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Satellite tracking of Lesser White-fronted Geese from the East-European tundra in Russia in 2014

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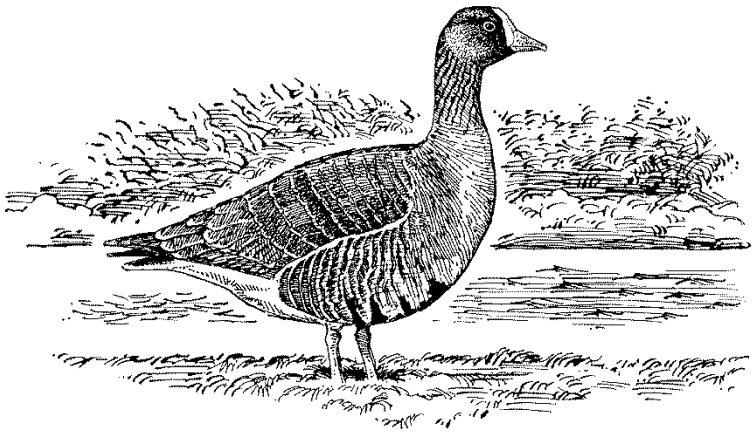

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SUMMARY

As part of the Norwegian-Russian environmental cooperation program, five Lesser White-fronted Geese where fitted with satellite transmitters during summer 2014 in the Polar Urals, European Russia. Four of these left for autumn migration in late Agust with a shorter staging period in the lower Ob River. They utilised traditional staging lakes in northern Kazakhstan and in Orenburg District in Russia before crossing the Caspian Sea for the wintering areas in Azerbaijan, notably the Kizil Agach and Aras Dam in the Nakhchivan Autonomous Republic of Azerbaijan. The latter has proven to be a very important wintering site in recent years, and the first field surveys where conducted there winter 2014-2015, both on the Azeri and Iranian sides of the border.

CONTENT

BACKGROUND

The Lesser White-fronted Goose *Anser erythropus* is globally threatened, being recognised as Vulnerable by the International Union for Conservation of Nature (IUCN), and ranked by BirdLife International as 'SPEC 1' within Europe, denoting a European species of global conservation concern. It is listed in Annex 1 of the European Council Directive on the conservation of Wild Birds (79/409/EEC, 2 April 1979), in Column A of the Action Plan under the African-Eurasian Migratory Waterbird Agreement (AEWA), and in Annex II 'Strictly protected species' of the Bern Convention.

The LWfG is strictly protected in both Norway and Russia, the only countries harbouring wild breeding populations of the species. There are relatively few threats for the species on the breeding grounds. However, the population has not increased, because the mortality of LWfG along the migration routes and on the wintering grounds is too high due to heavy hunting pressure (Jones et al. 2008).

There are not enough data on staging areas and wintering grounds for the European breeding populations. Tagging of LWfG with satellite transmitters carried out in the years 2011-2013 in different parts of Bolshezemelskaya Tundra, Russia, have brought new and important data on stop-over sites of LWfG. However, these data were obtained from only a few satellite transmitter-tagged LWfG. These data only explained part of the migration route for part of the European population of LWfG. Furthermore, a lack of detailed information on staging areas and wintering grounds of LWfG prevents effective conservation and protection measures for the species.

Due to this, surveys and tagging efforts of LWfG were continued in the European Russian tundras in the framework of a long-term collaboration between NOF-BirdLife Norway and The Goose, Swan and Duck Study Group of Northern Eurasia (RGG). The expedition in European Russian tundra was organized in summer 2014. The field work has been carried out by the Russian team led by Vladimir Morozov (RGG and Russian Research Institute for Nature Protection). NOF-BirdLife Norway supplied the Russian team with eight satellite transmitters and has rendered financial support for the field work, of which the Norwegian Environmental Protection Agency has been an important funder and collaborator.

