

Forest Policy Center

Internal
Working Paper Series
No. 118

Comparing Endangered Species Protection in
Canada and the United States:
What are the Lessons for Future Policy Development?

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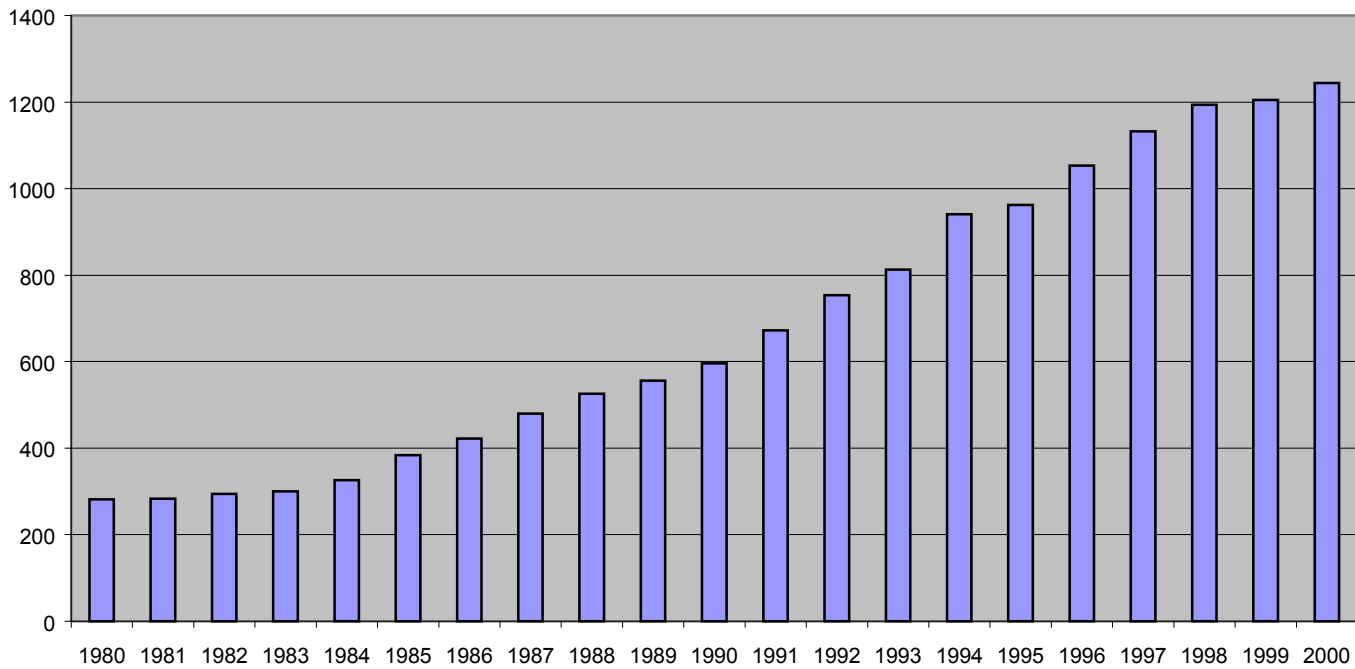
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I. Introduction

One of the most important issues of the early 21st Century is whether domestic and international policies can be developed to adequately address threatened and endangered species issues. Within North America, forty years of ongoing policy efforts concerning endangered species lead to a sobering, but preliminary answer: while both the U.S. and Canada are parties to the Convention on International Trade in Endangered Species, and Canada (but not the United States) is a party to the Convention on Biodiversity, the number of threatened and endangered species in the United States and Canada is *growing, rather than declining*. (Table 1) The immediate causes are many, but key factors include destruction of habitat, fragmentation of natural habitat, and the introduction of exotic species that compete with existing species (Kareiva et al. 2000) Broader explanations can be traced to increasing population and consumption, and resultant increased human activity.

This paper is an effort to understand better the various US and Canadian policy options that have emerged in response to this problem, and to explore which of the existing policy options, if any, appear to hold at least some promise of accomplishing the ultimate goal of protecting endangered and threatened species. It focuses specifically on the case of forestry because this sector exemplifies some of the key challenges and opportunities facing policy makers in North America. The paper will illustrate some of the more significant approaches to

Table 1: Number of US Listed Threatened and Endangered Species Per Year



endangered species preservation in the two countries. A detailed descriptive overview of all policies affecting species preservation would require a large volume, and is thus beyond the scope of this paper.

This paper is being written at a sensitive time because the endangered species issue is now being raised in the context of the Canada-US softwood lumber trade dispute – the longest lasting and most important dispute between these two countries. US forest companies that have long criticized the non-discretionary elements of the US Endangered Species Act (“ESA”) have joined with certain US senators and environmental groups to criticize Canada (and specifically British Columbia) for not having a US-style Endangered Species Act as well. US forest companies have cultivated this unusual “bootleggers and Baptists” coalition in an attempt to increase their political influence and add some measure of legitimacy to their campaign against the Canadian lumber trade. Originally US timber companies argued that the Canadian method of timber pricing constituted a subsidy, but increases in these “stumpage” fees has forced the US

timber companies to look elsewhere for “evidence” of subsidy. They are now arguing that the lack of a Canadian Endangered Species Act is “proof” that an environmental subsidy exists in Canada and in the province of British Columbia in particular, *i.e.*, that the alleged lack of endangered species act constitutes a boon from the government to Canadian lumber producers.

While this paper does not address the specifics of the softwood lumber dispute, it will nonetheless inform the issue because it seeks to uncover an array of policy instruments that have been raised in both countries. It also highlights a neglected but important aspect of the US ESA – *its provisions for private lands are much less onerous than its rules governing public lands*. This is an important distinction because the vast majority of softwood lumber harvested in the United States comes from private lands. Any Canada-US comparisons that focus solely on US public lands actually neglect the rules governing 94 percent of the US softwood lumber harvest. In order to understand the effects of the ESA we need to address all land ownership types.

This paper proceeds in four parts. First, it reviews the methodological issues that arise in comparing approaches to endangered species protection across countries. Second, it reviews key policy approaches within the United States, focusing on the impact of its federal Endangered Species Act on *public and private* forestland management. Third, it explores the current Canadian approach to endangered species protection, as well as trends for the future, focusing specifically on the province of British Columbia. Fourth, it directly compares key jurisdictions in each country through an array of “on the ground” measures that shed light on the actual impacts of the different approaches. The paper concludes by suggesting new directions for policy development and bi-national cooperation.

II. Methodological Challenges

Numerous methodological issues arise when comparing approaches to endangered species protection rules across countries.

Defining Endangered Species Policy

The first issue is just what policies should be compared? This is an important question implicated in Canadian and US comparisons because the United States tends to develop policies through a process of “legislation and litigation” (Cashore 1997) while Canadian approaches, until recently, have used enabling legislation to allow agencies to develop policies. (Hoberg 1997) The result of these differences is that Canadian approaches tend to be more holistic, using such policy instruments as protected area strategies to address the underlying concerns behind species protection, while the US system tends to be focused on species specific measures first, from which broad approaches follow.

