



**CHAK-CHAK**

the  
Skagit  
Bald Eagle



## TO THE SKAGIT

High on a limb a dark shape stirs ...  
its regal form descending in misty light.  
Wings break the cold silence. The bald eagle  
launches over the valley ... then drifts downward  
following the river's course. The great bird  
begins a new day in search of dying salmon ...  
the hope that brings him to the Skagit.

Eagles arrive on the Skagit at the time chum  
salmon are spawning. For the salmon, this is their  
final thrust ... the culmination of a cycle. For  
the eagle, dying salmon provide life sustaining  
energy. In past times of great salmon runs, bald  
eagles served to cleanse rivers of decaying fish.  
Now with declining runs, the few remaining eagles  
search for scattered carcasses.

## DAILY ACTIVITY

Night roosts are usually in  
large trees back from the river. At  
daylight, eagles move to river bars  
where spawned-out salmon may have  
stranded. Immature birds mingle with  
white-headed adults vying for available  
food. Salmon are quickly ripped apart by  
powerful talons and hooked beaks. Choice  
carrion is claimed by dominant birds ... some-  
times being carried to protected spots on rocks or  
limbs.

If food is plentiful, feeding subsides in mid-morn-  
ing ... to resume in late afternoon. On snowy or  
rainy windless days, eagles patiently perch above  
feeding sites through mid-day hours. Perch trees are  
typically barren cottonwood or snags which allow a  
360° view. Some researchers believe that well fed  
eagles perch lower and hungry birds move higher to  
allow better observation of new carrion.

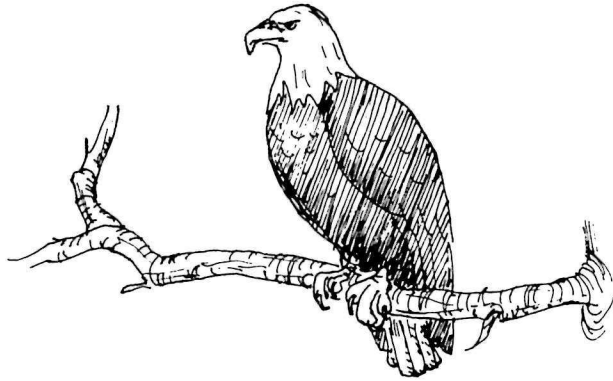
If the sun breaks through, the otherwise stoic  
birds take wing ... circling to catch rising columns  
of warm air. Soaring appears to be a contagious,  
"fun" activity.

At dusk, vocalizing attracts attention to birds  
gathering at perch trees. Then quietly ... singularly;  
or in small groups, they slip away to more protected  
night roosts.



Illustrations by  
Joyce Harris

Text by  
Jim Harris



### THE FOOD CHAIN

Man's activities most often affects those at the top of the food chain. Any disruption at lower levels is disastrous to top-order predators. The bald eagle's life line is through the salmon. DDT concentrated in salmon flesh nearly eliminated the eagle before it was banned. DDT caused eggshells to be thin and easily broken. Salmon runs are increasingly threatened by disruptive uses of spawning areas, pollution, and over fishing.

*Haliaeetus leucocephalus* (the "white headed fish eagle") along with other raptors ... eagles, hawks, owls, and vultures ... have talons and beaks designed for capturing and tearing prey. The bald eagle, while primarily a fish eater, has adapted to eating water birds, crabs, and small mammals. On San Juan Island, there is a population of bald eagles surviving on road kills of introduced rabbits.

### ENDANGERED SPECIES

Bald eagles were purposefully killed in large numbers until the "Bald Eagle Protection Act" of 1940. Bounties were paid in Alaska until 1952 when it was finally recognized that eagles were not detrimental to spawning salmon.

In 1973 the "Endangered Species Act" provided greater protection by making it illegal to kill, harrass or possess any part of a nest, egg or bald eagle. It also made federal agencies responsible for preserving and protecting eagle habitat.

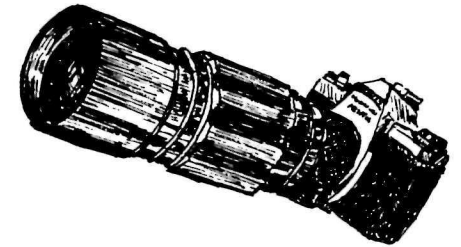
The Skagit River Bald Eagle Natural Area has been established in critical roosting, nesting, perching and feeding sites between Rockport and Marblemount. The river above Bacon Creek is protected within the Ross Lake National Recreation Area. Federal and state officers strictly enforce all regulations.

