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ARTICLE

# Breeding biology of Chalk-browed Mockingbird *Mimus saturninus* in a natural savanna of central Brazil

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**ABSTRACT:** The Chalk-browed Mockingbird *Mimus saturninus* (Mimidae) is a common bird in savannas, grasslands, and farmlands, also occurring in urban areas. We studied its breeding biology in a Cerrado savanna inside a reserve at central Brazil, from 2003 to 2013. We monitored 74 nests, which were usually found in the more open phytophysiognomies of the Cerrado. The breeding season lasted from late August to late December. The nest is a cup built with twigs and generally placed on shrubs and small trees. Mean nest height above the ground was 1.3 ± 0.5 m ($n$ = 73). Mean clutch size was of 2.9 ± 0.9 eggs ($n$ = 63), ranging from one (possibly an incomplete clutch) to six eggs (possibly a communal nest). Incubation was asynchronous, the incubation period lasted 14.2 ± 0.9 days ($n$ = 17 nests), and the nestling period lasted 14.1 ± 1.2 days ($n$ = 21 nests). Nestling infestation by botfly larvae was common (60% of nests), but did not cause any nest loss. Its breeding season was similar to most birds of the Cerrado region, but its clutch size was larger. The Chalk-browed Mockingbird breeding biology in central Brazil is similar to that reported from the southern part of its distribution. The species is capable of multiple broods, has cooperative breeding and shows evidence of communal breeding, a rare behavior reported so far for Mimidae. The main difference between our study and those conducted with the Chalk-browed Mockingbird in Argentina, is the very low prevalence of brood parasites, demonstrating the importance of reserves to allow breeding with low brood parasitism rates.

**KEY-WORDS:** brood parasitism, cooperative breeding, Mimidae, nest, reproduction.

## INTRODUCTION

The breeding biology of many tropical birds is still poorly described (Stutchbury & Morton 2001, 2008, Heming *et al.* 2013), especially in the Neotropics, where 42.9% of the species have their breeding biology poorly-known (Xiao *et al.* 2017). The Chalk-browed Mockingbird *Mimus saturninus* (Mimidae) is a tropical species, common and resident in savannas, grasslands, and farmlands, as well as in urban parks and gardens (Ridgely & Tudor 1989, Sick 1997, Brewer 2001, Leveau & Leveau 2004, Cody 2017). Its breeding biology is relatively well described (Cody 2017), but mainly from disturbed or anthropogenic sites in the southern part of its distribution mostly in Argentina (Salvador 1984, Fraga 1985, Mason 1985, De la Peña 2005, Di Giacomo 2005, Rabuffetti & Reboreda 2007), but also in southeastern Brazil (Argel-de-Oliveira 1989). Both habitat disturbance (Boal & Mannan 1999, Vargas *et al.* 2012) and latitude (Jetz *et al.* 2008, Heming & Marini 2015) might affect breeding parameters of birds, such as clutch size and egg size. However, no comprehensive study of its breeding has been done in undisturbed areas and/or in the northern part of its distribution.

The species can be found across much of the Brazilian territory out of Amazonia, extending its range to Bolivia, Paraguay, Argentina and Uruguay, with disjunct populations in savanna areas north of the Amazonia (Ridgely & Tudor 1989, Cody 2017). It feeds on insects and fruits, generally on the ground (Sick 1997, Brewer 2001, Cody 2017), and shows strong territorial behavior, defending its territory against conspecifics (Argel-de-Oliveira 1989, Cody 2017).

The Chalk-browed Mockingbird lives in pairs or small groups of up to six birds, generally formed by one breeding pair, yearlings from previous broods, and juveniles (Argel-de-Oliveira 1989, Cody 2017), with an apparent cooperative breeding system. Cooperative breeding is an unusual breeding system among birds (Cockburn 2006) and, even though more common in tropical and subtropical climates (Brown 1987), there are still few studies in the Neotropics (Macedo 2008). This breeding system is characterized by one or more members of a social group helping the breeding pair with

activities such as parental care, territorial defense and nest-guarding, what can improve the breeding success (Skutch 1961, Brown 1987, Cockburn 1998, Stutchbury & Morton 2001). In this paper, we present a detailed description of several aspects of the breeding biology of the Chalk-browed Mockingbird in a natural savanna of central Brazil, including information about cooperative breeding and evidences of communal nesting.