Indeed, within forestry it is difficult to decide what constitutes an endangered species policy and what does not. An array of environmental forestry legislation and rules developed in both countries - from streamside riparian management to clearcutting sizes - had, as part of their concern, the issue of species and biodiversity preservation forest practices. (Cashore 2001) Deciding which of these policies lies outside the issue of endangered species is necessarily an arbitrary one. Moreover, there are many policies outside environmental forestry regulations that significantly impact species protection in both countries. United States forest estate tax rules that encourage forest fragmentation, US and Canadian policies governing urban growth, and consumption all indirectly affect species development.

For the purposes of this paper, we will limit our comparison to key policies designed to address endangered species and habitat concerns in both countries. We will not limit our

comparison to only one type of policy instrument, such as protected areas or endangered species protection, because it would be misleading to assume that any one policy instrument is the sole (or sufficient) way to protect endangered species.

What to measure?

A second methodological issue centers on understanding how a given policy affects both public and private forestland management. This is particularly the case regarding the United States ESA, which many environmental groups in Canada and the United States have heralded as a necessary tool in their efforts to save species and biodiversity. What is less understood is that there are really two US ESAs, a strict non-discretionary ESA affecting public forestland management, and a much more flexible and less burdensome ESA governing private forestland management. An important reason why any comparison must focus on the impact of the ESA on both public and private forestland in the United States is because the impacts are asserted to be *inversely* related. That is, increasing species preservation on US federal lands, owing to endangered species protection, is asserted to result in increased harvesting and reduced protection on private lands. (Citizen Forester 1992, p. 8) (Robertson 1990) (Rowland 1994) Thus, any analysis of US federal public lands protection that does not look at the impacts of this protection on private lands is incomplete at best. This is a point understood and accepted not only by forest economists, policy analysts, and forestry officials, but also by US environmental groups. In fact, the Sierra Club's Northwest Office produced an economic analysis showing that reductions in harvesting on US federal lands to protect the Northern Spotted Owl could be made up by harvesting on private lands. (Sierra Club 1993)

Similarly, in Canada any analysis of endangered species protection must examine provincial policies, since provinces have constitutional responsibility over natural resources, and since, in most provinces, such as in British Columbia, forests are predominantly owned by the province. In this institutional and constitutional setting, replicating directly a national US style Endangered Species Act in Canada would have quite different consequences and implications than it has South of the border.

Impacts on the Ground: Which approaches best address species preservation?

A third methodological hurdle concerns how to construe the impacts “on the ground” of these different policies. After all, we have a mixture of causes—from urbanization to exotic species—whose impacts vary across jurisdiction, and we have an array of policy initiatives designed to mitigate these effects. Separating out these impacts is a very difficult task. In order to begin this effort in a comprehensive manner, we turn to cross-country data that permit an understanding of the status of endangered and threatened species in the United States by jurisdiction. We focus on the 16 key US softwood lumber harvesting states (which harvest 93% of the US total). This “on the ground” data, puts the impacts of different policy options into perspective. More sophisticated research would be required in order to separate out the complex causes of endangered species issues, and the complex impacts of policies designed to mitigate them.

III. Species Preservation in the United States: Federal and State Levels

Overview

Many of the significant and controversial forest policy changes in United States forest policy since the 1960s have been in response to societal concerns about the environment. However, the manner in which policies, laws, institutions, and organized interests have responded has been a tale of two journeys: federal forestland management has gone in a highly regulated, litigious direction, while US states have either not bothered to follow any path at all, such as Alabama or Georgia, or followed a path with more flexible and (comparatively) less-litigious approaches, such as in Oregon and Washington State. (Cashore 1999) In the case of Oregon and Washington State, forest practices acts were created in an effort to minimize the litigious “command-and-compliance” atmosphere that was dominating in Washington, DC by channeling much of the environmental rule development through forest practices boards. (See Appendix A)

US Federal Legislation

The United States federal government has enacted an array of environmentally focused forestry legislation, from wilderness protection legislation in the 1960s, to procedural requirements for environmental assessments and impacts statements in the early 1970s, to non-discretionary legislation over species preservation (Appendix A reviews significant pieces of legislation in this regard).

The key piece of legislation in the United States, because of its central role in US endangered species policy, was the 1973 Endangered Species Act. The following section reviews its key elements, and its effect on private and public forest land ownership.

The Endangered Species Act

The US Congress enacted the Endangered Species Act in 1973. This Act includes explicit provisions allowing for organized interests and citizens to sue agencies for non-compliance with their non-discretionary provisions. Environmental groups were also given statutory authority to sue private companies that were not in compliance. (Vogel, 1993, p.256) The ESA provides a significant tool for environmental groups to use, or threaten to use, litigation. It is a non-discretionary piece of legislation with clear direction not only in the regulations, but the statute itself. Administered by the US Fish and Wildlife Service ("USFWS") or the National Marine Fisheries Service ("NMFS"), the ESA *requires* that these agencies list threatened and endangered species and their "critical habitats." The determination of threatened or endangered must be based "solely on the best scientific and commercial data available" (section 4(b)(1)(A)) with explicit direction that the economic effects of such a decision not be given consideration.

There is an important caveat, however. The ESA provides for the establishment of an "Endangered Species Committee," or "God Squad." (Davis, 1992) This committee has the authority to decide that the "economic and social benefits of the proposed action outweigh costs to the listed species" and can, therefore, exempt a particular action from the requirements of the ESA. (Smith, Moote, and Schwalbe, 1993, p.1039) This committee can only be established when no "feasible alternatives" exist and where there is "considerable" economic or social importance. (*ibid*, p.1038)

Once a species has been listed, the ESA makes it illegal for a public or private landowner to "take a species." Section 3 (18) of the ESA defines the term "take" to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

The ESA differs dramatically between federal and non-federal landowners by mandating federal land agencies to recover species and by giving non-federal landowners specific exemptions to the law.

The ESA specifically requires that all federal agencies with threatened or endangered species habitat create and implement a *recovery* plan for the threatened and associated species. The most prominent example of the effects of the ESA in recent years, well documented in the literature, is with respect to Spotted Owl Development in the US Pacific Northwest. The genesis of the Northern Spotted Owl conflict occurred in the late 1970s, when scientific research showed that the survival of the owl depended on old growth forests-which make up less than 10 per cent of Pacific Northwest forests. (Yaffee 1994: 14) After the US Forest Service failed to take action to protect Spotted Owl habitat, the Seattle and Portland Audubon Societies launched litigation in the early 1980s. The goal of their lawsuit was to force the US Fish and Wildlife Service to list the Northern Spotted Owl as threatened.² The case eventually forced the listing of the Northern Spotted Owl as endangered, and led to a number of agency and inter-agency attempts to devise a recovery plan.³ When it was clear that any plan to save the Northern Spotted Owl would result in a considerable loss of timber supply in the Pacific Northwest, Congress attempted to override temporarily the endangered species requirements of the federal statutory regime.

(Hoberg 1993b)

These Congressional efforts ultimately failed, and the White House initiated a highly publicized "Forest Summit" in Portland, Oregon in April of 1993, at which environmental, industry, labour, and other non-government organisations pleaded their cases before the President and members of his cabinet.⁴ The summit resulted in the establishment of the Forest Ecosystem Management Team ("FEMAT"), comprised mostly of government scientists. The

FEMAT was charged with presenting the Clinton Administration with different options for saving the Northern Spotted Owl, and was told to estimate each option's chances of achieving Spotted Owl recovery. In the end, the Administration chose "Option 9," which they believed would entail the least economic impact while staying within the law, thereby allowing for plausible species recovery.⁵ Option 9, or the "President's Plan," reduced most harvesting of federal, old growth forest lands in the Pacific Northwest and added another layer of interagency ecosystem management processes to previous intra-agency planning processes.

