

¹¹ Even within managed areas under SOMP2 WHA designation harvest is still permitted, with 64,328 ha of the total 188,222 occurring with MFHAs whose stated primary purpose is to provide timber harvesting opportunities to commercial operators for economic gain.

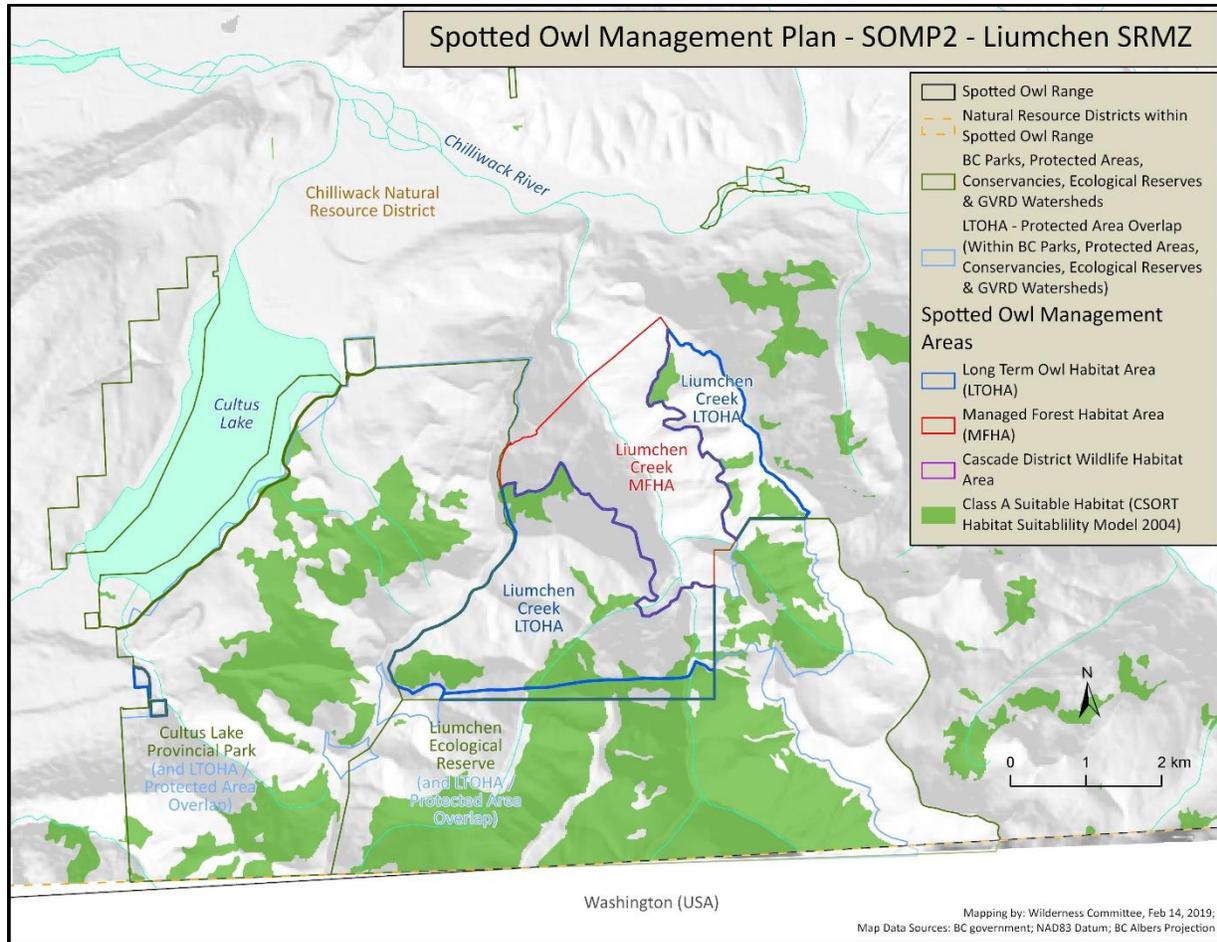


Figure 7: An example of misleading accounting is evident in the map depicting current remaining Class A suitable spotted owl habitat (239 ha) within the Liumchen Creek WHA (total area: 1,485 ha). Less than 16 percent of the area reported by the Province as “managed for spotted owl” contains currently suitable spotted owl habitat¹². This habitat condition is characteristic within all spotted owl WHAs (to varying degrees) and is consistent under SOMP1, and now under SOMP2.

¹² Each LTOHA is purported to achieve (in the distant future) suitable spotted owl habitat within the entire SRMZ area (i.e., 100% of the SRMZ area). Achievement of the management goal is purportedly to occur through conservation of existing spotted owl habitats and creation of additional spotted owl habitats using Habitat Enhancement Practices (HEPs). In my opinion (and as iterated by D’Anjou et al. 2015) this practice is unlikely to result in benefit to existing spotted owl habitat when applied to old growth or suitable forested habitat).

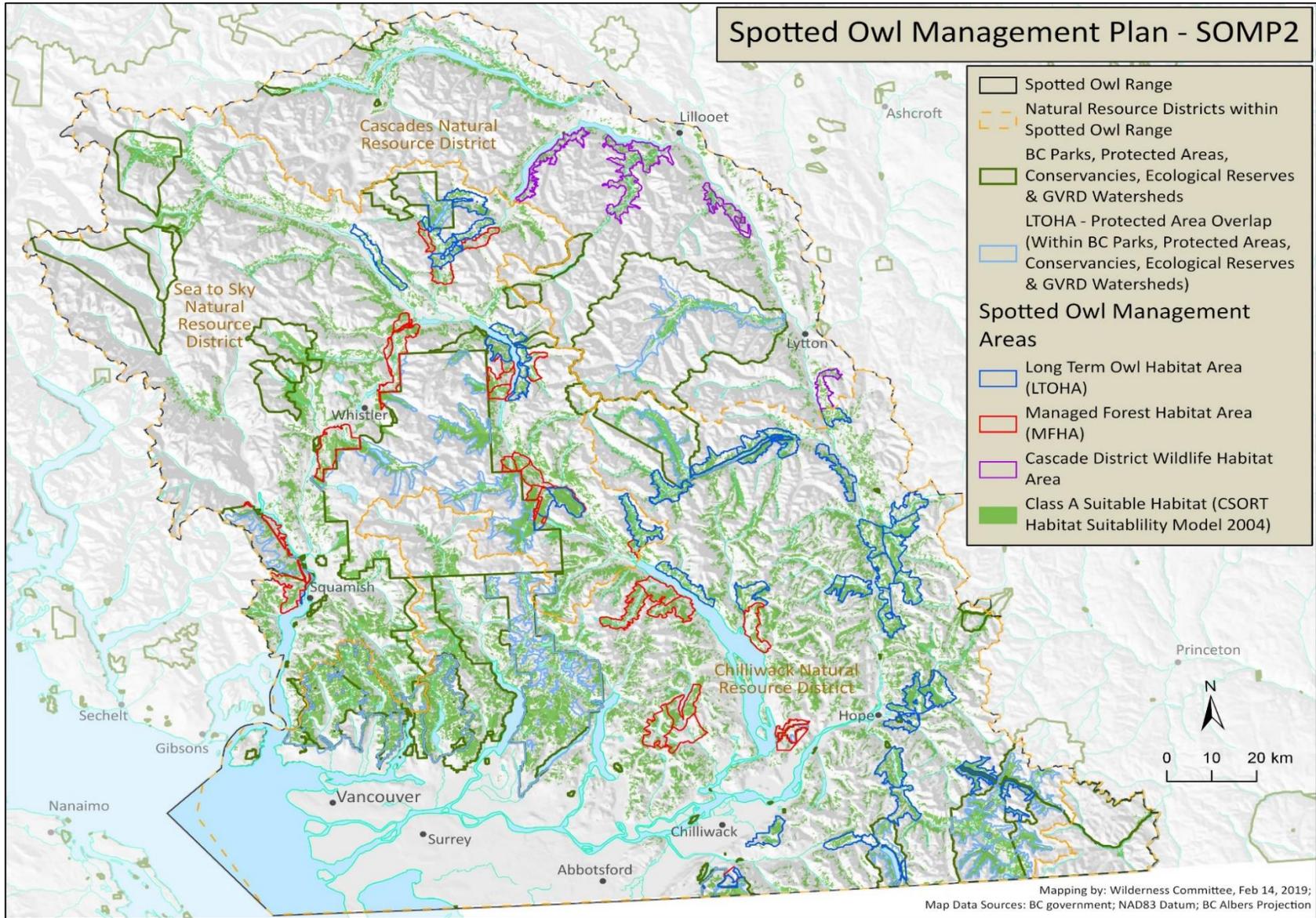


Figure 8: Spotted owl management in BC, under SOMP2 and IWMS.

7. How has British Columbia's management and protection of habitat affected the survival or recovery of the Spotted Owl?

Synopsis: Precise quantification of direct effects of habitat loss, from timber harvest, are unattainable as there are no requirements, in BC, to survey for spotted owls prior to commercial harvest of suitable habitat. Instead, effects must be inferred based on logical assessment of direct effects from habitat loss in accordance with literature-based consensus documenting the effects of commercial forestry on spotted owl from the US.

Forest resource management continues to impose a deleterious competing interest (i.e., revenue generation from forest harvest) upon available remaining suitable spotted owl habitat. Previous and continued harvest of old growth forest has resulted in dramatically diminished availability of suitable habitat on the landscape, with remaining suitable habitat becoming increasingly rare and fragmented rendering remaining small 'patches' of habitat un-usable. This has a concomitant and directly proportionate negative effect on recovery and survival of spotted owl.

SOMP2 was predicated on a principle of no-net loss to timber revenue relative to SOMP1 despite the obvious indication, as evidenced by the owl's decline, that the level of protection afforded to suitable habitat was insufficient to stabilize or reverse the declining population trend. SOMP1 was openly rejected by SORT; SOMP2 was also internally criticized at the time of its announcement in 2006. I (and others) openly raised concern when SOMP2 was announced but the Province was unwavering in their commitment to maintain timber harvest levels consistent with levels allowed under SOMP1.

By failing to distinguish between capable and suitable habitat the Province's estimates, when describing the area of managed forest, convey a misleading characterization of habitat conservation. The continued loss of suitable old growth forested habitat continues to jeopardize the ability of the species to persist, or recover, in BC.

Spotted owl recovery is directly affected by loss of habitat. The Provincial Recovery Strategy (Chutter et al. 2004) identified ongoing habitat loss as a primary threat to continued spotted owl population persistence. This position is repeatedly re-iterated in published literature. The effect of habitat loss upon recovery is both immediate (measured area of mature forested habitat harvested) and long-term (effects on natal dispersal, recruitment, competition as a result of edge-effect, and availability and abundance of prey). As such, areas in the Cascades NRD were only relatively recently surveyed in 2002-2004 despite suspected occurrence in the Cascades NRD dating back to 1997. Although management was extended to the Cascades NRD in 2006 in response to my survey results, management (and survey) has never been afforded to the Sunshine Coast NRD. In that context it is inappropriate to provide a quantitative estimate of 'loss' or 'impact' to the resident BC spotted owl population throughout the entire historic range as there is simply no information available.

For the Cascades, Sea-to-Sky and Chilliwack NRD this question was addressed (by Sutherland et al. 2007) using desktop GIS-based predictive (assumption based) multivariate analysis using a Spatially Explicit

Landscape Event Simulation ((SELES) GIS model. The SELES model was last run in 2007; re-analysis with the SELES model using current habitat conditions could be conducted to further examine this question.

For reasons stated above a quantitative analysis of the effects of BC’s forest management is not feasible with existing data. I therefor requested that the Wilderness Committee (WC) analyzed the rate of depletion of mature forested habitat (as an acceptable proxy for suitable spotted owl habitat) that has resulted from commercial forest harvest from 2002 to 2018. This analysis was completed for both NRDs included in SOMP2 (Sea-to-Sky and Chilliwack), and in the Cascades NRD (managed under the Identified Wildlife Management Strategy (IWMS)). These results are summarized on an annual basis, since 2002, and presented in **Table 2**.

Table 2: Rate of potential spotted owl habitat loss, under pre-SOMP2 and post-SOMP2 management regimes, as a result of commercial harvest of old-growth forest within the Chilliwack and Sea-to-Sky NRD.

Year	Hectares of old-growth forest harvested	
2000	3,215	
2001	2,218	
2002	2,536	
2003	2,023	
2004	3,011	
2005	1,783	
2006	2,148	
2007	2,131	
2008	946	
2009	1,008	
2010	1,001	
2011	1,501	
2012	1,410	
2013	1,561	
2014	1,403	
2015	1,144	
2016	870	
Total	29,909	This image was taken near Anderson Creek, inside an SRMZ within a formerly occupied spotted owl activity center (breeding and roosting location).

This analysis, and insights from US literature and the SELES model in BC (Sutherland et al. 2007) afford insight into the Province’s management of spotted owl habitat in the Chilliwack and Sea-to-Sky NRD. This approach allows quantitative assessment of the effects of the Province’s approach to habitat management practices on the BC population of spotted owl. In total, the Province has approved harvest of 29,909 ha of mature forest habitat since 2000. This may seem insignificant but it represents 31% of the total area of Type A nesting habitat (95,117 ha) that the province is currently managing for spotted owl. In more tangible terms, this represents about 10 spotted owl territories that have been logged since 2000 despite elevated concern for the plight of the species and full awareness of the

interdependence of spotted owl persistence (and recovery) and the amount and distribution of suitable habitat on the landscape.

In that context it is logical to conclude that habitat loss has had, and continues to have, a negative effect on spotted owl recovery potential in BC. Habitat loss, as a result of government proposed and approved commercial forest harvest, continues today.

8. How has British Columbia managed key threats to Spotted Owl habitat?

Synopsis: In summary, the history of spotted owl habitat management, by the Province, is convoluted and undermined by its own complexity. In practical terms, habitat loss, the key threat to spotted owl population viability and recovery, has resulted in substantial reduction in available owl habitat. Pre-European contact, there was an estimated 939,800 ha of spotted owl habitat (Chutter et al. 2004) within the Chilliwack and Sea-to-Sky NRD's. Of this, 477,300 ha (51%) is considered as “contributing” to the Timber Harvesting Land Base (THLB) (upon which timber resource extractions may occur). Today the amount of currently suitable spotted owl habitat is further reduced, mostly existing as isolated patches within Provincial Parks and within GVRD lands. Commercial forest harvest practices, as managed by the Province, have resulted in a patchily distributed mosaic of forest age classes on the landscape; these conditions favor barred owls (competitors) and great horned owls (predators), disfavour spotted owl survival and recruitment and have contributed to the species practical extirpation from BC by 2018.

The following text provides clarification of spotted owl habitat management afforded by the Province under both SOMP1 and SOMP2.

- **SOMP1:** habitat was managed within Special Resource Management Zones (SRMZs) that encompassed 363,000 ha of suitable and capable habitat. Two forest management regimes were prescribed under SOMP1:
 1. Light Volume Removal (LVR) was applied within Long-term Owl Activity Centres (LTACs).
 2. Heavy Volume Removal (i.e., clear-cutting) (HVR) was applied within Forest Management Areas (FMAs) that were designated as Matrix areas.
- **SOMP2:** Habitat management provided under SOMP1 and SOMP2 is applicable within only the Chilliwack and Sea-to-Sky NRD. Habitat in the Cascades NRD is managed under IWMS and there is no management afforded to spotted owl habitat within the Sunshine Coast NRD. A total of 396,247 ha is purportedly being managed within WHA boundaries (under SOMP2 and IWMS) although this includes 208,025 ha that was already afforded protection within existing conservation designations. As such, only 188,222 ha of THLB area is afforded management under SOMP2 and IWMS and only 51% of that represents currently suitable Class A habitat for spotted owl.

After 2011, SRMZs were legally designated as WHAs and are now managed under the IWMS; the same forest management practices developed for SRMZs were applied, through GWMs within WHAs. Within WHAs in the Sea-to-Sky and Chilliwack NRD there are two spatial designations with

different prescriptive guidance for each designation as described in response to Question 6. The WHAs under SOMP2 (in the Chilliwack and Sea-to-Sky NRDs) include Long-term Owl Habitat Areas (LTOHAs) and Managed Future Habitat Areas (MFHAs). MFHA's are intended to provide replacement habitat in the event of catastrophic loss (i.e., fire) within a LTOHA, yet the explicitly stated primary purpose of the MFHA is *"to provide for timber harvesting opportunities while maintaining future options for all or portions of the MFHA to become Spotted Owl habitat, if necessary."* (Blackburn et al. 2009). It is not clear how the Province will achieve these competing objectives, nor how it will determine when it might be necessary to protect the small areas of remaining spotted owl habitat within MFHAs. Regardless of these issues the overarching intent of SOMP2 was to create a more 'natural' canopy gap and forest structure relative to SOMP1 following two prescriptive forestry methods:

1. Habitat Enhancement Practices (HEPs) are to be applied within LTOHAs (replaced Light Volume Removal (LVR) applied under SOMP1 within SRMZs). HEP prescriptions are now set within LTOHAs to promote recruitment of spotted owl habitat until 100%¹³ of the forested area can mature to become suitable for use by spotted owls. These prescriptions are intended to *"retain stand integrity and enhance stand structure through accelerated development of stand attributes associated with owl habitat."* (D'Anjou et al. 2015).
2. Harvest with Retention (HWR): This harvest method replaced the HVR (i.e., clear-cutting) prescription under SOMP1 by prescribing retention of 'seed tree' patches within clear-cut harvest areas. HWR is permitted within Managed Future Habitat Areas (MFHAs) and theoretically allows for retention of 'green (live)' trees, Course Woody Debris (CWD) and wildlife (veteran) trees to create structural diversity for spotted owl and their prey.

A GIS analysis was also completed to calculate the area of currently suitable (Class A) habitat within the spotted owl's defined range in BC within the Chilliwack, Sea-to-Sky and Cascades NRD (**Table 3**).

Table 3: Area of currently suitable Class A habitat with the defined range of the species in BC.

Total area of suitable Class A habitat in the defined range of the species.	533,306 ha (100%)
Total area of protected suitable Class A habitat within all Parks and GVRD lands	151,428 ha (28.5%)
Total area of protected suitable Class A habitat under SOMP2 (i.e., including WHAs within the Cascades, Chilliwack and the Sea-to-Sky NRD but excluding MFHAs as that habitat is not protected from harvest).	66,919 ha (12.5%)
Total area of unprotected suitable Class A habitat on THLB. Commercial forest harvest is permitted without survey, or without regard, for spotted owl recovery.	314,959 ha (59%)

This quantitative GIS analysis show that there is currently 314,959 ha of Class A suitable spotted owl habitat located on crown land within the THLB in BC. This habitat is not afforded any conservation or

¹³ Note: Many of the SRMZs were well below this designation target when they were mapped under SOMP1 and SOMP2.

management for spotted owl and is treated as productive forest land within the Timber Harvesting Land Base (THLB). As such, 314,959 ha of Class A spotted owl habitat can be clear-cut without any requirement to survey to determine current use by spotted owl or to offset habitat loss that may impact spotted owl recovery potential. This is a fundamental challenge to spotted owl recovery in BC. For context SOMP2 only afforded protection to 66,919 ha of spotted owl Class A habitat on the THLB; this represents only 12.5% of the total available Class A spotted owl habitat within the defined range of the species in BC.

Table 4: Clarification of Terms:

SOMP1 (SRMZs and Matrix areas)	SOMP2 (WHAs)
SRMZ (67% habitat retention in LTACs with adjacent matrix areas where harvest was permitted)	LTOHA (100% habitat retention) (managed primarily for conservation and creation of owl habitat)
FMA (Forest Management Areas) were designated within Matrix Areas	MFHA (Managed Future Habitat Area) (managed primarily for timber harvesting)
LVR (Light Volume Removal) (thinning in SRMZ LTAC) was allowed as long as 67% of the SRMZ remained as owl habitat (under SOMP1 habitat model which was overly optimistic).	HEP (Habitat Enhancement Practices) are permitted within LTOHAs and replace the HWR rules from SOMP1 (intended for 60-140 year-old stands).
HVR (Heavy Volume Removal) (clear-cutting) allowed within matrix areas and SRMZs where >67% was deemed suitable (under old HSI model).	HWR (Harvest with Retention) (only allowed in MFHA).

D’Anjou et al. (2015) provided a simple comparative analysis of forest management under SOMP 1 (from 1997-2009) and SOMP2. Under SOMP1 *“Spotted Owl habitat was managed on a stand-level basis within Spotted Owl Resource Management Zones, where operational guidelines for two forest-management approaches (light volume removal and heavy volume removal) were used. Under SOMP2, Spotted Owl habitat is managed as Long-Term Owl Habitat Areas or as Managed Future Habitat Areas”* within SRMZs (now designated as WHAs). Under SOMP2, Habitat enhancement practices are prescribed within the Long-Term Owl Habitat Areas; these replaced light volume removal as prescribed under SOMP1. Harvest with retention (clear-cuts with seed tree patches) replaced SOMP1 heavy volume removal (i.e., clear-cuts) and is applied within the Managed Future Habitat Area (D’Anjou et al. 2015).

D’Anjou et al. (2015) concluded that the changes under SOMP2, relative to SOMP1, are effectively insubstantial – I agree. In more practical terms management activities that will be permitted under SOMP2 are very subtle and may be critically viewed as assigning new names to the same detrimental forestry practices. For example, “Harvest with Retention” (HWR) is essentially clear-cut harvest with retention of a seed patch – this prescription was already in place under SOMP1 (it was called HVR). The resulting effect of HVR or HWR is identical from a biological perspective; both practices result in loss of spotted owl habitat.

In practice these prescriptions have disconcerting implications for spotted owls. To illustrate this concern; the Province’s BC Timber Sales (BCTS) program has applied for HEP in a LTOHA in the Spuzzum

SRMZ; at the outset this application is in violation of the terms of SOMP2 as the harvest will occur within habitat reasonably identified as a “critical roost zone or nest area” yet the proposed (Category I) cut-blocks are still under consideration and review by the Province.

Based on analysis of harvest changes between 1997 and 2011 D’Anjou et al. (2015) concluded:

“Overall, this comparative review indicated that the transition from SOMP1 to SOMP2 has produced (subtle) changes and refinements to...habitat management objectives, forest management approaches, and operational practices and targets.... Of interest is whether these differences in management and eventual outcomes will create significant differences in enhancement and recruitment of stand attributes associated with superior owl habitat, and whether SOMP2 will result in more and better-quality (spotted owl) habitat.” The conclusion reached by D’Anjou et al. (2015) is that the difference between SOMP1 and SOMP2 is subtle; the authors have also questioned eventual outcomes to spotted owl recovery under SOMP2. I share the author’s concerns.



This juvenile spotted owl was fledged by the nesting pair I found at Sockeye Creek in 2003. It died near Lillooet in 2004, after dispersing a cumulative total distance of 133.9 km. This large dispersal distance, and fate, was shared by all of the spotted owls I tracked (over several years) and is indicative of fragmented forest condition on the landscape.

9. How has British Columbia's management of (other) key threats to the habitat affected the survival or recovery of Spotted Owl?

Synopsis: Management of key threats to habitat, other than commercial forest harvest, is considered to have a relatively minimal effect on spotted owl recovery.

