

# The Last Place on Earth

British Columbia needs a  
law to protect species from  
habitat loss and global warming



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The world's only mountain caribou live in the interior temperate rainforest of British Columbia and the northwestern United States.

CARIBOU, MILO BURCHAM PHOTO



# British Columbia Needs a Species and Ecosystem Protection Act

British Columbia has the richest biodiversity of any Canadian province. It is home to 76 percent of Canada's bird species, 70 percent of its freshwater fish species, and thousands of other animals and plants.<sup>1</sup> Well over 3,600 species call BC home, and many of these, such as mountain goat and mountain caribou, live mostly – or only – in the province. For others, such as the migratory trumpeter swan and sandhill crane, BC is a critical wintering ground or stopover. Unlike most Canadian and US jurisdictions, BC still has all the large species that were present at the time of European settlement, including grizzly bears, wolverines, wolves, and cougars.<sup>2</sup>

However, scientists tell us that more than 1,600 species, from blue birds to killer whales, are currently at risk in BC and levels of endangerment are especially high within some wildlife groups.<sup>3</sup>

The good news is that, with strong laws and appropriate planning in our own backyard, we can successfully reverse or at least slow this tragic trend. The province can bolster the conservation gains achieved thus far (e.g. the Great Bear Rainforest Agreement) by introducing a strong provincial *Species and Ecosystem Protection Act*. A strong Act would:

- Identify species and ecosystems at risk through an independent, scientific listing process;
- Immediately protect the full habitat of listed species and ecosystems until a final decision is made about how much long-term protection they need; and
- Restore species and ecosystems to health.

As noted by the United Nations Intergovernmental Panel on Climate Change, we must reduce non-climate threats in order to help biodiversity adapt to global warming.<sup>4</sup> For this reason, a provincial *Species and Ecosystem Protection Act* is critical to maintaining the biological richness with which we are blessed, and the associated essential ecosystem goods and services (e.g. clean air and water, carbon storage, pollination, nutrient cycling, etc.).

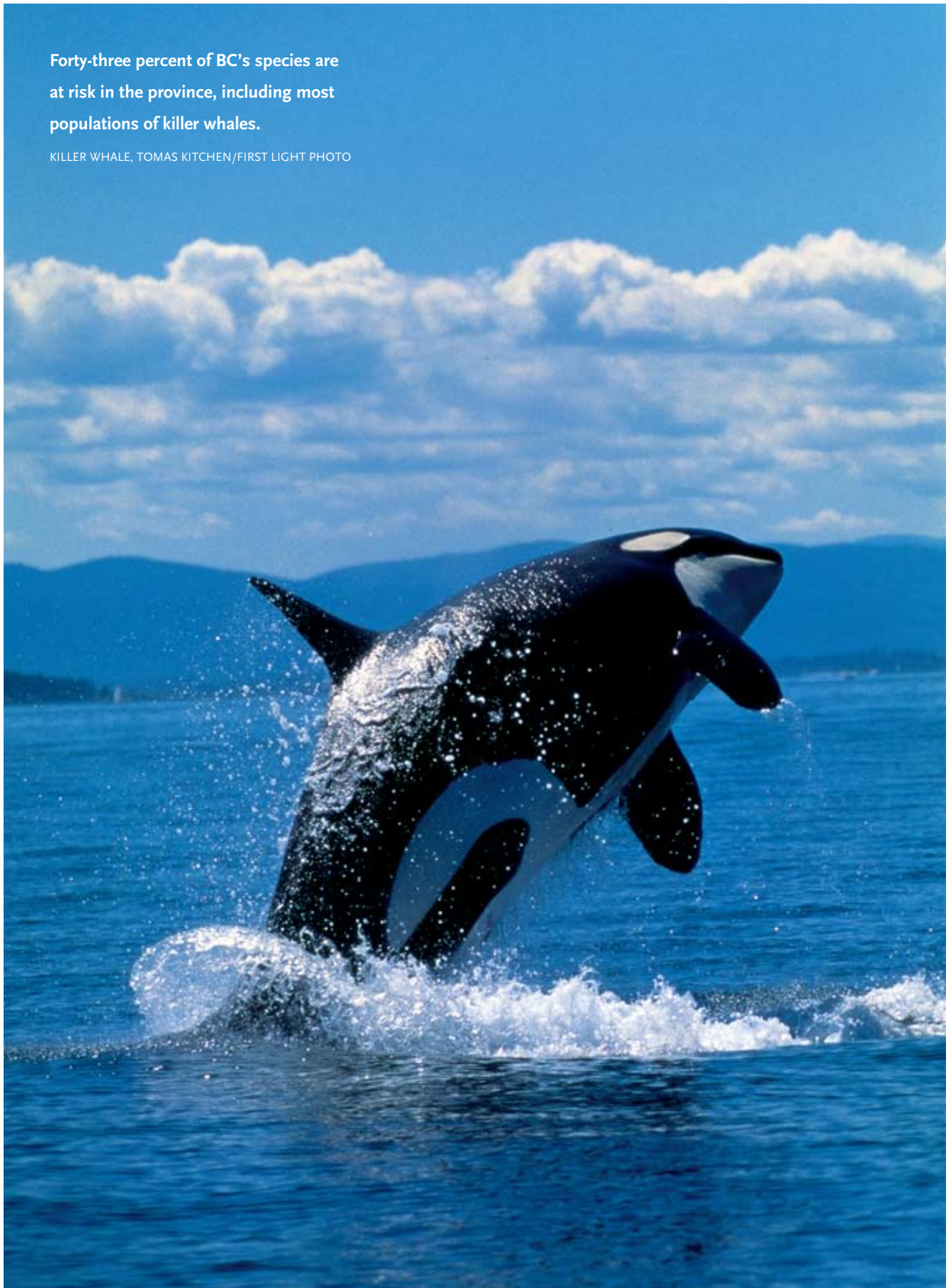
BC still has all the large species that were present at the time of European settlement, including grizzly bears, wolverines, wolves, and cougars.



GRIZZLY BEAR ADULT

Forty-three percent of BC's species are at risk in the province, including most populations of killer whales.

KILLER WHALE, TOMAS KITCHEN/FIRST LIGHT PHOTO



# British Columbia: A Biodiversity Ark

British Columbia has tremendous biological wealth. For example, it is one of the few remaining places in North America with intact systems of large predators (e.g. bears, wolves and cougars) and their prey (e.g. elk, moose and deer).<sup>5</sup> BC's rich biological heritage is perhaps the key reason why we think of our province as the "Best Place on Earth."

Unfortunately, BC's biological wealth is under severe stress. A recent analysis of 3,808 species in the province found that 1,640 of them – 43 percent – are currently at risk in BC.<sup>7,8</sup> A number of unique mammals, birds and plants are on the list, including the mountain caribou, the Vancouver Island marmot, Swainson's hawk and Lyall's mariposa lily.

Habitat loss is by far the greatest threat to BC's biodiversity, affecting 86 percent of species at risk in the province.<sup>9</sup> Other significant threats to BC species include pollution, the introduction of non-native species (e.g. knapweed, yellow flag iris) and over-exploitation (e.g. over-hunting and over-fishing).<sup>10</sup>

Global warming is an emerging threat that poses new challenges for biodiversity conservation. Scientists predict that global warming will become the new leading cause of biodiversity loss in the next few decades.<sup>11</sup> The effects of global warming will be most severe in degraded areas where species are already facing challenges. In these areas, changes in habitat may happen too quickly, or may remove connections to remaining habitat that would allow species to adapt by shifting their ranges.<sup>12</sup>

Although species at risk are found throughout British Columbia, most are concentrated in four "hotspots": southern Vancouver Island, the Lower Mainland of south-western BC, the southern Rocky Mountain Trench and the Okanagan Valley (see map on page 9).<sup>19</sup> These hotspots have

British Columbians may agree that their province is the "Best Place on Earth" – but most are surprised to learn that BC has no stand-alone law to protect the province's endangered species and ecosystems.



