



CHACO FAIRY ARMADILLO

Calyptophractus retusus (Burmeister, 1863)



FIGURE 1 - (FPMAM67PH) Adult, PN Tte Enciso, Departamento Boquerón (Enrique Bragayrac undated).

TAXONOMY: Class Mammalia; Subclass Theria; Infraclass Eutheria; Order Cingulata; Family Dasypodidae; Subfamily Chlamyphorinae (Myers et al 2006, Möller-Krull et al 2007). Gardner (2007) included the Chlamyphorinae as a tribe Chlamphorini of the subfamily Euphractinae. The genus *Calyptophractus* was defined by Fitzinger (1871) and contains a single species. *Calyptophractus* is derived from the Greek meaning "concealed bands". This species has been previously placed in the monotypic genus *Burmeisteria*, Gray 1865 but this name is unavailable as it is preoccupied by a trilobite (Salter (1865). Alternatively it has been placed in the genus *Chlamyphorus*, Burmeister (1863), jointly with the other member of the subfamily, the Pink Fairy Armadillo *C. truncatus*. Morphologically *Calyptophractus* is quite different to *Chlamyphorus* not least for the fact that the carapace is firmly attached to the body in *Calyptophractus* whilst it is almost separated from the body in *Chlamyphorus*. The Edentate Specialist Group (2004) advocates the use of *Calyptophractus* over *Burmeisteria* as the generic name for this species following

Wetzel (1985) and this was also followed by Gardner (2007). The species is monotypic. Synonyms adapted from Gardner (2007):

Chlamyphorus retusus Burmeister 1863:167. Type locality "Santa Cruz de la Sierra" Santa Cruz, Bolivia.

Burmeisteria retusa Gray 1865:381. Name combination.

Calyptophractus retusus Fitzinger 1871:389. First use of current name.

Burmeisteria retusa clorindae Yepes 1939:38. Type locality "Tapia en la gobernación de Formosa" Argentina.

ENGLISH COMMON NAMES: Chaco Fairy Armadillo (Redford & Eisenberg 1992), Greater Fairy Armadillo (Redford & Eisenberg 1992), Burmeister's Fairy Armadillo (Cimardi 1996), Burmeister's Armadillo (IUCN 2008), Greater Pichi Ciego (IUCN 2008), Northern Pich-ciego (Anderson 1997).

SPANISH COMMON NAMES: Pichiciego grande (Redford & Eisenberg 1992, Cuéllar & Noss 2003), Pichiciego mayor (Abba & Superina 2010), Coseveru (Anderson 1997), Culo tapado (Cuéllar & Noss 2003), Tatú ciego, Tatú de abrigo. The Spanish name "Culo tapado" means in vulgar terms "Butt plug", a reference to the flattened, hardened rump region which is used to block tunnels as a defence mechanism.

GUARANÍ COMMON NAMES: Tatu jeikuarajoya (Cuéllar & Noss 2003). Roughly translated the Guaraní name means "short-anus armadillo".

DESCRIPTION: Bizarre, subterranean mole-like armadillo with greatly reduced eye and ear. The carapace is pinkish with an undulating lateral edge, and attached firmly to the skin of the dorsum. It has approximately 23 rows of squarish scutes. The rump is armoured with an ovoid "plug" that is naked, pinkish and scattered with roundish scales. Tail short, pinkish, lightly armoured and lacking a spatulate tip, located at the lower edge of the anal carapace. The head shield widens posteriorly and has a rounded posterior edge, it does not extend below the level of the eye. Heavily-furred both ventrally and laterally, the pelage being whitish with a golden tinge towards the midline. The sides of the head are also furred. Forelimbs are pinkish, largely naked with large, irregular vestiges of scutes. Forefeet armed with three greatly enlarged claws (digits 1-3), and one smaller claw, adapted for digging. The three larger claws are rotated so that they are visible laterally. Hindfoot with five toes, similarly arranged but with reduced claws when compared to the forefeet.

CRANIAL CHARACTERISTICS: No information.

DENTAL CHARACTERISTICS: No information.

GENETIC CHARACTERISTICS: 2n=64.

TRACKS AND SIGNS: No information.

EXTERNAL MEASUREMENTS: Much the smallest of the Paraguayan armadillos. Measurements for Bolivian individuals, two males and two females **HB:** male 13.5-14.5cm, female 12.5-13.2cm; **TA:** male 3.5-3.6cm, female 3.3-3.5cm; **FT:** male 3cm, female 2.8-3cm; **EA:** male 0.5-0.6cm, female 0.5cm; **WT:** male 71-86.9g, female 63-5-84.2g (Cuéllar 2004). An unsexed specimen (male?) from Paraguay had the following measurements **TL:** 15.85cm; **HB:** 11.6cm; **TA:** 4.25cm; **FT:** 3.9cm; **EA:** 4.5cm. (Redford & Eisenberg 1992).

Azurudy et al (2005) give the following measurements for 12 Bolivian specimens, 6 males, 3 females and 3 unsexed unless noted: **TL:** males 153.33mm (126-199mm), females 136.67mm (125-153mm), unsexed (males?) 163mm (160-165mm); **TA:** males 35.5mm (32-39mm), females 35mm (33-37mm), unsexed (males?) 34mm (27-38mm); **FT:** males 31.5mm (28-39mm), females 29.66mm (28-31mm), unsexed (males?) 32.66mm (25-39mm); **EA:** males 5.4mm (5-6mm, n=5), females 5mm, unsexed (males?) 5mm; **WT:** males 91.3g (71-116g, n=3), females 73.85mm (63.5-84.2g, n=2). Measurements suggest that there is sexual dimorphism in size, with males consistently larger than females.

