

Ducks foraging on swan faeces

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Abstract

Foraging on avian faeces by birds is uncommon apart from the consumption of nestling faeces by songbird parents. Here, observations made of five Mallard *Anas platyrhynchos*, three Green-winged Teal *A. crecca* and one Baikal Teal *A. formosa* seen feeding on Whooper Swan *Cygnus cygnus* faeces, on the ice in Lake Izunuma, Japan, on 10 February 2010, are described. The faeces of herbivorous Whooper Swans contained undigested vegetation which, when dissolved in water on top of the ice, was available for consumption by the ducks.

Key words: Coprophagy, ducks, faeces, Whooper Swans.

Coprophagy is rare in birds in comparison with other animals such as mammals and insects. Gallant (2004) reported that White-winged Crossbills *Loxia leucoptera* foraged on River Otter *Lontra canadensis* faeces, perhaps consuming fish bones or undigested fish present in the droppings. Faeces can be used as a source of carotenoids by birds; for instance, the brightly coloured yellow on the head of the Egyptian Vulture *Neophron percnopterus* is obtained by ingesting carotenoid pigments from the excrement of ungulates (Negro *et al.* 2002). In wildfowl, Whooper Swans *Cygnus cygnus* have been observed in aggressive confrontations over their own and their neighbours' faeces, which contained large amounts of undigested barley (Black & Rees 1984). Foraging on avian faeces by birds is uncommon, however, apart from the

consumption of nestling faeces by songbird parents (Hurd 1991).

I had an opportunity to observe ducks foraging on swans faeces when their lake was covered with ice in February 2010. The observations are presented here as a further contribution to knowledge on avian coprophagy.

Methods

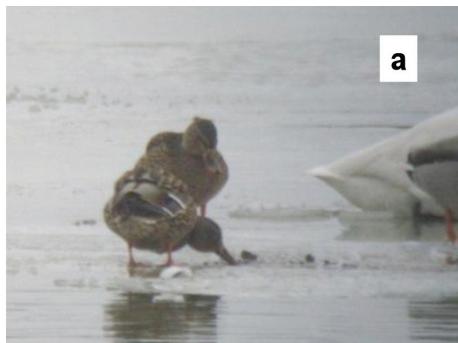
Field observations were conducted at Lake Izunuma (369 ha area; 38°47'N, 141°07'E) in Tome City, Miyagi Prefecture, Japan, a well-known wintering area for wildfowl, supporting Greater White-fronted Goose *Anser albifrons*, Whooper Swan, Mallard *Anas platyrhynchos*, Northern Pintail *A. acuta*, Green-winged Teal *A. crecca* and Goosander *Mergus merganser*.

Cold weather conditions generally occur at Lake Izunuma from late December to early February each year, and the lake is covered with ice for longer periods in more severe winters. In winter 2009/10, the lake was covered in ice from mid January onwards. I used binoculars (8 \times magnification) and a spotting scope (30 \times) to observe ducks foraging on swan faeces on the ice for a 2 h period during the morning of 10 February 2010. A total of 4,743 swans and ducks were counted on the lake the previous day (9 February 2010), including 1,153 Whooper Swans, 403 Green-winged Teal and 18 Baikal Teal.

Results and Discussion

Five Mallard were seen feeding on Whooper Swan faeces at Lake Izunuma on 10 February 2010, when part of the lake was frozen (Fig. 1a,b). The swans and ducks were resting on the ice, and swan faeces were close to the resting swans. Three Green-winged Teal and one Baikal Teal *A. formosa* were also seen feeding on the swan faeces.

When the lake was covered in ice, the Whooper Swans were unable to access aquatic vegetation in the lake, and therefore, fed on grasses and on waste grain in rice fields in the surrounding area. The faeces of herbivorous Whooper Swans contained



a



b



c



d

Figure 1. Swan faeces ingested by ducks: (a) and (b) = Mallard foraging on Whooper Swans faeces, (c) = Whooper Swan dropping, and (d) = dissolved faeces on ice (red arrow).

undigested fibrous vegetation (Fig. 1c) which when dissolved in water on top of the ice (Fig. 1d) was available to be filtered and consumed by the ducks. The three duck species observed (Mallard, Green-winged Teal and Baikal Teal) are omnivorous (Young 2005; Fox 2005; Moores 2005) and in Japan they include rice grain, wild cereal seeds, herbs, submerged plant and aquatic insects in their diet (Haneda 1962). The undigested fibre would likely have been the primary nutrient derived from the swan faeces by the ducks, but the quantity of swan faeces consumed by the ducks and the nutritional value of the faeces was unknown.

Anatidae have been found to digest a low proportion of the organic matter in vegetation ingested; estimates generally range from 18–40% for leaf material, but vary with the type of food being taken (Buchsbaum *et al.* 1986; Gadallah & Jefferies 1995; Van der Wal *et al.* 1998; Durant *et al.* 2002). For all vegetable foods, a large proportion of the undigested material excreted in the birds' droppings is fibre. Nevertheless, for some other organisms, such remains in faeces can offer some food value. For example, Barnacle Goose *Branta leucopsis* droppings were consumed by Svalbard Reindeer *Rangifer tarandus platyrhynchus*, with the Reindeer selecting goose droppings containing grass fragments, as these were more profitable as a food source than grazing on the sparse forage generally available in the local environment (van der Wal & Loonen 1998).

In early February, waste grain in the fields around Lake Izunuma is usually depleted due to the intense foraging activity by

Greater White-fronted Geese (Shimada & Mizota 2008). Food resources for ducks around the lake therefore were low, added to which the ice and snow cover in this severe weather would have covered feeding sites, further decreasing food availability. The period of time that swan faeces were accessible on the ice was restricted to a few weeks, until the ice melted. Nevertheless, swan faeces may have offered a relatively profitable food resource for the ducks during this time of low food availability, high thermoregulatory costs and highly restricted foraging conditions.

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Photograph: Whooper Swans foraging in rice fields by Rikio Ito.