Biodiversity Conservation and Protected Areas in British Columbia

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Abstract: In fall 2002, the University of British Columbia's (B.C.) Biodiversity Research Centre assessed the effectiveness of B.C.'s Protected Areas Strategy in protecting rare and endangered species in the province. Distribution data were assembled for species listed at risk by the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC), provincial red-listed species, endemic species, potentially rare and endangered invertebrates in B.C., and all species of butterflies, Odonata (dragonflies and damselflies), small mammals, and vascular plants in the province. From these data, rarity and richness hotspots were identified based on the presence of high numbers of species at risk and areas of high biological diversity. The coincidence of the top 5% of the rarity hotspots with the protected areas within the province was then computed.

Overall, there was a marked lack of coincidence between existing protected areas and the occurrence of large numbers of endemic species, COSEWIC-listed species, provincially red-listed species, and potentially rare and endangered invertebrates in the province. In the top 5% of the rarity cells for the groups considered, there was, on the whole, very little coincide with existing protected areas. Based on the available data, a significant number of B.C.'s rare and endangered species are located outside the province's protected areas. The same appears to be true for richness hotspots, although the precise numbers were not computed in this case. Further study on species rarity and richness within protected areas in the province is needed, however.

Because of the general lack of coincidence between biodiversity rarity and richness hotspots with existing protected areas, it is evident that the 12% of the land area currently designated as protected area in the province does not provide adequate protection for B.C.'s very rich and rare biodiversity.

Clearly, more inventories of rare and endangered species needs to be undertaken in British Columbia's protected areas and other areas with biodiversity conservation potential. Because the South Okanagan, southeast Vancouver Island, and Lower Mainland regions are not only biodiversity rarity and richness hotspots but also alien species hotspots with increasing threats from human impacts, these areas of the province should become the focus of increased and integrated biodiversity conservation planning, preferably at the ecosystem level.

The full report, *Biodiversity Hotspots and Priority Areas for Conservation in British Columbia*, is available from http://www.biodiv.ca/hotspots/.