The main aim of the project was to gather new information on staging areas and wintering grounds of LWfG that breed in European Russia.

The following objectives were established:

i) to organize and carry out field surveys within the breeding areas of LWfG in the western macro-slope of the Polar Urals.
ii) to catch adult LWfG and attach satellite transmitters.

The project is partly funded by, and is also a part of, "*the biodiversity program*", one of the pillars of the Norwegian-Russian environmental cooperation (http://tinyurl.com/kb7c8fp). The project is also integrated as a key activity in the LWfG part of the new initiative from CAFF –Arctic Migratory Birds Initiative (AMBI), a programme designed to improve the status and secure the long-term sustainability of declining Arctic breeding migratory bird populations (http://www.caff.is/arctic-migratory-birds-initiative-ambi).

METHODS & MATERIAL

Itinerary

Field work was carried out between 1st June and 14th of August 2014 at the western macro-slope of the Polar Urals, Russia.

Participants

Vladimir V. Morozov (coordinator) from Russian Research Institute for Nature Conservation & RGG (Moscow) and Arsenyi Fedorin, teacher from a private school in Moscow.

Study area

The study area is located in the Polar Urals. This area consist of a low mountain ridge and adjoining foothills delimited from the neighbouring areas with valleys and rivers flowing from the Polar Urals (Figures 1 and 2).

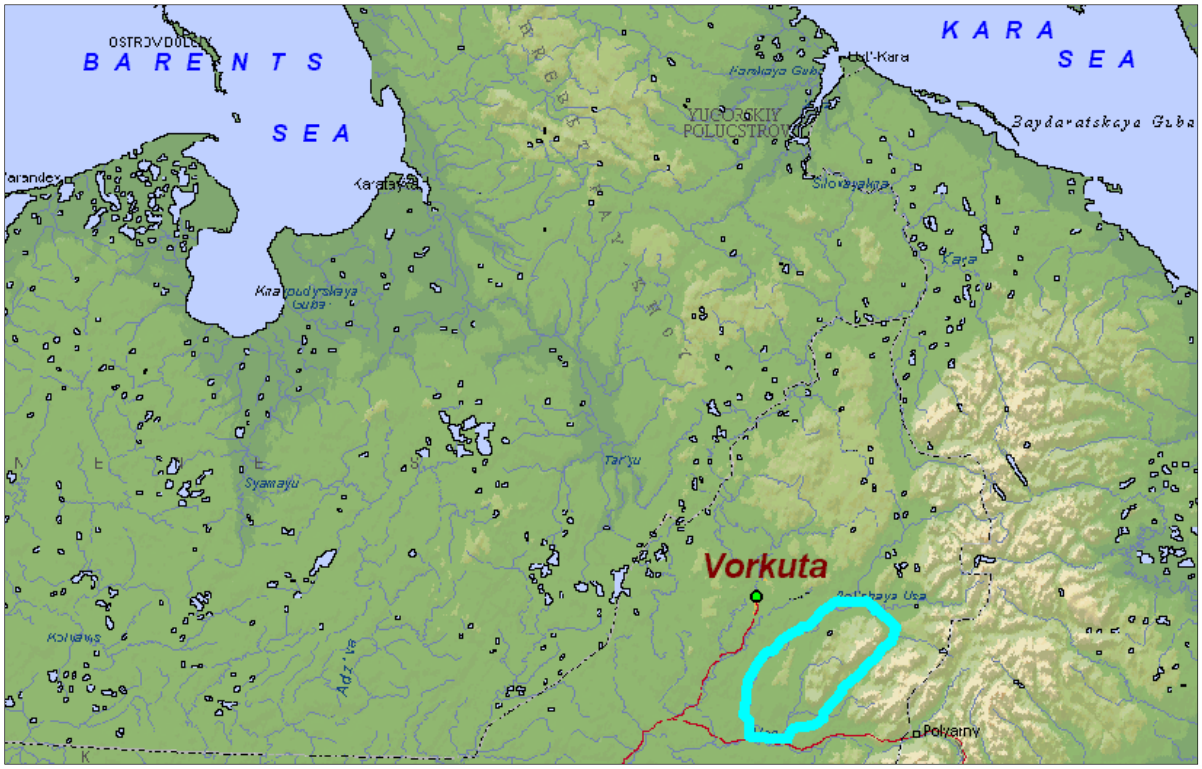

Figure 1. Location of the study area in the Polar Urals, Russia.

