

## On the status of Crowned Eagle *Buteogallus coronatus* in Uruguay

by Adrián B. Azpiroz & Gonzalo D. Cortés

Received 6 August 2013

**SUMMARY.**—Crowned Eagle *Buteogallus coronatus* inhabits open country in eastern and southern Brazil, Bolivia, Paraguay, and northern and central Argentina. Several authors have included Uruguay within the species' range, many of them indicating that it is presumably extinct in the country. Here we evaluate the available evidence concerning its presence in Uruguay by considering all original reports together with the species' past and current distribution and its habitat requirements. We conclude that unambiguous records in Uruguay are still lacking. Given that the species has recently been observed at several localities in nearby Argentina and Brazil, individuals may reach Uruguay sporadically, probably dispersing juveniles. Effective conservation measures targeted at Crowned Eagle habitat will increase the chances that this threatened raptor may yet colonise Uruguay.

Crowned Eagle *Buteogallus coronatus* occurs in south-central South America in eastern and southern Brazil, Bolivia, Paraguay, and northern and central Argentina (Collar *et al.* 1992, Bierregaard 1994). In the south of its range, the species inhabits grasslands, shrublands, steppes and croplands in the Monte, Espinal, Campos and Pampas eco-regions (Bellocq *et al.* 2002, Maceda 2007, Chebez *et al.* 2008). Within these open areas the presence of large trees (including several *Prosopis* spp.), either alone or in small forest islands (used for nesting and as roosts) has been highlighted as a key habitat feature (Bellocq *et al.* 1998, Maceda 2007). The Algarrobo (within the Espinal region) in eastern Argentina was identified as one of those zones with high frequency of Crowned Eagle records in a recent (1981–2000) compilation of observations (Bellocq *et al.* 2002). Here, open woodlands of *Prosopis* spp. and *Geoffroea decorticans* dominate the landscape (Bellocq *et al.* 2002). This same forest type extends to western Uruguay (Brussa & Grela 2007).

Unfortunately, human activities have drastically altered and fragmented xerophytic woodlands and other habitats used by Crowned Eagles (Collar *et al.* 1992, Carrete *et al.* 2009). Apart from habitat loss, direct persecution, collisions with powerlines and drowning in water tanks also affect this eagle's populations (Sarasola & Maceda 2006, Maceda 2007, Chebez *et al.* 2008, BirdLife International 2013). Although trends are particularly difficult to detect in low-density populations, a significant reduction in size has been



Figure 1. Larrañaga's Crowned Eagle *Buteogallus coronatus* illustration in Pl. XLIV of his Atlas (Larrañaga 1930). Overall colour is grey; the cere and feet are yellow.

estimated throughout the species' range (BirdLife International 2013). Thus, it is no surprise that the species is currently classified as Endangered globally (BirdLife International 2013), and Endangered and Critically Endangered in Argentina (López-Lanús *et al.* 2008) and Rio Grande do Sul, Brazil (Bencke *et al.* 2003), respectively.

Several authors have included Uruguay within this eagle's range (e.g., Barattini & Escalante 1958, Collar *et al.* 1992), whereas others have questioned this (Hellmayr & Conover 1949, Cuello & Gerzenstein 1962, Meyer de Schauensee 1966). Alvarez (1911, 1933, 1934) provided details of a specimen from southern Uruguay. Kothe (1912) reported two specimens from Montevideo taken by Sellow. Larrañaga (1930) included a plate of a Crowned Eagle in his atlas. Finally, Arredondo (1953) commented on its status in Uruguay with emphasis on Rocha department. Despite these references, Crowned Eagle has been excluded from most recent national avifaunas (Arballo & Cravino 1999, Azpiroz 2001, Azpiroz *et al.* 2012). According to Cuello (1985) its presence in Uruguay should be confirmed with specimens. In addition, several other sources have suggested that the species is presumably extinct in Uruguay (e.g., Claramunt & Cuello 2004, Maceda 2007, Capdevielle *et al.* 2010, Sarasola *et al.* 2010, BirdLife International 2013). Our objective here is to evaluate the available evidence concerning the presence of Crowned Eagle in Uruguay by considering all original reports in conjunction with the species' past and current distribution patterns as well as its habitat requirements.

