

## Progress Report

# **“Population ecology of the endemic flightless Chubut Steamerduck in Patagonia, Argentina (*Tachyeres leucocephalus*): conservation and management implications”**

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## Activities achieved

A total of 20 field trips were realized during 2015 breeding season, from September to December according to the egg laying period of Chubut Steamerducks (Agüero and García Borboroglu 2013).

To monitor incubation behavior and determine some parameters of the breeding biology of this species, thermistor probes were placed in 25 nest cup (shortly after start laying) on six islands within Melo Bay, Chubut Province (Fig 1). This study was complemented with passive infra-red motion sensor cameras set up simultaneously at six nests.



Five adult females were successfully captured with a horizontal mist net placed along the coast line. Samples of blood were taken and conserved following the appropriated protocol to further genetics and stable isotopes analysis. Different morphometric measurements were taken to determine the physic condition of incubating females (weight, wing and tails length and bill measurements).



A total of six coastal surveys were conducted within Melo Bay, accounting for a total of 50 Km. of continental and islands coastline. Number of breeding pairs and juveniles, and their satellite location were recorded. Methodology used by Agüero et al (2012) was followed.



## Outcomes

From 25 nests monitored by thermistor probes, eight successfully hatched, five were neglected and 12 were depredated (Table 1).

Table 1: Some parameters of the breeding biology of Chubut Steamerduck in Melo Bay (N=8 nests).

	<b>Incubation period (days)</b>	<b>Clutch size (# eggs)</b>	<b>Hatching success (%)</b>	<b>Chick survival (%)</b>
<b>Average</b>	39.7	5.7	0.87	0.95
<b>Maximum</b>	48	7	1	1
<b>Minimum</b>	28	4	0.75	0.71

Camera traps triggered 7,000 photos in each nest (91,000 total photos). About 10% of the photographs were reviewed detecting natural mammalian and avian predators: Grey Fox (*Lycalopex griseus*) and Crested Caracara (*Caracara plancus*), respectively. Nine nests were depredated by Grey Fox on islets that connected with mainland during ebb tide. Other three nests were depredated by Crested Caracara on an isolated island.

A preliminary incubation pattern has been detected. Females started true incubation after clutch is completed, and tended to overnight breaks returning to the nest sunrise. Morphometric measurements of the five captured females are summarized in Table 2.

Table 2: Morphometric measurements of Chubut Steamerducks females in Melo Bay.

	<b>Wing (cm)</b>	<b>Tail (cm)</b>	<b>Bill (mm)</b>		<b>Weight (grs)</b>
			<b>Length</b>	<b>Width.</b>	
<b>Average</b>	37.60	12.25	56.33	31.60	3,570
<b>Maximum</b>	42.00	13.00	59.08	33.21	3,800
<b>Minimum</b>	27.00	11.00	53.45	29.59	3,250
<b>N</b>	5	5	5	5	5

During coastal surveys a total of 220 breeding adults and 194 juveniles were counted (414 individuals) along 50 km of continental and island coast in Melo Bay.



Photographs from camera traps and graphs from thermistor probes are still under analysis to determine more accurately natural predators, nest attendance, incubation constancy and other breeding biology parameters heretofore unknown.

### Unforeseen difficulties

Overall, the weather in South America during 2015 and half of 2016 has been under the influence of El Niño Southern Oscillation (ENSO). The Patagonian coasts have not been free from these weather fluctuations, characterized by unpredictable storm winds. This unexpected condition made navigation difficult and hazardous to access

the islands and accomplish surveys. Finally, GPS devices have been returned to the company as it failed to pass the customs security check. Unfortunately, they have recently implemented an unprecedented strict control policy for battery product, so the delivery hasn't been possible. Procedures and negotiations are being carried out to release devices

## Contributions

Meetings with National Park Authorities and Wildlife Bureau have taken place last few months. They are very interested in the results obtained by this project, and they have shown an interest to continue working with us in Chubut Steamer Duck Project in the future.

A technical report has been submitted to the decision-makers (staff from the Chubut Province Wildlife Bureau and National Park Authorities) listing some conservation and management recommendations and zoning maps for this particular marine duck. This information is being used for the design of the Management Plan of the Interjurisdictional Marine Park and Patagonia Azul Biosphere Reserve.

Finally, Biology Student have been involved in the activities project and meetings with some of the Estancias (Ranches) landowners and local inhabitants have taken place showing some Chubut Steamerduck pictures and make them aware of the particular features of this species.



## Bibliografía

Agüero. M.L.. García Borboroglu. P. y Esler. D. 2012. Distribution and abundance of Chubut Steamerducks: an endemic

species to Central Patagonia. Argentina. Bird Conservation International Available on CJO 2011  
doi:10.1017/S0959270911000244.

Agüero. M. L. y Borboroglu. J. P. 2013. Breeding biology of the Chubut Steamerduck (*Tachyeres leucocephalus*). *Ornitología Neotropical* 24: 85-93

Figure 1: Map showing the study area within Melo Bay and distribution range of Chubut Steamerduck in Chubut Province marine coasts.

