Historical Garry Oak Ecosystems of the Cowichan Valley and Saltspring Island

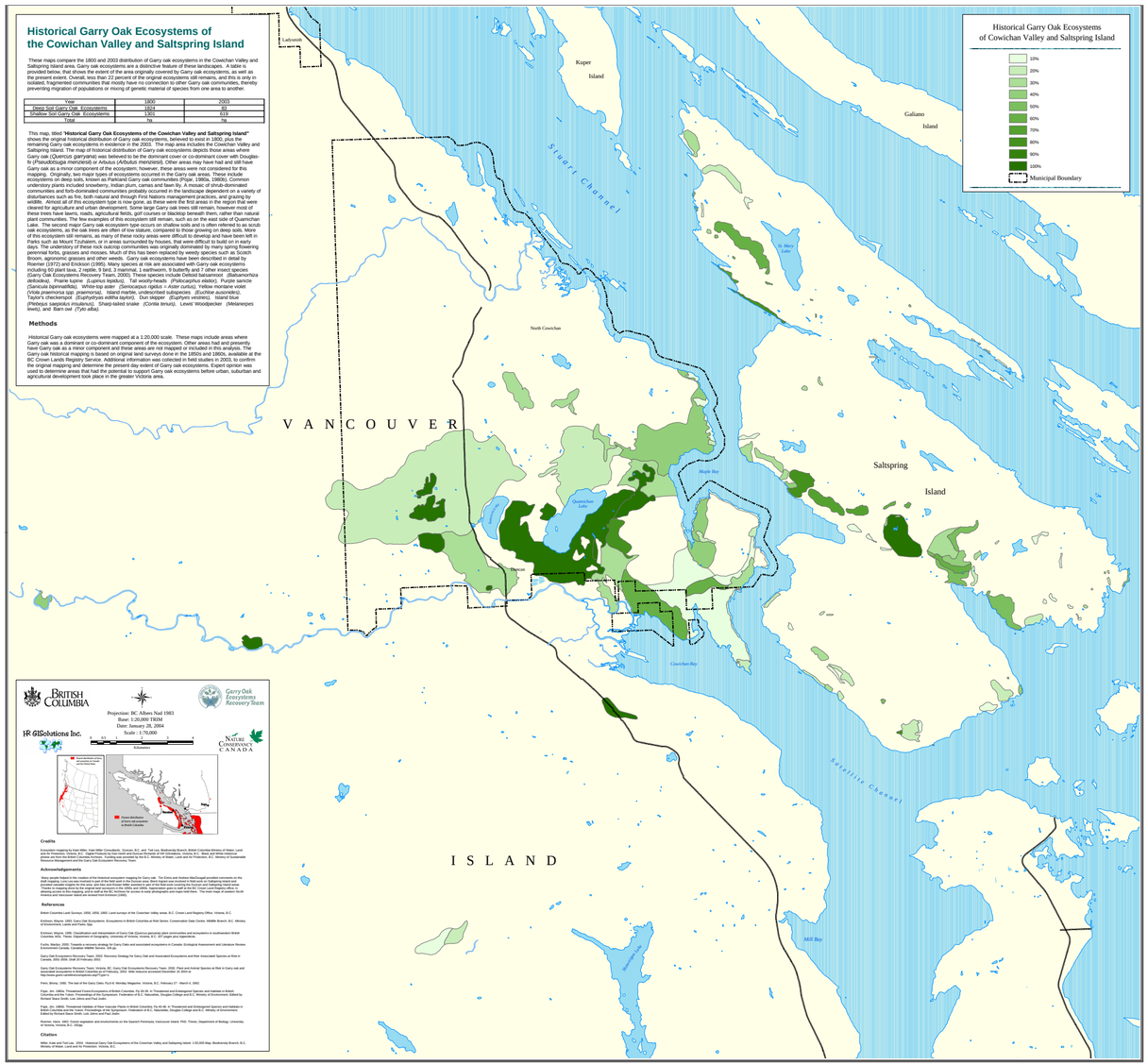
These maps compare the 1800 and 2003 distribution of Garry oak ecosystems in the Cowichan Valley and Saltspring Island area. Garry oak ecosystems are a distinctive feature of these landscapes. A table is provided below, that shows the extent of the area originally covered by Garry oak ecosystems, as well as the present extent. Overall, less than 22 percent of the original ecosystems still remains, and this is only in isolated, fragmented communities that mostly have no connection to other Garry oak communities, thereby preventing migration of populations or mixing of genetic material of species from one area to another.

