

Records of the Crowned Eagle (*Urubitinga coronata*) in Moxos plains of Bolivia and observations about breeding behavior

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ABSTRACT: The Crowned Eagle (*Urubitinga coronata*, Accipitridae) is a globally endangered raptor, endemic to central and southern South America. Little is known about this species in Bolivia and no nesting or prey data have been reported for the country until now. Between 2007 and 2011, we detected Crowned Eagles in four different locations in Moxos Savannas of Beni Department, Bolivia. We observed an active nest of Crowned Eagle on 23 November 2007. The nest contained a nestling and it was placed on a living tree approximately 13 m in height and approximately 8 m above the ground. This nest was empty during September and October 2008, but contained another nestling on 15 November 2009. These represent the first breeding records for the Crowned Eagle in Bolivia. Prey remains at the nest observed included two nine-banded armadillos (*Dasyus novemcinctus*) and two six-banded armadillos (*Euphractus sexcinctus*). The minimum number of individual Crowned Eagles in the surveyed area was seven. Our observations of family groups, juveniles and two nestlings confirm the breeding of Crowned Eagles in the Moxos plains. Ectoparasites and uncontrolled burns may threaten the northwestern Bolivian population of the endangered Crowned Eagle.

KEY-WORDS: *Buteogallus coronatus*; conservation; Crowned Solitary Eagle; diet; *Harpohaliaetus coronatus*; Moxos savannas; nesting.

INTRODUCTION

The Crowned Eagle (*Urubitinga coronata*, Accipitridae) is a large raptor (approximately 2.9 kg) endemic to central and southern South America, including Brazil, Bolivia, Paraguay and Argentina (Collar *et al.* 1992, Thiollay 1994, Ferguson-Lees & Christie 2001, BirdLife International 2012). This rare eagle occurs in low densities in open and semi-open habitats, in open woodland, savannah, brushy steppe, dry scrub, lowland, and open or lightly wooded foothills up to 1,200 m (Thiollay 1994, Ferguson-Lees & Christie 2001, Barcellos & Accordi 2006, Monteiro Granzinolli *et al.* 2006). This species is considered globally endangered due to its small, fragmented population, and the severity of the threats it faces strongly suggest a significant and continuing decline in numbers (Sarasola & Maceda 2006, BirdLife International 2012, IUCN 2012).

The national conservation status of the Crowned

Eagle in Bolivia is Endangered (Balderrama *et al.* 2009). The presence of the species in Bolivia was confirmed in a few sites in two separated regions: southeastern Santa Cruz (Kratzer *et al.* 1993, Araújo *et al.* 2001, Quiroga & Malo 2006, Vidoz *et al.* 2010a, Vidoz *et al.* 2010b), and Beni Department (Rocha 1990, Brace *et al.* 1997, Maillard *et al.* 2008, Kingsbury & McNeill 2010). In Bolivia the Crowned Eagle occurs in lowlands, generally between 200-400m, inhabiting flooded savannas and dry and semi-deciduous forest (*i.e.* Chaco and Chiquitanía) of Beni and Santa Cruz Departments of Bolivia (Hennessey *et al.* 2003). While some aspects of the natural history, breeding biology, and population demographics are known for this species in Argentina and Brazil (Bellocq *et al.* 1998, Sarasola & Maceda 2006, Monteiro Granzinolli *et al.* 2006), virtually no information exists about the populations in Bolivia (Balderrama *et al.* 2009). Furthermore, no nesting or prey data have been reported for Bolivia.

The Crowned Eagle has been recorded in the Moxos savannas at three localities: Estación Biológica del Beni (14°40'S; 66°16'W; Rocha 1990, Brace *et al.* 1997); Near to Río Ipuru-puru (14°10'S; 64°57'W; Maillard *et al.* 2008); and Estancia San Lorenzo (13°45'S; 66°06'W; Kingsbury & McNeill 2010). The Moxos savannas population of Crowned Eagle is the northwestern most population in its geographical distribution range. More than 600 km separate localities in the Moxos savannas from the closest localities in Santa Cruz department (Balderrama *et al.* 2009).

Here we present three new localities and we confirm one historical locality for the species on the Moxos savannas. We also report the first breeding and prey records for the Crowned Eagle in Bolivia.