CASSIN'S AUKLET



BEHR'S HAIRSTREAK

been heavily impacted by human activities, including industrial development, over-fishing, over-hunting, and the introduction of invasive species.<sup>20</sup>

Several BC ecosystems (i.e. groups of plants and animals and their habitat) are also under threat in the province. Some are on the verge of disappearing. For example, at least 80 percent of the Fraser River Delta ecosystem, including 85 percent of its original wetlands,<sup>21</sup> has been lost to development.<sup>22</sup> Less than 1 percent remains of the coastal Douglas fir ecosystem.<sup>23</sup> 97 percent of the plant communities in this ecosystem are at risk,<sup>24</sup> including Garry oak meadows. Garry oak meadows now cover less than 5 percent<sup>25</sup> of their historic range (see map below).

BC's native grasslands have also declined dramatically. Over half the native grasslands in the Northern Okanagan Basin have been lost, and over a third of the native grasslands in the Southern Okanagan Highland are gone; most of what remains is degraded.<sup>26</sup> As a result, many grassland plant communities are at risk. In the Okanagan, 40 to 70 percent of shrub-steppe and bluebunch wheatgrass habitats and 60 to 90 percent of riparian habitat types have been lost.<sup>27,28</sup>

The loss of biodiversity is irreversible. The planet's fossil record shows that it took roughly 10 million years to recover from past mass extinction events.<sup>29</sup> Humans are now causing the sixth mass extinction event in the planet's history, with current rates of species extinction higher than at any time since the catastrophic demise of the dinosaurs some 65 million years ago.<sup>30</sup> These losses will continue unless we take immediate steps to protect BC's imperilled species and ecosystems.

While BC's rich biological diversity is under severe and increasing threat, much still remains intact thanks to the province's forbidding terrain and relatively brief history of large-scale human development.<sup>31</sup> The most thorough analysis to date of the state of biodiversity in British Columbia, *Taking Nature's Pulse*, recently concluded that BC's biodiversity is still in good enough condition that there is time to take action to protect it. However, this report included a strong caution: "without immediate action, [BC's biodiversity] is vulnerable to rapid deterioration, especially in light of climate change."<sup>32</sup>



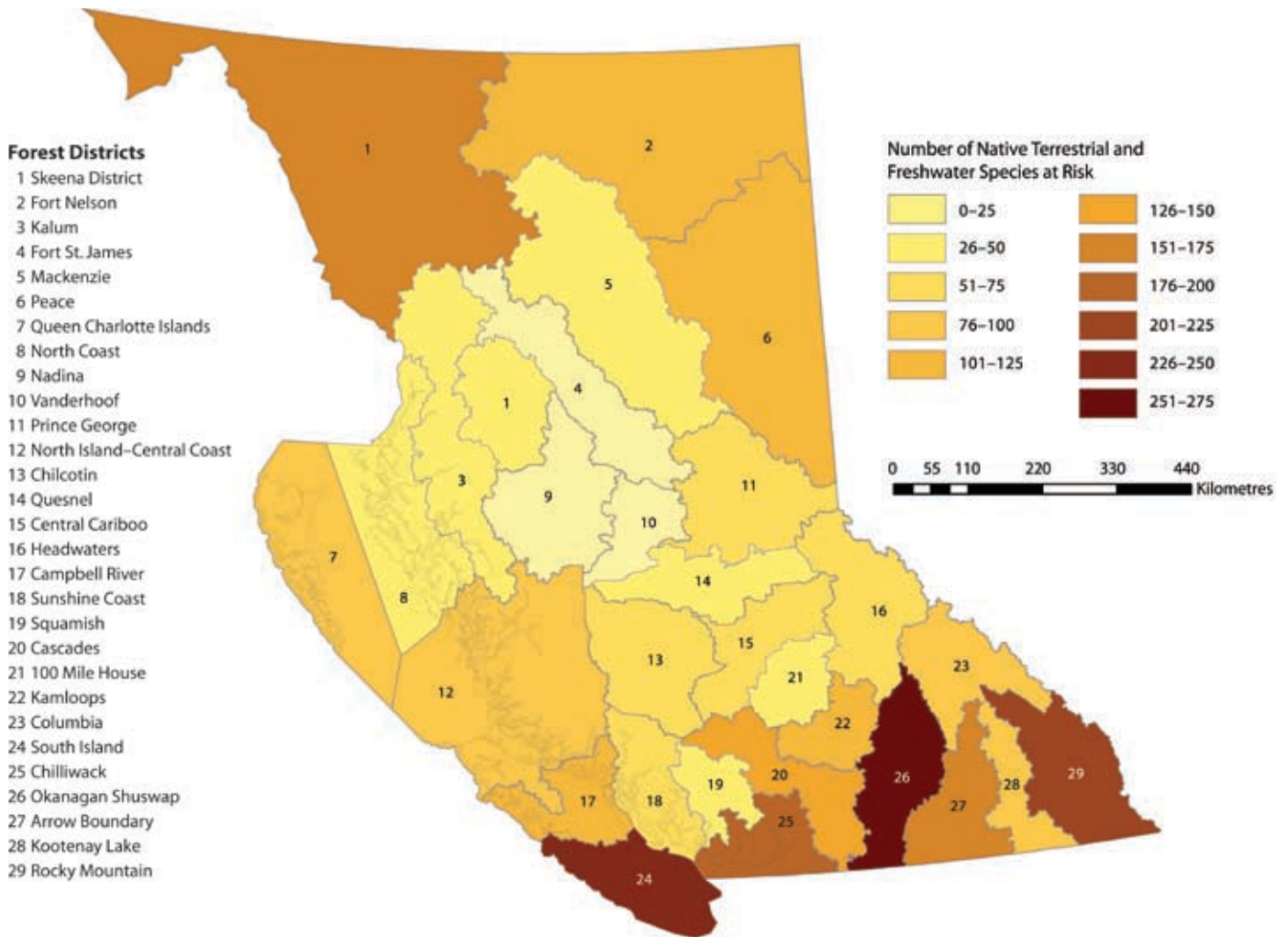
**Historic and current distribution of Garry oak ecosystem on Vancouver Island. Ninety percent of the Garry oak ecosystem has been lost through human disturbance.**

SOURCE: AUSTIN, M.A., D.A. BUFFETT, D.J. NICOLSON, G.G.E. SCUDDER AND V. STEVENS (EDS.). 2008. *TAKING NATURE'S PULSE: THE STATUS OF BIODIVERSITY IN BRITISH COLUMBIA*. BIODIVERSITY BC, VICTORIA, BC. AVAILABLE AT: [www.biodiversitybc.org](http://www.biodiversitybc.org)

## Global Warming as a Threat to Biodiversity

Climate is the most important factor determining the nature of ecosystems<sup>13</sup> and is key in shaping biodiversity. Rapid, human-caused climate change is already underway. Globally, over the last 100 years, average surface temperature has increased almost 1°C; temperatures are expected to increase from 1.4 to 5.8°C more in the next 100 years.<sup>14</sup> Scientists have made conservative predictions that, in this century, global warming will put 20 to 30 percent of animal species at a high risk of extinction.<sup>15</sup> Scientists predict that BC will experience a higher than average degree of global warming,<sup>16</sup> leading to massive changes in the distribution of many species and ecosystems. Some BC ecosystems such as the Mountain Hemlock zone and northern spruce forests will likely decline dramatically or disappear from the province.<sup>17</sup> We do not know exactly how BC's biodiversity will respond to global warming, but we do know that the most effective way to give BC's species and ecosystems a fighting chance at adapting to the detrimental impacts of global warming is to protect them from other human-caused disturbances.<sup>18</sup>





## Some Useful Terms

**BIODIVERSITY**, or biological diversity, is the variety of living organisms on Earth. It includes variety within species (e.g. the variety of individuals in the human race), between species (e.g. the multiple species of finches on the Galapagos Islands) and of ecosystems (e.g. the widely different natural regions of BC – from desert to rainforest), and the processes and interactions that connect life at each of these scales.

