

# **LOGGING TO EXTINCTION:**

The Last Stand of the Spotted Owl in Canada



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WESTERN CANADA WILDERNESS COMMITTEE \* SIERRA LEGAL DEFENCE FUND \* FOREST WATCH OF BRITISH COLUMBIA  
SEPTEMBER 2002

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September 2002

## Acknowledgements

This report was jointly prepared by the Western Canada Wilderness Committee (Wilderness Committee), the Sierra Legal Defence Fund (Sierra Legal) and Forest Watch of British Columbia (Forest Watch).

*Logging to Extinction: The Last Stand of the Spotted Owl in Canada* was authored by: Dr. Peter Hodum, Assistant Professor, Departments of Biological Sciences and Science Education, California State University - Long Beach; Andrew Miller, MSc., wildlife biologist; Devon Page, staff lawyer - forest law (Sierra Legal); Gwen Barlee, Endangered Species Campaigner, (Wilderness Committee); and, Aran O'Carroll, Executive Director, (Forest Watch). Extensive technical assistance was provided by Kathleen Hebb, Forest Program Analyst, (Forest Watch), Chris Player, Research and Mapping Technician, (Wilderness Committee), Kate Smallwood, LLM, Canadian Endangered Species Coalition (Sierra Legal), and Stella Bastidas, International Environmental Law Coordinator (Sierra Legal).

We would like to particularly acknowledge the dedicated work of Craig Pettitt and Clive Johnson, forest technicians, (Forest Watch) for investigative work in the Chilliwack Forest District office. Additionally, we would like to acknowledge the assistance of the staff in the Chilliwack and Squamish Forest Districts who facilitated our access to current forest development planning.

This report was kindly reviewed by: Mark Haddock, LLB, West Coast Environmental Law; Jeremy Wilson, Professor of Political Science, University of Victoria; Kate Smallwood, LLM, Canadian Endangered Species Coalition (Sierra Legal); Peter Lee, MSc., Global Forest Watch Canada; and, Ruth Noguerón, Global Forest Watch. Additional reviewers commented on specific portions of the report and are acknowledged throughout the text. All substantive review comments were addressed through changes to the text of the report and its analyses.

While a publication of Global Forest Watch (GFW), GFW neither endorses nor rejects the recommendations contained herein as these go beyond the scope of the organization's mandate of monitoring activities within forests.

Cover photo: C.Swift/First Light

Design and layout: Paula Neuman

ISBN 0-9698351-9-1

Printed in Canada on recycled paper

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Forest Watch is a non-governmental forest monitoring organization promoting the health of British Columbia's forests and forest communities by inspiring and empowering citizen stewardship. Forest Watch is the provincial affiliate of Global Forest Watch and Global Forest Watch Canada. Global Forest Watch is an international data and mapping network that combines on-the-ground knowledge with digital technology to provide accurate information about the world's forests.

### **Head Office**

218 – 131 Water Street, Vancouver, B.C. V6B 4M3  
T: 604-685-5475  
F: 604 648 9026  
E: [info@forestwatchbc.org](mailto:info@forestwatchbc.org)  
[www.forestwatchbc.org](http://www.forestwatchbc.org) and [www.globalforestwatch.org](http://www.globalforestwatch.org)

## **Sierra Legal Defence Fund**

Sierra Legal is a Canadian charity that provides free legal and scientific services to environmentalists. Sierra Legal is not related to the Sierra Club.

### **Head Office**

214 – 131 Water Street, Vancouver, B.C. V6B 4M3  
T: 1 800 926 7744  
F: 604 685 7813  
E: [sldf@sierralegal.org](mailto:sldf@sierralegal.org)  
[www.sierralegal.org](http://www.sierralegal.org)

## **Western Canada Wilderness Committee**

The Western Canada Wilderness Committee is Canada's largest membership-based citizen-funded wilderness preservation organization.

### **Head Office**

227 Abbott Street, Vancouver, B.C. V6B 2K7  
T: 1-800-661-WILD  
1-604-683-8220  
F: 604 683 8229  
E: [info@wildernesscommittee.org](mailto:info@wildernesscommittee.org)  
[www.wildernesscommittee.org](http://www.wildernesscommittee.org)

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# Logging to Extinction: The Last Stand of the Spotted Owl in Canada

BRITISH COLUMBIA, CANADA, IS INTERNATIONALLY RENOWNED as a place of glorious wilderness. Towering mountains, temperate rainforests, still-wild rivers and spectacular wildlife are all part of the environmental heritage of this province. Grizzly Bears, Killer Whales, Mountain Caribou, Northern Spotted Owls, Vancouver Island Marmots, and Mariposa Lilies are just a handful of the species that make British Columbia (B.C.) so special.

Unfortunately, they are also just a handful of the 1,000 species at risk in the province, a growing legacy that symbolizes the extent of environmental degradation in B.C. And of these species, the Northern Spotted Owl, whose population has fallen at least forty-nine percent since 1992, is one of the most at risk.

The lack of either federal and provincial endangered species legislation compounds the problem. Instead of clear statutory guidance and firm law, species at risk are managed through piecemeal legislation, patchwork policies and political discretion, a circumstance that is epitomized by B.C.'s Spotted Owl Management Plan.

**Without an immediate halt to industrial logging of the Spotted Owl's old-growth forest habitat, the Spotted Owl could be extinct in Canada within a decade.**

While numerous factors are at play, the principle cause of the Spotted Owl population free-fall in Canada is clear – commercial logging. The Spotted Owl, which is only found in Canada in southwestern B.C., needs old growth within which to roost, nest and forage - the same old-growth forests that are targeted by logging companies.

Of the huge expanse of old-growth habitat that once covered the lower mainland of British Columbia prior to the onset of large-scale, industrial logging, less than fifty percent remains as suitable Spotted Owl habitat. After just 100 years of commercial logging, southwestern British Columbia now has a deficit of contiguous, unfragmented patches of old-growth forests in the range of the Spotted Owl, isolating the few remaining owls and limiting their ability to survive.



Photo by Art Wolfe

Introduced in 1995, the Management Plan was developed by the B.C. government after the government rejected the findings of scientists who were hired to develop Spotted Owl recovery options. The Management Plan limited the impact that owl protection options would have on timber supply. This was achieved by establishing owl management zones where no owls existed, encouraging logging where they did, and relying on the flawed premise that logging could “enhance or maintain” owl habitat.

The Management Plan has failed to halt the Spotted Owl population decline. In fact, provincial studies show that seven years after the Plan was implemented, the Spotted Owl population has declined five times faster than predicted

Now scientists estimate that as few as twenty-five pairs of owls remain in Canada. In spite of the owls’ startling decline, as this report reveals, logging in Spotted Owl

habitat continues. Of those who operate in owl habitat, the government’s Small Business Forest Enterprise Program, International Forest Products Ltd. and Teal Cedar Products Ltd. have become the primary companies whose logging threatens Spotted Owl habitat. Additionally, certain members of the Association of British Columbia Professional Foresters, foresters whose code of ethics requires “good stewardship of the forest based on sound ecological principles,” have facilitated the loss of habitat by recently signing-off on plans for approximately 280 cutblocks in Spotted Owl habitat.

If this critically endangered owl is to survive in Canada, logging in the Spotted Owl’s home must stop. Our governments, logging companies and professional foresters must stop destroying the habitat of the Spotted Owl and must immediately adopt effective recovery measures based on sound science. Without such action, the Northern Spotted Owl may be sentenced to extinction in Canada within a decade.



Special Resource Management Zone near Hornet Creek  
Photo by Jeremy Williams

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# Introduction



Manning Park - Photo by Jeremy Williams

*LOGGING TO EXTINCTION: THE LAST STAND OF THE SPOTTED OWL IN CANADA*, examines recent data regarding the population decline of the Northern Spotted Owl (*Strix occidentalis caurina*) in Canada. This population trend data was disclosed during lawsuits brought in 2002 to save a Spotted Owl site by the Sierra Legal Defence Fund on-behalf of the Western Canada Wilderness Committee. The lawsuits are discussed.

*Logging To Extinction* reviews the current state of scientific knowledge on the life-cycle of the Northern Spotted Owl. Newly public analyses of the extent of Spotted Owl habitat loss and the fragmented state of remaining Spotted Owl habitat in Canada are presented. The report argues that the plight of the Spotted Owl is an indicator of both the poor health of British Columbia's old-growth forest ecosystems and the ineffectiveness of federal and provincial efforts to preserve biodiversity in Canada. *Logging To Extinction* determines that loss of old-growth forest habitat, primarily through commercial logging, has led the Spotted Owl to hover on the brink of extinction in Canada. New information about continuing threats to Spotted Owl habitat from logging, gathered by Forest Watch of British Columbia, is revealed. *Logging To Extinction* concludes by making recommendations for immediate action to save this species.

# The Canadian Spotted Owl Population

*Over the past half-billion years, the planet lost perhaps one species per million species each year, including everything from mammals to plants. Today, the annual rate of extinction is 1,000 to 10,000 times faster. If nothing more is done, one-fifth of all the plant and animal species now on earth could be gone or on the road to extinction by 2030. Being distracted and self-absorbed, as is our nature, we have not yet fully understood what we are doing. But future generations, with endless time to reflect, will understand it all and in painful detail. As awareness grows, so will their sense of loss.*

*-Edward O. Wilson, "What Is Nature Worth?"  
The Wilson Quarterly, Winter 2002*

Encountering the reclusive chocolate brown and white Northern Spotted Owl (*Strix occidentalis caurina*) in the southwest corner of British Columbia, the only place in Canada where the owl has been known to reside, is highly unlikely. Historically estimated to number approximately 500 Canadian birds,<sup>1</sup> a draft Spotted Owl population trend assessment prepared by the British Columbia, Ministry of Water, Land and Air Protection in 2001, (the "Population Assessment"),<sup>2</sup> reveals that:

- The Northern Spotted Owl (*Strix occidentalis caurina*) population in Canada has declined sharply, by forty-nine percent, between 1992 until 2001 and that as few as twenty-five owl breeding pairs may be left;<sup>3</sup>
- The rate of decline of the Spotted Owl population is almost five times faster than the rate expected under a British Columbia plan for management of Spotted Owl populations, the Spotted Owl Management Plan; and,
- Because of this sharp decline, the Spotted Owl

population in Canada is at a much greater risk of extinction in Canada than had been previously believed.

Not surprisingly, the Population Assessment stated that British Columbia policy adopted in 1995 to address the Spotted Owl, the Spotted Owl Management Plan, "appears to be inadequate", and predicted further declines, "due to continued habitat loss inside and outside [zones established for Spotted Owl habitat protection]." The Population Assessment concluded that, "unless society supports improved protection and conservation actions for the owl, the species will likely soon be extirpated in Canada."<sup>4</sup>

**"the Owl is. . . in risk of extinction. It is in grave risk of extirpation over its range in British Columbia."<sup>5</sup>**

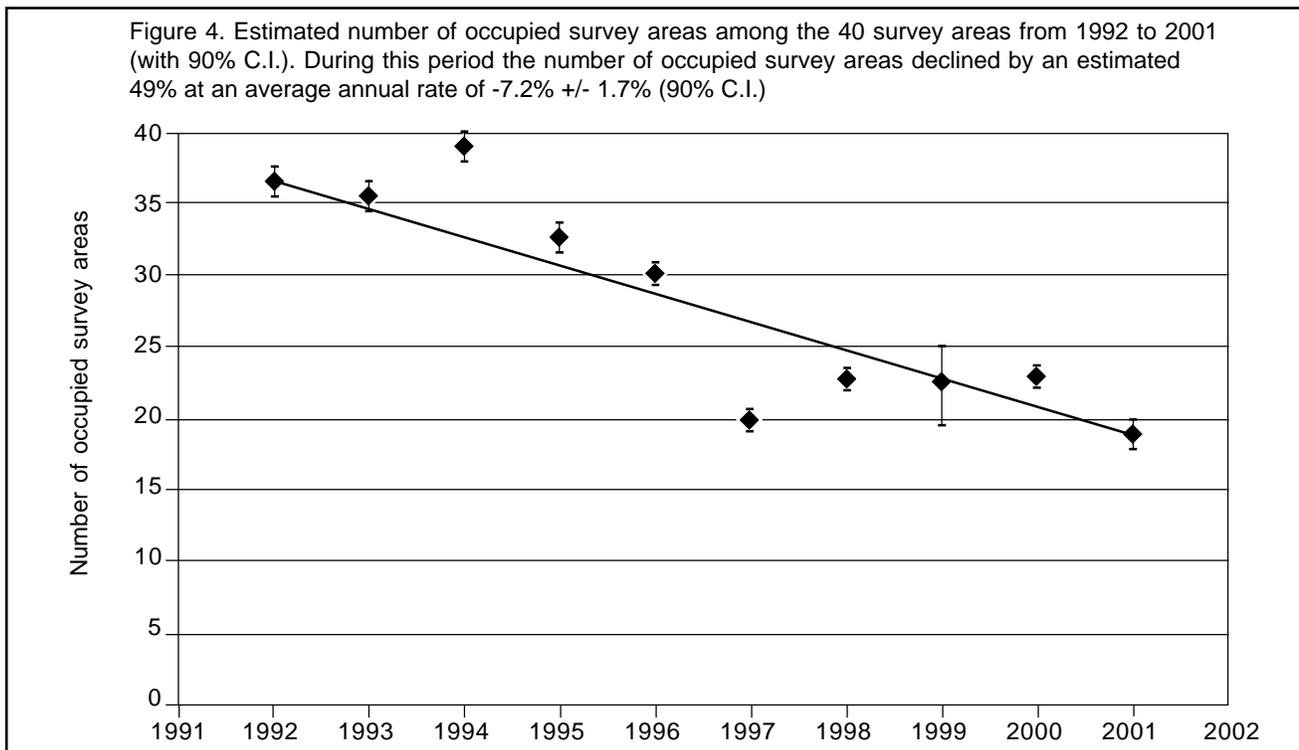
*Mr. Justice James Shabbits  
British Columbia Supreme Court,  
August 2002*

Reproduced below is a graph of the current population trend analysis taken from the Population Assessment, which charts whether owls continue to remain in survey areas and which shows a marked decline. According to the Population Assessment, the failure to find owls in their

usual sites translates directly to owl mortality. Similarly, there is a direct relationship between the rate of decline in survey detections and a likely date of extirpation from Canada. At the present rate of decline, Owl survey results suggest extirpation will occur within the next decade.

GRAPH: Canadian Spotted Owl Population Trend

## Supplement to the Population Assessment of the Northern Spotted Owl



**“Unless society supports improved protection and conservation actions for the owl, the species will likely soon be extirpated in Canada.”<sup>6</sup>**



# The Spotted Owl – A primer on biology<sup>7</sup>

The Spotted Owl is ranked at the highest levels of endangerment on several fronts. Its plight was first acknowledged in 1986 when the Committee on the Status of Endangered Wildlife in Canada designated the Spotted Owl as “Endangered,” which means “threatened with imminent extirpation throughout all or a significant portion of its range in Canada.”

Since that time, the B.C. Conservation Data Centre has “Red-listed” the species provincially, meaning that the owl is considered endangered and in risk of extinction or extirpation over a significant portion of its original range. The owl has been assigned a ranking of “S1,” meaning that it is considered critically imperiled because of, among other things, its extreme rarity.<sup>8</sup>

**A draft National Prioritization Scheme for Recovery produced in 2000 by the Recovery of Nationally Endangered Wildlife identified the Spotted Owl as the highest priority species in Canada for recovery efforts.**

Unfortunately, beyond weighty characterizations of the state of its peril, little has actually been done in British Columbia or Canada to address the decline of the Spotted Owl. This is because Spotted Owls rely on commercially valuable old-growth forests for survival.

## Spotted Owl Species Distribution

The Spotted Owl (*Strix occidentalis*) is a non-migratory bird with three recognized sub-species all found only in North America: the Northern Spotted Owl (*Strix occidentalis caurina*), the Californian Spotted Owl (*Strix*

*occidentalis occidentalis*) and the Mexican Spotted Owl (*Strix occidentalis lucida*.) This report focuses on the Canadian and most northerly population, the Northern Spotted Owl, which ranges from north-coastal California to British Columbia.

