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SHORT COMMUNICATION

Plant consumer innovation in skuas

Samara Danel[1] · Gaël Bardon[2,3] · Christophe de Franceschi[4] · Léna Bureau[4] · Christophe Barbraud[5] · Karine Delord[5] · Dora Biro[1,6] · Francesco Bonadonna[4]

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Abstract

We report observations of alien dandelion (*Taraxacum officinale* group) consumption in an opportunistic predatory seabird, the brown skua (*Stercorarius antarcticus lonnbergi*), from a natural population on île Verte within the Kerguelen archipelago. Observations on a nearby island suggest that this behaviour is not specific to our study area, paving the way to future studies investigating whether this consumer innovation prevails in skua populations and results in dietary benefits.

Keywords Animal innovation · Consumer innovation · Field observation · Novel food · *Stercorarius antarcticus lonnbergi*

Zusammenfassung

Innovative Pflanzennahrung bei Skuas

Wir beschreiben hier Beobachtungen an Tristanskuas *Stercorarius antarcticus lonnbergi*, einer opportunistisch und räuberisch lebenden Seevogelart, aus einer Population auf der Île Verte im Kerguelen-Archipel, die fremdartige Löwenzahnteile (*Taraxacum officinale*-Gruppe) verzehrten. Beobachtungen auf einer benachbarten Insel deuten darauf hin, dass dieses Verhalten nicht standortspezifisch für unser Untersuchungsgebiet ist und weisen den Weg für zukünftige Untersuchungen, ob dieses innovative Konsumverhalten in Skuapopulationen etabliert ist und zu ernährungsbedingten Vorteilen führt.

A myriad of animal species have been reported to incorporate novel food types into their diet (Lefebvre 2020). This behaviour, known as consumer innovation, can be particularly useful in changing environments where novel foods and foraging opportunities tend to arise (Prasher et al. 2019). Field notes on previously unreported consumer innovation are crucial to understand how individuals cope with changes in their environment, thereby potentially influencing a species' survival and evolution (Sol et al. 2005). Here, we report for the first time the consumption of an alien plant, the common dandelion (*Taraxacum* ssp.), in brown skuas (*Stercorarius antarcticus lonnbergi*) from two locations: île Verte (although noticed since at least 2015: F. Bonadonna, pers. com) and île Mayès (although noticed since at least 2002: C. Barbraud and K. Delord, pers. com), Morbihan Gulf, sub-Antarctic Kerguelen archipelago (48°25′–50°00′ S; 68°27′–70°35′ E).

On 29 December 2019 (fieldwork duration: from 23 December 2019 to 16 January 2020; morning session, between 8–11 a.m.), during the set-up of a cognitive object-choice task investigating brown skuas' capacity to behave flexibly, the human experimenter noticed that an adult female from an established breeding territory, 'Sourcil blanche', which was waiting in front of the apparatus, swallowed the capitula (inflorescence's head) of a dandelion. At that time, skuas were being tested on a well-established paradigm: the reversal-learning task (e.g., Danel et al. 2022).

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✉ Samara Danel
samara.danel@gmail.com

[1] Department of Zoology, University of Oxford, Oxford OX1 3PS, UK

[2] Département de Biologie Polaire, Centre Scientifique de Monaco, Monaco City, MC 98000, Monaco

[3] Université de Strasbourg, CNRS, IPHC UMR 7178, 67000 Strasbourg, France

[4] CEFE, Univ Montpellier, CNRS, EPHE, IRD, Montpellier, France

[5] Centre d'Etudes Biologiques de Chizé, CNRS, La Rochelle Université UMR7372, Villiers en Bois, France

[6] Department of Brain and Cognitive Sciences, University of Rochester, Rochester, NY 14627, USA

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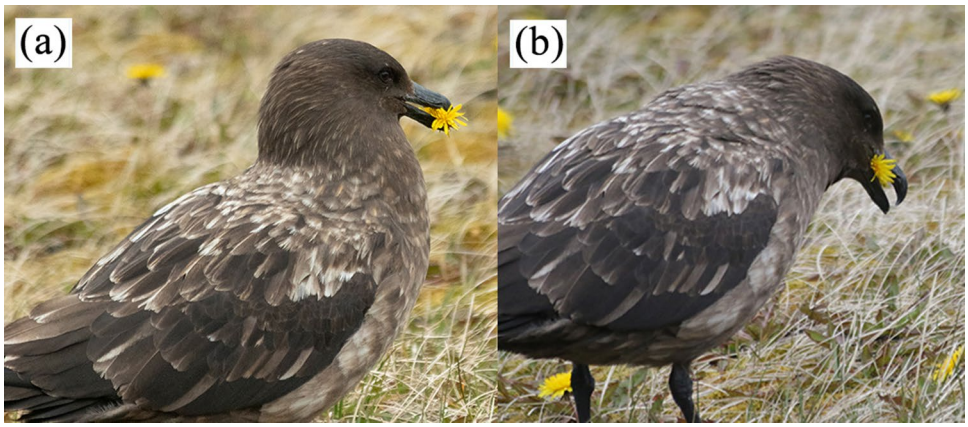

Fig. 1 Photograph of an adult brown skua **a** holding and **b** swallowing a cut dandelion flower (île Mayès; © V. Autran)

The experimental device consisted of a portable horizontal white standard Foamex PVC foam board (60 cm in length, 40 cm in width) fixed on each side to a vertical folding platform (16 cm in height, 16 cm in length; Danel et al. work in preparation). The usual procedure was the following: two containers were simultaneously presented on a mobile platform, with one of the containers covering a food reward. The human experimenter, who was sitting on the ground behind the apparatus, manually operated the apparatus by slightly pushing the platform away from or towards the test bird, which could lift one container.

On 5 January 2020 (morning session, between 8 and 11 a.m.), during the disassembly of the experimental device (i.e., after the trial), the experimenter observed again the swallowing of a dandelion's capitula by another breeding individual ('18A', an adult male). The skua, first located approximately 20 cm before the apparatus, turned its back and moved away from the device. At approximately 80 cm from the apparatus, the bird stopped off, cut, and swallowed the capitula of a dandelion.

The third observation occurred on 8 January 2020 (afternoon session, between 1 and 5 p.m.), before the start of a trial, when the experimenter was unfolding the apparatus on the ground. The skua, a breeding female ('21A'), was inspecting the ground approximately 2 m from the apparatus when it suddenly removed the capitula of a dandelion, held it in the beak a few seconds, and ingested it.

Later on during the breeding season, on 16 January 2020 (morning session, between 8 and 11 a.m.), in the non-experimental context (i.e., during usual nest prospection), another individual ('11A', an adult female) exhibited this behaviour approximately 3 m from its nest.

Dandelion consumption has also been observed very recently on île Mayès, a nearby island within the Morbihan Gulf, where skuas are more numerous and breed in higher densities (Quéroué et al. 2021; Fig. 1). On 29 October 2022, at approximately 8 a.m., a marked single skua was observed cutting and eating dandelion flowers. Dandelion consumption occurred during annual monitoring of breeding individuals (by binoculars), which suggests that this behaviour is not specific to our study area and/or experimental context.

In conclusion, at least some Brown Skuas on île Verte and île Mayès are able to integrate into their diet an alien plant, in line with their opportunistic feeding habits. This short note opens new avenues for assessing further (i) the prevalence of this behaviour in skua populations and (ii) if dandelion consumption provides specific advantages, such as nutrition or physiological benefits.

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Data availability There are no data, only observations which are described in the article.

Declarations

Conflict of interest The authors declare no conflict of interest.

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