An **ECOSYSTEM** is a biological community of organisms, and their non-living environment (e.g. soil and water).<sup>6</sup> Ecosystems can be defined at different spatial scales, from a tiny area such as a patch of moss and the organisms and biological processes it houses, to a lake and its inhabitants, to a vast landscape. Ecosystems depend on many interactions among organisms, or between organisms and their physical environment. When ecosystems become degraded by the loss or reduction of species, these interactions are compromised and the ecosystem becomes less resilient to disturbance and less likely to thrive in the long term.

# Why Protect Species and Ecosystems?

**Future generations of British Columbians have a right to inherit the province with its life-sustaining processes intact.**



Species and ecosystems have intrinsic value, regardless of their value to human beings. Iconic BC animals like the grizzly bear and killer whale are complex, intelligent creatures that remind us of the mystery of our native wilderness. The province's remaining coastal and interior old-growth forests are some of the most magnificent natural sanctuaries on the planet.

Healthy ecosystems with their full complement of native species are also essential to human health and to the health of our economies. We sometimes take for granted the various environmental services provided by natural ecosystems. These ecosystem services include regulating the climate, purifying water and air, pollinating food crops, and enriching the soil.

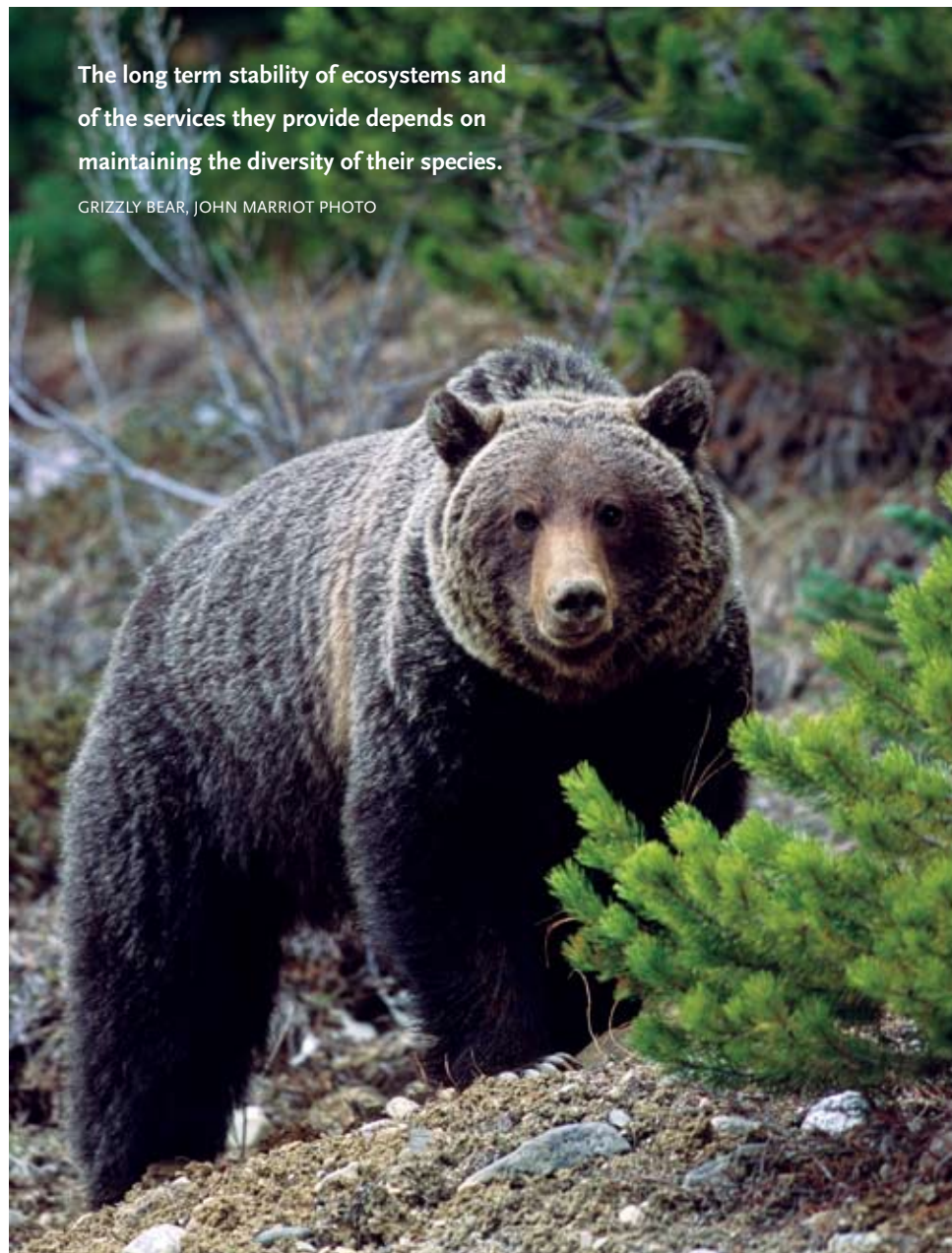
The long-term stability of ecosystems and of the services they provide depends on maintaining the diversity of their species.<sup>36</sup> Species are in some ways like rivets in an airplane fuselage – each species lost to extinction means that one of the rivets is popping out, weakening the systems that keep human societies aloft.

## The Economic Value of Natural Ecosystems

The services given for free by the Earth's remaining natural ecosystems have been estimated to be worth the same amount as the gross domestic products of all nations combined (\$US 30 trillion per year).<sup>33</sup> The economic value of pollination services to US agriculture alone has been estimated to be \$US 5.7 to 13.4 billion per year.<sup>34</sup> The full economic significance for Canadian agriculture has not yet been quantified, though the European varieties of the western honeybee (*A. mellifera*) alone have been valued at \$CDN 1 billion each year.<sup>35</sup>

BC has a responsibility to the international community and to the rest of Canada to protect its biodiversity. In 1992, Canada signed the United Nations *Convention on Biological Diversity*, committing to promote the conservation of biodiversity by adopting laws to protect and recover species at risk. BC signed the *National Accord for the Protection of Species at Risk in Canada* in 1996, committing to enact endangered species legislation or use existing laws and policies to protect species at risk and their habitat. Further, as shown in recent polls, British Columbians overwhelmingly support both the protection and recovery of species at risk<sup>38</sup> and enactment of a single, effective law<sup>39</sup> to protect BC's species.

Finally, we have a responsibility to our children and grandchildren to protect BC's biological heritage. It would discriminate against future generations to leave them with a biologically impoverished world simply because we – and our governments – couldn't be bothered to protect species and their habitat. Future generations of British Columbians have a right to inherit the province with its life-sustaining processes intact.



The long term stability of ecosystems and of the services they provide depends on maintaining the diversity of their species.

