Biodiversity Journal, 2017, 8 (4): 885–887

Discovery of some white quills of the crested porcupine *Hystrix cristata* (Linnaeus, 1758) (Mammalia Rodentia)

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ABSTRACT In this note, we report the discovery of some white quills belonging to the crested porcupine *Hystrix cristata* Linnaeus, 1758 (Mammalia Rodentia) from Sabini Mountains (Central Italy). We hypothesize the leucism of the individual.

KEY WORDS Leucism; Albinism; Crested porcupine; *Hystrix cristata*; Monti Sabini; Central Italy.

Received 01.10.2017; accepted 05.11.2017; printed 30.12.2017

INTRODUCTION

Albinism is a genetic condition caused by an autosomal recessive gene that affects normal pigmentation in humans and animals (Oliveira & Foresti, 1996) and is characterized by the absence of pigment in the eyes, skin, hair, scales, feathers, or cuticles. These phenomena may be related to environmental factors, such as exposure to heavy metals (Oliveira & Foresti, 1996), heredity (Ueda et al., 2007), or artificial selection of albino individuals in captivity. The total albinism can occur in all vertebrates groups and it is characterized by whitish body and the presence of red eyes (Sazima & Pombal, 1986). On the contrary, partial albinism, also known as leucism, is characterized by presence of pigmentation in only some parts of the body - e.g. the eyes - that are not pink as in the albins (Lutz, 2001).

Albinism in mammals is a known and fairly common phenomenon (Jones, 1920; Caro, 2005). In the case of *Hystrix cristata* Linnaeus, 1758 (Mammalia Rodentia), there are no observations of albino or leucistic individuals in nature apart from the citation relating to the *Hystrix africae australis* Peters, 1852, in the territory of Ex-Rhodesia (today Zimbabwe), captured close to Chiredzi River, and kept at the National Museum of Bulawayo (Mohr, 1965). The only known albino individuals of *H. cristata* are bred in captivity by private breeders and / or by the Olmen Zoo in Belgium (http://www.chiangmainightsafari.com/cnsweb/index.php/en/animals-type/85-jajuar/160-albino-crested-porcupine; https://www.youtube.com/watch?v=sqykj0_ 6BqA). Obviously, albino individuals are unfavorably selected and their life expectancy in nature would seem very low, either by low vitality, great sensibility to sunlight, difficulty in intraspecific interactions, or by a clear disadvantage respect to predators (McCardle, 2012). The specimens suffering from leucism, which can be considered as a low level of partial albinism, don't have red eyes, and the individual is neither weak nor particularly sensitive to sunlight and heat (McCardle, 2012).

MATERIAL AND METHODS

Study area

The Sabini Mountains are located to the west by the Tevere River, to the north by the Nera River, to the east by the Velino River and the Turano River, and to the south by the Aniene River. The Tancia Mount with 1282 meters a.s.l. is the highest peak of the Sabini Mountains. They are made up of a northern section, the Sabini Mountains, located near the border between Latium and Umbria, and the southern section, the Lucretili Mountains, on the border between the province of Rieti and the province of Rome. The two subgroups are divided by the flat and hilly territories of Sabina. These are young reliefs, from the composition of marl and limestone. Due to the action of the weather agents and the dense woody vegetation, these territories have been of little use to the man. Only relatively recently, these territories have suffered heavy deforestation to make way for farming and agriculture. In the massif of Tancia, there are two main plant landscapes: the thermophilic and heliophilous of the southern slope and the mesophilic of the northern and eastern sides. In the southern slope, there are, in fact, vegetable species that prefer warmer temperatures such as *Quercus ilex* L., *Pistacia lentiscus* L., *P. terebinthus* L., *Smilax aspera* L. and *Cercis siliquastrum* L. At higher altitudes, there are *Q. cerris* L., *Q. pubescens* Willd. and other mixed stains. On the northern slope, at higher altitudes, there is *Fagus sylvatica* L. In addition to *Hystrix cristata*, in the area there are also other wild mammals like *Sus scrofa* Linnaeus, 1758, *Capreolus capreolus* Linnaeus, 1758, *Meles meles* Linnaeus, 1758, *Felis silvestris* Schreber, 1777, *Sciurus vulgaris* Linnaeus, 1758, *Canis lupus* Linnaeus, 1758, *Martes martes* Linnaeus, 1758, *M. foina* Erxleben, 1777, *Mustela nivalis* Linnaeus, 1758, *M. putorius* (Linnaeus, 1758), and *Erinaceus europaeus* Linnaeus, 1758.

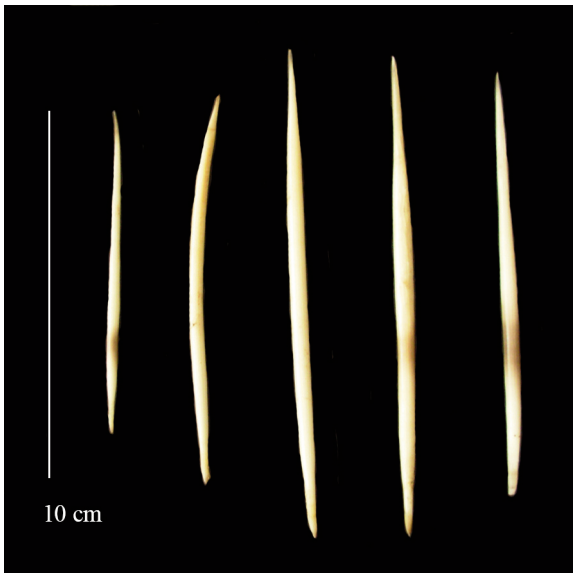

Figure 1. White quills of the crested porcupine *Hystrix cristata* from Sabini Mountains (Central Italy).

Methods

In November 2016, one of the authors (M.G.) found five whitish quills of crested porcupine, almost completely white, without the characteristic black rings (Fig. 1). All quills have been found in an area of about two meters and are very likely to belong to the same individual. The location of the discovery is a mountain trail (678 m a.s.l., 42°18'18.98"N, 12°43'59,02"E) leading to the summit of Mount Tancia. This area is in the municipality of Monte San Giovanni in Sabina, in the province of Rieti (Latium, Central Italy).

RESULTS AND CONCLUSIONS

The quills found were in good conditions and they are those of the upper part and appear to belong to a young individual (Fig. 1). It does not seem that the quills have belonged to a prey, considering that none of them was broken. They were probably lost by the individual in transit at the place of discovery. Looking carefully, it is possible to notice the presence of mild brown pigment residues, which lead to think that the individual was probably suffering from leucism, or a partial form of albinism rather than real albinism. It would be interesting to know whether the leucistic porcupines are disadvantaged or not in regard to predation, and intraspecific interactions. Concerning the anti-predatory defense mechanisms, at least in Italy, it can only be reasonably assumed that the porcupine is able to defend itself, as represented by the quills themselves.

ACKNOWLEDGEMENTS

The authors would like to thank Spartaco Gip-

politi (Rome, Italy) for his help in literature review support.

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