Past, Present and Future Bald Eagle Nest Sites on the North Shore of Burrard Inlet

by David L. Cook

The Bald Eagle *(Haliaeetus leucocephalus)* has probably nested along the north shore of Burrard Inlet and its salmon bearing rivers as long as salmon have run in the area, that is, over the last 4000 years, prior to which Pacific salmon distribution "was restricted by the residual effects of the Fraser Glaciation" (Lackey (1999). The Douglas-fir would have been a dominant tree at the time (Whitlock 1992), and would probably have served as a preferred nest tree then as it does today.

This report describes known Bald Eagle nest sites within the Districts of West and North Vancouver and the City of North Vancouver, between Howe Sound and Indian Arm. One nest in Twin Islands Provincial Park and a former nest tree in Belcarra Regional Park are included. All are in Douglas-fir trees; some are old growth, some second growth. For this report, the designation "old growth" is a subjective one applied to a tree of considerable girth with deeply grooved bark and thick, usually somewhat twisted branches. The age of these old-growth trees is estimated at between 250 and 700 years. "Second growth" applies to trees estimated at less than 250 years of age. The second-growth trees described in this report are estimated at 100 to 150 years old.

In the past, monitoring of Bald Eagle nesting activity on the North Shore has been carried out casually by numerous monitors, mostly residents living in the immediate vicinity of each nest. Until now, no attempt has been made to collect nesting data into a single publication accessible to the public, researchers, municipal governments, politicians and contractors/developers.

The data collected for this report fall primarily within the last two decades. Information prior to that time is poor or non-existent. In most cases each nest site has had or still has one or more monitors/protectors, many of whom have been approached. Most were willing to share the information they had, either in the form of written records or in anecdotal form. In some cases where there was more than one monitor, the reliability of the information could be improved by cross-checking.

In the Table presented on p. 32 an attempt is made to consolidate the data. An account of each nest site is given, including approximate location and nesting history when it is known. The Table shows nesting activity from the year 2000 to May 2008, the period in which most of the data fall. The limited information available for years prior to the year 2000 and other information of interest for each nest site are given in the narrative description for each nest.

Names of monitors and exact locations of nests have been withheld for privacy and security reasons. That additional data will be made available to the Wildlife Tree Stewardship Programme (WiTS). The WiTS programme is an environmental stewardship programme of BC Nature, (the Federation of BC Naturalists or FBCN) that aims to create, co-ordinate, and assist a network of community stewards interested in conserving wildlife tree habitats through volunteer monitoring, landowner agreements, and community education in British Columbia. The recently appointed WiTS Coordinator is Ian Moul, e-mail wits.bc@shaw.ca. The WiTS website is

Ansell Place nest, April 2008. Yet another attempt to nest in the presence of major disturbances associated with the Sea to Sky Highway Improvement Project. Photo by Susan Cameron.

www.wildlifetree.org.

A discussion follows on the pressures that Bald Eagles experience when nesting on the North Shore now and in the future, together with the possible consequences of those pressures.

Description of Nesting Sites:

Fifteen nesting sites are described below. Of these, 11 sites have shown activity in the last few years and should be considered active. Numbers correspond to those on the location map, p.30.

1. Ansell Place, Sunset Beach. West Vancouver: Located in what is probably an old-growth Douglas-fir west of and below the pull-out south of the Ansell Place turnoff on Highway 99, at the edge of the B.C. Rail alignment. Debris at the base of the almost inaccessible tree has included numerous feathers and bird bones, a dried carcass of a young eagle and a stuffed toy Santa Claus. This is an unusual nest site in that the nest is slightly below eye level when observed from the pull-out so that it is possible to look partly into the bowl of the nest. However, if a very young eaglet is crouched low down in the cup of the nest, it may not be visible. While the tree itself will not be directly impacted by highway improvement, the potential for disturbance due to noise is high. As stated in the B.C. Government's Fact Sheet "Sea-to-Sky Highway Improvement Project" (2003), the "new clearing and grub line indicated on the maps will come within approximately 30 m of the nest tree. In addition, Rock Cut No. 9 is immediately adjacent to the nest site. MWLAP [Ministry of Water, Land and Air Protection] generally requests a 50–100 m radius buffer, assured from the base of the nest, between the tree and disturbance, excluding the potential disturbance from blasting. The risk of such activities, particularly blasting, is

that the nesting pair might abandon nesting attempts, which extend on the south B.C. coast from initial nest occupancy (early February) to fledging (late July). Exact dates and exclusion area around the nest will arise from discussions with MWLAP staff." The eagle pair at this nest made a valiant attempt to nest in 2007 in a scenario of blasting and rock pile removal near their nest. The nesting, however, ultimately failed. In 2008 they are repeating this effort and so far succeeding in spite of repeated disturbance due to highway construction activities near the nest.