### VIEWING

The winter gathering of Northern Bald Eagles on the Skagit is one of the largest remaining in the lower states. Recent winter counts numbered nearly 300. People attracted to these magnificent birds inadvertantly become an additional threat if understanding and care is not shown.

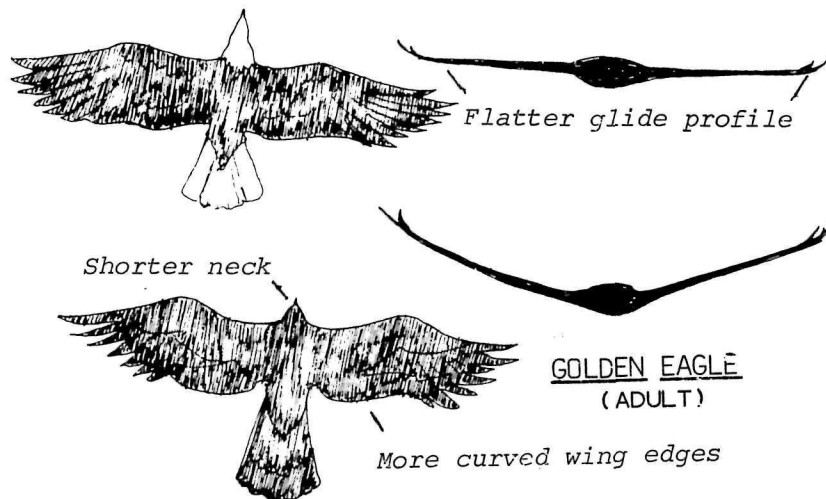
Viewers are asked to stay on roadside pullouts. Some excellent viewpoints are found along Highway 20 at Washington Eddy (mile 97), Sutter Creek Rest Area (mile 100), Bacon Creek (mile 110), and riverside points between mile 112 and 116.

Eagles typically stay on the far side of the river away from human activity. Viewers should bring binoculars and telephoto camera lenses.



## IDENTIFICATION

### BALD EAGLE (ADULT)



### GOLDEN EAGLE (ADULT)

#### SUBADULT BALD EAGLE FEATURES

##### YEAR:

- 1 - Uniformly slate black
- 2 - Brown with white mottling
- 3 - More white on under-body; eyes and beak turning from dark to yellow
- 4 - More uniform brown-black; black eye stripe
- 5 - Head and tail feathers lighter

Male and female adult bald eagles are nearly identical in appearance and voice. The voice is a weak, "creaky" squeal, or a lower KAK-KAK-KAK. The female, about  $\frac{1}{4}$  larger, may weigh up to 15 pounds with a wing spread of  $7\frac{1}{2}$  feet.

Juveniles nearly equal parents in size by the first winter. They may be mistaken for golden eagles which sometimes join wintering bald eagles on the Skagit. Golden eagles are distinguished by flight profile, feathered lower legs, gold streaked neck feathers, and a strong, piercing call.

## DISTURBANCES

Eagles are disturbed by quick movement and loud noise near their feeding sites. Once disturbed, they usually do not return for hours or until the next feeding period. Competitors - crows, gulls, coyote, and raccoon may have cleaned up carrion by that time. Boaters are asked to stay off the river before 10 A.M. and after 3 P.M. ... to drift quietly and not to beach near feeding areas. All land use is prohibited (during the winter feeding period) within the Skagit Bald Eagle Preserve. These posted lands are near the mouth of the Sauk River, Washington Eddy, and "The Big Eddy" near Marblemount.

## MATING

Bald eagles mate for life. They are long lived ... up to 30 years. The conspicuous white head feathers, at age five to six, indicates sexual maturity. Unlike most birds of prey, bald eagle are social. Winter gatherings allow mating between wide spread genetic groups.

## COURTSHIP

Occasionally courtship rituals are observed on the Skagit before departure for nesting territories. Courtship flights usually consist of swooping and calling. The very lucky viewer may witness the spectacular copulation flight. Mates soar close together ... one bird flips over extending talons to the other. With interlocked talons and extended wings, they pull together ... tumbling toward the earth. A last second maneuver breaks them apart ... to again rise in soaring flight.