### Larrañaga's plate

Dámaso Antonio Larrañaga (1771–1848) was a Uruguayan priest and naturalist. He produced a series of writings and plates of birds before 1825 (Escalante 1998). After being poorly conserved and neglected for more than a century (Escalante 1998), these materials were finally published in the 1920s and 1930s. Pl. XLIV of his Atlas (Larrañaga 1930) depicts a Crowned Eagle (Fig. 1), but the illustration lacks any additional data. Escalante (1998) conducted an exhaustive analysis of Larrañaga's ornithological work and found no details of this species in any of the priest's writings (1922, 1923a,b). Due to carelessness, however, some of Larrañaga's materials were lost well before publication (Escalante 1998). Thus, whether or not the original materials included any data concerning the Crowned Eagle plate is unknown.

Most of Larrañaga's collecting and observations were made in Montevideo and its environs (Escalante 1998 provided a tentative list of localities). In June 1815, however, he travelled from Montevideo to Paysandú, through the west of the country. In early June he was at Mercedes (Soriano department) for a few days. There he surveyed the city surroundings, and on 9 June he walked east for a mile or so (Vidal 1930) and commented 'Observé unas aves de rapiña para mí nuevas (Talas Linnei)' ['I observed some birds of prey new to me (Talas Linnei)']. Unable to tie this genus to any particular bird species, 'Talas' was replaced by 'Falco' in some versions of Larrañaga's writings (e.g., Larrañaga 1923b). The next day, Larrañaga mentioned that the landscape of this region included forest islands of 'algarrobos', a characteristic feature of Crowned Eagle habitat in its southern range (Bellocq *et al.* 2002, Maceda 2007).

### Sellow's specimens

Friedrich Sellow (1789–1831) was a Prussian naturalist who collected extensively in southern Brazil and adjacent Uruguay and Argentina (Rego *et al.* 2013). He visited the Banda Oriental (currently Uruguay and part of Rio Grande do Sul) in 1821–23 (Escalante 1998). Sellow collected three Crowned Eagles that he sent to the Berlin museum (Kothe

1912). The locality attached to two of these (a young female and an immature male) is Montevideo (Kothe 1912). Because Crowned Eagle was never subsequently observed in Uruguay, their provenance was questioned by Hellmayr & Conover (1949). Alternatively, Claramunt & Cuello (2004) considered Kothe's article as the first report of Crowned Eagle for the country (i.e., the first publication that included a scientific name for the species with reference to Uruguay).

Several unfortunate procedures have contributed to the loss or substitution of key data pertaining to Sellow's specimens. These have included the naturalist's own data-recording practices as well as inappropriate curation at the Berlin museum (Rego *et al.* 2013). Thus, serious limitations restrict analyses of Sellow's specimens and localities (Rego *et al.* 2013). Despite such problems, the possibility that Sellow's eagle specimens were taken in Uruguay cannot be disregarded. During his time in Uruguay, Sellow passed through appropriate Crowned Eagle habitat in the west of the country. This can be inferred from approximate travel routes (Rego *et al.* 2013) and other available information about specific localities he visited in Uruguay (Hackethal 1995). Recent study of archival information relating to these specimens in the Berlin museum has provided no new details (S. Frahnert *in litt.* 2014). All of the specimens Sellow collected in Uruguay may have been labelled 'Montevideo' prior to their being accessioned in the museum, but there is no definitive evidence to support this assumption (S. Frahnert *in litt.* 2014).

During his visits to Montevideo, Sellow met Larrañaga. If he did collect the two Crowned Eagles in Uruguay and shipped them to Europe from Montevideo, it is plausible that Larrañaga saw these specimens. Sellow's specimens are immature while Larrañaga's plate depicts an adult. This suggests that he did not use Sellow's specimens as models for his drawing.

