

NOTES ON BIRDS CONSUMING *GUADUA* BAMBOO SEEDS

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Notas sobre aves comiendo semillas de *Guadua* bambú.

Key words: *Aratinga weddellii*, Bamboo, *Cissopis leveriana*, *Conothraupis speculigera*, *Cyanocompsa cyanooides*, *Guadua*, *Haplospiza rustica*, *Molothrus bonariensis*, *Molothrus oryzivora*, *Nannopsittaca dachillae*, *Psophia leucoptera*.

INTRODUCTION

Bamboo provides unique habitats and resources to wildlife and, in South America, many species have specialized behavior associated with exploiting bamboo. In the Andes, the Maroon-chested Ground-dove (*Clavaria mondetoura*), Barred Parakeet (*Bolborhynchus lineola*), Paramo Seed-eater (*Catamenia homochroa*), and Slaty Finch (*Haplospiza rustica*) are known to consume bamboo (*Chusquea* spp.) seeds, and exhibit semi-nomadic movements in search of seeding bamboo patches (Fjeldsø & Krabbe 1990, Walker 2002). All *Amaurospiza* blue-seedeaters are associated with bamboo and also appear to exhibit nomadic movements (Lentino & Restall 2003). In the Amazonian lowlands, the Amazonian Parrotlet (*Nannopsittaca dachillae*) consumes *Guadua* bamboo seeds (O'Neill *et al.* 1991) and the Gray Seed-eater (*Sporophila schistacea*) is known to specialize on consuming *Guadua* and *Chusquea* bamboo seeds (Neudorf & Blanchfield 1994, Kratter 1997). Flowering, seeding, and subsequent die-offs in stands of *Guadua* bamboo are rare

events, occurring locally on 25–30 year time scales (Nelson 1994, Judziewicz *et al.* 1999). Therefore, animal consumption of the fleshy fruits of *Guadua* bamboos is logistically difficult to study and little-known. This paper reports observations of birds consuming *Guadua* bamboo seeds in southeastern Peru.

METHODS

I observed a fruiting bamboo patch at Playa Bonita (11°50'18.9"S, 071°23'06.7"W, approximately 350 m a.s.l.), ~6 km north of Cocha Cashu Biological Station in Manu National Park, Depto. Madre de Dios, Peru, between 29 June and 11 July 2004. During this period, I was present continuously at the Playa Bonita bamboo patch during daylight hours, slept in a tent within the bamboo patch at night, and used the following tools and methods to collect data. I observed birds with 10 x 42 binoculars, mist-netted and banded birds (30 June, 1, 2, 3, 5, 6 July), and conducted a morning census using point counts and territory mapping (30 June, 4, 7, 8, 9, 10

July). I also made an additional brief visit to Playa Bonita on 14 July 2004. During and between these activities, birds consuming *Guadua* bamboo seeds were opportunistically observed and noted. *Guadua sarocarpa purpuraceae* bamboo was both flowering and fruiting during my visits. It began flowering in 2003, and was identified by Regina Peon Diaz Barriga, based on fruit and flower characters and Londoño & Peterson (1991). Further information regarding this bamboo patch is provided by Silman *et al.* (2003).

I also briefly observed seeding *Guadua* bamboo of an unidentified species along 16 km of roadsides between San José and Abra Maruncunca, Depto. Puno, Peru (~2200 m a.s.l.), on 28 and 29 December 2004. Directions and trails in the vicinity of Abra Maruncunca are described by Valqui (2004). I spent about 1 h (14:30–15:20 h) on 28 December, and 1–2 h (beginning at 09:49) on 29 December in an area of *Guadua* bamboo, 3 km from San José (about 1550 m a.s.l.), where Valqui (2004) recommends searching for Yungas Tody-Tyrant (*Hemitricus spodiops*). Additional seeding *Guadua* bamboo was observed along the road on 29 December for 0.5 h at approximately 1900 m a.s.l., but no birds were observed feeding on the seeds.

RESULTS

At Playa Bonita, I observed Dusky-headed Parakeet (*Aratinga weddellii*) flocks, Amazonian Parrotlet flocks, Magpie Tanager (*Cissopis leveriana*) pairs, Black-and-white Tanager (*Conothraupis speculifera*) individuals and pairs, Blue-black Grosbeak (*Cyanocompsa cyanooides*) individuals, and mixed flocks of Giant (*Molothrus oryzivora*) and Shiny (*Molothrus bonariensis*) cowbirds eating *Guadua* seeds. The flocks of parakeets and parrotlets were seen consuming bamboo in the open and frequently, often multiple times throughout a

day. Small groups of Giant Cowbirds were seen consuming *Guadua* bamboo on at least two occasions (2, 7 July) despite being observed perching in or near the bamboo more frequently. On one occasion (7 July), two Shiny Cowbirds were seen consuming *Guadua* seeds accompanied by Giant Cowbirds. Observations of other passerines observed feeding on *Guadua* seeds within the bamboo occurred less frequently as they were more difficult to detect. Magpie Tanager pairs were observed consuming *Guadua* seeds twice on 9 July. Black-and-white Tanagers were observed consuming *Guadua* seeds on three occasions (single female at 15:36 h on 1 July, male and female pair on 2 July, unbanded male and female pair on 7 July). An immature male Blue-black Grosbeak was observed eating *Guadua* seeds on 8 July. In addition, I repeatedly observed a group of Pale-winged Trumpeters (*Psophia leucoptera*) over many days foraging on the ground in areas with many fallen *Guadua* seeds. I strongly suspected that the trumpeters were eating fallen *Guadua* seeds, but this could not be confirmed. In addition to birds, I also observed several species of primates repeatedly over different days foraging in the bamboo patch, including saddleback tamarin (*Saguinus fuscicollis*), night monkey (*Aotus* sp.), common squirrel monkey (*Saimiri sciureus*), and brown capuchin (*Cebus apella*). I suspected that these primates were consuming *Guadua* seeds in addition to insects encountered along the way; however, this could not be confirmed as the primates stopped foraging and moved away when they saw me (whereas the birds usually continued foraging). I tasted several seeds and found the white endosperm quite palatable.