## METHODS

### Study area

This study was conducted in the Estação Ecológica de Águas Emendadas (hereafter ESECAE) (15°31'12''S to 15°35'50''S; 47°31'54''S to 47°40'31''W) located about 50 km from Brasília, Distrito Federal, Brazil. The ESECAE is a 10,500 ha reserve and Cerrado (a kind of tropical savanna) is the dominant vegetation (Silva-Jr. & Felfili 1996). Our study was conducted mostly in a 100 ha plot (1 km × 1 km) located in the northwestern portion of the reserve, more than 1 km from the reserve border, with the following phytophysiognomies ranging from open grasslands to dense savannas: *campo limpo*, *campo sujo*, *cerrado ralo*, *parque cerrado*, *cerrado sensu strictu* and *cerrado denso* (Silva-Jr. & Felfili 1996, Ribeiro & Walter 2008). *Campo limpo* is a grassland without trees or shrubs; *campo sujo* is a grassland with a few shrubs; *cerrado ralo* is an open grassland with scattered trees and shrubs; *parque cerrado* is an open grassland with some trees and shrubs growing on scattered small earthmounds; *cerrado stricto sensu* is a savanna with closed scrubs and 5–8 m tall trees; and *cerrado denso* is a savanna with a dense arboreal strata with 5–12 m tall trees. The climate is highly seasonal and predictable, with 1500–1750 mm of annual rains, mostly restricted to the period between October and April, which makes winters exceptionally dry (Nimer 1979).

### Bird capture and marking

Chalk-browed Mockingbirds were caught in mist nets and marked with a single numbered metallic band (CEMAVE/ICMBio) on the right tarsus, and with a unique combination of three plastic color bands on the left tarsus. Nestlings were marked in the tarsus with colored nontoxic marker pens since the first days of monitoring. After the 10$^{th}$ or 11$^{th}$ day since birth, nestlings were also banded just as adults.

Given that sexes are alike (Cody 2017), members of the breeding pair could not be sexed properly. Brood patches are almost exclusive to females, but for some mimids, males can develop a passable brood patch (Cody 2017), and both sexes can incubate. Other birds of the social group could also not be sexed. Juveniles were identified by the presence of whitish and enlarged rictal flanges (only in recently fledged birds) and by the buffier underparts with dark streaks on the breast (Cody 2017).

### Nest searching and monitoring

We studied the breeding biology of the Chalk-browed Mockingbird in ESECAE from 2003 to 2013 with most of the fieldwork conducted from August to January. SSR intensively searched for nests of the Chalk-browed Mockingbird during the breeding seasons of 2007 and 2008, while in the other years nests were found occasionally. Nests were located after meticulous inspection of the vegetation or, most commonly, after following birds showing signs of being reproductively active, such as nest-guarding or carrying nesting material or food on their bills. We marked nest locations with a colored plastic tape placed ~5–10 m from the nest and took their geographical coordinates with a GPS.

For each nest found we recorded its status (active or inactive) and content (empty, with eggs and/or nestlings), as well as its height above ground and the support plant species. Nests were monitored at intervals of one to four days, with shorter interval visits occurring on egg laying, hatching and fledging, what allowed a better precision of our estimates.

Incubation period was considered as the time from laying of the first egg to hatching of the first egg. Nestling period was considered as the time from hatching of the first egg to fledging of the first young. For those nests which information available did not allow to determine the exact date of hatching, we estimated those dates based on the degree of development of nestlings, as well as on the day of egg laying. For nests that presented one egg and one nestling on the day of monitoring, we assumed that hatching occurred on that very day. We weighed eggs in the early stages of incubation of four nests from 2012 with a Pesola® spring to the nearest 0.1 g.

### Length of the breeding season

Breeding season was considered as the interval between the beginning of construction of the first nest and the day when the last nest became inactive. Egg laying season was considered as the interval between the first and the last nest with eggs. During 2007 and 2008 we conducted intensive fieldwork directed to the species, allowing us to estimate more precisely the length of the breeding season and the egg laying season for these two years. Thus, we provide both, estimates for the entire period of nest monitoring (2003–2013) and the two intensively-monitored years (2007 and 2008).