GRIZZLY BEAR, JOHN MARRIOT PHOTO

According to the United Nations' 2005 Millennium Ecosystem Assessment, roughly two-thirds of the direct benefits people derive from biodiversity are being degraded or used unsustainably.<sup>37</sup>

# BC Law Protects Just 4% of Species at Risk

“There is a systemic failure in government policy to protect endangered species such as marbled murrelet on Crown lands”  
— BC Forest Practices Board, 2005



NORTHERN SPOTTED OWL,  
SHARON TOOCHIN PHOTO

The loss of species and ecosystems – while irreversible – is also preventable. Studies from the United States have shown that the US *Endangered Species Act* has been successful in preventing the extinction of listed species and in encouraging their recovery.<sup>40</sup>

However, BC is one of the only provinces in Canada – and one of the few jurisdictions in North America – with no stand-alone law to protect species at risk.

Currently, 89 percent of known threatened and endangered species in BC are not protected under BC’s laws and policies, or under Canada’s federal endangered species legislation.<sup>41</sup> The vast majority of BC’s species at risk thus receive no legal protection.

Instead, the province relies on a fragmented legislative and policy framework that provides poor protection for biodiversity. A mere 4 percent of BC’s species at risk receive legal listing under provincial laws.<sup>42</sup> Existing provincial laws do not require protection of species’ habitat, thus failing to address the primary threat to species’ survival and recovery. Remarkably, some provincial laws and policies actually prevent habitat protection for species at risk, by explicitly giving priority to industrial logging.<sup>43</sup> Without a strong BC law to protect species and their habitat, even more species will join the list of 1,600 species that are already at risk in BC.

Canada’s federal *Species at Risk Act* (SARA) offers little help. It generally applies only on federal lands, which cover a mere 1 percent of BC’s land base.<sup>44</sup> SARA gives the federal government the power to apply “safety net” provisions to protect species outside of federal lands; but these discretionary powers have never been used, even for severely endangered species like BC’s spotted owl.

BC’s long and growing list of at-risk species makes it clear that current provincial and federal approaches are not working to protect species and ecosystems in BC. The provincial government must show it is serious about protecting our biological heritage by enacting a robust species and ecosystem protection law.

# What the New Law Should Look Like

Ecojustice has reviewed biodiversity protection laws from several other countries and from all other Canadian provinces and territories.<sup>54</sup> We have developed recommendations for a model BC law based on best practices from these other jurisdictions, tailored to the unique circumstances in British Columbia. A more detailed research paper with specific prescriptions for a model BC law will be available later this year on the Ecojustice website, [www.ecojustice.ca](http://www.ecojustice.ca), and at [www.lastplaceonearth.ca](http://www.lastplaceonearth.ca).

The goal of any BC law must be the long-term health of all of BC's ecosystems and the long-term recovery and maintenance of healthy populations of all BC's native species.<sup>55</sup> At a minimum, the law must aim to ensure that no further native BC species or ecosystems become endangered or extinct as a result of human activities.

A law to help accomplish these goals would be relatively straightforward. Good biodiversity protection laws generally have three goals:

1. Identify species and ecosystems at risk;
2. Immediately protect species and their habitat; and,
3. Restore species and ecosystems to health by developing and implementing recovery plans that address both the causes of their decline and the threats to their future health.

Because habitat loss is the main threat to BC species and ecosystems, a key measure of the success of a biodiversity protection law and of BC's environmental laws generally will be the percentage of the province's land base dedicated to conservation in the near-term. BC's existing protected areas do not effectively protect species at risk because they do not adequately overlap with species' habitat needs.<sup>56</sup> BC has not yet created a system of parks and protected areas designed to adequately protect the province's biodiversity. While some recent protections such as the Great Bear Rainforest Agreement begin to address the needs of some species, as a whole BC's protected areas system tends to protect higher-elevation areas that are more

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REDWOOD SORREL

important for scenery and recreation than for biodiversity. As a result, most of BC's species at risk live outside of parks and protected areas.<sup>57</sup>

Large, interconnected protected areas that are representative of all of the ecological communities in the province must be the centrepiece of any meaningful conservation effort.<sup>58</sup> Large protected areas will greatly enhance the resilience of BC's species and ecosystems to the effects of global warming. Scientific reviews of the needs of species and ecosystems show that, to ensure the long-term health of biodiversity in a region, between 25 and 75 percent of the landscape must be set aside in dedicated protected areas and in sensitive management areas.<sup>59</sup> Many scientists have argued that 50 percent is the bare minimum of protection necessary and that a precautionary approach to planning would necessitate much higher levels of conservation.<sup>60</sup> As noted by Harvard biologist E.O. Wilson:

*There is no solution available, I assure you, to save Earth's biodiversity other than the preservation of natural environments in reserves large enough to maintain wild populations sustainably. Only Nature can serve as the planetary ark.*<sup>61</sup>

Thus, BC's biodiversity protection laws will only succeed if a large percentage of the landscape is set aside in an interconnected, representative protected area system<sup>62</sup> to address the needs of all BC's biodiversity, whether healthy or imperilled. BC must also bring large areas of the province under sensitive management (i.e. ecosystem-based management), which would allow for some



RIVER JEWELWING

## Fundamental Components of a New Law

As set out in the report *Rich Wildlife, Poor Protection*,<sup>45</sup> a strong law to protect and recover BC's species and ecosystems must do the following:

- Enshrine the principle that healthy ecosystems are essential to healthy human societies and economies;<sup>46</sup>
- Recognize that biodiversity is essential to healthy ecosystems;
- Identify, protect and recover at-risk biodiversity across British Columbia;<sup>47</sup>
- Protect and recover biodiversity by protecting habitat;<sup>48</sup>
- Identify, assess and develop recovery strategies for at-risk biodiversity on the basis of sound science;<sup>49</sup>
- Incorporate global warming into policy, planning and management;
- Enshrine the precautionary principle, the principle of inter-generational equity, and the polluter-pays principle;<sup>50</sup>
- Require citizen and community participation, and require meaningful consultation with First Nations governments;<sup>51</sup>
- Require accountability and transparency; and
- Be funded<sup>52</sup> and enforced.<sup>53</sup>

development while incorporating the needs of species and ecosystems in each region. The required percentage of protected areas and of sensitive management areas for each region must be determined through science-driven, conservation-based land use planning processes, as informed by the needs of BC's endangered species and ecosystems. These planning processes must also include strategies to both minimize and adapt to global warming.

BC will clearly need a system of protected areas that covers a much greater area than that covered by the current park system. Otherwise the majority of BC's species and ecosystems will be unlikely to survive and thrive in the long term or to withstand the major new threat posed by global warming. The consequences of this loss of biodiversity would be devastating for species and for the physical and economic health of British Columbians.

With that end in mind – the conservation and sensitive management of a large portion of BC's landscape to ensure the long-term recovery and persistence of BC's species and ecosystems – we now address the three main components of an effective biodiversity protection law: identifying species and ecosystems at risk, immediate protections, and longer-term recovery.



Although they were likely widespread in BC up to the late 1800s, it is believed that fewer than 300 badgers remain here. Protecting badgers' habitat is key to their survival. AMERICAN BADGER, REBECCA AND GLEN GRAMBO PHOTO

**“If we fail to act aggressively and shoulder our responsibility, we know what our children can expect. Things we take for granted and that have taken millennia to evolve could be at risk and lost in the lifetimes of our children.”**

**— BC Throne Speech, 2007**

# Listing by an Independent Scientific Committee

The first step in protecting and restoring biodiversity is to identify the species and ecosystems that are at risk in the province.<sup>63</sup> A central element of any good biodiversity law is an independent scientific listing process, based on the best available scientific, community and Aboriginal knowledge about species and ecosystems.