### Álvarez's record

Teodoro Álvarez was a Uruguayan agronomist who produced a series of publications about birds (Álvarez 1911, 1933, 1934, 1937). In these he principally highlighted useful and harmful feeding habits of species in terms of their consequences for crops and agriculture in general. Álvarez's (1933) report of a Crowned Eagle taken in the forests of the río Santa Lucía Grande has been cited repeatedly as evidence of the species' presence in Uruguay (e.g., Collar *et al.* 1992, Bencke *et al.* 2003, Maceda 2007, BirdLife International 2013). Several others (e.g., Barattini & Escalante 1958, Cuello & Gerzenstein 1962, Arballo & Cravino 1999), however, have ignored this record.

Analysis of Álvarez's works reveals several inconsistencies. These include inaccurate taxonomic assignments (i.e., some species have incorrect scientific names; e.g., White-spotted Woodpecker *Veniliornis spilogaster*, Narrow-billed Woodcreeper *Lepidocolaptes angustirostris*) and confusion surrounding species identity (e.g., Tropical Screech Owl *Megascops choliba* is confused with Ferruginous Pygmy Owl *Glaucidium brasilianum*). Considering the general lack of bibliographic material at the time, such mistakes are unsurprising.

The Crowned Eagle record is first mentioned in Álvarez (1911) as 'Águila Cenicienta Gen. *Harpyhaliaetus* (Laftr). Esp. *coronatus* (Vieill)'. The species account was reproduced, fully or in part, in subsequent publications by the author. Apart from comments on habits and status, the original account also included a detailed plumage description and range data. Álvarez (1933) only presented the former. In the description (Álvarez 1911, 1934) an occipital crest ('copete en la región occipital'), a distinctive feature of Crowned Eagles, is mentioned. Several other details in the account, however, do not match adults or juveniles of the species: wingtips that extend beyond the tail tip; dark chestnut rectrices with white tips; white underparts, including thighs; bluish mandible and pale purple cere. In addition,

the species' range mentioned by Álvarez (South America and part of Central America) do not correspond to Crowned Eagle. We are unable to determine with certainty to which species Alvarez referred in his account. Some features match Osprey (occipital crest, underparts and cere coloration), but others do not.

### Arredondo's comments

Horacio Arredondo (1888–1967) was a Uruguayan historian, researcher and naturalist. Arredondo's (1953) observations of Crowned Eagle ('Aguila Mora o Cenicienta *Harpophalietus Coronatus*' sic.) were published in his *Ornitología del Uruguay*. Many of the details were based on Álvarez's publications, but Arredondo made explicit his doubts about the taxonomic assignment. He argued that the species concerned might be Bicoloured Hawk *Accipiter b. bicolor*. Arredondo's description of the bird is almost identical to that of Álvarez. At the end of his account he stated that he had seen the bird throughout most of the country and that it was particularly abundant at Santa Teresa, in Rocha department. Given the clear inconsistencies, this text is wholly unreliable as evidence of Crowned Eagle's presence in Uruguay.

### Current status in neighbouring countries

Crowned Eagle has recently been recorded at several localities in adjacent Argentina and Brazil. In north-east Argentina it occurs in Corrientes and Entre Ríos provinces. In Corrientes it has been observed in the following Important Bird Areas (IBAs): Rincón del Socorro (Giraud & Di Giacomo 2007), Espinal de Mercedes (Di Giacomo 2007) and Felipe Jofre (Fraga 2007). In south-eastern Entre Ríos it has been found at another IBA, Las Ceibas, which is very close (c.30 km) to Uruguay. Landscape characteristics at the latter site (open woodland of *Prosopis affinis* and *Acacia caven* within a mosaic of grasslands and wetlands; Veiga 2007) are very similar to those in neighbouring south-west Uruguay. In southern Brazil, Crowned Eagle has recently been found at several localities in Rio Grande do Sul (Albuquerque *et al.* 2006, Barcellos & Accordi 2006). One observation was made at São Gabriel, just c.115 km from the Uruguayan border (Dias 2011). These records, together with the fact that juvenile eagles perform significant dispersal movements (up to 400 km from their natal site; Sarasola 2011), suggest that individuals may reach Uruguay. The most promising areas to search are probably the 'forests of the western plains' (*sensu* Brussa & Grela 2008) along the middle and lower Uruguay River and the grassland-dominated landscapes of northern Uruguay.