### Behavior

We conducted non-systematic observations to describe

parental care, social behavior and the role of helpers. We focused our observations on nest-guarding, feeding of nestlings, sentinel behavior, and intra and interspecific agonistic interactions.

### Data analyses

Values presented are means ± 1 standard error.

## RESULTS

We monitored 74 active nests (Fig. 1) of the Chalk-browed Mockingbird during the study period, 6 on 2003, 6 on 2004, 6 on 2005, 10 on 2006, 14 on 2007, 15 on 2008, 4 in 2009, 3 in 2010, 2 in 2011, 5 in 2012 and 4 in 2013. A variable number of these nests were used to estimate breeding parameters and to characterize habitat use and support plant, as specified below.

### Breeding season

The Chalk-browed Mockingbird breed in the study area from late August to late December, considering all years. We found two nests being built as early as 29 August of 2006 and 2008, and the last nest fledged nestlings on 29 December 2007. Two nests built on the second half of December, but soon predated, suggest that the breeding


**Figure 1.** Nests, eggs, nestlings and fledgling of the Chalk-browed Mockingbird (*Mimus saturninus*) at ESECAE, Distrito Federal, Brazil. (**A**) Nest with three eggs; (**B**) Nest containing one egg of the Chalk-browed Mockingbird and another very small unidentified egg (arrow); (**C**) Four-days-old nestling; (**D**) Six days old nestling; (**E**) Ten days old nestling; (F) Recently fledged juvenile. Ages of nestlings were estimated.

season might extends through January. Among all years, eggs were laid between the last week of August and the first week of December (Fig. 2). The peak of breeding activity occurred from late September to mid-November (Fig. 2). Breeding season lasted around four months (~3 September–29 December) in 2007 and 3.5 months (~29 August–11 December) in 2008. Egg laying season lasted 92 days in 2007 and 75 days in 2008. Multiple breeding attempts were observed in 2007 and 2008, irrespective of the success or failure of the previous nest. By this way, 64.3% ($n$ = 9) of the nests found in 2007 ($n$ = 14), and 57.1% ($n$ = 12) of the nests found in 2008 ($n$ = 21) were the result of subsequent breeding attempts.

## Nests and nest sites

Nests were a cup, mainly built with twigs and layered with rootlets and other fibrous matter (Fig. 1). Nests were built in shrubs and small trees, generally concealed among dense foliage at 1.3 ± 0.5 m above ground ($n$ = 73; Fig. 3). Eighteen species of plants were used as support for 60 nests, with *Davilla elliptica* St. Hill. (Dilleniaceae) being the most commonly used species (38.3%; Fig. 4). A few other nests were built in a dead tree ($n$ = 1) and in tussock grasses ($n$ = 2).

We found more nests of the Chalk-browed Mockingbird in the more open areas of the Cerrado, as suggested by the number of nests found in each phytophysiognomy sampled. Among 66 nests, 25 nests were in *cerrado ralo* (37.9%), 19 in *parque Cerrado* (28.8%), 9 in *cerrado stricto sensu* (13.6%), 5 in *campo limpo* (7.6%), and 8 in disturbed *cerrado* (12.1%).

## Eggs, nestlings and parental care

Eggs were laid mostly on successive days ($n$ = 11), and in 2 nests with 5 and 6 eggs, 4 eggs were laid in 3 days and 5 eggs were laid in 4 days, respectively, suggesting that more

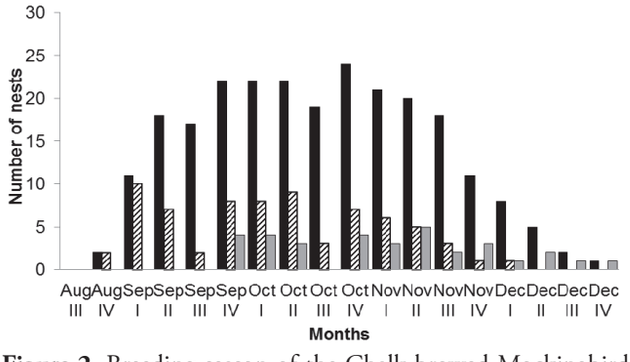


**Figure 2.** Breeding season of the Chalk-browed Mockingbird (*Mimus saturninus*) in the Estação Ecológica de Águas Emendadas, central Brazil. Number of active nests (solid bars, $n$ = 73), number of nests with eggs (cross-hatched bars, $n$ = 72), and number of nests with nestlings (gray bars, $n$ = 33) during the breeding seasons of 2003 through 2013. Months were subdivided in four intervals of 7–8 days each.