**The listing decision must be based solely on the best available scientific, community and Aboriginal knowledge.**



NIGHT SNAKE

BC's law must establish an independent scientific listing committee, composed of recognized experts from fields including conservation biology, wildlife ecology, and First Nations traditional ecological knowledge. In addition, some committee members should have expertise in the effects of global warming on biodiversity. To minimize the potential for political interference in the listing process, a majority of the members must come from outside government, and the committee selection process should involve input from respected independent scientific bodies like the Royal Society of Canada.

Once the independent committee has identified that a species or ecosystem is at risk, legal listing and basic protection under the Act must follow automatically. If we truly intend to protect BC's biodiversity, then it must not be left to politicians to decide whether a species at risk should receive basic protections, such as the protection from being harmed or killed. While the final choice about how much protection to give a species or ecosystem should be made through a wider democratic process that considers political and economic factors, the listing decision must be based solely on the best available scientific information.<sup>64</sup>

The listing committee must also be given the discretion to list ecosystems or ecological communities<sup>65</sup> in the province. Because habitat loss is the key cause of species decline, a problem with one species often indicates a wider problem with the ecosystem of which it is a part, in effect warning that the ecosystem and the services it provides are fraying at the edges.



Protecting ecosystems can be a useful approach because it directly addresses the primary threat of habitat loss, and more directly addresses the threat of global warming. It also provides a cost-effective means for simultaneous listing, protection and recovery of groups of species.<sup>67</sup> However, ecosystem conservation must be seen as a complement to species-level conservation efforts, and not as a substitute for such efforts.<sup>68</sup> Details of ecosystem protection and recovery planning must still be assessed by reference to the needs and health of individual species, especially those that are vulnerable to human activities.<sup>69</sup> Further, many BC species have become so rare, or their habitats so degraded, that they need individual listing and recovery planning to prevent their extinction.<sup>70</sup> As climate change causes drastic alterations in some ecosystems (e.g. lodgepole pine forests), wildlife that depends on these ecosystems will need species-specific protection as their ranges shift to new habitats.

For consistency, BC's law should use the same categories as the federal *Species at Risk Act* to describe levels of species and ecosystem endangerment in the province, ranging from:

- **EXTINCT OR EXTIRPATED** for those that no longer occur in the wild in BC;
- **ENDANGERED** for those that face imminent extinction or extirpation in BC;
- **THREATENED** for those that are likely to become endangered if nothing is done to address their decline; to
- **SPECIAL CONCERN** for those that may become threatened or endangered because of identified threats and traits particular to the species or ecosystem.

The listing committee should be given the option to proactively list species and ecosystems that are likely to become endangered or threatened because of the effects of global warming in the province. It will often be more effective and less costly to take preventive steps to help species and ecosystems before they reach the “emergency room” of threatened or endangered status.

Finally, the law must give BC citizens the power to petition the listing committee for emergency or permanent listing of a species or ecosystem, so long as the petition is backed by relevant information supporting the need for an assessment.

When species are endangered, whole ecosystems are often at risk: A recent study found “pervasive endangerment” among the 138 vertebrate and plant species that co-exist with spotted owls. Spotted owls are the most endangered bird in Canada. Only 16 spotted owls remain in the wild in British Columbia, the only province where they are found.<sup>66</sup>



About half of yellow-breasted chat habitat in BC is found on provincial land, where species at risk are declining due to an ineffective patchwork of laws and policies. ROBERT MCCAWE PHOTO

# Protecting Species and Their Habitat

**“... any species protection legislation must include provision for the protection of critical habitat of endangered species. This is fundamental. No habitat, no species.”**  
— **Federal Environment Minister David Anderson’s speech to the House of Commons in response to the 1999 Throne Speech**



GYRFALCON

All effective biodiversity legislation provides automatic protection for endangered and threatened species and their habitat immediately upon listing. As noted above, the main threat facing species is destruction of their habitat – the area they rely on to live, feed, breed and thrive. To protect species and ecosystems at risk, the most important step is thus to protect their habitat.

As part of the listing committee’s decision to list a species or ecosystem, the committee should provide a description and map of the habitat currently occupied by the species<sup>71</sup> or ecosystem.<sup>72</sup> Where this “occupied” habitat is not sufficient to guarantee the survival of a species or ecosystem in the near-term, the listing committee should give a precautionary description and map of “survival” habitat. BC’s law must prohibit any activities that may harm the occupied or survival habitat of listed species and ecosystems, unless a permit is issued allowing such activities in exceptional circumstances.

In some cases, special concern species and ecosystems should also receive immediate habitat protection, where the listing committee recommends protection of some or all of the species’ occupied habitat. This may be appropriate, for example, where loss of habitat is the dominant threat to a species or ecosystem in part of its range in the province.

The final decision about how much habitat to protect should be made as part of the recovery planning process, described below. However, recovery planning for species and ecosystems can often take years. Unless biodiversity is protected in the interim, there is a significant danger that there will be little or nothing left to protect at the end of the planning process.

Exceptions to the protection provisions (e.g. permits) should be allowed only where the person proposing an activity demonstrates both that all reasonable alternatives have been considered,

and that the activity will not appreciably reduce the likelihood of survival and recovery of the species in the wild. Applications for exemptions should be made to an expert panel that is familiar with the species or ecosystem(s) in question.<sup>73</sup> Special exceptions should apply for Aboriginal use of species for subsistence, ceremonial or spiritual purposes.

Due to decades of over-fishing and habitat destruction around spawning grounds, at least 100 distinct runs of Pacific salmon have become extinct, and another 700 are at risk.

SOCKEYE SALMON, WAYNE LYNCH PHOTO



Salmon carcasses bring vital nutrients from the ocean to the land. These nutrients are essential to wildlife and to the massive trees of BC's coastal temperate rainforest. In turn, the rainforest provides shade, erosion protection and nutrients to the streams where salmon live during the first and most vulnerable stages of their lives.

# Recovery Planning and Longer-Term Habitat Protection



BLUE GRAMA GRASS

Recovery planning and long-term habitat protection will be the final and most important aspect of a successful BC biodiversity protection law. As noted above, BC's species and ecosystems are unlikely to thrive unless a significant portion of the province's landscape is set aside in protected areas and sensitive management areas. Such areas must be clearly identified through both land-use planning processes and through the recovery planning process for listed species and ecosystems – a law to protect species and ecosystems will only produce results if it works in complement with other environmental protection measures in the province.

The recovery planning process should have two very clearly separated components: first, an independent, science-based component that gives open scientific advice about recovery needs; and second, a wider democratic component that includes consideration of political and economic factors before finally deciding how much habitat to protect and how much effort to devote to a species' or ecosystem's recovery.

Strict timelines are crucial to the success of recovery planning. As recommended in the *National Accord for the Protection of Species at Risk in Canada*, recovery plans must be developed for endangered species and ecosystems within one year of listing, and within two years for threatened species and ecosystems. Recovery plans for special concern species must be developed within three years of listing. Implementation of each plan should follow on an established timeline starting one year after the plan's completion.