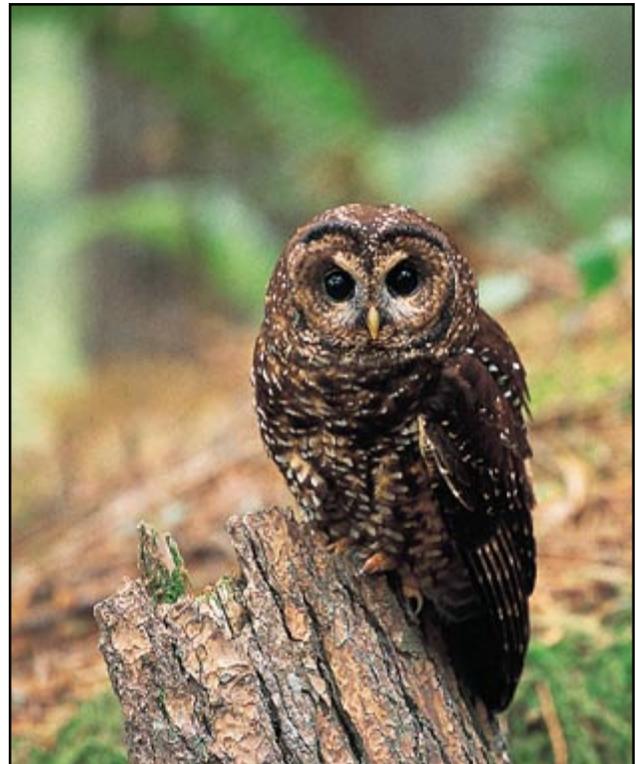


Photo by Art Wolfe

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## Spotted Owls and Old-Growth<sup>9</sup>

Spotted Owls need large, unfragmented expanses of old growth and mature second-growth forests up to 5,000 hectares in size to survive.<sup>10</sup> Within old-growth forests, Spotted Owls typically select the stands of largest trees with the most complex canopy structure, the greatest diversity of dead, standing and fallen woody debris spanning all ranges of decay classes, and the most cool and humid forest available, as their core activity areas. Generally, they prefer old-growth forests that have an eighty-five to ninety percent canopy closure.<sup>11</sup> These features are generally found in B.C. in stands older than 140 years of age.<sup>12</sup> Today less than one-half of the forests in the range of the Spotted Owl in Canada remain in stands of 140 years and older and these mature stands are the principal target of commercial logging.<sup>13</sup>

Spotted Owls rely on old growth because their life cycle is characterized by particular reproductive requirements, deferred reproductive maturity, low reproductive rates, limited dispersal ability, and specialized habitat requirements,<sup>14</sup> all of which are clearly linked to old growth and which likewise render them extremely vulnerable to habitat disturbance.

### Forest Stand Structure and Spotted Owl Nesting and Reproduction

With regard to nesting and reproduction, it may generally be stated that the older the forest, the better the owl habitat it is likely to be. Spotted Owls do not build nests. As a result, they depend on tree cavities and broken tree crowns for nesting platforms – features typically found among only the most mature trees. Indeed, a positive correlation between the age of forests and successful reproduction has been documented,<sup>15</sup> with some of the earliest owl research confirming that the majority of owls inhabit the oldest undisturbed forests (220-600 years old).<sup>16</sup>

Spotted Owls are slow to reproduce. Most individuals do not begin to successfully breed until they are several years of age and, even after reaching reproductive maturity, there is considerable variation in the proportion of mature owls that breed in a given year. Very few owl pairs breed on a consistent annual basis, then ordinarily producing only one to two young.<sup>17</sup>

## Connectivity and Spotted Owl Dispersal and Replacement

About four months after birth, juvenile Spotted Owls must disperse from their parents' territory, successfully locate undefended suitable habitat, and establish a territory. While dispersing and until they successfully establish a territory, juvenile owls are especially vulnerable. To reach stands of potentially suitable forest, they depend on corridors or continuous stretches of suitable habitat to travel through and forage in (an attribute of forests known as "connectivity"). Transitional habitat may support the young owl until it finds suitable territory<sup>18</sup> but if young owls must cross clearcuts or other unusable habitat, they may survive for only a matter of days.

Indeed, young owls dispersing from their parents' territory have the highest death-rate;<sup>19</sup> current studies suggest only fifteen to twenty-nine percent of juvenile owls reach independence.<sup>20</sup> Because they are not proficient hunters and face increased threats of predation when crossing clear-cut landscapes, survival rates drop with increasing landscape fragmentation (decreasing connectivity).<sup>21</sup> In highly fragmented habitat, such as in the remaining mature temperate forests of southwestern B.C., first year survival rates would likely drop below average rates.

Besides facilitating dispersal, connectivity corridors in fragmented landscapes are also important for helping to replace owls that die. If a population has saturated the landscape (reached maximum density), there is usually a pool of non-breeders or "floaters" that look to establish territory in areas vacated by the death of a resident bird. If territories or small clusters of territories are isolated, as in fragmented, reduced connectivity habitat, prospecting birds are less likely to safely find a territory.

### Forest Range Requirements for Spotted Owl Survival and Recovery

Even where habitat permits dispersal, it may not sustain owls. Spotted Owls maintain large home ranges and typically need appropriate unfragmented forest habitat up to 5,000 hectares in size. Published studies from the Western and Eastern Cascades indicate an average home range size of between 2,675 and 3,321 hectares. Although comparable data is lacking for Spotted Owls in B.C., it is reasonable to expect that home range sizes in B.C. fall within the range from study areas in the Cascades, the

figure of 3,200 hectares for unfragmented habitat finding favour in current research.<sup>22</sup>

Not surprisingly, in fragmented habitat, range size may increase significantly. For example, owl pairs in southwestern Oregon annually used areas averaging about 53,000-180,000 hectares in old mixed-conifer forest, and about 157,000-290,000 hectares in old Douglas-fir forest.<sup>2</sup>

Increased fragmentation also leads to overlap among pairs. As with extreme fragmentation, owl pairs frequently are forced to disperse which may result in separation and effective loss of breeding pairs.<sup>23</sup>

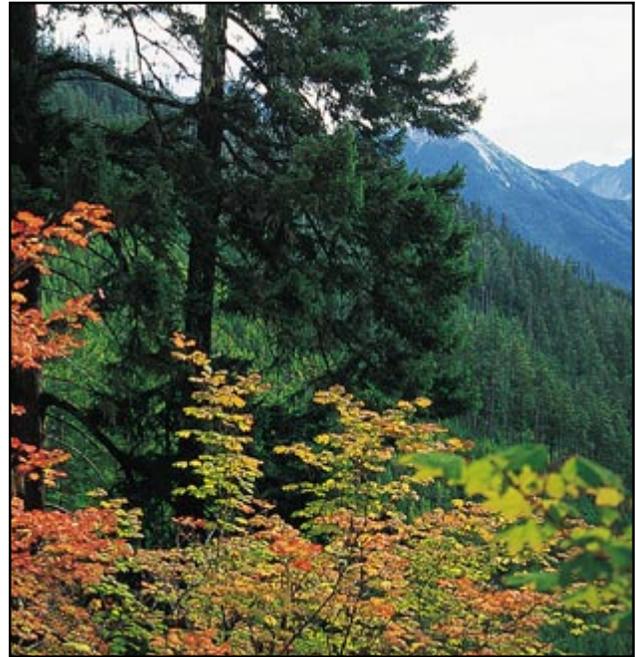
Beside restricting breeding capability by fragmenting habitat, logging in core habitat can potentially result in direct mortality of Spotted Owls. Spotted Owls, as with most bird species, are most vulnerable to disturbance during their incubation, nestling, or early fledgling periods. In these stages and even as adults, Spotted Owls are known to be docile and passive, remaining in their roost tree regardless of activity occurring below and even as it is logged.

Spotted Owls are long-lived - owls have been recorded living for longer than twelve years. Not surprisingly, long-lived species with deferred reproduction and low productivity are highly vulnerable to disturbances that cause population declines because, even if the cause of the disturbance is removed and sufficient habitat made available, populations are slow to stabilize and recover. Unlike species that have high reproductive potential and can quickly recover from depressed population numbers, such as small songbirds, recovery of Spotted Owl populations, once depressed, are less likely to occur and will be considerably slower, extending the time during which the population is vulnerable.

### **Forest Stand Characteristics and Spotted Owl Foraging and Predation**

Within their lifecycle, additional factors influence the complex and vital link between owls and old-growth forests, particularly those relating to two of the most significant challenges confronting Spotted Owls - finding sufficient food and avoiding predators.<sup>24</sup>

When it comes to foraging, Spotted Owls are “sit and wait” predators. They capture their prey by sitting in perches that have clear flight and visibility lines to the forest floor. The owls wait for prey to emerge below them before swooping down to capture it. As a result, owls rely



Flora Lake - Photo by Leo DeGroot

on mature temperate forest that provides a suitable combination of perch sites, prey, and an open forest understory.

Heavily logged areas, clearcuts and forests less than 140 years old have few, if any, of the desired structural attributes. Available perches may also be too exposed, failing to offer sufficient cover from predators. In addition, these areas have disturbed understories often characterized by logging debris and dense undergrowth which preclude effective foraging as prey availability is greatly reduced.<sup>25</sup>

Complicating their foraging ability, Spotted Owls are highly dependent on a few species of prey, making them vulnerable to fluctuations in prey abundance and density. For example, B.C.'s Spotted Owls rely largely on flying squirrels for their diet, a prey strongly associated with older forests.<sup>26</sup>

Disturbed forests also increase the risk that a Spotted Owl will itself become prey. The two principal predators of Spotted Owls throughout much of their range are Northern Goshawks and Great Horned Owls. These predators typically prefer more open forest structures than Spotted Owls. A Spotted Owl flying through clearcuts, heavily logged areas, and open forests risks predation by these larger predators. Indeed, predators will exploit the “fringe effect,” by deliberately hunting from clearcut edges.

## Spotted Owls – the Indicator Species

Spotted Owl population decline has ramifications beyond this species. Top-level predators such as Spotted Owls are frequently considered “indicator species,” in that they are sensitive to ecosystem disturbances and may be used to gauge the condition of a natural system. For example, the U.S. Forest Service has formally designated the Spotted Owl as an indicator species because the federal agency considers that the owl’s health mirrors the health of old-growth ecosystems.

**“Threatened or endangered forest [dependent] species are indicators of ecosystem diversity and integrity, which is, in turn, linked to forest productivity and the health of the forest industry.”<sup>27</sup>**

Thus, the Spotted Owls’ disappearance from parts of their historical range assuredly signals the disappearance of other old growth dependent species and the probable loss of certain ecosystem functions and processes. In southwestern B.C., within the historic range of Spotted Owls, there are seventy-one vertebrate species closely associated with late-successional and old-growth forests, of which sixteen are considered to be at risk, either nationally or provincially. This area also encompasses approximately sixty-seven species of vascular plants of which seven are considered to be at risk provincially.<sup>28</sup> Protection of Spotted Owl habitat has the additional benefits of contributing to protection for these species.<sup>29</sup>

Aside from the importance of protecting owls to protect ecosystems, all of North America’s Spotted Owls benefit by maintaining the Canadian population. Ideally, the goal in conserving a threatened or endangered species is to maintain its distribution throughout its historical range. This is important for regional biodiversity and also helps maintain the full range of genetic diversity within the species or subspecies. Genetic diversity is essential as it provides the raw material for natural selection and evolution, the mechanisms that affect the potential for populations to respond over time to changing environmental conditions through natural selection. Additionally, maintaining populations throughout a representative range of habitats and over large spatial scales minimizes the

likelihood that the global population will be vulnerable to a large-scale, random event or catastrophe (stochastic events). With Spotted Owls continuing to decline throughout their North American range, the preservation of all populations is critical, particularly as habitat destruction and fragmentation occurs across their entire range.

**“...maintaining the Spotted Owl on the edge of its range is one of the best ways to conserve the genetic diversity of the species. Southern counterparts of the Spotted Owl population may be closely adapted to their habitats and lack the ability to adapt to a rapidly changing environment. Inhabiting a climatically harsher and less predictable environment, the genetic makeup of the British Columbia population may be better suited for adaptation. For these reasons, the northern range of the Spotted Owl may play a critical role in the future survival of the species in North America.”<sup>30</sup>**



Spotted Owl fledgling - Photo by Art Wolfe

# Why the Decline? – Logging to Extinction

Spotted Owls simply cannot survive or be successfully recovered without suitable old-growth forests. In British Columbia, these forests are rapidly disappearing and so with them are the owls and their chance for recovery. As stated earlier, loss of suitable old-growth forest as the principal factor in the owls' population decline finds support from numerous scientific sources.

Moreover, the single greatest threat facing Spotted Owl habitat is the ongoing loss due to commercial logging.<sup>31</sup> But while loss of suitable habitat *via* logging is the greatest threat facing Spotted Owls, current authorities implicate several other potential factors in the Spotted Owl's decline. Foremost among these are changing environmental conditions and the invasion of Barred Owls (*Strix varia varia*).



Photo by Jeremy Williams

In general, random environmental events or stochasticity, including climatic variability, can be an important factor affecting both survival and reproduction of organisms. Several studies have found correlations between environmental factors, i.e. precipitation and temperature, and reproductive success for Northern Spotted Owls;<sup>32</sup> however, the understanding of these relationships remains rudimentary. From an evolutionary perspective, Spotted Owls have always lived with environmental stochasticity so this is not realistically a primary cause of the long-term owl population declines. Further, these variables are near impossible to control in population recovery efforts.

Another relevant factor potentially affecting Spotted Owl populations is the range expansion of Barred Owls into areas historically occupied solely by Spotted Owls. Observed on the west coast in the last forty years, the more aggressive Barred Owls are tolerant of fragmented and younger forests resulting from logging but will also displace the smaller Spotted Owls from old-growth forests and compete for limited food resources. Although Barred Owls can negatively impact Spotted Owls, scientific evidence indicates that the loss of habitat due to industrial logging remains the primary threat to Spotted Owls.

Indeed, as the next section will show, myriad factors which may play a part in the Spotted Owl's decline pale in comparison to the loss of suitable habitat from logging.

## B.C.'s Southwest Lower Mainland – Logging Country

**“Timber harvesting of suitable owl habitat is believed to be the single greatest threat to the Spotted Owl population in North America.”<sup>33</sup>**

Potential historic Spotted Owl habitat in Canada is estimated to have represented a significant portion of the forests of the Chilliwack and Squamish Forest Districts. See Map 1 (page 18) which estimates potential historic extent of Spotted Owl habitat. This map shows all forests existing circa 1940, according to the Ministry of Forests forest cover database for the Chilliwack and Squamish Forest Districts, as potential historic Spotted Owl habitat. This map does not show historical natural disturbances, which would have reduced the amount of actual historic

Spotted Owl habitat. Conversely, however, this map also does not show the forests that pre-existed the conversion to urban and agricultural uses, which would increase the amount of actual historic Spotted Owl habitat. The map also excludes areas logged prior to 1940. While thorough records for this era do not exist, commercial logging in the southwest mainland of British Columbia commenced in the 1860s.<sup>34</sup> By excluding these later areas, it is intended that the estimate of potential historic Spotted Owl habitat is conservative.

As Map 2 shows, logging has dramatically impacted the amount of potentially suitable Spotted Owl habitat. Current potential Spotted Owl habitat is significantly reduced from historic levels because of that history of logging. Today, less than one half of the forests of the Chilliwack and Squamish Forests Districts remain in stands greater than 140 years of age.<sup>35</sup> Logging is responsible for over eighty percent of the loss in potentially suitable Spotted Owl habitat in Canada since the 1940's.<sup>36</sup> (See Map 2 page 20). In 1995, it was estimated that only thirty percent of historic Spotted Owl habitat remained in Canada:



Photo by Jeremy Williams, August 2002

The amount of owl habitat that existed before timber harvesting is unknown, but probably 30% or less of pre-harvesting, low-elevation old-growth forests remains within the historic range of the species in the province (K.Klinka, pers. comm.; J. Pojar, pers.comm.). Although not all old-growth forests may have been occupied by Spotted Owls, this large decrease suggests that the remaining habitat represents only a small portion of the area previously occupied by the owl.<sup>37</sup>

Moreover, of the old-growth forests suitable for the Spotted Owl that remains, much of it is highly fragmented by logging.

**In the Vancouver Forest Region, which encompasses both the Chilliwack and Squamish Forest Districts, as well as Vancouver Island, Haida Gwaii (Queen Charlotte Islands) and parts of the lower coast of British Columbia, the loss of old growth is “considered a major ecological degradation.”<sup>38</sup>**

### Map 1: Estimated Historic Spotted Owl Habitat In Canada

Forest age classes 1-9 (all ages) below 1,370 metres elevation were used to illustrate a rough estimate of potential historic Spotted Owl habitat within the Squamish and Chilliwack Forest Districts. This map does not show historical natural disturbances and excludes any potential historic habitat that falls currently in urban and agricultural land.