Congress continued (through a rider proposed by Senator Gorton of Washington) its efforts to limit the impact of Option 9 by mandating [or permitting that] "salvage logging" (removal of dead or damaged trees) could take place on Pacific Northwest federal forest lands, including on some lands where Option 9 had halted harvesting. Environmental groups focused much of their Congressional efforts in 1995 and 1996 on an attempt to repeal the Gorton "rider."⁶ Despite a Republican majority in both the House and Senate in 1995, Congressional efforts to undo the Option 9 decision itself have had limited success.

Importantly, the effects of the Spotted Owl litigation transcend the Pacific Northwest.

The Forest Service noted:

...the Spotted Owl controversy in the Pacific Northwest has become a focal point for exploring ways to implement the principles of ecosystem management....In light of the experience in the Pacific Northwest and elsewhere, there is much interest in finding ways for Federal land management agencies to better incorporate the principles of ecosystem management when conducting resource planning and decision making activities.⁷

The combination of the Endangered Species Act and an old-growth dependent owl led to a complete overhaul of the Forest Service approach to land management. Much of federal land is no longer considered harvestable even by the industry, and provides now only 6% of the US

national harvest. The above story is well known and is often referred to as the model of environmental protection by environmental advocates. What is less reported in the media is the effects of the ESA on private land, where 93% of the softwood lumber harvest is obtained.

The ESA and Private Forestland Management

While the ESA resulted in federal land being increasingly shut off from forest harvesting, its impacts on private land management have been radically different. Unlike their federal counterparts, non-federal landowners are under no obligation to recover species, and section 10 of the ESA permits non-federal landowners to *escape* rules forbidding endangered species habitat destruction. Section 10(a)(2) specifically permits a “non-federal landowner” to obtain an incidental take “permit” that allows him to destroy threatened and endangered species and habitats, provided that the landowner also prepares a Habitat Conservation Plan (“HCP”) that mitigates and minimizes the impacts of the taking. Originally intended for “special cases,” HCPs now cover million of acres, and more are being approved.

As Meltz (1994) finds “despite the negative effect of ESA prohibitions on some property owners, constitutional takings challenges will rarely succeed in part because of the limited nature of most ESA restrictions.” The relatively limited ESA restrictions on private land owners are, nevertheless, a source of understandable frustration to a landowner who might actually have to limit harvesting plans if an endangered species is found on his land, and to many landowners who, seeing this as a property rights issue, would like to reduce further the role of the federal government on their management choices. Indeed, a growing literature has shown that the ESA may actually serve to reduce endangered species populations. (Lippke et al. 1998) Zhang found

that landowners will harvest old growth trees so as to avoid the possibility of attracting an endangered species. (Zhang 2000) Similarly (Polasky 1998) has noted that:

Current species conservation policy gives landowners little incentive to cooperate with information collection and may result in little conservation occurring on private land. Modifying the current system by paying compensation to landowners, or forcing landowners to provide information before developing, improves equilibrium efficiency.

...

On the other hand, HCPs that allow land owners to escape ESA takings rules have been criticized by environmental groups and scientists as failing to follow the goals of the ESA and to mitigate species reduction. A comprehensive, scientific study involving teams of researchers from the National Center for Ecological Analysis and Synthesis and the American Institute of Biological Sciences (Kareiva et al. 2000) found significant limitation in the application of HCPs:

In many cases, we found that crucial, yet basic information on species is unavailable for the preparers of HCPs. By crucial, we mean information necessary to make determinations about the status of the specie, the estimated take under the HCP, and the impact of that take on the species. ...For example, in only one-third of the species assessments was there enough informaiton to evaluate what proportion of the population would be affected by a proposed "take." If we do not know whether one-half or one-hundredth of a species' total population is being affected by an action, it is hard to make scientifically justified decisions.

Striking was their finding that "our evaluations also indicate that very large and the very small HCPs contain the poorest analysis" and that USFWS and NMFS "do not have the resources to obtain the data that are needed for many of the decisions that must be made." The report additionally found that 84% of the time, HCPs failed to provide basic "conservation and mitigation measures, and/or to use important scientific information and analyses."

These scientific studies have been supported by a conservation organization's report, which attests to "the destruction and degradation of western forest, fish, wildlife, and plant habitats on non-Federal lands permitted by the Endangered Species Act exemptions known as "Incidental Take Permits." (American Lands Alliance 1998) The American Lands Alliance argues that "most forest HCPs in the west fail to really off set the loss of habitat for imperiled species, much less restore habitats which have already been degraded." Directly contrasting the US federal experience, the American Lands Alliance argues that "As many as 550 existing pairs of spotted owls are projected to be eliminated or significantly harmed by at least twelve of the forest HCPs from the [Pacific Northwest] region."

Similarly, the Endangered Species Coalition (Endangered Species Coalition 2000) argues that the take "exception" is now the rule, with "take permits and weak HCPs across millions of acres. 6.5 million acres are already covered by existing permits/HCPs, and the Administration intends to exempt another 20 million acres by the year 2002." Their analysis is that "Instead of helping to restore species' habitats, most HCPs work against species' recovery. Species that are being harmed include grizzly bear, northern spotted owl, coho salmon, red cockaded woodpecker, the Alabama beach mouse, rare salamanders, and hundreds of other fish, wildlife and plant species"⁸.

(American Lands Alliance 1998). The alliance argues:

[Incidental Taking Permits] ITPs were originally intended as a "safety valve" for limited and extremely intractable situations. However, ITPs and HCPs are now being used as the principle means of implementing the ESA across entire landscapes, including millions of acres of northwest forestlands owned by large wood products companies and the states. Roughly 2.5 million acres of non-federal forestlands are covered by HCPs in western states, and plans covering at least an additional 10.8 million acres are now in development.

This review of ESA rules highlights the very different approaches and rules applied to public versus private land management. It also speaks to the need to assess the ESA in its entirety – to focus on either public or private land rules is to conduct a methodological mistake, exacerbated because of the important public/private interactions in the United States, where protection of public land is often diminished because of the dominant role private lands play in lumber production. As the Sierra Club itself (Sierra Club 1993) asserted during the spotted owl debate:

...spotted owl recovery plans will have little impact upon overall non-federal timber production [in the Pacific Northwest], and that total non-federal output....can *maintain approximately 1980s levels or higher* into future decades (emphasis added).

This review also speaks to the difficulty in implementing rules on private lands, owing to private property rights. As former Secretary of the Interior Bruce Babbitt noted, the Spotted Owl was not as big a media story in California as in Oregon and Washington “because by good fortune, it turns out that the owl’s habitat is mostly public land—about 99 percent—up in the Sierra Nevada in northern California, so nobody squawked.” (Babbitt 1994) Indeed, current research reveals that landowners are motivated to avoid practices that would attract endangered species to their land (thus reversing the intended impact of the ESA), and restrictions alone are often inadequate for species recovery. It thus comes as no surprise that the US government consciously focuses on public land as its main target to address species issues. As Babbitt (1994) notes:

In all cases where there is public land, we try to construct plans which say that the *public land is going to carry the burden of the management*. That has been done in the Pacific Northwest spotted owl controversy. The management plan which has come out for the Northwest has stronger provisions for public land, because that enables us to tread a little more lightly on private land owned by individual timber companies. The habitat

conservation rules outside the core areas are a little lighter because our emphasis is on public lands.