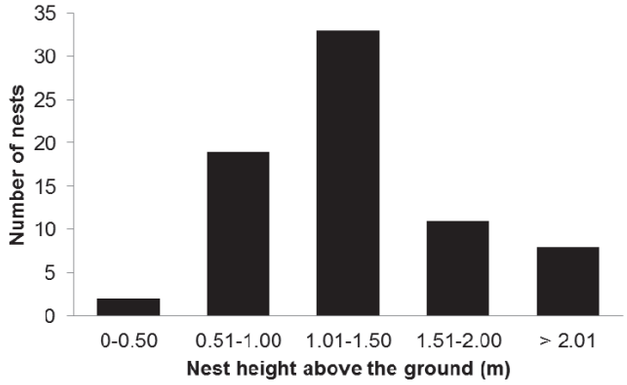


**Figure 3.** Number of nests ($n$ = 73) of the Chalk-browed Mockingbird (*Mimus saturninus*) found in the breeding seasons of 2003 through 2013 in the Estação Ecológica de Águas Emendadas, central Brazil, accordingly to its height above ground (m).

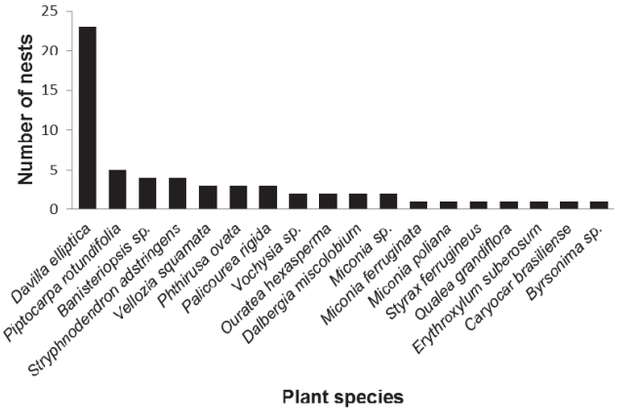


**Figure 4.** Number of nests ($n$ = 60) built on each plant species of the Chalk-browed Mockingbird (*Mimus saturninus*) monitored in the breeding seasons of 2003 through 2013 in the Estação Ecológica de Águas Emendadas, central Brazil.

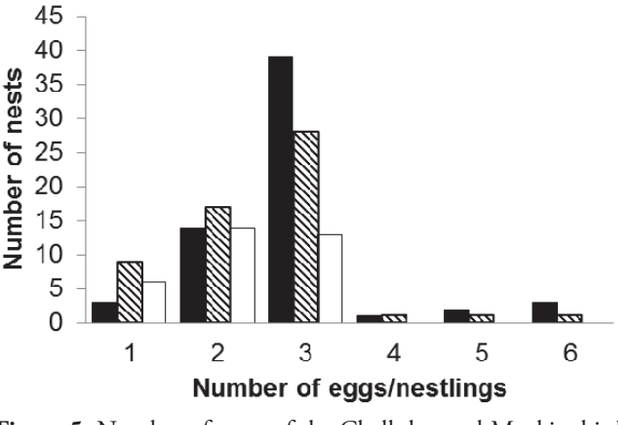


**Figure 5.** Number of nests of the Chalk-browed Mockingbird (*Mimus saturninus*) monitored in the breeding seasons of 2003 through 2013 in the Estação Ecológica de Águas Emendadas, central Brazil, in relation to clutch size (solid bars, $n$ = 63), number of nestlings (cross-hatched bars, $n$ = 57), and number of fledglings (open bars, $n$ = 33).

than one female laid eggs in the same nest. In one of these nests the incubating bird and a second bird defended the nest simultaneously during 3 nest checks. Mean clutch size was 2.9 ± 0.9 eggs ($n$ = 63), ranging from 1 (possibly an incomplete clutch) to 6 eggs (possibly a communal nest, see below) (Fig. 5). Eggs were usually oval and weighed 5.3 ± 0.5 g ($n$ = 10 eggs from 4 clutches), with an intra-clutch variation of up to 30% of egg mass (4.5 to 5.9 g). Eggs measured 26.6 ± 1.3 mm (length) by 19.3 ± 0.8 mm (width) ($n$ = 19; 6 clutches).