### Map 2: Logged Spotted Owl Habitat In Canada

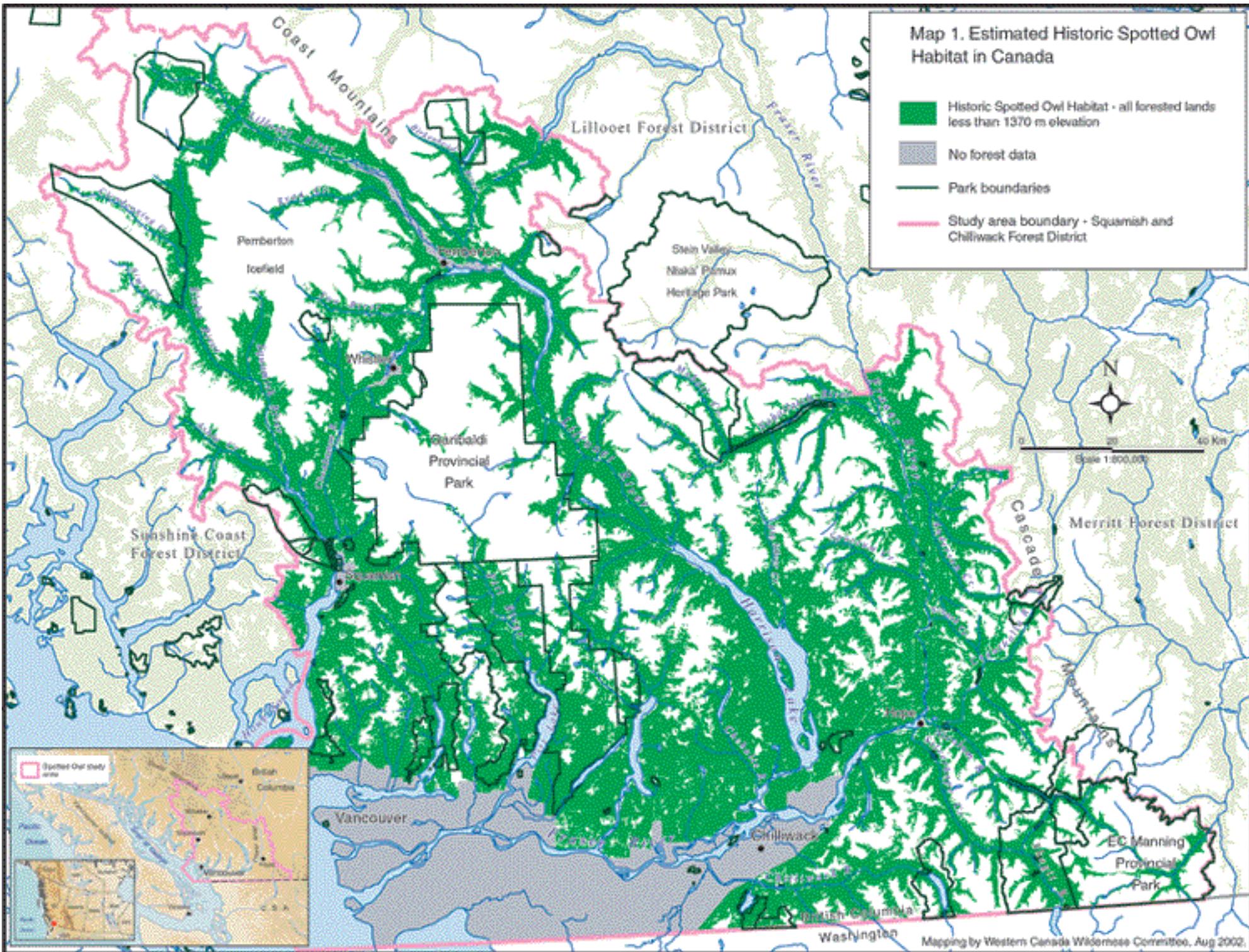
A logging activity overlay was used to illustrate the extent of post 1940 logging in the Spotted Owl study area. 1940 represents the earliest readily available data on commercial logging. The remaining forest cover (below 1,370 m elevation) is shown separated into age classes. Age class 8-9 (greater than 140 years), with a height class > 2 (taller than 19.3 m) is used to show the extent of Spotted Owl suitable habitat. Age class 6-7 (101 - 140 years), with height class >2 (taller than 19.3 m) is used to show the extent of middle aged forest and age class 1-5 (less than 101 years) is used to show younger forests, due to younger species types, natural disturbances, and pre-1940 logging activity.



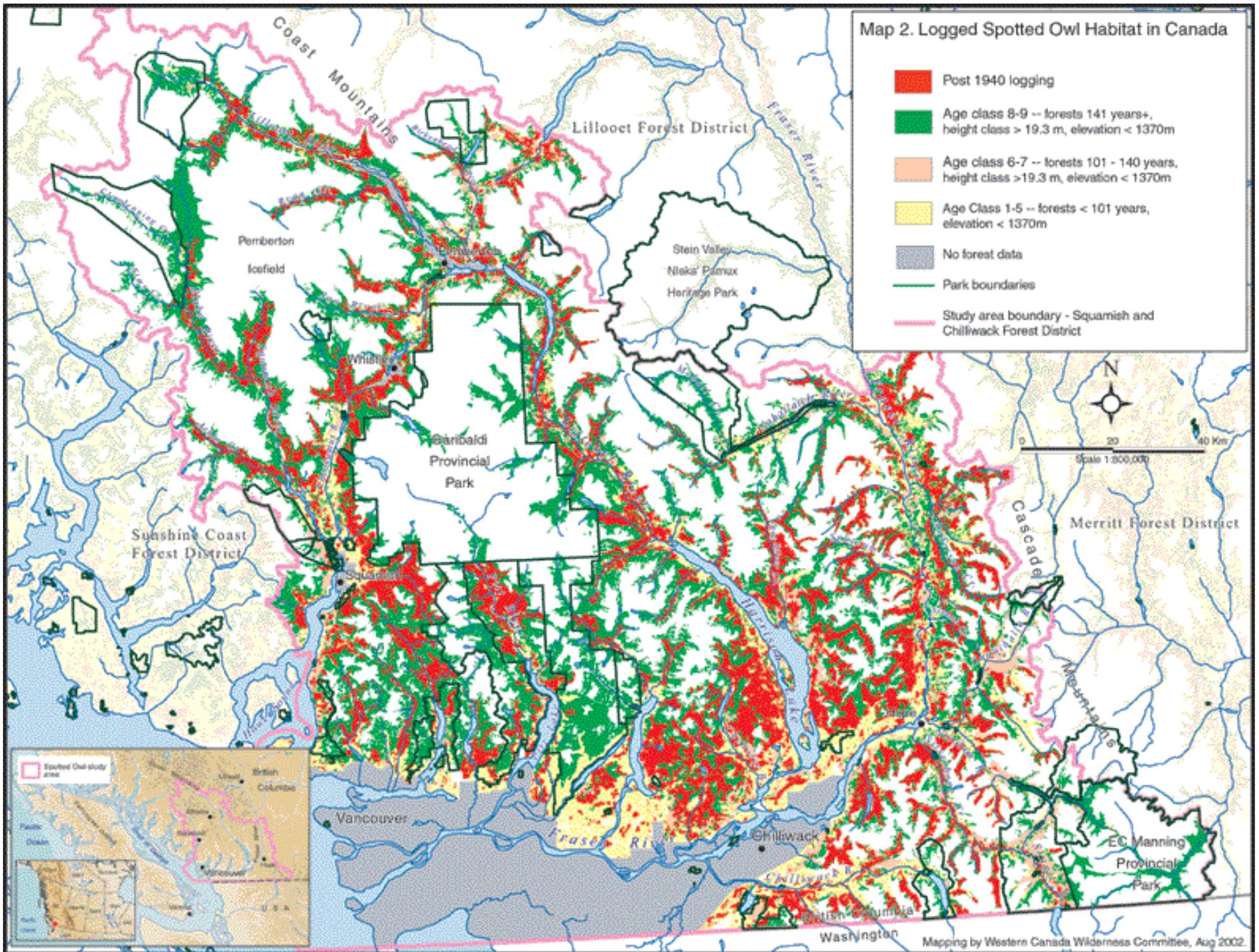
Old-growth log sort in Hornet and Clear Creek Special Resource Management Zone  
Photo by Jeremy Williams, August 2002

Map 1. Estimated Historic Spotted Owl Habitat in Canada

- Historic Spotted Owl Habitat - all forested lands less than 1370 m elevation
- No forest data
- Park boundaries
- Study area boundary - Squamish and Chilliwack Forest District



Map 2. Logged Spotted Owl Habitat in Canada



# Protection of the Spotted Owl in Canada

The “protection” policies and laws offered the Spotted Owl by the Federal and British Columbia governments epitomize the words of Macbeth: “it is a tale told by an idiot, full of sound and fury, signifying nothing.”<sup>39</sup> This is particularly well illustrated by British Columbia government policy, which advocates logging to enhance Spotted Owl habitat.

## The Federal Response

In 1992, amid international acclaim, Canada became the first western industrialized country to sign the United Nations Convention on Biological Diversity in which it

pledged to provide “effective protection” for Canadian species at risk. Canada committed to enacting endangered species legislation pursuant to the Convention which also has complementary requirements for the protection of ecosystems, natural habitats and the maintenance of viable

populations of species in natural surroundings, plus a requirement for the rehabilitation and restoration of degraded ecosystems and the recovery of threatened species.

Domestically, Canada’s federal provincial and territorial wildlife ministers signed the National Accord for the Protection of Species at Risk in Canada in October 1996 in which they committed to a national approach for species protection. The goal of the accord was “to prevent species at risk in Canada from becoming extinct as a consequence of human activity.” Under the Accord, both the Canadian and the B.C. governments committed to complementary legislation and programs that



*Adrian Raeside, Victoria Times Colonist, August 31, 2002.*



Chilliwack Lake - Photo by Leo DeGroot

provide for “effective protection” of species at risk and that address specific requirements, including:

- providing immediate legal protection for threatened and endangered species;
- providing protection for the habitat of threatened or endangered species;
- providing for the development of recovery plans within one year for endangered species and two years for threatened species that address the identified threats to the species and its habitat; and,
- providing for effective enforcement.

Despite international and domestic obligations, neither the federal nor the B.C. governments have met their commitments to protect species at risk and neither has endangered species legislation.

## The Species at Risk Act

Ten years after ratifying the Biodiversity Convention, and six years after signing the National Accord, Canada has yet to pass federal endangered species legislation.<sup>40</sup> Amid much internal pressure, however, Canada is close to meeting some of its international obligations. On June 11, 2002, after two failed attempts, Bill C-5, the *Species At Risk Act* (SARA), passed third reading in the House of Com-

mons, and will likely become law by the end of 2002.

Unfortunately, the federal *Species At Risk Act* will do little to protect the Spotted Owl and its habitat in British Columbia. Under SARA, mandatory legal protection for the owl will be limited to federal lands – a mere one percent of the land base in B.C. Additionally, although SARA does contain prohibitions against harming listed endangered, threatened and extirpated species and their “residences,” this limited protection will not protect the Spotted Owl. Because the Spotted Owl is neither a migratory bird, as defined under the *Migratory Birds Convention Act*, nor an aquatic species, SARA protections won’t apply.

The Spotted Owl has been included on the initial list of officially endangered species under the *Species At Risk Act*. A key benefit of this is the requirement to prepare a recovery strategy identifying “critical habitat”. If a recovery strategy is deemed “technically and biologically feasible,” one must be completed within one year for listed endangered species and two years for threatened and extirpated species. For species included on the initial list under the Act – such as the Spotted Owl – the time periods for completion of a recovery strategy have been extended to three years for endangered species and four years for threatened or extirpated species.

The *Species at Risk Act* also contains criteria for a recovery strategy. An existing recovery strategy or a

recovery strategy developed under the Act must include the following to be acceptable:

- a description of the species and its needs, consistent with information provided by COSEWIC (Committee on the Status of Endangered Species), the national listing body;<sup>41</sup>
- an identification of the threats to the survival of the species and threats to its habitat, consistent with information provided by COSEWIC;
- an identification of the species' critical habitat, to the extent possible, and examples of activities that are likely to result in its destruction; and,
- a statement of the population and distribution objectives that will assist the recovery and survival of the species, and a general description of the research and management activities needed to meet those objectives.

Ultimately, however, SARA does not require recovery strategies to be implemented.

**Unless a Spotted Owl or its nest is located on the one per cent of B.C. that is federal land, it will not be illegal under the new federal *Species at Risk Act* to harm the owl or its nest. Laws against destroying critical habitat are similarly restricted and in the case of the Spotted Owl, apply only on federal land. In other words, the *Species at Risk Act* will protect Spotted Owls only if they live in post offices, prisons or military bases.**

## British Columbia's Spotted Owl Management Plan

British Columbia is the most biodiverse province in Canada. Yet, instead of stand-alone endangered species legislation, a patchwork of legislation and policy provides legal designation and incremental protection for just four of B.C.'s 1,000 species at risk, not including the Spotted Owl. While the Spotted Owl is subject to B.C.'s *Wildlife*

*Act*, this Act provides little to no protection for species at risk or their habitat – for birds such as the Spotted Owl, protection is accorded to individual birds or eggs and their nests but only when the bird or egg is within the nest.<sup>42</sup> The *Wildlife Act* is difficult to enforce, limited in its application and does not protect critical habitat.

In lieu of binding and comprehensive legislation to protect the Spotted Owl, the province introduced policy called the Spotted Owl Management Plan (SOMP). An introduction to this policy follows.

In 1990, the committee for the Recovery of Nationally Endangered Wildlife in Canada (RENEW) asked the B.C. Director of Wildlife to address the decline in the Spotted Owl population. The Spotted Owl Recovery Team (Recovery Team) was then established to develop a national recovery plan for the Northern Spotted Owl. But as the Recovery Team was set to release a draft recovery plan in 1993, the provincial government unexpectedly revised the Recovery Team's mandate and directed the team to prepare a "management options report."

Photo by Jeremy Williams





Siwash Creek Matrix Activity Centre  
Photo by Gwen Barlee, July, 2001

The distinction was significant. Rather than drafting a plan whose objective was recovery of the species, the Recovery Team was asked to develop a range of options including those which would not lead to the species' recovery. The Recovery Team did so, releasing in 1994 a report that addressed six management options for the Spotted Owl. These options ranged from minimum to maximum protection and were designed to apply to twenty-one areas of known or presumed Spotted Owl habitat, originally referred to as Spotted Owl Conservation Areas.<sup>43</sup> Of the six plans, the Recovery Team and an independent Biological Assessment Team considered only three options acceptable for the purpose of recovering the species. These three options recommended either complete or partial elimination of logging which "degrades or destroys suitable owl habitat."<sup>44</sup>

Upon issuing its report, the Recovery Team was promptly disbanded and is currently defunct. (The provincial government is currently reconstituting a Recovery Team.)

In 1995, the provincial government rejected all of the original Recovery Team's recommended options, instead tasking the Ministry of Forests and the then Ministry of Environment, Land and Parks to jointly prepare a management plan for the Spotted Owl with the economic goal of

"optimizing removal of timber resources without jeopardizing the long-term survival of the Spotted Owl."<sup>45</sup>

The Spotted Owl Management Plan was the result - attempting to embody the conflicting goals of continued commercial logging and Spotted Owl recovery. As a result, at the time that it was adopted, the Management Plan was estimated to give the Spotted Owl populations only a sixty percent chance of stabilizing or possibly improving. Indeed, the Spotted Owl Management Plan was predicated on an initial decline in the Spotted Owl population, which the Population Assessment now describes as having been exceeded by five-hundred percent. Recovery Team biologists refused to support the Management Plan because they considered the owl's chance of survival unacceptably low.<sup>46</sup>

And, although the government proclaimed the Plan as a scientifically valid accommodation of the opposing goals of logging and Spotted Owl protection; they never officially adopted it.<sup>47</sup>

**"A 60 per cent probability of stabilization or improvement in status means a 40 per cent probability of a worsened status, which in the case of an endangered species can only mean extirpation."<sup>48</sup>**

Based on the areas of owl habitat identified by the Recovery Team options report, the Management Plan established twenty-one Special Resource Management Zones (Management Zones) to "integrate forestry and Spotted Owl management," that is, to attempt to achieve the twin goals of stabilizing the owl population without jeopardizing the supply of timber. Thirteen Management Zones<sup>49</sup> were located in the Chilliwack Forest District, where they occupy a total of 130,315 hectares, including seventeen percent of the timber harvesting land base.<sup>50</sup> The remaining eight zones<sup>51</sup> were located in the Squamish Forest District and comprise a total of 59,021 hectares, which impacts approximately twenty-one percent of the timber harvesting land base.<sup>52</sup>

Not all known Spotted Owl habitat was included in the twenty-one Management Zones. Spotted Owls found outside the Management Zones before June 1, 1995 were to be protected by interim Matrix Activity Centres (Activ-

ity Centres). The Activity Centres are concentric circles drawn around habitat where logging is allowed from the outside of the outer circle inward toward the centre. The theory was that by the time the Activity Centres were logged, the Management Zones would contain habitat suitable for the owls. There are nine Activity Centres in the Chilliwack Forest District and two in the Squamish Forest District.

