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Short Communication

Bean goose (*Anser fabalis rossicus*) reproduction on Kildin Island (Barents Sea, Russia)

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Abstract

Breeding, migration and presence of the western subspecies of the bean goose *Anser fabalis* in the Murmansk region (northwest Russia) were previously reported in the publications of ornithologists. In this paper, we present some data on the breeding ecology of the bean goose *Anser fabalis rossicus* (Buturlin 1933) on Kildin Island. The presented data contain information about the nesting areas of the subspecies on the island, the number of eggs in the clutch, the composition of nesting material, and the fact of successful breeding here is presented.

Keywords: Arctic region, Kola Peninsula, biodiversity, Bean goose, tundra

Introduction

The bean goose *Anser fabalis* is frequently encountered in the northern Palearctic from Scandinavia to Russia's Far East. Four *Anser fabalis* subspecies breed in Russia: *A. f. fabalis, A. f. middendorffii, A. f. rossicus, A.f. serrirostris*. During the breeding season, western tundra bean goose *Anser fabalis rossicus* and western taiga bean goose (also known as forest bean goose) have been identified in our region (Bianki et al. 1993, Filchagov et al. 2010, Kalyakin et al. 2020). Recently, a decline in the abundance of stated species at breeding sites has been registered, both in the nearby Scandinavian countries (Väisänen et al., 2011, Marjakangas et al., 2015) and throughout its natural habitat (Fox and Leafloor, 2018). Consequently, the relevance of studying the breeding and migration parameters of this species throughout its natural habitat is increasing. Most of the work on western subspecies of bean geese has been conducted in Karelia (Zimin et al., 2007, Artemyev et al., 2010, 2018, 2019), Komi and the Yamalo-Nenets Autonomous District (Litvin et al., 1998, Kondratyev et al., 2012, Mineev and Mineev, 2013, Rosenfeld et al., 2018). In the Kola Peninsula information on breeding and migrations of bean geese is still of a limited nature. This paper presents the first data on the breeding of the tundra bean goose *A.f. rossicus* at a large geographical site such as Kildin Island. There have been no previously published breeding records for stated subspecies, nor has the breeding ecology of this subspecies been described on the island.

Material and methods

During the summer season, the authors carried out expeditions to Kildin Island (S = 123 km^2) located in the southern part of the Barents Sea (69.351529, 34.146061). The material was collected in the first decade of June 2022, the first decade of June 2023 and the second decade of July 2023. Several route surveys were conducted during the expedition work, including species identification of all birds encountered. During route surveys, Yagnob 20x40 binoculars and a Canon EOS 60D camera with a Canon EF 70-300mm f/4-5.6 IS USM telephoto lens were used. The nest building material ratio was assessed using photographs taken during the expeditions.

Results and discussion

In the expeditions of 2022-2023 a total of 8 nests of *A. f. Rossicus* were found. Most of them were located on the eastern part of the island (n=6). The average number of eggs

per nest was 5.25 (Me = 6, n = 21). 1 nest with 6 eggs was found in the central part of the island, and 2 nests with 6 and 5 eggs respectively were found in the western part of the island.

Nests were located within crowberry (*Empetrum nigrum*) shrubbery in exposed tundra (n=5), some of them (n=3) were located on the border of a large mixed colony of European herring gulls *Larus argentatus* and common gulls *L. canus*. One nest each was found among large boulders, among rusty wire in an abandoned village on the island, and on a wetland terrace. Bean geese used fluff and feathers, as well as *Sphagnum* mosses, lichens, various dry grasses, and shrub stems for nest construction. On average, the ratio of materials used in construction was as follows: fluff and feathers, dry grasses and shrub stems - 40%, mosses and lichens - 30% (n=8) (Fig. 1).

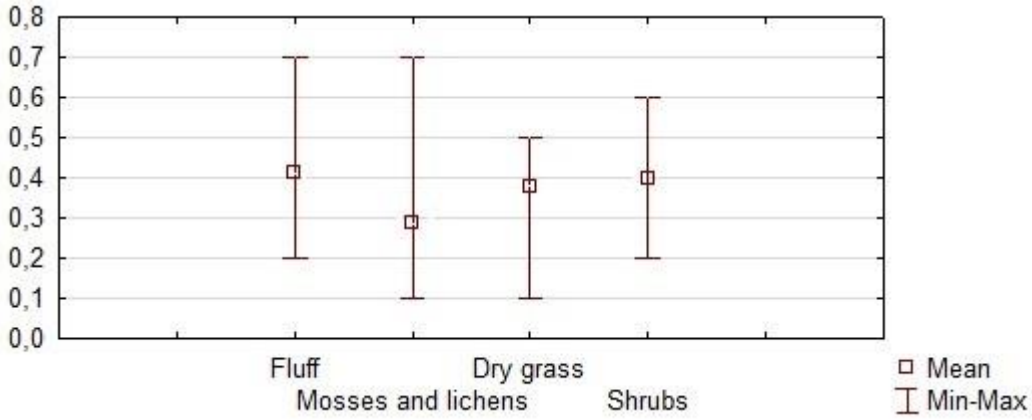

Figure 1. The ratio of materials used in the construction of the nest.

Several pairs of adult bean geese with chicks were observed on the southern shore of the island in the second decade of July 2023. Adults accompanied flightless chicks in mesoptile plumage (Fig. 2). The chicks have just started developing the tubes of the flight and rudder feathers.

Figure 2. Two adult tundra bean geese *Anser fabalis rossicus* with chicks on the southern part of Kildin Island

Even though the bean goose is common, although not abundant, in the Murmansk region (Khlebosolov et al., 2007, Buzun et al., 2019), its breeding, feeding ecology and migration patterns on the Kola Peninsula have not been sufficiently studied. Several studies conducted in other regions indicate that the migration route of bean geese of different subspecies passes through the Kola Peninsula and the White Sea (Noskov et al., 2016, Bianki and Boiko, 2022), which aids the study of the species' migration in the aforementioned areas. Some breeding sites of the tundra and forest bean geese are also known here, which may be the basis for continued studies on the breeding and feeding ecology of stated subspecies. Continued studies of the tundra bean goose on the territory of Kildin Island may also become the basis for larger-scale studies of the tundra and forest bean geese in our region.

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