The goal of the scientific component of recovery planning must be to describe how to restore the relevant species or ecosystem to health.<sup>74</sup> The scientific recovery plan should be produced by an independent recovery team composed of experts with scientific and traditional Aboriginal knowledge about the recovery needs of the relevant species or ecosystem. The publicly-available scientific plan must include the following, based on the best available scientific, community and Aboriginal knowledge:

- A description and map of the habitat needed to ensure the species' or ecosystem's recovery and long-term viability ("recovery" habitat);
- Examples of activities that are likely to result in destruction of this habitat, and of activities that would be compatible with the species' or ecosystem's long-term health;
- Identification of threats to the species or ecosystem, and recommendations for addressing those threats;
- A recommendation about the extent to which existing protected areas and sensitively managed areas in the province will ensure the long-term recovery of species and ecosystems and maximize their resilience to the effects of global warming;
- For species: specific, quantified goals to achieve a self-sustaining population throughout as much of its natural<sup>75</sup> range as is biologically feasible,<sup>76</sup> and a recommendation about whether the species would benefit from multi-species or ecosystem-based recovery planning;
- For ecosystems: recommendations about which group of species should be the focus of planning, management actions and monitoring ("focal species")<sup>77</sup> when the recovery plan is carried out; and,
- An evaluation of the costs and benefits of species or ecosystem recovery that includes the non-market values of protecting species and their habitat (including intrinsic and ecosystem service values and future harvest, medicinal or other opportunities).<sup>78</sup>

The wider, democratic component of the recovery planning process will lead to a final decision about how much habitat to protect and about how much effort to devote to recovery. This decision should be made following meaningful consultation with Aboriginal groups and after a public hearing focused on the species or ecosystem in question (or a geographic grouping of species and ecosystems). This component will result in the province producing a schedule describing what steps will be taken to implement the recovery plan and when each step will be taken. Written reasons must be provided if the scientific recommendations for recovery are not followed.

To help ensure the recovery of BC's biodiversity, the new law must encourage the provincial government to enter co-management arrangements with BC First Nations to cooperatively recover and maintain species and ecosystems on Aboriginal lands, as part of the government-to-government relationship promised in the *New Relationship* document.<sup>79</sup>

Finally, BC's law should enable the province to enter stewardship agreements with landowners and other tenure-holders. Stewardship is the voluntary implementation of good practices, especially on private property, to ensure conservation and recovery of species.<sup>81</sup> We strongly recommend legislation that encourages and enables landowners to act as stewards of the species that inhabit their land. Voluntary and cooperative efforts are the preferred approach to protecting biodiversity on private lands.



DROMEDARY JUMPING-SLUG

**"We agree to a new government-to-government relationship based on respect, recognition and accommodation of aboriginal title and rights."  
— *New Relationship* document, Government of BC.<sup>80</sup>**



SPADEFOOT TOAD,  
JAKOB DULISSE PHOTO



The blue-tailed skink is threatened by increasing habitat loss. It is one of only three lizards native to British Columbia. BLUE-TAILED SKINK, JAKOB DULISSE PHOTO

# Conclusion

British Columbians are proud of their province, and want to make sure its natural heritage is protected. Polls show that the province's citizens overwhelmingly support a single, effective law to protect BC's species and ecosystems. This is why it is so surprising to learn that BC lags behind virtually every other state and province in North America in providing legal protection for its biodiversity. The BC government needs to listen to its citizens, and pass a strong *Species and Ecosystem Protection Act*.

Global warming is bringing new challenges to BC's biological wealth. It's up to us to decide how we'll deal with this challenge. If we don't do enough now to help species and ecosystems adapt to global warming and to reduce other threats like habitat loss, the resulting decline of BC's natural systems will impose massive costs on the province. Services like pollination, carbon storage and water purification that BC's ecosystems currently provide for free may collapse entirely. The decline of BC's natural heritage would take away the very qualities that make us proud of our province.

The choice – and the responsibility – is ours. Let's protect BC's incredible biological wealth.

**BEST ENVIRONMENTAL LAWS "BAR NONE"?**

One of the BC government's five strategic goals is "to lead the world in sustainable environmental management..."<sup>82</sup>

# Notes

- 1 Bunnell, F.L., R.W. Campbell and K.A. Squires. 2004. "Allocating scarce resources for conservation in a species-rich environment: guidelines from history and science". In T.D. Hooper, ed., *Proceedings of the Species at Risk 2004 Pathways to Recovery Conference*. March 2-6, 2004, Victoria, B.C.
- 2 Moola, F., D. Page, and L. Coulter. 2007. "Waiting for the Ark: the need for endangered species legislation in British Columbia, Canada." *Biodiversity*. 8(1): 3-11.
- 3 Austin, M.A., D.A. Buffett, D.J. Nicolson, G.G.E. Scudder and V. Stevens (eds.). 2008. *Taking Nature's Pulse: The Status of Biodiversity in British Columbia*. Victoria: Biodiversity BC. Available at: [www.biodiversitybc.org](http://www.biodiversitybc.org).
- 4 Fischlin, A., G.F. Midgley, J.T. Price, R. Leemans, B. Gopal, C. Turley, M.D.A. Rounsevell, O.P. Dube, J. Tarazona, and A.A. Velichko. 2007. "Ecosystems, their properties, goods, and services." In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds. Cambridge University Press, Cambridge, 211-272.
- 5 Moola et al., supra note 2, at p. 6.
- 6 Noss, R.F., E.T. LaRoe, and J.M. Scott. 1995. *Endangered Ecosystems of the United States: A Preliminary Assessment of Loss and Degradation*. Washington, D.C.: U.S. Dept. of the Interior, National Biological Service at p. 3.
- 7 Austin et al., supra note 3. Note that only relatively-well studied groups were included in this assessment – the number of endangered and threatened species is thus conservative.
- 8 Over four dozen species have already disappeared from the province. Four of these species are extinct globally (e.g. Dawson caribou [*Rangifer tarandus dawsoni*] and passenger pigeon [*Ectopistes migratorius*]). The rest have been extirpated, meaning that, although absent from the province today, they are found elsewhere within their global range. A further, 7.5 percent of species are critically imperilled (S1) and thus at extreme risk of being similarly eliminated within the coming decades. See also Moola et al., supra note 2.
- 9 B.C. Ministry of Environment. 2007. *Environmental Trends in British Columbia: 2007. State of Environment Reporting*. Victoria, B.C. Accessed June 2008 at: [www.env.gov.bc.ca/soe/eto7/07\\_species\\_conserv/threats.html](http://www.env.gov.bc.ca/soe/eto7/07_species_conserv/threats.html).
- 10 Ibid.
- 11 Thomas, C.D., A. Cameron, R.E. Green, M. Bakkenes, L.J. Beaumont, Y.C. Collingham, B.F.N. Erasmus, M.Ferreira de Squeira, A. Grainger, L. Hannah, L. Hugues, B. Huntley, A.S. van Jaarsveld, G.F. Midgley, L. Miles, M.A. Ortega-Huerta, A. Townsend Peterson, O.L. Phillips, and S.E. Williams. 2004. "Extinction risk from climate change." *Nature* 427: 145-48.
- 12 Austin et al, supra note 3, at pp. 174-192.
- 13 Meidinger, D. and J. Pojar. 1991. *Ecosystems of British Columbia*. Research Branch. Ministry of Forests. Victoria.
- 14 Intergovernmental Panel on Climate Change (IPCC). 2001. "Climate Change 2001: The Scientific Basis." (Contribution of Working Group I). In J.T. Houghton, Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell and C.A. Johnson (eds.), *Third Assessment Report of the IPCC*. Cambridge UP, New York, NY.
- 15 Fischlin, A., G.F. Midgely, J.T. Price, R. Leemans, B. Gopal, C. Turley, M.D.A. Rounsevell, O.P. Dube, J. Tarazona and A.A. Velichko. 2007. "Ecosystems, their properties, goods and services." pp. 211-272 in M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK.
- 16 Austin et al, supra note 3, at pp. 174-192.
- 17 Wilson, S.J. and R.J. Hebda. 2008. *Mitigating and adapting to climate change through the conservation of nature*. Land Trust Alliance of BC.
- 18 Ibid.