The Management Plan failed to provide protection for owls found outside of Management Zones after June 1, 1995. Although only limited surveys have occurred outside the areas subject to the Management Plan, owls have been identified.<sup>53</sup> These Spotted Owls living outside Management Zones have the dubious distinction of being the only Spotted Owls in the entire North American range that have no habitat protection.<sup>54</sup> As the following will show, however, Owls within Management Zones fare little better.

**“The Canada Spotted Owl Recovery Team considered that the [Spotted Owl Management Plan] did not provide the Owl with an adequate chance of stabilizing its population. It did not support the [Spotted Owl Management Plan].”<sup>55</sup>**

## Weaknesses of the Spotted Owl Management Plan

As stated earlier, in the face of scientific evidence that loss of habitat was the single greatest threat to Spotted Owls, drafters of the Spotted Owl Management Plan were told to achieve the impossible – stop the owls’ decline while allowing logging of suitable habitat to continue. The resulting Management Plan prioritized logging over population stabilization, a circumstance facilitated by the Plan’s marked deviations from the science of Spotted Owls and their habitat needs.

This occurred in a number of ways. First, the Plan relied on the notion that owls could survive in poor quality habitat. This led to logging being permitted in Management Zones as long as a minimum sixty-seven percent of the gross forested land was left as suitable owl habitat.<sup>56</sup> In the face of the endangered status of the Spotted Owl, reliance on sixty-seven percent as a benchmark for extent of suitable habitat did not reflect a precautionary approach

and, significantly, allowed for industrial logging in the heart of owl habitat.

Moreover, it invites the question: sixty-seven percent of what? The sixty-seven percent habitat retention figure was misleading because it incorporated another fundamental deviation from known science – that owls would inhabit younger forests. Specifically, the Management Plan reduced the minimum forest age considered as suitable for owl habitat from 140 years to 100 years notwithstanding that nesting by the Spotted Owl has never been confirmed in forests less than 120 years of age.<sup>57</sup> This inclusion of “non-habitat” not only expanded the area of ‘habitat’ purportedly available for owls, to support the argument that there was plenty of forest for both loggers and owls, but invited clearcutting of old-growth within Management Zones and its replacement with unsuitable habitat of 100-year old forest.

Second, to offset logging in old-growth owl habitat, the Management Plan propounded the untested theory that younger age class forests could more quickly become suitable owl habitat through the application of untested logging techniques theorizing that, via intensive silviculture operations and partial harvesting of young and mature forests, suitable owl habitat conditions could be attained in 100 years. This proposition was advanced even though drafters of the Plan acknowledged, “whether young forests can be enhanced to provide adequate foraging, roosting and possibly nesting habitat at 100 years old has not been proven scientifically.”<sup>58</sup>

Thirdly, the Management Plan relied on the notion that if core owl habitat was logged, owls would simply move to other territory – a concept biologically suspect because it would subject the owl to the many risks associated with dispersal through southwest B.C.’s highly fragmented landscape including, as referred to earlier, pair separation and mortality from predation or starvation.

Activity Centre logging, as introduced earlier, epitomizes the application of these flawed premises. Consisting of concentric circles drawn around core owl habitat, Activity Centres were logged from the outside in, the theory being that by the time the core was logged displacing resident owls, habitat would be available in nearby Management Zones. But, at the same time, Management Zones were being logged to a minimum of sixty-seven percent habitat or never had that threshold amount (all while old-growth logging was continuing unabated outside Spotted Owl Management Plan “protected” areas-See also the next

chapter.)

On the ground, these deviations from best-available science encouraged logging in prime old-growth owl habitat because: (a) there were younger stands the owls could inhabit; (b) more habitat was being created for owls by logging; and, (c) the owls would effectively disperse from logged core habitat to younger stands and logged stands. But the result was actually that both present and future habitat was logged, effectively precluding both stabilization and recovery.

Moreover, “intensive silviculture operations” to enhance potential or existing habitat were never practiced: only varying methods of commercial logging that would severely degrade owl habitat occurred. Thus, even though the concept of improving owl habitat suitability in younger stands as a rationalization for logging was a cornerstone of the Management Plan, these prescriptions were never implemented. As the Chief Forester noted, “the extent to which partial cutting can be performed successfully in [the retained Spotted Owl habitat within Management Zones] is still undemonstrated.”<sup>59</sup>

And though the Management Plan recommended adaptive management monitoring to confirm if the various Management Plan strategies were working, an adaptive management monitoring strategy was never fully prescribed, never implemented, and survey results by environment officials were ignored by Ministry of Forests. In any event, Spotted Owl monitoring staff have since largely been eliminated, in hand with broad cuts to the Ministry of Water, Land and Air Protection.<sup>60</sup>

At the time of its release, the scientific community panned the Management Plan. For example, an independent assessment prepared in 1997 by scientists of the University of California-Davis, Peter Hodum, PhD, then of the Department of Avian Sciences, and Susan Harrison, Professor, then of the Division of Environmental Studies, identified fundamental inadequacies in the Management Plan.<sup>61</sup> Their assessment found that inadequate connectivity between owl habitat was the Management Plan’s greatest weakness, that the Management Zones were fragmented and isolated and that the deficiencies of the Management Plan placed the Spotted Owl in the highest category of endangerment. The assessment further noted:

- The absence of a scientific peer-review for the Management Plan;<sup>62</sup>
- The very real possibility that the owls would become extinct during the Management Plan

transition period;<sup>63</sup>

- The failure to delineate Management Zones that actually encompassed suitable owl habitat;<sup>64</sup>
- The lack of a scientific basis for the sufficiency of sixty-seven percent suitable habitat or reduced age classes to sustain owls;<sup>65</sup>
- The failure of the Management Plan to prescribe monitoring;<sup>66</sup>
- The absence of analysis of the long-term viability of B.C.’s Spotted Owl population;<sup>67</sup>
- The vast inferiority of the Management Plan to the U.S. protections for the Northern Spotted Owl.<sup>68</sup>

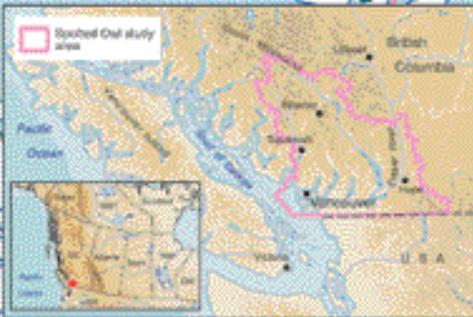
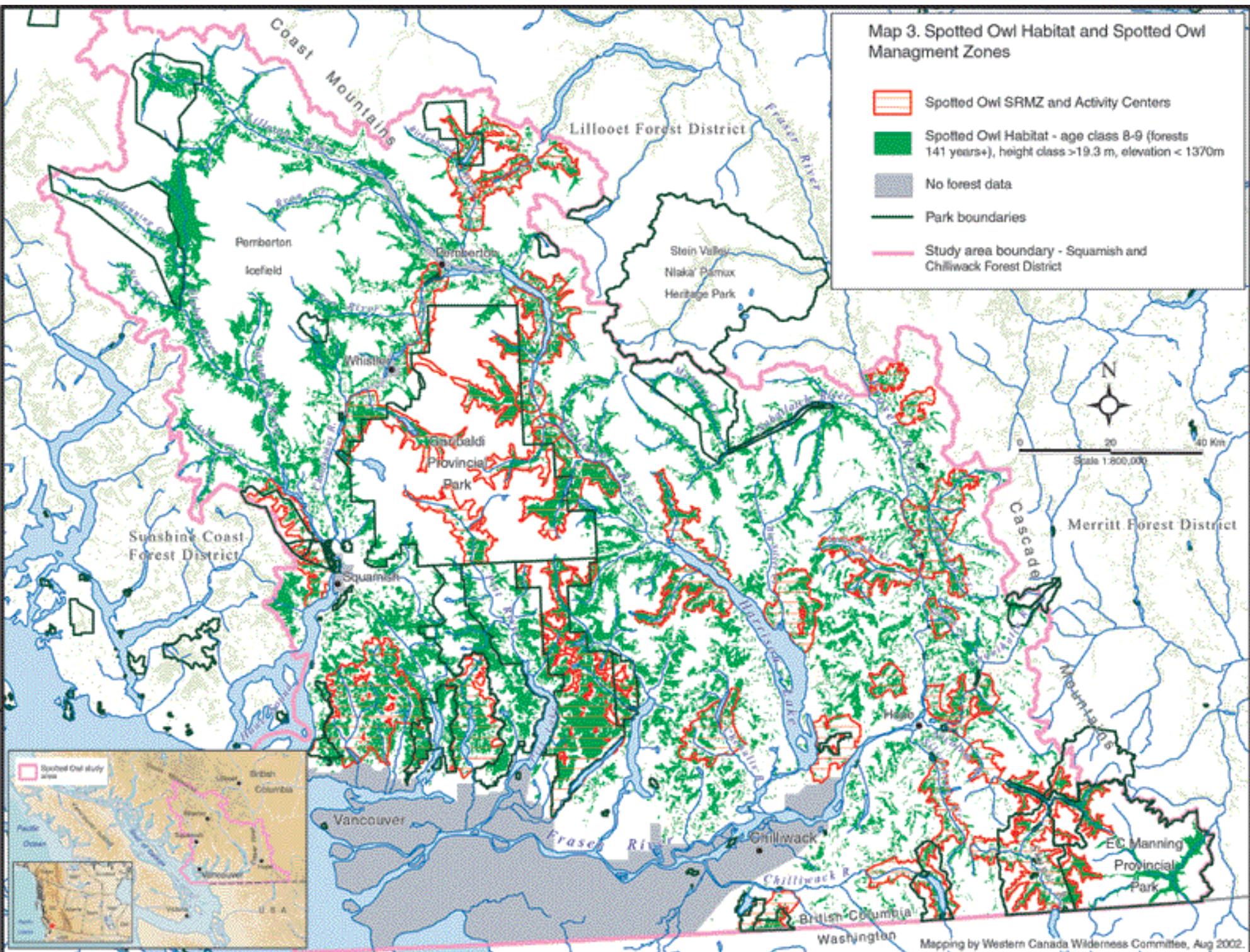
Moreover, Hodum and Harrison found the concept of logging to “maintain or enhance” owl habitat to be fundamentally flawed, stating: *It has been well documented that disturbances such as forest harvesting and road construction decrease the suitability of habitat for owls. There is considerable scientific uncertainty on whether even thinning, salvage operations and other “restoration” oriented silvicultural activities can be used successfully to restore the ecological integrity of an area without significant adverse impacts to ecological elements and processes. Even “monitored” forestry methods are inherently risky to the continued persistence of owls in affected areas because the effects on the owls may not be noticed until the area is no longer of functional value to the owls.*<sup>69</sup>

**Under the worldwide classification of extinction risks, this [Spotted Owl Management Plan] places the Spotted Owl in British Columbia in the highest category of endangerment (“critical”), like white rhinos and Javan tigers.<sup>70</sup>**

*Map 3: Spotted Owl Habitat and Spotted Owl Management Zones - Forest age class 8-9 (greater than 140 years), with a height class > 2 (taller than 19.3 metres), below 1,370 metres elevation were isolated and used to illustrate the current potential Spotted Owl habitat within the Squamish and Chilliwack Forest Districts.*

Map 3. Spotted Owl Habitat and Spotted Owl Management Zones

-  Spotted Owl SRMZ and Activity Centers
-  Spotted Owl Habitat - age class 8-9 (forests 141 years+), height class >19.3 m, elevation < 1370m
-  No forest data
-  Park boundaries
-  Study area boundary - Squamish and Chilliwack Forest District



Mapping by Western Canada Wilderness Committee, Aug 2002.



Clear-cut logging - Siwash Creek Matrix Activity Centre  
Photo by Gwen Barlee, July 2001

## British Columbia's Answer to Endangered Species Legislation

In spite of the likely imminent extirpation of the owl, the B.C. government is introducing sweeping cuts that will eliminate funding for surveying Spotted Owls and end government biologist's oversight of logging in owl habitat. Moreover, the government recently announced its intention to introduce legislation in B.C. which would provide logging companies with significant discretion to determine how logging is to occur in B.C., including giving industry responsibility for oversight of endangered species – something the government calls “industry-led recovery strategies.”

On its face, industry-led recovery strategies permit the ‘fox to guard the henhouse,’ inviting failure arising from conflict of interest. Indeed, the U.S. has experimented with

similar industry-led recovery strategies with no success. The U.S. developed a “Habitat Conservation Plan” approach to allow companies to escape the regulatory burdens of the U.S. *Endangered Species Act*. A comprehensive scientific study involving teams of researchers from the National Center for Ecological Analysis and Synthesis and the American Institute of Biological Sciences<sup>71</sup> found that eighty-four percent of the time, Habitat Conservation Plans failed to provide basic “conservation and mitigation measures” and/or they failed “to use important scientific information and analyses.”<sup>72</sup>

Another policy B.C. has in place for the management of endangered forest dependent species is the Identified Wildlife Management Strategy. The Identified Wildlife Management Strategy is a policy designed to operate under the framework of the *Forest Practice Code of British Columbia Act* (the Code), the province's principal forest practices legislation. Although the Code fails to adequately protect a range of environmental values in the

**“The Legislature could have enacted legislation that protects the Owl from the risk of extirpation caused it by the harvesting of old growth forests. In my opinion, it did not do so. . . ”**

*Mr. Justice James Shabbits  
British Columbia Supreme Court,  
August 2002*

context of logging, B.C.’s current provincial Liberal government is in the process of deregulating it.<sup>73</sup> The Identified Wildlife Management Strategy provides for the discretionary protection of the forest habitat of specific species. The Spotted Owl is, however, not currently designated as a candidate species for potential Identified Wildlife Management Strategy protection.

Even if the Spotted Owl was a candidate for identified wildlife protection, it would matter little to the Spotted Owl because the Identified Wildlife Management Strategy’s primary goal, like that of the Management Plan, is to facilitate logging rather than protect species. This is illustrated by the fact that efforts to conserve identified wildlife cannot have more than a one percent negative impact on timber supply.<sup>74</sup> This timber supply impact cap, “results in many species not receiving adequate long-term protection from forestry activities”,<sup>75</sup> and permits logging and road-building in most of the areas for which the strategy provides species protection. Moreover, because of the timber supply impact cap, designating the Spotted Owl as an identified wildlife species would potentially jeopardize the timber supply impact “budget” of other Identified Wildlife Management Strategy designated species.



Photo by Jeremy Williams

# Protection of the Spotted Owl in the United States

If the Spotted Owl enjoys some renown among endangered species, its reputation largely results from a tumultuous period in the United States when the Spotted Owl became the focal point for U.S. environmentalists battling to save old growth in national public forests.

The conflict culminated in court judgments condemning the U.S. government's failure to maintain viable populations of the species, and ordering the U.S. Forest Service to stop selling timber licenses until a protection plan was implemented.<sup>76</sup>

At about the same time, the Northern Spotted Owl was officially listed as "Threatened" under the United States, Endangered Species Act. With that designation came a legal obligation to provide protection for the species. In 1993, in the face of mounting pressure, the federal government created the Forest Ecosystem Management Assessment Team (FEMAT) and charged it with developing a suite of recovery options. FEMAT was under a legal obligation to "maintain viable populations" of the Spotted Owl.

Forest Ecosystem Management Assessment Team, Option 9, was the strategy chosen by the federal government to manage northwestern forests for the conservation of the Northern Spotted Owl and other old-growth dependent species. In California, the federal government commissioned and implemented a separate plan to manage for the conservation of the California Spotted Owl (*Strix occidentalis*).

