

uncautious approach in a palatable carcass specialist can be exploited by the evolution of death-feigning as a hunting strategy in a carnivore. Thus, the birds may need to be alert both during the approach to the bait, and also to prey type. More comparative data are needed to sort out the alternative explanations. Nevertheless, by whatever mechanism of evolution, the neophobia at bait argues for the existence of some real or imagined danger. The apparent eagerness and boldness of some (presumably male) satiated birds to meet this danger suggest that they gain some indirect payoff(s) from it, such as possibly one related to enhanced social status.

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RAVENS OBSERVED KILLING ROOSTING KITTIWAKES¹

DAVID F. PARMELEE AND JEAN M. PARMELEE

Bell Museum of Natural History, University of Minnesota, Minneapolis, MN 55455

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Under the auspices of the U.S. Fish and Wildlife Service, we conducted in 1987 a week-long survey of the birds in the southwest corner of Chagvan Bay (58°40'N, 161°47'W), Togiak National Wildlife Refuge, in the Bristol Bay-Kuskokwim Bay region of Alaska. We here report observing a pair of Common Ravens (*Corvus corax*) simultaneously attack and kill two roosting Black-legged Kittiwakes (*Rissa tridactyla*). Although this amounted to only a single sighting, firsthand observations of coordinated hunting tactics of this nature are so unusual that they would seem to merit special attention (D. Bruggers, pers. comm.; see also Montevecchi, *Z. Tierpsychol.* 49:136-141, 1979).

At least one pair of ravens and possibly more bred in the vicinity of Chagvan Bay. On 24 May we noted a remarkable predatory behavior of a pair that evidently was feeding young. In dim light, at 21:00, two ravens dropped straight down on a flock of several hundred Black-legged Kittiwakes that roosted with a few Glaucous-winged Gulls (*Larus glaucescens*) on an isolated mud flat at ebb tide near the entrance of the bay. Simultaneously, but about 40 m apart, each raven

descended onto a roosting kittiwake and attacked it viciously on the ground. Much jumping, jabbing, and flapping of wings followed until each kittiwake was subdued. All the other gulls meanwhile had risen above the fracas where they circled and called incessantly. Within approximately 3 min the majority settled quietly 50 m away on the same mud flat. A few individuals continued to harass the ravens with dive-bombing swoops, but none made contact. The ravens fed on their prey for about 20 min before flying off, but because of a water barrier we were unable to determine which parts were consumed. We watched one disappear on the face of a short but precipitous sea cliff where, on 26 May, Edward Weiss (pers. comm.) reported seeing a stick nest thought to be a raven's. Later that day we saw an adult raven fly from the huge nest of driftwood and twigs situated out of reach on a ledge 5 to 6 m above the beach.

W. A. Montevecchi (1979) earlier reported on predator-prey interactions between ravens and kittiwakes, but the prey taken by the ravens hunting singly and cooperatively in that study were exclusively kittiwake eggs and nestlings (see also Montevecchi *Condor* 80: 349, 1978). There were no instances of the hunting and killing of older kittiwakes as was the case at Chagvan Bay. Also, the antipredator behavior exhibited by the circling and dive-bombing kittiwakes contrasts with Cullen's (*Ibis* 99:275-302, 1957) and Montevecchi's (1978) earlier reports on the passive nature of the species.

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