

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p><b>Joint Eleventh Meeting of the Seabird Bycatch Working Group and Seventh Meeting of the Population and Conservation Status Working Group</b> <i>Edinburgh, United Kingdom, 18 May 2023</i></p> <p><b>Updating the Argentine seabird checklist: molecular evidence confirms the occurrence of <i>Thalassarche steadi</i> in national waters<sup>1</sup></b> <b><i>Juan Pablo Seco Pon and Rocío Mariano-Jelicich</i></b></p>
---	--

### SUMMARY

Of the world's 22 species of albatrosses, 12 are listed within the official Argentine bird checklist. When considering only *Thalassarche* albatrosses, the official listing includes seven species, among which are *T. cauta* and *T. steadi*. It is known that there is some complexity in the identification of these species, often referred as to 'shy-type' albatrosses. To date the occurrence of shy-type albatrosses in Argentine waters is based on at-sea observations of birds attending commercial fisheries and a single specimen found stranded in northern Patagonia. The latter allude the occurrence of *T. steadi* based solely on biometric data and plumage colouration. In this document we confirm the occurrence of *T. steadi* in Argentina based on molecular techniques.

## 1. PELAGIC SEABIRD DIVERSITY IN ARGENTINE WATERS WITH PARTICULAR REFERENCE TO THE SHY-TYPE ALBATROSS COMPLEX

In the South West Atlantic, the relative influence of the Malvinas and Brazilian currents over the Argentinean Continental Shelf coupled with other processes operating at a smaller scale such as tides, winds and river discharge generate several fronts promoting the production and/or concentration of phytoplankton and zooplankton, and the consequent development of major communities of fish, crustaceans and squid (Acha et al. 2004, Balech and Ehrlich 2008). This is a rich marine ecosystem of global importance with high biodiversity endemism and high biomass of some species, offering abundant food for a number of local and migratory top predators including seabirds, marine mammals, and sea turtles (Croxall and Wood 2002, Bastida et al. 2005, Favero and Silva Rodríguez 2005, Campagna et al. 2008, González

---

<sup>1</sup> Noting Article XIII(1)(c) of the Agreement on the Conservation of Albatrosses and Petrels, the references included in the present document are made exclusively for academic/scientific purposes and have no implications whatsoever for recognition of territorial sovereignty or the legal status of a state, territory, area, or their authorities, where relevant

Carman et al., 2008), being regarded as one of the world's most productive ocean regions. Here, about 17 and 50 breeding and non-breeding seabird species, respectively, most of which are highly migratory species, travel very long distances from the Southern Ocean, Australia, New Zealand and the East Atlantic (Croxall and Wood 2002, Favero and Silva Rodríguez 2005, Yorio et al. 2005, Seco Pon et al. 2015).

Regarding pelagic seabird species considered in the interest of ACAP, the available literature shows that of the world's 22 species of albatrosses, 12 are listed within the official Argentine bird checklist (MADYS 2017), though the tally varies among authors (four species plus three races according to Narosky and Izurieta 2010, five species according to Pearman and Areta 2020, 11 species according to Savigny 2021). When considering only *Thalassarche* albatrosses (often referred as to 'medium-sized albatrosses'), the official listing includes seven species (*Thalassarche melanophris*, *T. chlororhynchos*, *T. chrysostoma*, *T. bulleri*, *T. salvini*, *T. cauta* and *T. steadi*). Still, it is known that within this group there seems to be some complexity in the identification of a particular subset of birds often referred as to 'shy-type' albatrosses (*T. cauta* and *T. steadi*). Albeit leading organizations such as ACAP (Taxonomy Working Group 2006; ACAP 2011) and BirdLife International (2022) have considered Shy albatross *T. cauta* and White-capped albatross *T. steadi* as two separate species, some authors show discrepancies (see Brooke 2004, Onley and Scofield 2007). This translates somehow to the inclusion of one or the two species of shy-type albatrosses within known Argentine checklists (Table 1).