The American strategies are considerably more stringent than B.C.'s Spotted Owl Management Plan. FEMAT, Option 9, is based on a system of larger, older age class core reserves surrounded by younger forests managed depending on their relative importance to

Spotted Owls. Compared with the Management Plan, FEMAT, Option 9, increased protected areas, increased riparian protections, provided increased protections in matrix areas, reduced or entirely eliminated logging in core habitats, contained adaptive management areas for testing (outside of protected areas), called for monitoring and was subjected to rigorous peer review.<sup>77</sup> Moreover, FEMAT, Option 9, was geared to recovering the population rather than the Management Plan's endeavor to stabilize the population. As Hodum and Harrison noted: *The [British Columbia, Spotted Owl Recovery Team] report states that there is only a sixty percent likelihood of survival under the adopted strategy [the Spotted Owl Management Plan] and that prediction was not determined quantitatively. This explicit statement and acceptance of such a low criterion for success would not be permissible in the United States...*<sup>78</sup>

Notwithstanding implementation of these more stringent, collaborative, peer-reviewed strategies, Spotted Owl populations in the United States are considered neither large nor healthy, emphasizing the need for a healthy peripheral population in British Columbia. Most long-term monitoring studies of Spotted Owl populations, for both the Northern and California subspecies, indicate declining populations due to habitat loss.<sup>79</sup>

Because of the owls' continued declining status, there is now a petition to also list the California subspecies as threatened under the U.S. *Endangered Species Act*.

# The Spotted Owl in Court

As previous sections have discussed, with a deficient *Species at Risk Act* yet to be passed and weak provincial protections in place, Canada has limited legal protections for the environment. Few laws exist which provide protection for endangered species habitat or which support legal action to protect them.

As a result, few court challenges have been attempted, and fewer still have been successful. In 2001, however,

Sierra Legal Defence Fund and the Western Canada Wilderness Committee won a surprising court victory obtaining the first injunction in Canada halting logging in endangered species habitat.

The case of *Western Canada Wilderness Committee v. Gerald Kennah, Ministry of Forests and Cattermole Timber*<sup>80</sup> arose from all too familiar circumstances – Ministry of Forests officials approving logging over



objections by Ministry of Environment biologists. In June of 2001, this occurred in the Siwash Creek and Anderson Creek drainages north of Hope, B.C., in prime Spotted Owl habitat. A Sierra Legal biologist learned that logging was approved in an area that posed a direct threat to a resident owl. He then traveled to the logging site and videotaped a female Spotted Owl roosting just metres from advancing logging, in an area almost entirely devoid of remaining suitable habitat. Within the week, Sierra Legal lawyers were before the B.C. Supreme Court arguing on behalf of the Wilderness Committee for the protection of the owl and its habitat.

The logging that prompted the court action occurred in old growth in two areas: a Matrix Activity Centre in the Siwash Creek area; and, a Special Resource Management Zone in the Anderson River area (see accompanying map). As such, the case exemplifies what application of the Management Plan strategies means for the Spotted Owl and its habitat.

In the Activity Centre, Cattermole Timber sought approval of logging on the basis that the proposed cutblocks were in the outer rings of the concentric circles

that define an Activity Centre. Ministry of Environment, Land and Parks (as it then was) biologists objected to the proposed logging on the basis that the blocks coincided with the majority of owl detections in the area and also threatened a vital connectivity corridor which was essentially the last piece of suitable habitat connecting one side of the valley with the other, the north and south ends of the valley being entirely logged.

In a nutshell, District Manager, Jerry Kennah, a Registered Professional Forester (R.P.F.), responded by saying that until the biologists disclosed the actual location of the nest site, the plan was approved. Setting aside an analysis of the failure of Kennah to undertake or even acknowledge a precautionary approach given the status of the Spotted Owl, a government biologist swore an affidavit that Ministry of Forests was aware of the location of the owls.

Regarding the Management Zone logging, Cattermole Timber contemplated patch and strip cutting to remove thirty-three percent of the treed area – techniques they characterized as meeting Spotted Owl Management Plan techniques for enhancing Spotted Owl habitat. Of this, Ministry of Environment, Land and Parks officials



“Recent logging in the Siwash creek drainage of southwestern British Columbia occurred in an area “managed” for Spotted Owls by the B.C. government and one of the few remaining connectivity corridors. In spite of the apparent scarcity of habitat in the area, logging by Cattermole Timber was stopped only after a court order was obtained, the Judge noting the “***fairly stark evidence of the attenuation of the Spotted Owl habitat.***”

Photo by Joe Foy

stated:<sup>81</sup> *Considering the large population decline over the last nine years, the superior quality of this activity centre, the magnitude of potential habitat loss, the long time-frame to recruit additional habitat, and the uncertainties of known critical nest and roost sites, if this proposal fails, the impact on Spotted Owls will, at best, reduce the resident owls productivity and annual persistence within the Activity Centre, and at worst, result in the local extirpation of the owls and owl exclusion of the area for the next 80 years. It is my opinion that the Cattermole Timber's proposal results in unacceptably high negative impacts on the persistence and contribution of owls in this Activity Centre, to the overall owl population and the species chances of stabilization.*"

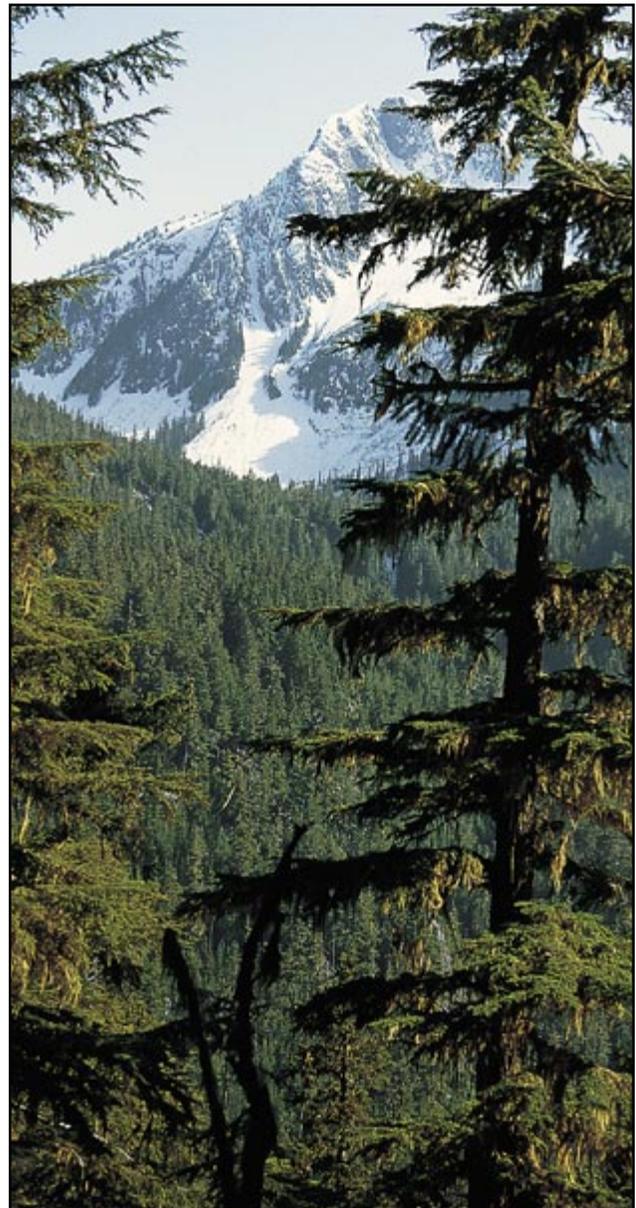
On June 26<sup>th</sup>, 2001, in an unprecedented decision, Mr. Justice Cullen granted an injunction against the logging noting, "...the fairly stark evidence of the attenuation of the Spotted Owl habitat." Mr. Justice Cullen granted the injunction pending a full hearing of the matter. This hearing did not proceed, however, because on July 19, 2001, in a surprising development, the Attorney General agreed to settle the action, stating that logging approvals would be reconsidered.

## A Biologist for the Spotted Owl

The Attorney General's about face in part appears to stem from the courageous step taken by Carla Lenihan, a Ministry of Water, Land and Air Protection biologist who defied her government employers by giving evidence in the court case. Once the Sierra Legal scientist had located the owl and before the injunction hearing, Lenihan was asked to provide evidence regarding the Ministry of Water, Land and Air Protection objections to logging, and, regarding the biology and status of the Spotted Owl in B.C. She agreed and prepared a preliminary affidavit. After advising her supervisor of this effort, Lenihan was ordered to refrain from swearing the affidavit, or speaking with the Wilderness Committee, Sierra Legal and the media.

The injunction hearing went ahead and was successful, despite not having Lenihan's evidence. Meanwhile, Lenihan continued to press for the approval to swear her affidavit. Frustrated by continuing objections by the government and in spite of *Forest Practices Code* protec-

tions for whistleblowers, Lenihan contacted the B.C. Government Services and Employee's Union who agreed to support Lenihan if the government took action against her for speaking out. She then swore her affidavit on the morning set for the full hearing, relaying the story of the Spotted Owl in Canada. In the conclusion of her affidavit, Lenihan stated, "I give this affidavit because I believe that it is my ethical and moral obligation as a professional biologist without regard to the consequences to my employment."



Flora Valley - Photo by Joe Foy

Due to a busy court docket, the hearing was adjourned. Lenihan's affidavit prompted a competing flurry of evidence between the Ministries of Forests and Water, Land and Air Protection in the midst of which the Attorney General offered a settlement. The indifference of Ministry of Forests toward the needs of the Spotted Owl stands in stark contrast to the Ministry of Water, Land and Air Protection's desire to save the species, illustrated not only also by competing affidavits but by statements of the Ministry of Forests District Manager, Gerald Kennah, R.P.F., to the media: *Even when a Spotted Owl was observed 20 metres from a new logging road in Siwash Creek, Kennah refused to budge. "This is not a nest site, just a female owl on a branch," he told The Vancouver Sun. "Owls fly around. There's nothing special about protecting an owl when we see it. There's no special need to do anything at this point. The fact they've seen an owl near a logging site, maybe owls aren't scared by logging.* (L. Pynn, "The Battle Over Logging" - Vancouver Sun, December 8, 2001

## The Continuing Court Battle

The court battle continues. A new Ministry of Forests decision maker, Cindy Stern, R.P.F., was appointed to reconsider Kennah's approvals. Stern rescinded Kennah's approval to log in two of the three contested areas, including the Siwash Matrix Activity Centre; however, she did approve logging in a third area of critical Spotted Owl habitat on the basis that the logging would enhance or maintain habitat (see accompanying map 4). Stern found that Cattermole's proposal of patch and strip cutting in the blocks in the Anderson Management Zone would not degrade the habitat, notwithstanding that these contested strategies would eliminate the old-growth forest canopy necessary for owl survival, and would create unsuitable open patches inviting dense clearcut underbrush, effectively precluding foraging and increasing risk of predation.

In *Western Canada Wilderness Committee c. Cindy*



Photo by Jeremy Williams



Photo by Jeremy Williams

*Stern, Ministry Of Forests, and Cattermole Timber*,<sup>82</sup> reached August 29, 2002, Mr. Justice S. James Shabbits of the British Columbia Supreme Court found that, “the Legislature could have enacted legislation that protects the Owl from the risk of extirpation caused it by the harvesting of old growth forests. In my opinion, it did not do so with the enactment of [the *Forest Practices Code of British Columbia Act* (the Code)].”<sup>83</sup> Having found that the Code was inadequate to protect the harvesting of old growth and the extirpation of endangered species, Mr. Justice Shabbits declined to stop the logging. The Wilderness Committee, represented by Sierra Legal, is appealing the decision.

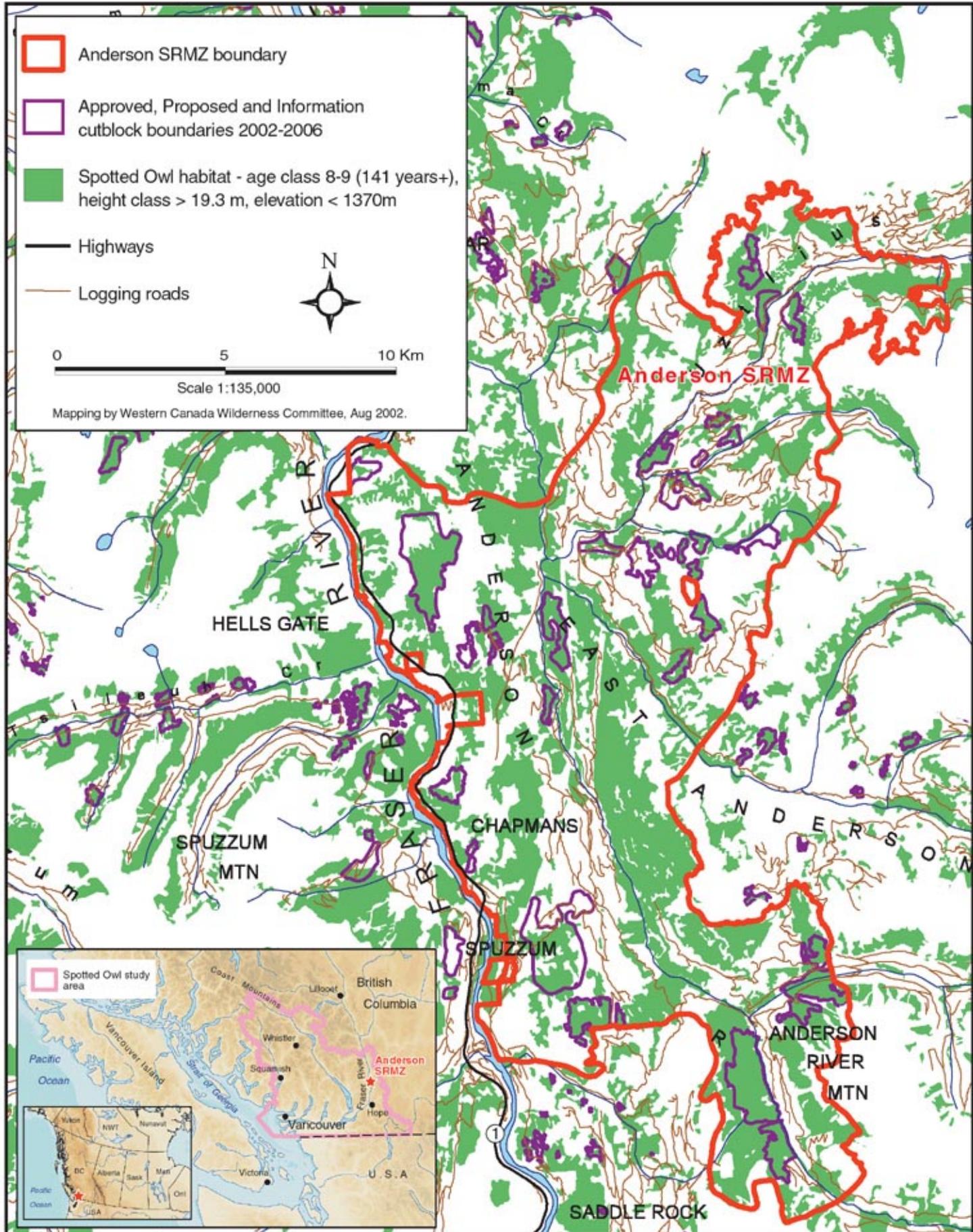
“Logging to enhance or maintain habitat” is the rationale used to justify continued logging of Spotted Owl habitat throughout all Management Zones proposed for the protection of the Spotted Owl. Anderson Management Zone (Map 4) is not exceptional in the extent to which logging and logging roads have fragmented the landscape, limiting connectivity and reducing the number of old-growth patches that are large enough to support Spotted Owls.

**“The decision of Ms. Stern in relation to Block 37-1 does not apply the precautionary principle.... her approval of logging of Block 37-1 involves risk to the Owl.”<sup>84</sup>**

*Map 4: Continued Logging of Remaining Spotted Owl Habitat within Management Zones*

Forest age class 8-9 (greater than 140 years), with a height class > 2 (taller than 19.3 meters), below 1,370 metres elevation were isolated and used to illustrate current potential Spotted Owl habitat within and around the Anderson Management Zone. Approved, proposed and information cutblock boundaries were overlaid upon Management Zone to show the locations where logging is planned, considered, or being investigated for the years 2002 to 2006.