Relative to commercial forest harvest each of these effects are suspected to be minimal. With specific reference to key threats to spotted owl habitat other than commercial forest harvest, these threats include:

- fire and post-fire management (i.e., salvage logging),
- management for mountain pine beetle (*Dendroctonus ponderosae*) (i.e., salvage harvest in response to beetle-kill); and,
- long-term effects of climate change.

Salvage harvesting is typically permitted within the mapped 'boundary' of the fire. The Province (BC MFLNRORD) predictively maps wildfire boundaries in a remote desktop-based GIS mapping process that extrapolates the extent of the burnt area as the fire is advancing on the landscape. In many cases boundaries are mapped well beyond the final or actual 'footprint' of the fire which creates an incentive to harvest within unburnt suitable spotted owl habitat, under the guise of salvage logging, as commercial harvest within these areas is not subject to stumpage fees that are charged by the Government during non-Salvage logging operations.

I'm aware of at least one instance where salvage harvest was conducted in response to fire within unburnt suitable occupied spotted owl nesting habitat (e.g., Enterprise Creek "salvage harvest" by Ainsworth Lumber).



Commercial harvest within areas mapped as beetle-killed or burnt is often conducted beyond the actual impacted area.

10. How has British Columbia managed key threats, other than to habitat, of the Spotted Owl?

Synopsis: Beyond the primary threat resulting from habitat loss there are several ecological attributes that threaten spotted owl survival and recovery. The next most pronounced deleterious effect is decreasing population density (typically as a direct result of habitat loss). Population density adversely affects juvenile survivorship and recruitment into the adult breeding population. The Allee effect (a biological theory) posits that the probability of encountering a mate diminishes as a population declines. For spotted owl settlement behaviour is promoted by the presence of conspecifics (i.e., another spotted owl). Juvenile spotted owls continue to disperse on the landscape until they encounter another spotted owl, or until they die of starvation (exacerbated by competition for prey from barred owls) or from depredation (exacerbated by increasing density of great horned owl as a positive response to increased forest fragmentation). BC is attempting to manage this threat by attempting to breed spotted owls in captivity with the eventual intent (if successful) to release spotted owls back into the wild.

Competition with barred owl and depredation from great horned owl are secondary threats. Initial recovery efforts under SOMP2 from 2006-2009 emphasized captive breeding of spotted owls, and barred owl control, with priority and urgency afforded to these threats instead of habitat conservation and management. After an unsuccessful spotted owl translocation effort in 2002, and attempted supplemental feeding programs from 2003-2004, a 12-year long effort to manage juvenile recruitment via captive breeding resulted in a net-negative impact to BC's wild spotted owl population. The captive breeding program is ongoing despite no net benefit and very limited success. The barred owl control program is also ongoing and has been purported to have resulted in some (potential/unmeasurable) benefit to spotted owls at previously known occupied sites but moral and logistical considerations warrant attention. To date there have been no known attempts at control of great horned owl by the Province.

Threats external to considerations regarding habitat include, primarily, the Allee effect (1) and secondarily competition from barred owl (2) and depredation from great horned owl (3).

1. **Allee Effect:** BC is currently attempting to address the Allee effect (negative effects on juvenile recruitment) by breeding spotted owls in captivity (see response to Question 11, point 6, for a definition of the Allee Effect). The forecasted commitment (in 2006) was to release 20 captive bred spotted owls back into the wild (annually) to promote settlement and recruitment. To date, 12 years later, eight captive owls have been bred. To achieve this at least ten owls have been removed from BC's wild population resulting in a net-negative impact to BC's wild spotted owl population after 12 years of focused captive breeding efforts. Actions preceding current captive breeding efforts included translocation (following overwintering of a captured wild-bred spotted owl) and supplemental feeding of dispersing juvenile spotted owls between 2003 and 2004. This effort is summarized below:

- I. In 2002, the BC government attempted translocation of a single juvenile spotted owl captured near Enterprise Creek, overwintered and released at Sumallo Grove (Skagit Park) near Hope, BC. Unfortunately, this attempt was poorly researched and implementation of the release strategy was compromised by an inaccurate interpretation of field survey results conducted for the Province by Keystone Consulting. The translocated juvenile owl was released into an active paired site in late winter (a particularly inhospitable period for raptors in BC). I surveyed the site after the release occurred and determined it was already occupied by a pair of breeding spotted owls. I had also raised concern, prior to release, that the habitat at Sumallo Grove (CWH BEC Zone) differed from the habitat at the capture site near Lillooet (IDF BEC Zone). The wetter/colder climate at the release site (at the time of release) created challenging conditions for a wild-born owl that had just spent six months penned in a very small enclosure. On that point, I had requested that the owl be fed, whilst in captivity, a natural diet to include bushy-tailed woodrat and northern flying squirrel; my request was not followed – the captive owl was instead fed domesticated mice. Finally, I also advocated that the owl be “hacked” (soft-release from an in-situ enclosure with food) but this recommendation was also not implemented. Instead the Province (I. Blackburn) proposed that the field crew (led by Keystone) would monitor the owl daily, post-release, using telemetry to ensure adequate supplemental feeding immediately post-release. This approach was also not successful as the technician was unable to track and follow the owl as he judged that the owl had moved too far from the road (~2km) and deemed the effort required unwarranted. The owl was found ~11 days post-release in a severely emaciated condition. It was found and delivered (by a road-work crew) to the South Okanagan Rehabilitation Centre for Owls (run by Sherri Klein) where it was used to pose for several media publicity ‘shoots’ for fundraising purposes (for the rehabilitation centre). This was contrary to explicitly stated permit stipulations. No charges were laid by the Province for this permit violation - the owl died after a few days in the rehabilitation facility.
- II. In 2003, after the Province’s failed attempt at over-wintering and translocating a captured wild owl the government ceased, at my insistence, a second and third attempt at translocation in 2003 and 2004. Instead I successfully implemented an experimental supplemental feeding program. In the post-fledging period, continuing through the winter and spring of the year following natal dispersal, I monitored and tracked juvenile spotted owls and provided food, on a 6-10 day rotation, to seven dispersing juvenile spotted owls I had found in 2004 and 2005 (n=7 (Hobbs 2004, Hobbs 2005)). I believe supplemental feeding positively influenced juvenile survival, but efforts were insufficient to ensure survival to recruitment into the adult resident breeding population. This program did however garner insight into dispersal movements, including documentation of natural survival rates and natural movement/connectivity corridors. This information was used to inform reserve design in subsequent habitat protections. This effort led to the eventual successful legal designation of six WHAs in

the Cascades NRD. These legal designations are today the only protective habitat measures afforded to spotted owl in the Cascades NRD¹⁴.

- III. In 2006, SARCO released the BC Recovery Action Plan. The release announcement claimed consistency with, and adherence to, the 2006 CSORT management strategy (released as guidance to government to inform development of the SARCO led action plan). The 2006 Action Plan detailed a commitment to implement a captive breeding program with a much-delayed implementation of habitat conservation measures.

2) Barred owl: Secondary threats include competition, by barred owls, for resources (food/habitat). The main predation risk to spotted owls is from great-horned owls and, to a lesser degree, northern goshawk. To address this secondary threat the Province initiated a barred owl control program in 2006. The barred owl control program has, to date, removed 189 barred owls (138 captured and relocated; 51 shot). There has been purported benefit to resident spotted owls at removal sites (Gillis 2016a); however, the sustainability of these efforts is questionable in the context of effort, moral values, and counter-effects from natural recruitment rates of barred owls within the range of spotted owl in BC. Based on productivity and sympatric population estimates, anticipated recruitment rates for barred owl are approximated at 5,400 new barred owls fledged within the spotted owl's range in BC annually.

3) Great horned owl: The third order key threat (other than threats to habitat) is depredation by great horned owl. To date there have been no (publicly disclosed) attempts at control of great horned owl by the Province.



A barred owl perches, vigilant, waiting for prey. Their generalist ecology gives them a competitive edge over spotted owls where they co-occur



Great horned owls are much larger than spotted owls, and are a formidable predator.

¹⁴ During the consultation process an MOU was signed by government and Ainsworth Logging (Lillooet) with a commitment to not harvest owl habitat within the nest grove or core activity center at any active spotted owl sites. Despite the MOU (November 25, 2003) Ainsworth Lumber harvested within the nest grove / activity centre at two proposed WHAs (Enterprise and Nesikep). WC protested, and a media article (Vancouver Sun: Larry Pynn) was released to bring attention to this contravention. The WHAs were eventually designated but the territory cores were, by then, already compromised at both sites.

11. How has British Columbia's management of these key threats affected the survival or recovery of the Spotted Owl?

Synopsis: Understanding the effect of BC's management upon all key threats affecting spotted owl recovery requires consideration of six key life-history attributes that influence spotted owl survival. These key ecological attributes, exacerbated by the species' specialist behavior, include: habitat dilution (loss of suitable forested habitat (primarily from commercial forest harvest), reduced prey accessibility (due to an increase in stem density during post-harvest forest succession), reduced prey abundance (due to reduction in prey abundance in post-harvest landscapes), increased competition for diminishing prey resources (as a result of an increasing barred owl population), increased predation risk (particularly upon dispersing juvenile spotted owls), and the Allee effect (decline of population below a critical population persistence threshold). The Province's management of these threats has been outlined in response to Questions 7 to 11. Continued loss of suitable old growth forested habitat continues to compromise survival and recovery of spotted owls in BC as it negatively influences productivity and survivorship via each of these ecological stressors.

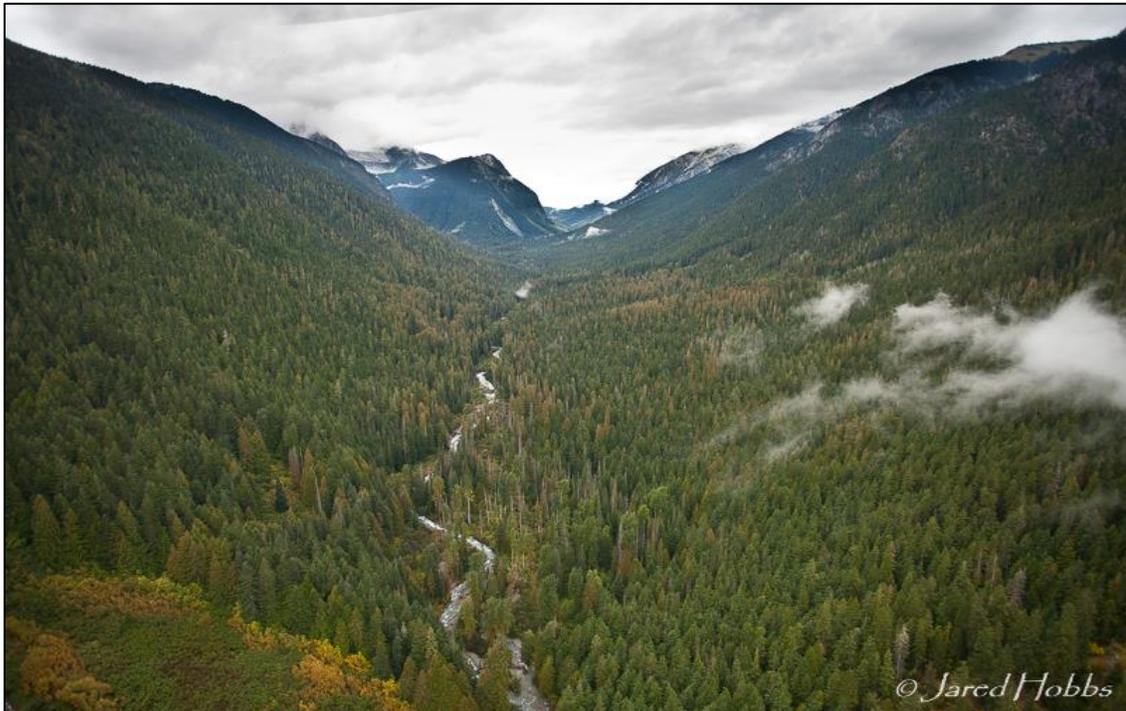
In responding to this question, I have assumed inclusive consideration of all previously discussed threats and responded by assessing the Province's management of all the described threats to survival and recovery of spotted owl in BC. The preceding questions are re-presented below for clarity:

- Question 7: *"How has British Columbia's management and protection of habitat affected the survival or recovery of the Spotted Owl?"*
- Question 8 *"How has British Columbia managed key threats to spotted owl habitat?"*
- Question 9: *"How has British Columbia's management of (other) key threats to the habitat affected the survival or recovery of Spotted Owl?"*; and,
- Question 10: *"How has British Columbia managed key threats, other than to habitat, of the spotted owl?"*

As explained in my response to Question 7 this question cannot be answered quantitatively when assessing impact of forest harvest, using existing data, as the Province does not require survey prior to harvest of spotted owl habitat. Without a "Before/After-Control/Impact" (BACI) experimental design it is impossible to accurately quantify effects from realized threats. Instead, I have responded based on consideration of peer-reviewed published articles to afford an in-depth and thorough understanding of spotted owl ecology, and thus spotted owl population response. My response evaluates the effect of the Province's management (of *all* key threats) upon spotted owl recovery. I posit a qualitative assessment of the influence of habitat loss (post-European contact) by discussing six key life-history attributes that influence spotted owl survival in a modern landscape.

- 1) Habitat Dilution: Spotted owls are a 'resident' species – they occupy (and defend) a large (2,800-3,400 ha) territory year-round. The quality of forested habitat within their territory dictates their survival, or persistence, on the landscape as this directly influences their ability to secure (catch) their prey. Spotted owls are interior forest hunters (i.e., they hunt under the closed canopy of mature forest). As such, they depend on open, evenly spaced forests with low "stem-densities"

(see Question 3 or refer to Chutter et al. (2004): (37-185 stems/ha for coastal (wetter) ecosystems, 173-247 stems/ha for interior (drier) ecosystems)). These stem densities are characteristic of late succession old growth forested ecosystems in the Pacific Northwest. When mature forest is harvested it is converted to clear-cut areas (often with variable retention of small stands of seed-trees). These young age-class forests have to develop over 100-200 years through age classes 1-7 before attaining characteristics that create suitable foraging habitat for spotted owls. As suitable habitats disappear on the landscape, spotted owls are increasingly challenged to find sufficient habitat to maintain and occupy a viable territory year-round. In ecology this is termed 'habitat dilution effect'. When any organism is forced to expand its home range (area) in search of prey, economic theory dictates that the thermo-energetic cost of moving further must not exceed the reward (improved food supply); if it does the organism cannot persist. Under these conditions spotted owls must either abandon their territory (and disperse on landscape to settle elsewhere, with an associated risk and cost) or face starvation. BC's forest management practices have resulted in a highly fragmented mosaic of younger age-class forest in areas once dominated by old-growth coniferous forest throughout the species' range in BC. Loss of spotted owl habitat, range-wide, is repeatedly cited in the literature as the most dominant influential (causal) factor in spotted owl population declines; BC is no exception (Chutter et al. 2004). The current population and noted declines from trend monitoring (Blackburn et al. 2002) are most reasonably attributed to habitat loss (and thus habitat dilution) at the landscape scale (Chutter et al. 2004).



A pair of spotted owls once occupied this territory at Billygoat Creek – this illustrates ideal non-fragmented Class A habitat that is today only available within Provincial Park boundaries.

- 2) Prey accessibility: During forest succession from disturbance (clear-cut or natural loss) there is a dramatic increase in stem density (up to or exceeding 2,000 stems/ha); in maturing early seral forests spotted owls are unable to catch their prey as they can't forage (or fly) efficiently in dense forests. Their prey, even when present, is no longer 'available' to them. This has an obvious effect on survivorship. In response a resident owl may either abandon the territory or expand their movements to compensate for reduction in the area of mature (old-growth) forest in which they can more effectively forage.
- 3) Prey abundance: The literature also presents a second prevailing effect of forest harvest on spotted owl survival – prey abundance. The spotted owl is an upper trophic level carnivore that evolved along the west coast of North America (and Mexico). Before European contact their ecosystem was relatively stable and dominated by old-growth forested habitat. Evolutionary theory dictates that stable environments favor natural selection of specialist species (species with narrow niches and a specialized ecology). Specialist species evolved successfully by outcompeting other generalist species (i.e., species with a broad and adaptive niche ecology). Over millennia spotted owl and barred owl diverged from a common ancestor (likely the fulvous owl (*Strix fulvescens*), from Guatemala and Mexico). Barred owls occupied the east coast of North America (within patchy forested ecosystems with high edge-interior ratios) while spotted owls occupied mature contiguous areas of coniferous forests along the west coast of North America. In these stable mature forested habitats, with low edge-to-interior ratios 64.6% of the diet of the Northern spotted owl is comprised of tree squirrels (of this northern flying squirrel contributed 41.2% (Horoupiian et al. 2004)). Bushy tailed woodrat contributed 27.8% of the diet (Horoupiian et al. 2004). By converse, barred owls occupied forests along the east coast that featured a patchier age class with a mosaic of successional stages. In this environment of higher edge-to-interior ratios the barred owl learnt to be a generalist, preying on a greater diversity of prey items including: small mammals (e.g., mice, voles, flying squirrel and bushy-tailed woodrat), amphibians, birds, bats and large insects (e.g., noctuid moths) (Livezey et al. 2007). The advent of commercial forestry in coniferous forests along the west coast of North America rapidly altered the conditions spotted owls had evolved in and put them at a disadvantage due to their specialized ecology.
- 4) Competition: The effect of competition for limited resources (i.e., prey) by a generalist species (i.e., barred owl) upon a specialist species (i.e., spotted owl) is self-evident when demographic parameters (survivorship and fecundity) are examined. Both species weigh approximately 600-800 grams, and both species require ~56 grams of prey/day to persist yet barred owl populations have flourished while spotted owl populations crashed (Forsman et al. 2004). In a post-European landscape, commercial forest harvest of old growth forested areas results in a reduction in abundance of the spotted owl's primary prey items as both flying squirrel and bushy-tailed woodrat also depend on mature forest conditions. When the abundance of spotted owl prey diminishes survival is negatively affected as spotted owls lack the ecological plasticity to switch to prey items that fare better in a mosaic of successional stages (Livezey et al. 2007). Barred owls, by converse, flourish by capitalizing on a far more diverse prey base. A study by Diller et al. (2016) demonstrated that the continued decline in spotted owl abundance may be at least partially attributed to the presence of the congeneric invasive barred owl. Commercial

forest harvest has likely improved conditions for barred owl. Regardless of the cause barred owls have recently colonized the entire range of spotted owls in BC.

- 5) **Predation:** Since 2006 the Province has focused considerable efforts on removing barred owls from active spotted owl territories. No attention has been afforded to controlling the influence of the most common avian predators (including great horned owls and northern goshawk).
- 6) **Allee Effect:** For many species low population density (numbers) appears to strongly limit population growth. The Allee effect is pronounced, to varying degrees, in species with positive density dependence and is evidenced by a positive correlation between absolute average individual fitness (survivorship and productivity) and population density. This positive correlation may (but does not necessarily) give rise to a critical population size below which the population cannot persist (i.e., a minimum viable population size). In a long-term study (1987-1998) Lahaye et al. (2001) studied natal dispersal patterns in an insular population of spotted owl in Southern California; with a particular focus on territory acquisition rate in juvenile spotted owls. The authors concluded that the presence of conspecifics plays a key role in the settlement process for spotted owl; 78% of dispersing owls settled in occupied territories, 16% settled adjacent to occupied sites and only 6% settled at sites of unknown occupancy. No owls settled at sites that were unoccupied or not adjacent to occupied sites (Lahaye 2001). This finding demonstrates that spotted owl settlement, and ultimately recruitment in the breeding population, is strongly influenced by density dependence (the Allee Effect). At some point post-European contact commercial forestry activities (through habitat dilution) very plausibly diminished spotted owl population densities (within the species' range in BC) below a critical threshold resulting in sharp range-wide population decline. Spotted owl persistence (survival and recovery) in BC will continue to be challenged by the Allee effect.



A spotted owl swoops down on its prey – note the large wingspan. Prey is not as accessible to spotted owls in densely forested habitat.



Bushy-tailed woodrat are an important key prey item in BC.

12. In reference to the BC Habitat Model, how has British Columbia defined and described Spotted Owl habitat?

Synopsis: The Province has used Geographic Information Systems (GIS) desk-top based habitat modelling to define and describe spotted owl habitat quality. GIS based Habitat Suitability Index (HSI) models were used to delineate habitat reserves during development of both SOMP1 and SOMP2. HSI modelling methods consider attributes generally accepted to efficiently characterize habitat for the focal taxa. For spotted owl these attributes include BEC variant, stand age, stand height and elevation.

Input values to identify suitable habitat during development of SOMP1 grossly overestimated suitable spotted owl habitat within SRMZs as the elevational inputs were inaccurate for use in BC. This error allowed a subsequent reduction, through over-harvest of lower elevation suitable habitats, in the amount of actual available spotted owl habitat within SOMP1 reserve areas. As a result of this error remaining spotted owl habitat, inside SOMP1 conservation areas, was reduced well below threshold targets set by area-based SOMP1 planning objectives.

This oversight revealed the importance of accuracy, confirmed by field-verification, when using HSI models to define, describe and spatially map spotted owl habitat. I redeveloped the model used for SOMP1, creating a new more accurate model to delineate habitat reserves to inform the SOMP2 habitat reserve design process. My model was accepted by the Province, and by COSEWIC, as an accurate method to map available suitable habitat and was used, by Coretex Consulting, to evaluate population response to various habitat management scenarios during the CSORT led recovery planning process.

In defining and mapping suitable habitat, for many species, Habitat Suitability Index (HSI) modelling is commonly used in wildlife conservation planning. HSI modelling provides an accurate spatial depiction of the amount and distribution of suitable habitat based on input of attributes known to be used by the focal taxa. HSI models are developed in a desktop environment using Geographic Information Systems (GIS) software. GIS-based HSI modeling was used to map the distribution and abundance of spotted owl foraging and breeding habitat throughout the species range in BC, both by SOMIT (for SOMP1) and by the Province (for SOMP2). Habitat attributes used to model spotted owl habitat include: BEC variant, stand age, stand height; and, elevation. These input attributes are queried against Vegetation Resource Inventory (VRI) mapping data to generate maps depicting Type A (nesting) and Type B (foraging) habitat for spotted owl.

SOMP1: The first (early) HSI model used by SOMIT to map spatial boundaries of the SRMZs for SOMP1 was overly optimistic in its characterization of suitable spotted owl habitat. This (early) model was based on characteristics derived from literature and studies from the United States (I. Blackburn pers. com.). In consequence, this (early) model over-predicted suitable habitat to occur at elevations up to 1,370 – 1,500 m ASL (depending on BEC zone) (D’Anjou et al. 2006). This is well above the documented elevation breeding limit of spotted owl in BC (1,194 m ASL) and resulted in a gross overestimate of suitable

spotted owl habitat within SRMZs designated and managed under SOMP1 guidelines. This overestimate had a pronounced effect on habitat conservation (resulting primarily from habitat loss as a result of commercial forest activities). Lower elevation habitats continued to be harvested (under SOMP1 management) while upper elevation habitats (thought to be suitable based on this early model) were not harvested to maintain or meet the 67% retention target. When this inaccuracy was addressed and corrected in 2004, with a new model I developed (based on actual data collected from trend-analysis surveys, and telemetric monitoring collected 1991-2002) it was apparent that previous logging within lower elevation areas of each SRMZ, under SOMP1, had reduced the amount of actual spotted owl habitat, range wide, even further below SOMP1 habitat retention objectives. This was identified and recommended for correction by myself in 2004, and supported again by D'Anjou et al. (2006), but by then the loss of spotted owl habitat had already occurred.

