



Agreement on the Conservation  
of Albatrosses and Petrels

## Seventh Meeting of the Advisory Committee

*La Rochelle, France, 6 – 10 May 2013*

### **Addition of a New Species to Annex I of ACAP: the Galápagos Petrel *Pterodroma phaeopygia***

***Ecuador***

#### **SUMMARY**

The Government of the Republic of Ecuador wishes to advise the ACAP Secretariat of its intention to nominate the Galápagos Petrel *Pterodroma phaeopygia* for listing under the Annex I of the Agreement. In order to assist the Parties in their consideration of such request and the assessment of this species, the Government of Ecuador has provided the relevant fact sheet and conservation action plan for the Galápagos Petrel.

The criteria adopted to include this species on the ACAP listing are based on the information provided in AC3 Doc 18, where the Galápagos Petrel is given a low score. As mentioned in such document and on the fact sheet, this was possibly due to the unavailability of accurate data on its marine threats and even its distribution.

Its distribution from the North of Chile following the reproductive area of the continental shore to central Mexico and to the West on international waters was confirmed in 2009. The study of its marine distribution may change the criteria assessment to include this species on the ACAP listing. In addition to this new distribution, it is worth pointing out that frequency is constant and differs according to the species breeding cycle. Such results pose the question of whether, other than land threats, this species also experiences marine threats, which matter should be analysed and discussed.

#### **RECOMMENDATIONS**

The Government of the Republic of Ecuador wishes to issue the following recommendations to the ACAP Secretariat in relation to the requested inclusion of the Galápagos Petrel on the listing under Annex I of the Agreement. It is requested that:

1. the Advisory Committee review the information provided and recommend that the Fifth Meeting of the Parties (MoP5) include the species on the listing under Annex I of the Agreement.
2. based on information provided, its score be reassessed, mainly under the following categories: CMS listing, marine threats, land threats.

# GALÁPAGOS PETREL FACT SHEET

## *Pterodroma phaeopygia*

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Common name: **Galápagos PETREL**

Scientific name: *Pterodroma phaeopygia*

Spanish name: Petrel de Galápagos

### TAXONOMY

Order Procellariiformes

Family Procellariidae

Genus Pterodroma

Epithet phaeopygia

Species *P. phaeopygia* (Salvin 1876)

Originally described as *Estrelata phaeopygia* (Salvin 1876), the species name was changed to *P. phaeopygia* by Loomis 1918 (Swarth, 1931). Later, it was considered a subspecies of the Hawaiian Petrel *P. phaeopygia phaeopygia* until it was finally classified as species *P. phaeopygia* (Browne et al. 1997).

From a genetic point of view, there are at least three genetically different populations of Galápagos Petrel on Galápagos; however, and in order to preserve evolutionary processes in viable populations, conservation measures should cover all the islands where the species is present (Friesen et al. 2006).

## CONSERVATION LISTINGS AND PLANS

IUCN status: Critically Endangered (CE).

### International

- 2010 IUCN Red List of Threatened Species – Critically Endangered (A2bce) since 1994 (IUCN 2011).
- Annex I to the Convention on Migratory Species (Granizo 2002).

### Ecuador

- The species has been protected within the Galápagos National Park since it was established in 1959 and within the Galápagos Marine Reserve since 1998.
- The 1998 Organic Law for the Conservation and Sustainable Development of Galápagos imposes a ban on any commercial use of native and endemic flora and fauna of the Archipelago.
- Ministerial Resolution 105, dated 7 January 2000, places a ban on hunting (Granizo 2002).
- The 2008 Constitution of Ecuador establishes the rights afforded to Nature and provides for penalties to anyone putting it in jeopardy.

## BREEDING BIOLOGY

The Galápagos Petrel breeding age is relatively unknown. However, sexual maturity in Procellariiformes ranges from 2 to 11 years of age, but in the case of genus *Pterodroma* it is known that such maturity is reached at 5-6 years of age (Warham 1990).

Phenological events on the five islands where the Galápagos Petrel breeds occur at different times of the year (Cruz & Cruz 1990), in Santa Cruz from March to January (Castro & Phillips 1996), in San Cristóbal from May to October (Cruz-Delgado et al. 2010), in Santiago from January to October, and in Floreana from October to August. However, on these two islands, an interesting change has been observed concerning the breeding season over the last years, showing a synchronisation towards the middle of the year, similar to the breeding season in Santa Cruz. This may be in response to the highly unsettled oceanic conditions around the Galápagos Marine Reserve and to the Pacific Decadal Oscillation (*in prep. pers. obs.*). In Isabela their breeding cycle is unknown, though it may be similar to that of the Santiago population due to its genetic and morphological similarity.