Map 4. Continued Logging of Remaining Spotted Owl Habitat within Management Zones



# The Continuing Threat – Habitat Loss

Loss of suitable habitat, primarily through commercial logging has led the Spotted Owl to hover on the brink of extinction in Canada. Therefore, after retaining Sierra Legal Defence Fund to initiate lawsuits to halt logging of select cutblocks, the Wilderness Committee commissioned Forest Watch of British Columbia (Forest Watch) to investigate the extent of proposed logging in critical Spotted Owl habitat throughout southwestern B.C. As a result, Forest Watch examined all forest development plans in the Squamish and Chilliwack Forest Districts that overlapped with or were directly adjacent to Spotted Owl Management Zones and Activity Centres defined by the Spotted Owl Management Plan.

Because habitat loss was defined by the Recovery Team to be the “single greatest threat to the survival of the species,”<sup>85</sup> and in the wake of the Population Assessment’s assertion that the Spotted Owl population would continue to decline “due to continued habitat loss inside and outside [Management Zones],”<sup>86</sup> Forest Watch examined currently proposed or approved logging in forests greater than 140 years of age inside of and within 500 meters of Management Zones and Activity Centres. (The methodology for assessment can be found in an appendix at the end of this report.)

The findings of Forest Watch’s investigation were startling but predictable. In the face of the rapidly dwindling population of Spotted Owls and the historic demise of old-growth forests, Forest Watch found no sign that logging of suitable habitat was abating. Forest Watch discovered approximately 280 currently approved or proposed cutblocks, containing some two million cubic metres of timber, which further threaten critical Spotted

Owl habitat.<sup>87</sup> These findings were consistent with the current unsustainable rate of logging in the Chilliwack and Squamish Forest Districts.<sup>88</sup>



Photo by Joe Foy

*Table 1: The Top Ten Forest Companies Whose Logging Plans Currently Pose A Threat To Critical Spotted Owl Habitat:*

<b>Licencee</b>	<b>Volume of proposed logging in Spotted Owl habitat (in cubic metres)<sup>89</sup></b>	<b>Number of cutblocks in Spotted Owl habitat</b>
<b>B.C. Government's Small Business Forest Enterprise Program</b>	492,746	59
<b>International Forest Products Ltd.</b>	393,180	58
<b>Teal Cedar Products Ltd.</b> (formerly known as J.S. Jones)	368,400	35
<b>Doman-Western Lumber Ltd.</b> (including Western Forest Products Ltd.)	284,530	41
<b>Cattermole Timber Ltd</b>	248,340	30
<b>Squamish Mills Ltd.</b> (a joint venture between Squamish Mills Ltd., International Forest Products Ltd. and Weyerhaeuser Company Ltd.)	178,036	24
<b>Tamihi Logging Company Ltd.</b>	141,893	9
<b>Canadian Forest Products Ltd.</b>	71,615	12
<b>Southern Nlaka'pamux Forest Resources Ltd.</b> (a joint venture with Teal Cedar Products Ltd.)	57,370	7
<b>Terminal Forest Products Ltd.</b>	13,500	2
<b>Total of Top Ten</b>	<b>2,249,610</b>	<b>277</b>

## **The Association of B.C. Professional Foresters – What do they stand for?**

Under the current legal regime for forest management in British Columbia, professional foresters must develop, sign-off on and ensure the implementation of all logging

plans.<sup>90</sup> They are also required to be members in the Association of British Columbia Professional Foresters (Association), a body which is legally obliged to uphold the public interest in the practice of professional forestry by ensuring the competence, independence and integrity of its members, including Registered Professional Foresters (R.P.F.s) and Foresters-in-Training (F.I.T.s).<sup>91</sup> Pursuant to the bylaws of the Association, professional foresters are obligated to, “*advocate and practice good steward-*

*ship of forest land based on sound ecological principles to sustain its ability to provide those values that have been assigned by society.”<sup>92</sup>*

In the face of the evidence of the endangerment of the Spotted Owl this obligation may be interpreted to require that foresters not sign-off on the logging of suitable Spotted Owl habitat. Despite their professional ethical obligations, however, a number of foresters are continuing to sign-off on logging that threatens critical habitat for the Spotted Owl.<sup>93</sup>

The organizations that prepared this report presented

information relating to the plight of the Spotted Owl, including the Population Assessment and the results of Forest Watch’s investigation of continuing logging of Spotted Owl habitat, to the Association on January 22, 2002. In June of 2002, the Association struck a committee, the Species at Risk Task Force, to consider the matter.<sup>94</sup> On August 22, 2002, the Association advised its members that they “must consider all relevant information in developing their plans and providing advice... [including] reports and documents such as the [Population Assessment].”<sup>95</sup>

*Table 2: The Top Ten Foresters Approving the Recent and Continued Logging of Critical Spotted Owl Habitat:*

<b>Name of Forester</b>	<b>Licencee(s)</b>	<b>Number of cutblocks in Spotted Owl habitat<sup>96</sup></b>
<b>David Morgensen, RPF</b>	Doman Western Lumber Ltd.	41
<b>Deceased<sup>97</sup></b>	Tamihi Logging Ltd. and Cattermole Timber Ltd.	39
<b>Ed McWaters, RPF</b>	Teal Cedar Products Ltd.	35
<b>Murray Sluys, RPF</b>	SBFEP	32
<b>William Rosenburg, RPF</b>	International Forest Products Ltd.	30
<b>Julian Grzybowski, RPF</b>	SBFEP	27
<b>Andrew Meyer, RPF</b>	International Forest Products Ltd.	27
<b>Tim Napier, RPF</b>	Squamish Mills Ltd.	24
<b>Douglas A. Stone, RPF</b>	Canadian Forest Prodcuts Ltd	12
<b>Brian Taylor, RPF</b>	Southern Nlaka’pamux Forest Resources Ltd.	7
<b>Total for Top Ten</b>		<b>274</b>

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# Conclusion and Recommendations

In Canada, within the next decade, the Spotted Owl could become extinct due to the ongoing destruction of its habitat by commercial logging. Without adequate and suitable old growth forests, the very forests which are targeted by logging companies and professional foresters, the Spotted Owl simply cannot survive.

The B.C. government is a direct accomplice in the potential demise of the Spotted Owl, aiding and abetting its decline by allowing industrial logging under the scientifically indefensible rationale of logging to maintain or enhance habitat. This on-going destruction of habitat has left the remaining population of Spotted Owls more vulnerable to predation, competition and environmental calamity. A healthy population of owls might be able to withstand these events but an impoverished population cannot.

As a result, there is little suitable old growth left where the Spotted Owl can successfully roost, nest and forage and few owls remain. If the Spotted Owl is to have any chance of survival in Canada, logging in its remaining habitat must be stopped.

Moreover, the same may be said for the many other species that share old-growth habitat with the Spotted Owl. The Spotted Owl is an indicator species; it is our canary in a coalmine. The dramatic decline of the Spotted Owl in British Columbia is telling us something about the way our public forests are being logged and about our future - but are governments, logging companies and professional foresters listening?

## Recommendations

We recommend that the government:

- 1) Immediately implement adequate habitat protection for the Spotted Owl by halting all logging within Management Zones and Activity Centres, and halting logging in all forests greater than 140 years of age elsewhere in the historic range of the owl in Canada;
- 2) Equip a Spotted Owl Recovery Team (SORT) with the mandate and independence to develop a plan for *recovery* of the species based solely on the biological requirements of the Spotted Owl, in accordance with sound science and ecological principals;
  - a) Commit to independent peer-review of draft SORT recommendations by non-governmental authorities and to record the review comments; and,
  - b) Commit to enshrining the final SORT recommendations in legislation;
- 3) Return sufficient staffing and funding to the Ministry of Water, Land and Air Protection to enable their oversight of species at risk and, specifically, to enable them to recommence and enhance the Spotted Owl population monitoring program;
- 4) Develop and implement a peer-reviewed and monitored plan to recruit suitable Spotted Owl habitat from forest stands of less than 140 years of age; and,
- 5) Ensure the long-term viability of the Spotted Owl and all endangered species by enacting provincial endangered species legislation that mandates protection of habitat in accordance with sound science and ecological considerations.

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# Appendices

## Review Process:

The following individuals reviewed this report in its entirety:

- Peter Lee, Global Forest Watch Canada
- Ruth Noguerón, Global Forest Watch
- Jeremy Wilson, Prof. of Political Science, University of Victoria
- Mark Haddock, LLB, West Coast Environmental Law. Mark is a member of the Spotted Owl Research and Inventory Advisory Committee, he co-authored the report “Silvicultural Solutions for Spotted Owl Management,” and was a member of the Forest Practices Board of British Columbia from 1999 - 2001.
- Kate Smallwood, LLM, Sierra Legal Defence Fund. Kate is the director of the Canadian Endangered Species Campaign.

## Mapping Methodology

The study area for the Spotted Owl mapping and analyses are the Squamish and Chilliwack Forest Districts of the British Columbia Ministry of Forests. These districts are located in the southwestern corner of British Columbia, and they include the majority of the known range of the Spotted Owl in Canada. Although Spotted Owls have been identified in the Lillooet Forest District, immediately north of the Squamish Forest District, and although they have a potential to be found in the Merritt Forest District, east of the Chilliwack Forest District, sufficient information was not available to assess these areas, which are also not currently covered by the Spotted Owl Management Plan.

All maps are based on Ministry of Forest forest cover data for the Squamish and Chilliwack Forest Districts, forest data for the Greater Vancouver Regional District Watershed and forest cover for Tree Farm Licence #38. Baseline Thematic mapping data was also used to examine forest cover in Golden Ears Park, Tree Farm Licence #26, and Biogeoclimatic mapping data was used to determine the extent of forest cover in Manning Park, which was conservatively assumed to be one-hundred percent in age classes 8-9 (greater than 140 years of age).

### *Map 1: Estimated Historic Spotted Owl Habitat In Canada*

Forest age classes 1-9 (all ages) below 1,370 metres elevation were used to illustrate a rough estimate of potential historic Spotted Owl habitat within the Squamish and Chilliwack Forest Districts. This map does not show historical natural disturbances and excludes any potential historic habitat that falls in currently urban and agricultural land.

### *Map 2: Logged Spotted Owl Habitat In Canada*

A logging activity overlay was used to illustrate the extent of post 1940 logging in the Spotted Owl study area. 1940 represents the earliest readily available data on commercial logging. The remaining forest cover (below 1,370 m elevation) is shown separated into age classes. Age class 8-9 (greater than 140 years), with a height class > 2 (taller than 19.3 m) is used to show the extent of Spotted Owl suitable habitat. Age class 6-7 (101 - 140 years), with height class >2 (taller than 19.3 m) is used to show the extent of middle aged forest and age class 1-5 (less than 101 years) is used to show younger forests, due to younger species types, natural disturbances, and pre-1940 logging activity.

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*Map 3: Spotted Owl Habitat and Spotted Owl Management Zones*

Forest age class 8-9 (greater than 140 years), with a height class > 2 (taller than 19.3 metres), below 1,370 metres elevation were isolated and used to illustrate the current potential Spotted Owl habitat within the Squamish and Chilliwack Forest Districts.

*Map 4: Continued Logging of Remaining Spotted Owl Habitat within Management Zones*

Forest age class 8-9 (greater than 140 years), with a height class > 2 (taller than 19.3 metres), below 1,370 metres elevation were isolated and used to illustrate current potential Spotted Owl habitat within and around the Anderson Management Zone. Approved, proposed and information cutblock boundaries were overlaid upon Management Zone to show the locations where logging is planned, considered, or being investigated for the years 2002 to 2006.

## Source Map Data for Spotted Owl Mapping

- Spotted Owl Resource Management Zone boundaries, 1:20,000. MoF and MoE, B.C., 1997.
- Chilliwack Forest District, Consolidated Forest Development Plan, 1:20,000. MoF, B.C., 2002.
- Squamish and Chilliwack Forest Districts, forest cover data, 1:20,000. MoF, B.C., 2001.
- Greater Vancouver Regional District (GVRD) forest cover data, 1:20,000. GVRD, B.C., 1991
- Baseline Thematic Mapping, 1:250,000. MoE, B.C., 1996
- Digital Elevation Model, 1:20,000. MoE, B.C., 1996.
- Biogeoclimatic Mapping, 1:250,000. MoF, B.C., 2001.
- Protected Areas, 1:250,000. Land Use Coordination Office. MoE, B.C., 1999.

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## Forest Watch Assessment Methodology:

For the purpose of the investigation of current threats to critical Spotted Owl habitat, critical Spotted Owl habitat was defined as forests that are greater than 140 years of age found in and around mapped Special Resource Management Zones (Management Zones) or Matrix Activity Centres (Activity Centres). Management Zones and Activity Centres are areas that were designated for the protection of Spotted Owl habitat by the Spotted Owl Management Plan (Management Plan) in 1997.

The Management Plan anticipated that forest practices would take place within the Management Zones and Activity Centres, but that they would be restricted to “creating, enhancing or maintaining a sufficient quantity and quality of suitable owl habitat.” A recent Population Trend Assessment catalogued a radical decline in Spotted Owl population and predicted a continued decline, “due to continued habitat loss inside and outside [Management Zones].” As a result of the Population Trend Assessment, this investigation was commissioned to examine the extent of continued logging in critical Spotted Owl habitat. (This investigation did not examine logging in older forests throughout the Squamish and Chilliwack Forest Districts, or in the Lillooet or Merritt Forest District, where critical Spotted Owl habitat may be found.)

In this report, threats to critical Spotted Owl habitat are defined as approved or proposed logging of forests greater than 140 years of age (or age classes 8 and 9),<sup>98</sup> including “information” cutblocks,<sup>99</sup> found inside of, or within 500 metres of, the Management Zones or Activity Centres.

All the findings in this report were derived from information in approved Forest Development Plan (FDP) maps and accompanying timber harvest summary tables. Where timber harvest summary tables were incomplete or unavailable, the information utilized in this investigation represents estimates or “best guesses” based upon information available in the FDPs.

### *Chilliwack Forest District*

On Monday and Tuesday, Nov. 19 – 20, 2001, Aran O’Carroll, LLB, Clive Johnson and Craig Pettitt, forest technicians, of Forest Watch, attended at the Chilliwack Forest District office. This visit was prearranged with the district office and they supplied Forest Watch with access to the entire district’s landscape-level FDP collection. Forest Watch acquired a copy of the 2001-2005 consolidated FDP for the entire district and rapidly reviewed all FDP maps that threatened critical Spotted Owl habitat. On Thursday, Jan. 10, 2002, Gwen Barlee, of the Wilderness Committee, revisited the Chilliwack Forest District office to confirm the status of the cutblocks identified during the Nov. 19 – 20, 2001 visit. The assessment reflects any revisions noted at that time.

### *Squamish Forest District*

On Monday and Tuesday, January 14 - 15, 2002, Aran O’Carroll and Kathleen Hebb, B.Sc. (Forestry), F.I.T., attended at the Squamish Forest District office. This visit was prearranged with the district office. Forest district staff supplied access to the district’s most recent chart areas map, in addition to the entire district’s landscape-level FDP collection. Using the chart areas map, Forest Watch staff identified those licencees whose operating areas coincided with the Management Zones and Activity Centres located in the Squamish Forest District. All corresponding FDP maps and text documents were reviewed for those licencees found to operate within or around the Management Zones and Activity Centres. The status of the cutblocks was informally revised by André Germain, Timber Officer for Squamish Forest District, on Jan. 15, 2002. This assessment was revised to reflect any changes noted.

# Notes

<sup>1</sup> I. Blackburn, A. Harestad, et al, "Population Assessment of the Northern Spotted Owl In British Columbia 1992-2000 - draft (Vancouver: Ministry of Water, Land and Air Protection, July 27<sup>th</sup>, 2001) at p.2.

<sup>2</sup> *Ibid.*

<sup>3</sup> The rate of decline has been updated from that discussed in the Population Assessment based on personal conversation between Alton Harstad, Associate Professor, Simon Fraser University, July 8<sup>th</sup>, 2001, co-author of population assessment, and Devon Page.

<sup>4</sup> *Supra* note i, pp. 2, 15 and 21.

<sup>5</sup> *Western Canada Wilderness v Cindy Stern et al*, (2002) BCSC 1260 (Vancouver Registry), para. 2, available on-line at <http://www.courts.gov.bc.ca/Sc/2002/sc-civil.htm>

<sup>6</sup> *Supra* note i, p. 21.

<sup>7</sup> Comments on this section were kindly provided by Jared Hobbs, Ministry of Water, Land and Air Protection - Ecosystem Planning and Standards Section, Junior Ecosystem Specialist.