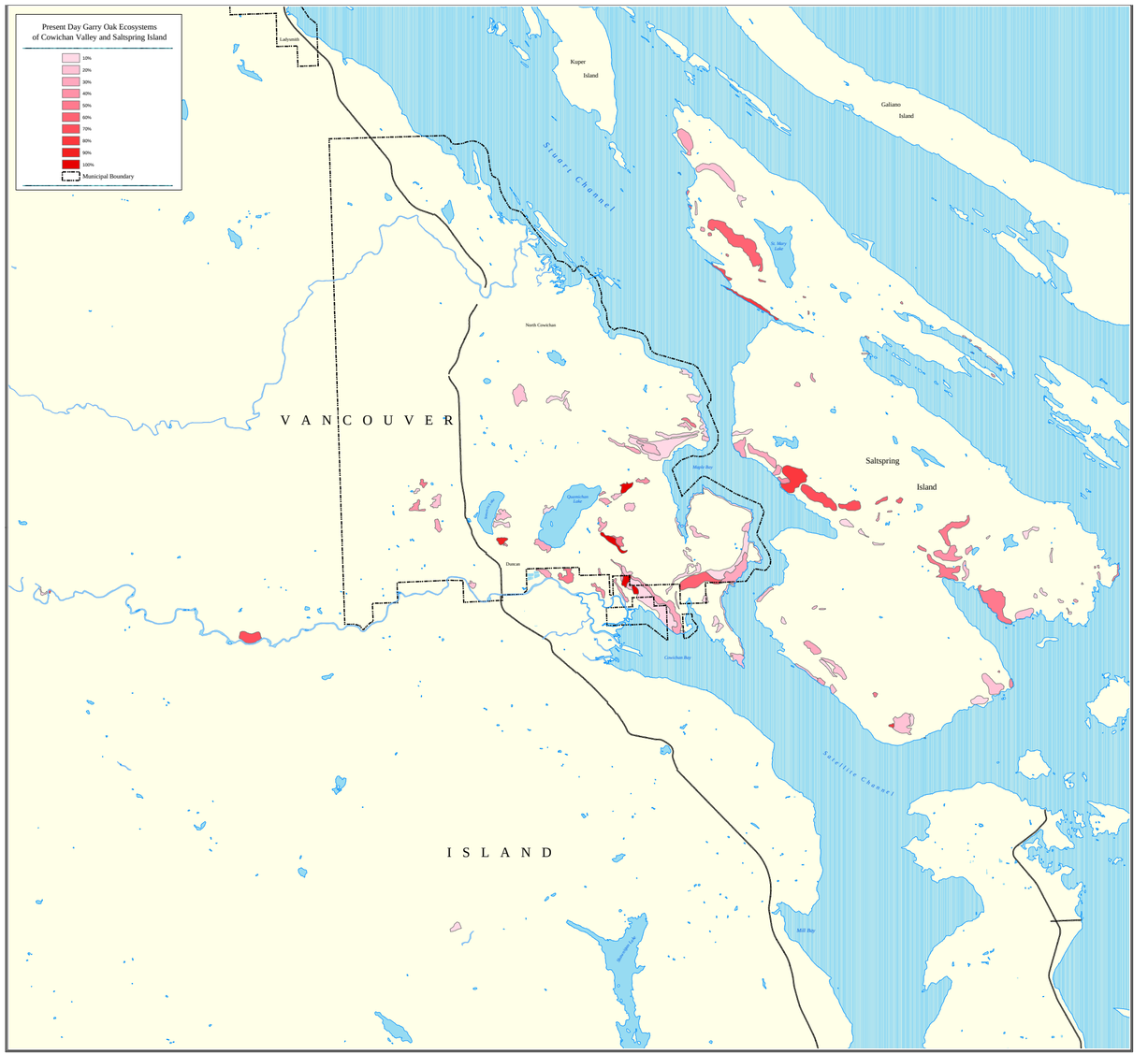
Year	1800	2003
Deep Soil Garry Oak Ecosystems	1824	83
Shallow Soil Garry Oak Ecosystems	1301	618
Total	ha	ha

