Clutch size of Blackish Nightjar Nyctipolus nigrescens

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Source: Bulletin of the British Ornithologists' Club, 137(2) : 135-141

Published By: British Ornithologists' Club

URL: https://doi.org/10.25226/bboc.v137i2.2017.a5

Clutch size of Blackish Nightjar *Nyctipolus nigrescens*

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Received 22 January 2017; revised 3 April 2017; published 18 June 2017

http://zoobank.org/urn:lsid:zoobank.org:pub:37D155AE-085B-4156-B464-9CB9B4D58A17

Summary.—Clutch size of Blackish Nightjar *Nyctipolus nigrescens* is generally considered to be one egg. Records of two-egg clutches mentioned in ornithological literature of the 19th and early 20th century are possibly mistakes or misidentifications. However, we report a documented recent observation of a female incubating two eggs.

Blackish Nightjar *Nyctipolus nigrescens* is widely distributed from eastern Colombia and eastern Ecuador, through southern Venezuela, the Guianas and Amazonian Brazil, south to eastern Peru and northern Bolivia. It occurs mainly on inselbergs, i.e. granitic outcrops, surrounded by forest, but also on rocks in and along rivers, and in otherwise sparsely vegetated stony and rocky areas. Away from rocky areas, it is found in natural openings and clearings in primary and secondary forest, along roadsides with low vegetation and on burnt ground. The species' eggs (Fig. 1–2) are elliptical, slightly glossy, creamy buff to pinkish buff, with lilac, greyish, brownish and blackish markings (Ingels 1981, Haverschmidt & Mees 1994, Cleere & de Juana 2016).

Except for the two arboreal *Lurocalis* nighthawks, all 33 Neotropical nighthawks and nightjars (Remsen *et al*. 2016) lay their egg(s) on bare sandy ground, on leaf- or pebble-littered soil, or on bare granitic rock. No nest is constructed, but a shallow depression in soft soil or a small area around the egg free of leaf litter or small pebbles may result from movement by the incubating bird. Neotropical caprimulgids lay clutches of one or two eggs (Cleere 1999, Holyoak 2001). Some species lay either single- or two-egg clutches, e.g. Common Pauraque *Nyctidromus albicollis*, whereas others consistently lay either one egg, as known until now for *Nyctipolus nigrescens*, or two eggs as in Ladder-tailed Nightjar *Hydropsalis climacocerca* (Cleere & Nurney 1998, Holyoak 2001).

Cabanis described the Blackish Nightjar as a new species, *Caprimulgus nigrescens* (Cabanis *in* Schomburgk 1848). The first specimens were collected in typical habitat for

Figures 1–2. Eggs of Blackish Nightjar *Nyctipolus nigrescens* in the Natural History Museum in Tring (UK), NHMUK E/1901.12.15.212 (26.7 × 18.5 mm) and NHMUK E/1901.12.15.213 (24.5 × 19.0 mm), collected by Henry Whitely between 1879 and 1894, in British Guiana (Harry Taylor, © Natural History Museum, London)

 ISSN-2513-9894 (Online)

this nightjar, rocks beside the lower Essequibo River in British Guiana (now Guyana). Concerning its breeding biology, Schomburgk stated: 'Ihre Eier legen sie unter niederes Gesträuch in kleine Vertiefungen des Erdbodens. Ich fand zwei weissen Eier in den Nestern' ('They lay their eggs on the ground in shallow depressions under low shrubbery. I found two white eggs in the nests'). The identification of the eggs is clearly incorrect as those of Blackish Nightjar are not white (Figs. 1–4). White eggs of Common Ground Dove *Columbina passerina* or Plain-breasted Ground Dove *C. minuta* (Baptista *et al*. 2016a,b) were possibly mistaken for those of Blackish Nightjar. These *Columbina* ground doves are sometimes found nesting on the ground beneath a grass tussock or other low vegetation in the same habitat where Blackish Nightjar occurs, e.g. roadsides with sparse vegetation (JI pers. obs. 2003).

Subsequently, the Penard brothers mentioned for the Blackish Nightjar: 'Het wijfje legt 1 of 2 tamelijk glanzende, elliptische, licht geelachtig rose gekleurde, duidelijk chocoladebruin en purpergrijs gevlekte en bewolkte eieren' (The female lays one or two rather glossy, elliptical, slightly yellowish-pink eggs, neatly mottled and clouded with chocolate-brown and greyish purple) (Penard & Penard 1910). The description of the eggs is correct, but the clutch size (sometimes two eggs) is doubtful. The Penard brothers, who suffered from leprosy from early boyhood, were unable to collect specimens themselves (Haverschmidt & Mees 1994). Instead, they were completely dependent on hunters and others to collect for them, but who were probably not always sufficiently skilled to identify eggs and birds correctly (A. Spaans pers. comm. 2015). Blackish Nightjar and Common Pauraque *Nyctidromus albicollis* are known to nest in close proximity (Kirwan 2009), and in places where both species occur, e.g. in the transition zone between an inselberg and the surrounding forest, with low arid vegetation, misidentification of eggs of both species could have occurred. As an example, the eggs on wikiaves.com.br photographs WA1118616 and WA1470416 are of *Nyctidromus albicollis* not *Nyctipolus nigrescens*. In 1910, the Dutch Rijksmuseum van Natuurlijke Historie obtained the egg collection brought together by the Penard brothers in Suriname. Hellebrekers (1942, 1945), in describing this collection, did not mention eggs of Blackish Nightjar. Therefore, it is possible that the Penard brothers knew both clutch size and egg coloration only by hearsay.