- 19 Moola et al., supra note 2. See also Moola, F., D. Page, M. Connolly and L. Coulter. 2007. *Rich Wildlife, Poor Protection: The urgent need for strong legal protection of British Columbia's biodiversity*. Vancouver: David Suzuki Foundation and Sierra Legal (Ecojustice), at pp. 4-5.
- 20 Moola et al., supra note 2, at p. 8.
- 21 Austin et al, supra note 3, at p. 114.
- 22 Boyd, D. 2003. *Unnatural Law: Rethinking Canadian Environmental Law and Policy*. Vancouver: UBC Press, at p. 165.
- 23 Ibid.
- 24 Austin et al., supra note 3, at p. 38.
- 25 Lea, T. 2006. "Historical Garry oak ecosystems of Vancouver Island, British Columbia, pre-European contact to the present". *Davidsonia* 17(2):34-50.
- 26 B.C. Ministry of Environment, supra note 9.
- 27 Lea, T. 2007. "Historical (pre-European settlement) ecosystems of the Okanagan and lower Similkameen valleys – applications for species at risk." *Saving the Pieces – Restoring Species at Risk Symposium*, June 14-16, 2007, Victoria, BC.
- 28 B.C. Ministry of Environment, supra note 9, at p. 223.
- 29 E.O. Wilson. 2006. *The Creation: An Appeal to Save Life on Earth*. New York, Norton at p. 91.
- 30 Ibid., at pp. 73-74. Ongoing extinctions are roughly 100 times higher than before the arrival of modern humans about 150,000 years ago, and are very likely to rise in the near future to 1,000 or 10,000 times higher than the background rate: Ibid., at 79.
- 31 Austin et al, supra note 3, at p. XVIII.
- 32 Ibid., at p. XXI.
- 33 Wilson, supra note 29, at p. 98.
- 34 Tang, J., J. Wice, V.G. Thomas, and P.G. Kevan. 2007. "Assessment of Canadian federal and provincial legislation's capacity to conserve native and managed pollinators". *International Journal of Biodiversity Science and Management* 3(1): 46-55.
- 35 Ibid.
- 36 Wilson, supra note 29, at pp. 31-33. See also Noss, R.F. 2001. "Beyond Kyoto: forest management in a time of rapid climate change." *Conservation Biology* 15(3): 578-590 at p. 581.
- 37 Millennium Ecosystem Assessment. 2005. *Ecosystems and human well-being: synthesis*. Island Press, Washington, D.C. at p. 6.
- 38 A poll conducted in March, 2008 found that 88 percent of British Columbians agreed with the statement that "Species at risk protection and recovery in the area where I live is important to me." Results were similar for protection of species at risk in other areas besides where the respondent lived. This poll is considered accurate to within  $\pm 4.16$  percent 19 times out of 20 of what they would have been had the entire population of eligible British Columbia voters been polled. Harshaw, H.W. 2008. *British Columbia Species at Risk Public Opinion Survey 2008: Final technical report*. Vancouver, BC: University of British Columbia Collaborative for Advanced Landscape Planning. Available at: [www.sar-pos.ca/BC-SaR-POS\\_Final-Technical-Report\\_o8-o6-24.pdf](http://www.sar-pos.ca/BC-SaR-POS_Final-Technical-Report_o8-o6-24.pdf).
- 39 A poll conducted in July, 2008 found that 83 percent of British Columbians support the creation of a single, effective provincial law to protect endangered species in BC. The results are considered accurate to within  $\pm 4.0$  percent, 19-times-in-20, of what they would have been had the entire population of eligible British Columbia voters been polled. Stratcom. 2008. *BC Omnibus Summer 2008*. Vancouver, BC: Western Canada Wilderness Committee.
- 40 See e.g. Taylor, M.F.J., K.F. Suckling and J.J. Rachlinski. 2005. "The effectiveness of the *Endangered Species Act*: a quantitative analysis." *BioScience* 55: 360-367. The authors note that, although few listed species have fully recovered, the short time that most have been protected (15.5 years on average as of 2005) makes this a weak test of the US legislation – a better measure is the extent to which the legislation is helping to move species towards recovery. See also Suckling, K.F. 2006. *Measuring the Success of the Endangered Species Act: Recovery Trends in the Northeastern United States*. Center for Biological Diversity. Available at: [www.biologicaldiversity.org/publications/papers/index.html](http://www.biologicaldiversity.org/publications/papers/index.html).
- 41 Currently, out of the 1,640 species known to be at-risk in BC, a total of 184 species are listed under at least one of: the provincial *Forest and Range Practices Act*, S.B.C. 2002, c. 69, the provincial *Wildlife Act*, R.S.B.C. 1996, c. 488, or the federal *Species at Risk Act*, S.C. 2002, c. 29.

- 42 Currently, out of 1640 species known to be at-risk in BC, a total of 72 are listed under at least one of the provincial *Forest and Range Practices Act* or the provincial *Wildlife Act*.
- 43 The BC government passed a regulation under the *Forest and Range Practices Act* stating that protective measures for wildlife must be implemented “without unduly restricting the supply of timber from British Columbia’s forests”: *Forest Planning and Practices Regulation*, B.C. Reg. 14/04, ss. 7(1) and 8. “Current government policy has set a limit of 1 percent to the allowable impact to short-term harvest levels that may be incurred as a result of implementing measures for Identified Wildlife.” Ministry of Water, Land and Air Protection. 2004. *Identified Wildlife Management Strategy Procedures for Managing Identified Wildlife* at p. 11.
- 44 Note that SARA provides limited automatic protection for listed aquatic species and for listed migratory birds, even on provincial lands (ss. 32-34) – however, this protection is arguably weaker than the protections already provided in pre-existing federal legislation.
- 45 Moola et al., supra note 19.
- 46 By fairly reflecting the value (including ecosystem services, market and non-market values including intrinsic, cultural and spiritual) to society of our living legacy and resources.
- 47 Including at-risk species, ecosystems and ecological communities across their geographic range, throughout the province in a mandatory, anticipatory and timely manner.
- 48 Protect sufficient habitat upon listing to halt decline and protect sufficient recovery habitat to maintain viable populations across their natural geographic range. Natural in this context means all range that is biologically suitable for the species in the face of global warming, including currently or historically occupied habitat, and future habitat likely to become suitable as a result of global warming. To the extent that it is biologically feasible, this future habitat must be in a quantity sufficient to replace any historically/currently suitable habitat that becomes unsuitable.
- 49 Science-based listing, science-based identification of critical habitat, science-based recovery plans, and a science-based component of recovery plan implementation, with a clear separation between independent and objective scientific advice and policy decisions.
- 50 Precautionary principle: if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation; Principle of inter-generational equity: the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations; and, Polluter-pays principle: the polluting party pays for the damage done to the natural environment.
- 51 Incorporate community and traditional knowledge if supported by scientifically collected information; permit citizen enforcement to uphold the law.
- 52 Adequate to attain the purposes of the law.
- 53 Backed by effective penalties and enforcement commensurate with the value to society of protecting and recovering biodiversity.
- 54 In Canada, we have drawn examples from federal legislation (SARA) and from other provincial legislation, including Ontario’s recent *Endangered Species Act*, S.O. 2007, c. 6, the *Nunavut Wildlife Act*, S.Nu. 2003, c. 26, Nova Scotia’s *Endangered Species Act*, S.N.S. 1998, c. 11, and the *Newfoundland and Labrador Endangered Species Act*, S.N.L. 2001, c. E-10.1. No Canadian legislation we reviewed provided an ideal model for BC, although several acts have provisions that may be useful for BC. We have also drawn from selected international jurisdictions, including the United States, Mexico, Costa Rica, Australia, South Africa and the European Union.
- 55 Noss and others have suggested that the goal should be “ecologically optimal” populations of species, especially of species that play important roles in ecosystems. See e.g. Noss, supra note 36, at p. 581.
- 56 Moola et al., supra note 19, at p. 7.
- 57 Ibid., at p. 8. See also Scudder, G.G.E. 2003. *Biodiversity Conservation and Protected Areas in British Columbia*. University of British Columbia, Centre for Biodiversity Research, Vancouver, BC.
- 58 Noss, R.F., E. Dinerstein, B. Gilbert, M. Gilpin, B.J. Miller, J. Terborgh, and S. Trombulak. 1999. “Core areas: where nature reigns.” In *Continental Conservation*, M.E. Soule and J. Terborgh, eds., 99-128. Washington, D.C., Island Press, at p. 99: “Experience on every continent has shown that only in strictly protected areas are the full fauna and flora of a region likely to persist for a long period of time.” See also E.O. Wilson, supra note 29, at p. 89.
- 59 Noss, R.F., and A.Y. Cooperrider. 1994. *Saving Nature’s Legacy: Protecting and Restoring Biodiversity*. Island Press, Washington, D.C. See also Schmiegelow et al. 2007. *Conservation Beyond Crisis Management: A Conservation-Matrix Model*. Discussion Paper for the Canadian BEACONS Project, University of Alberta.