Incubation started from the laying of the first egg in 10 nests closely monitored, what demonstrates that incubation is asynchronous. Incubation period was estimated in 14.2 ± 0.9 days ($n$ = 17 nests), ranging from 12 to 16 days. The nestling period was estimated in 14.1 ± 1.2 days ($n$ = 21 nests), ranging from 10.5 to 15.5 days. Thus, early fledging occurred as soon as after 10.5 days.

Nestlings from the same clutch generally show distinct sizes and, in some cases, the smallest nestling disappeared from the nest without signs of predation, what suggests that they probably starved. Nestlings body was covered with downy feathers since hatching (Fig. 1), with the exception of the ventral surface, which is almost naked. Young nestlings present pinkish skin, orange yellow gape and yellowish-white rictal flanges. The eruption of pin feathers occurs between the 4$^{th}$ and 5$^{th}$ day, eyes begin to open on the 6$^{th}$ day, and after the 9$^{th}$ day the entire body and wings are covered with developing feathers (Fig. 1).

Youngs fledged between the last week of September and the last week of December (Fig. 2). Fledglings usually stay perched in the same plant where the nest was constructed soon after leaving the nest. They move away from the nest site during the following days, but always remaining concealed in the dense vegetation. All adults of the social group feed the fledglings for about six weeks. Yearlings born on 2007 breeding season were observed twice feeding juveniles born in the same territory on 2008.

Adults showed strong territorial behavior and are very aggressive against potential nest predators. Once a potential predator is detected, adult birds generally fly to the top of a tall tree and elicit an alarm call. We observed agonistic interactions against the Southern Caracara *Caracara plancus* and the Curl-crested Jay *Cyanocorax cristatellus*. The Chalk-browed Mockingbird also associated with the Fork-tailed Flycatcher *Tyrannus savana* and mobbed potential predators that approached the nest site.

### Social groups

We monitored 10 social groups during 2007 and 2008. Two of those groups were formed by 2 birds each, 7 groups by 4 birds and 1 group had 6 individuals in 2007 and 4 in 2008.

### Brood parasitism

A single nest monitored contained 1 very small beige egg (Fig. 1B), either from the brood parasite Shiny Cowbird *Molothrus bonariensis* or a very small abnormal mockingbird egg. This egg was laid just after the first egg of the Chalk-browed Mockingbird, but was probably ejected before our next visit to the nest, 3 days later. Also, 2 other nests at the reserve border had 1 egg each of Shiny Cowbird on 06 and 26 October 2009. The first nest also had 1 mockingbird egg and the second had 2 mockingbird eggs. None of these eggs were measured and these nests were not monitored.

### Botfly parasitism

Among the 20 nests with nestlings monitored on 2007 and 2008, 12 (60%) contained at least 1 nestling parasitized by botfly larvae *Philornis* sp. (Diptera: Muscidae), but no nest loss was attributed to botfly parasitism. We did not estimate botfly infestation (number of larvae per bird).

## DISCUSSION

The breeding biology of the Chalk-browed Mockingbird at our study site was similar to that of previous studies with respect to most aspects. The main difference between our study and those conducted with the Chalk-browed Mockingbird in Argentina, is the very low prevalence of brood parasites, demonstrating the importance of reserves to allow breeding with low brood parasitism rates. Also, we provide evidence that the species has cooperative breeding and communal breeding, the latter a rare behavior reported so far for Mimidae.