IV. Canada

Unlike the United States, most of Canada's forest lands are publicly owned. In British Columbia, arguably the most scrutinized of all Canadian provinces, public land ownership represents 94% of all forest land. This land ownership pattern means that any rules Canadian and provincial governments use to address species protection must address holistically the dual environmental and commercial functions of its forests, *an issue US policy makers do not have to face as directly.* (Amos, Harrison, and Hoberg 2001)

Federal Legislation

Owing to land ownership and constitutional jurisdictional issues, the Canadian federal government has, in general, a limited influence on provincial forest land management and endangered species issues. There are two exceptions. The first is the Fisheries Act, (Hoberg 1993: 6)⁹ which makes it unlawful to "carry on any work or undertaking that results in the harmful alteration, disruption, or destruction of fish habitat" and "prohibits persons from depositing or permitting the deposit of deleterious substances into water frequented by fish." (Vanderzwaag and Duncan 1992: 15) Despite this strong wording, enforcement has been minimal and is often shared with provincial agencies.¹⁰ The second exception is a proposed Species at Risk Act ("SARA"), Bill C-5, which is now being considered by the Canadian parliament.

SARA requires the Committee on the Status of Endangered Wildlife in Canada ("COSEWIC") to offer a list of species that would be protected under the act, although the federal cabinet would maintain ultimate authority over which species are listed. The proposed bill "prohibit[s] the killing, harming, or taking of any listed species, as well as destruction of their residences." (Harrison 2001) In addition, "recovery strategies and action plans to identify and protect critical habitat" are mandated. The SARA would first apply only to federal land, but would reserve the authority to apply elsewhere. (Amos, Harrison, and Hoberg 2001)

The bill relies on cooperation among governments and the private sector, with most sides hoping to avoid the polarization, conflict, and litigation they witness in the US. Indeed, the federal government developed an accord with all provinces, except Quebec, on the “Protection of Species at Risk,” in which all jurisdictions promise to undertake complementary legislative initiatives for species protection. (Amos, Harrison, and Hoberg 2001) Likewise, the federal government has attempted a balancing act between environmental groups and other resource extracting industries. In a vast departure from the US model, Canadian environmental groups, including the Canadian Sierra Club, have joined industry associations, such as the Canadian Pulp and Paper Association, to form the Canadian Endangered Species Campaign. In coming together, the groups agreed to a set of common principles over species legislation. While it now appears Canada is on the verge of passing national species protection legislation, it is important to remember that species issues are addressed, for the most part, at the provincial level.

British Columbia

British Columbia’s approach to endangered species protection is highlighted through two initiatives: the protected area strategy and the development of its forest practices code, both initiated in the mid-1990s by an environmentally focused New Democratic Party. (Cashore et al. 2001)

The protected area strategy

Elected in 1991, the new provincial government immediately set a target to protect 12 percent of its land base, and recently surpassed this goal. (British Columbia. Ministry of Environment 2001) This 12 percent goal marks a distinct contrast to the habitat conservation

efforts of key lumber producing states. For example, Alabama has only protected 0.3% of its lands, Georgia only 0.6%, Mississippi only 0.7%, Texas only 0.9%, Louisiana only .4 %¹¹ The protected area strategy came after years of valley-by-valley battles to preserve forests (Wilson 1998), and specifically addressed recommendations made by the Brundtland Commission to triple the world's percent of protected areas from its then four percent level. (World Commission on Environment and Development 1987) The protected areas strategy represented a holistic and proactive approach to endangered species and biodiversity protection, as it served to *protect species habitat* before species were endangered. In addition, specific species were considered when deciding which part of the province to protect from development. For example, the Kutzeymateen was protected as a “Grizzly bear” sanctuary. (Leyne 1994; Dodge 1993) Many of the protected area designations were accomplished through multi-stakeholder land use planning processes known as CORE (Commission on Resources and the Environment) and smaller scale land and resource management plans. (Leyne 1994) (British Columbia. Land Use Coordination Office 2000; British Columbia. Ministry of Environment 2001; British Columbia. Integrated Resources Planning Committee and Ministry of Forests 1993)

The protected area strategy has not ended conflict. Critics have been quick to point out that the protected areas did not give proportionate representation to all of the provinces' different ecosystems, especially low elevation forests. (Sierra Legal Defence Fund 1997) (Wilson 1998) Partly as a result, Greenpeace began a new campaign to stop old growth logging on British Columbia's Central Coast, which these groups renamed the “Great Bear” rainforest. (Fong and McCabe 1998) What is clear is that the protected area record of British Columbia was an immensely significant policy instrument with which to address species habitat issues and biodiversity protection. (British Columbia. Land Use Coordination Office 2000, 2000)

Endangered species and biodiversity have also been addressed through a number of other initiatives, most of which fall under the forest Practices Code.

The Forest Practices Code and Endangered Species Policy

The Forest Practices Code (the “Code”) is a wide ranging document that sought to codify and expand existing forest practices rules that were contained in an array of various pieces of previous legislation. It provides for increased fines for non-compliance, and is the provincial governments key policy instrument with which to address harvesting rules and planning processes. It prescribes specific rules governing harvesting in streamside riparian zones, clearcutting regulations, as well as mandating a host of planning procedures before harvesting can occur (Cashore et al. 2001, Chapter 2). Most of the Code’s provisions address, in some way, species preservation. These issues are more specifically addressed though the Code’s Biodiversity Guidebook and its “Managing Identified Wildlife” policy. The Biodiversity Guidebook sets forth specific and detailed approaches to the preservation of biodiversity and is meant to serve as a reference to professional foresters when authorizing management plans. (British Columbia. Ministry of Forests 1995)¹²

In addition, the Code, the province specifically addresses species at risk through a process of listing “Identified Wildlife” and creating an “Identified Wildlife Management Strategy.” (“IWMS”) There is a two step process for creating an IWMS. The first is to identify whether a species is at risk (and the extent of that risk) using information from the internationally-recognized conservation data center. The second step is to determine, through an interagency committee “that these species are not adequately addressed by coarse filter guidelines (such as

the Riparian Management Guidebook and the Biodiversity Guidebook). (British Columbia. Ministry of Forests 1999)¹³

A. *Fine Filter Management*

Once these two steps are undertaken, the names of the species are sent to the Ministry of Forest's chief forester and the Ministry of Environment, Lands and Parks' Deputy Minister for designation as Identified Wildlife. The first volume of the Identified Wildlife Management Strategy ("IWMS"), released in February 1999, revealed plans for 36 species and four plant "communities." (A second report with more listings came out as volume 2). Key species under a IWMS included the Queen Charlotte goshawk and the Marbled Murrelet.

A major component of an IWMS is the creation of Wildlife Habitat Areas ("WHA"). "designed to minimize disturbance or habitat alteration to a species-limiting habitat or to a rare plant community. In most cases, the WHA contains a core area that is protected from habitat alteration and a buffer to minimize disturbance." (British Columbia. Ministry of Forests 1999). Within IWMS, a "General Wildlife Measure" ("GWM") that restrict or limit economic activity in the WHA, are required by law to be developed.