SOMP2: In 2004, I developed a new (revised) BC habitat suitability model that was quickly adopted by CSORT and Coretex Consulting (for the purpose of SELES modelling¹⁵). My model was applied for recovery planning in the delineation of revised SRMZ boundaries for SOMP2. This (2004) model has been used consistently, since 2004, to define and describe spotted owl habitat in BC. The attributes used in this model were field verified, accepted and used by CSORT (Chutter et al. 2004), by Coretex (Sutherland et al. (2007)) and by COSEWIC (COSEWIC 2008). The parameters used to develop the 2004 model (used to inform development of SOMP2 SRMZ boundaries) are summarized consistently in Sutherland et al. (2007) and in Chutter et al. (2004) and presented in **Table 5**. These attributes are also described more fully in **Table 6**.

A third model is being developed currently (2019), by I. Blackburn for future planning but the necessity of additional model development should be rationalized and the attributes used should be examined to ensure accuracy and relevance if this model is proposed as a replacement to the model used by CSORT, COSEWIC and Coretex to delineate owl habitat in BC since 2004. Preliminary investigation of a draft version of the model showed poor alignment with actual owl habitat used based on reconciliation against field data (~1,463 survey observations, 33 nest records and 94 telemetry observations).

¹⁵ Used by Coretex Consulting to inform analysis of potential (predicted) spotted owl territories on the landscape, to assess landscape connectivity and to project spotted owl population response to various predicted habitat management scenarios during recovery planning.

Table 5. Description of habitat parameters for maritime, sub-maritime and continental ecosystems.

Parameter	Maritime		Sub- Maritime		Continental	
	Type A (Nesting)	Type B (Forage)	Type A (Nesting)	Type B (Forage)	Type A (Nesting)	Type B (Forage)
BEC variant	CWHvm1 CWHvm2 CWHdm CWHxm1 CDFmm*	CWHvm1 CWHvm2 CWHdm CWHxm1 CDFmm*	CWHds1 CWHms1 IDFww	CWHds1 CWHms1 IDFww	IDFun IDFdk IDFdk1-4 IDFhx1 IDFhx2 IDFxm IDFwx	IDFun IDFdk IDFdk1-4 IDFhx1 IDFhx2 IDFxm IDFwx MSdm2 MSxk PPxh2
Maximum Elevation	< =900	< =1000 m	< =1000 m	< =1100 m	< =1100m	< =1200m
Slope	all	all	all	all	all	all
Aspect	all	all	all	all	all	all
Minimum Stand Age	>=140 years	>=80 years	>=110 years	>=80 years	> =110 years	> =80 years
Minimum Stand Height	>= 28 m	>= 28 m	>= 28 m	>=26 m	> =26 m	>=23 m

*Although CDF listed little area actually falls in the owl range, and it all occurs in developed regions of Vancouver.

**Forest cover height classes: 3 = 19.5-28.4; 4 = 28.5 - 36.4, 5+ ≥36.5

Table 6: Descriptive summary of spotted owl habitat characteristics in wet and dry habitat types as taken from Chutter et al. 2007.

Table 5: Spotted owl habitat attributes (taken from Chutter et al. 2009. P. 7)

Habitat Type	Superior Habitat (nest, roost, forage, and dispersal)	Moderate Habitat (roost, forage, and dispersal)
Wetter ecosystems: Maritime Coastal Western Hemlock and Mountain Hemlock Biogeoclimatic Zones		
Natural Disturbances: Rare to infrequent stand-initiating events.		
Suitable habitat characteristics	<ul style="list-style-type: none"> • Three or more canopy layers, multi-species canopy dominated by large (>75 cm dbh) overstorey trees (typically 37–185 stems/ha) • Moderate to high (60–80%) canopy closure. • Five or more large (>50 cm dbh) trees/ha with various deformities (e.g., large cavities, broken tops, dwarf mistletoe infections). • Five or more large (>75 cm dbh) snags/ha. • Accumulations ($\geq 268 \text{ m}^3/\text{ha}$) of fallen trees and other coarse woody debris on the ground. 	<ul style="list-style-type: none"> • Two or more canopy layers, multi-species canopy dominated by large (>50 cm dbh) overstorey trees (typically 247–457 stems/ha, although densities as low as 86 stems/ha are possible where large diameter trees are present). • Moderate to high (60–80%) canopy closure. • Five or more large trees/ha (>50 cm dbh) with various deformities (e.g., large cavities, broken tops, dwarf mistletoe infections). • Five or more large (>50 cm dbh) snags/ha. • Accumulations ($\geq 100 \text{ m}^3/\text{ha}$) of fallen trees and other coarse woody debris on the ground.
Dryer ecosystems: Sub-maritime Coastal Western Hemlock and Mountain Hemlock, and Interior Douglas-fir and Engelmann Spruce–Sub–Alpine Fir Biogeoclimatic Zone		
Natural Disturbances: Infrequent stand-initiating events to frequent stand-maintaining fires; however, fire suppression has increased the frequency of stand-initiating events.		
Suitable habitat characteristics	<ul style="list-style-type: none"> • Three or more canopy layers, multi-species canopy dominated by large (>50 cm dbh) overstorey trees (typically 173–247 stems/ha, although densities as low as 86 stems/ha are possible where large diameter trees are present). • Moderate to high (60–85%) canopy closure. • Five or more large trees/ha (>30 cm dbh) with various deformities (e.g., large cavities, broken tops, dwarf mistletoe infections). • Seven or more large (>50 cm dbh) snags/ha. • Accumulations ($\geq 268 \text{ m}^3/\text{ha}$) of fallen trees and other coarse woody debris on the ground. 	<ul style="list-style-type: none"> • Two or more canopy layers, multi-species canopy dominated by large (>30 cm dbh) overstorey trees (typically >247 stems/ha). • Stands must contain 20% Fd and/or Hw in the overstorey. • Greater than 50% canopy closure. • Five or more large trees/ha (>30 cm dbh) with various deformities (e.g., large cavities, broken tops, dwarf mistletoe infections). • Five or more large (>30 cm dbh) snags/ha. • Accumulations ($\geq 100 \text{ m}^3/\text{ha}$) of fallen trees and other coarse woody debris on the ground.

13. Does the BC Habitat Model identify and define Spotted Owl critical habitat as required by the SARA (that is, “habitat that is necessary for the survival or recovery of [the Spotted Owl]” identified “to the extent possible, based on the best available information”) (“Critical Habitat”)?

Synopsis: No; the BC Habitat Model (i.e. the habitat modeling used in SOMP2) does not identify critical habitat as required by the SARA. Habitat conservation measures as defined by SOMP2 were constrained by socio-economic considerations. The SARCO imposed a constraint on the impact allowed during recovery planning to accommodate competing interests from revenue generation from commercial forestry activities.

Under the SARA, ecological considerations should not be influenced by socio-economic consideration when designating CH. An appropriate process for mapping CH requires a more fulsome suite of considerations that accommodates all ecological needs of the species and recognizes and protects breeding, foraging and dispersal habitats required for effective species recovery throughout the species’ entire (former) range.

Habitat Suitability Index modelling (i.e., the BC habitat model) is not an equivalent proxy for identification of Critical Habitat (CH) in isolation of consideration of patch size, connectivity, edge-effect and reserve design. The BC Habitat model simply identifies where suitable spotted owl habitats occur on the BC landscape (i.e., spatially depicts the amount and distribution based on selection of desired habitat attributes (as described in the response to Question 12)). The BC habitat model (circa 2004) does not identify and define CH; it is instead an informational tool that was intended to support mapping of CH. For clarity, I will assume that the wording “BC Habitat Model” as used in the question is analogous to the BC Habitat (Management) Model, or framework, referred to by the Province and in this document as SOMP2.

On that assumption, literature regarding effective reserve design suggests design must allow for management of habitat to provide ‘clusters’ of occupied territories spaced evenly on the landscape to facilitate natal and adult dispersal (Lamberson et al. 2003). In assessing the habitat protection component of SOMP2 in response to Question 13 the answer is “No” for the following reasons:

1. Design of SOMP2 was influenced by socio-economic considerations: The BC Habitat model (circa 2004) was used to inform reserve design for revisions made to SOMP1 SRMZ boundaries for the purpose of spatial mapping of SOMP2 boundaries. Although reserve design principles outlined by Lamberson (2002) were followed during this process (i.e., territory clusters, with spacing consideration afforded to ensure maintenance of connectivity habitat for dispersing owls), SOMP2 habitat management (as defined and announced in 2009) was constrained, in its design, by imposition of socio-economic considerations. The SARCO imposed a ‘cap’ on habitat protection afforded to spotted owls under SOMP2 by carrying forward the same 4.5% limit on impact to timber revenue within the Sea-to-Sky and Chilliwack NRD as used for SOMP1. The effect of this constraint warrants consideration as SOMP1 had already been demonstrated as

ineffective at halting or reversing the rapid spotted owl population decline in BC. Under the SARA, socio-economic concerns are not supposed to fetter designation of CH as CH designation is strictly a biological process¹⁶. On these grounds alone SOMP2 provisions do not meet the intent and requirement of CH designation under the SARA.

2. Critical Habitat identification not yet in place: SARA (S.2(1)) defines "CH" as *"the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species"*. The Province is required to post a proposed strategy to the SARA public registry within 1 year¹⁷ of listing for an endangered species. Furthermore, section 41(1)(c) SARA states that *"a recovery strategy must include an identification of the species' CH, to the extent possible, based on the best available information..."* Spotted owl was listed under SARA in 2004; as of the time of writing of this report (2019) CH for spotted owl has still not been defined and identified by the Province in a Recovery Strategy or in an Action Plan. Identification of CH for spotted owl is now 15 years overdue.
3. Delayed effective legal protection: Management of spotted owl habitat, as constrained by SOMP2, was not defined until 2009. In 2009, it was defined only informally by non-legal recommendations outlined by Provincial BMPs (Blackburn et al. 2009). This concern was partially addressed when SRMZ boundaries were finally converted to WHAs in 2011 and 2013 for the Chilliwack and Sea-to-Sky NRD. GWMs now afford legal guidance to habitat management within WHA boundaries; however, point 1 still presides and there is still no intent to afford protection to 314,959 ha of suitable Class A unprotected spotted owl habitat that currently occurs on the THLB within the owl's defined range.
4. Protection afforded to spotted owl habitat does not adhere to current scientific understanding of habitat management for spotted owl: Management outlined in Blackburn et al. (2009) is not in the best interest of spotted owl conservation. The BMPs promote harvest with retention (HWR) (within MFHAs) and logging to enhance owl habitat (HEPs) (within LTOHAs). Available literature and previous application of these methods in BC provide compelling evidence that neither of these prescriptions effectively benefit preservation of required attributes for spotted owl habitat (see response to Question 8).
5. Demonstrated non-compliance with habitat management practices: The Province's BCTS program continues to promote harvest within several WHAs (including one of the last three extant spotted owl territories near Spuzzum Creek) in a manner contrary to the guidance afforded by SOMP2. Category-Information (Cat-I) blocks is the term used to denote areas of forested habitat that have been advanced for approval to harvest. There are currently several Cat-I blocks within occupied spotted owl critical roosting and nesting habitat.

¹⁶ From Critical habitat identification toolbox: *Species at Risk Act* guidance: *"...socio-economic considerations are excluded from this stage of recovery planning. CH boundaries should be identified based on the best available information (ecological and biological relevance), not socio-economic orientation (for example, deliberately truncated to align with particular land parcel boundaries or land designations), such that activities likely to destroy CH and identified CH boundaries are mutually relevant."*

¹⁷ SARA (2002): the competent minister must include a proposed recovery strategy in the public registry within one year after the wildlife species is listed

In summary, an appropriate process for mapping CH requires a more fulsome consideration of ecological value and recognizes and protects breeding, foraging and dispersal habitats required for effective species recovery throughout the species' entire (former) range. This work has already been completed for spotted owl recovery by Sutherland et al. (2007) (i.e., the Coretex SELES model). The SELES model could have been used over a decade ago to identify CH throughout the owl's defined range in BC. It is very likely that a more fulsome consideration of recovery habitat requirements (i.e., for the purpose of mapping CH necessary for the survival and recovery of the spotted owl in BC) would differ markedly from the reserve design and habitat management afforded by SOMP2 as it would likely include much, or all, of the remaining 314,959 ha of unprotected Class A spotted owl habitat (on the THLB) within the owl's defined range in BC. This is self-evident as SOMP2 resulted in a net *reduction* in total area of habitat managed for spotted owl in BC relative to an already failed SOMP1. SOMP2 also failed to protect all active sites, all previously known active sites and all available currently suitable spotted owl habitat on the THLB by instead allowing continued harvest of suitable spotted owl habitat despite scientific guidance, in 2004, that suggested more habitat protection should be the primary recovery action (Chutter et al. 2004 – Appendix 1 – request for interim measures).

14. If you answered “no” to question 13, what is the Critical Habitat for the Spotted Owl as required by the SARA?

Synopsis: SARA suggests that CH must effectively and legally protect sufficient suitable (and if required, capable) habitat, within the known range of the species to accommodate recovery. Critical Habitat should define nesting, roosting, foraging, and dispersal habitat to accommodate future species recovery. Effective habitat conservation for spotted owl must also ensure maintenance of connectivity (at the landscape scale) and work towards reducing habitat fragmentation by preventing further loss of suitable habitat by preventing further loss of old growth forests range-wide.

Reserves should include aggregates of clustered potential spotted owl territories (34,000 – 68,000 ha) connected by corridors of low elevation dispersal habitat comprised of mature forests. Where these conditions are not met CH designation should ensure no further attrition (as a result of commercial forest harvest) within CH reserves. Within areas maintained for connectivity recruitment of suitable forest attributes could be accelerated by forests prescriptions that prioritize spotted owl management over revenue generation from extracted timber.

Spotted owl CH should be comprised of an adequate amount of survival and recovery habitats throughout the species' (former) natural range in support of scientifically defensible recovery goals (Chutter et al. 2004). The 2004 CSORT stated recovery goal was to provide sufficient “*suitable habitat, spatially distributed in a way that it can support and sustain a minimum of 250 mature owls*” in BC. Recovery habitat was identified by CSORT, in 2004, to include both existing occupied habitats, and all suitable habitat into which the species could recolonize. CSORT also identified inclusion of dispersal habitat as necessary to enable successful dispersal and establishment of new territories. These are valid biological principles that should be applied in defining CH.

Identification of the total amount and distribution of CH needed to meet the recovery goal was identified as one of the highest priorities by the CSORT in 2007. Theoretically, assuming 3,200 ha per

breeding territory, and assuming that 250 mature owls equated to 125 breeding pairs, about 400,000 ha of currently suitable habitat would be required (Chutter et al. 2004). SOMIT (1997) claimed that SOMP1 afforded management to 363,000 ha of **capable** (but not suitable) spotted owl habitat and yet the species declined precipitously. The Province's presentation of SOMP1 was a misleading oversimplification as capable habitat includes a spectrum of immature young seral forested habitat that is inhospitable to spotted owls. This should not have been attributed as beneficial towards spotted owl recovery. The same misleading oversimplification was again perpetuated by the Province when describing current management in a 2016 report. In the report the Province reported that "*As part of the Provincial Government's Spotted Owl Recovery Action Plan, the Province of British Columbia has protected 305,000 ha of forest for the spotted owl*" (Gillis 2016a). This is not equivalent to protection of 305,000 ha of suitable spotted owl habitat - this distinction may be lost on an uninformed audience – in reality only 66,919 ha (12.5 % of total available currently suitable spotted owl habitat) was afforded protection under SOMP2.

In addition, the amount of habitat required for recovery cannot be simply summarized as a total number of hectares of currently suitable spotted owl habitat protected, but must address the issues of connectivity, fragmentation, and elevational constraints across species' range. Spotted owl population health may be influenced by habitat composition and quality as available in the landscape. Fortunately, as described in the spotted owl Action Plan Guidance document (Chutter et al. 2007) much of the work required to define CH for spotted owl has already been completed. Chutter et al. (2007) list the following actions as Completed (in 2004) – this provides a framework to appropriately designate CH: Steps already completed towards appropriate identification of CH (taken from Chutter et al. 2007):

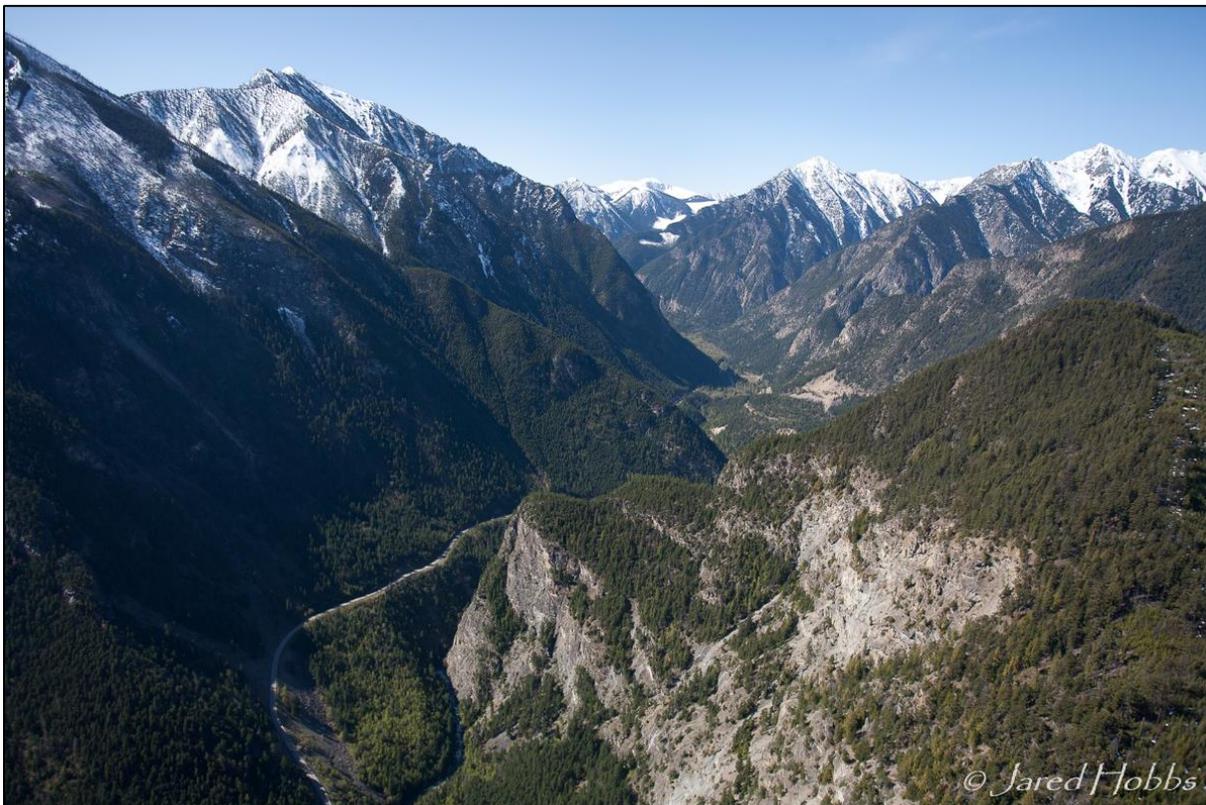
- ✓ Based on surveys and GIS work, create a base map of known sites and potential new sites.
- ✓ Define nesting, roosting, foraging and dispersal habitat.
- ✓ Develop a spatially explicit habitat supply model for the spotted owl based on the best science available.
- ✓ Refine the model and test its assumptions.
- ✓ Use the model to test assumptions about the effects of different habitat, territory and population characteristics, as well as threats on a potential stand-alone provincial population versus the need for connectivity to the United States populations.
- ✓ Apply the model to help create a map of all potentially suitable habitat.
- ✓ Apply the model to help define attributes necessary to define and delineate Critical Habitat in BC. This should incorporate survival habitat, and individual, population and landscape level requirements.
- ✓ Use the model to assess the existing spotted owl management plan (SOMP1).
- ✓ Establish spotted owl objectives under the Forest and Range Practices Act.
- ✓ Develop comprehensive guidelines to create, enhance and maintain critical habitat and reduce threats (author's note: this was noted as ongoing in 2004 and subsequently completed by Blackburn et al. in the 2009 BMP document; however, suggested management prescriptions that should be examined for scientific merit in the context of available published literature. This retro-active examination was anticipated by CSORT as adaptive management principles were recommended (in 2004) to evaluate the effectiveness of created or enhanced habitat to provide for the life requisites of the Spotted Owl or its prey populations).
- ✓ Implement a map-based spotted owl habitat management plan that conserves critical habitat and meets recovery goals and objectives (author's note: SOMP2 was completed in 2009)

however it failed to identify and protect CH for reasons outlined in the response to Question 13).

- ✓ Assess and monitor the effectiveness of the habitat management plan and revise and adapt the habitat management plan as necessary (author's note: *there is currently no effectiveness monitoring in place to evaluate SOMP2 habitat protection*).

The final step noted in the 2007 Action Plan Guidance document (Chutter et al. 2007) was adopted by SARCO, on behalf of the Province, and was described as the next required step (in 2007): “Provide a map of potentially suitable habitat along with a description of critical habitat in the recovery action plan” (Chutter et al. 2007). This final step has still not been completed by the Province in 2019 although the means to do so was completed by Coretex Consulting in 2007 using a comprehensive SELES model (Sutherland et al. 2007). The information required to map CH in a scientifically defensible manner has been available to the Province for over a decade.

The 2016 ECCC CH Identification “Toolbox” was provided by ECCC recovery practitioners to inform development of recovery documents where CH identification is required (ECCC 2016). The Toolbox could be used immediately, by the Province, to identify CH using the results from the 2007 SELES modelling already completed by Coretex Consulting (Sutherland et al. 2007). This action should be completed in a timely fashion - it is more than a decade overdue.



This spotted owl territory at Enterprise Creek was the most productive territory ever recorded in BC. I confirmed breeding at this site for five consecutive years before the female was taken from the wild to support the breeding program. All remaining suitable habitat could readily be mapped as CH.

15. How is the Critical Habitat you define and describe different and similar to the BC Habitat Model?

Synopsis: While the current BC Habitat Model under SOMP2 identifies suitable spotted owl habitats, it does not define or manage Critical Habitat reserves as required by the SARA. The fundamental difference between an appropriate spatial definition of CH, and the reserves mapped by SOMP2, is that SARA demands a process unfettered by socio-economic considerations.

In accordance with the SARA all habitat that is essential to the species' recovery should be afforded effective legal protection. In principle, SOMP2 is aligned with conventional wisdom for spotted owl reserve design (i.e., delineate large reserves spaced evenly on the landscape) but the size of the reserves are smaller than that recommended in the literature, and the omission of protection afforded to 59% of available remaining suitable habitat, suggests that CH defined in compliance with the SARA would be markedly different.

A Spatially Explicit Landscape Event Simulator (SELES) model was developed prior to development of SOMP2; this model should be used to allow more effective reserve design to better accommodate spotted owl recovery in BC.