<sup>8</sup> There are a number of factors that contribute to the assignment of a rank to a species including its rarity. These include, amongst other things, its distribution, fecundity, perceived threats, available protected habitat and rarity. Please refer to Ministry of Sustainable Resource Management, *Species Ranking in British Columbia* (Victoria: MoSRM, 2002) for a more accurate list of these details: <http://wlapwww.gov.bc.ca/wld/documents/ranking.pdf> (July 23, 2002).

<sup>9</sup> For the purposes of this report "old growth" is defined as forests stands older than 140 years of age.

<sup>10</sup> Lehmkuhl, J.F., Raphael, M.G., "Habitat Pattern around Northern Spotted Owl Locations on the Olympic Peninsula," Washington. *Journal of Wildlife Management*. 57(2): 302-315, 1993.

<sup>11</sup> Gutierrez, R.J., A.B. Franklin, and W.S. Lahaye. "Spotted Owl (*Strix occidentalis*)," 1995., in A. Poole and F. Gill, eds. *The Birds of North America* No. 179. Acad. Nat. Sci., Philadelphia, PA, and Am. Ornithol. Union, Washington, DC.

<sup>12</sup> Kirk, David A., Update COSEWIC Status Report on Northern Spotted Owl, (COSEWIC Secretariat, Ottawa, 1999).

<sup>13</sup> Ministry of Forests, *Growing Together* ([http://www.growingtogether.ca/facts/old\\_growth.htm](http://www.growingtogether.ca/facts/old_growth.htm) (Aug 26, 2002)). See also the discussion and analysis at Logging to Extinction below.

<sup>14</sup> Detailed information about the annual cycle of Northern Spotted Owls may be found in Forsman, E.D., E.C. Meslow, and H.M. Wight. "Distribution and biology of the Spotted Owl in Oregon" (1984) *Wildlife Monographs* 87:1-64

<sup>15</sup> Franklin, J., "Relationships Between Forest Attributes and Spotted Owls," 2001, *Ecological Monograph* v3 number 1 at pp. 32-41.

<sup>16</sup> Forsman, Eric, D., "A Preliminary Investigation of the Spotted Owl in Oregon," M.Sc. Thesis, Oregon State University, Corvallis. 1976, 127 p.

<sup>17</sup> *Supra* note xiv.

<sup>18</sup> Miller, G.S., R.J. Small, and C.E. Meslow, "Habitat selection by Spotted Owls during natal dispersal in western Oregon," 1997, *Journal of Wildlife Management* 61:140-150.

<sup>19</sup> *Ibid.*

<sup>20</sup> For survival estimates from 12 studies see: Burnham, K. P. D. R. Anderson, and G. C. White. "Estimation of vital rates of the Northern Spotted Owl," 1994, appendix J in final supplemental environmental impact statement on management of habitat for old-growth forest related species within the range of the Northern Spotted Owl, U.S. Dept. Agric. and U.S. Dept. Interior, Portland, OR.

<sup>21</sup> *Ibid.*

<sup>22</sup> *Spotted Owl Management Plan, Strategic Component*. (Victoria: Province of British Columbia, November 1997) pp. 39-40.

<sup>23</sup> Forsman, E.D., E.C. Meslow, and H.M. Wright, "Biology and management of the Northern Spotted Owl in Oregon," 1984, *Wildlife Monographs* 87:1-64.

<sup>24</sup> See Weathers, W.W., P.J. Hodum, and J.A. Blakesley, 2001, "Thermal ecology and ecological energetics of California Spotted Owls." *Condor* 103:678-690 for summary of factors. Further related information is provided in Verner, J., R.J. Gutiérrez, and G.I. Gould, Jr. "The California Spotted Owl: general biology and ecological relations" 1992, p. 55-77 and in J. Verner, K.S. McKelvey, B.R. Noon, R.J. Gutiérrez, G.I. Gould, Jr., and T.W. Beck [Techn. Coords.], "The California Spotted Owl: a technical assessment of its current status." USDA Forest Service, General Technical Report PSW-GTR-133, Albany, CA.

<sup>25</sup> Prey may be abundant but unavailable if the habitat characteristics preclude capture opportunities. Prey abundance in immature stands of regenerated forests is greatly reduced as these stands are typically too dense for Spotted Owls to forage effectively. There is also a probable/potential reduction in prey abundance as the understory is typically less productive for small rodents and sciurids in these 'interior' forest conditions: Lehmkuhl, J.F., Raphael, M.G., "Habitat Pattern around Northern Spotted Owl Locations on the Olympic Peninsula, Washington, *Journal of Wildlife Management*. 57(2):302-315, 1993. See also Carey, Horton and Biswell, "Northern Spotted Owls: Influence of Prey Base and Landscape Character," published as an ecological monograph by the USDA Forest Service, Pacific Northwest Research Station, Olympia, Washington. Vol. 62(2): 1992, pp 223-250. *The Ecological Society of America*.

<sup>26</sup> SOMP – Strategic Component, *Supra* note 22 at p.41.

<sup>27</sup> Ministry of Environment, Lands and Parks, *Environmental*

*Trends in British Columbia 1998* (Victoria: Ministry of Environment, Lands and Parks, 1998) p. 30.

<sup>28</sup> Canadian Spotted Owl Recovery Team, *Management Options for the Northern Spotted Owl in British Columbia* (Surrey, BC: Ministry of Environment, Lands and Parks, July 1994) at pp.117-123.

<sup>29</sup> See Thomas, J.W., M.G. Raphael, R.G. Anthony, E.D. Forsman, A.G. Gunderson, et al., "Viability assessments and management considerations for species associated with late-successional and old-growth forest of the Pacific Northwest," 1993, The report of the Scientific Analysis Team. USDA Forest Service, Natl. For. System, For. Serv. Res. Portland, OR; US Department of Agriculture, Forest Service, US Fish and Wildlife Service, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, National Park Service, Bureau of Land Management, and Environmental Protection Agency. 1993. "Forest ecosystem management: an ecological, economic, and social assessment: report of the Forest Ecosystem Management Assessment Team." Portland, OR.

<sup>30</sup> SOMP – Strategic Component, *supra* note 22 at p.44.

<sup>31</sup> Habitat loss through the logging of old-growth forests is a primary threat to the Northern Spotted Owl: (Fraser, D.F., W.L. Harper, S.G. Cannings, and J.M. Cooper, *Rare Birds of British Columbia*. (Victoria: Ministry of Environment, Lands and Parks, Wildlife Branch, 1999. 244 pp.) See also: 1) Ministry of Water, Land and Air Protection, "Environmental Indicator: Species at Risk in British Columbia - Technical Background Document , Appendix F – Type and Number of Threats to Red- and Blue-Listed Taxa," (Victoria: Ministry of Environment, Lands and Parks, April 20, 2002) p. 43, available at <http://wlapwww.gov.bc.ca/soerpt/10-species-techdoc.pdf> (16 Aug 2002); 2) Transboundary Georgia Basin-Puget Sound Working Group on Environmental Indicators, "Georgia Basin-Puget Sound Ecosystem Indicators Report, Technical Backgrounders - Species At Risk - Table 7: Known Threats to Threatened or Endangered (Red-Listed) Vertebrate Taxa in the Georgia Basin," (Vancouver: Georgia Basin Ecosystem Initiative, Environment Canada, Ministry of Water, Land and Air Protection, Puget Sound Water Quality Action Team, Washington State Department of Ecology, US Environmental Protection Agency, Spring 2002) p. 18, available at <http://wlapwww.gov.bc.ca/cppl/gbpsei/documents/species.pdf> (16 Aug 2002); 3) US Department of Agriculture, Forest Service, US Fish and Wildlife Service, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, National Park Service, Bureau of Land Management, and Environmental Protection Agency. 1993, *Forest Ecosystem Management: an ecological, economic, and social assessment: report of the Forest Ecosystem Management Assessment Team*. Portland, OR; 4) Noon, B. R. and K. S. McKelvey, "Management of the spotted owl: A case history in conservation biology," 1996, *Annual Review of Ecology and Systematics* 27:135-162; 5) Herter, D. R. and L. L. Hicks, "Barred Owl and Spotted Owl populations and habitat in the central Cascade Range of Washington," 2000, *Journal of Raptor Research* 34: 279-286; 6) Hamer, T. E., D. L. Hays, C. M. Senger, and E. D.; 7) Herter, D. R. and

L. L. Hicks, "Barred Owl and Spotted Owl populations and habitat in the central Cascade Range of Washington," 2000, *Journal of Raptor Research* 34: 279-286; Hamer, T. E., D. L. Hays, C. M. Senger, and E. D. Forsman, Diets of Northern Barred Owls and Northern Spotted Owls in an area of sympatry, 2000, *Journal of Raptor Research* 35: 221-227. Forsman, *Diets of Northern Barred Owls and Northern Spotted Owls in an area of sympatry*, 2000, *Journal of Raptor Research* 35: 221-227.

<sup>32</sup> Wagner, F. F., E. C. Meslow, G. M. Bennett, C. J. Larson, S. M. Small, and S. DeStefano, "Southern Cascades and Siskiyou Mountains," 1996 *Studies in Avian Biology* 17: 67-76; Zabel, C. J., S. E. Salmons, and M. Brown, "Coastal mountains of southwestern Oregon. *Studies in Avian Biology*," 1996, 17: 77-82; Franklin, A. B., D. R. Anderson, R. J. Gutiérrez, and K. P. Burnham, "Climate, habitat quality, and fitness in Northern Spotted Owl populations in northwestern California," 2000, *Ecological Monographs* 70: 539-590.

<sup>33</sup> SOMP – Strategic Component, *supra* note 22, p. 31, citing: Barrows, C.W., "Roost selection by Spotted Owls" 1981, *Condor* 83:302-309; Gutierrez, R.J., "An overview of recent research on the Spotted Owl," 1985, in R.J. Gutierrez and A.B. Carey, eds. *Ecology and Management of the Spotted Owl in the Pacific Northwest. U.S. Forest Service General Technical Report PNW-185*; Forsman, E.D., C.R. Bruce, M.A. Walter and E.C. Meslow, "A current assessment of the Spotted Owl population in Oregon," 1987, *Murrelet*. 68:51-54; and, U.S. Fish and Wildlife Service, "The Northern Spotted Owl," 1989, U.S.F.W.S., Dept. of the Interior, Portland, OR.

<sup>34</sup> Industrial logging commenced in the late 1860's in the lower mainland of BC Logging in Stave, Pitt and Lillooet river valleys of the current timber harvesting land base began shortly thereafter: G. Hak, *Turning Trees Into Dollars: The British Columbia Coastal Lumber Industry, 1858-1913*, (Toronto: University of Toronto Press, 2000), p. 9.

<sup>35</sup> Approximately, 45% of the Chilliwack and Squamish Forest Districts remain as forests older than 140 years of age. This is a rough estimate, which does not include the forests of Manning Park and those portions of Garibaldi Park found within the Chilliwack Forest District. According to the best estimates of British Columbia's Timber Supply Branch, there are approximately 377,135 ha of forests greater than 140 years of age remaining in the timber harvesting land base of the Chilliwack and Squamish Forests Districts. These 377,135 ha compose approximately 45% of the 840,793 ha of forests currently inventoried by the Ministry of Forests within those districts.

In the timber harvesting land-base of the Fraser Timber Supply Area and Tree Farm Licence 26, which make up the bulk of the Chilliwack Forest District, not including the forests in Manning Park and those portions of Garibaldi Park that fall within the Chilliwack Forest District, the Timber Supply Branch estimates that there is 37% (or 189,278 ha of 516,902 ha) of the total productive forest that remains in stands older than 140 years of age. In the Fraser TSA the Chief Forester says that, "the

current age class distribution shows a relatively high proportion of young stands... due to the historical harvest levels... [which] is not well balanced, with large areas of second-growth timber concentrated in single age groups.... Overall, about 21% of the total forested area... is currently in old-growth stands [>250].” (Ministry of Forests, *Fraser Timber Supply Area Analysis Report* (Victoria: Ministry of Forests, Timber Supply Branch, June 1998), p. 27); Approximately 37% of the Crown productive forest in the Fraser TSA is > 140 years old (E-mail of Atmo Prasad, Ministry of Forests - Timber Supply Forester, to Aran O’Carroll (16 August 2002)). In TFL 26, “due to the extensive harvesting and disturbance history... the timber harvesting land base is occupied by predominantly younger stands, with approximately 15 percent of stands less than 20 years of age, 68 percent between 21 and 80 years of age, and 17 percent of stands older than 80 years of age. Of the stands older than 80 years, only 1.45 percent are older than 250 years of age.” (Ministry of Forests, *Tree Farm Licence 26 Rationale for Allowable Annual Cut (AAC) Determination* (Victoria: Ministry of Forests, Timber Supply Branch, June 1998), p. 16).

In the timber harvesting land-base of the Soo Timber Supply Area, Tree Farm Licence 38 and the forests of that portion of Garibaldi Park that are found in the Squamish Forest District, which collectively make up the bulk of the Squamish Forest District, it is estimated that there is a total of 58% of forests remaining in stands of greater than 140 years of age (or 187,857 ha of 323,891 ha) (E-mail of Atmo Prasad, Ministry of Forests - Timber Supply Forester, to Aran O’Carroll (16 August 2002)). In the Soo TSA, “the current age class distribution shows a relatively high proportion of young stands within the timber harvesting land base. However, 41% of the [Soo TSA] land base is still in stands over 140 years old.” (Ministry of Forests, *Soo Timber Supply Area Analysis Report* (Victoria: Ministry of Forests, Timber Supply Branch, June 1999), p. 37.) In TFL 38, “approximately 65 percent of the timber harvesting land base is covered by stands more than 250 years old, 3.2 percent by stands between 141 to 250 years old...” (Ministry of Forests, *Tree Farm Licence 38 Report* (Victoria: Ministry of Forests, Timber Supply Branch, June 1999), p. 18.)

<sup>36</sup> According to our analysis, some 293,610 hectares of potentially suitable historic Spotted Owl habitat has been lost since 1940. 255, 679 hectares of that, or 87%, has been due to commercial logging since 1940. (See Map 2)

<sup>37</sup> *Supra* note 28 at p.31. This finding is buttressed by observations that seventy-three percent of the old-growth forests of the Coastal Western Hemlock (CWH) ecozone, which includes the majority of Spotted Owl habitat in B.C., no longer exist: MacKinnon, Andy, and Marvin Ing. 1995. *An Old Growth Forest Inventory of BC Cordillera*. vol 2., pp. 33-44

<sup>38</sup> Rachael Holt, eds, *Strategic Ecological Restoration Assessment (SERA) of the Vancouver Forest Region* (Victoria: Ministry of Environment, Lands and Parks, 2001), p. 8.

<sup>39</sup> *The Riverside Shakespeare*, ed. G. Blakemore Evans (Boston: Houghton Mifflin, 1974), p. 1337

<sup>40</sup> The first bill, Bill C-65, the *Canada endangered Species Protection Act*, died on the Order Paper when the 1997 federal

election was called. The second, Bill C-33, also called the *Species at Risk Act*, died on the Order Paper when the fall 2000 election was called.

<sup>41</sup> COSEWIC was established in 1977. Comprised of national, provincial and local scientific representatives, COSEWIC’s sole mandate is to assess and designate those wild species that are in some danger of disappearing from Canada.

<sup>42</sup> *Wildlife Act*, RSBC 1996, c.488, s. 34, creates an offence for possessing, taking, injuring, molesting or destroying a bird or egg, and, with the exception of certain species, the nest only if occupied.

<sup>43</sup> *Supra* note 28, p.xviii - executive summary.

<sup>44</sup> Option A: no such logging in the entire documented range of the owl. Option C: no such logging in the SOCAs. Option F: no such logging in the SOCAs in the “Sasquatch Range” – roughly everything south of the Sasquatch Park, Chilliwack Forest District - and a retained minimum 67% suitable owl habitat within all of the remaining SOCAs.

<sup>45</sup> SOMP – Strategic Component, *supra* note 22 at p.49.

<sup>46</sup> *Ibid* at p.61.

<sup>47</sup> The Spotted Owl Management Plan has never received the government’s endorsement as a Higher Level Plan, which would make it legally binding under the *Forest Practices Code of British Columbia Act*.

<sup>48</sup> Jeremy Wilson, “Talking the Talk and Walking the Walk: Reflections on the Early Influence of Ecosystem Management Ideas,” a chapter in Michael Howlett (ed.), *Canadian Forest Policy: Regimes, Dynamics and Institutional Adaptations* (Toronto: U. of T. Press, 2002), footnote 90.