### Conclusions

Unambiguous records of Crowned Eagle in Uruguay remain elusive. Although Alvarez's (1933) observation has been cited as evidence, his record is unreliable. The bird described by Álvarez (1911, 1934) was not a Crowned Eagle. Arredondo's comments also include major inconsistencies. Both Larrañaga and Sellow visited western Uruguay in the early 19th century when this region harboured suitable habitat for the species as evidenced by a confirmed historical record from nearby Entre Ríos, Argentina (Lee 1873). Two of Sellow's specimens may have been collected in western Uruguay. Larrañaga's pl. XLIV may have been inspired by a bird of prey unknown to him, which he observed in the same region. Unfortunately, both Larrañaga and Sellow's materials have suffered from inadequate care and the connections between contemporary notes and plates or specimens have been lost.

Crowned Eagle may still reach Uruguay sporadically, probably juveniles on dispersal. In western Uruguay, 'algarrobo' forests, one of the habitat types favoured by the species, are threatened by several human-related activities (FMAM 1999, Brussa & Grela 2007). Effective conservation measures targeted at these forests may increase the colonisation prospects of this threatened raptor.

#### Acknowledgements

We are grateful to Santiago Claramunt, Sergio Seipke and Guy Kirwan for their constructive comments. We also thank Sylke Frahnert for her assistance regarding Sellow specimens housed at the Berlin museum, Juan P. Cuello for providing several key references and Ronai Rocha for supplying information concerning Crowned Eagle observations in southern Brazil.

