*The Wilson Journal of Ornithology* 129(3):632–634, 2017

# High Rates of Nest Usurpation by Grayish Baywings (*Agelaioides badius*) in Active Nests of House Wrens (*Troglodytes aedon*) in Central Andes

María Natalia Luchesi[1] and Andrea Astié[1,2]

ABSTRACT.—Nest usurpation is a behavior where one individual takes over the active nest of another individual of the same or a different species. The Grayish Baywing (*Agelaioides badius*) has been reported as an occasional inter-specific nest usurper. In previous studies, researchers have reported usurpation of nests of House Wrens (*Troglodytes aedon*) by Grayish Baywings. In this paper, we report that nest usurpation by Grayish Baywings is the second cause of breeding failure in a population of House Wrens in the Central Andes. *Received 9 August 2016. Accepted 4 January 2017.*

Key words: *Agelaioides badius*, Grayish Baywing, House Wren, nest usurpation, *Troglodytes aedon*.

Nest usurpation or nest piracy is a nesting strategy in which individuals of the same or different species take over active nests of other individuals for breeding purposes (Favaloro 1942, Robinson 1985, Lindell 1996) and it often involves agonistic interactions (Lindell 1996, Botero-Delgadillo et al. 2015). Aggressive behaviors to take over an active nest suggest that the resource is scarce or valuable enough to risk a physical contest (Lindell 1996).

Secondary cavity nesters (birds that depend on existing holes produced by other birds, insects, or decay) are especially competitive for nest sites (Ricklefs 1969, Newton 1994). This high, and sometimes fierce, competition has been explained by the low number of cavities (Newton 1994, Lindell 1996) and high quality of the resource, as cavity nesters experience relatively low nest predation rates compared to open-cup nesting species (Martin and Li 1992, Lindell 1996). In concordance with these observations, both interference competition and nest usurpation are usually higher in habitats where secondary cavity availability is reduced (Lindell 1996, Botero-Delgadillo et al. 2015). Lindell (1996) found that >90% of usurpation cases reported in different works occurred in cavity nests, far out of proportion to the percentage of species that use cavities for nesting (Lindell 1996).

Grayish Baywings (*Agelaioides badius*) rarely build their nests, but they frequently breed in deserted or usurped nests built by other species, mostly furnariids such as Rufous Hornero (*Furnarius rufus*), Firewood-gatherer (*Anumbius annumbi*), and Brown Cacholote (*Pseudoseisura lophotes*) (Friedmann 1929; Fraga 1988, 2011). They also may use nest boxes (Fraga 2011). The House Wren (*Troglodytes aedon*) has been reported as a circumstantial victim of Grayish Baywing usurpation (de Mársico et al. 2010), but rates and costs of this interaction are unknown. In this work, we present evidence of frequent usurpation by Grayish Baywings in a population of House Wrens breeding in nest boxes. The study was conducted in Uspallata (32° 34′ 60″ S, 69° 19′ 60″ W), Mendoza, Argentina, during the House Wrens' breeding season (Oct–Feb) from 2008–2011. Uspallata is located in the foothills of the central Andes, at 1,800 m a.s.l. In the study area, both Grayish Baywings and House Wrens occupy anthropomorphized landscapes, mostly poplar plantations. The study area was a 5-ha field developed as a plantation of poplars (*Populus alba*). Prior to the first breeding season, we established 100 nest boxes on the poplar trunks, 2 m high and 25–50 m apart. Nest boxes, made of

[1] Instituto Argentino de Investigaciones de Zonas Áridas (IADIZA), Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Universidad Nacional de Cuyo, Mendoza, Argentina.

[2] Corresponding author; e-mail: aastie@mendoza-conicet.gob.ar

 

poplar wood, measured 30x16x13 cm, with an entrance hole 38 mm in diameter. Nest boxes were checked once every 2–3 days until we found evidence of House Wrens' activity on them (presence of building materials). After that, we visited the nest every day. We videotaped nests at two times during the nestling stage, when chicks were 2- and 8-days-old. The videotapes were 3–4 hrs long, and recording began at~0700 hrs Argentina Time (ART).

We considered that a House Wrens' nest suffered usurpation when we directly observed aggressive behaviors by Grayish Baywings and when we found indirect evidence between two consecutive visits to the nest (broken eggs, dead chicks inside or under the nest box with injuries, and nest material disorganized). We believe this indirect evidence is strong enough to assume Grayish Baywings caused these damages relying on four facts: 1) Those characteristics (material disorganized, broken eggs, dead chicks) were similar to the ones we found in nest boxes right after we witnessed a Grayish Baywing attacking an active House Wrens' nest; 2) The breeding season of House Wrens in the study area begins in late October (Luchesi 2014), but we never recorded a nest destroyed, with broken eggs or dead chicks in or under the nest, before December. This date coincides with the Grayish Baywings' breeding season, which ranges from November through March, with the highest peak in January (de la Peña 2005, de Mársico et al. 2010); 3) We never observed, directly or videotaped, other individuals (House Wren or any other species) attacking nest boxes or their owners; 4) After nest predation events, nests were empty, but we did not find disorganized material, broken eggs or dead chicks. Besides, predation rate was constant over the breeding season (Luchesi 2014).