In addition, species that cannot be addressed through WHAs are addressed through higher level planning and the creation of a "resource management zone" ("RMZ"). The first volume of the IWMS identified three species, grizzly bear, fisher, and bull trout, to be in need of an RMZ created through higher level planning. Finally, conservation assessments and inventory and monitoring are required to assess the impact of these plans on species recovery.

The British Columbia approach to biodiversity and species protection has been criticized because of two provisions: a policy directive that the Forest Practices Code cannot result in any more than a six percent decrease in the Annual Allowable Cut, and a rule that IWMS cannot impact harvesting levels more than one percent. This led environmental groups to assert that the IWMS was inadequate:

The government's long-awaited strategy for protecting a small sub set of endangered species that live in public forests, the proposed Identified Wildlife Management Strategy (IWMS) is inadequate. The entire strategy is restricted by a scientifically indefensible one percent cap on impacts to timber supply and provides outright protection from logging for only 4 of the 34 listed animal species. The IWMS strategy fails to satisfy the requirements of the national accord on other grounds as well. (Sierra Legal defence Fund et al. 1998)

These criticisms parallel the criticisms of the ESA's Habitat Conservation Plans by environmental groups in the US. What is clear from this review is that Canadian approaches to endangered species preservation go far beyond an Endangered Species Act, and that federal and provincial governments have enacted a wide range of comprehensive and species initiatives to address species at risk. Indeed, in February of 2001, the BC government placed a three year moratorium on all Grizzly bear hunting in the province, pending further scientific study into their population status. (Judd 2001)

V. Different Approaches and Impacts on Species Preservation

Given the vast array of approaches to endangered species preservation, what generalizations can be made about the impacts of these different approaches in addressing the goal of species preservation? I look at this question first through a brief literature review on impacts, and then by presenting data on the number of threatened and endangered species in key softwood lumber harvesting jurisdictions.

1) Literature review of Impacts

Literature to date on the impacts of United States protection reveals important findings for species preservation issues on both public and private lands. The results are sobering. Early evidence regarding Spotted Owl species indicates that, despite massive locking up of US federal forestlands in the Pacific Northwest, Spotted Owl populations continue to *decline*. (Associated Press 2000) Indeed, only 10 percent of all species listed under the Endangered Species Act are actually recovering. (Knopman, Susman, and Landy 1998)

With respect to private lands, some analyses reveal that private landowners are often ill-equipped to address preservation issues, even in areas of the country where private land is the dominant ownership. For example, Noecker and others (1997) have noted:

Habitat loss [on private lands] has reduced the range of Red Cockaded Woodpecker primarily to federal lands. Although the government lands comprise only approximately 6% of southern forested lands, 80% of the recovery efforts for this species are concentrated on Forest Service land, with much of the rest occurring on military bases.

Indeed, there is evidence that the ESA may actually be accelerating species endangerment, rather than reversing it. Knopman and others (Knopman, Susman, and Landy 1998) note:

...private landowners lack economic incentives to comply with the law. They often hang back and grudgingly wait to be told what to do - or worse, they destroy the habitat before its falls into the regulatory quick sand.

Similarly Zhang's analysis of the effects of ESA RCW restrictions on private lands reveals that landowners will manage the land so as to avoid creating endangered species habitat, thus reducing chances for RCW survival. (Zhang 2000)

In a wide ranging review entitled "*Precious Heritage: The Status of Biodiversity in the United States,*" Bruce Stein and colleagues (2000) find that "One-third of US species are at risk and of conservation concern. More than 500 US species are already extinct or missing. Nearly 60% of the United States outside of Alaska has lost most of its natural vegetation. Habitat destruction is the leading threat to US species." They argued that "To avoid squandering the country's biological riches will require a far more concerted and systematic effort than has characterized our nation's conservation efforts to date." Reflecting more the British Columbia approach noted above, Stein and colleagues argue:

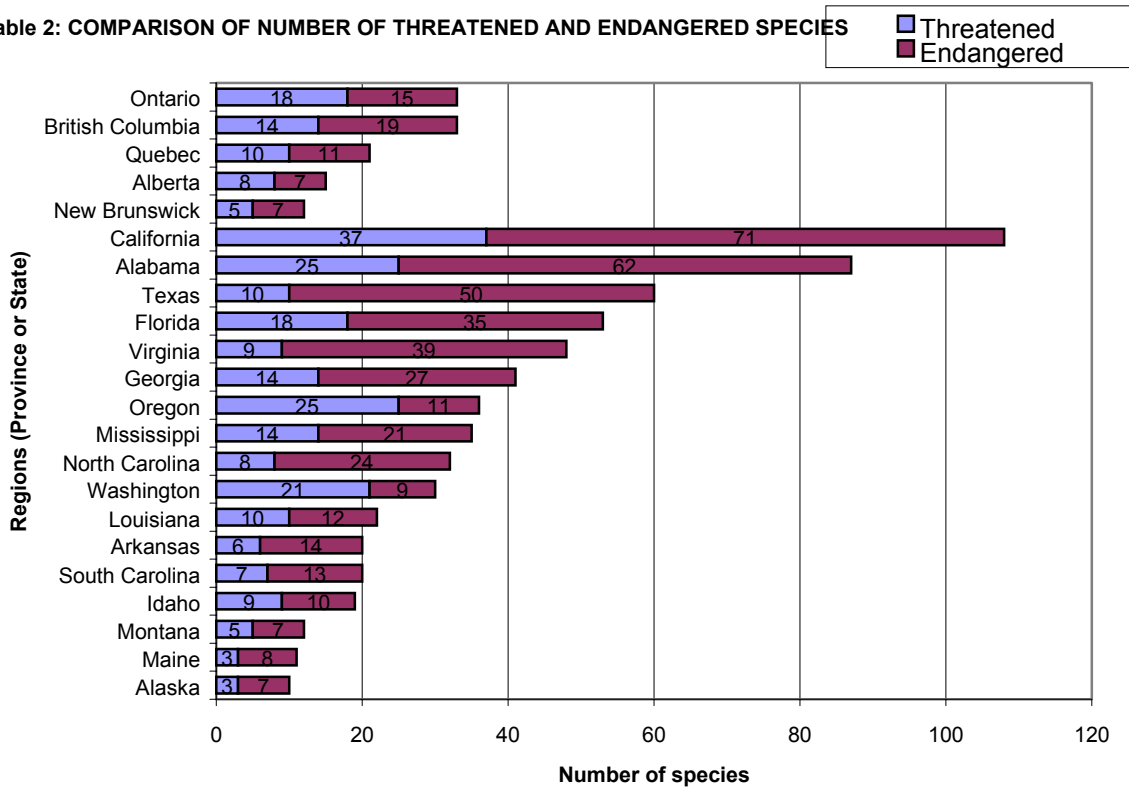
Although a focus on individual imperiled species will often be necessary to stave off impending extinctions, conservation increasingly must be planned for and carried out at larger scales - from ecosystems and landscapes to entire regions.

While no similar study has been conducted in British Columbia, environmental groups's have also called on the provincial government to do more, based on their own research efforts. They specifically criticize the balance the government has drawn between the annual harvest rate and species protection, asserting that species protection should be a priority, not the level of cut. (Curtis 1996; Greenpeace Canada, Greenpeace International, and Greenpeace San Francisco 1997; Sierra Legal defence Fund et al. 1998)

B. Data on species endangerment in key US producing states¹⁴

Table 2 presents data on Canadian and US jurisdictions that together comprise over 90% of each countries softwood lumber harvest. It reveals that the states with the largest number of threatened and endangered vertebrate species are California, Alabama, Texas, Florida, Virginia, and Georgia.

