made two more passes at the nest when an Osprey tried to land. Meanwhile a third Osprey came in from the north and joined the fracas. The geese and Ospreys chased one another for a full minute, at times resorting to complicated aerial maneuvers. The conflict ended with the Ospreys chasing the geese away and reclaiming the nest. I later found several shells from broken goose eggs on the ground at the base of the tree. This type of conflict may be common in this area in years when a late spring causes an overlap in the nesting seasons of the geese and the Ospreys.

In 1970 a pair of Ospreys established a nest on an artificial nesting platform 50 feet high over a pool in Ravalli National Wildlife Refuge. Some 20 to 40 geese were always present on this pool, and conflicts between them and the Ospreys were seen frequently during April, May, and June. The Ospreys regularly took wing and pursued any geese that came within about 40 yards of the nest. As soon as the geese had retreated to the edge of this territory, the Ospreys returned to their nest and/or waiting post. Flying geese were ignored unless they came close over the nest; ducks were never chased.

In years when weather conditions allow geese to begin nesting in early March, some Osprey nests get double usage. In 1970 a pair of geese nested in an Osprey nest atop a 90-foot snag. Seven goslings left this nest on 16 April. The next morning an Osprey was seen in the nest eating the shells and/or egg membranes left by the geese. Two weeks later this nest was occupied by a pair of Ospreys, which ultimately fledged two young.—DENNIS L. FLATH, *Montana Fish and Game Department, Libby, Montana 59923.* Accepted 20 May 71.

Cooperative breeding and a case of successive polyandry in the Bay-winged Cowbird.—In 1969 I began a field study on the breeding behavior and ecology of the nonparasitic Bay-winged Cowbird (*Molothrus badius*) near Lobos, Buenos Aires Province, Argentina. Though the study is still unfinished, I wish to report some behavioral aspects not reported by Friedmann (The cowbirds, Springfield, Illinois, Charles C. Thomas, 1929, pp. 4–34). These observations were made in the breeding season 1970–71, when 15 adults were captured with mist nets and color-banded.

The study area will be described in detail elsewhere; though small (about 0.7 ha) eight female Bay-wings bred here in 1970–71, and at least six did so in 1969–70. This high density is obviously correlated with a high concentration of "leñateros" (*Anumbius annumbi*, Furnariidae) and its nests, but the Bay-wings are probably semicolonial, at least in certain places. In the study area most Bay-wings build in temporarily abandoned bulky *Anumbius* nests; occasionally they use old nests of Great Kiskadees (*Pitangus sulphuratus*), and they have bred in nesting boxes. No nests were found in open situations. Parasitic Screaming Cowbirds (*Molothrus rufoaxillaris*) are also abundant in the study area.

Bay-wings breed from November to early March. The female selects the nesting site, builds the nest, sleeps in it during egg-laying, incubates the eggs (recorded incubation period 12 days), broods and feeds the nestlings (nestling period 14–15 days), and feeds the fledglings. The male at first follows the female passively, helps build the nest, guards the nest during the incubation period, and feeds both the nestlings and the fledglings. The male also does most of the mobbing of potential predators and chasing of Screaming Cowbirds (cf. Friedmann, ibid.). These behavioral differences were determined at nests where I had watched the birds copulate and thus knew the sexes of color-banded individuals.

Most breeding pairs of Bay-wings in the study area are assisted by one, sometimes two helpers (cf. Skutch, Condor, 63: 198, 1961). These not only bring food

to the nestlings, but may also cooperate in nest defense against predators and other trespassers. In 1970–71 helpers were noted in five out of the eight nests that reached the nestling stage. In 1969–70 extra individuals were observed in at least two nests.

As there are records of two or more female Bay-wings laying in the same nest, I should add that I have never seen a nest with more than four eggs of this species (including nests with four attendants); extra eggs were of Screaming Cowbirds.

At each nest only one Bay-wing was seen incubating the eggs and brooding the nestlings. Of the four marked helpers two were obviously males, and I think that all the extra individuals were unmated males. If so, the sex ratio in the study area in 1970–71 was 14 males and 8 females (one nest with two helpers).

The Bay-wings of the study area behave as truly cooperative breeders (cf. Lack, Ecological adaptations for breeding in birds, London, Methuen and Co., 1968: pp. 72–81). Though in a number of the nests no helpers in the literal sense were seen, in all cases as soon as the young left the nest, extra individuals began to attend the fledglings, feeding them and mobbing predators. Thus young Bay-wings are often seen surrounded by noisy and excited birds, which of course include parents and previous helpers; once I counted no less than 18 adults in such a situation, though I cannot be sure that all were attending the fledglings. Such numbers are possible because throughout the breeding season nonbreeding individuals wander about in the area, and often they roost here. Young Screaming Cowbirds also receive such attentions; presumably this is an important advantage of their mimicry.

