

## SHORT NOTE

### New records of broad-billed prions (*Pachyptila vittata*) in southern Peru

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There are 6 recognized extant species of prions grouped within the genus *Pachyptila*, all of them restricted to the southern hemisphere (usually below the tropic of Capricorn, 23°26'22"S) (Turbott 1990). Prions breed on several islands around New Zealand, the southern Indian and Atlantic oceans, as well as the Antarctic Peninsula (Onley & Scofield 2007), and some species disperse widely after breeding (Post 2007). Identification of prions at sea is challenging not only because immature individuals of larger-billed species and adults of smaller-billed species look deceptively alike, but also because most species have very similar plumage characteristics (Harper 1980).

The broad-billed prion (*P. vittata*) is the largest of the *Pachyptila* group, with a distinctively bowed and very broad bill that measures no less than 31 mm in length, and 17 - 23 mm at its widest point (Harper 1980; Marchant & Higgings 1990). This range of bill measurements clearly separates *P. vittata* from their relatives, and hence, bill size is the most reliable morphometric feature to identify the species. Likewise, the large latericorns are glossy iron-grey (not blue as in other *Pachyptila*) and the mandibular

rami are violet blue. Immature individuals can be distinguished by their smaller dimensions (Harper 1980).

Broad-billed prions breed at several islands in southern New Zealand, Gough I in the southern Indian Ocean, and Tristan da Cunha Is in the south-east Atlantic Ocean (Onley & Scofield 2007). Post-breeding dispersal is poorly known, but some vagrants have been recorded as far as Falkland Is, Reunion, South Orkney Is and Madagascar (Onley & Scofield 2007; Blight & Woehler 2008). There is a single record of a broad-billed prion carcass collected in southern Peru in 1980 (Hughes 1982); however, no other record has confirmed the presence of this species in the area. Free-ranging *P. vittata* seem to occur sporadically in Peruvian waters, but these reports have only been anecdotal (Valqui *et al.* 2009). In this paper, we report the presence of carcasses and free-ranging broad-billed prions at 3 locations in southern Peru during the winter of 2009 (Fig.1).

The 1st sighting of live broad-billed prions was made on 10 Jul 2009, about 10 nautical miles offshore from Vila Vila beach (18°07'09"S 70°50'37" W). This bird was observed from a small boat with the aid of 8 x 42 binoculars, and at a distance of 20 m from the observer. It was foraging from the surface for about 2 minutes and then flew away to the east

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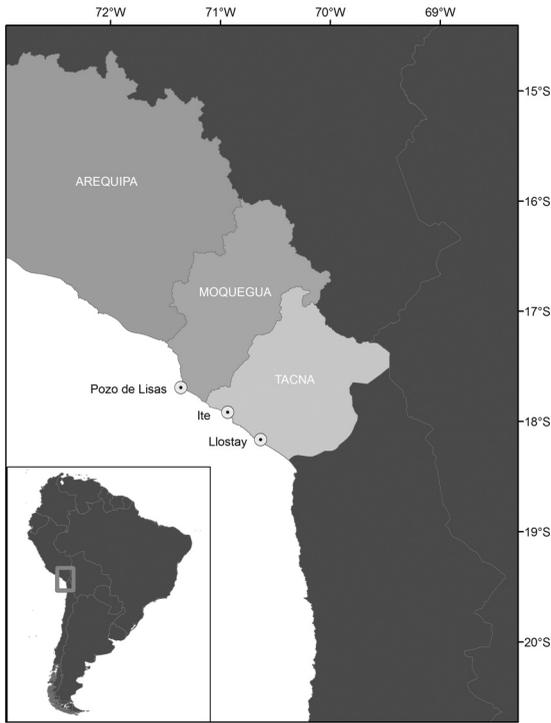


Fig. 1. Map of the new localities for broad-billed prion (*P. vittata*) in south Peru in Jul-Sep 2009. Map by J. Alfaro.

(Fig. 2). The diagnostic features that identified this bird as a broad-billed prion were: (a) length and width of the bill, and (b) iron-greyish coloration of latericorns. The identification of this individual (Fig. 2) was confirmed by different ornithologists and bird identification experts (A. Jaramillo, *pers. comm.*; T. Schulenberg, *pers. comm.*).

