

it appeared to become more proficient as time progressed. I then left the islands for 15 months, but on my return found three boobies feeding in this manner. One in particular was extremely proficient and regularly dived into the small wavelets breaking over the reef. In these cases it hardly broke flight at all and often did not submerge, but bounced off the wave top or passed through the wave. This bird was seen to catch fish in this manner but it was not possible to determine if this was a more or less successful manner of feeding than the normal diving. Many boobies are surprisingly good at aborting dives just above the sea surface. The skill in catching flying fish in the air could have evolved either from these dives or through the dipping technique described above. The fact that dipping appears to be derived from power diving suggests that it is not a modification of capturing fish in the air.

It was tempting to presume that one individual had learned and become proficient at this technique and that the others had copied it, but I have no evidence on the point. On yet another visit in 1973 I did not see this feeding technique. Perhaps such a dangerous method of feeding had taken its toll.—M. P. HARRIS, *Institute of Terrestrial Ecology, Banchory, Kincardineshire, Scotland*. Accepted 3 Jun. 74.

Polygamy in the Purple Martin.—Throughout its range the Purple Martin (*Progne subis*) is considered monogamous. I have seen no published reports of polygamy in this species, nor had I ever noted it in my 7 years of studying the species until the breeding season of 1973, when two cases occurred in a large martin house in my backyard. I refer to them as polygamy trios 1 and 2, respectively.

Polygamy trio 1 consisted of an adult male and two presumably adult females. The male and female 1 arrived on 4 March 1973 and immediately established themselves on a middle tier of compartments. They displayed the usual pre-breeding behavior of paired martins. Throughout the season this male drove all other males from his tier of compartments, and the female did likewise to other females until 28 March, when she allowed another female to appropriate the third and fourth compartments of this tier of four nesting holes. The male defended all four compartments, and he started courting female 2 just as he had courted female 1. Within 2 days he apparently had developed a pair bond with the second female. He followed both females whenever they left the nesting compartments and showed sexual jealousy of both whenever other males approached.

After a short time both females began nest building. Although male Purple Martins do not normally engage in nest-building activities to any great extent, I frequently saw male 1 carrying nesting material to each female's selected nest compartment.

Throughout the season I never saw this male roost with either female. Normally a pair will roost in the same hole each night until the first egg is laid, but male 1 always roosted in another room of the compartment tier.

Female 1 laid her first egg 27 April, followed by a second on 28 April. Interestingly she laid only these two eggs and hence had a lower than average clutch size, which in my region seems to be five eggs. Her activities outside of the hole showed she did not start incubating the day the second and final egg was laid, but waited until 2 May. Her eggs hatched 18 May, and, as the usual incubation period is 16 days, she probably did not begin incubating before 2 May. The time lapse between the laying of the last egg and the start of incubation is unusual. I considered the fact that House Sparrow (*Passer domesticus*) interference may have

caused destruction and relaying of eggs during this time, but I checked the nest daily and found no indication of interference. Might there be a relationship between the low clutch size and the delay of incubation?

Female 2 laid her first eggs on 5 May, then one a day until 8 May when she laid her fourth and final egg and started incubating.

While the females incubated, male 1 displayed identical behavior toward each of them. While males do not incubate, they periodically relieve their mate at the nest and guard it until she returns. This male guarded each nest, frequently simultaneously. He showed no partiality to either nest throughout this stage, and gave each nest normal attention.

When the two eggs of female 1 hatched first, the male began feeding her young, though he was still frequently attentive to female 2, who was still incubating. When these eggs hatched on 24 May, he began feeding female 2's nestlings too. He attended each nest remarkably equally until female 2's young were about 3 weeks old, when he gradually stopped feeding female 1's two young, who were approaching fledging age, and concentrated strictly on the four younger nestlings. Concurrent with this virtual abandonment by the male, female 1 suddenly stopped feeding her young and deserted the house.

Female 1's young immediately crawled out of their hole, crossed the porch, and entered female 2's nest. The male and female 2 then continued feeding all six young. The two older young soon left the nest, and female 2 tended to their postfledging care while the male continued feeding the four young still in the nest. On 30 June these four young left the nest, with the male taking complete postfledging care of them. A week later, I saw both male 1 and female 2 displaying postbreeding nest cavity defense.