We recorded both breeding pairs and breeding groups in our study site. All members of the groups participated in nest defense and nestling feeding, but only some marked individuals (probably females) were observed incubating eggs. Studies conducted in Argentina also found both breeding pairs and groups (Fraga 1979, Salvador 1984). Another study conducted in an urban area in southeastern Brazil found only breeding groups (Argel-de-Oliveira 1989). Cooperative breeding with helpers at nest has also been reported for several *Mimus* mockingbirds and the White-breasted Thrasher *Rhamphocinclus brachyurus* (Cody 2017). The presence of breeding groups might be related to a reduction in opportunities for breeding territory acquisition either due to high adult survival or habitat saturation (Gaston 1978, Stutchbury & Morton 2001).

The breeding season of the Chalk-browed Mockingbird extends from late August to late December, what coincides with the end of the dry season and the

first half of the wet season, a similar pattern to that described for the species in southeastern Brazil (Argel-de-Oliveira 1989). The length of the breeding season is similar to those reported for Argentina, but they start and end latter there [start in mid-September (Fraga 1985, Di Giacomo 2005, Rabuffetti & Reboreda 2007] to first week of October (Salvador 1984, De la Peña 2005); end in the second half of January (Salvador 1984, Fraga 1985, De la Peña 2005, Di Giacomo 2005, Rabuffetti & Reboreda 2007). Differently, the Tropical Mockingbird *Mimus gilvus* breeds in Venezuela in two distinct periods, from April to June and from October to December, coinciding with the onset of the unusual bimodal wet seasons usually observed there (Paredes *et al*. 2001). The egg laying period recorded (75 and 92 days) in this study was slightly shorter than that reported for the species in Argentina (93 to 121 days) (Salvador 1984, Fraga 1985). In the temperate region, the egg laying period recorded for the Northern Mockingbird *Mimus polyglottos* was highly variable, ranging from 80 to 150 days (Fischer 1981, Means & Goertz 1983). The onset as well as the extent of the breeding season of the Chalk-browed Mockingbird was similar to that observed for other passerines in the Cerrado (Alves & Cavalcanti 1990, Lopes & Marini 2005a, Medeiros & Marini 2007, Marini *et al.* 2009, Santos & Marini 2010, Duca & Marini 2011) and central-southeast Brazil (Marini & Durães 2001, Pinho *et. al.* 2006, Marques-Santos *et al*. 2015).

The nests found are very similar to those previously described for the species (Salvador 1984, Fraga 1985, Mason 1985, Argel-de-Oliveira 1989, De la Peña 2005, Rabuffetti & Reboreda 2007). The Chalk-browed Mockingbird commonly built its nest in dry and shrubby areas with small and isolated trees (Salvador 1984, Fraga 1985, Argel-de-Oliveira 1989, this study), similarly to other members of the genus (Cody 2017). That might help the Chalk-browed Mockingbird to nest in disturbed and even urban areas (Argel-de-Oliveira 1989, Brewer 2001). Nevertheless, this apparent habitat preference at our study site must be seen with care, because we did not conduct standardized searches in all the phytophysiognomies available in the study area.

Eggs were laid in successive days as reported by Di Giacomo (2005) in nests with clutches of up to three eggs. The 2 nests with 5 or 6 eggs with more than 1 egg laid per day suggest that more than 1 female is laying in the same nest. Egg mass and measurements were very similar to those from Argentina reported by Di Giacomo (2005), but slightly smaller than those reported by De la Peña (2005).

Previous studies on the breeding of the Chalk-browed Mockingbird reported that usual clutches are of 3 or 4, exceptionally 2 or 5 eggs (Salvador 1984, Fraga 1985, Mason 1985, De la Peña 2005, Di Giacomo 2005, Rabuffetti & Reboreda 2007). Argel-de-Oliveira (1989) reported 1 nest with 6 eggs, what corresponds to the maximum clutch size recorded in this study. Clutches of 3 to 4 eggs are common for mockingbirds, with clutches larger than that observed only at higher latitudes (Cody 2017) as expected. The Patagonian Mockingbird *Mimus patagonicus* has also been reported to lay up to 6 eggs (Cody 2017).

