sharing by nestling barn owls may be simply an early manifestation of a behavior important to their fitness.

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Notes on the social behavior and mating system of the Casqued Oropendola.—Oropendolas (*Psarocolius* spp.) are of particular interest in studies of mating systems because they nest colonially and are among the most sexually dimorphic of all birds. Male oropendolas are 10–35% larger by wing length than females (Lowther 1975); in some species, males weigh more than twice as much as females (Robinson 1986c, unpubl. data). Extreme dimorphism is correlated highly with polygynous mating systems (Emlen and Oring 1977), and Robinson (1986c) suggested that some oropendolas may be harem polygynous. In this note we examine the mating system and social behavior of the Casqued Oropendola (*Psarocolius oseryi*), a previously unstudied species, in southeastern Peru and compare it with other closely related tropical Icterinae.

Study area and methods.—This study was conducted at the Cocha Cashu Biological Station in the Manu National Park (11°51′S, 71°19′W) in southeastern Peru. The study area consists of humid, undisturbed lowland forest (elevation 400 m) in the floodplain of the Manu River.

Observations were made from September through November at two colonies in 1988 (J. Leak) and at three other colonies in 1979, 1985, and 1986 (S. Robinson). In the 1987 field season, we censused an area of roughly 500 ha of floodplain forest in an effort to find all active colonies. Because colonies of *P. oseryi* are very noisy, we probably found all active colonies. Attempts to capture birds in mist nets resulted in only a single capture. Additional weights include three individuals captured in the Manu National Park (Robinson, unpubl. data), and five individuals from the Louisiana State Museum of Natural Science.

Habitat selection and population density.—Two active colonies containing 19 and 25 nests, respectively, were discovered in mid-September of 1987 in the 500-ha study area. One colony was located in the mid-successional ("transition") forest and the other in the very old floodplain ("high-ground") forest (see Terborgh [1985] for descriptions of habitats). These data suggest a population density of approximately eight breeding females per 100 ha. The colony located in 1979 (17 nests) was along the edge of a forest stream in mature floodplain forest, the colony located in 1985 (15 nests) was in mid-successional forest, and the colony located in 1986 (22 nests) was located in mature floodplain forest. Census data from 250 ha of upland or *tierra firme* (above the floodplain) forest revealed no colonies; flocks of *P. oseryi* were, however, observed foraging in this habitat. *P. oseryi,* therefore, nests or forages in most of the different kinds of forest present in the study area.

Colony sites.—The five *P. oseryi* colonies were located in *Cecropia* trees (see also Koepcke 1972) isolated from the surrounding canopy. The *Cecropia* trees may have been protected by stinging ants (D. Davidson, pers. comm.); none of the colonies were clustered around paper wasp nests. *P. oseryi* seems to be a species of the forest interior unlike the Russet-backed Oropendola (*P. angustifrons*), which usually nests in isolated trees along the edges of open areas in the Manu floodplain.

Interactions with predators.—*P. oseryi* uses both active and passive defensive tactics against predators. One colony was destroyed by brown capuchin monkeys (*Cebus apella*) in 1985 (C. Mitchell pers. comm.), but some colonies were isolated from the surrounding canopy and seemed safe from primates. We saw brown capuchins approach a colony two times in 1987, but the monkeys seemed unable to find a way to reach the tree. Active defense against predators takes the form of mobbing. *P. oseryi* twice gave alarm calls at the approach of brown capuchins, and on one of these occasions, both males and females were seen diving at the monkeys closest to the colony. A group of about 15 *P. oseryi* were also observed at least 50 m from their colony mobbing Cuvier's Toucans (*Ramphastos cuvieri*) which regularly attack colonies of colonial blackbirds (Robinson 1985a).

Oropendolas may have a sentinel-based defense against predators of adults. On several occasions, colonies were immediately evacuated by adults after loud, piercing alarm calls that appeared to be given by individuals perched in trees above the colony. Less than two sec after one of these alarms, a Black-and-white Hawk-Eagle (*Spizastur melanoleucus*) burst through the colony tree and narrowly missed catching a female that was leaving the colony tree. Black-and-white Hawk-Eagles have also been observed attacking colonies of *P. angustifrons* (Robinson, unpubl. data).

