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Bald Eagles killing American Coots and stealing coot carcasses from Greater Black-backed Gulls.—Bald Eagles (*Haliaeetus leucocephalus*) feed on a variety of prey, and have been reported killing American Coots (*Fulica americana*, Grubb and Kennedy 1982) and stealing prey from many species (see Fischer 1985 for a review). Erskine (1968) observed Bald Eagles stealing fish from Greater Black-backed Gulls (*Larus marinus*), however, they have not been reported stealing American Coots. From a study of Greater Black-backed Gull predation on American Coots (Unpubl. data) and related observations on Bald Eagles foraging, we document immature Bald Eagles killing American Coots and stealing coot carcasses from Greater Black-backed Gulls.

Study area and methods.—The study was conducted at Lake Mattamuskeet, a 16,200-ha lake in east-central North Carolina's Mattamuskeet National Wildlife Refuge. During 22 October–18 December 1983, we watched, dawn-to-dusk, from two 5-m towers, located on points extending 600 m from shore, and from a vehicle parked on shore. Any eagle activity was recorded until it departed, usually toward a night roost south of the lake. We recorded date, time, eagle age and behavior, gull age and behavior, presence or absence of gull mobbing, and number of gulls mobbing for each eagle-gull interaction. A gull landing within 20 m of a carcass or a live coot, which subsequently attracted an eagle, was considered a cue. Mobbing was defined as one or several gulls approaching, following, or attacking an eagle. Eagles with white heads were aged as adult and those with dark heads as immature. Gulls were aged as adult (≥ 4 years), 3-year-olds, or 1- and 2-year-olds (pooled since few were seen), according to Robbins et al. (1966). A "strike" was defined as a gull hitting a coot. A gull successfully singling out and pursuing a coot but failing to strike was a "pursuit." An eagle flying low over a carcass or live coot with talons lowered was an eagle "attempt."

Results.—During 435 h of observation, Bald Eagles killed four coots and took eight of 33 kills from Greater Black-backed Gulls. Eagle piracy success on gulls with fresh kills was 100% ($N = 8$), and overall piracy success was 97% ($N = 35$). Coots comprised $>82\%$ of items taken by eagles (Table 1). The proportion of observations of eagles obtaining food with a gull cue versus those taking food without a gull cue is greater than 75% (Binomial test, $P = 0.0003$). Eagles obtained 94% of food items with a gull cue. There was no difference between the proportion of observations where gulls mobbed immature eagles at coot carcasses versus observations where no mobbing occurred (Binomial test, $P = 0.876$) (Table 1). Gulls of all ages mobbed eagles. Eagles were mobbed by a maximum of five gulls ($\bar{x} = 2.8 \pm 1.13$ [SD], $N = 28$) and obtained food in 23 of 28 observations. Mobbing occurred twice during gull pursuits and three times as an eagle flew low over a gull on the water. Once, five gulls successfully prevented an eagle from stealing food. All observed Bald Eagle foraging was by immatures. Five "piracy attempts" between immature Bald Eagles (Fischer 1985) were recorded, of which two were successful.

All four eagle kills either began as a gull strike or a gull pursuit. Eagles killed three coots by flying low, lowering their talons, and grasping them on the fly-by. Once an eagle landed where a coot dove in 50 cm of water and remained half submerged for 1 min; it then flew to a perch with the coot. Eagles attempted unsuccessfully to capture coots singled out by gulls during two of 31 strikes by gulls. Eagles stopped four of 41 gull pursuits; twice making their own unsuccessful attempts, and twice just flew over the coot and gull with no attempt on the coot. Eagle predation success on coots was 50% ($N = 8$ attempts).

Discussion.—Dependence on one prey species is not unusual for wintering Bald Eagles. Coots were the major food of immature eagles at Lake Mattamuskeet. Bald Eagles relied on dead waterfowl in Missouri (Griffin et al. 1982) and on American Coots in Arizona and New Mexico (Grubb and Kennedy 1982).

TABLE 1
IMMATURE BALD EAGLE FOOD ITEMS PICKED UP FROM LAKE MATTAMUSKEET, WITH PRESENCE OR ABSENCE OF GREATER BLACK-BACKED GULL (GBBG) CUE AND/OR MOBING

Item picked up	N	GBBG cue			GBBG mobbing		
		With	Without	Unknown ^a	With	Without	Unknown ^a
Coot	41	31	0	10	20	20	1
Fish	1	0	1	0	0	1	0
Unknown ^b	8	3	1	4	3	4	1
Totals	50	34	2	14	23	25	2

^a Not known if carcass was found, killed, or if a gull was nearby.

^b Carcass that could not be positively identified as a coot due to distance from observer and/or amount of carcass remaining.

Eagles should have little difficulty locating and learning the foraging habits of highly visible Greater Black-backed Gulls. Jorde and Lingle (1988) also suggest such eagle learning behavior. Perched eagles often waited for a gull to land or begin circling before flying to that area. Eagles found most of their food by using a gull cue. Along the Mississippi River, eagles used American Crows (*Corvus brachyrhynchos*) as a cue by waiting until crows freed a fish from the ice, then robbed the crows (Fischer 1985).

Eagles were not always successful. Attempts failed because coots dove at the last moment. After a maximum of four passes over a diving coot an eagle would return to its perch. We observed eagles grasp prey on the water and dive after prey in a way similar to that described by Grubb and Kennedy (1982). Baker (in Batchelder 1880) observed an eagle dive after a diving coot and remain submerged for a few seconds before surfacing and slowly taking off with the coot. Mobbing did not reduce the success of eagle piracy on gulls. Gulls mobbed eagles which: stole and killed coots; disturbed gulls engaged in pursuits with a coot and flew over gulls on the water without food. Mobbing by gulls tended to increase as: the number of gulls present increased; gull age increased; and the amount of food left on the carcass increased, but we lack data to provide conclusive evidence. We never observed gulls chasing an eagle away from a prey item, contrary to Lien (1975). Any gull staying at a carcass while an eagle approached was at risk. Herring Gulls (*L. argentatus*) have been attacked by Bald Eagles (Yeager 1950, Poor 1936), and Greater Black-backed Gulls have been found in food remains of eagles (Todd et al. 1982). In this study, Greater Black-backed Gulls always lifted off the water before an eagle arrived at a carcass.

All eagles we observed feeding were immatures, perhaps because many immature eagles may seek wintering areas not used by adults (Griffin 1981). Also, immature eagles winter farther south than adults (Sprunt and Ligas 1966). In Maine, survival of immature Bald Eagles increases when food is provided at feeding stations (McCullough 1986). At Lake Mattamuskeet, immature eagles may have higher survival rates because coots killed by gulls provide an easy food source and because adult eagles are not present in competitive numbers. Two explanations could account for the frequency of piracy by Bald Eagles on Greater Black-backed Gulls at Lake Mattamuskeet. First, if as prey size increases, handling time increases, then opportunities for piracy increase (Grubb 1971, Fischer 1985). Gull feeding time on a coot averages 35.2 min (Sobkowiak 1986), increasing the chance of piracy. Secondly, with increases in gull population (Drury 1973), the probability of an encounter with eagles, and consequently eagle piracy, has increased.

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