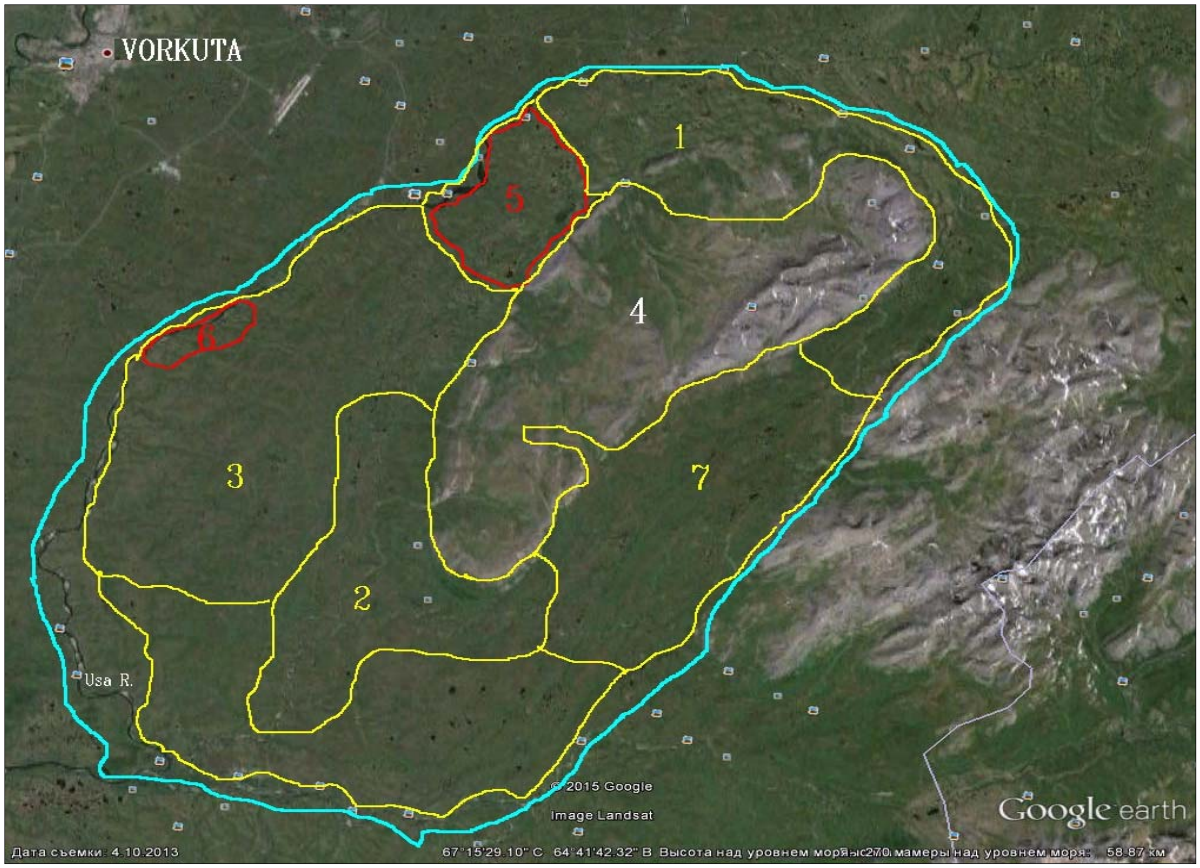

Figure 2. Detailed map of the study area in the Polar Urals, Russia. The blue line is the same one as on figure 1. Yellow lines outline different sectors of the study area (1 – northern foothills; 2 – southern foothills; 3 – western foothills; 4 – mountain ridge); red lines outline local sites where LWfG were found.

