

visual stimulation from the mate may be reduced by marked lowering or raising of the head.

In the crowded conditions of an Adélie Penguin breeding colony, a certain amount of interaction between penguins provides social stimulation that is probably necessary for successful breeding. Too much stimulation, however, may produce stress that could adversely affect reproductive performance. One way penguins overcome this is by avoiding visual contact with another penguin's head, thus reducing the probability of interaction and increasing the probability of resting. Furthermore, by facing into inter-nest spaces, rather than directly towards another nest, a penguin probably increases its apparent individual area, and so reduces the impression of crowding. Such a response has also been noted in penned male Turkeys (*Meleagris gallopavo*) that faced the wire fencing so that their individual areas ranged outside the pen (McBride 1966), as well as in penned Adélie Penguins (Spurr 1972). This avoidance orientation of Adélie Penguins probably enables them to nest at high densities without undue stress. It is to be expected that familiarity with neighbors would also reduce aggression, but Adélie Penguins reacted very readily to disturbances in neighboring territories. This further emphasizes the value of avoidance orientation. It would be instructive to determine if a similar adaptation exists in other colonial species.

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FOOD HABITS OF NESTING BALD EAGLES IN SOUTHEAST ALASKA

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Murie (Condor 42:198, 1940), observing the food habits of Bald Eagles (*Haliaeetus leucocephalus*) in the Aleutian Islands, first concluded from pellet analysis that 58.9% of their diet was birds. Subsequently, however, based on a search of food remains at nests, he determined that 86% of the diet was birds. He thought this was representative of the Aleutian Bald Eagles in general.

Direct, continued observation (Herrick, Auk 41: 389-422, 517-541, 1924) may reveal a more accurate dietary picture since many species of fish can be totally consumed and digested by the eagles. This note presents the results of direct observations at three nests in southeast Alaska during 1971.

Three pairs of Bald Eagles were observed on Robert Islands, at the entrance of Port Houghton, 137 km S of Juneau, Alaska, for a total of 41 days (30 June-10 August) in 1971. The average observation period was 9.31 hr per pair. This area was selected for study because of the high density of nesting Bald Eagles. Each of the three nests was in an old-growth spruce tree (*Picea* sp.). These eyries were studied in order to ascertain the prey species brought to the nest and whether or not eyrie location might determine those prey species.

The total study area comprised about 19 km of beach. Nineteen nests were located within the entire area, with eight of those determined as inactive or alternate nests. One of the active nests was abandoned, the eagles having been disturbed by construction of an observatory.

Observations were made from blinds, using field glasses and spotting scopes. Blinds were constructed at a distance of over a mile away from all nests. These blinds were then moved into position on the ground near the nests.

More herring were taken by birds at nest 10 than by birds at nests 5 and 2 combined (see table 1). The high percentage of pink salmon (27.3%) at nest 2 was expected because of the salmon stream nearby.

The eagles from nest 2 caught most of their pink salmon from their hunting territory over the ocean. Only after the two species of salmon were well into the stream and spawning did the eagles change their hunting patterns.

Procurement of food appears to have been shared equally by both members of each pair of nesting eagles in the study area (table 2). Herrick (1924) found that the eagles he studied did not share equally in food procurement; the female brought in twice as much food as did the male. At nest 5, the female brought in food 20 times and the male 21 times. At nest 10, the female brought in food and nesting material 22 times and the male 20 times.

Herring schools were more obvious off nest 10 than any other area. Red squirrels were the most abundant rodent in the study area, but the eagles were not found to prey on them to any great extent.

TABLE 1. Frequency of food brought to nests 2, 5, and 10.

	N	%
NEST 2		
Pink Salmon (<i>Onchorhynchus gorbuscha</i>)	9	27.3
Herring (<i>Clupea</i> sp.)	3	9.1
Dolly Varden (<i>Salvelinus malma</i>) or Cutthroat Trout (<i>Salmo clarki</i>)	3	9.1
Halibut (<i>Hippoglossus stenolepis</i>)	1	3.0
Sculpin	1	3.0
Unidentified salmon	3	9.1
Unidentified fish	8	24.2
Kelp Crab (<i>Pugettia producta</i>)	3	9.1
Unidentified crustacean	1	3.0
Gull (<i>Larus</i> sp.)	1	3.0
Total fish	28	84.8
TOTAL	33	
NEST 5		
Pink Salmon (<i>Onchorhynchus gorbuscha</i>)	4	10.8
Herring (<i>Clupea</i> sp.)	10	27.1
Unidentified fish	12	32.4
Kelp Crab (<i>Pugettia producta</i>)	1	2.7
Rodent	1	2.7
Unidentified animals	7	18.9
Dolly Varden (<i>Salvelinus malma</i>) or Cutthroat Trout (<i>Salmo clarki</i>)	1	2.7
Sculpin	1	2.7
Total fish	28	77.7
TOTAL	37	
NEST 10		
Pink Salmon (<i>Onchorhynchus gorbuscha</i>)	5	10.9
Herring (<i>Clupea</i> sp.)	23	50.0
Unidentified fish	7	15.2
Rodent	2	4.3
Unidentified animals	8	17.4
Sea Urchin	1	2.1
Total fish	35	76.1
TOTAL	46	

OBSERVATIONS ON THE SUMMER DIET OF ROUGH-LEGGED HAWKS FROM ALASKA

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Winter food habits studies of the Rough-legged Hawk (*Buteo lagopus*) have shown that microtine rodents and other small mammals constitute the bulk of prey taken by this species. Remains of only four birds were found in the stomach contents of 173 wintering Rough-legged Hawks examined by Henshaw (1875), Errington (1933) and McAtee (1935). Craighead and Craighead (1956) reported remains of only four passerine birds among 203 prey identified from pellets of these hawks. This pattern does not seem to

TABLE 2. Frequency of visits to nest 2 by adults.

	Male	Female	Total
Without food or nesting material	59	112	171
With food	21 ± 1	17	37 ± 1
With nesting material	9	11 ± 1	21 ± 1
Total	89 ± 1	140 ± 1	229 ± 2

Crabs and other intertidal animals were taken from tide pools when tides were favorable. Gulls (*Larus* sp.) occasionally were chased by the big raptors. Only once was a gull recorded as food in the nest of an eagle.

Bald Eagles can take trout and salmon by diving completely into the water. On occasion, a fish is too heavy for an eagle and a struggle ensues in the water. An eagle can use its wings as paddles enabling it to "row" ashore. This was seen near nest 2. A seal chased a salmon to the surface and lost it when an eagle from nest 2 flew down and grasped the fish with its talons. The eagle rowed ashore with the salmon trailing behind, fast in its talons. The seal followed behind, but left before it could witness the loss of the fish to another intruding eagle.

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continue, however, during the non-breeding season. Although Sealy (1966) reported finding only one bird, a Lapland Longspur (*Calcarius lapponicus*), either in or near Rough-legged Hawk nests in the Perry River region of the Northwest Territories, White and Cade (1971) reported that birds comprised 13% of 171 total prey found in Rough-legged Hawk nests along the Colville River, Alaska in 1967-1969. The present paper reports prey remains collected on the Seward Peninsula, Alaska during the summers of 1971 and 1972.

Individual prey were identified from remains in pellets and from carcasses or parts thereof found in or around nests and near adjacent perching rocks. I took care to exclude those pellets that were not known, with reasonable certainty, to have come from Rough-legged Hawks or to have been deposited during the study. Examination of the pellets collected in this study confirmed Errington's (1930) statement