MATERIAL AND METHODS

Moxos savannas, Llanos de Mojos or Pampas del Beni is a wide savannah plain of edaphic associations.

The region has a poor drainage, and in the wet season is susceptible to flooding. This combination of grasslands includes a mosaic of other habitats including carandam palm (*Copernicia alba*) groves, semi-deciduous woodlands, gallery forest and motacú palm (*Attalea phalerata*) groves on higher, unflooded terrain, islands that may be natural or the work of pre-Columbian aboriginals (Denevan 1980).

For every observation of Crowned Eagles in the area we recorded the date, time, location (coordinates), number of individuals, their ages (only as adult, juvenile or nestling), whether the birds were perched or flying, other behaviors, and type of prey, if any.

RESULTS AND DISCUSSION

Between 2007 and 2011, we observed Crowned Eagles in four different locations in Moxos Savannas of Beni Department, Bolivia (Figure 1):

A. "Río Ipuru-puru" (14°07'S; 64°57'W). September 2008. An adult individual was observed by L.

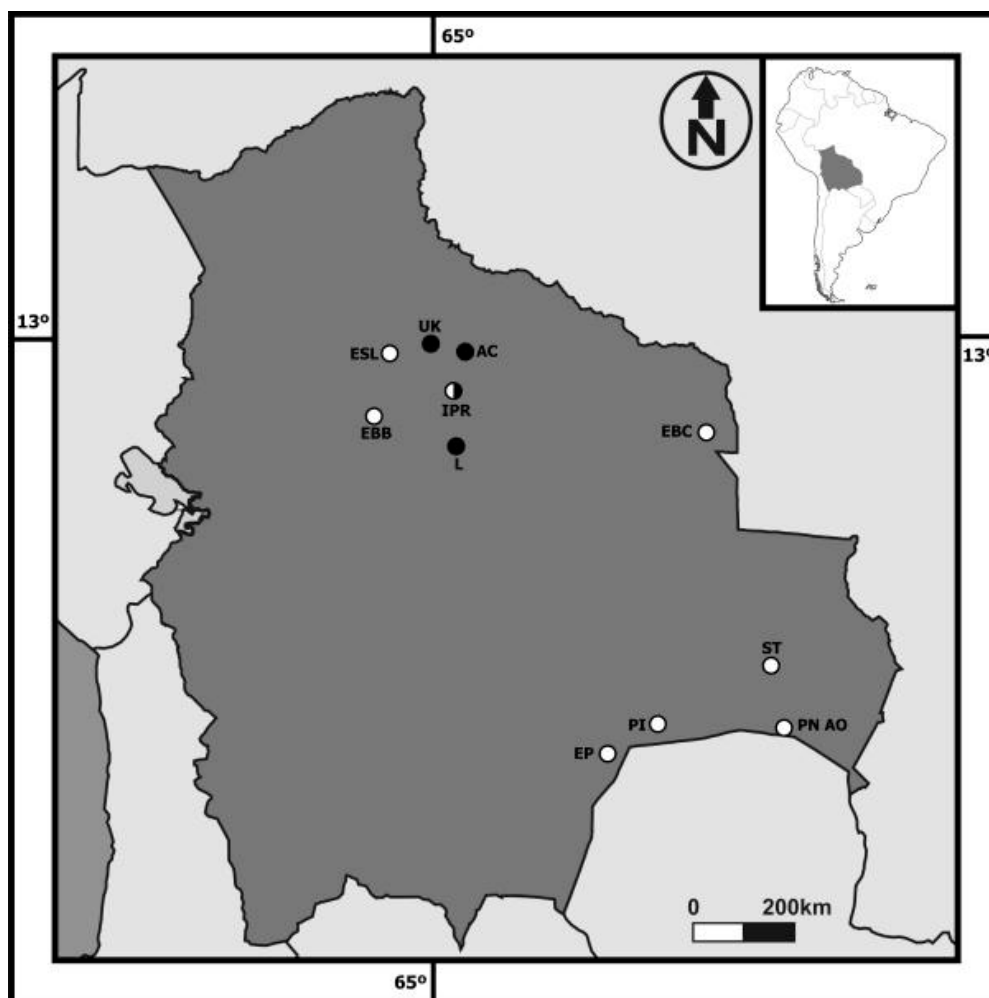


FIGURE 1. Map of the Crowned Eagle records for Bolivia. Historic records (white dots): ESL Estancia San Lorenzo (Kingsbury & McNeill 2010), EBB Estación Biológica del Beni (Rocha 1990, Brace *et al.* 1997), ST Área Protegida Municipal Santiago Tucavaca (Aráujo 2001), EP Estancia Perforación (Kratter *et al.* 1993), PN AO Parque Nacional and ANMI Otuquis (Quiroga & Malo 2006), EBC Estación Biológica Caparú (Vidoz *et al.* 2010a) and PI Palmar de Islas (Vidoz *et al.* 2010b) and records from this work (black dots): UK Urkupinia, AC Arroyo Colorado, IPR Ipuru Puru, and L Loreto.



FIGURE 2. Nest tree (A), adult female at nest (B) and nestling (C) of Crowned Eagle (Photographs by S. K. I. F). Note botfly on nestling's head

G. between the entrance of Estancia Cutal and the road San Pedro – Trinidad. Vidoz reported an individual 5.6 km south from this place in 29 July 2005 (Maillard *et al.* 2008). In September 2010, L. G. observed an adult and a juvenile perched near the main road.

B. “Arroyo Colorado” (13°48’S; 64°35’W). On 23 November 2007 we found a nesting pair with a nestling at “Estancia Palma Sola.” We revisited the nest on 1 December 2007 and 7 January 2008. The nest was empty during September and October 2008 and we did not detect any Crowned Eagle on the territory during that season. On 28 October 2009 we found an adult eagle perched in a tree (*Anadenanthera colubrina*) (13°84’S; 64°54’W) just a few meters from the previous year’s nest tree. On 15 November 2009, we visited the nest and found that it was reoccupied and contained one nestling.