The mean incubation and nestling periods found in this study were similar to that previously described for this (Salvador 1984, Fraga 1985, Argel-de-Oliveira 1989, De la Peña 2005, Di Giacomo 2005) and other species of mockingbirds (Skutch 1945, Fischer 1981, Means & Goertz 1983, Paredes *et al.* 2001, Cody 2017). We observed mostly one bird per pair (possibly females) incubating eggs. Both members of a pair, however, defended the nest and fed nestlings. For the Gray Catbird *Dumetella carolinensis* only females are known to incubate eggs (Cody 2017). The asynchronous incubation observed for the Chalk-browed Mockingbird might confer some competitive advantage for the first nestlings to hatch (Slagsvold 1986, Stenning 1996). Early fledging of nestlings still with incomplete plumage, as reported here, is common among mockingbirds (Cody 2017), but fledglings remain close to the nest for some days until able to fly. Nest defense and nestling feeding in the species is performed by all members of the social group, the same observed for other mockingbirds (Cody 2017), and other cooperative breeding species in the Cerrado (Santos & Marini 2010, Manica & Marini 2012).

We also found evidence of communal breeding, a rare behavior among birds and mammals (Gilchrist 2007), where more than one female lay eggs and raise young synchronously in the same nest (Brown 1987). Five nests had either 5 or 6 eggs, and in 2 of them more than 1 egg was laid per day, indicating that more than 1 female was laying in those nests. Similarly, communal breeding has been reported only for the Galapagos Mockingbird *Mimus parvulus* (Kinnaird & Grant 1982).

Brood parasitism by the Shiny Cowbird is one important cause of nest failure reported for Neotropical mockingbirds (Fraga 1985, Di Giacomo 2005), and is most frequent in disturbed areas (Cavalcanti & Pimentel 1988). The frequency of brood parasitism found in this study (2 or 3 out of 76 nests) is very low when compared with that found in disturbed areas in the Cerrado (4 out of 14, 28.6%) (Cavalcanti & Pimentel 1988). However, at our study site, 2 of these 3 parasitism events occurred at the reserve border, where only 1 other unparasitized mockingbird nest was found with eggs, and were 3 other nests were found already with mockingbird nestlings. At our study site, França & Marini (2009) found very low and similar brood parasitism rates between edge and interior nests of 9 species. Studies conducted in Argentina revealed much higher incidence of brood parasitism for

the Chalk-browed Mockingbird (44–88%; Salvador 1984, Fraga 1985, Sackmann & Reboreda 2003, De la Peña 2005, Di Giacomo 2005).

Species frequently found in disturbed areas will not necessarily be victimized by the brood parasite, because they might be adapted to such conditions (Cavalcanti & Pimentel 1988). The ejection of a "foreign" egg has been observed for the Chalk-browed Mockingbird (Fraga 1985) as well as for other species in the genus (Peer *et al.* 2002, Sackmann & Reboreda 2003, Cody 2017). The Chalk-browed Mockingbird is also aggressive towards adult Shiny Cowbirds (Brewer 2001, Sackmann & Reboreda 2003). Egg ejection experiments at our study site revealed that the Chalk-browed Mockingbird accepted 77% of mimetic eggs, but only 33% of non-mimetic (blue) eggs (Miranda 2014).

Botfly parasitism can also influence breeding success, and the parasitism of very young nestlings might be one of the main causes of nest failure (Rabuffetti & Reboreda 2007). Entire broods at 4 nests of the Chalk-browed Mockingbird succumbed to botfly parasitism in Argentina (Mason 1985). Also, 22% of the nests of the Chapada Flycatcher *Suiriri islerorum* found at our study site were lost due to parasitism by botfly larvae (Lopes & Marini 2005b). Nevertheless, in our study, despite the high prevalence (%) of nestlings parasitized by *Philornis* sp., infestation (number of larvae per bird) was usually low (< 5 larvae) and no nest was lost due to parasitism. In a similar way, parasitism by botfly larvae did not affect the breeding success of the White-rumped Tanager *Cypsnagra hirundinacea* in the same area (Santos & Marini 2010).

Overall, the Chalk-browed Mockingbird breeding parameters are similar to those reported from studies in the southern part of its distribution in disturbed landscapes. The species has cooperative breeding as other species of *Mimus* and we provide evidence, apparently for the first time, that it breeds communally. The main difference between our study and those conducted with the Chalk-browed Mockingbird in Argentina, is the very low prevalence of brood parasites at our preserved study site, demonstrating the importance of reserves to allow breeding with low brood parasitism rates.

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