Regardless, to date the occurrence of shy-type albatrosses in Argentine waters is based on at-sea observations of birds attending commercial fisheries (Seco Pon and Tamini 2013) and a single specimen found stranded in northern Patagonia (40°45'S, 64°57'W) (Savigny and Carabajal 2015). Due to the great resemblance between white-capped and shy albatrosses, especially at sea (see Abbott and Double 2003, Double et al. 2003), the study by Seco Pon and Tamini (2013) did not attempt to identify individuals at the specific level. On the other hand, the study by Savigny and Carabajal (2015) suggests the occurrence of *T. steadi* based solely on biometric data and plumage colouration. According to Double et al. (2003), *T. steadi* is on average larger than *T. cauta*, and discriminant functions involving body measurements may assist in the identification. However, *T. steadi* can be accurately separated by a fixed substitution in Domain I of the mitochondrial DNA control region (Abbott and Double 2003). In this document we confirm the occurrence of *T. steadi* in Argentina based on molecular techniques (Seco Pon et al. 2022).

Table 1. Diversity of *Thalassarche* albatrosses listed within the official Argentine bird checklist and within other authors' checklists. The symbol √ denotes the occurrence in national waters. nl = not listed. \*The description of *T. cauta* is merged with that of *T. steadyi*.

Species	Official Argentine bird checklist, MADYS (2017)	Narosky and Izurieta (2010)	Pearman and Areta (2020)	Savigny (2021)
<i>Thalassarche melanophris</i>	√	√	√	√
<i>Thalassarche chlororhynchos</i>	√	√	√	√
<i>Thalassarche chrysostoma</i>	√	√	√	√
<i>Thalassarche bulleri</i>	√	nl	√	√
<i>Thalassarche cauta</i>	√	√	√	*
<i>Thalassarche steadyi</i>	√	nl	nl	√
<i>Thalassarche salvini</i>	√	nl	nl	√

## 2. CONTRIBUTION OF OUR STUDY TO THE ARGENTINE BIRD CHECKLISTS

Total genomic DNA isolated from a portion of a pectoral muscle of a dead shy-type albatross found on the beach at Punta Mogotes, Mar del Plata (38°02'55"S, 57°31'52"W), south-eastern Buenos Aires Province, Argentina was used for molecular species identification through the PCR amplification of a 325bp fragment of the Domain I of the mitochondrial control region following Abbott and Double (2003). The sequence was aligned together with 15 and 23 sequences for shy and white-capped albatrosses, respectively, uploaded from GenBank. The individual was identified as *Thalassarche steadyi* based on a single nucleotide polymorphism (SNP), an Adenine to Guanine substitution, detected at the 121 nucleotide position, which corresponds to a fixed difference diagnostic for the species (Abbott and Double 2003). The sequence is deposited in GenBank under accession number OP832372. This information was recently published in a scientific paper (see Annex A). This identification method has been previously implemented in the molecular determination of shy-type albatrosses stranded on coastal areas and/or by-caught in fisheries operating in the region (Jiménez et al. 2009, 2015, Pereira et al. 2016). To our knowledge this would be the first study to identify *T. steadyi* as a non-breeding visitor in Argentinian waters.

### References

- Abbott, C.L., Double, M.C. 2003. Phylogeography of shy and white-capped albatrosses inferred from mitochondrial DNA sequences: implications for population history and taxonomy. *Molecular Ecology* 12: 2747–2758.
- ACAP. 2011. ACAP Species assessment: White-capped albatross *Thalassarche steadyi*. <http://www.acap.aq>
- Acha, E.D., Mianzan, H.W., Guerrero, R.A., Favero, M., Bava, J. 2004. Marine fronts at the continental shelves of austral South America: Physical and ecological processes. *Journal of Marine Systems* 44: 83–105.

