

# In Trouble in Canada - The Northern Spotted Owl

John Cooper

**ABOUT THE AUTHOR**  
*John Cooper* has been a Partner and Senior Wildlife Biologist with Manning, Cooper and Associates Ltd., a small but respected environmental consulting firm in British Columbia, since 1993. He has assisted in developing national recovery strategies for the Northern Spotted Owl and several other British Columbia bird species. A registered professional biologist with 25 years experience in the field of wildlife inventory, impact assessment, and conservation of wildlife and habitats, John has written more than 150 books, academic papers, technical reports, and popular articles. These include: co-authorship of *The Birds of British Columbia Vols. 1-4*, sole or co-author of six COSEWIC Canadian status reports on rare birds, sole or primary author of 12 provincial BC Ministry of Environment Status Reports on birds at risk, author or reviewer of all bird accounts in the BC Forest and Range Practices Act *Identified Wildlife Management Strategy*, co-author of *Rare Birds of British Columbia*, and four *Resource Inventory Committee Bird Inventory Manuals*.

**Abstract.** Conservation and politics are inextricably linked for the Northern Spotted Owl which lives in economically valuable old-growth coniferous forests. Approximately 8% of the global range is located in Canada, with an estimated population of less than 30 pairs - all residing in the southwest mainland of British Columbia (BC). Historical inventory figures indicate the Canadian population has declined by approximately 46% since 1992, an average annual decline of 7.2%. Extirpation of the Northern Spotted Owl from Canada is likely imminent if the current rate of population decline continues. This species is extremely vulnerable to extirpation because of their small population size (<30 pairs), the need for large amounts of habitat, and low population densities. In BC, high quality habitat tends to be in forests >140 years old and moderate quality habitat occurs in forests 100-140 years old. Loss and fragmentation of habitat to harvesting of old-growth forests and degradation of habitat as a result of even-aged management of forests are widely believed to be the primary long term threats to the Northern Spotted Owl throughout the Pacific Northwest. Evidence suggests that management efforts to date have been unsuccessful at reversing the decline, and that more intensive efforts are required.

The decline of Northern Spotted Owls in the Pacific Northwest has been the subject of intense conservation action and heated political debate for the last three decades. Conservation and politics are inextricably linked because Northern Spotted Owls live in economically valuable old-growth coniferous forests and the owl needs large amounts of habitat. Conserving Northern Spotted Owl habitat has direct economic impacts to many communities through the loss or deferment of logging. The Spotted Owl has become an environmental conservation icon similar in stature to the Peregrine Falcon and Whooping Crane. Unlike these latter species, it faces substantial opposition to its conservation.

Three subspecies of Spotted Owls have been recognized: the Mexican Spotted Owl, the California Spotted Owl and the Northern Spotted Owl that reaches its northern limit in southern British Columbia. It is a spectacular, larger sized owl with chocolate brown body feathers and a regular pattern of elliptical creamy white marks. It has a large round facial disk with dark brown eyes and lacks ear tufts (Guittierez *et al.* 1996).

## GEOGRAPHY AND ECOLOGY

The Northern Spotted Owl is distributed from the southwest mainland of British Columbia through western Washington, western Oregon and the coast ranges of California to San Francisco Bay. Approximately 8% of the global range of the Northern Spotted Owl is located in Canada, and all of that is in British Columbia.

The entire known Canadian population of the Northern Spotted Owl occurs in the southwest mainland of British Columbia, from the international border north 200 km to Carpenter Lake, west to Howe Sound, and east to just beyond the height of land of the Cascade Mountain Range (Kirk 1999). Northern Spotted Owls formerly occurred in much of the lower Fraser River valley (Greater Vancouver) and Squamish River/Whistler (home of the 2010 Winter Olympic Games) area but no longer do so because suitable habitat has been largely replaced by human development.

The global population of Northern Spotted Owls is estimated at 3,000-6,000 pairs, but less than 30 pairs are thought to occur in Canada“ (currently there are 22 birds ‘known’ to BC government scientists). Prior to European contact, the size of the original Spotted Owl population in Canada was estimated at 500 breeding pairs. Populations of the Northern Spotted Owl are declining throughout its range in Canada and the USA. In British Columbia, inventory between 1992 and 2002 indicate the Canadian population has declined by approximately 46% since 1992, an average annual decline of 7.2%. Extirpation of the Northern Spotted Owl from Canada is likely imminent if the current rate of population decline continues (see chart). Since the owls are declining at about the same rate across the border in Washington there is limited hope of natural restoration of the Canadian population from the adjacent region.

Throughout its range, the Northern Spotted Owl occurs in mixed coniferous forests with an uneven-aged, multi-layered canopy that includes numerous large trees with broken tops, deformed limbs and large cavities, and numerous large snags and accumulations of logs and downed woody debris. These habitat characteristics are found naturally in late seral and old-growth forests. In British Columbia, high quality habitat tends to be in forests >140 years old and moderate quality habitat occurs in forests 100-140 years old.

