

Eagles on the Chilkat: Winter Ecology

Erwin L. Boeker

National Audubon Society, U.S. Fish and Wildlife Service (retired), Denver, CO

During fall and early winter, when food for Bald Eagles is limited in most parts of Southeast Alaska, thousands of eagles congregate in Alaska's Chilkat Valley just north of Haines. There, upwellings of warm water in the river and a late run of chum salmon provide abundant and accessible food. From 1979 to 1983, the National Audubon Society and the U.S. Fish and Wildlife Service conducted cooperative research that affirmed the importance of this world-class eagle habitat.

The Bald Eagle (*Haliaeetus leucocephalus*), the United States national symbol, inhabits the North American continent from the Gulf of Mexico to the Arctic. Although highly mobile and opportunistic in its feeding habits, it is usually found near seacoasts, inland lakes and rivers in association with fish.

In the contiguous 48 states, the largest breeding populations of Bald Eagles occur around the Great Lakes, in Florida, along the Atlantic coast, especially Chesapeake Bay and along the Pacific Northwest Coast. As a result of human encroachment, including the harvest of old-growth forests along coasts and rivers and the introduction of chemical toxins and other pollutants into the environment, populations in these regions steadily declined from 1940 to 1980. By 1978 numbers were so low the Federal Government classified all Bald Eagles in the contiguous 48 states as either endangered or threatened. Fortunately, with the banning of DDT in 1972 this trend has been reversed and presently populations are increasing in the lower 48 states.

With 30,000 miles of tidal shoreline on hundreds of islands and inland waterways still in relatively pristine condition, it is not surprising that Southeast Alaska and coastal British Columbia contain the largest breeding and wintering populations of Bald Eagles remaining in North America. To better understand the habits and needs of Bald Eagles in winter, an ecological study was conducted in the Chilkat Valley of Southeast Alaska during the winters of 1979-1983. This paper briefly summarizes the results of the study. In Alaska, although congregations of several hundred Bald Eagles normally occur on Kodiak Island, the Copper River Delta, Berners Bay near Juneau, the Stikine and Taku rivers and other salmon spawning areas in winter, none surpasses numbers of eagles found in the Chilkat Valley. This valley, located at the northern reaches of the inland waterway, 80 miles northwest of Juneau, is the winter home of the largest concentration of Bald Eagles in North America.

Thousands of eagles choose to winter in the Chilkat Valley simply because this area contains all their basic requirements for survival. As in all winter habitats, the abundance

and availability of food is most important. In this regard the Chilkat Valley is unique, as it supports the largest and latest chum salmon (*Oncorhynchus keta*) run in Southeast Alaska. In addition, since portions of the Chilkat River remain ice-free due to unusual upwellings of warmer water, the eagles are assured an abundant and dependable food source throughout much of the critical winter period.

Other important components of winter eagle habitat, such as proper dispersion of perch and roost sites and shelter from strong winds and storms, are well provided by physical features of the Chilkat Valley. The valley is bordered by mountains ranging to 6,000 feet in elevation. Steep slopes are covered by Sitka spruce (*Picea sitchensis*), western hemlock (*Tsuga heterophylla*) and mountain hemlock (*T. mertensiana*). The valley floor is dominated by the Chilkat River which is joined on its path to the sea by the Klehini, Tsirku and Takhin rivers. The Chilkat River originates in Canada as a glacier-fed stream some 50 miles north of Haines, Alaska. It broadens to a wide flood plain with braided channels, extensive gravel bars and islands covered with dense stands of black cottonwoods (*Populus trichocarpa*) in the vicinity of Klukwan, a Chilkat Indian village 23 miles north of Haines. Here the cottonwoods are well-distributed near feeding areas along the river and they provide eagles with optimum roost sites and perches for hunting and resting in the fall and early winter. Later in the winter, during periods of cold weather, many eagles abandon the cottonwood roosts for more protected conifer sites on the slopes of the valley.

The climate of the Chilkat Valley is largely maritime. Moist air uplifted by the coastal mountains produces typically cool summers, moderate winters and considerable precipitation well distributed throughout the year. Barometric instability between the warm, moist air mass and cold, dry interior high pressure systems causes wide variations in temperature and wind conditions in winter. For example, temperature differences of 10°F are common between the mouth of the Chilkat River and points 20 miles upstream. On occasion, when winds are blowing in excess of 60 mph at the mouth of the river, it is calm upstream. Thus, the Chilkat River eagles are not subjected to much of the harsh winter weather experienced by other wintering eagle populations in Southeast Alaska. Beginning in September and continuing through late autumn, thousands of Bald Eagles move into the Chilkat Valley from surrounding areas. Population peaks, as determined by combined aerial and ground counts during the course of our study, varied from 3,100 to 3,700 birds. Early in the season eagles are found widely distributed throughout the valley. By late October, as ice begins to form and fish become less abundant in tributary streams, the birds begin to concentrate along a 5-mile stretch of the Chilkat Valley below the village of Klukwan. This area, where on occasion more than 2,000 eagles can be viewed from one spot, is known as the Council Grounds and includes the mouth of the Tsirku River, which is the source of the Chilkat Valley's unusual warm water upwellings.

Although much of the surface water in the "Council Grounds" remains ice free during the winter, there are times when shelf ice builds from the edges of open channels to a point where salmon carcasses are either frozen in the ice or are in water so deep they cannot be reached by the eagles. When this happens, usually in late December or January, the birds are forced to leave the valley and search for a new food source.

Tracking data for 31 eagles, marked with radio transmitters in the Chilkat Valley during the course of the study, revealed that upon leaving the valley the birds initially move into the northern half of Southeast Alaska. Adults tended to remain in this area; immatures spread out southward. Half of the marked immatures ended up in British Columbia and Washington state, which attests to their remarkable mobility.



Bald Eagle along the Chilkat River, Alaska. Photo by E. L. Boeker.

The total number of individual eagles that annually use the Chilkat Valley is unknown. However, some radio marked eagles moved out of and back into the area several times before their final departure. These data suggest some degree of population turnover during the winter and may indicate that the valley actually supports considerably more eagles than recorded on daily and weekly counts.

There can be little doubt that the Chilkat Valley contributes much to the overall well being of Alaska Bald Eagles. The timing and size of the fall chum salmon run is especially important for first-year eagles because it provides an easily accessible and abundant food supply at a time when these birds are learning to survive on their own. Frequently, in areas where food is more limited, post fledging mortality due to starvation

is common because young birds simply do not have sufficient time to develop the hunting skills needed to survive. The food in the Chilkat Valley also greatly benefits breeding eagles because here, as opposed to other winter areas where food is not as abundant, the birds are not required to expend vast amounts of energy to maintain body condition. As a result, they are in prime physical condition at the onset of the breeding season.

To assure permanent protection for this special and unique habitat, legislation establishing the 49,000 acre Alaska Chilkat Bald Eagle Preserve was signed into law in 1982. This action was certainly an important first step in assuring a more secure future for Alaska Bald Eagles, but much more needs to be done. Threatening landscape changes are occurring at a rapid pace in Alaska with the steadily increasing demand for fish, timber and minerals. Also, industrial accidents such as the 1989 *Exxon Valdez* oil spill in Prince William Sound demonstrate that even Alaska Bald Eagles are living in a rapidly changing and perilous world.

For a detailed account of the Chilkat Bald Eagle study see: Hansen, A. J., E. L. Boeker, J. I. Hodges and D. R. Cline. 1984. Bald Eagles of the Chilkat Valley, Alaska: ecology, behavior and management. Natl. Audubon Soc., Anchorage, Alas. 27 pp.