Beebe (1917) described the egg of *N. nigrescens*, as: 'ground colour was a light pinkish buff, sparsely covered with scrawled blotches of chocolate brown, which overlaid larger spots of greyish purple and lilac'. He also stated that 'Like other members of its family the Dusky Nighthawk laid its one egg on the ground'. Snethlage (1928: 696) wrote that *Nyctipolus nigrescens* lays '2 weiße Eier in kleinen Vertiefungen des Erdbodens unter niedrigem Gesträuch (Schomburgk)' ('two white eggs in shallow depressions of the ground under low shrubbery (Schomburgk)'), repeating Schomburgk (1848). Later, Schönwetter (1964) noted 'Schomburgks Angabe, daß sie einfarbig weiß seien, beruht auf Irrtum' (Schomburgk's statement that they [the eggs] were solid white, is in error).

N. nigrescens eggs are rare in natural history museums (Kiff & Hough 1985; eBEAC 2016, VertNet 2016). Among the 17 European museums with an oological collection of 10,000 sets or more, only two possess eggs of this nightjar, the former Rijksmuseum van Natuurlijke Historie at Leiden, now Naturalis (RMNH, Leiden, Netherlands) and the Natural History Museum (NHMUK, Tring, UK). Among North American and South American museums, only the Western Foundation of Vertebrate Zoology (WFVZ, Camarillo, USA) and Colección Ornitológia Instituto Alexander von Humboldt (COIAH, Bogotá, Colombia) hold Blackish Nightjar eggs (Appendix 1).

NHMUK holds a small series of eggs and accompanying manuscripts from the Welsh naturalist Thomas A. W. Davis (1899–1980). The eggs were collected by (and for) Davis

 ISSN-2513-9894 (Online)

while he was Assistant Conservator of Forests for the Forestry Department in British Guiana during the 1920s and 1930s. Davis subsequently passed this material to his friend, Sir Charles Frederic Belcher (Chief Justice of Trinidad and Tobago, 1930–37) for incorporation into his collection, which was finally acquired by NHMUK and accessioned in 1952. The collection contains an index card written by Davis referring to a C/1 clutch taken in former British Guiana in 1937. Unfortunately, the egg to which it refers cannot be located at NHMUK and, indeed, it is unclear whether it ever came to the museum with the rest of the Belcher bequest. On Davis' death, in 1980, the NHMUK library was bequeathed a manuscript archive including correspondence, diaries, notes and photographs relating to the birds and plants of British Guiana, India and Kashmir. These reveal that Davis observed the species on several occasions and he noted (in his personal short-hand) observations twice in November 1938 at the Mazaruni River. However, the only known reference to breeding Blackish Nightjars Davis made is in the index card held with the NHMUK egg collection, and a handwritten copy of this in the manuscripts in the NHMUK library, as his diary for 1938 is unfortunately missing and was likewise apparently not received at NHMUK.

The two eggs present in the NHMUK collection form part of the bequest of Philip Crowley (1837–1900) and were collected by Henry Whitely between 1879 and 1894. They were accessioned with consecutive numbers, 1901.12.15.212–213 (Fig. 1), and are stored in the same box, giving the impression that they definitively formed a two-egg clutch. However, the differences in coloration and size between them (Fig. 2) raise doubts. Again, the original catalogues pertaining to the Crowley collection were never received at NHMUK and no other details relating to these eggs are currently available.