The foothills of the Polar Urals are occupied with different types of shrub tundra that cover watersheds as well (Figure 3). Dominant plants on such type of tundra are dwarf birch *Betula nana* and green mosses (Figure 4). There are complex peat bogs with small thermokarst lakes on the flat watersheds (figure 5 & 6). In these areas plants like Labrador tea *Ledum palustre*, dwarf birch *Betula nana*, mosses and lichens grow. Numerous shallow streams flow down along mountains slopes. Dense and high willow bushes as well as small willow groves are spread along the creeks (Figure 7).

The flood plains of the rivers are covered with high willow bushes. There are many meadows and pebble beaches as well (Figure 8). There are canyons along some rivers (Figure 9).

Figure 3. Shrub tundra covers watersheds at the foothills of the Polar Urals.

Figure 4. Dwarf birch tundra on the watersheds.

Figure 5. Peat bogs on the flat watersheds at the foothills of the Polar Urals.

Figure 6. A thermokarst lake in the peat bog. These are feeding and hiding habitats of the LWfG in the brood-rearing period.

Figure 7. Valley of small stream in the mountains.

Figure 8. Pebble beaches and meadows along the mountain stream.

Figure 9. Canyon at the foothills of the Polar Urals – breeding habitat of LWfG.

Field work and methods

After ice breaking in June, a motorboat was rented to reach the destination from Vorkuta. The territories located between river valleys and mountains were explored by foot. All geese were counted while floating by boat up or down the rivers. The banks suitable for the LWfG and Peregrine Falcons breeding have been thoroughly examined by foot in search of goose nests and any hidden LWfG broods. Watershed areas with lakes and bogs near the river valley were also checked to look for broods of LWfG.

To reach the destination in July after river became shallow, a helicopter of type MI-8 (Figure 10) was hired in the airport of Vorkuta. The areas where LWfG were located in June were examined first. Since it was moulting period, the team moved up the river along its both banks and looked for LWfG by carefully examining feeding and roosting sites as well as the places where feathers and footprints were found. The watershed lakes suitable for feeding, roosting and moulting geese were also surveyed in detail if long-term LWfG presence was confirmed by numerous moulting feathers, large amount of fresh excrement or signs of grazing.

Diving LWfG were caught with hoop-nets or by hand if they tried to escape and hide in the bushes. The captured LWfG were fitted with Microwave 30g GPS solar PTT supplied by NOF-BirdLife Norway and ringed with aluminum ring with lock supplied by Moscow Ringing Centre of Academy of Sciences of Russia (Figure 11).

Figure 10. Helicopter is the main type of transport in the tundra during the summer.

Figure 11. Arsenyi Fedorin with a captured adult Lesser White-fronted Goose.

RESULTS

Weather conditions in spring and summer 2014 were quite unfavorable for goose breeding. The spring was late with steadily rain, sleet or snow. As a result, breeding numbers were low. So, in the period 10th -17th June no LWfG were found on the rivers or watershed lakes of the northern and southern foothills of the main ridge (sectors 1 & 7 in Figure 2). Repeat observations carried out in the periods 10th -15th July and 5th -7th August failed to confirm the presence of LWfG. Only two broods of Bean Goose *Anser fabalis*, which are usually quite common in the area, were found.

The southern foothills (sector 2 in Figure 2) were surveyed from 25th June-5th July, and again during the period 28th-31st July. No LWfG were observed, despite the fact that in previous seasons (2009-2012 and earlier) they regularly bred and were caught in that area.

