FIRST RECORD OF LEUCISM IN KERGUELEN SHAG *LEUCOCARBO VERRUCOSUS*

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ABSTRACT

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The first case of leucism in the Kerguelen Shag *Leucocarbo verrucosus* was observed on Mayes Island, Kerguelen Archipelago, in the southern Indian Ocean between October 2021 and November 2022. The individual exhibited extensive white plumage with scattered black feathers while maintaining normal eye pigmentation, consistent with leucism rather than albinism. Despite exhibiting typical behavior and social interactions, no breeding activity was recorded. This observation highlights the occurrence of pigment abnormalities in sub-Antarctic seabirds and underscores the importance of continued monitoring to better understand their ecological or genetic implications.

Key words: Kerguelen Archipelago, leucism, pigmentation, seabird, sub-Antarctic

INTRODUCTION

The Kerguelen Shag *Leucocarbo verrucosus*, also known as the Kerguelen Cormorant, is endemic to the Kerguelen Archipelago. It is a medium-sized cormorant with a distinctive appearance, typically exhibiting dark plumage that provides camouflage within the rocky coastal habitats it occupies (Camprasse et al., 2017b; Mooney, 2014).

The Kerguelen Archipelago is a remote group of islands in the southern Indian Ocean. These sub-Antarctic islands are characterized by extensive expanses of moss and lichen-covered rocks, fjords, glaciers, and a small number of vascular plants adapted to cold and windy conditions. The surrounding waters are rich in marine life, supporting vast populations of fish, squid, and other marine organisms, which in turn sustain higher predators, including seals and various seabird species.

The Kerguelen Shag feeds on benthic fish and invertebrates (Camprasse et al., 2017a, 2017b). The species breeds in colonies on cliffs and rocky outcrops, where it lays eggs in nests constructed from seaweed and other marine debris (Mooney, 2014). The population in the Golfe du Morbihan is estimated at approximately 4,800 pairs. The conservation status of the Kerguelen Shag has received attention because of its limited range and potential threats from environmental change and human activities in the Southern Ocean. Consequently, the species is an important indicator of the health of the marine ecosystem in the Kerguelen region (Weiersbye, 2010).

Here, I report the first record of leucism for this species since monitoring began in 1988, when annual surveys during the breeding season were initiated. Observations were made between October 2021 and November 2022 on Mayes Island in the Golfe du Morbihan (see Fig. 1).

OBSERVATIONS

The bird was predominantly white with scattered black spots and patches, particularly on its wings and head (Fig. 2). The mixture of white and black feathers indicated the partial loss of pigmentation characteristic of leucism, and its dark eyes contrasted starkly with its pale feathers. Black feathers were mainly present on the primary and secondary flight feathers and on its back. The blue ring around the eyes and orange skin at the base of the beak were visible, persisting in this leucistic individual. Figure 3 shows asymmetrical black feathers on both wings. Despite its color difference, the bird interacted normally with its conspecifics (Fig. 2). However, there was no evidence of reproduction in 2021 or 2022, and the sex of the bird was not determined.

The bird was moulting and showed asymmetrical black feathers on both wings (Fig. 3). Primary feather 1 (P1) was fully renewed and appeared darker. In contrast, P6 was still growing and was approximately half the length of the other primaries, with a similarly dark coloration. The more brownish coloration of the remaining primaries indicated worn feathers. In leucistic birds, feather wear can be more pronounced than in normally pigmented birds, potentially requiring more energetic investment to maintain effective flight, which can have a major impact on survival.

DISCUSSION

The observation of a leucistic Kerguelen Shag in the Golfe du Morbihan adds to a limited number of records of pigmentation anomalies documented in sub-Antarctic seabirds (Ryan, 1996). Similar cases have been reported in other cormorant species, including leucistic individuals observed in southern Africa (Cape Cormorant *Phalacrocorax capensis* and Great Cormorant *P. carbo)* (Ryan & Martin, 1996), as well as more recent aberrant pale plumage in the Double-crested Cormorant *Nannopterum auritum* in North America (Iron, 2018) and colour-aberrant individuals of the Indian Cormorant *P. fuscicollis* in India (Solanki, 2022).