As clarified in Question 13, the BC Habitat model simply identifies where suitable spotted owl habitats occur on the BC landscape (i.e., spatially depicts the amount and distribution based on selection of desired habitat attributes (as described in the response to Question 12)). The BC habitat (suitability) model (circa 2004) does not identify and define CH; it is instead an informational tool that was intended to support mapping of CH. For clarity, I will again assume that the wording "BC Habitat Model" (as used in question 15) is analogous to the BC Habitat (Management) Model, or framework, referred to by the Province and in this document as SOMP2.

On that assumption, literature regarding effective reserve design suggests successful reserve design must allow for management of habitat to provide 'clusters' of occupied territories spaced evenly on the landscape to facilitate natal and adult dispersal (Lamberson et al. 2003). The habitat protection component of SOMP2 applied this principle but did not define reserves as Critical Habitat; it simply refers to the reserves as WHAs with LTOHA and MFHA designations within each of 31 WHAs in the Sea-to-Sky and Chilliwack NRDs. The province has made no pretense of defining CH for spotted owl. The reserves, or WHAs, presented by the Province as SOMP2 (referred to as the "BC Habitat Model" in this question) would not meet the expectations, under SARA, of CH for reasons outlined in Question 13.

I recommend an unfettered process for CH designation that considers the species' needs and utilizes a reserve design that promotes large aggregations of suitable owl habitat and considers the likelihood of persistence and survivorship (during all requisite life history stages) and attempts to maximize fecundity by creating conditions favorable for survival and recruitment of adult and juvenile spotted owls. An early study by Lamberson et al. (1994) examined reserve design; the primary conclusion was that the level of occupancy (i.e., spotted owl persistence) is positively correlated with reserve size and that this relationship is less pronounced once reserve size is sufficient to accommodate at least 20 pairs (i.e.,

51,000 - 68,000 ha (allowing between 25 – 0 % overlap, respectively)). An analysis of reserve size under SOMP2 illustrates reserve size varies from 983 to 21,379 ha (with an average size of 4,944 ha) for LTOHAs and from 512 to 11,949 ha (with an average size of 4,941 ha) for MFHAs.

In the US two reserve designs were examined, using demographic models, by Anderson and Mahato (1995) and are summarized as follows:

- 1) The first design (Spotted Owl Habitat Area (SOHA)) uses smaller aggregates of one to three functional spotted owl territories (3400-10,200 ha). Reserve size closely follows that employed under SOMP1 and SOMP2.
- 2) The second design (Habitat Conservation Areas (HCA)) uses larger aggregates of 10-20 functional spotted owl territories (34,000 (10 territories) up to 68,000 ha (20 territories)).

The authors concluded that the HCA strategy always led to longer persistence times than the SOHA strategy (Anderson and Mahato 1995). The difference was attributed to the probability of colonization of an empty or vacated territory by a new owl. The authors recommended the HCA strategy for reserve design in proposed (at the time) conservation and management for the California spotted owl (Anderson and Mahato 1995). This approach was followed in the US management for northern spotted owl under the NWFMP throughout the species range in Washington, Oregon and California.

Designations for CH should be incorporated into future revision of spotted owl management in BC. Development of a revised SOMP (i.e., SOMP3) was beyond the scope of the contract but designation of CH by the Province is long overdue. When designating CH, a preliminary recommendation includes closer consideration of patch size consistent with recommendations from Lamberson et al. (2003), as larger patches (reserves) appear to more effectively support spotted owl survival, reproduction and recruitment relative to the smaller reserves implemented under SOMP1 and SOMP2. Any revised future management (SOMP3) should include a spatial definition of CH using the wealth of pre-existing HSI and SELES based models developed by CSORT (2004-2007) to identify existing suitable spotted owl habitat. CH designation should also identify capable spotted owl habitat for long-term habitat recruitment as this will be necessary for recovery. The CH objectives should stipulate retention and recruitment of attributes (discussed in response to Question 12) favourable for spotted owl persistence and recovery. CH designation processes should follow guidance from ECCC (ECCC 2016) and should, as stipulated under the SARA, *not* be fettered by continued consideration for socio-economic considerations. A GIS based analysis of remaining suitable Class A habitat within the defined range of the spotted owl in BC suggest there is currently 533,306 ha of suitable habitat currently remaining. Only 66,919 ha (12.5 %) is protected in areas designated by SOMP2; 151,428 ha (28 %) is afforded protection within Provincial Parks, Protected Areas, ecological reserves, conservancies and municipal watersheds. The remaining 314,959 ha (59 %) is located on the THLB and is currently available for commercial forest harvest.

Finally, future spotted owl management in BC may also consider broader application to areas of former spotted owl occurrence within the Sunshine Coast NRD, as supported by reliable observations presented by Campbell (2014). These areas have not ever been formally surveyed by the Province so occupancy status is unknown but, given the trend within the surveyed population, the probability of discovery of any currently extant spotted owl territories in these areas at the periphery of the species' range in BC is low.

16. How should the threats to Critical Habitat be managed to maximize the likelihood the Spotted Owl will survive and recover?

Synopsis: Management prescriptions within WHAs, LTOHAs and MFHAs continue to detriment spotted owl survival and recovery through commercial harvest of old-growth forest habitat. Critical Habitat needs first to be explicitly spatially defined and protected from future harvesting to maximize the likelihood of future spotted owl recovery.

In general, suitable habitat will continue to be lost or degraded through human activities such as logging, mining, other resource development, urban and rural development, and development of transportation and utility transmission corridors. Habitat loss, or conversion to early seral stands, is also caused by natural disturbances including major forest fires and insect outbreaks with each of these stochastic events exacerbated by climate change. However, in more practical terms, I believe commercial forest harvest continues to be the main stressor, and the predominant cause, of continued depletion of spotted owl habitat in BC. Many areas of old-growth forested habitats occur outside any management reserve boundary - continued harvest of these habitats is currently permitted by the Province's BCTS Program.

Viewed pragmatically the disproportionate threat from a single regulated activity should theoretically facilitate efficient threat management as improved conservation of spotted owl habitat can be efficiently addressed by focus on a single issue. At this over-simplified level further habitat loss could be prevented by a complete cessation of any further commercial harvest of old-growth forest habitat within the (former) range of spotted owl in BC.

The Province's current approach affords management to 31 spatially mapped areas with each area containing varying degrees of remaining unharvested suitable spotted owl habitat; however, as outlined in the response to Question 6, there are large areas of immature forest (unsuitable for use by spotted owl) also included within reserve areas that do nothing to contribute to recovery of spotted owl at the current time. Furthermore, harvest of old-growth forested habitat is also permitted within Provincial spotted owl management areas under two prescriptions:

1. Within LTOHAs commercial harvest of forested habitat is permitted if the intention is purported to improve habitat conditions (euphemistically phrased "Harvest to Enhance (HEP)" in the SOMP2 management guidance (Blackburn et al. 2007)). The intent of HEP prescriptions is sound but only if HEP is permitted within maturing forests – HEP applications within late seral mature or old-growth forest is contrary to scientific understanding (see response to Question 17).
2. Within MFHAs harvest of suitable habitat is permitted using variable (partial) retention of a subset of required habitat attributes deemed to be favourable to be retained as patches of suitable habitat. The Province states that "*the primary purpose of the MFHA is to provide for timber harvesting opportunities.*

Both management prescriptions would be detrimental if applied to areas of suitable spotted owl habitat. Management guidance prescribed by Blackburn et al. (2009) is not in the best interest of spotted owl conservation when applied to existing suitable spotted owl habitat.

17. Can Critical Habitat be logged so as to enhance or not jeopardize the Spotted Owl's survival and recovery?

Synopsis: Available information suggests that commercial forest practices cannot be reasonably or prudently applied to mature or old-growth forest, in a practicable manner, to improve spotted owl habitat suitability. If Critical Habitat is defined to include old-growth or mature forested habitats then commercial thinning (i.e. HEP procedures under SOMP2) should not be permitted in old-growth forested habitats.

This question has been afforded thorough treatment in D'Anjou et al. (2006); four points of consideration were presented (and logically supported by scientific understanding) and is summarized as follows:

- 1) It is challenging to isolate, during forest manipulation, those attributes that are essential to spotted owl use from the suite of characteristic attributes of old-growth forests. To effectively identify habitat attributes the harvest prescription should be completed by an expert with extensive experience recognizing spotted owl habitat values.
- 2) There is a paucity of information regarding the temporal requirements, post-treatment, for recruiting and enhancing habitat. Extensive work on maturing second growth stands in Oregon (>150 years of age) by Franklin and Spies (1991, as cited in D'Anjou et al. 2006) suggest that even 200 years post-harvest these managed stands still lack the habitat attributes fundamental for use by spotted owl (e.g., large trees with broken tops, or Douglas-fir with spreading crowns). Wilk et al. (2018) described 1,717 nest trees in 16 tree species in Washington and Oregon; many of the nest trees in their study were estimated to be at least 700 years old. They concluded that managing for the retention of such trees, and for their replacement, is a significant challenge for land managers.
- 3) Available data is insufficient to allow accurate or reliable prediction of prey response by key prey items (including bushy-tailed woodrat and flying squirrel) to both short and long-term treatments. D'Anjou et al. (2006) cited telemetry data in Oregon that indicated spotted owls avoided partially cut mature conifer stands with 40-59% canopy closure. Another study demonstrated that commercial thinning (i.e., logging to enhance owl habitat) within the nest area may have caused a resident male owl to move from its breeding range and appeared to result in an overall increase in the home range size. Finally, D'Anjou et al. (2006) also cited Carey (2000) – Carey reported flying squirrels moved further and were found at lower densities in managed thinned stands. This data suggests any manipulation of mature and old-growth forested habitats (such as thinning as prescribed by SOMP2 HEP procedures) are likely detrimental to spotted owl survival on both the short and long term.
- 4) The final consideration in D'Anjou et al. (2006) raised concern over the operational feasibility of HEP procedures. Stand-level management is costly to implement; those costs, in most cases, will quickly exceed the value of the extracted resource (timber) making HEP procedures (if completed in compliance with their stated intent) cost prohibitive. This sentiment was

repeatedly raised during discussions with forestry proponents during the recovery planning process and cited by M. Chutter and myself in preparation of a draft report for Ministry review in April 2002 (*“since the release of SOMP, increased stumpage rates caused harvest costs to exceed profit margins, thereby preventing forest companies from improving habitat conditions for Spotted Owls by performing these treatments”*).

Speaking specifically to partial harvesting (i.e., HEP procedures) in older forests, management prescriptions are *“untested hypothetical constructs”* until validated by scientifically valid observations (D’Anjou et al. (2006) quoting Franklin (2005)). There are few well documented experiments to analyze. Results of future experimentation would be uncertain at best and are deemed unlikely to succeed. Negative effects from HEP will likely include (based on partial harvest practices already completed) residual tree damage, windthrow, mortality and conversion of the stand from desired tree type (Douglas-fir) to more shade-tolerant (less desirable) tree species.

Available information suggests that commercial forest practices cannot be reasonably or prudently applied to mature or old-growth forest, in a practicable manner, to improve spotted owl habitat suitability. If Critical Habitat is defined to include old-growth or mature forested habitats then commercial thinning (i.e. HEP procedures under SOMP2) should not be permitted in old-growth forested habitats. More research is required to determine if HEP procedures should or could be applied effectively within maturing (early to mid-seral) forested stands but conclusions from existing published literature on effects upon old-growth forested habitats caution this approach.

18. What are the key activities (such as habitat enhancement, predator control, prey augmentation, etc.) which should and should not accompany management and protection of Critical Habitat to maximize the likelihood the Spotted Owl will survive and recover?

Synopsis: Any activities to manage other key threats should be undertaken in conjunction with efforts to effectively address the primary threat of habitat loss. These activities include population augmentation (i.e., captive breeding), barred owl control (within active spotted owl territories and by experienced personnel), prey augmentation (for wild breeding owls and juvenile owls during natal dispersal), and inventory of unsurveyed habitats. Habitat enhancement prescriptions should not be permitted in any remaining mature and old-growth forest within the owl’s range.

Anthropogenic changes to spotted owl habitat has created favourable ecological conditions (increased edge effect) and, to an undefinable degree, promoted invasion of the more aggressive, prolific and adaptable barred owl. Similarly, these changes have also likely promoted an increase in population abundance and density of great horned owl with a concomitant increased predation effect on spotted owls.

To promote recovery the Provincial Government has largely focused its attention, effort and resources on controlling negative effects of the more aggressive barred owl, including call suppression (in spotted

owl) and competition for resources (prey) resulting in territory abandonment and reduced recruitment of juvenile spotted owls. Attention to these aspects of spotted owl recovery is not misguided as without spotted owl population augmentation (release of captive bred owls), and with no attempt to ameliorate secondary (barred owl) and tertiary (great horned owl) order threats (see Question 2 for discussion of threats) recovery will be hindered. The challenge is with the magnitude and sequence of effort applied to all threats. Prevention of further habitat loss should have been afforded the highest order of attention for recovery, followed by recruitment of habitat in younger forested habitats to advance succession towards late seral stand characteristics. When the primary threat (habitat loss and connectivity within remaining habitats) has been fully addressed efforts should logically shift towards control of secondary threats (barred owl competition) with focused efforts afforded to active spotted owl territories (note: this has been the approach followed for addressing barred owl but these efforts have been applied before the primary threat (habitat loss) has been fully addressed).

Captive Breeding Program: At this point the owls placed in captivity would likely be dis-advantaged if released into the wild; survival and recruitment would be heavily compromised. The captive-breeding program should continue in hopes that it will one day result in a net positive benefit.

Barred Owl Control Program: Control measures to ameliorate the effects of barred owl should only continue within active spotted owl territories. To enable this, continued inventory for spotted owl is required to locate new spotted owls that may immigrate from the Washington population. If lethal control methods are continued only experienced personnel should be tasked with removal of barred owls. In the U.S. there have been at least two reported incidents where a spotted owl was inadvertently shot due to mistaken identification.

Prey Augmentation: During my tenure as the field lead for spotted owl inventory and telemetric monitoring I had attempted to augment the diet of adults (during the nesting/brood rearing phase) and juveniles (during natal dispersal) phase. I believe these efforts resulted in a positive benefit. As evidence the resident pair of spotted owls at Enterprise Creek bred for five consecutive years. This level of productivity was unheard of in the literature, or in any field programs in the U.S. (Eric Forsman, pers. comm. 2005). Insufficient sample size (too few owls remaining in BC) prevented a controlled experiment to assess efficacy, but available evidence suggests that prey augmentation may be an effective means to improve productivity for wild breeding owls and recruitment/survivorship of juvenile owls during natal dispersal.

Inventory: The merit of inventory within the Sunshine Coast NRD, and within unsurveyed habitats at Lightning Lake, should be investigated in light of more recent disclosure of reliable reports of spotted owl detections in these areas. In the context of the current trend future inventory is unlikely to reveal any additional new (i.e., undetected) territories but if extensive areas of unprotected suitable habitat remain, particularly in the Sunshine Coast NRD, additional inventory may be warranted.

Habitat Enhancement: HEP and HWR prescriptions would likely be detrimental if conducted within mature and old-growth forest habitats. These procedures should be restricted to early seral forests only when attempting to promote recruitment of spotted owl habitat.

19. The authors of the Recovery Strategy determined that the survival and recovery of the Spotted Owl was at the time technically and biologically feasible. Is the survival and recovery of the Spotted Owl in British Columbia still technically and biologically feasible?

Synopsis: To determine feasibility I assessed available information from 2018 against Environment Canada's set of criteria from 2005, with revisions made to consideration of SOMP2 habitat management limitations as well as actual captive breeding outcomes. Given the amount and distribution of available suitable habitat (Sutherland et al. 2007) recovery is still technically and biologically feasible. This assessment suggests spotted owl recovery in BC, while logistically challenging, remains ecologically and technically feasible. The presence and connectivity of Spotted Owl populations on both sides of the international border also allows increased recovery potential in BC.

In the 2004 spotted owl recovery strategy CSORT concluded that recovery was ecologically and technically feasible. In 2005 Environment Canada (EC) provided policy guidance to offer a structured set of criteria to inform the re-assessment of recovery feasibility. Recovery was still suggested as feasible under the new criteria. The same criteria are applied below using current information available in 2019; however, one additional criterion (see #2: immigration from the US) has been integrated into the 2019 assessment. I have also divided CSORT bullet point #3 (considerations pertinent to habitat protection and barred owl control) into criteria 3, 4 and 5 to allow separate discussion of:

- revised habitat management under SOMP2 regulations (point 3),
- improved (potential) future habitat management from 2019 forward (to better protect existing spotted owl habitat in BC by recognizing limitations of SOMP2) (point 4); and,
- barred owl control (point 5).

In addition, the 2019 assessment (below), includes more detail on population enhancement measures (point 6), including captive breeding and barred owl control, as these actions have been underway for over a decade. The results of these efforts are also considered in the 2019 assessment whereas in 2005 they were simply identified as feasible recovery actions for implementation.

As per guidance set by Environment Canada (2005) determination of recovery feasibility must not consider human-centric values including aesthetic, economic, or other social values when assessing recovery feasibility as these considerations are accommodated separately in the recovery process. This assessment of recovery feasibility suggests that spotted owl recovery in BC continues to be ecologically and technically feasible based on the following rationale:

1. Extant population (updated with 2018 results): Breeding pairs were still present in Canada in 2017 (two sites with pairs and one single owl). Unfortunately, by 2018 all three known remaining sites were occupied by only single owls; however, there is some possibility that pairs remain undetected. Regardless, breeding in the wild population was most recently confirmed in 2017 at both the Spuzzum and Utzius territories near Boston Bar.
2. Immigration (not considered in 2005): Breeding pairs are still present immediately south of the international Canada-US border and immigration from the US resident population of spotted owls is still occurring. For example, Greendrop Lake territory (near Chilliwack) was found active in 2015 after three years of inactivity (Gillis 2016a) and a new female (unknown origin, possibly

from the US) was detected at Spuzzum Creek (paired with the resident male at that site) in 2015. In an independent demographic review in Washington State J. Buchanan (2016) spoke to recovery potential in Canada and concluded, given the amount and distribution of habitat in British Columbia, it remains possible to restore a population of several hundred spotted owls in the BC. I agree with Joe Buchanan's position: "the presence and connectivity of spotted owl populations on both sides of the international border should allow for more stability in that part of the owl's range" (Buchanan 2016).

3. Potential to better conserve existing SOMP2 managed habitat (note: managed habitat is considered in the context of SOMP2 as implemented in 2009): Sufficient suitable habitat to support a sustainable population of spotted owls is not currently conserved in BC. Protection of habitat in isolation of other direct management measures will not be sufficient to promote recovery. Of concern, and contrary to stated CSORT recovery goals, conservation of existing old-growth spotted owl habitat (and recruitment of new habitat) is currently not being achieved effectively under SOMP2 as only 12.5% of available suitable Class A spotted owl habitat is protected by SOMP2 designations. In addition, even in managed areas harvest of suitable spotted owl habitats continues today¹⁸.
4. Potential to better conserve existing unprotected habitat: Recovery is further challenged as 87.5% of available Class A habitat exists outside SOMP2 reserve boundaries and is currently unprotected. Forest harvest is currently permitted in these areas despite the value of these habitats for spotted owl recovery. Unfortunately, the distribution and amount on the landscape is likely not sufficient to allow recovery through additional habitat protection alone. Since 2000 there has been 29,909 ha of suitable spotted owl habitat (i.e., approximately 10 viable territories) commercially harvested in BC. The continuing harvest of suitable spotted owl habitat is largely promoted by the Province under the BCTS Program. It is laudable that two major commercial forestry licensees (Interfor and Canfor) both voluntarily elected to cease harvest in managed spotted owl habitat (in 2006) to support recovery but this positive step was negated as BCTS re-instigated harvest of spotted owl habitat within both tenures despite increased understanding of the owls decline, and contrary to recommendations for more conservative management in BC (Chutter et al. 2004; Appendix 1 (request for interim measures)).
5. Barred owl control (treated speculatively in 2005): Removal, including translocation and lethal removal of 189 barred owls from active spotted owl breeding areas has been suggested to be effective in reducing pressure on resident spotted owls (Diller 2016, Gillis 2016a). Research on the effects of barred owl removal confirmed barred owl control (i.e., removal) had a positive effect on spotted owl survivorship and fecundity rates with a concomitant reduction on spotted owl extirpation rates (Diller et al. 2016). The effect of barred owl removal was unknown in the 2005 assessment as this action hadn't yet been applied. Since 2005 barred owl control measures were applied by J. Gillis; these actions have had a suggested positive effect on spotted owl persistence and productivity in BC (Gillis 2016a).
6. Population augmentation (treated speculatively in 2005): The captive breeding program has now been in operation for over 12 years; efficacy of program success is included in this assessment. The previous (2005) assessment was based on an optimistic projection of program effectiveness. Release rates were anticipated as 20 owls to be released each year (I. Blackburn pers. com.). Since 2006/7 the Canadian spotted owl captive breeding program has bred eight

¹⁸ As an illustrative example the Province has recently proposed additional commercial forest harvest under the Province's BCTS program; harvest is proposed within one of two last remaining active spotted owl conservation areas (Spuzzum Creek). These actions are proposed despite spotted owl management objectives set forth by the Province (SARCO) in SOMP2.

spotted owls in captivity (predicted release rates suggested 240 owls would be released by 2018 (Ian Blackburn pers. comm.). No captive bred spotted owls have been released yet. In addition to the discrepancy between anticipated and actual success the negative impact to the wild population should not be ignored. At least ten spotted owls have been removed from the wild to provide stock for the captive breeding program, which is likely to have adversely affected production and recruitment in the remaining wild population¹⁹. These results are far less optimistic relative to anticipated breeding rates which speculatively predicated a rate of production of approximately 20 juvenile owls produced per year (I. Blackburn pers. comm.). However, valuable lessons have been learned since the program's inception, providing potential for future success.

This current assessment of the feasibility of recovery recognizes additional challenges than those outlined in previous assessments. Ecologically, recovery is further complicated in 2019 by ongoing habitat loss, as protection measures under SOMP2 did not faithfully implement the recommendations provided to the Province by CSORT in the 2007 Action Plan Guidance document (see Chutter et al. 2007). Furthermore, in the 2005 CSORT feasibility assessment, consideration of population augmentation as a recovery action component was based on optimistic predicted or anticipated results whereas the current (2019) assessment of recovery feasibility is informed by actual results from the spotted owl captive breeding program initiated in 2007.

Over a decade has passed since SOMP2 was implemented in 2006 and it is clear that the certainty of recovery is more tenuous today relative to the previous 2005 CSORT assessment. The current (2018) known population of only three remaining single owls in the BC wild population is a stark contrast with the 2004 known population of 25 individuals (including eight breeding pairs and nine single adults) when recovery feasibility was assessed by CSORT in 2004, and 22 individuals (including six pairs) when recovery feasibility was re-assessed by CSORT 2005. The current 2018 status of spotted owl in BC allows retrospective consideration of the effectiveness of spotted owl management (including habitat and population management) since the last assessment by CSORT in 2005; SOMP2 is clearly not achieving the desired recovery outcome.

Although actions required to allow recovery, given current conditions and current management by the Province, seem daunting under the SARA the province is obligated to try as recovery is technically and biologically feasible. The ECCC toolbox, and the SARA, specify use of a precautionary approach, where *"...species for which recovery feasibility is unknown would be considered recoverable until proven otherwise"*. In this assessment recovery is still deemed technically and biologically feasible but it is clear that the Province will face several significant logistical, societal and economic challenges. Recovery actions need to be implemented more conservatively (with regards to timber harvest in spotted owl habitat), with strict adherence to scientific principle and without delay for improved habitat protection if the Province faithfully intends to successfully recover spotted owls in BC.