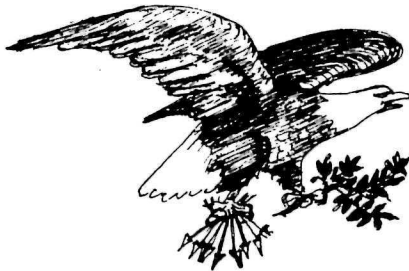
## LEAVING THE SKAGIT

By late February salmon carcasses are consumed and eagles are departing. Skagit Eagles predominately go North ... nesting on bluffs and trees along the Frazier River and the Gulf Islands of British Columbia. There are many hazards to nesting birds ... both natural and man caused. If all goes well they will return to the Skagit another winter.

## CHAK-CHAK - THE AMERICAN SYMBOL

Native Northwest people called the great white headed fish-eater "Chak-Chak". His fiercely independent appearance placed him on our national seal. Chak-Chak has since diminished from great numbers to a "threatened Species". If the bald eagle is to survive, so must the salmon, the rivers, and the oceans.

The American Bald Eagle is more than a symbol of independence. Its well being is a direct measure of our ability to manage life giving resources ... on which we all depend.



NATIONAL PARK SERVICE

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## RAIN FOREST OF OLYMPIC NATIONAL PARK

The rain forests are very important environments of Olympic National Park. The park was established in 1938 to protect, without impairment, the rain forests and other priceless environments as well.

There are three interesting rain forest valleys situated on the ocean, facing west side of the park: The Quinault, Queets and Hoh Valleys.

The rain forests have one thing in common: an abundance of moisture. The average precipitation in these valleys is 145 inches a year, with most of the moisture falling from late fall to early spring. In contrast, the summer season is comparatively dry with many days of clear and sunny weather. Linked with the heavy precipitation are moderate temperatures. Winter lows seldom go below freezing, and summer highs rarely exceed 80 degrees F. The overall climate is wet, but quite mild in these low elevation valleys. This temperate situation is indeed reflected in the biological environment.

The rain forest environment is notable for its quantity and quality of vegetation. There is hardly a square inch of soil that is not utilized by plants. Plants here range in size from mosses a half inch in height to giant spruces 300 feet tall. The ground cover is very much part of the overall scene, but it is usually the large forest trees and their manner of growth that attracts attention.

Sitka spruce and western hemlock are the dominant species over Douglas-fir, western redcedar, bigleaf maple, red alder, vine maple and black cottonwood. The bigleaf maple is prime habitat for luxurious growths of epiphytes such as clubmoss and licorice fern. Epiphytes are plants that live their entire life above ground on trees, but do not parasitize the trees. On the ground is a tremendous variety of flowering plants, mosses and ferns too numerous to list here.

The regeneration of the rain forest is a never-ending process. A strong wind-storm might topple shallow-rooted trees, both dead and live specimens. After a number of years, the fallen trees will become nurse logs for spruce and hemlock seedlings. At first, hundreds of young trees grow on the nurse log. Eventually by competition, only a few trees survive to form a colonnade of mature trees. In time, trees of this colonnade will fall to the forest floor and become nurse logs to perpetuate this phenomenon of the rain forest.

Woven into the fabric of the rain forest is a population of animals; all inter-related to each other and to their environment; insects, reptiles, amphibians, birds and mammals. The most prominent animal forms are the birds and mammals. The varied thrush, western robin, winter wren, pileated woodpecker, gray jay, junco and raven are here. The Roosevelt elk, black-tailed deer, cougar, black bear, otter, Douglas squirrel, jumping mouse and shrew are found here also.

The Roosevelt elk, though wary of human presence, is seen much of the year in the rain forests. The elk live in the forest from late fall to spring. With the coming of summer, most of the herds migrate to their summer range in the high county, leaving only a token population in the lowlands.

The Hoh Valley is the most accessible of the tree rain forests. A paved road leads 19 miles in this area from Highway 101. At the end of the road is a visitor center (open daily through the summer), two self-guiding nature trails,

a campground and a picnic area. The Hoh is also the starting point for the upriver hiking trail which terminates in 18 miles at the Blue Glacier on the flanks of Mount Olympus. During the summer, campfire talks on the values of the rain forest and Olympic National Park are presented nightly by naturalists at the Hoh Campground.

The Queets and Quinault rain forests are accessible by gravel roads and each area has a small campground and access to nearby hiking trails.

The National Park Service hopes that you will have many opportunities to explore the rain forest and other environments of the Olympic National park.

by Robert W. Kaune, Jr., Park Naturalist