My field notes describe as follows the behavior of two marked Bay-wings, named after their color bands; numbered nests are structures built by *Anumbius*. A presumptive male, Pink-White, was banded 21 November 1970. On 9 January 1971 he was seen attending the first fledgling Bay-wings of the study area. On 22 January Pink-White was bringing food to the first brood of the female Orange (see below). On 16 February I found him with another adult which behaved as a female, but 2 days later he was again alone. From 16 March to 25 March Pink-White was seen feeding the three fledglings of nest 25. From 30 March till 11 April (at least) he attended the last fledglings raised in the study area (nest 30A). I doubt that Pink-White could be a close relative of all these young. Somewhat different is the case of Blue-Green, a nested male whose own offspring took wing on 27 February 1970 (nest 22); together with Pink-White he was one of the four helpers seen with the young of nest 30A.

Thus all the breeding pairs of Bay-wings in the study area are assisted by helpers. Sometimes the extra individuals attach themselves to a particular nest early in the nesting cycle. Extra individuals almost always join a pair with fledglings, though these associations may last just a few days.

On 6 December 1970 a laying female Bay-wing was captured on nest 25 and color-banded. This female, Orange, began to incubate on 8 December, but 2 days later the nest was abandoned (I found her four eggs pierced, plus seven eggs of Screaming Cowbirds). Her mate remained unmarked. On 17 December Orange was seen carrying material to a nesting box, 40 m away from the first nest; on 20 December she laid the first egg. This day her mate, Red, was netted and color-banded. Toward the 5th day of incubation two other individuals were seen around the nest box; only one of them, Pink-Green, could be banded. Both behaved as helpers during the nestling period. The three young took wing on 19 January 1971; the three marked Bay-wings were seen daily with them until 24 January, when Orange and Pink-Green vanished; on 14 February Red and the fledglings were observed not far from the study area. Orange and Pink-Green were seen again

on 2 February, behaving as a mated pair. She took possession of nest 1 (about 80 m away from the nesting box); copulation was seen on 6 and 7 February, and incubation started on 15 February. This nest was also successful, and the two nestlings were attended by Orange, Pink-Green, and an unmarked helper.

Without marked individuals no cases of successive polyandry are likely to be detected. In all the other nests the available evidence suggests monogamy, though the pair bond seems to be weak in this species—a previous observation in 1969 supports the idea that some females may change mates when they renest. However, even in a favorable place such as the study area few female Bay-wings have both time and enough available nest sites to raise more than one brood in a season.

I am grateful to H. Friedmann for helpful comments on my work.—ROSENDO M. FRAGA, *Callao 1502, Buenos Aires, Argentina.* Accepted 21 May 71.

Postbreeding assemblies of Ring-necked Ducks in eastern Nova Scotia.—Molting grounds Ring-necked Ducks (*Aythya collaris*) use in the northeast are poorly known. Mendall (The Ring-necked Duck in the northeast, Univ. Maine Studies, No. 73, 1958; pp. 147–148) cited only one area used regularly by appreciable numbers, the Musquash Island lagoon in the St. John River, New Brunswick. Mendall suggests that "most of the resident drakes of Maine may travel many hundreds of miles, perhaps even beyond the known limits of the breeding range" to molt, as habitat similar to Musquash Island is lacking in northern Maine and New Brunswick. Postbreeding flocks of Ring-necked Ducks were found regularly in two areas on Cape Breton Island, Nova Scotia, from 1960 to 1970. My notes for 1960 to 1965 and those of Simon Lunn, an ornithology student the Canadian Wildlife Service employed to band ducks there later, may help to clarify this little-studied phenomenon.

The major concentration was at McCormack (46° 09′ N, 61° 16′ W), near the northwest corner of Lake Ainslie. The flocks usually frequented the shallow bays beside the creek mouth, but were sometimes seen on a pond ¾ mile to the west. The lake water is fresh and fairly clear, with a sandy bottom. In summer the bays are filled with open beds of bulrush (*Scirpus acutus*), and near the shore the surface is partly covered with cow lilies (*Nuphar variegatum*). Other aquatic plants included military rush (*Juncus militaris*) and pondweeds (*Potamogeton natans* and *P. gramineus*). The boggy pond is largely surrounded by a sedge meadow, and the water is dark. The only emergent vegetation is sedges (*Carex* spp.) along the shores, and cow lily and bladderwort (*Utricularia vulgare*) are the most obvious aquatic plants. A narrow brook with barely detectable flow meanders through an alder swamp between the pond and the bay.

The second area comprises three ponds near the seashore between Judique and Port Hood (45° 54–57′ N, 61° 30–31′ W). Bulrush and narrow-leafed cattail (*Typha angustifolia*) border the north side of the middle pond, but the sparse emergent growth elsewhere is limited to the shorelines. Sago pondweed (*Potamogeton pectinatus*) grows abundantly in all three ponds except adjacent to the sea beach, where seepage of salt water through the gravel maintains more saline conditions.

Use of these areas by Ring-necked Ducks follows a pattern similar to that described by Mendall (op. cit.) as shown in Table 1. The flocks were always wary, and the noise of the outboard motor used in 1968–70 so disturbed them that complete counts were seldom possible. Males always predominated, but not all birds could be classified as to sex. Flightless birds were noted on a few visits, all between 30 July and 14 August, but most birds seen on all visits were able to fly.

Flocks of Ring-necked Ducks seen in these and other areas in late September and