¹⁹ In favor of the captive breeding program survivorship of captive owls is higher – in the wild longevity is estimated at ~15-17 years whereas in captivity one individual owl, kept by E. Forsman, survived for 32 years.

20. Attached is a document prepared by the Canadian Spotted Owl Recovery Team (“CSORT”) that we refer to as the Action Plan Guidance. What is your understanding of the nature of this document?

Synopsis: The 2007 Action Plan Guidance document was prepared by CSORT to supplement the 2004 Recovery Strategy and to provide further guidance to the Province during the development of SOMP2. Being based on the best available science at the time, it was meant to encourage and facilitate compliance with SARA requirements in identification of Critical Habitat for spotted owl.

The document titled “Guidance and Some Components of Action Planning for the Northern spotted owl in British Columbia” (Chutter et al. 2007) is more concisely referred to by WC (and herein) as the “Action Plan Guidance” document. This document was prepared by CSORT to identify actions, considered reasonable in 2007, recommended to protect and recover spotted owls in Canada. The 2007 document was intended as a companion document to the previously submitted CSORT spotted owl recovery strategy²⁰ (Chutter et al. 2004) as the 2004 Recovery Strategy was not considered compliant with SARA requirements in identification of Critical Habitat for spotted owl. The 2007 Action Plan Guidance document was presented with the caveat that it “*did not necessarily represent the individual perspectives of the people involved in its formulation, nor the official positions of the organizations represented by CSORT members; rather it represented consensus of the team member’s views on what is required to recover the Spotted Owl in British Columbia*” (Chutter et al. 2007). The information and recommendations identified in the Action Plan Guidance document were based on the best available science at the time of submission to the Province in 2007.

The two combined documents (i.e., the 2004 Recovery Strategy and the 2007 Action Plan Guidance document) were proposed to constitute a single recovery plan for submission to Environment Canada to meet the Province’s requirements under the federal *Species at Risk Act (SARA)*. The 2007 Action Plan Guidance document consistently referenced the results of the spotted owl habitat model I developed and provided “*recommendations for actions that should be implemented to reach the recovery goals and objectives set out in the recovery strategy; and provide(d) advice on considerations for Critical Habitat (designation)*” (Chutter et al. 2007). It was hoped that the Ministry of Environment would use the document as guidance in their recovery planning efforts (while developing SOMP2) and that the Province would consider the recommendations and advice provided by the document during their independent development of SOMP2.

After its submission to the Province, by CSORT, the Province assigned responsibility for spotted owl management in BC to the Species at Risk Coordination Office (SARCO). The SARCO then developed its own independent action plan for federal submission with the CSORT recovery strategy. This SARCO developed action plan was subsequently accepted by the Provincial Government and submitted with the CSORT recovery strategy to comply with SARA requirements. It is now referred to as SOMP2 and sets governance for spotted owl recovery in Canada.

²⁰ The 2004 CSORT Recovery Strategy provided a summary of scientific knowledge, current to April 2004, and represented advice to the Province to set recovery goals, including recommended approaches and objectives to protect and recover spotted owls in BC.

21. The CSORT states in the Action Plan Guidance that it was drafted to “identify reasonable actions required to protect and recover the Northern Spotted Owl in Canada” (at page v). How does BC’s current approach to protecting and recovering the Spotted Owl exceed, meet, or fall short of these actions?

Synopsis: The CSORT Action Plan Guidance requested and recommended habitat protection that was not met by the Province under the habitat conservation and management measures afforded by SOMP2, including recommendations to identify CH. SOMP2 instead placed far greater emphasis on captive breeding and barred owl control, whose success and shortcomings have been discussed. Overall, based on the lack of protection of suitable habitat and outcomes of additional management efforts, the Province’s current approach under SOMP2 falls short of the Province’s explicitly stated goal to protect and recover spotted owls in Canada.

When SOMP2 was released and endorsed by the Province SARCO claimed it was consistent with guidance provided in the CSORT Recovery Strategy (2004); however, in consideration of the differences in protection afforded to spotted owl habitat (versus recommendations outlined in the Action Plan Guidance document (2007)) SOMP2 did not afford an equivalent degree of protection relative to the CSORT Action Plan Guidance document. Most notably, SOMP2 did not afford protection to all available spotted owl habitat in BC, nor to all recently active spotted owl territories (as requested in Appendix 1 (interim measures)). Furthermore, SOMP2 did not allow any additional protection (relative to the impact already allowed under SOMP1) to spotted owl habitat with the species range. Under SOMP2 there were no adjustments made to AAC targets, for spotted owl, within the three NRD’s in which spotted owl was known to have occurred and no protection for spotted owl habitat in the Sunshine Coast NRD. This effectively meant that, relative to SOMP1, there would be no additional protection of existing habitat under SOMP2. Under SOMP2, management efforts were instead focused more heavily on population augmentation, supported by optimistic speculation of successes for captive breeding efforts (1) and barred owl control (2). These programs are summarized as follows:

- 1) After more than ten years in operation the captive breeding program has only bred eight spotted owls (one of which is not viable for release), which falls short of early projections for the program (predicated release of 200 owls in ten years). It is notable that the same program has removed at least ten owls from the BC wild population to augment the breeding ‘stock’ of 21 owls in captivity today. At least one, if not two, spotted owls have died during, or shortly after, capture. A spotted owl was diagnosed to have died from blunt-force trauma (in 2006) after capture was completed using noosing techniques (J. Gillis pers com 2006 and Dr. H. Schwantje (Provincial veterinarian)). There are rumors that a second owl was also lost during or shortly after capture, but this information is not publicly available. The current captive breeding stock includes three owls from the U.S., eight individuals successfully brought in from the wild, one owl hit by a car, and eight young produced by the program (I. Blackburn pers. com.).
- 2) The barred owl control program has effectively removed 189 barred owls (138 were captured and relocated; 51 were shot (Cox 2018)) with some noted benefit to resident spotted owls at removal sites (Gillis 2016a). The sustainability of these efforts is questionable in the context of effort, moral values, and counter-effects from natural recruitment rates of barred owls within the range of spotted owl in BC. Based on productivity and sympatric population estimates,

anticipated recruitment rates for barred owl are approximated at 5,400 new barred owls fledged within the spotted owl's range of in BC annually.

Together, and coupled with the fact that CH has still not been formally or appropriately identified under SOMP2 (as recommended on Page v of the 2007 Action Plan Guidance document) these statistics demonstrate that the Province's current approach under SOMP2 falls short of the Province's explicitly stated goal, and of obligations, as stated as a requirement under the federal *SARA*, to protect and recover spotted owls in BC.



*"For the animal shall not be measured
by man.
In a world older and more complete
than ours, they move finished and
complete,
gifted with extensions of the senses we
have lost or never attained,
living by voices we shall never hear."*

Henry Beston

Author (1888-1968)

"The Outermost House

**The spotted owl conveys a message,
through its own decline, regarding the
management of old-growth forest
resources in BC. Will we be wise enough to
listen?**

Date: February 24, 2019

Jared Hobbs M. Sc., R.P. Bio. (#1324)
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Appendix 1: Image Catalogue

Image Description	Page/Figure Number	Location	Date
Spotted Owl (male)	Cover Page	Boulder Creek	June, 2004
Northern Spotted Owl	P.8	East Anderson Creek	June 10, 2010
California Spotted Owl	P.8	Oregon Caves NM	April, 2002
Mexican Spotted Owl	P.8	Scheelite Creek, Arizona	May 29, 2006
Stein Provincial Park	P. 12 / Figure 3	Scudamore Creek, BC	May 28, 2007
Upper Pitt	P. 12 / Figure 4	Upper Pitt River, BC	June 2002
Barred Owl	P. 14 / Figure 5	Logan Park, Victoria, BC	March 28, 2006
Spotted Owl (dead)	P. 14 / Figure 6	Stein Valley, BC	March 2004
Spotted owl adult and nestling in cavity nest	P. 17	Boulder Creek, BC	June, 2003
Spotted owl adult and nestlings in platform nest	P. 17	Boulder Creek, BC	June, 2002
Sockeye Creek nest	P 18	Sockeye Creek, BC	May, 2006
Logging truck	P. 20	Harrison, BC	June, 2004
Clear-cut near Texas Creek	P. 20	Texas Creek, near Lillooet, BC	September 14, 2011
Clear-cut near Anderson Creek	P. 34	Anderson Creek, near Boston Bar, BC	2001
Sub-adult Spotted Owl	P. 38	Anderson Lake, BC	January 2005
Anderson clear-cut	P. 39	East Anderson SRMZ	2000
Barred Owl (adult)	P. 42	Logan Park, Victoria, BC	March 27, 2006
Great Horned Owl	P. 42	Oak Bay, Victoria, BC	August 28, 2015
Billygoat Creek	P. 44	Baptiste, BC	September 18, 2009
Spotted Owl in flight	P. 46	Mowhokum Creek	June 10, 2010
Bushy-tailed Woodrat	P. 46	Lillooet, BC	August 21, 2014
Enterprise Creek	P. 55	Cayoosh Creek, BC	May 3, 2006
Mexican Spotted Owl	P. 68	Scheelite Creek, BC	May 29, 2006

May 8, 2019

Via email and courier

The Honourable Catherine McKenna
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Dear Minister McKenna:

RE: Habitat Action Plan for Northern Spotted Owl pursuant to the *Species at Risk Act*

We act for the Wilderness Committee and write on its behalf regarding the Northern Spotted Owl (*Strix occidentalis caurina*) (“**Spotted Owl**”); in particular, we write to request that you to produce a long overdue Spotted Owl action plan pursuant to the *Species at Risk Act*, 2002, c.29 (“**SARA**”).

Introduction

The Wilderness Committee (formerly the Western Canada Wilderness Committee) is one of British Columbia’s oldest wilderness and wildlife conservation organizations. For nearly three decades it has been working to protect the Spotted Owl and its habitat. It has also demonstrated a longstanding interest in the administration of and compliance with *SARA*. For example, it has brought several lawsuits under *SARA* in an effort to protect at-risk species, including the Spotted Owl.¹

The Wilderness Committee is requesting that you take immediate action with respect to preparing and publishing a *SARA*-compliant habitat action plan for the Spotted Owl.

The Spotted Owl has been listed as endangered under *SARA* since 2003. In 2006, the “Recovery Strategy for the Northern Spotted Owl (*Strix occidentalis caurina*) in British Columbia” (the “**Recovery Strategy**”) was published on the species at risk public registry in accordance with *SARA*. The Recovery Strategy included only a partial definition of the Spotted Owl’s critical

¹ See e.g., *Western Canada Wilderness Committee, et al v Canada (Fisheries and Oceans)*, 2014 FC 148; *Alberta Wilderness Association, et al v Canada (Environment)*, 2009 FC 710; *Western Canada Wilderness Committee, et al v Canada (Minister of Environment)* (application filed December 5, 2005), Vancouver, FC T-2150-05 (application discontinued September 12, 2006).

habitat – that is, the habitat that is “necessary for its survival or recovery”.² However, through the Recovery Strategy, your predecessor committed to completing a habitat action plan within a year that would, among other things, fully identify the Spotted Owl’s critical habitat (the “**Habitat Action Plan**”).³

As of the date of this letter – over 12 years later – the Habitat Action Plan has still not been produced. In short, the failure to publish the Habitat Action Plan has:

- Deprived the Spotted Owl of legal protection for habitat necessary for its survival and recovery that was not identified in the Recovery Strategy;
- Slowed the recovery action – namely, the identification and protection of critical habitat – crucial to protecting the Spotted Owl and preventing further loss of genetic diversity; and,
- Allowed the primary threat to the Spotted Owl and its habitat – that is, commercial logging of old-growth forest – to continue widely unaddressed and unmonitored.

Without your timely intervention, the Wilderness Committee considers the Spotted Owl’s near-term extirpation from Canada certain.

Background

The Spotted Owl faces imminent extirpation

The Canadian population of the Spotted Owl is found exclusively in southwestern British Columbia. It is estimated that prior to European contact the population of Spotted Owl was 500 pairs.

In 1986, the Committee on the Status of Endangered Wildlife in Canada (“COSEWIC”) designated the Spotted Owl as “endangered”, meaning that the species is “threatened with imminent extirpation throughout all or a significant portion of its Canadian range.”⁴

Between 1992 and 2002, while the BC government prioritized commercial logging of Spotted Owl habitat, the population declined by as much as 67%, at an annual rate of 10.4%. At the time the Recovery Strategy was published in 2006, the known population was 22 individuals.

The latest estimate is that there are no more than six owls remaining in the wild.⁵

² SARA, s. 2(1).

³ See Recovery Strategy at p 17 under heading “6.2 Critical Habitat”: “... The amount and spatial distribution of critical habitat for Spotted Owls have not yet been defined by the [Canadian Spotted Owl Recovery Team (CSORT)]. Recommendations regarding the amount and distribution of critical habitat required to recover the population in British Columbia will be included in the Habitat Action Plan.”; see also, Recovery Strategy at p 53 under heading “18.2 Statement of When Action Plans will be Completed”: “1. Habitat Action Plan: to define survival and recovery habitat, review and evaluate effectiveness of [BC’s habitat protection regime], and provide recommendations of additional habitat recovery actions (within a year of release of the recovery strategy).”

⁴ COSEWIC re-examined and confirmed this endangered status in April 1999, May 2000, and April 2008.

⁵ Wilderness Committee has been informed that there are an additional 21 owls in the BC-based captive breeding program. However, this program has yet to successfully release an owl into the wild after 12 years of operation.

BC's historic and continued mismanagement of Spotted Owl and its habitat

The primary threat to the Spotted Owl has been and continues to be loss and fragmentation of its habitat, which is predominantly comprised of old-growth forest. The principal cause of habitat loss and fragmentation is commercial logging regulated and approved by the BC government.

From the early 1990s until the Spotted Owl was listed as endangered under SARA the BC government openly prioritized logging of Spotted Owl habitat over its protection and recovery.

In 2006, at around the same time the final Recovery Strategy was published, the Wilderness Committee and others sued your predecessor, Rona Ambrose, for failing to recommend that the Governor in Council make an emergency order to protect the Spotted Owl and its habitat under s. 80 of SARA.⁶

During the course of those court proceedings Ms. Ambrose concluded that there was not an imminent threat to the Spotted Owl's survival. The record of Ms. Ambrose's decision (the "**Emergency Order Decision Record**") filed with Federal Court revealed:

- Based on BC's mismanagement, Environment Canada officials initially recommended Ms. Ambrose form the opinion that there was an imminent threat to the Spotted Owl;⁷
- Shortly thereafter, then BC Minister of Agriculture and Lands, Pat Bell, sent Ms. Ambrose a letter setting out three actions the BC government was taking to protect the Spotted Owl. These were:
 - Institute a population enhancement program (translocation, captive breeding, competitor management and prey enhancement);
 - Immediately protect active Spotted Owl areas; and,
 - Secure recovery habitat guided by science.⁸
- After reviewing BC's commitments, Environment Canada officials recommended Ms. Ambrose form the opinion that there was no longer an imminent threat to the Spotted Owl.

The 2006 "no imminent threat" recommendation from Environment Canada officials was premised on several findings that are highly relevant to Wilderness Committee's current request for a Habitat Action Plan, including:

- "Population enhancement work will not be successful in the long-run if adequate habitat does not exist to support the growing population. This issue must be addressed through the identification and protection of critical habitat. Information is available to complete this

⁶ *Western Canada Wilderness Committee, et al v Canada* (application filed September 15, 2006), Vancouver, FC T-1681-06 (application discontinued June 7, 2007) [*WCWC 2006*].

⁷ *WCWC 2006*, Documents Provided Pursuant to Rule 318 of *Federal Courts Rules* ["Emergency Order Decision Record"], Appendix A, Tab 4, Memorandum to Minister (MIN-82502) (April 26, 2006) at 6.

⁸ *WCWC 2006*, Emergency Order Decision Record, Appendix A, Tab 3, Memorandum to Minister (MIN-87052) (August 4, 2006), Attachment (IV), Memorandum to Minister (MIN-85130) (June 20, 2006), attachment (vi) Letter from the Honourable Pat Bell, Minister of Agriculture and Lands, British Columbia to the Minister of the Environment (May 8, 2006).

analysis ([citing to a draft Habitat Action Plan]) and it is possible to complete it within the next 12 months.”⁹

- “[the] partial definition of critical habitat in the [Recovery Strategy] was the subject of much debate and the definition included is one that all members of the [“Canadian Spotted Owl Recovery Team” or “CSORT”] could support. BC has since directed the recovery team to not spatially identify critical habitat, but rather to provide a “recipe” that BC can use in their determination of critical habitat ... Section 49(1)(a) of SARA requires an identification of critical habitat in action plans, and presumably BC will add this identification to the action plan ... The Schedule of Studies appended to the [Recovery] Strategy in April 2006, outlines what is required to complete the identification of critical habitat in the [Habitat] Action Plan. Most of these studies have already been completed by CSORT, as has a draft Action Plan. The Schedule of Studies states that the Action Plan, with guidance for BC to spatially identify critical habitat, will be complete in 2006 and that BC would then have the information they needed to identify critical habitat and a revised habitat management plan by 2007.”¹⁰
- “BC’s plan for action, if carried out under the direction of a science team and within the proposed timeframes as indicated, and their proposed actions, will allow for protection of all occupied sites, longer-term habitat protection and population enhancement ... you should be aware, however, that BC has been known to delay or not take actions that were recommended by previously constituted science teams.”¹¹

Excerpts from the Emergency Order Decision Record containing these statements are attached to this letter at **Tab 1** of the Appendix. At **Tab 2** of the Appendix we have attached for your reference the “draft Action Plan” discussed throughout the Emergency Order Decision Record.

Your predecessor assessed imminent threat based on BC’s current and proposed actions, placing faith in their proactive and protective implementation, guided by science. Unfortunately, this faith was misplaced.

Attached at **Tab 3** of the Appendix is an expert report commissioned by the Wilderness Committee from British Columbia’s former and foremost Spotted Owl field biologist and advisor to the CSORT, Jared Hobbs (“**Hobbs 2019**”).¹²

The Wilderness Committee commissioned this report to definitively assess the actions BC took after its 2006 commitments, their implications for the Spotted Owl, the species’ current status, and its chances of survival and recovery.

⁹ WCWC 2006, Emergency Order Decision Record, Appendix A, Tab 3, Memorandum to Minister (MIN-87052) (August 4, 2006), attachment (IV), Memorandum to Minister (MIN-85130) (June 20, 2006), attachment (iv), “Scientific Assessment of the Status of Northern Spotted Owl in British Columbia” (April 12, 2006 (revised April 25, 2006, updated on May 31, 2006) at 13 (underlining added).

¹⁰ WCWC 2006, Emergency Order Decision Record, Appendix A, Tab 3, Memorandum to Minister (MIN-87052) (August 4, 2006), attachment (IV), Memorandum to Minister (MIN-85130) (June 20, 2006), attachment (iii), “Summary of the Northern Spotted Owl Recovery Strategy” (June 1, 2006) at 2 (underlining added).

¹¹ WCWC 2006, Emergency Order Decision Record, Appendix A, Tab 3, Memorandum to Minister (MIN-87052) (August 4, 2006), attachment (IV), Memorandum to Minister (MIN-85130) (June 20, 2006) at 5 (underlining added).

¹² Hobbs, J. *Spotted Owl Survival and Recover in British Columbia: Expert Report* (February 14, 2019) (“Hobbs 2019”).

The Hobbs 2019 report confirms that, not only did the BC government fail to produce the Habitat Action Plan, it stalled for years before adopting a piecemeal habitat management policy which in many respects replicated the Province’s pre-2007 efforts. In other words, the Spotted Owl’s critical habitat was never identified and BC maintained an approach that put the species on a path to extirpation from Canada in the first place.

This continued mismanagement is captured by several maps produced by the Wilderness Committee that are attached at **Tabs 4(a)-(c)** of the Appendix. These maps demonstrate in stark terms how much Spotted Owl habitat – undoubtedly much of it critical habitat – has been destroyed under the BC government’s watch since the species was first recognized as endangered by COSEWIC and then under *SARA*.

In sum, the Emergency Order Decision Record, Hobbs 2019 report, and Wilderness Committee maps confirm the following:

- Your predecessor erred in trusting that the BC government would provide a Habitat Action Plan as required by *SARA*;
- In the 12 intervening years since the release of the Recovery Strategy the BC government has done little to fulfill its commitment to act in accordance with, as Minister Bell put it at the time, the “best science available” and to take actions that “provide the best opportunity for recovery of the spotted owls in British Columbia”;¹³ and
- The result of these failures is truly alarming– less than six owls remain in the wild and survival and recovery habitat has still yet to be identified, let alone protected.

Despite this dismal circumstance, the Hobbs 2019 report confirms that the survival and recovery of the Spotted Owl in Canada is still technically and biologically feasible.¹⁴ Consequently, it is incumbent upon you to take immediate action.

Actions sought

We have advised the Wilderness Committee that there are clear grounds upon which the Federal Court could rely to order you to produce the requested Habitat Action Plan. But the Spotted Owl needs action now, not after potentially years of drawn-out litigation. Thus, the Wilderness Committee has directed us to first request confirmation that you intend to immediately comply with your *SARA* obligations.

However, the Wilderness Committee is concerned about another ill-advised deferral to the BC government to prepare the Habitat Action Plan. It therefore also requests that at least one member tasked with preparing the Habitat Action Plan be an external and independent scientist who co-chairs the team and shares decision-making authority on the final draft.

¹³ *WCWC 2006*, Emergency Order Decision Record, Appendix A, Tab 3, Memorandum to Minister (MIN-87052) (August 4, 2006), Attachment (IV), Memorandum to Minister (MIN-85130) (June 20, 2006), attachment (vi) Letter from the Honourable Pat Bell, Minister of Agriculture and Lands, British Columbia to the Minister of the Environment (May 8, 2006) at 3.

¹⁴ Hobbs 2019 at 62-64.

Jared Hobbs has informed us that he is willing and able to assist in preparing the Habitat Action Plan. As stated above (and confirmed in his *curriculum vitae*),¹⁵ Mr. Hobbs has the independence and expertise necessary to fulfill the important external and independent scientist role. The CSORT relied heavily on him in preparing the Recovery Strategy and draft Habitat Action Plan,¹⁶ and so should you.

In summation, in order to ensure the Spotted Owl's survival and recovery, and to comply with your SARA obligations, Wilderness Committee requests that you:

1. By **June 30, 2019** inform the Wilderness Committee of steps taken to date to prepare a proposed Habitat Action Plan, with confirmation of (i) whether Jared Hobbs has been or will be invited to co-chair the action plan team, and (ii) whether you intend to comply with the timelines set out below in (2) and (3);
2. By **September 30, 2019** publish the proposed Habitat Action Plan in the Species at Risk Public Registry; and
3. By **December 31, 2019** publish the final Habitat Action Plan in the Species at Risk Public Registry.¹⁷

To be clear, while the Wilderness Committee seeks your cooperative response in the first instance, and will accommodate and looks forward to a reasonable process for Habitat Action Plan preparation, this correspondence is a legal demand that you act in accordance with your SARA obligations.

Accordingly, if a SARA-compliant Habitat Action Plan is not added to the public registry by **December 31, 2019**, the Wilderness Committee is prepared to sue to enforce your legal obligations under the *Species at Risk Act*.