In 1953, Olivério Pinto described nests, skins and eggs collected by Carlos Estevão (Pinto 1953). He mentioned 11 clutches of *N. nigrescens*, all taken at Utinga (01°27'S, 48°30'W) near Belém, Pará, Brazil. For one of these, he wrote: '1923, Out. 2 (pele, ovos) – ♀ ad., Utinga (campinarana). "Estava chocando 1 ovo, sobre o solo". Medidas do exemplar: asa 136 mm; cauda 96 mm.' ('1923. 2 October (skin, eggs) – ♀ adult, Utinga (campinarana). "She was incubating one egg, on the ground". Measurements: wing 136 mm; tail 96 mm'.) From the additional comment we learn that it is a C/1, but the word 'ovos' (eggs), plural, suggests that it was a C/2 clutch. However, in additional comments on the 11 clutches, we read 'As observações aqui consignadas, em número de onze, são concordes em restringir a 1 único ovo as posturas desta espécie, na região de Belém. Entretanto, com base talvez em Beebe, que estudou a nidificação da espécie na Guiana Inglesa, dá H. Snethlage para ela posturas de dois ovos da "Guiana e Amazônia", o que só em parte pode ser verdade' ('The observations mentioned here, 11, are in agreement with the single-egg clutch of this species in the Belém region. However, perhaps based on Beebe, who studied the nesting of the species in British Guiana, H. Snethlage mentions two eggs for clutches in "Guiana and Amazonia", which can be only partly true'). The word 'ovos' mentioned above must, therefore, be a misprint. After Carlos Estevão's death, his widow donated his collection to the Museu de Zoologia da Universidade de São Paulo (Brazil). The 11 clutches were accessioned in 1950. However they later disappeared from the collection for an unknown reason on an unknown date (L. F. Silveira pers. comm. 2016) (Appendix 1).

Until now, the general belief is that *N. nigrescens* lays one egg (Cleere & de Juana 2016). Ingels *et al*. (1984) and Haverschmidt & Mees (1994) mention 69 and 16 C/1 clutches, respectively, all found in Suriname. Between 1999 and 2007, Ingels *et al*. (2009) found 41 C/1 clutches around Saül (03°37'N, 53°12'W) in central French Guiana. In 1977, Roth (1985) found six C/1 clutches near Aripuanã (10°10'S, 59°28'W) in Mato Grosso state, Brazil. Between 2006 and 2009, Solano-Ugalde *et al*. (2012) found seven C/1 clutches at Copalinga

 ISSN-2513-9894 (Online)

Figures 3–4. 'Nest' of Blackish Nightjar *Nyctipolus nigrescens* with two eggs, near Saut Léodate (04°50'N, 52°48'W), a rapid on the Kourou River, French Guiana, May 2015 (Loïc Epelboin)

Ecolodge (04°03'S, 78°56'W) near Zamora, Zamora-Chinchipe province, Ecuador. In 2005–09, TVVC found several C/1 clutches north of Manaus in central Amazonian Brazil.

Recent monographs of Caprimulgidae and related nightbirds (Cleere 1999, Holyoak 2001) and the account in *Handbook of the birds of the world Alive* (Cleere & de Juana 2016) mention a clutch size of one egg. However, in the account of Blackish Nightjar in his photographic guide to these birds, Cleere (2010) wrote 'Breeding: Eggs 1–2, whitish, pinkish or buff, ...' possibly with Schomburgk (1848) in mind for two-egg clutches of white eggs.

 ISSN-2513-9894 (Online)

Figure 5. Female Blackish Nightjar *Nyctipolus nigrescens*, near Saut Léodate (04°50′N, 52°48′W), a rapid on the Kourou River, French Guiana, May 2015 (Loïc Epelboin)

All field observations and clutches in oological collections show, however, that *N. nigrescens* consistently lays one egg.

Therefore, it was a surprise when, on 24 May 2015, LE found a female *N. nigrescens* incubating two eggs (Figs. 3–5), on a low rock in a clearing near Saut Léodate (04°50′N, 52°48′W), a rapid on the Kourou River in French Guiana. The clearing, with a diameter of *c.*50 m, is used as a drop-off zone by helicopters, is covered by low weeds and grasses, with low, dark rocks scattered throughout (Fig. 5), and connected to the rapids by a trail of *c.*250 m. In the clearing, just one pair of *N. nigrescens* was present, and none was seen on the rocks near the rapid. This nightjar sometimes breeds almost semi-colonially on inselbergs (Cleere & Ingels 2002, 2004). In such a situation, it is possible that two females could lay in the same 'nest'. However, the possibility that the eggs found by LE were laid by two different females is almost non-existent, as only one pair was observed in suitable habitat in a wide area around the 'nest'. Both eggs were rather similar in coloration and size (Fig. 3). Two-egg clutches for *N. nigrescens* described previously in the literature are in error. The observation reported here with photographic evidence is the first record of a C/2 clutch for this nightjar.

Among caprimulgids the pattern of occurrence of one- and two-egg clutches is complicated, with a tendency for one-egg clutches in tropical and subtropical regions, and two-egg clutches in temperate regions, especially for those species widely distributed over both, as in other bird species (Klomp 1970, Sick 1993). For caprimulgids breeding on the ground, the limitation of clutch size to one or two eggs may result from selection pressure to conceal the eggs and chicks. However, factors such as seasonal food availability may also influence clutch size. More studies are clearly needed to investigate factors determining clutch size of caprimulgids.