- Balech, E., Ehrlich, M.D. 2008. Esquema biogeográfico del Mar Argentino. *Revista de Investigación y Desarrollo Pesquero* 19: 45–75.
- Bastida, R., Rodríguez, D., Scarlatto, N., Favero, M. 2005. Marine biodiversity of the south-western Atlantic Ocean and main environmental problems of the region. In: Miyazaki, N., Adeel, Z. and Ohwada, K. (Eds.), *Mankind and the oceans*. United Nations University Press, New York, USA, pp. 172–207.
- BirdLife International. 2022. Species factsheet: *Thalassarche steadi*. <http://www.birdlife.org>
- Brooke, M. 2004. *Albatross and petrels across the world*. New York, Oxford University Press.
- Campagna, C., Sanderson, E.W., Coppolillo, P.B., Falabella, V., Piola, A.R., Strindberg, S., Croxall, J.P. 2008. A species approach to marine ecosystem conservation. *Aquatic Conservation: Marine and Freshwater Ecosystems* 17: S122–S147
- Croxall, J.P., Wood, A.G. 2002. The importance of the Patagonian Shelf to top predator species breeding at South Georgia. *Aquatic Conservation: Marine and Freshwater Research* 12: 101–118.
- Double, M.C.; Gales, R.; Reid, T.; Brothers, N., Abbott, C.L. 2003. Morphometric comparison of Australian shy and New Zealand white-capped albatrosses. *Emu* 10: 287–294.
- Favero, M., Silva Rodríguez, M.P. 2005. Estado actual y conservación de aves pelágicas que utilizan la plataforma continental Argentina como área de alimentación. *El Hornero* 20: 95–110.
- González Carman, V., Albareda, D., Campagna, C. 2008. Tortugas marinas del Atlántico Sudoccidental. *Síntesis del estado de conservación del Mar Patagónico y áreas de influencia*. Foro para la Conservación del Mar Patagónico y Áreas de Influencia: Síntesis del estado de conservación del Mar Patagónico y áreas de influencia. Edición del Foro Puerto Madryn, Chubt, Argentina.
- Jiménez, S.; Domingo, A.; Marquez, A.; Abreu, M.; D'Anatro, A.; Pereira, A. 2009. Interactions of long-line fishing with seabirds in the western Atlantic Ocean, with a focus on white-capped albatrosses (*Thalassarche steadi*). *Emu* 109: 321–326.
- Jiménez, S.; Marquez, A.; Abreu, M.; Forselledo, R.; Pereira, A.; Domingo, A. 2015. Molecular analysis suggests the occurrence of shy albatross in the south-western Atlantic Ocean and its bycatch in longline fishing. *Emu* 115: 58–62.
- Ministerio de Ambiente y Desarrollo Sustentable de la Nación (MADYS). 2017. Categorización de las Aves de la Argentina. Buenos Aires, Ministerio de Ambiente y Desarrollo Sustentable de la Nación y Aves Argentinas.
- Narosky, T., Izurieta, D. 2010. *Aves de Argentina y Uruguay*. Edición total. Buenos Aires, Vázquez Mazzini Editores.
- Onley, D., Scofield, P. 2007. *Albatrosses, petrels and shearwaters of the world*. Princeton, Princeton University Press.
- Pearman, M., Areta, J.I. 2020. *Field guide to the birds of Argentina and the southwest Atlantic*. London, Helm Field Guides.
- Pereira, A.; Daudt, N.; Nuss, A.; Tavares, M.; Caio, C.J. 2016. The first confirmed record of the white-capped albatross *Thalassarche steadi* in Brazil. *Revista Brasileira de Ornitologia* 24: 286–289.
- Savigny, C. 2021. *Aves del Atlántico Sudoccidental y Antártida*. La Plata, Ediciones LBN.

Savigny, C., Carbajal, M. 2015. El Albatros corona blanca (*Thalassarche steadi*) (Falla, 1933) [sic] en la República Argentina. Primer registro confirmado por espécimen y notas sobre su distribución e identificación en el campo. *Nótulas Faunísticas, Segunda Serie* 180: 1–9.

Seco Pon, J.P., Copello, S., Tamini, L., Mariano-Jelicich, R., Paz, J., Blanco, G., Favero, M. 2015. Seabird conservation in fisheries: Current state of knowledge and conservation needs for Argentine high-seas fleets. In: Mahala, G. (Editor) *Seabirds and songbirds: Habitat preference, conservation and migratory behavior*. Nova Science Publishers, Inc. New York, USA. Pp. 45–88.