Sincerely,



Devon Page
Counsel for Wilderness Committee



Kegan Pepper-Smith
Counsel for Wilderness Committee

¹⁵ Attached at Tab 5 of the Appendix.

¹⁶ See e.g., Hobbs 2019 at p 48 where Mr. Hobbs states: "In 2004, I developed a new (revised) BC habitat suitability model that was quickly adopted by CSORT and Coretex Consulting [the consulting agency retained by CSORT for habitat modeling] ... This (2004) model has been used consistently, since 2004, to define and describe spotted owl habitat in BC. The attributes used in this model were field verified, accepted and used by CSORT (Chutter et al. 2004), by Coretex (Sutherland et al. (2007)), and by COSEWIC (COSEWIC 2008)."

¹⁷ This must be completed in compliance with SARA, including ss 38, 49(1), 50(2)-(3). In particular, the Habitat Action Plan must include, among other things, an identification of the Spotted Owl's critical habitat "based on the best available information and consistent with the recovery strategy" (SARA, s 49(1)(a)).

Appendix

Tab 1 – *Western Canada Wilderness Committee, et al v Canada* (application filed September 15, 2006), Vancouver, FC T-1681-06, Excerpts of Documents Provided Pursuant to Rule 318 of *Federal Courts Rules*.

Tab 2 – Chutter, M.J., et al. 2007. *Guidance and some components of action planning for the Northern Spotted Owl (Strix occidentalis caurina) in British Columbia*. BC Ministry of Environment, Victoria, British Columbia.

Tab 3 – Hobbs, J. 2019, *Spotted Owl Survival and Recovery in British Columbia: Expert Report*

Tab 4 – Wilderness Committee Spotted Owl Habitat Maps

- **Tab 4(a)** – Estimated Historic Spotted Owl Habitat in Canada
- **Tab 4(b)** – Logging and Spotted Owl Habitat in Canada in 2003
- **Tab 4(c)** – Logging and Spotted Owl Habitat in Canada in 2018
- **Tab 4(d)** – Logging near and in Spotted Owl Protection Area

Tab 5 – *Curriculum Vitae* of Jared Hobbs, M.Sc., R.P.Bio.



October 14, 2020

Sent via Email

**The Honourable Jonathan Wilkinson,
Minister of Environment and Climate Change**
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Dear Minister Wilkinson:

Re: Petition for an Emergency Order Recommendation for the Northern Spotted Owl

We are legal counsel to the Wilderness Committee (**Petitioner**).

The Petitioner has retained us for the purpose of demanding that you recommend an emergency order be issued pursuant to s. 80 of the *Species at Risk Act*¹ for the northern spotted owl (*Strix occidentalis caurina*).

The emergency order is necessary because the spotted owl unquestionably faces imminent threats to its survival and recovery. The grounds for the emergency order are set out in the attached petition, and are summarized as follows:

- The spotted owl (which, in Canada, only resides in southwestern British Columbia) is an endangered species under *SARA*. The spotted owl is currently on the brink of extinction from Canada's wild (i.e., extirpation), having experienced extreme recent population declines and serious and ongoing habitat degradation and loss, along with numerous secondary threats.
- In 2006, when there were less than two dozen owls remaining in the wild, Environment Canada officials recommended to your predecessor that an *SARA* emergency order be

¹ [Species at Risk Act, 2002, c 29](#) [*SARA*]

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issued.² British Columbia in response committed to several actions, including protection for all occupied sites, population enhancement, and broader habitat identification and protection.³ These commitments satisfied then Minister Rona Ambrose that there was no longer an imminent threat to the species' survival and recovery.⁴

- Unfortunately, many of BC's commitments – particularly habitat identification and protection – went unfulfilled. There are now only three known spotted owls remaining in the wild. Two of these are a pair that successfully bred 3 chicks in 2019 and 2020, which were subsequently captured and placed in the captive breeding program.
- The captive breeding program was initiated nearly 15 years ago to assist in supplementing the wild population to meet recovery goals. Despite repeated assurances, the program has never successfully reintroduced an owl into the wild.
- Thus, the last known breeding pair represent the only proven option for maintaining the wild population.
- Despite this, the British Columbian government continues to authorize logging within the pair's habitat, causing further habitat loss, disturbance and degradation.
- Continued logging of habitat constitutes an imminent threat to the pair's survival – and to the survival and recovery of the remaining wild population.
- Owls in cages in the captive breeding program is not “survival” or “recovery” as contemplated by SARA.⁵

In light of the circumstances set out in this petition, the Petitioner submits the spotted owl unquestionably faces imminent threats to its survival and recovery as contemplated by s. 80(2) of SARA such that you have a mandatory legal duty to recommend to the Governor in Council that it issue an emergency order that protects, at minimum, the habitat required to ensure the survival of the last remaining breeding pair.

Further details are set out in the attached petition. We look forward to your prompt response; as noted in the petition, the Petitioner demands a s. 80 emergency order recommendation by November 30, 2020.

Sincerely,



Kegan Pepper-Smith
Counsel for Wilderness Committee



Devon Page
Counsel for Wilderness Committee

² **Appendix, Tab I:** *Western Canada Wilderness Committee, et al v Canada* (application filed September 15, 2006), Vancouver, FC T-1681-06, Excerpts of Certified Tribunal Record, produced pursuant to Rule 318 of the *Federal Court Rules* [2006 Emergency Order Record], Excerpt 5, “Memorandum to the Minister of the Environment from the Deputy Minister”, dated April 26, 2006 (MIN-82502) at p 6.

³ 2006 Emergency Order Record, Excerpt 4.

⁴ 2006 Emergency Order Record, Excerpt 1, at p 7.

⁵ SARA, preamble “Canadian wildlife species and ecosystems are also part of the world’s heritage and the Government of Canada has ratified the United Nations Convention on the Conservation of Biological Diversity ... the habitat of species at risk is key to their conservation”.

**Petition for an Emergency Order for the Northern Spotted Owl
Under s. 80 of the *Species at Risk Act***

To the Honourable Jonathan Wilkinson, Minister of Environment and Climate Change

On behalf of the Wilderness Committee (the “Petitioner”)

Prepared by Ecojustice



The Petitioner

The Wilderness Committee (formerly the Western Canada Wilderness Committee) is one of British Columbia's oldest wilderness and wildlife conservation organizations. For nearly three decades it has been working to protect the spotted owl and its habitat. It has also demonstrated a longstanding interest in the administration of and compliance with *SARA*. For example, it has brought several lawsuits under *SARA* in an effort to protect at-risk species, including the spotted owl.⁶

Introduction

Canada's spotted owl population is on the brink of extirpation (i.e. no longer exists in the wild in Canada)^{7, 8}

In 1986, the Committee on the Status of Endangered Wildlife in Canada ("COSEWIC") designated the spotted owl as "endangered", meaning that the species is "threatened with imminent extirpation throughout all or a significant portion of its Canadian range."

Since then, successive BC governments have prioritized the continuation of clearcut logging – the primary threat to the spotted owl – over necessary conservation actions to protect and recover the species.⁹ Indeed, notwithstanding federal intervention between 2004 and 2007 (which was in response to a request by the Petitioner and others for a *SARA* emergency order),¹⁰ the BC government has protected the spotted owl and its habitat only to the extent that it did not jeopardize timber supply.¹¹

In May 2019, we sent a letter on behalf of the Petitioner to your predecessor, Minister Catherine McKenna, demanding that she publish a *SARA* action plan that, among other things, identified spotted owl critical habitat. At the time of this demand the identification of critical habitat through an action plan was at least 12 years overdue.¹²

⁶ See e.g., [Western Canada Wilderness Committee, et al v Canada \(Fisheries and Oceans\), 2014 FC 148](#); [Alberta Wilderness Association, et al v Canada \(Environment\), 2009 FC 710](#); [Western Canada Wilderness Committee, et al v Canada \(Minister of Environment\)](#) (application filed December 5, 2005), Vancouver, FC T-2150-05 (application discontinued September 12, 2006).

⁷ *SARA*, 2(1), "extirpated species" means "a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild."

⁸ **Appendix, Tab II:** Letter from Ecojustice to Honourable Catherine McKenna, "re Habitat Action Plan for Northern Spotted Owl pursuant to *Species at Risk Act*" (May 8, 2019) [**Habitat Action Plan Letter**], Appendix, Tab 3, Hobbs, J. 2019, *Spotted Owl Survival and Recovery in British Columbia: Expert Report* [**Hobbs 2019**] at pp 7-10.

⁹ Hobbs 2019 at pp 11-12, 21-25.

¹⁰ 2006 Emergency Order Record.

¹¹ Hobbs 2019 at pp 21-25.

¹² Chutter, M.J., et al. [Recovery Strategy for the Northern Spotted Owl \(*Strix occidentalis caurina*\) in British Columbia \(2004\)](#) (BC Ministry of Environment, Victoria, BC) [**Recovery Strategy**] at pp 17, 23, 53: "Habitat Action Plan: to define survival and recovery habitat, review and evaluate effectiveness of SOMP, and provide recommendations of additional habitat recovery actions (within a year of release of the recovery strategy)."

Minister McKenna responded with a commitment to prioritize “completion of an updated, SARA-compliant recovery document for the spotted owl in the shortest feasible timeframe.”¹³ Unfortunately, ostensibly due to COVID-19 restrictions and delayed consultation with First Nations, that process has been stalled – the latest from Canadian Wildlife Services is that a draft updated recovery strategy will not be completed until summer 2021.¹⁴

This past summer, a BC government biologist informed the Petitioner that there are only three known spotted owls remaining in the wild. This includes a pair in the Spuzzum Creek watershed that successfully bred in 2019 (one chick) and this year (two chicks).¹⁵ The BC biologist also confirmed that the chicks were captured and placed in the province’s captive breeding program.

Despite this dire state, the BC government continues to authorize logging of habitat throughout the spotted owl’s range, including in the Spuzzum Creek watershed.¹⁶

The Spuzzum Creek watershed spotted owls represent the last known breeding pair in Canada. It is clear they cannot wait for an updated recovery strategy.

The spotted owl requires an emergency order protecting, at minimum, the Spuzzum Creek watershed from continued logging. The species’ survival and recovery depends on it.¹⁷

The spotted owl is in a state of emergency

In 2019, the Petitioner retained spotted owl expert Jared Hobbs, M.Sc. / R.P. Bio. to provide an expert report detailing, among other things, what is required to support spotted owl survival and recovery in order to reach the population goal set out in the Recovery Strategy.¹⁸ Mr. Hobbs was previously employed by the BC government as a species at risk biologist, where he worked to implement the conservation and management for 82 species. He also spent 4 years leading a field survey program conducting spotted owl inventory throughout the species range and provided scientific advice to the SARA Recovery Strategy team.¹⁹

As the attached expert reports (Hobbs 2019 and Hobbs 2020) detail, the spotted owl population in BC has undergone a sustained and precipitous decline.²⁰ Despite being assessed as endangered by COSEWIC in 1986 and listed under SARA in 2003, little has been done since to halt and

¹³ **Appendix, Tab III:** Letter from Minister McKenna to Ecojustice (June 28, 2019) responding to Habitat Action Plan Letter [**Minister McKenna Response**] at p 1.

¹⁴ **Appendix, Tab IV:** Email Correspondence from Canadian Wildlife Service to Ecojustice (July 24, 2020) regarding one year delay in spotted owl recovery planning process

¹⁵ **Appendix, Tab V:** Email Correspondence from BC Government Biologist to Wilderness Committee (August 5, 2020) regarding wild spotted owl population numbers.

¹⁶ **Appendix, Tab VI:** Hobbs, J. *Expert Opinion Regarding Application of Interim Measures within the Spuzzum Creek Watershed* (September 13, 2020) J Hobbs Ecological Consulting Ltd., File JHEC-2020-32 [**Hobbs 2020**] at pp 5-7; Hobbs 2019 at pp 33-38; **Appendix, Tab VII(1)-(3):** Joe Foy, photos taken October 4, 2020 documenting logging activities within Spuzzum Creek watershed.

¹⁷ Hobbs 2020 at p 7.

¹⁸ Recovery Strategy at p 23: “The recovery goal for the Spotted Owl is to provide enough suitable habitat, spatially distributed in a way that it can support and sustain a minimum of 250 mature owls throughout its natural range”

¹⁹ Hobbs 2019 at p 1.

²⁰ See e.g., Hobbs 2019 at pp 9-10.

reverse the species' decline. In fact, the opposite has occurred: throughout this period BC prioritized the continuation of the primary threat to the species' survival and recovery – namely, clearcut logging of habitat.²¹

As the province has continued to allow the destruction of habitat, the species has continued to proportionately decline. When the Petitioner demanded a SARA-compliant action plan from your predecessor in May 2019, it was estimated that there were less than ten owls remaining in the wild.²² This past summer, the Petitioner confirmed that only three remain – the breeding pair in the Spuzzum Creek watershed and a single male in nearby Utzlius.

The province's primary focus has been on a captive breeding program. This program, introduced in 2006, had the goal of releasing 20 owls per year between 2006 and 2016.²³ However, this program has never met breeding objectives or timelines – i.e., it has yet to successfully release a single captive-bred owl into the wild.²⁴ Moreover, to support the program, “at least ten owls have been removed from BC's wild population resulting in a net-negative impact to BC's wild spotted owl population after 12 years of focused captive breeding efforts.”²⁵

Thus, the owls in the Spuzzum Creek watershed remain the only known pair surviving and successfully reproducing in the wild, and their continued survival and breeding is critical to the survival and recovery of the species. As Mr. Hobbs states,

[the Spuzzum Creek watershed] pair represents the last known wild breeding pair of spotted owls in BC. The pair is currently being used as a source of juvenile spotted owls to augment and support a captive breeding program led by the Province. In addition to the intrinsic value of this last surviving known pair of spotted owls in Canada, the proportional significance of young produced by this pair is significant; this pair represents 100% of the known reproductive potential of the northern spotted owl in Canada in the wild.²⁶

The spotted owl requires urgent action to ensure survival and recovery

Conservation of suitable spotted owl habitat is vital to the species' survival and recovery. As Mr. Hobbs notes,

At a general level, as spotted owls are specialists, they require large home ranges (or territories) of approximately 2,800 – 3,400 ha with the majority of the area

²¹ Hobbs 2019 at pp 33-38; Hobbs 2020 at pp 5-7.

²² Habitat Action Plan Letter at p 2.

²³ Hobbs 2020 at p 9.

²⁴ Hobbs 2019 at p 9: “A captive breeding program was initiated in 2006 with the goal of releasing 20 young per year between 2006 and 2026 (I. Blackburn pers. com.) with an originally projected 2019 goal of 240 owls bred and released. To date the program has produced eight young (one of which was blind and incapable of flight); the same program has removed ten spotted owls from the wild population in the same time period to augment breeding stock (including at least one that died within 24-hours of capture from blunt force trauma). Release goals are not publicly available and are not currently anticipated in 2019; to date no captive bred spotted owls have been released in BC. There are currently 21 owls in captivity (including eight captive bred juveniles, ten adults removed from the wild in BC, and four owls brought in from rescue centres in the United States (US)).”

²⁵ Hobbs 2019 at p 40.

²⁶ Hobbs 2020 at p 4.

comprised of suitable mature and old-growth forested habitats. Reproduction and survival are strongly affected by fluctuations in prey abundance and availability; both attributes are negatively affected by loss of old-growth forest habitat. Key ecological requirements for spotted owl include protection from predators; access to nesting and roosting habitat features; and access to suitable foraging habitat that features high prey availability and accessibility (i.e., open stands to allow flight within and beneath the forest canopy). These attributes are typically associated with old-growth forests ... As such, conservation of suitable spotted owl habitat is fundamental to species survival, and to population persistence and recovery.²⁷

Since your predecessor responded in June 2019 to express her “share[d] concern over the situation faced by [the spotted owl]”,²⁸ the BC government has continued to authorize logging – primarily through its BC Timber Sales (BCTS) program – of spotted owl habitat.²⁹ Unfortunately, the BC government has not spared the habitat the last known breeding pair needs for its survival and continued reproduction.

The appended Hobbs 2020 report describes the ongoing threat of logging to the Spuzzum Creek watershed. Within this watershed, the province has established a single protective area that appears to include the breeding pair’s nest site.³⁰ However, the remaining suitable habitat within the watershed – all 11,483 hectares of it – has been afforded no legal protection and remains the site of widespread active and planned logging.³¹

According to BC government information, there are three approved logging cutblocks in this area.³² There are also seven currently-planned and 31 previously-planned cutblocks within the watershed. These plans include several cutblocks within the only protected area, which confirms that even it does not afford the necessary protection for the owls.³³

In total, “these cutblocks would remove an additional 460 [hectares] of currently suitable spotted owl habitat from the Spuzzum Creek watershed”. In Mr. Hobbs’ expert opinion, such additional logging “is likely to significantly negatively affect survival and persistence of the spotted owl within the watershed.”³⁴

It is clear BC is failing to adequately protect the species. Unless the federal government intervenes immediately, the only conceivable future for the spotted owl will be in captivity.

²⁷ Hobbs 2020 at p 5 (emphasis added); Hobbs 2019 at pp 11-12, 16-19.

²⁸ Minister McKenna Response at p 1.

²⁹ Hobbs 2020 at p 6.

³⁰ Hobbs 2020 at pp 3, 6.

³¹ Hobbs 2020 at p 6.

³² Hobbs 2020, Figure 1, p 7.

³³ Hobbs 2020, Figure 1, p 7; Hobbs 2019 at pp 59-60.

³⁴ Hobbs 2020 at p. 6.

The Minister's legal obligations under SARA

The Petitioner submits that the only reasonable conclusion to be drawn from the above facts is that the spotted owl species faces imminent threats to its survival or recovery, such that the requirements of s. 80(2) are met and an emergency order must be recommended.

SARA is intended to prevent extinction of wildlife species and provide for their recovery.³⁵ SARA also implements Canada's international commitment to conserve biological diversity and do its part to halt the trend towards species extinction.³⁶ This is a particularly relevant consideration for the spotted owl, as it is a highly endangered species with habitat requirements primarily comprised of low elevation old growth forests,³⁷ which are ecologically significant and host numerous other at-risk flora and fauna.³⁸

SARA includes many tools to protect and recover species, including the power to issue an emergency order for the protection of a listed wildlife species and its habitat. As stated in s. 80(2) of SARA, the Minister "must" recommend an emergency order if he or she is "of the opinion" that there is an imminent threat; this is mandatory language that requires the Minister to act when there is an imminent threat. The phrase "of the opinion" does not free the Minister from the obligation to make the recommendation to Cabinet where the precondition is met (i.e. when the Minister is, or reasonably should be, of the opinion that there are imminent threats to survival or recovery).

The Federal Court has confirmed, based on the plain meaning of SARA, its preamble, and its legislative history, that "subsection 80(2) is triggered by threats to recovery or survival, or both", and that "imminent threats need not be guaranteed to materialize".³⁹

The terms "survival" and "recovery" are not defined in SARA itself. However, the proposed government policy on survival and recovery is relevant to the Minister's task in advising on emergency orders.⁴⁰ The Policy on Survival and Recovery defines "survival" as "[t]he achievement of a stable (or increasing) state where a species exists in the wild in Canada and is not a significant risk of extirpation or extinction as a direct or indirect result of human activity."⁴¹

The Policy on Survival and Recovery's interpretation of these terms is particularly important for the spotted owl. Maintaining and potentially expanding a population in a captive breeding program is not how "survival" or "recovery" are contemplated in the Policy on Survival and Recovery, nor in SARA.

³⁵ SARA, s 6.

³⁶ SARA, preamble; [Environmental Defence Canada v Canada \(Fisheries and Oceans\), 2009 FC 878](#) at para 38.

³⁷ Hobbs 2019 at p 16.

³⁸ Hobbs 2019 at pp 16-19.

³⁹ [Adam v Canada \(Environment\), 2011 FC 962](#) [Adam] at paras 38-39.

⁴⁰ Government of Canada, [Policy on Survival and Recovery \[Proposed\]](#) [2016] Species at Risk Act: Policies and Guidelines Series (Government of Canada, Ottawa) [**Policy on Survival and Recovery**].

⁴¹ Policy on Survival and Recovery at p 8 (emphasis added).

The Federal Court has also provided guidance on these conditions. According to the Court, “[...] it is important not to confuse the “survival” of a species with its “recovery”, as they are two separate concepts. The concept of “recovery” goes well beyond that of the “survival” of a species ... the recovery of a species ... includes a halt to or reversal of the decline of its population.”⁴² Finally, the Minister’s s. 80(2) determination must be guided by a liberal interpretation,⁴³ giving effect to the purposes of *SARA* generally and the precautionary principle in particular. Adherence to the precautionary principle ensures that a lack of full scientific certainty will not bar necessary action if there is a risk of serious or irreversible damage to a species.⁴⁴

The Federal Court has held that the precautionary principle applies to determinations made under *SARA*, including under s. 80(2)⁴⁵ and, in the context of this provision, “inaction is not permitted due to lack of full scientific certainty”.⁴⁶

Actions requested

Mr. Hobbs is clear about what is required to help ensure the pair within the Spuzzum Creek watershed – and therefore the wild population – continue to survive and reproduce:

Within the Spuzzum Creek watershed, and with specific recognition of the current status of spotted owl in BC, and a science-based understanding of the critical importance of conserving and protecting habitat for the species, I recommend cessation of any and all further commercial forest harvest, including measures promoted as “logging to enhance” (refer to previous response to Question 17 in Hobbs. 2019) by the BCTS program within the Spuzzum Creek interim proposed conservation area (Figure 1). In my opinion this seems a prudent minimal precautionary measure to promote continued persistence and breeding at this site. My professional opinion considers the fact that the pair of spotted owls currently breeding at Spuzzum Creek represent the last known breeding pair in BC (and in Canada).

The Petitioner submits that, based on the foregoing, you must fulfill your statutory duties as set out in s. 80(2). To do otherwise would be unlawful, unreasonable and inconsistent with the stated purposes of *SARA*, the intent in enacting the provisions at issue, and the precautionary principle.

As such, you must recommend that Cabinet make a s. 80 order that:

1. At minimum, identifies the Spuzzum Creek watershed as proposed by Mr. Hobbs (set out in Figure 1 below) as habitat necessary for the survival or recovery of the species; and,
2. Prohibits any further logging and related activities within this area until the province provides equivalent or stronger legal protection.

⁴² [Centre Québécois du droit et de l'environnement v Canada \(Environnement\), 2015 FC 773 \[Centre Québécois\]](#) at para 23.

