Fatal attack on an adult Chestnut-fronted Macaw *Ara severus* by a *Boa constrictor* in the Brazilian Amazon

Predation of birds' nests (eggs and nestlings) has been well studied and documented. The highest mortality rates for large-bodied Psittacidae usually occur in the early developmental stages, and are due to intra and inter-specific interactions (infanticide and nestling predation, respectively), availability of nest sites and food[4,7]. Predation of adults has been recorded only indirectly (feathers and bones close to nests[7]). Here we report the predation of an adult Chestnut-fronted Macaw *Ara severus* by a *Boa constrictor* snake at Fazenda Rancho Grande (10°15'52"S 62°52'5'W), central Rondônia, Brazil.

Boa constrictor is one of the world's largest snakes and is widely distributed from northern Mexico to northern Argentina[5,6]. Records of predation on large birds and domestic livestock are restricted to anecdotal data[10]. All records of boa predation of Psittacidae concern smaller species (Monk Parakeet *Myiopsitta monachus*[10] and Brown-throated Parakeet *Aratinga pertinax*[6]) or nestlings[5]. Chestnut-fronted Macaw can reach c.50 cm and 430 g[1] and is widespread from Amazonia to Panama[9].

Although the following observation was made during the non-breeding season, we considered the Chestnut-fronted Macaw to be an adult because it appeared to be paired. The day prior to the predation event, a boa (c.1.5 m long) was observed in an oil palm *Elaeis guineensis* (Arecaceae). The predation was recorded at c.08h00, on 11 July 2010, at the edge of a 600-ha forest fragment. A flock of c.40 Chestnut-fronted Macaws was feeding in an orchard near the palm where the boa had been observed. The birds took flight and several landed in the oil palm. The boa was almost 5 m above the ground on the petiole of a dead leaf when it struck an adult Chestnut-fronted Macaw (Fig. 1). The rest of the flock immediately flew to a neighbouring tree. The boa spent almost 50 minutes killing and swallowing the prey. During this period, the snake and bird fell c.40 cm onto another petiole. The macaw was swallowed head-first.

Figure 1. Adult Chestnut-fronted Macaw *Ara severus* being predated by a *Boa constrictor*, Fazenda Rancho Grande, Rondônia, Brazil, July 2010 (Rodrigo A. Begotti)

B. constrictor can exploit both terrestrial and arboreal strata using a sit-and-wait hunting strategy[3,5]. The oil palm at the fazenda is often visited by Chestnut-fronted Macaws and its leaf morphology provides good camouflage and serves as a 'ladder' for snakes such as the boa. Trees with vines and lianas and an interconnected canopy are preferred by Puerto Rican Boas *Epicrates inornatus*, whilst such trees are shunned as nesting sites by Black-billed Parrots *Amazona agilis*[2]. In contrast, the oil palm and neighbouring trees at Fazenda Rancho Grande possess no lianas and are almost 10 m from each other. Nevertheless, during the five months prior to July 2010, three Chestnut-fronted Macaw carcasses were discovered on the ground in the area (AMF pers. obs.), suggesting that they might have been killed by the same boa.

The few records of predation on adult macaws may reflect their flight capabilities, small flock size and intense vigilance. Gilardi & Munn[1] found mean flock size in *A. severus* to be 2.6 ± 1.3 individuals at Manu National Park in Peru, and the birds usually flew c.15 m above the canopy. They observed six predation attempts on Blue-and-yellow Macaws *Ara ararauna* by Black Hawk-Eagle *Spizaetus tyrannus*, and feathers and bones of a macaw were found near a nest at which one of the pair was not seen subsequently[7]. All bar one of these data were collected from the top of emergent trees or at canopy platforms[1,7]. Flocks of Chestnut-fronted Macaws in the forest fragments and cattle farms in Rondônia numbered >10 individuals and flew c.20 m above ground (RAB unpubl.).

The observed predation occurred in an orchard. Future studies might identify those ecological factors that determine mortality rates and reproductive success of Chestnut-fronted Macaws in anthropogenic habitats. In addition, reporting such rare interactions is important to improve knowledge of the species' natural history.

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