<sup>49</sup> Manning/Skagit area SRMZ [SRMZ 1]; Chilliwack Lake area SRMZ [SRMZ 2, k.a. Chilliwack Silverhope SRMZ]; Cultus Lake area SRMZ [SRMZ 3, k.a. Liumchen SRMZ]; Hope area SRMZ [SRMZ 4, k.a. Sowaqua SRMZ]; Sasquatch area SRMZ [SRMZ 5 – k.a. Harrison Lake, Sasquatch SRMZ]; Chehalis area SRMZ [SRMZ 6, k.a. Chehalis SRMZ]; Golden Ears area SRMZ [SRMZ 7, a.k.a. Golden Ears Park SRMZ]; Pinecone-Burke area SRMZ [SRMZ 8, a.k.a. Coquitlam SRMZ]; Boston Bar area SRMZ [SRMZ 11, k.a. Anderson SRMZ]; Harrison Lake East area SRMZ [SRMZ 12, k.a. Hornet and Clear SRMZ]; Harrison Lake Northwest area SRMZ and Harrison Lake North area SRMZ [presumably SRMZ 13, a.k.a. Trethaway SRMZ]. (Jim Cooperman, *Keeping the Special in Special Management Zones* (Vancouver: B.C. Spaces for Nature, May, 1998) Appendix I.11, p. 108. Additionally, there are Seymour SRMZ (SRMZ 9) and Garibaldi SRMZ (SRMZ 10).

<sup>50</sup> Larry Pedersen, Rationale of the Annual Allowable Cut Determination Fraser Timber Supply Area (Victoria: Ministry of Forests Timber Supply Review, April 1999) available on-line at <http://www.for.gov.bc.ca/tsb/tsr2/tsa/tsa09/ration/09aac-08.htm#E11E21> (July 8, 2002).

<sup>51</sup> Douglas SRMZ [SRMZ 14] (includes Chilliwack Forest District portion); Glacier and Tuwasus SRMZ [SRMZ 15]; Billygoat SRMZ [SRMZ 16] (wholly contained within Garibaldi

Provincial Park); Lillooet Lake SRMZ [SRMZ 17]; Birkenhead SRMZ [SRMZ 18]; Wedge and Green SRMZ [SRMZ 19]; Cheakamus SRMZ [SRMZ 20]; and Squamish SRMZ [SRMZ 21]. (Spotted Owl Management Inter-agency Team. *Spotted Owl Management Plan, Strategic Component*. (Victoria: Province of British Columbia, November 1997) Table 2, p. 8.)

<sup>52</sup> Larry Pedersen, Rationale for Annual Allowable Cut Determination, Soo Timber Supply Area (Victoria: Ministry of Forests Timber Supply Review, October 1, 2000) available on-line at <http://www.for.gov.bc.ca/tsb/tsr2/tsa/tsa34/ration/31ts0009.htm#E11E30> (July 8, 2002).

<sup>53</sup> The Chief Forester has estimated that approximately ten to twenty pairs of Spotted Owls live in the Lillooet Timber Supply Area; however, these figures have not been confirmed. See Larry Pedersen, Chief Forester, Lillooet Timber Supply Area: Rationale for Allowable Annual Cut (AAC) Determination (Victoria: Ministry of Forests, January 2002) p. 22 available on-line at <http://www.for.gov.bc.ca/tsb/tsr2/tsa/tsa20/ration/15ts01ra-Public.pdf> (16 Aug 2002).

<sup>54</sup> U.S. protection of the spotted owl is addressed below in this report. As for Mexico, promulgation the Official Mexican Standard (*Norma Oficial Mexicana (NOM)*) NOM-059-ECOL-1994) established lists of more than 2150 plants and fungi, mammals, birds, reptiles, amphibians, fish and invertebrates classified as either endangered, threatened, rare or under special protection and measures for their conservation. The Strigidae *Strix Occidentalis* (Spotted Owl or “*Búho Manchado*”) is listed in Annex II as a threatened specie (or “*especie amenazada*” - this category partially coincides with the IUCN’s category of vulnerable, which is less than endangered as that term is used in Canada). See: [http://www.ine.gob.mx/ueajei/aves3\\_5.html](http://www.ine.gob.mx/ueajei/aves3_5.html). The Mexican environmental legal framework provides for further protection in Title II-Biodiversity, Chapter III-Wild Flora and Fauna of the General Law on Ecological Equilibrium and Environmental Protection (*Ley General del Equilibrio Ecológico y la Protección del Ambiente*) and in Title VI-Wildlife Conservation (Art. 63 enshrines the duty on the State that the conservation of wildlife habitat is of public use) and Title VII-Sustainable use of Wildlife of the General Law on Wildlife (*Ley General de Vida Silvestre*).

<sup>55</sup> *Western Canada Wilderness v Cindy Stern et al.*, (2002) BCSC 1260 (Vancouver Registry), para. 5, available on-line at: <http://www.courts.gov.bc.ca/Sc/2002/sc-civil.htm>

<sup>56</sup> SOMP – Strategic Component, *supra* note 22.

<sup>57</sup> SOMP – Strategic Component, *supra* note 22. at p.35. Noon and McKelvey provide further support for the argument that large stands of mature forest greater than 120 years of age are fundamentally important to Spotted Owl survival and reproduction. (Noon, B.R. and K.S. McKelvey, “Management of the Spotted Owl: A case history in conservation biology,” 1996, *Annual Review of Ecology and Systematics* 27:135-162). As a result of their analyses of a suite of factors potentially impacting owl survival and reproduction, they state that, “the attribute that best explained variation in survival, fecundity, and nest density was the amount of mature (>120 years old) forest within a home range-sized area surrounding an owl nest site.”

<sup>58</sup> SOMP – Strategic Component, *supra* note 22 at p.60.

<sup>59</sup> Larry Pedersen, Chief Forester, Fraser Timber Supply Area: Rationale for Allowable Annual Cut (AAC) Determination (Victoria: Ministry of Forests, April 1, 1999. Available on line at <http://www.for.gov.bc.ca/tsb/tsr2/tsa/tsa09/ration/09aac-08.htm> (16 Aug 2002).

<sup>60</sup> L. Pynn, “Liberals chop 14 hired to study BC’s endangered species” *Vancouver Sun*, (11 July, 2001) A13.

<sup>61</sup> P. Hodum, S. Harrison, “Ecological Assessment of the British Columbia Spotted Owl Management Plan” (1997) Univ. of California, presented at the 1997 B.C. Spotted Owl Management Team workshop.

<sup>62</sup> *Ibid* at p.2.

<sup>63</sup> *Ibid* at p.4.

<sup>64</sup> *Ibid* at p.6.

<sup>65</sup> *Ibid*.

<sup>66</sup> *Ibid* at p.8.

<sup>67</sup> *Ibid* at p.9.

<sup>68</sup> *Ibid* at p.11-14.

<sup>69</sup> *Ibid*. at p.8.

<sup>70</sup> *Ibid* at p.10.

<sup>71</sup> Kareiva, P., S. Andelman, et al., “Using Science in Habitat Conservation Plans,” 2000,. Santa Barbara, CA, National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara. American Institute of Biological Sciences. NCEAS HCP working group.

<sup>72</sup> Cashore, B., “Comparing Endangered Species Protection in Canada and the United States: What are the Lessons for Future Policy Development?” 2001, Auburn, AL, Auburn University Forest Policy Center.

<sup>73</sup> For an analysis of the B.C. provincial government’s deregulation initiative and the context of civil service and budget cuts, see Page, D., and O’Carroll, A., *Who’s Minding Our Forests*, (Vancouver: Sierra Legal and Forest Watch, 2002).

<sup>74</sup> “There is a one percent timber supply impact applied to the strategy...”: Memorandum from Larry Pedersen, Chief Forester – Ministry of Forests, and Cassie Doyle, Deputy Minister – Ministry of Environment, Lands and Parks, “Re: Release and

Implementation of the Identified Wildlife Management Strategy (IWMS)” (Victoria: Ministry of Forests and Ministry of Environment, Lands and Parks, February 15, 1999), p. 2.

<sup>75</sup> Ministry of Environment, Lands and Parks, Priority Issue Briefing Note – File 00280-1, endangered Species (Victoria: Ministry of Environment, Lands and Parks, October, 1997) available on-line at <http://www.extinctionsucks.org/flashframe.html?query=inforesources/law.html> (July 5, 2002).

<sup>76</sup> See *Seattle Audubon Society, et al. v. John L. Evans, et al.*, U.S.D.C., No. C89-160WD, May 23, 1991.

<sup>77</sup> *Supra* note 61 at p.11-14.

<sup>78</sup> *Ibid.* at p.13.

<sup>79</sup> A range-wide decline in Northern Spotted Owl populations in the United States of approximately four percent was documented between 1985 and 1998 (Franklin, A.B., K.P. Burnham, G.C. White, R.G. Anthony, E.D. Forsman, C. Schwartz, J.D. Nichols, and J. Hines, *Range-wide Status and Trends in Northern Spotted Owl Populations* (Fort Collins, CO: Colorado State University and Oregon State University, 1999) [unpublished].) Populations were found to be declining at an accelerating rate in 11 Pacific Northwest study areas based on annual survival rates of adult females (Burnham, K. P. D. R. Anderson, and G. C. White, "Meta-analysis of Vital Rates of the Northern Spotted Owl," 1996, *Studies in Avian Biology* 17: 92-101); van Deusen et al. concluded that adult female survival rate was constant in their Washington study area from 1990-97, thus suggesting a stable population (but from only one study site) (van Duesen, P. C., L.L. Irwin, and T. L. Fleming, "Survival estimates for the northern spotted owl." 1998, *Canadian Journal of Forest Research*. 28: 1681-1685); Akçakaya and Raphael (1998), using stage-based demographic models to investigate the viability of the Northern Spotted Owl metapopulation (multiple sub-populations within patches of connected habitat) in the northwestern U.S., predicted that risk-based results are sensitive to parameters related to habitat loss. Even if best-case scenarios were presumed, the results indicated that habitat loss results in substantially higher risks of Spotted Owl metapopulation decline (Akçakaya, R. and M. G. Raphael, "Assessing human impact despite uncertainty: Viability of the northern spotted owl metapopulation in the northwestern USA," 1998, *Biodiversity & Conservation*. 7: 875-894).

<sup>80</sup> *Western Canada Wilderness Committee v. Kennah et al*, 43 C.E.L.R. (N.S.) 156 (B.C.S.C.).

<sup>81</sup> Letter from Brian Clark, MELP, to Jerry Kennah, R.P.F., MOF dated May 2, 2001.

<sup>82</sup> *Western Canada Wilderness v Cindy Stern et al*, (2002) BCSC 1260 (Vancouver Registry), available on-line at <http://www.courts.gov.bc.ca/Sc/2002/sc-civil.htm>

<sup>83</sup> *Ibid*, para. 77.

<sup>84</sup> *Ibid*, para. 72.

<sup>85</sup> Habitat loss was defined by S.O.R.T. to be the "single greatest threat to the survival of the species" in 1994, *supra* note 28, p.xi.

<sup>86</sup> In the Forest Watch assessment, threats to critical Spotted Owl habitat were defined as approved or proposed logging of forests greater than 140 years of age (or age classes 8 and 9), including "information" cutblocks, found inside, or within 500 metres, of the Management Zones (SRMZs) or Activity Centres (MACs) delineated in the Spotted Owl Management Plan for the protection of Spotted Owl habitat. (The methodology for this investigation can be found in the appendix.)

<sup>87</sup> According to Ministry of Forest statistics, logging in the Fraser Timber Supply Area, which makes up the bulk of Chilliwack Forest District, is 31% above the Long-Term Harvest Level and logging in the Soowich Timber Supply Area, which makes up the bulk of Squamish Forest District, is 14% above the Long-

Term Harvest Level: Patricia Marchak et al, *Falldown: Forest Policy in British Columbia* (Vancouver: Ecotrust Canada and David Suzuki Foundation, 1999), p. 28.

<sup>88</sup> Ranked by the total volume of all cutblocks (approved or proposed, including "information" cutblocks), found inside of, or within 500 metres of, the Management Zones or Activity Centres that contain forests greater than 140 years of age. These forests are considered critical Spotted Owl habitat because of their proximity to zones designated for the protection of the owl in the SOM.P. See Appendix for methodology.

<sup>89</sup> Foresters must develop, sign and seal, and supervise the implementation of all operational forestry plans, including landscape-level, Forest Development Plans, and site-specific, Silviculture Prescriptions: *Operational Planning Regulation*, B.C. Reg 107/98, s.10, available on-line at <http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcaregs/oplanreg/opr-3.htm#10> (Aug 27, 2002), and ABCPF, bylaw 13, available on-line at <http://www.rpf-bc.org/bylaws.html#bylaw13> (Aug. 27, 2002). This is confirmed by the Association's interpretation found in the *ABC PF Forest Legislation and Policy Reference Guide 2002* available on-line at p. 3-18 [http://www.rpf-bc.org/download/refguide2002/ABC PF%20RefGuide%202002\\_Ch%203.pdf](http://www.rpf-bc.org/download/refguide2002/ABC PF%20RefGuide%202002_Ch%203.pdf) (Aug 30, 2002.)

<sup>90</sup> ABCPF: <http://www.rpf-bc.org/> (June 10, 2002).

<sup>91</sup> ABCPF, bylaw 14.3.1: available on-line at <http://www.rpf-bc.org/bylaws.html#bylaw14> (June 10, 2002).

<sup>92</sup> ABCPF, bylaw 14.3.1: available on-line at <http://www.rpf-bc.org/bylaws.html#bylaw14> (June 10, 2002).

<sup>93</sup> Ranked by the total number of all cutblocks sealed by the forester in question (whether approved or proposed, including "information" cutblocks), inside of, or within 500 metres of, the Management Zones or Activity Centres that contain forests greater than 140 years of age. These forests are considered critical Spotted Owl habitat because of their proximity to zones designated for the protection of the owl in the S.O.M.P. See Appendix for methodology.

<sup>94</sup> "[ABC PF] Council created a working group to provide guidance to the profession on how to deal with high risk situations involving critical public value conflicts.... The group is to report to council in July." ABCPF, "Critical Public Values" (July/August, 2002) Forum, p. 9.

<sup>95</sup> "9. SPECIES AT RISK TASK FORCE CREATED

In response to serious concerns regarding the management of species at risk and the role of professional foresters therein, council concluded there is a pressing need to provide members with guidance on how they should conduct professional activities when dealing with threatened or endangered species.

Subsequently in May, council created a species at risk task force to address this issue and appointed the following people to it: Rory Annett, RPF; Ken Day, RPF; Dr. Alton Harestad (Simon Fraser University); Laurie Kremsater, RPF; Stephen Lorimer, RPF; Dennis Rounsville, RPF; Betty Schweizer, RPF (chair); and Colene Wood, RPF. They are to report to council in September.

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Among the information currently before the task force is the report, *Population Assessment of the Northern Spotted Owl in British Columbia 1999-2000* (July 27, 2001). This report, sometimes referred to as the trend report, outlines the continued decline of spotted owl populations and discusses possible causal factors. The task force has been informed that an update to this report is before the relevant ministries and should be released shortly. The task force has requested copies of this report.

Professional foresters working in areas containing spotted owl habitat are reminded that they must consider all relevant information in developing their plans and providing advice. This includes reports and documents such as the trend report.” ABCPF, B.C. Forester Electronic Newsletter - Issue No. 24. (Vancouver: ABCPF, August 22, 2002)

<sup>96</sup> Ranked by the total number of all cutblocks sealed by the forester in question (whether approved or proposed, including “information” cutblocks), inside of, or within 500 metres of, the Management Zones or Activity Centres that contain forests greater than 140 years of age. These forests are considered

critical Spotted Owl habitat because of their proximity to zones designated for the protection of the owl by the SOMP. See Appendix for methodology.

<sup>97</sup> James Medica, RPF: deceased May 22, 2002.

<sup>98</sup> “Age class: an interval into which the age range of trees, forests, stands, or forest types is divided for classification. Forest inventories commonly group trees into 20-year age increments up to age 140 years, than a single class for trees between 141 and 250 years old, and a single class for those older than 250 years.” (<http://www.for.gov.bc.ca/hfp/planning/RPGLOSS/A.htm>, Jan. 29, 2002).

<sup>99</sup> “Information”, or Category “I”, cutblocks are planned cutblocks for which approval is not sought in the forest development plan in which they are found. These cutblocks are sometimes utilized by logging companies as a planning tool to indicate the company’s future plans (<http://www.for.gov.bc.ca/hfd/training/Q-and-A/QA-06004.htm>, Jan. 29, 2002). It was on this basis that information cutblocks were included in the analysis.