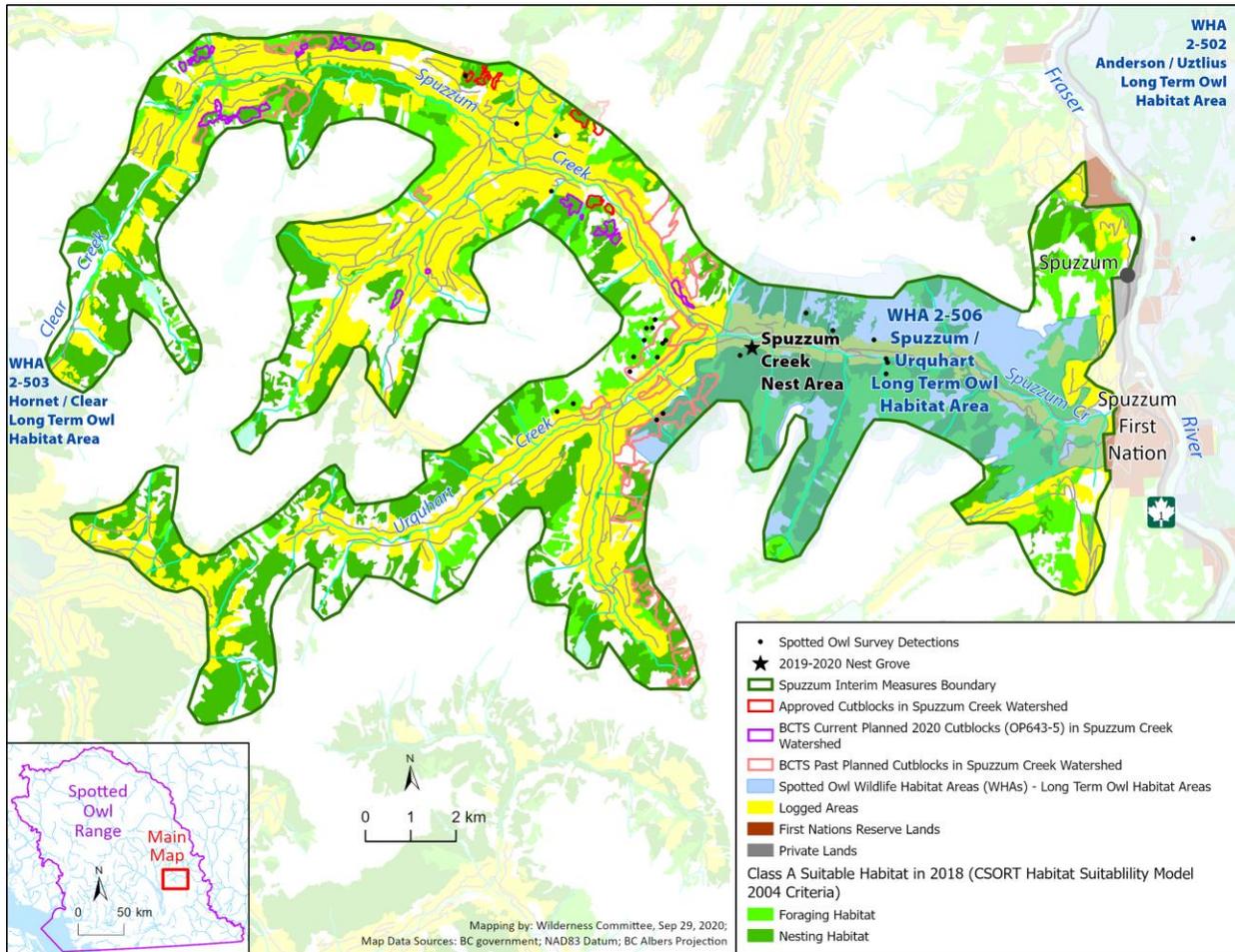
⁴³ *Centre Québécois* at para 20.

⁴⁴ [114957 Canada Ltée \(Spraytech, Société d'arrosage\) v Hudson \(Town\), 2001 SCC 40](#) at paras 30-31.

⁴⁵ *Centre Québécois* at para 76.

⁴⁶ *Adam* at para 38.

Figure 1⁴⁷



Timing of Minister’s recommendation

In light of the imminent threats to the spotted owl’s survival and recovery, the Petitioner requires that you recommend an emergency order to the Governor in Council under s. 80(2) no later than November 30, 2020. In the absence of such a recommendation, the Petitioner will have to consider whether legal action is necessary to address this urgent situation.

⁴⁷ Hobbs 2020 at p 3.

Appendix

Tab I: *Western Canada Wilderness Committee, et al v Canada* (application filed September 15, 2006), Vancouver, FC T-1681-06, Excerpts of Certified Tribunal Record, produced pursuant to Rule 318 of the *Federal Court Rules*

Tab II: Letter from Ecojustice to Honourable Catherine McKenna, “re Habitat Action Plan for Northern Spotted Owl pursuant to Species at Risk Act” (May 8, 2019)

- **Tab 1:** Emergency Order Decision Record Excerpts (included in Tab I)
- **Tab 2:** Chutter, M.J., et al., 2007. *Guidance and some components of action planning for the Northern Spotted Owl (*Strix occidentalis caurina*) in British Columbia* (February 28, 2007) (BC Ministry of Environment, Victoria, 2007)
- **Tab 3:** Hobbs, J. 2019, *Spotted Owl Survival and Recovery in British Columbia: Expert Report*
- **Tab 4(a):** Map 1 – Estimated Historic Spotted Owl Habitat in Canada
- **Tab 4(b):** Map 2 – Logging and Spotted Owl Habitat in Canada in 2003
- **Tab 4(c):** Map 3 – Logging and Spotted Owl Habitat in Canada in 2018
- **Tab 4(d):** Map 4 – BC Timber Sales Logging Plans and Spotted Owl Habitat in 2018 in Spuzzum Creek Valley
- **Tab 5:** *Curriculum Vitae* of Jared Hobbs, M.Sc., R.P.Bio

Tab III: Letter from Honourable Minister Catherine McKenna to Ecojustice (June 28, 2019) regarding Habitat Action Plan Letter

Tab IV: Email Correspondence from Canadian Wildlife Service to Ecojustice (July 24, 2020) regarding one year delay in spotted owl recovery planning process

- **Tab 1:** CWS original recovery planning timeline, shared with Ecojustice and Wilderness Committee on September 5, 2019

Tab V: Email Correspondence from BC Government Biologist to Wilderness Committee (August 5, 2020) regarding wild spotted owl population numbers

Tab VI: Hobbs, J. *Expert Opinion Regarding Application of Interim Measures within the Spuzzum Creek Watershed* (September 13, 2020) J Hobbs Ecological Consulting Ltd., File JHEC-2020-32

Tab VII: Joe Foy, photos taken October 4, 2020 documenting logging activities within Spuzzum Creek watershed

- **Tab 1:** Clearcut in Spuzzum Creek watershed spotted owl habitat
- **Tab 2:** Active logging in Spuzzum Creek watershed spotted owl habitat
- **Tab 3:** Logging road through Spuzzum Creek watershed spotted owl habitat



JUN 28 2019

Mr. Devon Page
Executive Director
Mr. Kegan Pepper-Smith
Lawyer
Ecojustice
425 Carrall Street, Suite 390
Vancouver BC V6B 6E3

Dear Mr. Page and Mr. Pepper-Smith:

Thank you for your correspondence of May 8, 2019, written on behalf of your client, the Wilderness Committee, concerning the Spotted Owl. I regret the delay in responding.

You have requested that Environment and Climate Change Canada post as final, by December 31, 2019, a habitat action plan for the Northern Spotted Owl (*Strix occidentalis caurina*) (Spotted Owl) that is compliant with the requirements of the *Species at Risk Act* (SARA) and that fully identifies critical habitat for the species.

I share your concern over the situation faced by this species. As you know, the federal government, in collaboration with the provinces and territories, agreed in 2018 to implement a pan-Canadian approach to transforming species at risk conservation in Canada. This transformation shifts Canada from a species-by-species approach to conservation to one that focuses on multiple species and ecosystems.

While the federal government is guided by this pan-Canadian approach, you will be interested to learn that the Department, in partnership with the Government of British Columbia, will prioritize completion of an updated, SARA-compliant recovery document for the Spotted Owl in the shortest feasible timeframe. We have determined that this approach will afford the most conservation benefit to the species, by building upon the work that British Columbia has undertaken to date.

In regard to the habitat action plan referenced in your correspondence, I believe that the concerns you have raised about the conservation of the Spotted Owl will be more directly addressed with an updated recovery strategy, which completes to the extent possible the identification of critical habitat. The updated recovery



strategy will then provide key support for multi-species conservation action planning in southwest British Columbia under the aforementioned pan-Canadian approach. Environment and Climate Change Canada will be working closely with British Columbia to complete this task and, in doing so, will be gathering best available information and engaging species experts as appropriate. This will include consideration of the science advice that Mr. Jared Hobbs has provided. I have asked departmental officials to work with British Columbia to meet with you to discuss ongoing Spotted Owl conservation activities in the province, and to go over plans for future activities.

As you know, whenever Environment and Climate Change Canada officials undertake to produce or substantively update SARA-compliant recovery documents, there are co-operation and consultation obligations that must be met (for example under section 39). For this reason, the earliest that an updated recovery document could be completed for the Spotted Owl is the summer of 2020.

If you have questions, comments or concerns, please do not hesitate to contact Mr. Blair Hammond, Director for the Canadian Wildlife Service's Pacific Region, at blair.hammond@canada.ca or 604-350-1977.

I trust that this information is of assistance, and I extend my best regards.

Sincerely,



The Honourable Catherine McKenna, P.C., M.P.

MEMORANDUM

Date:	September 13, 2020
To:	Kegan Pepper-Smith (Ecojustice - Barrister & Solicitor) Liat Podolsky (Ecojustice – Senior Scientist) Joe Foy (Wilderness Committee)
From:	Jared Hobbs, M.Sc. / R.P. Bio. – Director
File:	JHEC-2020-32
Re:	Request for Expert Opinion regarding application of interim measures within the Spuzzum Creek watershed.

J Hobbs Ecological Consulting Ltd. (JHEC) is submitting this memo to Kegan Pepper-Smith (Ecojustice) on behalf of the Wilderness Committee (WC) in response to questions (as requested by Ecojustice, to JHEC, on August 27, 2020). Response to six specific questions were solicited to better understand implications of proposed commercial forest harvest (by the Provincial Government’s BC Timber Sales (BCTS) program) to long term survival and recovery of the northern spotted owl (*Strix occidentalis caurina*) in BC. Interim conservation measures are recommended within the Spuzzum Creek watershed (including its tributaries) near Hope, BC.

In completion of this work I (*Jared Hobbs – Species Expert*) have provided review and expert opinion regarding proposed forest harvest activities within, or proximal to, approved Wildlife Habitat Area (WHA) 2-506. WHA 2-506 was established, under the *BC Forest and Range Practices Act*, within the Spuzzum Creek watershed under authority of the BC Government Actions Regulation (2011). In preparation of this memorandum I have responded to questions with independence and objectivity and in a manner that does not advocate for any position taken by the WC despite being retained by that organization.

This Work was completed by J Hobbs Ecological Consulting Ltd. (“JHEC”) acting under request to Wilderness Committee (the “Client”), as a deliverable for Project Number JHEC-2020-32 (the “Contract”). This Report has been prepared by JHEC, based on desktop review conducted by JHEC, for sole benefit and use by the client. In performing this Work, JHEC has relied in good faith on information provided by others and has assumed that the information provided by those individuals is both complete and accurate. The findings presented herein should be considered within the context of the scope of work and project terms of reference; further, the findings are time sensitive and are considered valid only at the time the memorandum was produced. The conclusions and recommendations contained in this memorandum are based upon the applicable guidelines, regulations, and legislation existing at the time the memorandum was produced; any changes in the regulatory regime may alter the conclusions and/or recommendations herein.

BACKGROUND – SUMMARY OF SPOTTED OWL OCCURRENCE DATA WITHIN THE SPUZZUM CREEK WATERSHED

The Spuzzum Creek watershed drains into the Fraser River approximately 48 kilometres (km) due north of the township of Hope, BC. Suitable forested habitats within these adjacent territories have formally documented repeated (and likely) multi-generational use by spotted owl.

The Spuzzum Creek watershed contains forested habitats with a long (known) history of spotted owl use, with earliest formal survey observation records dating back to 1994. There are two recognized (one previously occupied and one currently extant) spotted owl territories within the watershed including Spuzzum Creek and a nearby tributary, Urquhart Creek (the Urquhart Creek spotted owl territory is located immediately upstream and adjacent to the territory mapped for the Spuzzum Creek site (**Figure 1**)). Based on data obtained from the BC Ministry of Environment (MOE) and the BC Ministry of Forests, Lands and Natural Resource Operations (MFLNRORD) spotted owls detections in the Spuzzum Creek watershed are described in **Table 1**, as follows:

Table 1: Summary of spotted owl observation records at two territories in Spuzzum Creek watershed.

Territory Name	Summary of Observation Data
Spuzzum Creek	<ul style="list-style-type: none"> • First formally recorded detections (n=3) (of spotted owl) on September 27, 1994. Spotted owl was detected in the same area again in April 1995 (n=3), 1996 (n=1) and 1998 (n=1) • Spotted owl was again detected in the area in April 2000 (n=1) & August 2001 (n=1) • Detected again in between 2014-2020 (J. Gillis pers comm) (the specific location and date of detection has not been provided (despite request) for these most recent years).
Urquhart Creek	<ul style="list-style-type: none"> • First formally recorded detections in September 1994 (n=2) • Detected again in April 1995 (n=2) • Detected again in May and August 1996 (n=2) • Detected again in August and September 1997 (n=2) • Four more detections reported in August 1998 (n=4) • Detected again in April 2000 (n=1) • Detected most recently in August 2001 (n=1).

In total, there are 24 recorded spotted owl detections (from formal survey) in the Spuzzum Creek watershed between 1994-2000.

Most recently, re-occupancy was confirmed within the Spuzzum Creek territory in 2014 through to 2020 (currently occupied). Breeding was confirmed in 2019, and again in 2020, with a single juvenile taken into captivity in 2019 and one (of two) juveniles taken into captivity in 2020. Although the specific nest location has not been provided (by MFLNRORD) its location can be reliably inferred based on previous detections observed during the breeding period (**Figure 1**). The resident pair remains on site at the time of the writing of this memorandum.

Survey data has not been made available since 2006 (despite repeated request). This data is required to establish whether or not any effort has been applied to survey of suitable spotted owl habitat at Urquhart Creek, or additional extensive areas of suitable upstream forested habitat within the Spuzzum

Creek watershed. The drainage provides a clear connection to WHA 2-503 (established for conservation of spotted owl habitat) along Clear Creek within the adjacent Harrison Lake watershed.

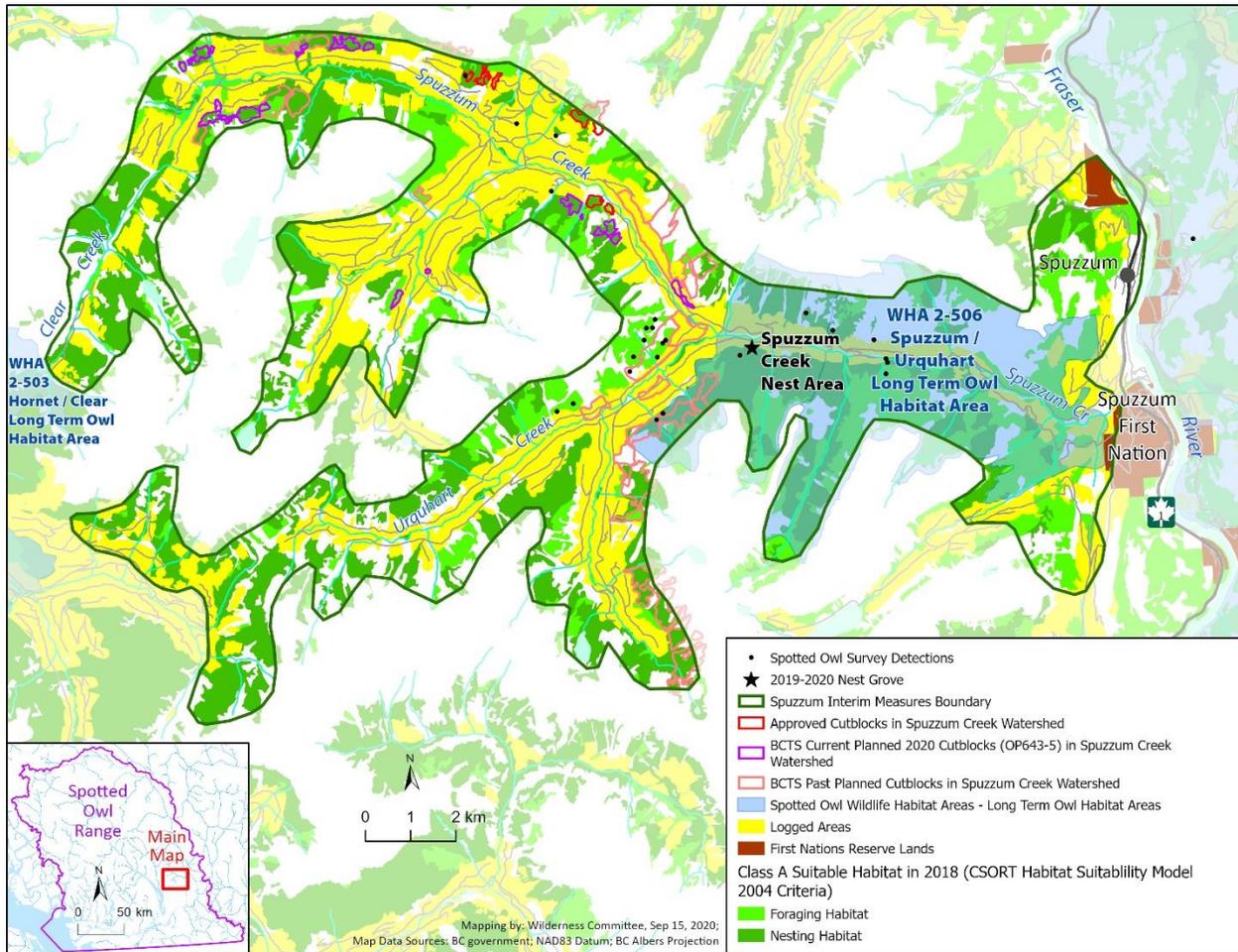


Figure 1: Spotted owl detections are illustrated as green circles, the 2019 and 2020 nest grove is represented as a green star, and the area recommended for application of interim measures is represented as a green outlined area. Interim protection of all spotted owl habitat within this area is being recommended to conserve spotted owl habitat attributes within the Spuzzum Creek watershed (including the Urquhart Creek tributary), near Hope, BC.

SPECIFIC QUESTIONS & RESPONSES

The following six questions were advanced, by Ecojustice, to better understand the potential influence of BCTS proposed commercial harvest activities within the Spuzzum Creek watershed, near Hope, BC. Responses were authored by Jared Hobbs M.Sc./R.P.Bio – Director of J. Hobbs Ecological Consulting Ltd.

1. What is the status of spotted owls in the Spuzzum Creek watershed?

There are currently two spotted owl individuals (i.e., a breeding pair) documented within the Spuzzum Creek watershed (anonymous source; pers. comm.). Survey effort at the adjacent former spotted owl territory along the Urquhart Creek (a tributary to Spuzzum Creek) has not been established as data has not been provided by MFLNRORD. Similarly, survey effort has not been established within an area of extensive suitable nesting habitat as currently mapped near the upstream portions of the Spuzzum Creek watershed (**Figure 1**). Application of formal survey is suspected to be incomplete or not conducted.

2. What role do the Spuzzum Creek watershed resident spotted owls play in the survival and recovery of spotted owl in BC?

This pair represents the last known wild breeding pair of spotted owls in BC. The pair is currently being used as a source of juvenile spotted owls to augment and support a captive breeding program led by the Province. In addition to the intrinsic value of this last surviving known pair of spotted owls in Canada, the proportional significance of young produced by this pair is significant; this pair represents 100% of the known reproductive potential of the northern spotted owl in Canada in the wild.

The status of the species at the formerly long-occupied adjacent territory at Urquhart Creek is unknown. Similarly, the occupancy status of the species within an extensive area of (mapped) high-quality suitable nesting habitat in the upstream area of the Spuzzum Creek watershed is also unknown. These areas have likely not received adequate survey to establish occupancy status. What is apparent, based on suspected multi-generation use at the single known territory along Spuzzum Creek, is that there is/was likely a nearby source pair of spotted owls occupying suitable habitat from which the current pair originated as the pair at Spuzzum Creek was re-occupied, after a long hiatus, in 2014. It is likely that the pair of spotted owls currently breeding at Spuzzum Creek originated somewhere nearby (i.e., likely within 30 km)¹.

¹ The source population from which the current pair originated is likely from a nearby territory (location unknown) that resided (or currently resides) in areas of suitable habitat on the east slope of nearby Spuzzum Mountain or, potential, from a formerly (1994) documented territory across the Fraser River at Gilt Creek.

3. Describe the area within the Spuzzum Creek watershed that is necessary for the survival and recovery (i.e., habitat considered critical to the survival and recovery) of the resident spotted owls, including its geographical boundaries and natural attributes.

An area totalling 15,244 hectares (ha), including its geographical boundaries and natural attributes, is recommended for immediate application of interim conservation measures, within the Spuzzum Creek watershed near Hope, BC (**Figure 1**).

At a general level, as spotted owls are specialists, they require large home ranges (or territories) of approximately 2,800 – 3,400 ha with the majority of the area comprised of suitable mature and old-growth forested habitats. Reproduction and survival are strongly affected by fluctuations in prey abundance and availability; both attributes are negatively affected by loss of old-growth forest habitat. Key ecological requirements for spotted owl include protection from predators; access to nesting and roosting habitat features; and access to suitable foraging habitat that features high prey availability and accessibility (i.e., open stands to allow flight within and beneath the forest canopy). These attributes are typically associated with old-growth forests (generally >120-140 years old in the CWH and IDF bio-geoclimatic zones). As such, conservation of suitable spotted owl habitat is fundamental to species survival, and to population persistence and recovery.

4. Describe the key activities, including industrial logging, that adversely affect the Spuzzum Creek watershed resident spotted owls and their habitat.

Key activities that pose significant and immediate threat to spotted owl survival and recovery include further loss and fragmentation of breeding and foraging habitat. Spotted owl prey abundance and availability is influenced by available suitable forested habitat; concomitantly, spotted owl reproduction and survival are directly and deleteriously influenced by habitat loss.

At a general level breeding habitat is characterized as old-growth forested habitat >141 years old and below 1,250 metres (m) elevation (Hobbs. 2019). Loss of suitable spotted owl habitat is most often attributed to commercial forest harvest (Chutter et al. 2004) and, to a lesser extent, from installation and maintenance of transmission corridors by BC Hydro and by smaller independent run-of-river power producers. The BC Timber Sales program (BCTS) is the most active and significant proponent currently advancing commercial harvest of suitable spotted owl habitats within the range of this critically endangered species. Since 1994 (when the area was first recognized to support spotted owls), there has been a substantive area of suitable spotted owl habitat harvested from the Spuzzum Creek watershed (see **Figure 1**).

In summary, commercial forest harvest is most commonly and unarguably identified as the primary threat to spotted owl (Chutter et al. 2004), as clear-cut practices result in removal of large areas of coniferous forest. Conventional commercial forestry practices typically result in large areas of complete forest removal (i.e., clear-cuts) with an obvious direct effect upon the amount, distribution, quality (i.e., fragmentation) and abundance of available suitable spotted owl habitat. Commercial forest harvest practices implemented by licensees under the BCTS

program continue to create fragmented landscapes highly unfavourable to the survival and persistence of the species at the local (site level) and landscape (population level) scales.

5. Describe the current state of protection from activities that adversely affect the Spuzzum Creek watershed resident spotted owls and their habitat.