## BREEDING SITES

The main nesting colonies are distributed on high areas of the Santa Cruz, Floreana, Santiago, San Cristóbal and Isabela Islands (Harris 1974). However, according to Valarezo & Wiedenfeld (2005), some nests range from 150 to 700 m above sea level, covering the Transition and Humid ecological zones. The ecological zones feature dense vegetation and

soft soil, where the petrel may build its nests in the form of cavities in small holes from 50 cm to 2 m deep.

## POPULATION TRENDS

So far there is no total population estimate for the Galápagos Petrel. However, there are indirect estimates. In 1978-1980 there was an estimate of 9,000 pairs in Santa Cruz Island (Collar et al. 1992), 11,250 in Santiago and 6,750 in Floreana and San Cristóbal (Tomkins 1985). Apparently, in 1985 the population in Santa Cruz declined to 1000 pairs and to less than 500 in Santiago (Cruz & Cruz 1987). In Floreana an approximate 33% annual decline was estimated in four years (Coulter et al. 1985). Its current population size has been estimated at 10,000-20,000 individuals (BirdLife International 2011).

According to indirect estimates, around 4,500-5,000 active nests have been recorded (Cruz-Delgado *pers. comm.* 2007). This number should be added to the non-recorded nests in the National Park and Farming zones.

## BREEDING SITES: THREATS

The main threats facing the Galápagos Petrel are of anthropogenic origin, including introduced species, changes in the use of the soil and factors (interactions) affecting their flight.

The introduced species affecting the Galapagos Petrel on land during the breeding season are dogs *Canis familiaris*, cats *Felis catus*, pigs *Sus scrofa* and rats *Rattus* sp. which prey on their eggs, chicks and, occasionally, on adults individuals. As a result of these threats, Tomkins (1985) established an average life expectancy of 6.2 years and an adult mortality rate of 15% a year for the Galápagos Petrel. Likewise, goats *Capra hircus*, donkeys *Equus asinus* and cattle *Bos* sp. have an impact on nesting colonies by treading on them (Cruz & Cruz 1987). However, at present damage to the colonies has possibly declined due to the eradication and control of these species introduced in known nesting areas.

Moreover, introduced flora and invertebrates may also be a threat. Unfortunately, the severity and impact of the direct or indirect threat against the species in the nesting areas are unknown. Additionally, threats from infectious agents on the species are also unknown.

Another threat was the loss of habitat due to the change in the use of the soil for farming and grazing activities, which has severely limited the breeding areas in Floreana, San Cristóbal and Santa Cruz (Cruz & Cruz 1987, Tomkins 1985). It is worth mentioning that in 2005 there were 127 Galápagos Petrel nests in the farming areas on Santa Cruz Island (Valarezo & Wiedenfeld 2005) which is a significant number for the species, but a low number in relation to the number that may have been present in the area when it was not affected.

The threats affecting the Galápagos Petrel flight include the light from ships and lamp posts of the urban areas at night, which attract, confuse and affect the vision of individuals, disturbing their flight and making them collide with these structures (Jiménez-Uzcátegui *in prep. pers. obs.*).

Vertical structures on flight routes may also affect the species. However, in the case of the wind farm, studies have shown that this factor does not have an impact on the species on

San Cristóbal Island. It should be noted that several research studies on the petrel flight routes were conducted before placing wind turbines (Cruz-Delgado et al. 2007) seeking the appropriate location to avoid causing an impact on the species (Cruz-Delgado et al. 2010).

Likewise, research studies were conducted on Santa Cruz and Baltra Islands before the potential development of a wind farm, which concluded that the best area for the wind farm is Baltra because the petrel flight routes from their nests (high-central area) in Santa Cruz go towards the East and South of the island, towards open sea (Cruz-Delgado 2006, Jiménez-Uzcátegui 2007). In 2011 telecommunication antennas were erected in the high ground of the island; it is unknown if this affects flight routes, or whether the species collide with them.

Among natural threats, its natural predators are the Galápagos Hawk *Buteo galapagoensis* (Cruz & Cruz 1996), as well as the Short-eared Owl *Asio flammeus galapagoensis* and the Barn Owl *Tyto alba punctatissima*.

## FORAGING ECOLOGY AND DIET

The Galápagos Petrel forages cephalopods, fish, squid (Harris 1974), crustacean (Castro & Phillips 1996). Its foraging list also includes plankton, a usual diet for the Procellariiformes (Tuck & Heinzel 1980) when they are at sea. Generally, petrels prey-species are mesopelagic, with vertical migration to the surface at night (Imber et al. 1992). Adults feed their chicks with a regurgitation consisting of a highly caloric digested oil from their preys.

## MARINE DISTRIBUTION

During the breeding season, the marine habitat of the Petrel is mostly pelagic, distributed both within the Galápagos Marine Reserve and outside of it (-12° SW and -10° SE) (Proaño et al. *in prep.*).

The petrel has been seen in the Galápagos Marine Reserve area mainly to the West of the Archipelago, between Isabela and Fernandina, in the central area, between Santiago and Santa Cruz, to the South-East, between Española and San Cristóbal in large numbers, covering a very large distribution area across the Marine Reserve.