- 60 Schmiegelow et al. 2007. *Conservation Beyond Crisis Management*.
- 61 Wilson, supra note 29, at p. 89.
- 62 Including conservancies, which are protected areas under the BC *Park Act*, R.S.B.C. 1996, c. 344, set aside for purposes including the preservation and maintenance of First Nations' social, ceremonial and cultural uses.
- 63 While listing species is straightforward, it is important to be able to protect endangered sub-species and geographically distinct populations of species as well.
- 64 Failure to rely on science has already been demonstrated in Canada to result in some categories of species being off legal endangered species lists entirely – see e.g. Mooers, A.O. et al. 2007. “Biases in legal listings under Canadian endangered species legislation”. *Conservation Biology* 21: 572-575 and Wallace, S. and R. Plotkin. 2007. *Left off the List: A Profile of Marine and Northern Species Denied Listing under Canada's Species at Risk Act*. David Suzuki Foundation. The authors' analysis showed a systemic bias against listing marine species, attributable in part to a flawed and narrow method of measuring the economic costs of listing (no consideration of ecosystem service values). “... if there is economic, cultural, or political opposition towards legally listing a species, the species will not be listed regardless of... scientific recommendation.”: Wallace and Plotkin, supra note 64, at p. 14.
- 65 Ecological communities are used by the BC Conservation Data Centre to identify groups of species that occur together in defined areas at certain times, and that have the potential to interact with each other: see BC Conservation Data Centre. February 20, 2004. *Ecological Communities in British Columbia: Conservation Status Assessment Factors*.
- 66 Yezerinac, S. and F. Moola. 2006. “Conservation status and threats to species associated with old-growth forests within the range of the northern spotted owl (*Strix occidentalis caurina*) in British Columbia, Canada”. *Biodiversity* 6(4): 3-9.
- 67 Noss, supra note 6, at p. 7.
- 68 Ibid., at p. 3.
- 69 Ibid., at p. 8.
- 70 Ibid., at p. 8 – see also Hagen, A.N., and K.E. Hodges. 2001. “Resolving critical habitat designation failures: reconciling law, policy, and biology.” *Conservation Biology* 20(2): 399-407 at p. 400. The authors note that species-specific conservation approaches are needed for full-protection, to fill gaps left by “coarse filter” approaches like habitat reserves and umbrella or indicator species.
- 71 In the case of a species, the occupied habitat should include the area on which the species depends, directly or indirectly, to carry on its life processes.
- 72 Identified in a precautionary way – that is, lack of certainty about location of a species' habitat must not be used as an excuse for failing to identify that habitat.
- 73 Where necessary, this committee should be given the power to consult with biologists or ecologists that have specific knowledge about the species or ecosystem in question.
- 74 For species, the goal of recovery must be to restore the population to sufficient levels across its geographical range to ensure self-sustaining viable populations indefinitely.
- 75 Natural in this context means all range that is biologically suitable for the species in the face of global warming, including currently or historically occupied habitat, and future habitat likely to become suitable as a result of global warming. To the extent that it is biologically feasible, this future habitat must be in a quantity sufficient to replace any historically/currently suitable habitat that becomes unsuitable.
- 76 Groves, C.R. et al. 2003. *Drafting a conservation blueprint: a practitioner's guide to planning for biodiversity*. Nature Conservancy, Washington, D.C. at p. 147. Groves notes that recovery plans under the U.S. *Endangered Species Act* have been criticized for “lacking specific, quantified goals related to population size and numbers.”
- 77 For a discussion of focal species, see supra note 58. See also Lambeck, R.J. 1997. “Focal species: a multi-species umbrella for nature conservation.” *Conservation Biology* 11(4): 849-856.
- 78 Wallace and Plotkin, supra note 64, at pp. 14 and 16.
- 79 BC Government. 2005. *New Relationship*. Accessed on August 27, 2008 at: [www.gov.bc.ca/arr/newrelationship/down/new\\_relationship.pdf](http://www.gov.bc.ca/arr/newrelationship/down/new_relationship.pdf).
- 80 Ibid., at p. 1.
- 81 See Attridge, I. et al. 2006. *Report of the Endangered Species Act Review Advisory Panel: Recommendations for Ontario's New Endangered Species Act* at p. 7. Available at: [www.mnr.gov.on.ca/STELo2\\_178841.pdf](http://www.mnr.gov.on.ca/STELo2_178841.pdf).
- 82 B.C. Government, supra note 79, at p. 2. See also the most recent service plan for BC's Ministry of Environment, accessed on August 27, 2008 at [www.bcbudget.gov.bc.ca/2008/sp/env/default.html#2](http://www.bcbudget.gov.bc.ca/2008/sp/env/default.html#2).



## ecojustice

Ecojustice, formerly Sierra Legal Defence Fund, is Canada's leading non-profit organization of lawyers and scientists devoted to protecting the environment. Since 1990, we have helped hundreds of groups, coalitions and communities expose law-breakers, hold governments accountable and establish powerful legal precedents in defence of our air, water, wildlife and natural spaces.



David  
Suzuki  
Foundation

Since 1990, the David Suzuki Foundation has worked to find ways for society to live in balance with the natural world that sustains us. Focusing on four program areas – oceans and sustainable fishing, climate change and clean energy, sustainability, and the Nature Challenge – the Foundation uses science and education to promote solutions that conserve nature and help achieve sustainability within a generation.

## FORESTETHICS

ForestEthics exists to protect Endangered Forests, wildlife, and human wellbeing. Our innovative, inspiring and effective campaigns challenge corporations and catalyze environmental leadership in industry, governments and communities. Our work focuses on solutions to protect Endangered Forests for generations to come. ForestEthics has offices in Canada, the US and Chile.



WESTERN CANADA  
WILDERNESS  
COMMITTEE

Founded in 1980, the Wilderness Committee is Canada's largest membership-based wilderness preservation group with over 30,000 members, and 40,000 additional donors and volunteers. We've helped to gain protection for over 40 major wilderness areas in Western Canada, including millions of hectares of critical wildlife habitats and some of the world's last large tracts of old-growth temperate rainforest and boreal forest.