Table 2: COMPARISON OF NUMBER OF THREATENED AND ENDANGERED SPECIES



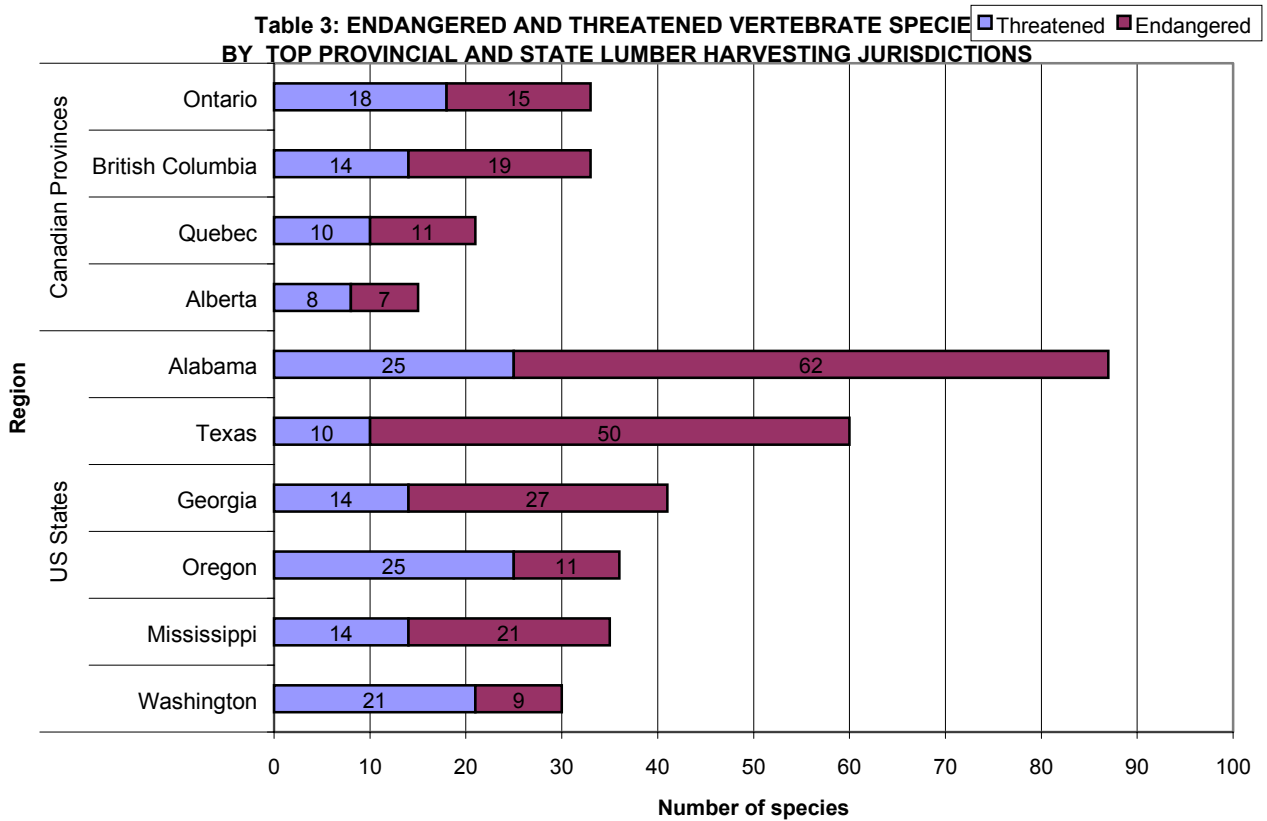


Table 3 reveals the same data by the top four softwood lumber harvesting provinces and the top six softwood lumber harvesting states, revealing that British Columbia has fewer endangered and threatened vertebrate species than any of the six states listed except Washington State. Table 4 shows similar rankings when we look at the percentage of endangered or threatened invertebrate species as a percentage of all endangered or threatened invertebrate species. Table 5 presents the same percentage ranking for the top 16 softwood lumber harvesting states.

Table 4: PERCENT OF ALL EXISTING SPECIES LISTED AS THREATENED AND ENDANGERED, BY TOP PROVINCIAL AND STATE LUMBER HARVESTING JURISDICTIONS