#### References:

- Albuquerque, J. L. B., Ghizoni, Jr., I. R., Silva, E. S., Trannini, G., Franz, I., Barcellos, A., Hassdenteufel, C. B., Arend, F. L. & Martins-Ferreira, C. 2006. Crowned Solitary-eagle (*Harpyhaliaetus coronatus*) and Crested Eagle (*Morphnus guianensis*) in Santa Catarina and Rio Grande do Sul: priorities and challenges for their conservation. *Rev. Bras. Orn.* 14: 411–415.
- Álvarez, T. 1911. *Exterior de las aves uruguayas: costumbres, régimen alimenticio, su utilidad del punto de vista agrícola*. Imprenta La Rural, Montevideo.
- Álvarez, T. 1933. Observaciones biológicas sobre las aves del Uruguay. *An. Mus. Hist. Nat. Montevideo* 2: 1–50.
- Álvarez, T. 1934. *Exterior y biología de las aves uruguayas: costumbres, régimen alimenticio, su utilidad del punto de vista agrícola*. J. Florensa, Montevideo.
- Arballo, E. & Cravino, J. 1999. *Aves del Uruguay: manual ornitológico*, vol. 1. Hemisferio Sur, Montevideo.
- Arredondo, H. 1953. *Ornitología del Uruguay (contribución)*. Impresora Ligu, Montevideo.
- Azpiroz, A. B. 2001. *Aves del Uruguay. Lista e introducción a su biología y conservación*. Aves Uruguay-GUPECA, Montevideo.
- Azpiroz, A. B., Alfaro, M. & Jimenez, S. 2012. *Lista roja de las aves del Uruguay*. DINAMA, Montevideo.
- Barattini, L. P. & Escalante, R. 1958. *Catálogo de las aves uruguayas. Orden Falconiformes*. Barreiro y Ramos, Montevideo.
- Barcellos, A. & Accordi, I. A. 2006. New records of the Crowned Eagle, *Harpyhaliaetus coronatus*, in the state of Rio Grande do Sul, southern Brazil. *Rev. Bras. Orn.* 14: 345–349.
- Belloq, M. I., Bonaventura, S. M., Marcelino, F. N. & Sabatini, M. 1998. Habitat use of crowned eagles (*Harpyhaliaetus coronatus*) in the southern limits of the species' range. *J. Raptor Res.* 32: 312–314.
- Belloq, M. I., Ramírez Llorens, P. & Filloy, J. 2002. Recent records of crowned eagle (*Harpyhaliaetus coronatus*) from Argentina, 1981–2000. *J. Raptor Res.* 36: 206–212.
- Bencke, G. A., Fontana, C. S., Dias, R. A., Maurício, G. N. & Mähler, J. K. F. 2003. Aves. Pp. 189–479 in Fontana, C. S., Bencke, G. A. & Reis, R. E. (eds.) *Livro vermelho da fauna ameaçada de extinção no Rio Grande do Sul*. Edipucrs, Porto Alegre.
- BirdLife International. 2013. Species factsheet: *Harpyhaliaetus coronatus*. [www.birdlife.org](http://www.birdlife.org) (accessed 28 June 2013).
- Brussa Santander, C. A. & Grela González, I. A. 2007. *Flora arborea del Uruguay. Con énfasis en las especies de Rivera y Tacuarembó*. Empresa Gráfica Mosca, Montevideo.
- Capdevielle, A., de Lucca, E., Encabo, M., Galmes, M., Zorzín, G., Grilli, P., Martínez, F., Lois, N., Ortiz, D., Paulini, H., Pereyra-Lobos, R., Pescetti, E., Qualia, A., Raggio, J., Saggese, M., Sarasola, J. & Wiemeyer, G. 2010. *Plan de acción para la conservación del águila coronada (Harpyhaliaetus coronatus) en la Argentina*. Buenos Aires, Argentina.
- Chebez, J. C., Maceda, J. J. & Pereyra-Lobos, R. 2008. Águila coronada. Pp. 177–186 in Chebez, J. C. (ed.) *Los que se van*. Ed. Albatros, Buenos Aires.
- Claramunt, S. & Cuello, J. P. 2004. Diversidad de la biota Uruguaya. *Aves. An. Mus. Nac. Hist. Nat. y Antropología* 10: 1–76.
- Collar, N. J., Gonzaga, L. P., Krabbe, N., Madroño Nieto, A., Naranjo, L. G., Parker, T. A. & Wege, D. C. 1992. *Threatened birds of the Americas: the ICPB / IUCN Red Data book*. International Council for Bird Preservation, Cambridge, UK.
- Cuello, J. P. & Gerzenstein, E. 1962. Las aves del Uruguay. Lista sistemática, distribución y notas. *Com. Zool. Mus. Hist. Nat. Montevideo* 6: 1–191.
- Dias, J. P. 2011. [WA327514, *Urubitinga coronata* (Vieillot, 1817)]. [www.wikiaves.com/327514](http://www.wikiaves.com/327514) (accessed 27 June 2013).
- Di Giacomo, A. S. 2007. Espinal de Mercedes. P. 160 in Di Giacomo, A. S., De Francesco, M. V. & Coconier, E. G. (eds.) *Áreas importantes para la conservación de las aves en Argentina. Sitios prioritarios para la conservación de la biodiversidad*. CD-ROM. Aves Argentinas / Asociación Ornitológica del Plata, Buenos Aires.
- Escalante, R. 1998. *Las aves de Larranaga*. El Toboso, Montevideo.