The presence of leucism, characterized by the partial loss of pigmentation while retaining normal eye color, as observed in this individual, aligns with the definitions and manifestations of leucism described in the literature (Mundy, 2005). The ability of

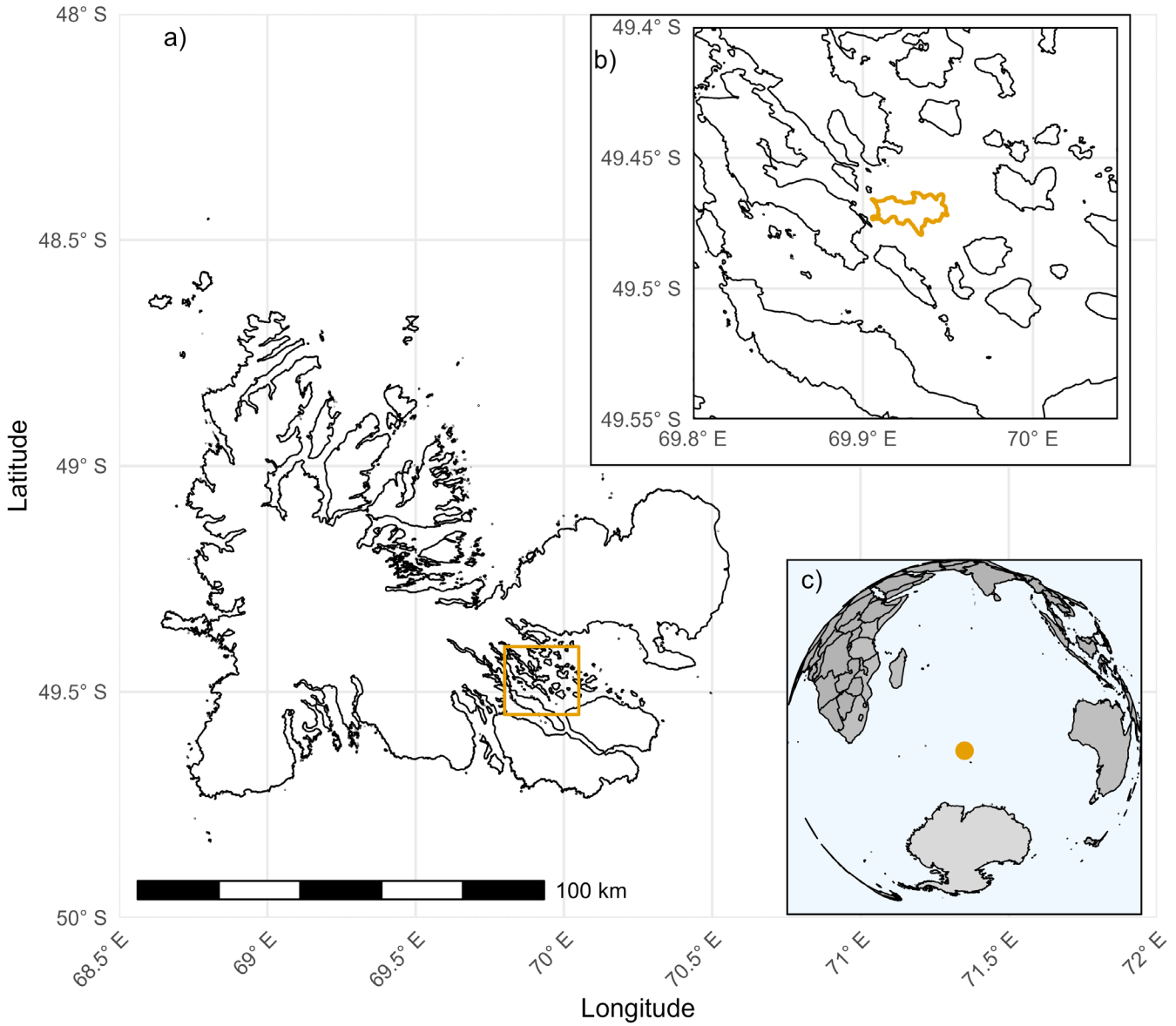

Fig. 1. Overview of the Kerguelen Archipelago (a), detailed view of Mayes Island in the Golfe du Morbihan (b), and global position of this French subantarctic territory in the Southern Ocean (c).

Fig. 2. Non-leucistic (left) and leucistic (right) Kerguelen Shags *Leucocarbo verrucosus* interacting (03 November 2022).

Fig. 3. Leucistic Kerguelen Shag *Leucocarbo verrucosus* in flight showing asymmetric wing coloration and molting feathers (03 November 2022).

the leucistic Kerguelen Shag to interact normally with conspecifics despite its distinct coloration suggests that leucism may not strongly impair social interactions within this species. This observation is noteworthy because plumage coloration often plays a pivotal role in avian social and mating behaviors (Roulin, 2019). However, the apparent absence of breeding activity in this individual during the study period raises questions about the potential impacts of leucism on mating and fitness, which have been reported in other bird species (Garrido-Garduo et al., 2020).

In conclusion, the observation of a leucistic Kerguelen Shag adds a data point to the body of knowledge on avian leucism.

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AUTHOR CONTRIBUTIONS

Conceptualization: KG. Investigation: KG. Writing—original draft: KG. Writing—review & editing: KG.

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