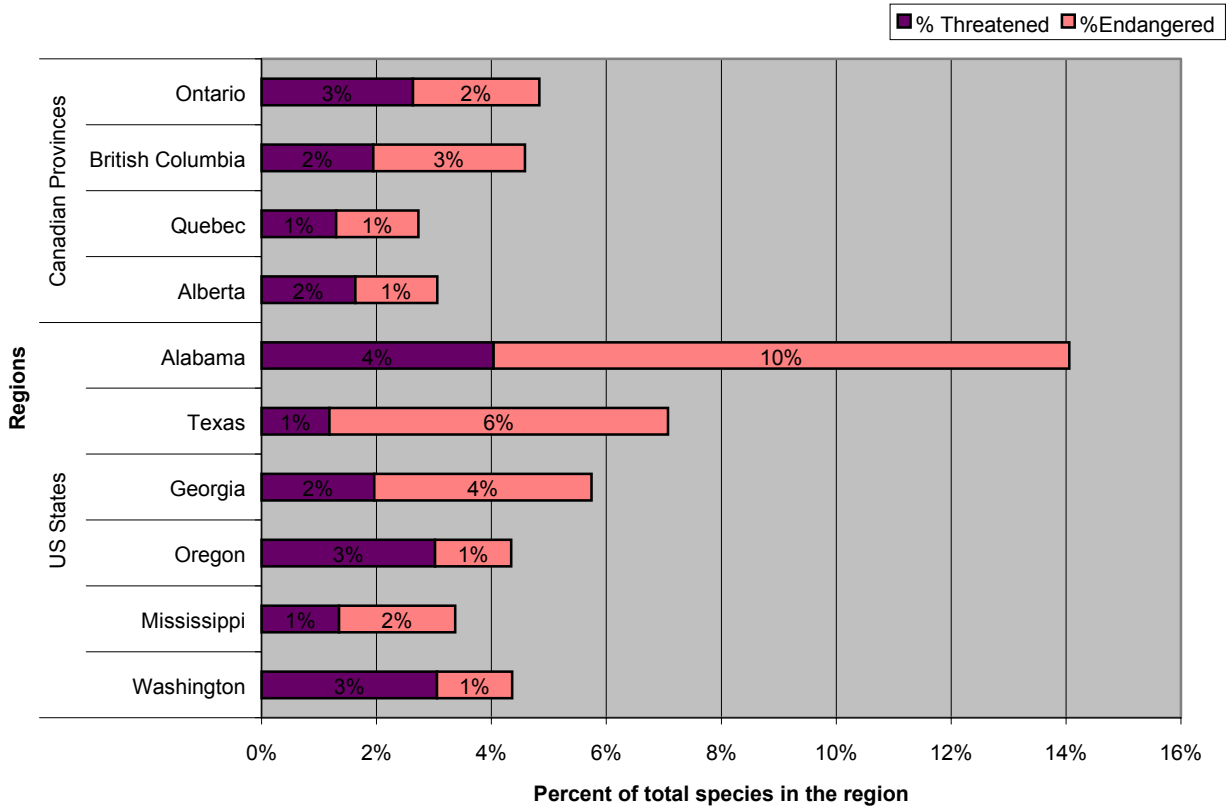
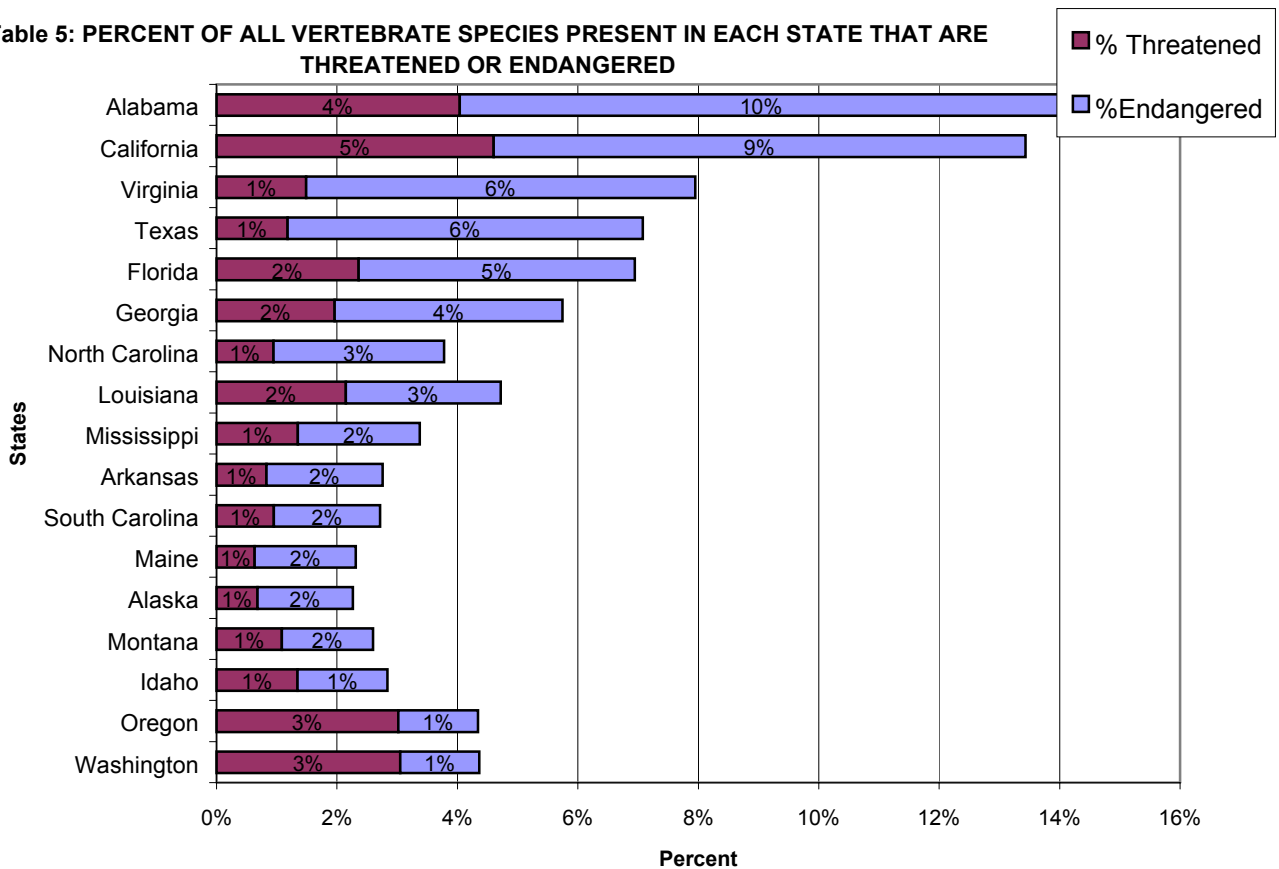


Table 5: PERCENT OF ALL VERTEBRATE SPECIES PRESENT IN EACH STATE THAT ARE THREATENED OR ENDANGERED



Conclusion

What does this review mean for the future of efforts to address endangered species issues? The first lesson it provides is that each country's approach to endangered species preservation reveals distinct patterns. In the United States, federal land management agencies come under the most strict sets of rules, but these have been developed because the much larger share of private land is under quite different and much more limited rules. In British Columbia and most other Canadian provinces, governments are unable to take a similar approach to the one that exists in the United States because of the vast amount of public land within their jurisdiction. A generalization can be made: rules governing species preservation are the weakest on private

lands, while they are the most strict on US federal lands. Canadian policies arguably fall in between these extremes.

Turning to the softwood lumber issue, the review here suggests that private forest landowners have little evidence to argue that their Canadian competitors face weaker endangered species protection rules – quite the contrary. Any assertion that Canada or the US is “better” than the other will be difficult to sustain.

At the same time none of the policies above seem to represent a panacea – even the Spotted Owl continues to decline. The lesson may be that governments and firms need to experiment with different innovative solutions. Certainly there is evidence this is happening. The US Fish and Wildlife Service has set up a “safe harbor” program whereby private landowners would be encouraged to attract endangered species without the risk of further penalty for doing so, and such things as conservations easements and conservation banks (Knopman, Susman, and Landy 1998) are emerging as providing new types of incentives to promote species diversity. In Canada, companies on BC’s central coast and environmental groups have joined together in an effort to use positive market incentives to encourage forest protection. (Coastal Rainforest Coalition 2000; Coady 2000; Hamilton 2000) Similarly, World Wildlife Fund Canada (World Wildlife Fund Canada 2001) and Tembec have partnered in their efforts to address species and habitat diversity through market mechanisms.

Another important innovative step is an effort to increase Canada-US cooperation this issue through a framework for cooperation on species at risk (Canada. Department of the Environment and United States. Department of the Interior 1997), which seems to be a more useful and productive approach than using the issue to gain leverage in a trade war.

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Endnotes

¹ The author wishes to thank Graeme Auld for extremely helpful research assistance and comments on a previous version.

² See Sher (1990; 1993) and Hungerford (1994).

³ See Thomas (1990). Jack Ward Thomas later became Chief of the US Forest Service. This was an inter-agency committee because the Spotted Owl listing issue included the Bureau of Land Management Lands, Forest Service Lands, Indian Lands, and involved the Fish and Wildlife Service and the US Marine Fisheries Department. Public organizations were not involved. After this report, a *Scientific Panel on Late-successional Forest Ecosystems*, commonly referred to as the "gang-of-four," was established, with similar composition, purpose, and in the end, fate. Finally, the Forest Service decided to conduct its own assessment. It was called the *Scientific Analysis Team* ("SAT") and attempted to devise its own intra-agency plan for saving the Spotted Owl.

⁴ See, Begley (1993).

⁵ Personal interview, US Department of Justice.

⁶ In July of 1996, the environmental campaign to repeal the rider came within one vote in the House of Representatives of meeting this goal.

⁷ At the national level, the Forest Service has developed similar landscape/province/regional inter-agency and advisory processes that are geared to inform, but not replace existing planning structures. In February 1994, Chief of the US Forest Service, Jack Ward Thomas, issued a National Action Plan for Implementing Ecosystem Management in which he explained that these eco-region and landscape analyses (or assessments) "will not replace the forest plan revision process, but will be used to provide a consistent ecological and social approach to managing these forests." (Thomas 1994)

⁸ These groups are also critical of the Clinton administration's "no surprises" rule by extending exemptions to other sensitive yet unlisted species.

