

Purple Martins recognized the purple and yellow model airplane, out of various other types, as an enemy or had been disturbed by it.

As the Purple Martins attacked only a purple and yellow model airplane, one might consider the matter from the viewpoint of the "releaser" school of behavior. The yellow and purple pattern would presumably be the "releaser." But it is difficult to imagine where that pattern, deep purple with a yellow diagonal streak across each wing, is repeated in an actual predator on Purple Martins.

If possible, one should not discard ideas without replacing them by better; though rather than having obviously wrong theories it is better to admit grouping in the complexities of biological observations for correlations. Pursuit and attack of an object by birds seems a complex thing; it appears to be, at times, the attack on an enemy; at times a response to a strange object; at times the result of over-belligerence; and at times play. More than one factor could operate at once. The size, shape, and color of the object could have an effect, as well as its motion, especially in relation to the bird. All this, too, without relation to the internal state of the bird that might behave differently at different times.—A. L. RAND, *Chicago Natural History Museum, Chicago, Ill.*

**Four Additional Species for Panamá.**—In the course of ornithological studies in the Republic of Panamá it was my good fortune to have the privileges of La Jagua Hunting Club for a period of three weeks in March, 1949. The location is on the savannas of eastern Panamá province, about 12 kilometers east by south of Pacora, and three kilometers in airline north by west of the small village of Chico, near the coast. Extensive marshes and ciénagas, bordered by forest and broad, open savannas, made this an exceptionally favorable place for aquatic birds. Mr. Watson M. Perrygo of the U. S. National Museum, who accompanied me, and I are much indebted to Mr. Karl Curtis and his fellow club members for allowing us the club privileges and for much pleasant and friendly hospitality during our stay. The records of the four species of birds here reported for the first time in Panamá are one result of our investigations. The complete report of our extensive collections will be incorporated for publication in a combined report on the birds of eastern Panamá.

*Ardea cocoi*, COCOI HERON.—On March 30, 1949, we watched an adult for a quarter of an hour on the open muddy expanse of Ciénaga Santo Domingo, in the region between Pacora and Chico. The bird was in company with a large scattered group of Wood Ibises, Egrets and a dozen or so Great Blue Herons that were feeding in the shallow water and mud bars of the lake, now partly dry as the date was toward the close of the dry season. The black crown and pale color characteristic of this bird were easily evident, and through our glasses we could see the finer details of the color pattern, so that there was no question of the identification. The contrast with the much duller colored Great Blue Herons near by was apparent even with the unaided eye. While we were trying to plan some means of approach a distant shot startled all of the feeding birds, and the heron disappeared. Half an hour later I saw it flying overhead, when again its light color was easily apparent. Baldomiro Moreno, our helper and a skilled hunter, had never seen one before. The species ranges widely throughout South America, but has not been reported previously in Central America.

*Plegadis falcinellus falcinellus*, EASTERN GLOSSY IBIS.—On March 18, 1949, at Ciénaga Campana, near the coast at Chico, I found three feeding together in the open. As they rose in flight I shot one, an immature male that is now in the U. S. National Museum. Natives knew it as the Coco Negro, and said that it was fairly common. The latter statement may be taken to mean that the White-faced Glossy Ibis prob-

ably occurs here also, since, from the greater abundance of that species in the New World, it is one that would be expected. From the record one is led to speculate on the possibility of nesting colonies of *Plegadis f. falcinellus* in America in addition to those now known in Texas, Louisiana, Florida, Puerto Rico, Hispaniola, and Cuba. Otherwise, we may suppose that the small flock came from one of the West Indian colonies. Apparently this is the first record of the species for Central America.

While there has been considerable difficulty over identification of immature *Plegadis* from North America, the two species are found to be readily separable once the characters are known. *P. f. falcinellus*, the Eastern Glossy Ibis, has the back, wings, and tail deep oil-green, and the general appearance of the dorsal surface blacker. In *P. mexicana*, the White-faced Glossy Ibis, back, wings, and tail are lighter green, with a definite brassy sheen, and the dorsal surface is distinctly lighter, more grayish brown. It seems necessary to regard the two as specifically distinct in view of the scattered breeding colonies of *falcinellus* through part of the range of *mexicana*.

*Theristicus caudatus caudatus*, GUIANA IBIS.—Through Mr. Karl Curtis of Gamboa, Canal Zone, the U. S. National Museum has received a specimen shot near San José in the savanna region a few miles from Pacora on September 18, 1950. Baldomiro Moreno, who secured it, reported that he killed it from a flock of four. The species, which ranges in South America from Colombia and Venezuela to north Argentina, has not been reported previously in Central America. Mr. Curtis who has hunted regularly in this area during his 45 years of residence in the Canal Zone writes that this ibis was wholly unknown to him, to the natives, and to his hunting companions.

*Sarkidornis sylvicola*, SOUTH AMERICAN COMB DUCK.—On the evening of May 29, 1949, at La Jagua Hunting Club, Baldomiro Moreno shot one of these ducks while night hunting for pato real. No one here had ever seen this species though we were told that five had appeared on the marshes two or three days earlier. The specimen, prepared as a skin for the U. S. National Museum, was an immature male, with the comb small and the testes in resting stage. The body was very fat. Mr. Karl Curtis wrote me that on May 20 and 21, 1949, he saw three Comb Ducks together, and one flying alone. The species ranges widely in South America from Colombia and Venezuela to northern Argentina and, as it is strong-flying, may be expected to come with some rarity to the marshes on the savannas of eastern Panamá.—ALEXANDER WETMORE, *Smithsonian Institution, Washington 25, D. C.*

**Land Birds Feeding on Crayfish.**—It is known that the diet of the Crow, *Corvus brachyrhynchos*, contains an immense variety of vegetable and animal matter. However, recorded instances of the Crow feeding on crayfish, *Cambarus* sp., seem to be few and only a sketchy account is given of such feeding habits by Bent ('Life Histories of North American Jays, Crows, and Titmice,' 1946). I had often observed the Crow wading along small streams, sloughs, and backwaters searching for food but I was always unable to determine the type of food until August 10, 1949, when I saw a pair of Crows at Nobis Slough in Scott County, Iowa, wading along the mud flats covered with about three to four inches of water. They would seize crayfish, throw them up on dry land, and start to peck at various portions of the exoskeleton; it took some time before the vital internal organs were affected. The two Crows were feeding in the company of migrating American Egrets, *Casmerodius albus*.

On May 30, 1949, along Duck Creek in Scott County, Iowa, I observed a female Bronzed Grackle, *Quiscalus quiscula*, capture a crayfish about three inches long. The Grackle was pecking hard at the carapace but had some difficulty in killing the crustacean. In past years I have observed Grackles feeding on these aquatic in-