2. Arbutus Rd, West Vancouver: An active nest existed, from before 1966 to 2001, in an old-growth Douglas-fir on a private property on Arbutus Road, Whytecliff park, West Vancouver. (Trudel Kroecher, personal communication). In the Greater Vancouver Nesting Survey Report of 1988, the nest was described as "active," with a fledged juvenile recorded. The nest probably remained active until about 2000 when major construction in the area began. In March 2006, the old-growth tree (together with a nearby old-growth perch tree) was cut down for the expansion of a driveway.

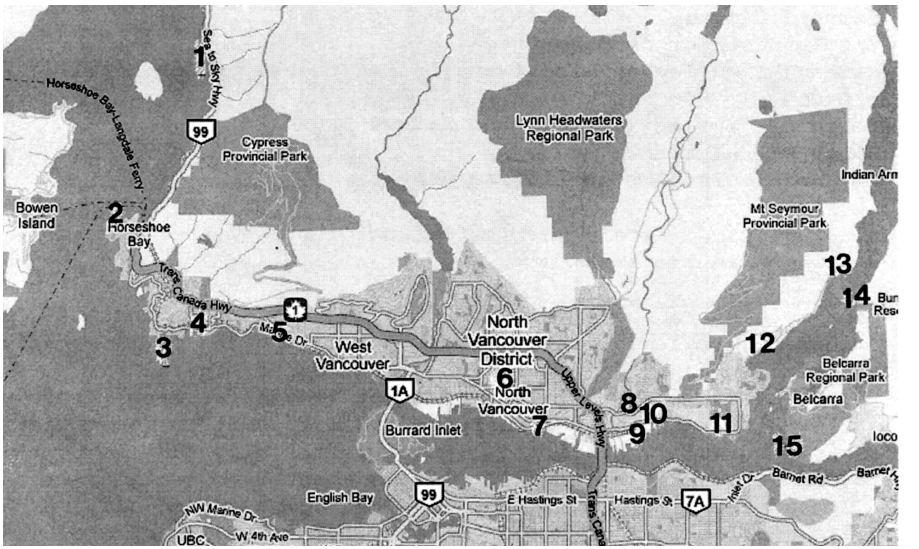
3. Lighthouse Park, West Vancouver: Bald Eagles have nested in Lighthouse Park for many years. Currently there is one known active nest site in an old-growth Douglas-fir. There are usually a variety of bird carcasses and bones beneath the tree, e.g., those of Barred Owl and gull. A second old-growth Douglas-fir about 150 m away from the nest tree, where bones and feathers still litter the ground, was probably a former nest site. This former nest tree is located close to a trail and may have been vacated because of increasing human and dog traffic below it. Fortunately, Lighthouse Park is well stocked with suitable nest trees. If the existing pair continues to breed, it will be interesting to see if the Park can sustain more than one nesting pair.

4. Piccadilly Park, West Vancouver: The nest is in an old-growth Douglas-fir with a broken top, one of a grove of old-growth Douglas-firs, all with broken tops. The tree also contains a Pileated Woodpecker nest two metres from its top and a Northern Flicker cavity seven m from the top (KS Biological Services 2005). Blasting and tree removal in 2005 on adjacent residential lots may have discouraged the eagles from nesting in 2006 or 2007. Considerable blasting for housing development began again in March 2008.

5. Marine Drive, West Vancouver: Like so many of the Bald Eagle nest trees on the North Shore, this nest is in a broken-topped old-growth Douglas-fir. Broken tops (lost leaders) removed by storms or cut for views create a suitable platform for Bald Eagles' nests which can weigh up to 1000 kg. Nesting activity at this site was recorded in 1988 (Greater Vancouver Nesting Survey 1988). More consistent records have been kept since 2003 (see Table, p. 32).

6. Mahon Park, City of North Vancouver: Located in the forested section of Mahon Park in a large Douglas-fir with a broken top.

7. Moodyville Park, City of North Vancouver. The nest is in a second-growth Douglas-fir with a broken top and new leader. The eagles feed almost exclusively on pigeons, hundreds of which feed on grain spilt during operation of the nearby grain elevators. Although not monitored on a regular basis, the impression has been gained that this is a very successful nest site because of the protected location and the ample close food source.