C. “Urkupinia” (13°43’S; 65°07’W). On 28 September 2010 we observed one sub-adult perched in a carandam palm and a Southern Caracara (*Caracara plancus*) attacking it. On 21 September 2011 we observed one sub-adult eagle in the same area. The individual was perched in a carandam palm.

D. “Loreto” (15°06’S; 64°41’W). On 26 August 2011 we observed a juvenile Crowned Eagle flying over the road near the town of Loreto.

Breeding behavior

The nest was located approximately 2 km east of the Estancia Palma Sola (13°48’S; 64°35’W) in a natural savanna next to a stream (locally named Arroyo Colorado). Vegetation surrounding the nest tree was a savannah with scattered trees with an average height of 8 m. The nest was a large platform of sticks placed 9.4 m high in a 13.5 m non-identified thorny tree in a *Curatella americana* open woodland (Figure 1a). Between 23 November 2007 and 7 January 2008 the nest contained one nestling. On the first and second visits to the nest we observed that the nestling was infested with botflies (Diptera, Oestridae). We also noted that the nestling had a deformed bill in which the upper mandible grew towards the right.

We found four prey items in the nest: two nine-banded armadillos (*Dasypus novemcinctus*; one individual on 23 November 2007 and another individual on

1 December 2007) and two six-banded armadillos (*Euphractus sexcinctus* one individual on 23 November 2007 and another individual on 7 January 2008). Reported prey of Crowned Eagles in other countries include terrestrial vertebrates such as armadillos (Dasypodidae), skunks (Mustelidae), opossums (Didelphidae), tinamous (Tinamidae), domestic chickens (*Gallus domesticus*), some reptiles, dead animals and fishes (Collar *et al.* 1992, Bellocq *et al.* 2002, Maceda *et al.* 2003, Maceda 2007, Tittarelli & Villarreal 2009, Pereyra Lobos *et al.* 2011). As in other countries, armadillos seem to have an important role in the eagle's diet during the breeding season (Maceda *et al.* 2003, Pereyra Lobos *et al.* 2011). Armadillos and other terrestrial animals are usually affected by fire, an annual human activity in Moxos plains (Langstroth Plotkin 1996). These fires could be affecting the availability of prey for Crowned Eagles.

New localities reported in this work suggest that Moxos plains are a favorable environment for the species and its presence could be better known. The plains of Moxos is an important site for the species. We observed at least seven individuals, including family groups, juveniles and a nestling, confirming the reproduction of Crowned Eagles in Moxos plains. Botflies and fire may act as potential threats for this northwestern-most population of the endangered Crowned Eagle.

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