

# Observation of attempted courtship feeding in the Chaco Owl *Strix chacoensis* (Aves: *Strigidae*)

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The breeding behaviour of the endemic Chaco Owl *Strix chacoensis* is almost completely undocumented. In this note, we describe an attempt at courtship feeding in this species. The male engaged in ritualised head movements as he approached the female with a prey offering. Potentially significant differences from courtship behaviour in other *Strix* owls include a lack of wing movements and vocalisations during the display. This report also represents the first record of amphibians in the diet of this species.

Key words: Chaco Owl, diet, display, courtship, ritual, Paraguay.

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Received: 15.02.24; Accepted: 02.06.24 / Edited by C. Barriocanal

The Chaco Owl *Strix chacoensis* is endemic to the Chaco ecoregion of southern Bolivia, western Paraguay and north-west Argentina (Guyra Paraguay 2004, Herzog *et al.* 2017, Pearman & Areta 2020). Shortly after its discovery (Cherrie & Reichenberger 1921) it was taxonomically relegated to a subspecies of the Rufous-legged Owl *S. rufipes* (Dabbene 1926). Nevertheless, it is vocally, behaviourally, morphologically and geographically distinct (Straneck & Vidoz 1995) and may in fact be more closely related to the vocally very similar Rusty-barred Owl *S. hylophila*, which occurs east of the Paraguay River in humid Atlantic Forests (König *et al.* 2008).

Although locally common in xeric Chaco forest and its interface with ranch lands in the Dry Chaco region, to date almost nothing has been published about its behaviour aside from some basic data on habitat associations, diet, abundance and activity levels (Kratter *et al.* 1993, Bodrati 2005, Smith *et al.* 2006, Sant-

ander *et al.* 2012). The breeding behaviour of the Chaco Owl is as yet undescribed with the exception of speculation by Pittermann (2005) based in part on extrapolations from the behaviour of other *Strix* owls.

Our field observations in Paraguay concur with observations in Argentina and Bolivia that this species is usually encountered in pairs whose strongly held territories may be close to one another (Kratter *et al.* 1993, Bodrati 2005). Typically becoming active at dusk, we have observed this owl roosting by day in Quebracho trees, close to the trunk at a height of about 3 m above ground level. It is commonly seen foraging along road sides, occasionally dropping to the ground in front of vehicles in pursuit of large insects attracted by headlights. We have found numerous road-killed individuals in the Paraguayan Chaco, so we suggest that road kill may be an emerging cause of mortality in this species, in a region where the human population is rising and vehicles often drive at great



**Figure 1.** Male Chaco Owl *Strix chacoensis* approaching the female with a frog in his bill during attempted courtship feeding, Fortín Toledo, Paraguay. Foto: Julie Fisher.  
*Mascle de gamarús del Chaco Strix chacoensis apropant-se a la femella amb una granota al bec durant l'intent d'alimentació de festeig, Fortín Toledo, Paraguai.*

speed along the well-maintained dirt roads (Bodrati *et al.* 2017).

In this note, we report the first observations of attempted courtship feeding in this species based on observations of a pair at Fortín Toledo, Boquerón department, on 25 November 2023 at 21:00 h. The presumed male owl flew up from the ground (where it apparently had caught the prey) onto an electricity cable and landed close to the female who was perched perpendicularly to him, facing away from the observers. Upon landing, the male gave a single deep guttural call and through binoculars was seen to be carrying a small frog, c. 20-mm long, in his bill, which it held by the head with its legs dangling downwards. The male then began to walk slowly along the cable towards the female with its head bowed and the frog prominently displayed as she performed a series of stylised head bows while looking towards him. At one point, the male paused and used his right foot to accommodate the frog in his bill. Neither individual was heard to vocalise during the main encounter and both kept their eyes open throughout the approximately two minutes of observations. Despite repeated attempts by the male, the female did not take the offering and moved away from him as he approached, eventually flying away to a different perch.

Courtship feeding has been documented previously in several species of *Strix* owls in

Europe (e.g. Lundberg 1980, Mikkola 1983), the US (Johnsgard 1988) and South America (*S. huhula* de Almeida *et al.* 2021; although this species is often included in *Ciccaba*). It is associated with pre-breeding activity and generally takes place close to a potential nest site, being considered an indicator of the beginning of the nesting period. Proposed objectives of such behaviour are to provide the female with additional nutrients during the egg-laying period (Royama 1966) and to demonstrate male fitness via his ability to provision for his mate (Smith 1980).

Observed differences from published accounts for such displays in other *Strix* owls include the lack of vocalisation when offering the prey, eyes kept open during the encounter and the lack of any obvious wing movements. Although the male was seen to raise his left wing on one occasion, this was considered to be for balance rather than a ritualised movement. It would seem likely that courtship feeding is widespread in this genus but that the manner in which it is performed varies between species. Nonetheless, so little data is available for Neotropical species of *Strix* that it is impossible to draw conclusions and the level of inter- and intra-specific variation within such displays remains unclear.

It is perhaps also worth noting also that this is the first report of amphibians in the diet of the species (Kratter *et al.* 1993, Santander *et al.*

2012). Wet weather at the time of the observation resulted in considerable amphibian activity (10 species recorded in two nights) and so amphibians may be taken opportunistically when abundant. Despite not being possible to confirm the identification of the frog, it may have been *Physalaemus biligonijerus* based on its size, shape and the fact that it is abundant in the area.