The Spotted Owl is non-migratory, nocturnal, and has a docile temperament. It is a ‘sit-and-wait’ predator and flies using short gliding flights. The main prey includes flying squirrels, snowshoe hares and bushy-tailed woodrats. Northern Spotted Owls do not build their own nest, but depend on naturally occurring nest sites such as broken treetops, tree cavities resulting from heart rot, abandoned raptor nests, mistletoe brooms, squirrel nests, and debris accumulations.

## BIODIVERSITY CONSERVATION

Northern Spotted Owls in Canada are extremely vulnerable to extirpation because of their small population size (<30 pairs) and low densities. Although a few new

territories have been discovered in recent years, recruitment of young into the Canadian population may have ceased as “new” owls are rarely found in areas that are intensively surveyed for the last decade. This suggests that young owls are not surviving to breeding age.

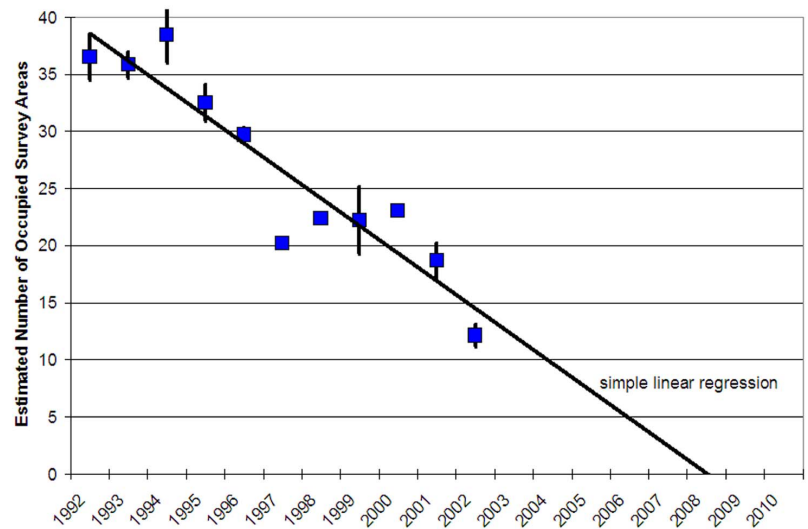
Loss and fragmentation of habitat to harvesting of old-growth forests and degradation of habitat as a result of even-aged management of forests are widely believed to be the primary long term threats to the Northern Spotted Owl throughout the Pacific Northwest (Thomas *et al.* 1990; Kirk 1999). In British Columbia, the majority of Northern Spotted Owl habitat is located on Crown lands within Provincial Forests and protected areas. About 360,000+ ha are identified for the management of Northern Spotted Owls, with about 44% located within parks and protected areas. The remainder (200,000+ ha) occurs within the Provincial Forests.

Historically, in British Columbia, clearcut logging has reduced structural diversity in logged areas. The amount of suitable habitat in British Columbia continues to decline at a rate of about 3000 ha/year (SOMIT 1997). However, more recent forest management policies have provided for better management of biodiversity values, including provisions for maintaining more structural diversity in logged areas. Even so, over the next 25 years, the rate of habitat loss caused by timber harvest and natural disturbance is expected to exceed the recruitment of suitable habitat from young forests resulting in further fragmentation and isolation of habitats available to the owl.

However, there are uncertainties about the role of habitat loss in some more recent population declines in Canada and the USA (Forsman *et al.* 1996). Because of provisions for maintaining habitat for Northern Spotted Owls in the Spotted Owl Management Plan there has been little loss of habitat in Special Resource Management Zones in British Columbia yet populations have continued to decline. Recent impacts from habitat loss may be more related to fragmentation effects such as increased predation pressure, increased competition for food and space from invading Barred Owls, connectivity between suitable habitat patches, and other factors such as global warming, rather than just amount of habitat lost. It may be that there is too much open space between patches of suitable forest to allow for dispersal, immigration and safety.

## PROGNOSIS

The Northern Spotted Owl appears to be headed towards extirpation in Canada within the next few years. Under the Canadian Species At Risk Act (SARA), the Province of British Columbia is responsible for ensuring conservation of Endangered species, but the Canadian Government can step in if necessary. Evidence suggests that management efforts



to date have been unsuccessful at reversing the decline, and that more intensive efforts are required. Compounding all conservation efforts is the fact that several factors are likely involved in the ongoing decline. The lack of recruitment is most distressing. If no natural recruitment is occurring, then the population is doomed to extirpation, unless populations are augmented through captive breeding.

Population trend of Northern Spotted Owls in Canada (data for 2003 – 2005 is not yet available).

The recent report on the status of the Spotted Owl in the United States provided interpretation of much new information relating to Spotted Owls (USFWS 2004). An update status report will be evaluated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Although we may not have as much information as we would like, we do have a great deal. For many, the Spotted Owl situation says something about Canada’s commitment to the protection of biodiversity through the International Convention on Biodiversity. An ever increasing number of people in Canada and around the world are hoping that enough can be done in time to save the Canadian Spotted Owls.

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