The marine distribution of the Galápagos Petrel was quite unknown (Jiménez-Uzcátegui & Wiedenfeld 2002) until 2009, but recent studies using satellite and geolocation technology have revealed that the Galápagos Petrel frequently leaves the Marine Reserve (Proaño et al. *in prep.*).

According to Birdlife maps (2008) this species is distributed at sea to the North from a point aligned to central Mexico and to the South with a point aligned to central Peru and offshore the continent in countries such as Mexico, Guatemala, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Ecuador and Peru towards the Marine Reserve, from where an estimated 4000 Km distribution area is considered to extend the West. However, according to Proaño (et al. *in prep.*), based on satellite and geolocation data, during the non-breeding season, the marine habitat widely extends from the South coasts of Central America (2° NE of the Archipelago) and does not reach Mexico, as mentioned by Birdlife (2011), and through the South of Chile (-14° SE).

## MARINE THREATS

At present there are no quantitative data to identify the species marine threats. However, although *Pterodroma* species are not usually affected by bycatch, their distribution overlaps with fisheries along the South-American coast.

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## APPENDIX 1. CONSERVATION ACTION PLAN FOR THE GALAPAGOS PETREL

<b>1. Interactions with Fisheries</b>			
<b>MEASURES/TASKS</b>	<b>PRIORITY</b>	<b>RESPONSIBILITY</b>	<b>SCHEDULE</b>
1.1 Conduct research studies on fisheries possibly having interaction with the Galápagos Petrel outside the GMR.	HIGH		IMMEDIATELY
1.2 Conduct research studies on fisheries possibly having interaction with the Galápagos Petrel within the GMR.	LOW		
1.3 Continue with research studies on artisan fisheries, their seasonal nature, equipment, efforts, methods and fishing areas, target species and bycatch, including non-target species and other fauna.	LOW		
1.4 Conduct research studies on bycatch, determining the best mitigation measures and finding ways to ensure that they are implemented.	MEDIUM		
<b>2. Land Threats - Protection</b>			
<b>MEASURES/TASKS</b>	<b>PRIORITY</b>	<b>RESPONSIBILITY</b>	<b>SCHEDULE</b>
2.1 Eradicate and/or control predators introduced in nesting areas to improve the breeding conditions on the islands according to the season	HIGH +		IMMEDIATELY
2.2 Develop a control programme for vegetation introduced in the nesting area	HIGH		
2.3 Develop a control programme for species introduced (large animals: dogs, pigs, cattle) in the farm area	HIGH +		IMMEDIATELY

2.4 Develop a programme for the acquisition of plots of land or farms where the ecological restoration of the Petrel and other species may be conducted	LOW		
<b>3. Population Tracking - Monitoring</b>			
<b>MEASURES/TASKS</b>	<b>PRIORITY</b>	<b>RESPONSIBILITY</b>	<b>SCHEDULE</b>
3.1 Establish and develop a monitoring programme for the Galápagos Petrel population in the GNP nesting areas.	HIGH		IMMEDIATELY
3.2 Establish and develop a monitoring programme for the Galápagos Petrel population in the nesting areas of farms or private areas.	LOW		
3.3 Developing a rescue programme for Petrels affected by disorientation	MEDIUM		IMMEDIATELY
<b>4. Galápagos Petrel Knowledge – Scientific Studies</b>			
<b>MEASURES/TASKS</b>	<b>PRIORITY</b>	<b>RESPONSIBILITY</b>	<b>SCHEDULE</b>
4.1 Undertake studies on the Galápagos Petrel diet in breeding areas.	MEDIUM		
4.2 Continue and enhance studies on the distribution and behaviour of the Galápagos Petrel at sea.	HIGH		IMMEDIATELY
4.3 Continue and enhance studies on the distribution of the Galápagos Petrel in areas outside the GNP, farm areas.	MEDIUM		
4.4 Assess the exposure to toxic chemicals and/or heavy metals	MEDIUM		
4.5 Identify and monitor Galápagos Petrel infectious disease and parasite occurrence over years in different weather conditions.	HIGH		

4.6 Assessing the disorientation of the Galápagos Petrel and its impact on urban areas.	LOW		IMMEDIATELY
<b>5. Information and Education</b>			
<b>MEASURES/TASKS</b>	<b>PRIORITY</b>	<b>RESPONSIBILITY</b>	<b>SCHEDULE</b>
5.1 Provide training on the Galápagos Petrel to farm owners, especially if they have been identified on their farms, and on how to preserve them.	HIGH		
5.2 Develop and provide information on the ecological restoration programme in the farm areas where the Petrel nests.	HIGH		IMMEDIATELY
5.3 Develop Education Fishing Observer Programmes for different fisheries	HIGH		
5.4 Transfer information to fishers to make it clear that the rings, plastic bands and electronic devices have no economic value.	LOW		