This map, titled "**Historical Garry Oak Ecosystems of the Cowichan Valley and Saltspring Island**" shows the original historical distribution of Garry oak ecosystems, believed to exist in 1800, plus the remaining Garry oak ecosystems in existence in the 2003. The map area includes the Cowichan Valley and Saltspring Island. The map of historical distribution of Garry oak ecosystems depicts those areas where Garry oak (*Quercus garryana*) was believed to be the dominant cover or co-dominant cover with Douglas-fir (*Pseudotsuga menziesii*) or Arbutus (*Arbutus menziesii*). Other areas may have had and still have Garry oak, but not as a dominant species. These areas are not mapped or included in this analysis. The mapping. Originally, two major types of ecosystems occurred in the Garry oak areas. These include ecosystems on deep soils, known as Parkland Garry oak communities (Pojar, 1980a, 1980b). Common understory plants included snowberry, Indian plum, camas and fawn lily. A mosaic of shrub-dominated communities and forb-dominated communities probably occurred in the landscape dependent on a variety of disturbances such as fire, both natural and through First Nations management practices, and grazing by wildlife. Deep soil Garry oak ecosystems are now gone, as these were the first areas in the region that were cleared for agriculture and development. Many of the Garry oak trees that remain are most of these trees have lawns, roads, agricultural fields, golf courses or blacktop beneath them, rather than natural plant communities. The few examples of this ecosystem still remain, such as on the east side of Quamichan Lake. The second major Garry oak ecosystem type occurs on shallow soils and is often referred to as scrub oak ecosystems, as the oak trees are often of low stature, compared to those growing on deep soils. More of this ecosystem still remains, as many of these rocky areas were difficult to develop and have been left in parks such as Mount Tzuhalem, or in areas surrounded by houses, that were difficult to build on in early days. The understory of these areas is often dominated by Common camas (*Camassia quamash*) and Roemer perennial forbs, grasses and mosses. Much of this has been replaced by weedy species such as Scotch Broom, agronomic grasses and other weeds. Garry oak ecosystems have been described in detail by Roemer (1972) and Erickson (1995). Many species at risk are associated with Garry oak ecosystems including 60 plant taxa, 2 reptile, 9 bird, 3 mammal, 1 earthworm, 9 butterfly and 7 other insect species (Fuchs, 2000). Examples include Nuttall's Quillwort (*Isoetes nuttallii*), Howell's Montia (*Montia howellii*), Dense-flowered Lupine (*Lupinus densiflorus* var. *densiflorus*), Prairie lupine (*Lupinus lepidus*), Tall woolly-heads (*Psilocarphus elatior*), Purple sanicle (*Sanicula bipinnatifida*), White-top aster (*Sericocarpus rigidus* = *Aster curtus*), Yellow montane violet (*Viola praemorsa* ssp. *praemorsa*), Island marble, undescribed subspecies (*Euchloe ausonides*), Taylor's checkerspot (*Euphydryas editha taylori*), Dun skipper (*Euphyes vestris*), Island blue (*Plebejus saepiolus insulanus*), Sharp-tailed snake (*Contia tenuis*), Lewis' Woodpecker (*Melanerpes lewis*), and Barn owl (*Tyto alba*).

Methods

Historical Garry oak ecosystems were mapped at a 1:20,000 scale. These maps include areas where Garry oak was a dominant or co-dominant component of the ecosystem. Other areas had and presently have Garry oak as a minor component and these areas are not mapped or included in this analysis. The historical Garry oak ecosystems were mapped by Hilton Nelson and Andrew MacDougall, using maps at the BC Crown Lands Registry Service. Additional information was collected in field studies in 2003, to confirm the original mapping and determine the present day extent of Garry oak ecosystems. Expert opinion was used to determine areas that had the potential to support Garry oak ecosystems before urban, suburban and agricultural development took place in the greater Victoria area.





BRITISH COLUMBIA

Garry Oak Ecosystems Recovery Team

Projection: BC Albers Nad 1983
Base: 1:20,000 TRIM
Date: January 28, 2004
Scale: 1:70,000

0 1 2 4 Kilometers

HR GISolutions Inc.