Seco Pon, J.P., Graziano, M., Mariano-Jelicich, R. 2022. Molecular analysis confirms the occurrence of *Thalassarche steadi* in Argentinian waters. *Notornis* 69, 268-271.

Seco Pon, J.P., Tamini, L. 2013. New records of shy-type albatrosses *Thalassarche cauta/T. steadi* off the Argentine Continental Shelf. *Revista Brasileira de Ornitologia* 21: 263–268.

Yorio, P., Bertellotti, M., García Borboroglu, P. 2005. Estado poblacional y de conservación de gaviotas que reproducen en el litoral marítimo argentino. *El Hornero* 20, 53–64.

## Annex A. Scientific publication confirming the occurrence of *Thalassarche steadi* in Argentina.

267

*Notornis*, 2022, Vol. 69: 267-270  
0029-4470 © The Ornithological Society of New Zealand Inc.

### SHORT NOTE

## Molecular analysis confirms the occurrence of *Thalassarche steadi* in Argentinian waters

JUAN PABLO SECO PON\*  
MAGDALENA GRAZIANO  
ROCÍO MARIANO-JELICICH

Instituto de Investigaciones Marinas y Costeras (IIMyC), Facultad de Ciencias Exactas y Naturales,  
Universidad Nacional de Mar del Plata-CONICET, Rodríguez Peña 4046, nivel 1 (B7602GSD), Argentina.

Before the current availability of molecular methods for separating shy (*Thalassarche cauta*) and white-capped albatrosses (*T. steadi*) (Abbott & Double 2003), it was accepted that these two 'shy-type albatrosses' (see Brooke 2004, Penhallurick & Wink 2004; Onley & Scofield 2007) along with Chatham albatross (*T. eronita*) and Salvin's albatross (*T. salvini*) were historically placed under a single polytypic species: the shy albatross (*Diomedea cauta*) (Marchant & Higgins 1990; Carboneras 1992). In modern days the shy albatross complex is divided into four species placed in the genus *Thalassarche* based on morphometric, phylogenetic, and population genetics studies (Robertson & Nunn 1998; Abbott & Double 2003; Sangster *et al.* 2015). Albeit this taxonomy has been adopted by leading organizations such as the Agreement on the Conservation of Albatrosses and Petrels – ACAP (Taxonomy Working Group 2006; ACAP 2011) and BirdLife International (2022), some authors show discrepancies (see Brooke 2004; Onley & Scofield 2007). In this paper we follow ACAP (2011) and BirdLife International (2022) in considering *T. steadi* as a separate species.

*Thalassarche steadi*, a New Zealand breeding endemic species, breeds on Auckland Islands, Antipodes Islands, and occasionally on the Chatham Islands. The vast majority of these birds (up to 90%) breed on Disappointment Islands (50°44'S, 166°06'E). *Thalassarche steadi* is regarded as a biennial breeder with a total population estimated at 203,600 mature individuals (BirdLife International 2022). Population trends of the species show strong inter-annual fluctuations, and despite further data needed to confirm the population trend, this parameter is currently considered as declining (BirdLife International 2022). Currently, *Thalassarche steadi* is listed as 'Near Threatened' due to a combination of at-sea (mainly fisheries bycatch) and on land (chiefly invasive non-native species) threats (Taylor 2000; Baker *et al.* 2007; Francis 2012).

*Thalassarche steadi* has an almost circumpolar distribution outside the breeding season, showing westerly dispersal directions (Shirihai 2008; Howell & Zuffelt 2019), mainly reaching productive waters off South Africa, particularly on the Atlantic side, a well-established key foraging area for overwintering and non-breeding individuals (Baker *et al.* 2007; Petersen *et al.* 2009 and references therein). There, the species is bycaught in large numbers by longline fisheries operating off South Africa (Baker *et al.* 2007; Petersen *et al.* 2009). Still, other

Received 14 May 2022; accepted 3 September 2022

\*Correspondence: secopon@mdp.edu.ar