## Acknowledgements

The authors are grateful to Claudio Stein and family for their hospitality during their stay at Toledo Ranch. PS is grateful to the Pronii program of CON-ACyT Paraguay for support.

## Resum

### Observació d'un intent d'alimentació de festeig en el gamarús del Chaco *Strix chacoensis* (Aves: Strigidae)

El comportament reproductor del gamarús del Chaco *Strix chacoensis*, endèmic de la regió de la qual rep el nom, és gairebé completament desconegut. En aquesta nota, es descriu un intent d'alimentació de festeig en l'espècie. El mascle es dedicava a moviments ritualitzats del cap mentre s'acostava a la femella amb una ofrena de cap. Les diferències potencialment significatives dels comportaments de festeig en altres mussols *Strix* no inclouen els moviments de les ales i les vocalitzacions durant aquesta exhibició. Això també representa el primer cas d'amfibis en la dieta de l'espècie.

## Resumen

### Observación de un intento de alimentación de cortejo en el cárabo chaqueño *Strix chacoensis* (Aves: Strigidae)

El comportamiento reproductivo del cárabo chaqueño *Strix chacoensis*, endémico de la región que le da nombre, es casi completamente desconocido. En esta nota, describimos un intento de alimentación de cortejo en la especie. El macho realizaba movimientos rituales de cabeza mientras se acercaba a la hembra con una ofrenda de cabeza. Las diferencias potencialmente significativas con respecto a los comportamientos de cortejo en otros búhos *Strix* no incluyen los movimientos de alas y las vocalizaciones durante esta exhibición. Este caso también representa el primer reporte de anfibios en la dieta de la especie.

## References

- Bodrati, A.** 2005. Notas sobre la avifauna del Parque Nacional Chaco, el Parque Provincial Pampa del Indio y otros sectores de la provincia de Chaco, Argentina. *Nuestras Aves* 49:15–23.
- Bodrati, A., Smith, P., del Castillo, H. & Trejo, A.** 2017. Owls of Paraguay. In Enriquez, P.L. (ed.): *Neotropical owls: Diversity and conservation*. Cham: Springer.
- Cherrie, G.K. & Reichenberger, E.M.B.** 1921. Descriptions of proposed new birds from Brazil, Paraguay and Argentina. *Am. Mus. Novit.* 27: 1–6.
- Dabbene, R.** 1926. Sobre la distribución de la lechuza *Strix rufipes*. *Hornero* 3: 405–407.
- de Almeida, M.R.N. de, da Costa, J.G., Karlokoski, A. & Oliveira, I.** 2021. First record of courtship display of *Strix huhula* (Strigiformes: Strigidae) in the Brazilian Western Amazon. *Ornithology Research* 29: 79–83. <https://doi.org/10.1007/s43388-021-00050-5>
- Guyra Paraguay.** 2004. *Lista comentada de las aves de Paraguay / Annotated checklist of the birds of Paraguay*. Asunción: Guyra Paraguay.
- Herzog, S., Terrill, R.S., Jahn, A. E., Remsen, J.V., Maillard, O., García-Soliz, V.H., MacLeod, R., McCormick, A., Vidoz, J.Q., Tofte, C.C., Slongo, H., Tintaya, O., Kessler, M. & Fjeldsá, J.** 2017. *Birds of Bolivia: Field Guide*. Santa Cruz de la Sierra: Asociación Armonía,
- Johnsgard, P.A.** 1988. *North American owls: Biology and natural history*. Lincoln: University of Nebraska.
- König, C., Weick, F. & Becking, J.H.** 2008. *Owls: A guide to the owls of the world*. 2nd Ed. London: Helm.
- Kratter, A.W., Sillet, T.S., Chesser, R.T., O'Neill, J.P., Parker III, T.A. & Castillo, A.** 1993. Avifauna of a Chaco locality in Bolivia. *Wilson Bull.* 105: 114–141.
- Lundberg A.** 1980. Vocalizations and courtship feeding of the Ural Owl *Strix uralensis*. *Ornis Scand.* 11: 65–70.
- Mikkola H.** 1983. *Owls of Europe*. Berkhamsted: T & AD Poyser.
- Pearman, M. & Areta, J.I.** 2020. *Birds of Argentina and the southwest Atlantic*. London: Christopher Helm.
- Pittermann, W.** 2005. Der Chacokauz. *Gefiederte Welt* 6: 170–173.
- Royama, T.** 1966. A re-interpretation of courtship feeding. *Bird Study* 13: 116–129.
- Santander, F., Alvarado, S., Ramírez, P., Figueroa, R.A. & Muñoz, L.** 2012. First report on the diet of the Chaco Owl (*Strix chacoensis*) in the Monte Desert, Argentina. *J. Raptor Res.* 46: 409–411.
- Smith, P., Betuel, A., Batjes, H., Centrón, S. & del Castillo, H.** 2006. *An avifaunal inventory of Parque Nacional Teniente Agripino Enciso, Departamento Boquerón, northern Paraguay*. Fauna Paraguay Technical Publication.
- Smith, S.M.** 1980. Demand behavior: A new interpretation of courtship feeding. *Condor* 82: 291–295.
- Straneck, R. & Vidóz, F.** 1995. Sobre el estado taxonómico de *Strix rufipes* (King) y de *Strix chacoensis* (Cherrie & Reichenberger). *Nótulas Faunísticas* 74: 1–5.