8. Riverside Drive, North Vancouver: The nest is on private property in a second-growth Douglas-fir that, like the Marine Drive nest, lost its leader. It was originally built in the fall of 2005, but successful nesting was not observed until 2007. The remains of duck, crow, pigeon and salmon have been found beneath the nest.

9. Maplewood Flats, District of North Vancouver: In April 2008 an adult Bald Eagle was observed adding to a nest in a second-growth Douglas-fir. A single crow harassed the adult during the one-hour period of observation during which the eagle returned three times with nest material. Eroded food pellets beneath the nest suggest that this nest was used in 2007 and possibly 2006. While an excellent location for food supplies, the tree looks unsuitable for holding a nest; the branch on which the nest is constructed seems unlikely to hold it as the adults add nest material in future years. The nest is also positioned in a very open area. In May 2008 no eagle activity could be detected.

10. Windsor Secondary School, District of North Vancouver: The nest is in a second-growth Douglas-fir that has lost its top and developed new leaders between which the nest is positioned. Nest material is caught in branches below the nest. Eroded pellets at the base of the tree indicate that this nest was used in former years. Remains of gull were noted on the forest floor below the nest. Activity has not been detected in 2008.

11. Roche Point Forest, District of North Vancouver: This site has the longest and most complete recorded history of any on the North Shore. Nesting was attempted in 1987 and 1988 but was unsuccessful possibly due to too many visitors resulting from publicity about protecting the nest tree from development. After 1988, following an ice storm, the nest fell out of the tree and monitoring stopped because it was assumed that the eagles would not return. Because the tree was remote, only visible from one location and difficult to access, the memory of its existence faded.

The location of the tree was shown to me by District of North Vancouver Section Manager Kevin Bell in 1999. In the year 2000, I visited the tree during nesting season and was able to establish that nesting had resumed. Nesting was successful every year following that until 2007 when results were inconclusive. The nest fell out of the tree soon after August 2007 but has been rebuilt in the same tree in time for the 2008 nesting period. Bone, feathers and flesh remains at the base of the tree over the years have included numerous species of birds (probably mostly acquired from Maplewood Flats), a leg band from an osprey that had been banded near Camden in Washington State in 1998, a grey squirrel and salmon. Other items included plastic garbage bags and a stuffed toy orca (compare the stuffed Santa Claus at Ansell Place). A trend towards fledging earlier each year has been observed at this nest site: on 31 August 2000, 19 August 2004, and early August 2006. Offspring from this nest may have established the Maplewood Flats and Windsor High School nests.

12. Deep Cove, District of North Vancouver: An old-growth Douglas-fir with a broken top in Cove Forest Park above Deep Cove a few yards east (downhill) from the Baden Powell Trail was probably an abandoned nest site. In the year 2000, bone material on the ground indicated that this tree had been used as a nest tree in the recent past. No bone material remains today. It is possible that the tree was abandoned as a nesting site because of increased use of the Baden Powell Trail. The emergent broken crown of this tree can be seen from Panorama Park in Deep Cove.

13. Brighton Beach, District of North Vancouver: Information from various people suggests there may be a nest in this area. However, it is possible that these reports are not of a nest but of eagles attracted to the area by salmon carcasses left by local residents.

14. Twin Islands Provincial Park: Although not visited by me, a nest has been confirmed at this location by a B.C. Parks employee. The pair from this nest may be the eagles being fed at Brighton Beach located 1km to the northwest on the western shore of Indian Arm.

15. Admiralty Point, Belcarra Regional Park, Belcarra: An old-growth Douglas-fir between the trail and the beach at Admiralty Point was reported to contain an active nest in 1977 (Sigma Resource Consultants Ltd: 1977). The description and location of the tree was confirmed by the writer during visits to the area in 2006 & 2007. No nest or eagle activity was observed during these visits.

Discussion & Conclusions:

This study helps to clarify the nesting habits of Bald Eagles on the North Shore, makes some general observations and raises a number of questions for discussion:

The history of Bald Eagle nesting on the North Shore, particularly in recent decades, seems to have been a struggle between finding suitable nest trees within convenient distance of a food source while at the same time learning to tolerate increasing disturbance related to human activities.