We followed the fate of 153 active nests of House Wrens from 2008–2011. Almost half of the nests failed: 15 (10%) were deserted during incubation stage, 27 (16%) were usurped, and 33 (22%) were depredated. We divided the breeding season in periods of 15 days (first and second half of each month), and counted the number of active nests and the number of nests that failed because of to usurpation on each period. The proportion of usurped nests over the number of active nests was higher in the second half of December (0.12) and in the first half of January (0.14, Fig. 1). We also

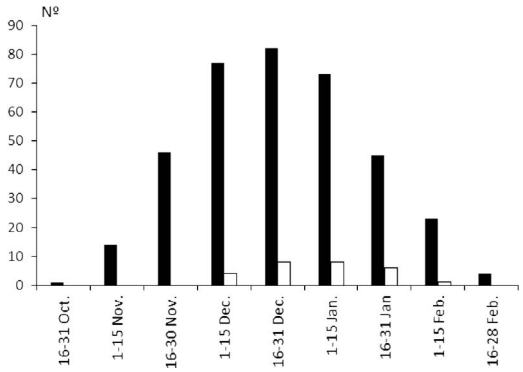


FIG. 1. Number of active nests of House Wrens (dark bars) and number of nests of House Wrens usurped by Grayish Baywings (open bars) in each period of 15 days during the House Wrens' breeding season.

recorded eight unsuccessful cases of nest usurpation by Grayish Baywings, making a total of 35 cases of nest usurpation attempts. We detected 12 cases by direct observation (3 when visiting the nest and 9 videotaped) and 23 by indirect observation. Most of the usurpations occurred during the nestling period (63%), some of them during incubation (31%), and only two cases during laying (6%).

Our results present evidence that nest usurpation is the second leading cause of failure in nests of House Wrens in our study population. Most of the nest usurpations occurred in December and the first half of January, which coincide with the breeding peak of Grayish Baywings (de la Peña 2005). The breeding peak of House Wrens is November and December in the study area (Luchesi 2014); therefore, there is an overlap between both species reproductive peaks in December. However, the breeding season of House Wrens in most temperate areas starts in September with the highest peak in October, and finishes in January (de la Peña 2005, Llambías and Fernandez 2009). Therefore, breeding season overlap is not the same in different places where both species are sympatric (perhaps because of differences in temperatures in mountain areas).

The high overlap in both species' breeding seasons in the study area, together with the use of nest boxes, which may be perceived as a high quality resource by Grayish Baywings, could be affecting the high rates of usurpation recorded in this study. Further studies are needed to determine

 

the effect Grayish Baywings have on the reproductive success of House Wrens in wider areas and in natural cavity nests. Even so, usurpation rates reported in this paper are far higher than the ones reported in previous studies. We suggest that studies intended to determine causes of nest failure in areas inhabited by Grayish Baywings take this effect into consideration in the future, especially when the studied species is a secondary cavity nester.

## ACKNOWLEDGMENTS

We thank N. García for English review and P. Llambías and two anonymous reviewers for helpful comments on the text. Natalia Luchesi was supported by a fellowship from Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). Andrea Astié is a research fellow of CONICET. Funding was provided by grants by CONICET, FONCYT 2006-333, and FONCYT 2010-1033.

## LITERATURE CITED

Botero-Delgadillo, E., Y. Poblete, and R. A. Vásquez. 2015. Nestling mortality as a consequence of interspecific competition between secondary cavity nesters in the Sub-Antartic forest of Chile. Wilson Journal of Ornithology 127:131–134.

de la Peña, M. R. 2005. Reproducción de las aves argentinas. L.O.L.A. Buenos Aires, Argentina.

de Mársico, M. C, B. Mahler, and J. C. Reboreda. 2010. Reproductive success and nestling growth of the Baywing parasitized by Screaming and Shiny Cowbirds. Wilson Journal of Ornithology 122:417–431.

Favaloro, N. 1942. The usurpation of nests, nesting sites and materials. Emu 41:268–276.

Fraga, R. M. 1988. Nest sites and breeding success of Baywinged Cowbirds (*Molothrus badius*). Journal für Ornithologie 129:175–183.

Fraga, R. M. 2011. Family Icteridae (New World Blackbirds). Pages 684–807 *in* Handbook of the birds of the World. Volume 16. Tanagers to New World blackbirds (J. del Hoyo, A. Elliott, and D. A. Christie, Editors). Lynx Edicions. Barcelona, Spain.

Friedmann, H. 1929. The cowbirds: a study in the biology of social parasitism. C. C. Thomas, Springfield, Illinois, USA.

Lindell, C. 1996. Patterns of nest usurpation: when should species converge on nest niches? Condor 98:464–473.

Luchesi, M. N. 2014. Patrones comportamentales e historias de vida de una población de la Ratona Común (*Troglodytes aedon*) del Valle de Uspallata. Relaciones bióticas y abióticas. Thesis. Universidad Nacional De Cuyo, Mendoza, Argentina.

Llambías, P. E. and G. J. Fernandez. 2009. Effects of nest boxes on the breeding biology of Southern House Wrens *Troglodytes aedon bonariae* in the southern temperate zone. Ibis 151:113–121.

Martin, T. E. and P. Li. 1992. Life history traits of open- vs. cavity-nesting birds. Ecology 73:579–592.

Newton, I. 1994. The role of nest-sites in limiting the numbers of hole-nesting birds: a review. Biological Conservation 70:265–276.

Ricklefs, R. E. 1969. An analysis of nesting mortality in birds. Smithsonian Contributions to Zoology 9:1–48.

Robinson, S. K. 1985. The Yellow-rumped Cacique and its associated nest pirates. Ornithological Monographs 36:898–907.

 

**Queries for wils-129-03-18_28**

**This manuscript/text has been typeset from the submitted material. Please check this proof carefully to make sure there have been no font conversion errors or inadvertent formatting errors. Allen Press.**