SIMILAR SPECIES: This distinctive species is unmistakable in its range and unlikely to be confused. Perhaps the most likely error would be to erroneously consider it a juvenile armadillo of another species based on its small size. However structurally this species is quite distinct with small eyes and ears, a very short tail and the distinctive pattern of the carapace on the rump. Furthermore it is heavily furred, unlike any juvenile armadillo.

DISTRIBUTION: Confined to the Chaco region of Bolivia, western Paraguay and northern Argentina and considered a Chaco endemic.

Azurudy et al (2005) detailed the localities for Bolivian records, with almost all coming from the Bañados de Izozog and PN Kaa-Iya areas in southern Departamento Santa Cruz, and the most northerly report west of the city of Santa Cruz de la Sierra, near Pampas del Urubó, though no specimen was taken (Miserendino pers.comm. in Azurudy et al 2005). This northerly record is said to represent a disjunct population in the Chiquitana pampas biome. The species is suspected to occur in central and western (?) Departamentos Chuquisaca and Tarija, though there are currently no records from that area.

Distribution is closely linked to soft, sandy soil areas, so it is locally distributed despite the apparently wide geographic range. Its fossorial habits means that it is likely under-recorded and it may potentially reach sandy areas of the Paraguayan and Brazilian Pantanal, though the species has yet to be recorded in those areas (Edentate Specialist Group 2004).

HABITAT: Endemic to the Chaco biome where it is apparently locally distributed and confined to areas with soft, sandy soil. The surface habitat seems less important to the species and it even occurs in areas close to human habitation if the soil conditions are adequate. Much of the habitat in the Paraguayan Chaco is unsuitable for this species, consisting of compacted clay soils beyond the burrowing capabilities of this small species.

ALIMENTATION: Likely insectivorous feeding on subterranean invertebrates and their larvae. A captive individual kept in a fish tank filled with soil at Brookfield Zoo was fed on cooked rice (Edentate Specialist Group 2004). Another thrived in captivity in Bolivia in a yard where it was able to burrow, but died shortly after translocation to the US National Zoo of respiratory infection where it had been fed on mealworms, raw eggs and meat.

A wild individual observed west of the city of Santa Cruz de la Sierra, near Pampas del Urubó, Bolivia was apparently feeding on larvae in palm seeds *Acrocomia totai* (Miserendino pers.comm. in Azurudy et al 2005).

REPRODUCTIVE BIOLOGY: No information. It is assumed that they give birth to a single young (Cuéllar & Noss 2003).

GENERAL BEHAVIOUR: Almost nothing is known of the behaviour of this species other than the fact that it is fossorial and rarely observed. Essentially they fill a similar ecological niche to that occupied by the Old World moles of the family Talpidae. They are primarily nocturnal, with activity beginning after dark and are apparently solitary. An adult in Bolivia was found at 22.00h scuttling and sniffing along the ground and making occasional shallow excavations in search of food (Cuéllar 2004). A study of limb morphology suggested that the members of the subfamily Chlamyphorinae were adapted for speed rather than power, essentially making them "sand swimmers" and explaining their absence from areas with hard soils (Vizcaíno & Milne 2002).

Defensive Behaviour Little known. An individual in Bolivia responded to the approach of observers by burying itself half way into the soil (Cuéllar 2004). The flattened rump acts as a plug to block tunnels, affording the animal protection as it burrows.

Mortality When above ground these relatively defenceless armadillos are vulnerable to predators. Individuals are probably killed by domestic dogs and cats, and would be easy prey for other carnivorous mammals as well as owls.

Parasites Guglielmone et al (2003) note the Ixodid tick *Amblyomma pseudoconcolor* on this species.

VOCALISATIONS: Cries like those of a human infant have been noted in this species (Nowak 1991).

HUMAN IMPACT: Despite Neris et al (2002) stating that indigenous people consume the meat and carapace completely, Merritt (2008) found during interviews with local people in the Paraguayan Chaco that the species was not hunted by humans for food on account of its small size and subterranean habits. In many parts of its range it is however considered an animal of ill omen, foretelling the imminent death of a family member and must be killed on sight to prevent such a fate (Cuéllar 2001). The species is most often encountered during ploughing of grasslands (Neris et al 2002).



CONSERVATION STATUS: Globally considered Data Deficient by the IUCN (Abba & Superina 2010), see <http://www.iucnredlist.org/search/details.php/4703/all> for the latest assessment of the species. The Centro de Datos de Conservación in Paraguay consider the species to be endangered in Paraguay and give it the code **N2**. Though little is known of its biology it is clearly locally distributed and a population decline in the range of 10-25% in the last 10 years is not unthinkable (Abba & Superina 2010). Merritt (2008) did not encounter the species in the Central Chaco area during more than 20 years of periodic fieldwork.

This is a Chaco endemic species and though widespread in Bolivia and Paraguay it is locally distributed and occurs only in areas with loose sandy soils. It may also occur in sandy soil areas of the Pantanal in Paraguay and Brazil, though to date it has not been recorded there. Considered an animal of ill-omen, it is killed by humans when encountered and such pressure on a rare species is likely to have telling effects on the population. Though it thrives in secondary habitats it would seem that the population is in decline, though no data is available to support the assumption. Conversion of appropriate habitat to pasture may affect the species but fortunately in Paraguay much of the range of the species is at least nominally protected in the various national parks of the Chaco region. However it should be noted that these parks are protected more by their isolation than by an effective conservation plan. (Edentate Specialist Group 2004).

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