The selection for some of the more recent nests (Windsor High School and Maplewood Flats) of second-growth Douglas-firs with their weaker branches, as opposed to old-growth Douglas-firs with their stronger branches, suggests a current shortage of suitable trees for nest construction near favourable food sources on the North Shore. It further leads to the possibility that we are seeing the beginnings of a new phase of Bald Eagle nest construction. If the North Shore

population of Bald Eagles continues to increase, as seems to be the case, the supply of suitable Douglas-firs will be insufficient. Eagles like to return to their former nests, and over years, will build them up until they become large and heavy. As more and more unsuitable trees are selected, the consequence might be short-lived nests, as the increasing weight of the nests will cause the weak supporting limbs to fail. My prediction is increasing relocations in the future. This could result in increased expenditure of effort for the parent birds and could result in failure of breeding, particularly if the nest falls from the tree at an inopportune time. As nest trees are removed, particularly in West Vancouver where there are no restrictions for tree removal on private property, the North Shore population of Bald Eagles may reach a plateau and even decline as suitable trees are removed.

In B.C., the number of fledges for each successful nesting is reported to be about 1.5 for 1994 (Blood & Anweiler 1994). This average approximates that of the Roche Point nest (the nest with the most complete record) over a monitoring period of 7 years.

Eagles often build more than one nest, but alternate nest sites located to date are few in number. The former nest tree above Deep Cove and an old site in Lighthouse Park should not be classed as alternate nest trees but sites

No	Site	2000		2001		2002		2003		2004		2005		2006		2007		2008	
		A	F	A	F	A	F	A	F	A	F	A	F	A	F	A	F	A	F
1	Ansell Place					y	?1	y	?1	y	?1	y	?2	y	1	y	0	y	
2	Arbutus Rd.	y	?	y	?	n	0	n	0	n	0	n	0	Tree removed for driveway improvement					
3	Lighthouse Park															y	1	y	
4	Piccadilly Park	y	?	y	?	y	?	y	?	y	?	n	0	n	0	n	0	y	
5	Marine Drive							y	1	y	1	n	0	y	1	y	2	y	
6	Mahon Park											y	2	y	?1			y	
7	Moodyville Park							y	?1			y	?	y	?1			y	
8	Riverside Drive															y	1	y	
9	Maplewood Flats															?y	?	y	
10	Windsor Secondary School															?y	?		
11	Roche Point Forest	y	2	y	1	y	2	y	?	y	2	y	2	y	?1	y	?	y	
12	Deep Cove	Probably used as a nest tree prior to about 1995																	
13	Brighton Beach	No confirmed nest or tree. Possibly an artificial feeding site only.																	
14	Twin Islands	This site not yet visited by the author																	
15	Belcarra	Site visited by author 2006 & 2007. No nest or eagle activity observed.																	

A = Active nest. Adult/s on nest or in nest tree.
F = Fledged. Number of eaglets fledged.
? = Unknown
?1,?2 = Doubtful data.
Where there is no data there was no monitoring.

abandoned in the past probably due to increased human and dog traffic beneath them.

Very little in the way of consistent nesting records have been kept for Bald Eagle nest sites on the North Shore. This article is intended to serve as a catalyst for improved awareness and monitoring of nest sites so that they may be better protected.

The scenario between residents and the authorities that has played out at the Ansell Place nest site (see p. 28) over the last three years as a result of the Highway 99 upgrade could be used as a guide for the way in which various levels of government, contractors and the public should work together when a Bald Eagle nest exists in an area to be developed.

The Bald Eagle is a high–profile species with great public appeal because of its size and beauty, and can be used as an entry point for nature education.

There are 11 more or less active nests between Roche Point Forest and Ansell Place, a distance of 38 km, with an average of 3.45 km between nests. This distance is thought to be a function of available nesting trees, food supply, competition and population density, and at this time matches the average for B.C. (Blood & Anweiler 1994). However, as is suggested by the nests clustered around the Roche Point Forest nest, there seems to be some preference for birds to return to the area where they were fledged. The consequence of this may be pockets of higher nest density.

The author's interest in the Bald Eagles of the North Shore began in 2000 when he was shown a Bald Eagle's nest in a magnificent old-growth Douglas-fir in Roche Point Forest. This experience raised many questions in his mind about the population of Bald Eagles on the North Shore, particularly the need to conserve their nesting trees and habitat. The author's parallel study of the old-growth trees and forests of the North Shore provided an opportunity to discover new nest sites and observe the dynamics of the resident Bald Eagle population. This article summarizes the work to date and sets the stage for the next phase of study, which will involve the Wildlife Tree Stewardship Programme.

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