⁹ The Canada Water Act, enacted in 1970, has had little applicability to BC since water remains *de facto*, and arguably *de jure*, a matter of provincial jurisdiction. Whatever the legal position, and unlike the US experience, the Canadian federal government usually retreated from possible incursion into areas of provincial responsibility. (Filyk and Cote 1992) Similarly, Haddock (1995: 21) points out that regulations under the federal Migratory Birds

Convention Act"prohibit disturbing, destroying or taking a nest or egg of a migratory bird," but these provisions "have never been enforced by the federal government in relation to logging activities."

¹⁰Personal interview, Department of Fisheries and Oceans, Ottawa. *See also* Vanderzwaag [Vanderzwaag, 1992 #442@15]. Hoberg explains that "The Fish and Wildlife Branch of the Ministry of Environment has been given responsibility for the protection of non-anadromous fisheries, selected anadromous fisheries, and the enforcement of the Federal Fisheries Act in these waters.

¹¹ For a complete review of US versus Canadian protected area records see (Cashore 2001), who draws on data from (DellaSala 2000).

¹² As official policy documents explain, "The *Biodiversity Guidebook* addresses the maintenance of biodiversity at both the stand level and landscape level. Stand level biodiversity provisions involve maintaining stand structure through the retention of wildlife trees, coarse woody debris, tree species diversity, and understory vegetation diversity. Stand level biodiversity is addressed during operational planning (e.g., silviculture prescriptions) whereas landscape level biodiversity is addressed through landscape unit planning. During landscape unit planning, objectives for some or all of the following landscape characteristics are set: seral stage distribution, temporal and spatial distribution of cutblocks, old seral retention and representation, landscape connectivity, stand structure and species composition." (British Columbia. Ministry of Forests 1999)

¹³ The Ministry of Forests explains further that "Provincial status (e.g., red, blue and yellow) is determined and reviewed on a biannual basis by the Conservation Data Centre ("CDC") and Wildlife Branch using the internationally accepted criteria developed by the Nature Conservancy. These criteria are provincial abundance, estimated occurrences, range, trends, protected occurrences and threats. Species and plant communities are ranked from 1-5, where 1 is critically imperiled and 5 is secure. Generally, red-listed species are ranked 1 or 2, and blue-listed species are ranked 3 or 3/4. Regionally important wildlife are species that are ranked 4 or 4/5, indicating a potential conservation concern, and are "at risk" in adjacent jurisdictions. The species at risk list is approved by the deputy minister of Environment, Lands and Parks."

¹⁴ This comparison focuses on the 48 contiguous states. Data for the Threatened and Endangered species listings by state are from the USFWS, http://ecos.fws.gov/webpage/webpage_usa_lists.html.

The information on the number of Threatened and Endangered vertebrate species by province came from Environment Canada, Canadian Wildlife Service, <http://www.speciesatrisk.gc.ca/Species/English/SearchRequest.cfm>.

The Global status rankings for the Canadian provinces came from Natureserve Natureserve: An online encyclopedia of life [web application]. 2000. Version 1.2. Arlington, Virginia, USA: Association for Biodiversity Information. Available: <http://www.natureserve.org/>. (Accessed: March 24, 2001).

All other data presented came from Edited by Bruce A. Stein, Lynn S. Kutner, and Jonathan S. Adams (eds.s), 2000. Precision Heritage: The Status of Biodiversity in the United States, Oxford: Oxford University Press, pp 416

APPENDIX A: Select United States/Pacific Northwest and Canadian/British Columbia SPECIES PROTECTION STATUTES

		MEANS					SCOPE								
		STRUCTURE			METHOD		FOCUS			APPLICABILITY					
Year	Leg	Reg	D?	ND	Procedural	Substantive	Land Use	F. Practices	Env Prot.	FS	BLM	NPS	State land	Private land	

FEDERAL LEGISLATION

Multiple Use Sustained Yield Act	1960	X		X		X		X			X				
Wilderness Act	1964	X			X		X	X			X	X	X		
Wild and Scenic Rivers Act	1968	X			X		X				X	X	X		
National Environmental Policy Act	1969	X			X	X					X	X	X		
Clean Water Act	1970	X	X		X		X		X		X	X	X	X	X
Endangered Species Act	1973	X	X		X		X		X		X	X	X	X	X
Forest and Rangeland Renewable Resources Planning Act (RPA)	1974	X		X	X	X		X			X				
National Forest Management Act	1976		X	X	X	X	X	X	X		X				
Federal Land Policy and Management Act	1976	X	X	X		X		X	X			X			
Washington State Wilderness Act	1984	X			X		X				X	X	X		

STATE LEGISLATION

Washington State

Washington State Forest Practices Act	1974		X	X	X	X	X		X					X	X
Washington State Environmental Policy Act	1971	X			X	X			X					X	
Wildlife Code	1986		X	X		X	X		X					X	X
Washington Forest Practices Act Amendments	1987		X		X		X		X					X	X
Washington Forest Practices Act Amendments	1991		X		X		X		X					X	X

Oregon

Oregon Forest Practices Act	1971		X		M	X	X		X					X	X
Oregon Land Use Act	1973		X		M	X	X	X							X
Oregon Endangered Species Act	1986	X	X		M		X		X					X	
Oregon Forest Practices Act Amendments (threatened and endangered species)	1987		X		M	X	X		X	X				X	X
Oregon Forest Practices Act Amendments	1991		X		M	X	X		X					X	X

* Leg=Legislation; Reg=Regulations; D=Discretionary; ND=Non-discretionary; FS= Forest Service; BLM = Bureau of Land Management; NPS = National Park Servi

BRITISH COLUMBIA

		MEANS					SCOPE					
		STRUCTURE			METHOD		FOCUS			APPLICABILITY		
Year	Leg	Reg	D?	ND	Procedural	Substantive	Land Use	F. Practices?	Env Prot.	FS	PS	Private land

FEDERAL LEGISLATION

Clean Water Act	1970		X	X			X			X	X	X
Fisheries Act (Amendments)	1970		X	X			X			X	X	X
Endangered Species Act	1997?		X	X	X	X	X			X	?	?

PROVINCIAL LEGISLATION

Old BC Forest Act Amendments	1961	X			X		X			X		
Park Act	1965	X	X	X		X					X	
Environment and Land Use Act	1971		X	X		X		X		X	X	
Ecological Reserves Act	1971	X	X	X		X		X		X		
Forest Act	1978	X		X	X	X	X	X		X		
Ministry of Forests Act	1978	X		X	X	X	X			X		
Ministry of Environment Act	1978	X			X							
Park Act Amendments	1978			X							X	
Wildlife Act (S. 5 & 6)	1980	X		X		X		X		X	X	X
Forest Act Wilderness Amendment	1987			X			X		X	X		
Forest Act Reforestation Amdmnt	1987	X			X			X		X		
Commission on Resources and the Environment Act	1992	X	X	X	X	X		X		X	X	
Forest Renewal Act	1993	X		X			X			X		
Forest Land Reserve Act	1993	X		X			X					
Forest Practices Code Act	1994		X	X	X	X	X		X	X	X	*

Leg=Legislation; Reg=Regulations; D=Discretionary; ND=Non-discretionary; FS = BC Forest Service; PS = BC Park Service.