Piratic Flycatchers (*Legatus leucophaius*), which take over the nests of other colonial Icterinae (Robinson 1985c), were observed harassing females at two colonies. Both male and female *P. oseryi* chased the nest pirates. Eventually, the Piratic Flycatchers took over oropendola nests, but we were unable to determine if the nests had been abandoned due to harassment or for other reasons. We never saw Giant Cowbirds (*Scaphidura oryzivora*) visit a colony of *P. oseryi.* This species seems to parasitize only *P. angustifrons* in the Manu area (Robinson 1988).

Intersexual interactions.—Female oropendolas interacted aggressively at colonies. At one colony, six aggressive interactions were observed during 28 hours of observation; three

interactions involved prolonged midair grappling and chases. The other three involved one female supplanting another from a nest site. All six encounters took place during the early nest-establishment and nest-building phases. At least one female was observed robbing material from the nest of another female.

Aggressive interactions among males were observed (ten interactions during 28 hours of observation at one colony) and usually involved supplanting bouts in which one male supplanted another that was displaying to a female. The supplanting male subsequently displayed to the same female. One intense fight was observed between two males that grappled in midair and plunged into the understory before separating. Because we had no color-marked birds, we could not determine if there was a dominance hierarchy.

Sexual dimorphism.—Weights of Casqued Oropendolas from southeastern Peru indicate that males ($\bar{x}$ = 189.8 ± 40.6 [SD] g, N = 5) are roughly 90% heavier than females ($\bar{x}$ = 99.8 ± 13.4 [SD] g, N = 4).

Mating system.—Males appeared to consort with individual females, following them on flights to and from the colony during the late nest-building period. This system seems similar to the mating systems described for Yellow-rumped Caciques (*Cacicus cela*) (Robinson 1986c) and Chestnut-headed Oropendolas (*P. wagleri*) (Chapman 1928). Nesting synchrony may limit the number of females consorted by any one male. At the most intensively studied colony, all 19 nests were completed within a single week. During this period, as many as 12 females were consorted at the same time. The operational sex ratio (cf. Emlen and Oring 1977) therefore did not appear to be heavily skewed toward males. Because we had no color-marked individuals, we could not determine if males consorted the same female throughout the egg-laying period or if they switched among females. No copulations were observed at the colony.

Discussion.—The social behavior of the Casqued Oropendola has striking similarities to that of the Yellow-rumped Cacique (reviewed in Robinson 1986c). Both species nest in sites that are relatively safe from mammalian predators and both mob avian predators. Unlike caciques, Casqued Oropendolas also mob monkeys, perhaps because oropendolas are large enough to pose a significant threat. Both species also show evidence of intense intrasexual competition in males and females. In caciques, females compete for access to safe nest sites (Robinson 1986b), and fights between female Casqued Oropendolas may serve the same function. Interactions among male caciques, which have a mostly linear dominance hierarchy (Robinson 1986a), consist of frequent supplantings and occasional grappling fights (Robinson 1985b).It therefore seems possible that Casqued Oropendolas also engage in dominance interactions that determine priority of access to breeding females.

Caciques and Casqued Oropendolas also show a female defense-based mating system centered around consorting and guarding egg-laying females. Without color-marked birds, however, we have no data on the extent to which females are monopolarized. Males may consort each female for the two- or three-day egg-laying period, as is the case for the cacique, or they may switch among several females each day. Casqued Oropendola nesting is much more synchronous than that of the cacique (Robinson 1985b), and few males may therefore be able to monopolize more than one female (cf. Emlen and Oring 1977).

The mating system of the Casqued Oropendola differs from that of the Russet-backed Oropendola in that matings occur away from the colony and males appear to consort females individually. Russet-backed Oropendolas often copulate at colonies, and males sometimes accompany flocks of foraging females (Robinson 1986a). Dominant male Russet-backed Oropendolas therefore have the potential to monopolize most of the females in a colony, which may explain why they are more sexually dimorphic (Robinson 1985b) than Casqued Oropendolas.

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Diet of the Surfbird in southern Chile.—The Surfbird (*Aphriza virgata*) migrates during the boreal winter to the Pacific coast of Central and South America, mainly to Peru and Chile, and as far south as the Magellan Strait (Araya and Millie, Guía de Campo de las Aves de Chile, Edit. Universitaria, 1986). This report describes the diet of the Surfbird in the southern part of its wintering grounds, near Valdivia, Chile, and compares diet with food availability.

Foraging surfbirds were studied on rocky shores at Mehuín (39°24'S, 73°13'W), Valdivia, Chile. Diet could not be determined by direct observation, so 25 birds were collected in late February 1983 (18 males and 1 female) and in early March 1984 (3 males and 3 females).