

## NEW HOST FOR A SPECIALIZED BROOD PARASITE, THE SCREAMING COWBIRD<sup>1</sup>

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Interspecific brood parasitism is a reproductive strategy in which the parasite lays its eggs in the nest of another species, the host, which performs all the parental care. Brood parasites are classified as generalists or specialists depending on the number of host species they use. Within the parasitic cowbirds (Icterinae) some species like the Brown-headed Cowbird, *Molothrus ater* and the Shiny Cowbird, *M. bonariensis*, are extreme generalists, which use more than 200 different host species each (Friedmann and Kiff 1985). At the other extreme, the Screaming Cowbird, *M. rufoaxillaris* is considered a specialist that parasitizes only one species, the Bay-winged Cowbird *M. badius* (Friedmann 1929, Mason 1980, Fraga 1986).

Sick (1985) mentioned the presence of Screaming Cowbird chicks in nests of the Chopi Blackbird, *Gnorimopsar chopi*, (Icterinae) in an area that had been recently colonized by the parasite and where its host, the Bay-winged Cowbird was not present. However, so far there has been no direct evidence of the use of another host by Screaming Cowbirds in areas where the Bay-winged Cowbird is present.

In this paper we report the use of the Brown-and-Yellow Marshbird, *Pseudoleistes virescens*, (Icterinae) as a host of the Screaming Cowbird in an area where the Bay-winged Cowbird is also present. In addition we document the successful rearing of Screaming Cowbird chicks by Brown-and-Yellow Marshbirds.

### STUDY AREA AND METHODS

Our study was carried out near the town of General Lavalle (36° 20' South, 56° 55' West), in the province of Buenos Aires, Argentina. The study site is an open grassland region with marshes and scattered patches of woodland of Tala, *Celtis tala* and "Sombra de toro" trees, *Jodina rhombifolia* in the higher areas.

Brown-and-Yellow Marshbirds nest in open areas. Their nests are cup-shaped and are built on thistles (*Cynara cardunculus*), black rushes (*Juncus acutus*) or pampa grasses (*Cortaderia selloana*) at a height of 0.5–

1.5 m. (Gibson 1918, Mermoz and Reboreda 1994). Bay-Winged Cowbirds nest in native patches of woodland. They are cavity nesters, but they also use covered structures built by other birds (Friedmann 1929, Hoy and Ottow 1964, Fraga 1986).

During the breeding seasons of 1993–1994 (October to December), we followed the fates of 338 Brown-and-Yellow Marshbird nests (134 were found during construction, 128 during the egg-laying period and 76 during the early stages of incubation). This species is a frequent host of Shiny Cowbirds (Gibson 1918, Hudson 1920) and in our study site approximately 70% of their nests were parasitized by them (Mermoz and Reboreda 1994).

Nests were checked everyday when possible until they either fledged young or failed. We marked the eggs with waterproof ink and checked them for cracks or puncture holes. Nestlings were marked with color bands and weighed with 50 g Pesola scales until they fledged.

Screaming Cowbird eggs can be easily distinguished from Shiny Cowbird eggs by color and pattern of marks (Fraga 1983). In our study area Shiny Cowbird eggs can be either immaculate white or spotted. Brown-and-Yellow Marshbirds reject the immaculate white eggs but accept the spotted ones (Mermoz and Reboreda 1994). Spotted Shiny Cowbird eggs vary from white to brownish ground with rounded brown or gray spots ranging from 0.1 to 1 mm in diameter. Screaming Cowbird eggs are brownish ground with brown blotches that cover all the egg and they are sometimes scattered with fine dark lines (scrawls). Screaming Cowbird nestlings were identified following Fraga (1979, 1986). At hatching, Screaming Cowbird nestlings have pinkish skin while Shiny Cowbird nestlings have yellowish skin. Feathered nestlings of the two brood parasites are clearly different. Shiny Cowbirds lack the rufous color in the wing feathers that are present in Screaming Cowbird nestlings.

### RESULTS

Seventeen of the 338(5%) nests studied (4/126 in 1993 and 13/212 in 1994) were parasitized by Screaming Cowbirds (15 nests with one egg and two with two eggs). Most of these nests (14/17) were also parasitized by Shiny Cowbirds (four with one egg and 10 with more than one egg, range 2–5). Screaming Cowbirds parasitized Brown-and-Yellow Marshbirds throughout their breeding season (October to December). The number of nests parasitized in each 15 day period was 2, 2, 2,

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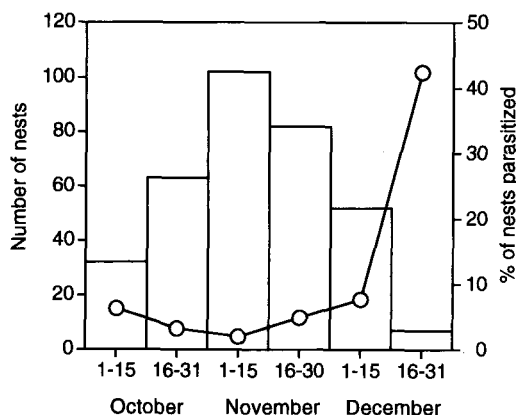


FIGURE 1. Availability of Brown-and-Yellow Marshbird nests during the breeding season (bars) and proportion of those nests parasitized by Screaming Cowbirds (open circles). The data corresponds to 338 nests studied during the 1993 and 1994 breeding seasons.