Monthly beach surveys were undertaken along Pozo de Lisas, Moquegua (17° 41' S 71° 35' W), Ite, Tacna (17°55' S, 70°56' W) and Llostay, Tacna (18°10'42" S 70°38'48" W) between 15 Oct 2008 and 19 Sep 2009 to record the presence of stranded marine mammals, sea turtles and seabirds. During the surveys between Jul and Sep 2009, 5 carcasses of prions were found (1 at Llostay, 3 at Ite and 1 at Pozo de Lisas, Table 1), cleaned and preserved. All the specimens had a bill length > 33.1 mm and bill width > 18.5 mm (Table 1, Fig. 3 and 4), which coincides with the bill measures reported for the broad-billed prion (Harper 1980). We were not able to age the birds. Likewise, this range of bill measurements did not overlap with those displayed in the other 5 species of *Pachyptila* (Turbott 1990, Onley & Scofield 2007), and so, we classified the specimens as broad-billed prions. One specimen was deposited at the Scientific Collection of Natural History Museum Universidad Nacional de San Agustín, Arequipa Peru (MUSA); the other 4 specimens were deposited



Fig. 2. Individual broad-billed prion (*P. vittata*) near Tacna, Peru, 10 Jul 2009. Photo by N. Hidalgo.

at the Pro Delphinus collection (FBR codes) based in Lima city.

The records of broad-billed prions presented here represent the 2nd report of this species for the Pacific coast of South America, and the 1st photographic evidence of free-ranging individuals in the eastern Pacific Ocean. There are a set of pictures showing *P. vittata* offshore Arica, Chile between Jul and Sep 2009 (R.Herrera, *pers. comm.*), which coincides with the timing our sightings. The presence of broad-billed prions in southern Peru in 2009 may be explained by 3 hypotheses: (i) higher survey effort in recent years, (ii) good food conditions in the Peruvian coast, and (iii) an unusual event.

It is unknown whether the presence of broad-billed prions in Peru is a common event or is the result of a higher survey effort over the last years. The only record for Peru comes from 1980 (Hughes 1982). Jahncke *et al.* (1998) reported *Pachyptila* spp. at sea off Lima in central Peru, but the individuals seen were not identified to species level. Because there have been limited beach and at-sea surveys along the Peruvian coast in the last 30 years (but see Jahncke *et al.* 1998; Spear & Ainley 2008; IMARPE 2009), we suspect that the sightings of broad-billed prions in 2009 may be the result of a growing scientific interest and enthusiastic bird-watching activities in Peru during the last decade.

The presence of broad-billed prions coincides with the 1st records of other vagrant seabirds in Peru, such as Cape gannets *Morus capensis* (García-Godos 2002), Chatham albatross *Thalassarche eremita* (Latham *et al.* 2004), northern giant petrels *Macronectes halli* (Ayala 2007, Zavalaga *et al.* in press), brown boobies *Sula leucogaster* (Valverde 2009), and Westland petrels *Procellaria westlandica* (Fraser 2009).

**Table 1.** Measurements of broad-billed prion carcasses (*Pachyptila vittata*) collected between Jul and Sep 2009 at 3 localities of southern Peru. All measurements in mm.

Date collected	Location	Code	Condition	Measurements				
				Bill		Wing	Tail	Tarsus
				Length	Width			
21 Jul 2009	Ite, Tacna	FBR-22	Complete body	34	18.7	202	-	35.2
21 Jul 2009	Ite, Tacna	FBR-23	Skull	37.1	20.1	-	-	-
04 Aug 2009	Llostay, Tacna	MUSA 2794	Complete body	34	20	209	108	35
16 Sep 2009	Pozo Lisas, Moquegua	FBR-24	Skull	38.5	18.5	-	-	-
19 Sep 2009	Ite, Tacna	FBR-26	Skull	33.1	19	-	-	-

**Fig. 3.** Skull of a broad-billed prion specimen found at Llostay, Tacna, southern Peru (MUSA 2794) on 4 Aug 2009. Photo by N. Hidalgo.

It is plausible that the dispersal of these species into Peruvian waters may be associated with a steady increase of primary productivity in the Humboldt Current System in the last decade (Chavez & Messié 2009), together with suboptimal conditions caused by the increase in human activities at the breeding areas of each vagrant species (Chardine & Mendenhall 1998).

There have been several explanations for possible causes of prion wrecks, such as food shortages, pollutants, unfavorable weather, or diseases (Post 2007). Nonetheless, the causes of broad-billed prion wrecks in Peru remain unclear. The presence of free-ranging birds in the same areas and time of the year seems to indicate that some of the prions died once they reached coastal Peruvian waters. The closest breeding colonies of broad-billed prions are located at The Snares and Stewart I, New Zealand,

approximately 10,700 km from southern Peru, so it is expected that after a long journey, many of the individuals might die by natural causes. As beach surveys in southern Peru between 2008 and 2010 did not detect dead broad-billed prions, we speculate that our findings may be also the result of an unusual event in 2009.

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Fig. 4. Skulls of 3 broad-billed prions found at Ite, Tacna and Pozo de Lisas, Moquegua, Peru (FBR 023,024 and 026) Jul-Sep 2009. Photo by N. Hidalgo.

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