- Fondo para el Medio Ambiente Mundial (FMAM). 1999. *Propuesta de estrategia nacional para la conservación y uso sostenible de la diversidad biológica del Uruguay*. Hemisferio Sur, Montevideo.
- Fraga, R. 2007. Felipe Yofre. Pp. 161–162 in Di Giacomo, A. S., De Francesco, M. V. & Coconier, E. G. (eds.) *Áreas importantes para la conservación de las aves en Argentina. Sitios prioritarios para la conservación de la biodiversidad*. CD-ROM. Aves Argentinas / Asociación Ornitológica del Plata, Buenos Aires.
- Giraud, A. & Di Giacomo, A. S. 2007. Rincón del Socorro-Iberá. Pp. 156–157 in Di Giacomo, A. S., De Francesco, M. V. & Coconier, E. G. (eds.) *Áreas importantes para la conservación de las aves en Argentina. Sitios prioritarios para la conservación de la biodiversidad*. CD-ROM. Aves Argentinas / Asociación Ornitológica del Plata, Buenos Aires.
- Hackethal, S. 1995. Friedrich Sellow (1789–1831) Skizzen einer unvollendeten Reise durch Südamerika. *Fauna Flora Rheinland-Pfalz, Beiheft 17*: 215–228.
- Hellmayr, C. E. & Conover, B. 1949. Catalogue of birds of the Americas and adjacent islands, pt. 1. *Publ. Field Mus. Nat. Hist. Zool. Ser.* 13(4).
- Kothe, K. 1912. Trennung der Gattungen *Harpyhaliaetus* und *Urubitornis*. *Orn. Monatsb.* 20: 1–5.
- Larrañaga, D. A. 1922. *Escritos*, vol. 1. Instituto Histórico y Geográfico del Uruguay, Montevideo.
- Larrañaga, D. A. 1923a. *Escritos*, vol. 2. Instituto Histórico y Geográfico del Uruguay, Montevideo.
- Larrañaga, D. A. 1923b. *Escritos*, vol. 3. Instituto Histórico y Geográfico del Uruguay, Montevideo.
- Larrañaga, D. A. 1930. *Atlas 2. Zoología, paleontología y mapas*. Instituto Histórico y Geográfico del Uruguay, Montevideo.
- Lee, W. B. 1873. Ornithological notes from the Argentine Republic. *Ibis* 3: 129–138.
- López-Lanús, B., Grilli, P., Coconier, E., Di Giacomo, A. & Banchs, R. 2008. *Categorización de las aves de la Argentina según su estado de conservación*. Aves Argentinas (Asociación Ornitológica del Plata) & Secretaría de Ambiente y Desarrollo Sustentable, Buenos Aires.
- Maceda, J. J. 2007. Biología y conservación del águila coronada (*Harpyhaliaetus coronatus*) en Argentina. *Hornero* 22: 159–171.
- Rego, M. A., Moreira-Lima, L., Silveira, L. F. & Frahnert, S. 2013. On the ornithological collection of Friedrich Sellow in Brazil (1814–1831), with some considerations about the provenance of his specimens. *Zootaxa* 3616: 478–484.
- Sarasola J. H. 2011. A three years satellite tracking study on the juvenile dispersal of the Crowned Eagle. Satellite telemetry workshop (birds in Argentina and other areas of South America). Abstracts. US Geological Survey, Puerto Iguazu.
- Sarasola, J. H. & Maceda, J. J. 2006. Past and current evidence of persecution of the endangered crowned eagle *Harpyhaliaetus coronatus* in Argentina. *Oryx* 40: 347–350.
- Sarasola, J. H., Santillán, M. Á. & Galmes, M. A. 2010. Crowned eagles rarely prey on livestock in central Argentina: persecution is not justified. *Endangered Species Res.* 11: 207–213.
- Vidal, B. M. 1930. *Viaje de Montevideo a Paysandú por Dámaso Antonio Larrañaga*. Talleres Don Bosco, Montevideo.
- Addresses:* Adrián B. Azpiroz, Laboratorio de Genética de la Conservación, Instituto de Investigaciones Biológicas Clemente Estable, Av. Italia 3318 (C.P. 11600), Montevideo, Uruguay, e-mail: aazpiroz@iibce.edu.uy. Gonzalo D. Cortés, Área de Biodiversidad & Conservación, Museo Nacional de Historia Natural, 25 de mayo 582 (C.P. 11000) Montevideo, Uruguay, and Laboratorio de Etología, Ecología y Evolución, Instituto de Investigaciones Biológicas Clemente Estable, Av. Italia 3318 (C.P. 11600), Montevideo, Uruguay, e-mail: gonzalod.cortes@gmail.com