4, 4, and 3. As a consequence of the decrease in host nests availability, the proportion of parasitized nests increased at the end of the breeding season (Fig. 1). We have complete records of the laying sequence in 10/17 nests (the other seven nests were found during the early stages of incubation). In these 10 nests there were 11 events of parasitism by Screaming Cowbirds. In 8/11 (72.3%) cases parasitism took place during the laying period of the host. In the other three cases the parasitic egg was laid before the laying of the host, one day after the laying of the last host egg and after the nestlings had hatched, respectively.

Fourteen of the 17 (82.3%) nests parasitized by Screaming Cowbirds were depredated, ten during the egg stage and four shortly after hatching. Predation in nests non-parasitized by Screaming Cowbirds was 82.5% (265/321). In one of the three nests that were not preyed upon, the Screaming Cowbird egg hatched, the chick grew normally (weight at day 8 = 37 g) and fledged. In this nest, also two host nestlings hatched and fledged (weights at day 8 = 35.5 and 41 g). This nest was not parasitized by Shiny Cowbirds. In another nest, the Screaming Cowbird egg was laid three days after the chicks had hatched. This nest had four Shiny Cowbird eggs, three of which hatched and fledged (all host eggs were lost due to Shiny Cowbird punctures). In the remaining nest, parasitism took place before the laying and the egg was ejected by the host, as it usually does with parasitic eggs laid before its own eggs (Mermoz and Reborada, unpubl. data).

As regards the four nests preyed upon during the nestling stage, in one of them one Screaming and two Shiny Cowbird chicks had hatched during the same day but predation took place shortly after hatching. In the remaining three nests, the Screaming Cowbird eggs disappeared from the nest during the egg stage, probably due to Shiny Cowbird punctures (these nests had two, four and four Shiny Cowbird eggs).

## DISCUSSION

There are some previous reports of the presence of Screaming Cowbirds eggs in nests of hosts other than the Bay-winged Cowbirds (Grant 1911, Grant 1912, Girard in Pereyra 1938). These records were obtained from egg collections and Friedmann (1963) considered that all of them were misidentifications of Shiny Cowbird eggs. Mason (1980) and Fraga (1986) came to the same conclusion after examining some of these egg collections.

Mason and Rothstein (in Fraga 1986) reported the presence of Screaming Cowbird eggs in nests of the Brown-and-Yellow Marshbird and Hudson (1920) mentioned a case where two fledgling Screaming Cowbirds received food from Brown-and-Yellow Marshbirds. Our results confirm that Screaming Cowbird parasitizes this species and show that this host can rear the chicks of the parasite successfully.

In most cases, Screaming Cowbirds had no problems in synchronizing their laying with the laying of the Brown-and-Yellow Marshbird. In only 1/11 (9.1%) cases parasitism took place before the host started the laying. This value is similar to the 14.3% of premature laying observed by Fraga (1986) in Bay-winged Cowbird nests, and considerably smaller than the 87% reported by Mason (1980) in the same host. In the only unpredated nest where a Screaming Cowbird egg hatched, the chick was not outcompeted for food by the host chicks, which are larger in size (asymptotic weight 49 g). Thus, except for the high nest predation rate it suffers, the Brown-and-Yellow Marshbird appears to be a good effective host for Screaming Cowbirds.

Host-specificity of Screaming Cowbird was generally attributed to the higher reproductive success of this parasite in Bay-winged Cowbird nests. Although our sample size is small, the reproductive success of Screaming Cowbirds (measured as fledglings per egg laid) in Brown-and-Yellow Marshbird nests appears to be similar to that reported in nests of Bay-winged Cowbirds (5.3% vs. 3% in Mason 1980 and 7.4% in Fraga 1986). However, the main causes of Screaming Cowbird egg losses in the two hosts are clearly different. In Bay-winged Cowbird nests, premature and not synchronized laying with the host accounts for most egg losses (Mason 1980, Fraga 1986), whereas in Brown-and-Yellow Marshbird nests predation appears to be the most important cause of egg losses. It is important to point out that in Fraga's (1986) study, 61% of the Bay-winged Cowbird nests were in artificial nest boxes. There may be a higher predation rate in natural Bay-winged Cowbird nests and therefore a lower reproductive success than that reported by Fraga (1986).

Mason (1980) suggested that competition with Shiny Cowbirds could prevent the use of other hosts by Screaming Cowbirds. Although Shiny Cowbird punctures can account for some Screaming Cowbird egg losses in Brown-and-Yellow Marshbird nests, our results would indicate that Screaming Cowbirds can successfully use a host which has a high incidence of parasitism by Shiny Cowbirds. Another suggested benefit of the specialization of Screaming Cowbirds is that Bay-winged Cowbirds remove larvae of botflies (*Philotornis* sp.) and mites from the chicks (Fraga 1984). One

prediction of Fraga's hypothesis is that in places where botflies are not present Screaming Cowbirds could use other hosts rather than Bay-winged Cowbird. As botflies are not present in our study site, our results are tentatively consistent with this hypothesis.

The incidence of Screaming Cowbird parasitism in Brown-and-Yellow Marshbird was much lower than that observed in Bay-winged Cowbirds (5% vs. 87.3% in Fraga 1986). This low frequency of parasitism in a host which does not appear to have good antiparasitic defenses (i.e. does not reject parasitic eggs) is difficult to explain, unless we accept that only a few Screaming Cowbird females can produce eggs early in the season due to a shortage of food, as suggested by Fraga (1986). Thus, the apparent preference for Bay-winged Cowbirds shown by Screaming Cowbird remains unclear. Further studies are needed to understand possible physiological or behavioral constraints on host selection in this species.

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