Polygamy trio 2 formed on another side of the same martin house the same year as polygamy trio 1, and its behavior was similar to that of trio 1, but with some differences. On 2 March an adult male arrived and established himself on the top tier of rooms and also claimed two lower tiers. On 3 March a presumably adult female arrived and also established herself on the top tier. The male began courting her and established a pair bond. Both birds kept all other martins away from the three tiers of compartments until 21 March, when the female restricted her activities to the top tier, though she had not yet begun nest building. The male continued to defend all tiers from other males, but allowed another female to become established on the middle tier. He began courting this female also, and established a pair bond with her. He began following both females when they left the house, and showed sexual jealousy of both females when other males approached.

This male did little nest building, but escorted each female when she gathered nesting material. Female 1 began nest building 3 weeks before female 2. During the nest-building stage, the male showed no partiality toward either female. From female 1's arrival at the house until female 2 started nest building, the male roosted each night with female 1 in the hole she chose for the nest. When female 2 began nest building, the male roosted with her each night. This continued until female 1's eggs hatched, when he began roosting with her again.

Female 1 laid her first egg on 4 May, followed by one a day until 9 May, when she laid her sixth and last one and started incubating. Six eggs is a little higher than average clutch size. Female 2 laid her first egg on 10 May, followed by one a day until 13 May when she laid her fourth and last egg and began incubating. Female 1's eggs hatched on 24 May, and the male began feeding these

six nestlings. Female 2's eggs hatched on 28 May. Throughout the incubation period the male attended both nests and guarded both when the females were gone. While the young were in the nest he concentrated mainly on female 1's nest. He fed her young at a normal frequency, and fed female 2's nestlings only occasionally. He and female 2 were never hostile toward one another, and he continued to defend her from other males and House Sparrows. She allowed him in her nest, though he never visited her for long periods.

Female 1's young fledged on 19 and 20 June, and the male helped her in post-fledging care. Several days after female 1's young left, I saw an adult male feed female 2's young in the nest several times, but I do not believe the polygamous male showed any further interest in female 2. Her young left the nest on 25 and 26 June and she cared for them alone. Later the male and female 1 displayed postbreeding nest defense.

It is conceivable that polygamy may occur in a situation where the first birds arriving on the breeding grounds (most often all males) perish in unseasonably cold weather and the later arriving population consists of more females than males. But plenty of breeding places were available in my neighborhood in 1973, and I noted no dearth of males. Early arriving males frequently defend several nesting compartments, then later confine all defensive activity to their mate's chosen compartment. Apparently the early territorial claims of these two males extended throughout the season, and when second females appeared within this territory, they were also accepted as mates.—CHARLES R. BROWN, 1804 West Hunt Street, Sherman, Texas 75090. Accepted 6 Jun. 74.

Ruddy Ground Dove in south Texas.—I saw a Ruddy Ground Dove, *Columbina talpacoti*, on the North Trail on Santa Ana National Wildlife Refuge, Alamo, Texas, on 28 January 1971. The bird was sitting in a huisache tree, and I made out all identifying characteristics clearly with 7×35 binoculars at 30 feet. The bird remained on the refuge for 7 weeks, and many bird watchers came to see it. It was last reported on 17 March 1971. The several photographs I took of the bird make this the first authenticated record for the species in the United States. A color slide sent to the editor of *The Auk* shows the bird to be a male (confirmed by E. Eisenmann). The only previous report from the United States was that of one male seen from 23 December 1950 to January 1951 west of San Benito (near Harlingen), Texas, listed on the hypothetical list of the A.O.U. Check-list (1957, fifth ed., Baltimore, Amer. Ornithol. Union, p. 647). The species is widespread in the American tropics and occurs regularly north to southern Tamaulipas, Mexico.—WAYNE A. SHIFFLETT, Santa Ana National Wildlife Refuge, U.S. Fish and Wildlife Service, Alamo, Texas 75816. Accepted 28 Jun. 74.

Substrate choices of oxpeckers.—The two species of African oxpeckers (*Buphagus africanus* and *B. erythrorhynchus*) have been reported to be undifferentiated in food choice (Attwell 1966, Puku 4: 17; Olivier and Laurie 1974, Auk 91: 169). This conclusion is supported by similarity in their stomach contents (Moreau 1933, Bull. Entomol. Res. 24: 325; van Someren 1951, E. African Agr. J. 17: 1) and by their mutual and sometimes simultaneous occurrence on certain species of large mammals where they feed on ticks, flies, and tissue from sores (Attwell *ibid.*, Olivier and Laurie *ibid.*). The importance of differential choice of foraging substrates (i.e. species of large mammals) in reducing interspecific ecological overlap between these two species has not been identified.