Acknowledgements

For their help in various ways, we are grateful to Alexandre Aleixo, John M. Bates, Alice Cibois, Olivier Claessens, Nigel Cleere, Sergio Córdoba, Bo Delling, Rosendo M. Fraga, Harold F. Greeney, Mauro Guimarães Diniz, Jérôme Fuchs, Linnea S. Hall, Des Jackson, Ulf S. Johansson, Claudia Kamcke, Pepijn

 ISSN-2513-9894 (Online)

Kamminga, Guy M. Kirwan, Arne Jent Lesterhuis, Maria de Fátima Lima, Miguel Ângelo Marini, Henry McGhie, Alejandra Medina Uribe, Chris Merkord, Christopher M. Milensky, Claudia Múnera, Göran Nilson, Luís Fábio Silveira, Brian J. O'Shea, Fernando Pacheco, Ellen Paul, James V. Remsen, Jan Hein J. M. Ribot, Nate Rice, Mark B. Robbins, Karl-Ludwig Schuchmann, Chris J. Sharpe, Eric Shaw, Socorro Sierra, Maureen Smith, Arie L. Spaans, Richard Sutcliffe, Zena Timmons, Judit Ungvari Martin, Melita Vamberger, Steven van der Mije, Juan Luis Venero Gonzales, Catherine Vits, Bruno A. Walther and Kristof Zyskowski. We also thank Nigel Cleere and Guy Kirwan for valuable suggestions and corrections to the submitted manuscript.

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 ISSN-2513-9894 (Online)

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APPENDIX 1

Institutions holding eggs of Blackish Nightjar *Nyctipolus nigrescens*: collection where (originally) preserved, collection locality, collection number (collector, date of collection), comments.

Colección Ornitológia Instituto Alexander von Humboldt, Bogotá (formerly Colección Oológica Cornelis Johannes Marinkelle).

Colombia, Dpto. Caquetá, Municipio de Solano, Río Cuñaré, El Acuaria Creek, Bosque Caquí (00°29'N, 72°37'W), CJM-514: C/1 (Mauricio Alvarez Rebolledo, 5 November 2000).

Colombia, Dpto. Vichada, Corregimiento Santa Rita, Parque Nacional Natural El Tuparro (03°18'N, 67°57'W), CJM-4644, C/1 (collector?, 12 February 2004).

Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil

Brazil, Utinga, Belém (01°27'S, 48°30'W), One egg registered 2200, two eggs 2202, others unregistered, 11 C/1 (Carlos Estevão, 20 September, 2 and 7 October 1923, 21 June, 26 July and 23 August 1924, 29 September 1926, 8 October 1928, 15 February and 29 May 1929, and 16 May 1930). Formerly in the Coleção Carlos Estevão. No longer at MZUSP.

Natural History Museum, Oology, Tring, UK

Guyana (British Guiana), Camacusa (05°57'N, 59°54'W) or Bartica Grove (06°24'N, 58°37'W), NHMUK E/1901.12.15.212 and NHMUK E/1901.12.15.213, one C/2 or two C/1? (H. Whitely, 1879–1894). Part of the Philip Crowley bequest.

Guyana (British Guiana), Mazaruni Station (06°24'N, 58°39'W), NHMUK E/?, C/1 (Thomas A. W. Davis, 28 August 1937). Formerly in the T. A. W. Davis collection. No longer at NHMUK.

Rijksmuseum van Natuurlijke Historie Naturalis, Leiden, the Netherlands

Suriname, Albina (05°30'N, 54°04'W), RMNH.AVES.54009: C/1 (F. Haverschmidt, 29 June 1953).

Suriname, Phedra (05°20'N, 55°03'W), RMNH.AVES.54010 and RMNH.AVES.54011: two C/1 (F. Haverschmidt, 18 April 1965 and 3 September 1967).

Suriname, Brownsberg (04°53'N, 55°10'W), RMNH.AVES.72791: C/1 (G. F. Mees, 30 August 1972).

Western Foundation of Vertebrate Zoology, Camarillo, California, USA

Suriname, Crique Ouarémapan, Upper Litanie River (*c*.02°25'N, 54°25'W), WFVZ 149348 (formerly Muséum Oologique Robert Daniel Etchécopar, Paris, France): C/1 (Jean-Pierre Gars, 27 August 1972).

Suriname, Voltzberg (04°40'N, 56°11'W), WFVZ 145275, WFVZ 145276 and WFVZ 145277: three C/1 (J. Ingels, 28 October (two) and 1 November 1981).

Peru, Dpto. San Martín, *c*.15 km by trail north-east of Jirillo on trail to Balsapuerto (05°50'S, 76°36'W), WFVZ 178561 (formerly Louisiana State University Museum of Zoology, LSUMZ 116445): C/1 (T. J. Davies, 28 October 1983).

 ISSN-2513-9894 (Online)