NATURE CONSERVANCY CANADA

Credits

Ecosystem mapping by Hilton Nelson, Dan Miller Consultants, Duncan, B.C. and Trial Lea, Biodiversity Branch, British Columbia Ministry of Water, Land and Air Protection, Victoria, B.C. Digital Historical Distribution Mapping by Andrew MacDougall, Hilton Nelson and Trial Lea. Digital Present Distribution Mapping by Ali D. Wrenby of Wrenby, Lee and Associates, B.C. Ministry of Water, Land and Air Protection, B.C. Ministry of Sustainable Resource Management and the Garry Oak Ecosystems Recovery Team.

Acknowledgements

Many people helped in the creation of the historical ecosystem mapping for Garry oak. Tim Ennis and Andrew MacDougall provided comments on the mapping and helped with the digitizing of the maps. Dr. Andrew MacDougall provided comments on the mapping and helped with the digitizing of the maps. Dr. Andrew MacDougall provided valuable insights for this area, and also and Forester Hilton assisted in part of the field work covering the Duncan and Saltspring Island areas. Ministry of Forests, Cowichan Lake Forest District provided information on the location of old growth Garry oak ecosystems in the Cowichan area, allowing access to this mapping, and to staff at the BC Archives for access to early photographs and maps held there. The treat maps of western North America and Vancouver Island (Lea revised from Erickson 1995).

References

British Columbia Land Surveys. 1858, 1878, 1900. Land surveys of the Cowichan Valley area. B.C. Crown Land Registry Office, Victoria, B.C.

Erickson, Wayne. 1995. Garry Oak Ecosystems. Ecosystems in British Columbia at Risk Series, Conservation Data Centre, Wildlife Branch, B.C. Ministry of Environment, Lands and Parks. 6pp.

Erickson, Wayne. 1995. Classification and interpretation of Garry Oak (*Quercus garryana*) plant communities and ecosystems in southwestern British Columbia. MSc. Thesis, Department of Geography, University of Victoria, Victoria, B.C. 307 pages plus Appendices.

Fuchs, Marilyn, 2000. Towards a recovery strategy for Garry Oaks and associated ecosystems in Canada: Ecological Assessment and Literature Review. Environment Canada, Canadian Wildlife Service. 300 pp.

Garry Oak Ecosystems Recovery Team. 2002. Recovery Strategy for Garry Oak and Associated Ecosystems and their Associated Species at Risk in British Columbia. Draft for Public Review.

Garry Oak Ecosystems Recovery Team, Victoria, BC. Garry Oak Ecosystems Recovery Team. 2002. Plant and Animal Species at Risk in Garry oak and associated ecosystems in British Columbia as of February, 2003. Web resource accessed December 10 2004 at http://www.goert.ca/documents/species.asp#Type1a

Penn, Briony. 1990. The fate of the Garry Oaks. Pp 6-9. Monday Magazine, Victoria, B.C. February 27 - March 4, 1990.

Pojar, Jim. 1980a. Threatened Forest Ecosystems of British Columbia. Pp 23-28. In Threatened and Endangered Species and Habitats in British Columbia and the Yukon. Proceedings of the Symposium. Federation of B.C. Naturalists, Douglas College and B.C. Ministry of Environment. Edited by Richard Baerg Sheild, Lois Jeles and Paul Joslin.

Pojar, Jim. 1980b. Threatened Habitats of Rare Vascular Plants in British Columbia. Pp 45-48. In Threatened and Endangered Species and Habitats in British Columbia and the Yukon. Proceedings of the Symposium. Federation of B.C. Naturalists, Douglas College and B.C. Ministry of Environment. Edited by Richard Baerg Sheild, Lois Jeles and Paul Joslin.

Whitten, Kerry. 1983. Forest vegetation and environments on the Saanich Peninsula, Vancouver Island. PhD. Thesis, Department of Biology, University of Victoria, B.C. 2000pp.

Citation

Lea, Trial and Tom Lea. 2004. Historical Garry Oak Ecosystems of the Cowichan Valley and Saltspring Island. 1:20,000 Map. Biodiversity Branch, B.C. Ministry of Water, Land and Air Protection. Victoria, B.C.