There is a single 3,761 ha WHA (2-506) that has been established (2011) within the 15,244 ha requested spotted owl conservation area (**Figure 1**); of which only 60% of WHA 2-506 is mapped as currently suitable for foraging and breeding use by spotted owl². The remaining 11,483 ha is currently afforded no effective legal protection for spotted owl despite awareness that this is now the last spotted owl breeding site remaining in the Province, and despite awareness that commercial forest harvest is recognized (in the provincial Spotted Owl Recovery Strategy (Chutter et al. 2004), as the single most significant deleterious influence on spotted owl survival, persistence and recovery. Within the encompassing recommended conservation area there exists an additional 1,189 ha of suitable foraging habitat, and 2,327 ha of suitable nesting habitat, that is currently not afforded any protection from commercial forest harvest by the Province's BCTS program.

According to information obtained by WC (as provided by BCTS) there are now three approved cutblocks (*ID# SP215, SP224, SP225; all from BCTS licence A94249, approved on Sep 11, 2017*). There are also seven currently planned cutblocks (BCTS ID# SP007, SP008, SP014, SP016, SP066, SP109, SP229) and 31 previously planned cutblocks in the Spuzzum Creek watershed. In total, these cutblocks would remove an additional 460 ha of currently suitable spotted owl habitat from the Spuzzum Creek watershed. This is likely to negatively affect survival and persistence of spotted owl within the watershed.

The province's BCTS program continues to advance plans for commercial harvest throughout the range of spotted owl in BC. In total, 312 new clearcuts have been approved within the range of the owl between October 2018 to May 2020 (Geoff Senichenko. pers. comm. 2020); in that same period there has been minimal advancement to formal mapping and protection of CH.

There are currently 41 blocks being advanced and/or previously proposed within the Spuzzum Creek watershed (Geoff Senichenko (WC). 2020). If implemented, these clearcuts will result in

² These metrics were calculated (in a GIS environment) using the BC Spotted Owl Recovery Team habitat suitability model. This model has been accepted by the Province and applied by the Canadian Spotted Owl Recovery Team (CSORT) for the purpose of conservation planning in BC (Chutter et al. 2004). This model is also currently being used by Environment & Climate Change Canada (ECC) for mapping and (ultimately) designation of federally mapped Critical Habitat (CH) in BC.

the loss of an additional 460 ha of suitable spotted owl habitat from the Spuzzum Creek watershed: the site of the last remaining pair of spotted owls in Canada.

6. What, if any, activities should be (i) outright prohibited and (ii) conditionally prohibited within the proposed area for application of interim conservation measures as described in (3)?

Within the Spuzzum Creek watershed, and with specific recognition of the current status of spotted owl in BC, and a science-based understanding of the critical importance of conserving and protecting habitat for the species, I recommend cessation of any and all further commercial forest harvest, including measures promoted as “logging to enhance” (refer to previous response to Question 17 in Hobbs. 2019) by the BCTS program within the Spuzzum Creek interim proposed conservation area (**Figure 1**). In my opinion this seems a prudent minimal precautionary measure to promote continued persistence and breeding at this site. My professional opinion considers the fact that the pair of spotted owls currently breeding at Spuzzum Creek represent the last known breeding pair in BC (and in Canada).

J Hobbs Ecological Consulting Ltd.

Director: Jared Hobbs M.Sc. / R.P.Bio.

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Authorized Signatory: J. Hobbs -
Director

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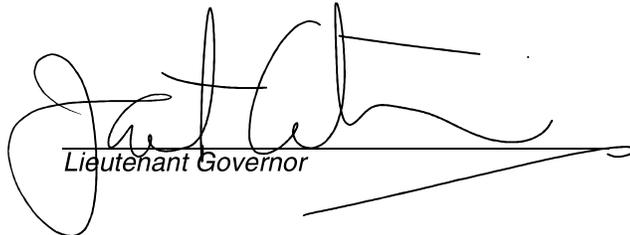
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PROVINCE OF BRITISH COLUMBIA

ORDER OF THE LIEUTENANT GOVERNOR IN COUNCIL

Order in Council No. 145

, Approved and Ordered March 11, 2021



Lieutenant Governor

Executive Council Chambers, Victoria

On the recommendation of the undersigned, the Lieutenant Governor, by and with the advice and consent of the Executive Council, orders that, it being in the public interest, the Crown land outlined in heavy black and shaded grey on the maps on file with GeoBC, Ministry of Forests, Lands, Natural Resource Operations and Rural Development, with the file name Spotted_Owl_PT13_No1_20210201, is specified as the Spotted Owl Designated Area No. 1 under section 169 of the *Forest Act* for the period ending February 28, 2022.



Minister of Forests, Lands, Natural Resource
Operations and Rural Development



Presiding Member of the Executive Council

(This part is for administrative purposes only and is not part of the Order.)

Authority under which Order is made:

Act and section: *Forest Act*, R.S.B.C. 1996, c. 157, s. 169

Other:

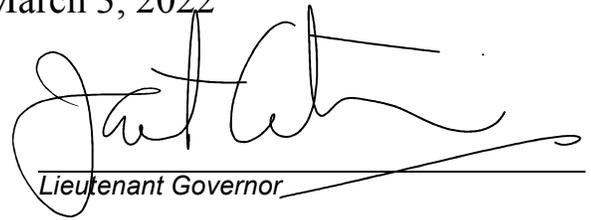
R10492555

PROVINCE OF BRITISH COLUMBIA

ORDER OF THE LIEUTENANT GOVERNOR IN COUNCIL

Order in Council No. 120

, Approved and Ordered March 3, 2022



Lieutenant Governor

Executive Council Chambers, Victoria

On the recommendation of the undersigned, the Lieutenant Governor, by and with the advice and consent of the Executive Council, orders that, it being in the public interest, the Crown land outlined in heavy black and shaded grey on the maps on file with GeoBC, Ministry of Forests, Lands, Natural Resource Operations and Rural Development, with the file name Spotted_Owl_PT13_No2_20220208, is specified as the Spotted Owl Designated Area No. 2 under section 169 of the *Forest Act* for the period ending February 28, 2023.

DEPOSITED
March 3, 2022
B.C. REG. 54/2022



Minister of Forests, Lands, Natural Resource
Operations and Rural Development



Presiding Member of the Executive Council

(This part is for administrative purposes only and is not part of the Order.)

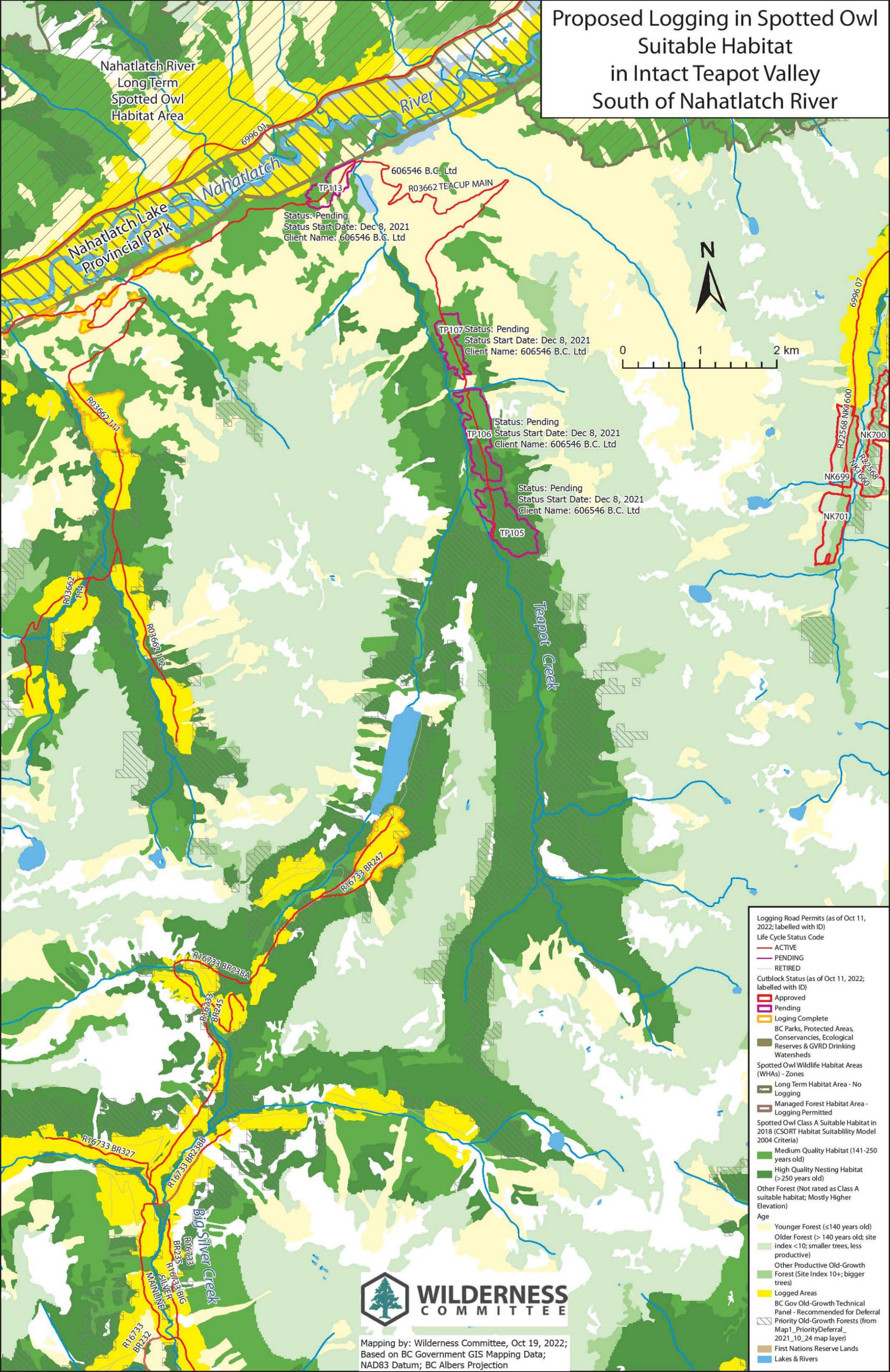
Authority under which Order is made:

Act and section: *Forest Act*, R.S.B.C. 1996, c. 157, s. 169

Other:

R20581355

Proposed Logging in Spotted Owl Suitable Habitat in Intact Teapot Valley South of Nahatlatch River



Nahatlatch River
Long Term
Spotted Owl
Habitat Area

Nahatlatch Lake
Provincial Park

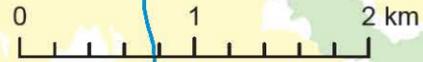
TP113
Status: Pending
Status Start Date: Dec 8, 2021
Client Name: 606546 B.C. Ltd

606546 B.C. Ltd
R03662 TEACUP MAIN

TP107
Status: Pending
Status Start Date: Dec 8, 2021
Client Name: 606546 B.C. Ltd

TP106
Status: Pending
Status Start Date: Dec 8, 2021
Client Name: 606546 B.C. Ltd

TP105
Status: Pending
Status Start Date: Dec 8, 2021
Client Name: 606546 B.C. Ltd

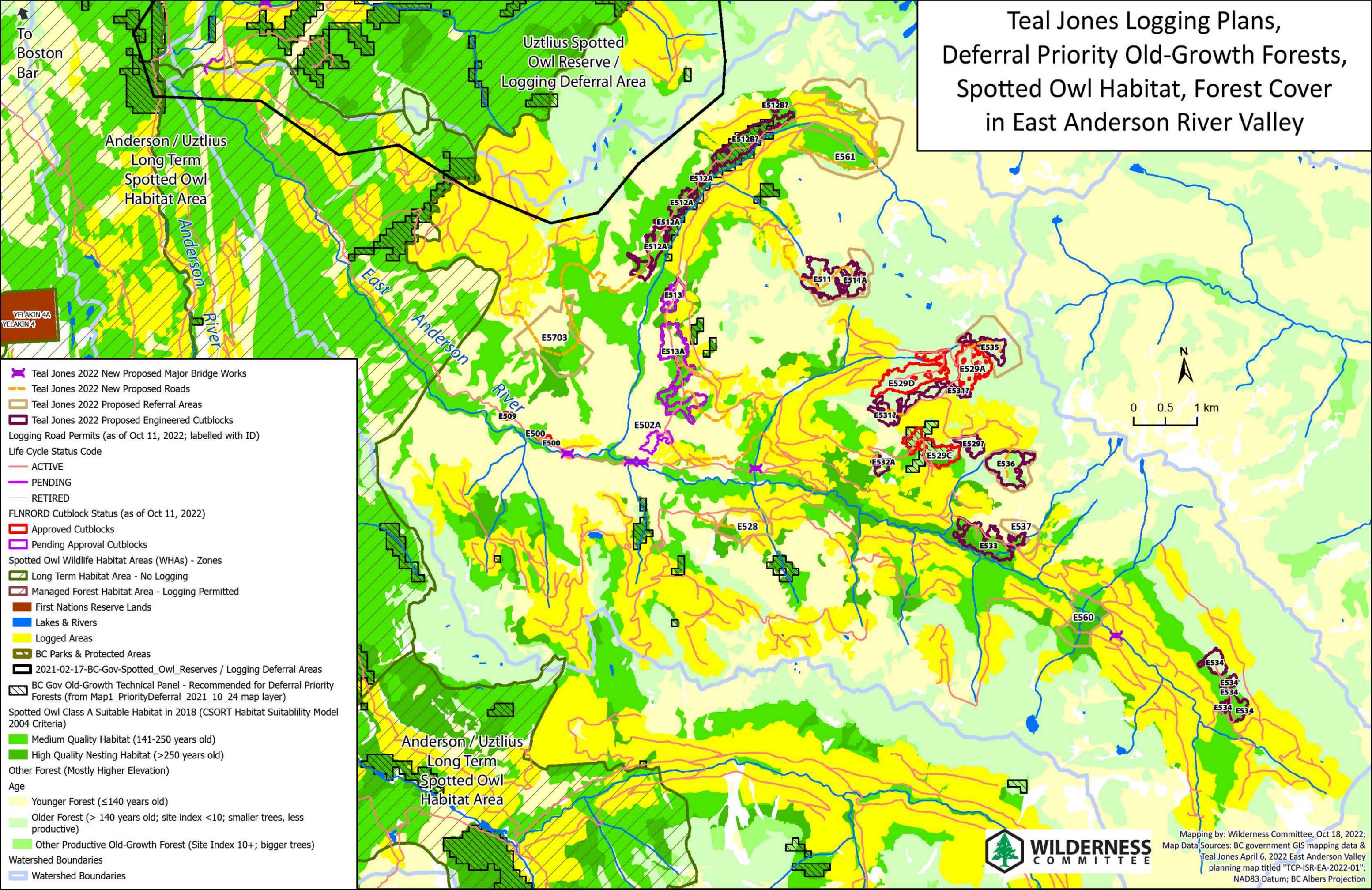


- Logging Road Permits (as of Oct 11, 2022; labelled with ID)
- Life Cycle Status Code
 - ACTIVE
 - PENDING
 - RETIRED
- Cutblock Status (as of Oct 11, 2022; labelled with ID)
 - Approved
 - Pending
 - Logging Complete
- BC Parks, Protected Areas, Conservancies, Ecological Reserves & GVRD Drinking Watersheds
- Spotted Owl Wildlife Habitat Areas (WHAs) - Zones
 - Long Term Habitat Area - No Logging
 - Managed Forest Habitat Area - Logging Permitted
- Spotted Owl Class A Suitable Habitat in 2018 (CSORT Habitat Suitability Model 2004 Criteria)
 - Medium Quality Habitat (141-250 years old)
 - High Quality Nesting Habitat (>250 years old)
- Other Forest (Not rated as Class A suitable habitat; Mostly Higher Elevation)
 - Younger Forest (≤ 140 years old)
 - Older Forest (> 140 years old; site index <10; smaller trees, less productive)
 - Other Productive Old-Growth Forest (Site Index 10+; bigger trees)
- Logged Areas
 - BC Gov Old-Growth Technical Panel - Recommended for Deferral
 - Priority Old-Growth Forests (from Map1_PriorityDeferral_2021_10_24 map layer)
 - First Nations Reserve Lands
 - Lakes & Rivers



Mapping by: Wilderness Committee, Oct 19, 2022;
Based on BC Government GIS Mapping Data;
NAD83 Datum; BC Albers Projection

Teal Jones Logging Plans, Deferral Priority Old-Growth Forests, Spotted Owl Habitat, Forest Cover in East Anderson River Valley

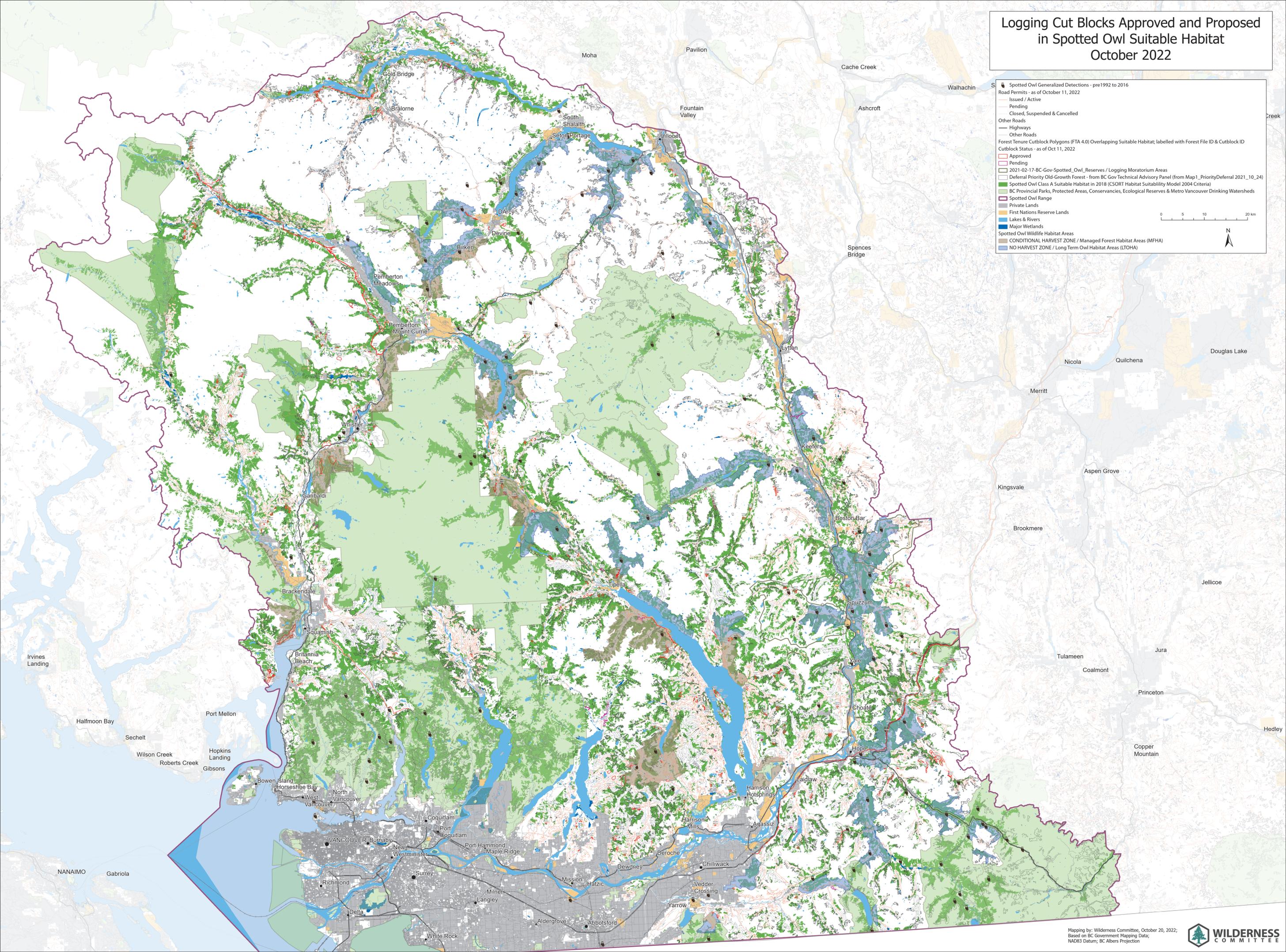


- Teal Jones 2022 New Proposed Major Bridge Works
- Teal Jones 2022 New Proposed Roads
- Teal Jones 2022 Proposed Referral Areas
- Teal Jones 2022 Proposed Engineered Cutblocks
- Logging Road Permits (as of Oct 11, 2022; labelled with ID)
- Life Cycle Status Code
 - ACTIVE
 - PENDING
 - RETIRED
- FLNRORD Cutblock Status (as of Oct 11, 2022)
 - Approved Cutblocks
 - Pending Approval Cutblocks
- Spotted Owl Wildlife Habitat Areas (WHAs) - Zones
 - Long Term Habitat Area - No Logging
 - Managed Forest Habitat Area - Logging Permitted
- First Nations Reserve Lands
- Lakes & Rivers
- Logged Areas
- BC Parks & Protected Areas
- 2021-02-17-BC-Gov-Spotted_Owl_Reserves / Logging Deferral Areas
- BC Gov Old-Growth Technical Panel - Recommended for Deferral Priority Forests (from Map1_PriorityDeferral_2021_10_24 map layer)
- Spotted Owl Class A Suitable Habitat in 2018 (CSORT Habitat Suitability Model 2004 Criteria)
 - Medium Quality Habitat (141-250 years old)
 - High Quality Nesting Habitat (>250 years old)
- Other Forest (Mostly Higher Elevation)
- Age
 - Younger Forest (≤ 140 years old)
 - Older Forest (> 140 years old; site index <10; smaller trees, less productive)
 - Other Productive Old-Growth Forest (Site Index 10+; bigger trees)
- Watershed Boundaries
 - Watershed Boundaries



Mapping by: Wilderness Committee, Oct 18, 2022;
 Map Data Sources: BC government GIS mapping data &
 Teal Jones April 6, 2022 East Anderson Valley
 planning map titled "TCP-ISR-EA-2022-01";
 NAD83 Datum; BC Albers Projection

Logging Cut Blocks Approved and Proposed in Spotted Owl Suitable Habitat October 2022



■ Spotted Owl Generalized Detections - pre 1992 to 2016
— Road Permits - as of October 11, 2022
— Issued / Active
— Closed, Suspended & Cancelled
— Other Roads
— Highways
— Other Roads
— Forest Tenure Cutblock Polygons (FTA 4.0) Overlapping Suitable Habitat; labelled with Forest File ID & Cutblock ID
— Cutblock Status - as of Oct 11, 2022
— Approved
— Pending
— 2021-02-17-BC-Gov-Spotted_Owl_Reserves / Logging Moratorium Areas
— Deferral Priority Old-Growth Forest - from BC Gov Technical Advisory Panel (from Map_1_PriorityDeferral_2021_10_24)
— Spotted Owl Class A Suitable Habitat in 2018 (CSORT Habitat Suitability Model 2004 Criteria)
— BC Provincial Parks, Protected Areas, Conservancies, Ecological Reserves & Metro Vancouver Drinking Watersheds
— Spotted Owl Range
— Private Lands
— First Nations Reserve Lands
— Lakes & Rivers
— Major Wetlands
— Spotted Owl Wildlife Habitat Areas
— CONDITIONAL HARVEST ZONE / Managed Forest Habitat Areas (MFHA)
— NO HARVEST ZONE / Long Term Owl Habitat Areas (LTOHA)