At San Jose and Abra Maruncunca, I observed several small flocks of Slaty Finches in stands of both *Chusquea* and a group of at least two males in seeding *Guadua* bamboo on 29 December.

DISCUSSION

I confirmed that seven bird species ate *Guadua* bamboo seeds at Playa Bonita during my observation period. Of these, the Amazonian Parrotlet is previously known to consume *Guadua* seeds (O'Neill *et al.* 1991) and *Cecropia* catkins elsewhere (pers. observ.). From June to November, the Black-and-white Tanager leaves its breeding grounds in the western Andean slope and dry inter-Andean valleys of northern Peru and southern Ecuador (Ridgely & Greenfield 2001, Witt 2005), and moves into lowland Amazonia where the species exhibits nomadic behavior in search of sporadic or seasonal resources (O'Neill 1966, Stotz 1990, Isler & Isler 1999, Witt 2005). These are likely the first observations of this species in bamboo or consuming bamboo seeds in lowland Amazonia, and it would be interesting to learn the extent of their utilization of seeding bamboo patches. The remaining bird species seen consuming *Guadua* seeds have more general diets and were likely exploiting bamboo in a more opportunistic fashion.

I observed Slaty Finches in *Guadua* bamboo stands and believe this species likely utilizes *Guadua* bamboo in addition to *Chusquea* bamboo, where *Guadua* reaches high elevations within this bird's elevation range (1200–3300 m, Fjeldsá & Krabbe 1990). Consumption of *Guadua* bamboo seeds by birds is understudied and I predict more bird species will be discovered eating *Guadua* bamboo seeds, especially in the Andes where few observations exist and several nomadic species are known to seek out seeding *Chusquea* bamboo patches.

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REFERENCES

- Fjeldsá, J., & N. Krabbe. 1990. Birds of the high Andes. Zoological Museum, University Copenhagen & Apollo Books, Svenborg, Denmark.
- Isler, M. L., & P. R. Isler. 1999. The tanagers: Natural history, distribution, and identification. Smithsonian Institution Press, Washington, DC.
- Judziewicz, E. J., L. G. Clark, X. Londoño, & M. J. Stern. 1999. American bamboos. Smithsonian Institution Press, Washington, D.C.
- Kratter, A. W. 1997. Bamboo specialization by Amazonian birds. *Biotropica*. 29: 100–110.
- Lentino, M., & R. Restall. 2003. A new species of *Amaurospiza* blue seedeater from Venezuela. *Auk* 120: 600–606.
- Londoño, X., & P. M. Peterson. 1991. *Guadua sarcoarpa* (Poaceae, Bambuseae), a new species of Amazonian bamboo with fleshy fruits. *Syst. Bot.* 16: 630–638.
- Nelson, B. W. 1994. Natural forest disturbance and change in the Brazilian Amazon. *Remote Sens. Rev.* 10: 105–125.
- Neudorf, D. L., & P. J. Blanchfield. 1994. The Slate-colored Seedeater (*Sporophila schistacea*): A bamboo specialist? *Ornitol. Neotrop.* 5: 129–132.
- O'Neill, J. P. 1966. Notes on the distribution of *Conothraupis speculigera* (Gould). *Condor* 68: 598–600.
- O'Neill, J. P., Munn, C. A., & I. Franke-J. 1991. *Nannopsittaca dachillae*, a new species of parrotlet from eastern Peru. *Auk*. 108: 225–229.
- Ridgely, R. S., & P. J. Greenfield. 2001. The birds of Ecuador: status, distribution, and taxonomy. Cornell Univ. Press, Ithaca, New York.
- Silman, M. R., E. J. Ancaya, & J. Brinson. 2003. Los bosques de bambú en la Amazonía occidental. Pp. 63–74 in Leite Pitman, R., N. Pitman, & P. Álvarez (eds.). Alto Purús: Biodiversidad, conservación y manejo. Center for Tropical Con-

- servation, Lima, Peru.
- Stotz, D. F. 1990. Corrections and additions to the Brazilian avifauna. *Condor* 92: 1078–1079.
- Valqui, T. 2004. Where to watch birds in Peru. Grafica Ñañez S.A., Lima, Peru.
- Walker, B. 2002. Field guide to the birds of Machu Picchu, Peru. National Trust Fund for Natural Protected Areas – PROFONANPE, Lima, Peru.
- Witt, C. C. 2005. Syntopic breeding suggests mimicry of the Black-and-white Seed-eater (*Sporophila luctuosa*) by the Black-and-white Tanager (*Conothraupis speculigera*). *Ornitol. Neotrop.* 16: 387–396.

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