However, the western foothills (sectors 3 & 5 in Figure 2) turned out to be the only area where LWfG were found, although their numbers were quite low. In addition, a pair of LWfG without goslings, as well as a single molting adult were observed among bogs and lakes in the same area (sector 5 in Figure 2). We managed to catch the female in that pair on 25th July.

Within the second area of investigation in the valley of the Usa River a pair of LWfG with four goslings was found on 2nd August (sector 6 in Figure 2). However, we failed to catch these geese, and we did not manage to observe them two days later.

In the periods 3rd-9th June and 20th-25th June we located a flock of 11 adult LWfG and 3 separate single birds at our third of observation site, situated within a mountain creek and vast bogs (sector 5 in Figure 2). At the beginning of August, we observed a group of four pairs with 2, 3, 3, and 4 goslings within the same area. Between 4th-14th August we caught 4 adult males, which belonged to the pairs observed previously. Full information about these birds are presented in Table 1.

Table 1. Ringing information for LWfG caught during the expedition in 2014.

No.	Name	Date caught	Sex	Age	PTT-id	Ring number	Coordinates of catching site
1	First	25.07	female	adult	126640	C-748123	67°22'16,9" N, 64°33'43,3" E
2	Kom	10.08	male	adult	126646	CS-008000	67°22'41,1" N, 64°32'54,0" E
3	Dark	10.08	male	adult	126643	C-748125	67°22'16,9" N, 64°33'43,3" E
4	Brave	11.08	male	adult	126644	C-748127	67°22'48,4" N, 64°35'12,1" E
5	Last	12.08	male	adult	126645	C-748130	67°22'49,4" N, 64°33'46,8" E

Threats

Human impact on the population of LWfG in the foothills of the Polar Urals is moderate. At the end of May and the beginning of June reindeer herders drove their herds across the area to reach their seashore pastures. Later, reindeer from Siberia pass the area to reach their mountain pastures in July. Their impact is not considerable, as the reindeer graze on the pastures located at the mountaintops where LWfG do not inhabit during summer.

Unlike the foothills of the Polar Urals, the Usa River and its tributaries are commonly visited by fishermen in summer. They are likely to cause considerable disturbance to goose broods, so LWfG tend to occupy small creeks and thermokarst lakes with no fish stocks.

In spring, during the hunting period, LWfG are in serious danger there. However, in the foothills of the Polar Urals they are relatively safe since the majority of hunters prefer to hunt in low tundra areas with numerous lakes and vast bogs with much higher concentrations of Bean Geese.

Satellite tracking results

As of 1st April 2015, only one of the five satellite transmitters are still active, the bird fittingly named "Last". Below we give a brief summary for each bird. More detailed analyses on both migration and staging specifically is in the process of being published internationally.

PTT 126640 "First" started the autumn migration in late August, with the first staging being recorded in the Upper Ob river from 27th August until 7th September. The area is previously well known as the first staging area for most LWfG from the Polar Urals and is situated appr. 130km upriver from Salkhard and 30km from the village Muzhi in Yamal-Nenets District. Between 10th and 13th September it staged briefly 320 km further upriver, before arriving in northern Kazakhstan on 14th September. It staged first for 14 days at Lake Koybagar before staging for a further 25 days at Lake Taldykol, both situated in Kostanay Region. It then flew to Kizil Agach in Azerbaijan where it was located on 27th November. The last transmission from this bird came just 4 days later. The site is heavily hunted, both by local hunters but also by the nature reserve reserve staff, so it was not surprising that the bird disappeared soon after arriving at this site.

PTT 126643 "Dark" and PTT 126644 "Brave" migrated together. They started the autumn migration on 26 August, and staged in the Upper Ob River in the period 27th August to 7th September 40km south of Salkhard, Yamal-Nenets District. They then moved 420 km further south, close to the city Nyagan, Khanty-Mansiisk District, where they staged from 8-16 September. Continuing further south they arrived in Kazakhstan on 18th September where they spent two days at Lake Solenoye, and around two weeks at Lake Balykty, both in Northern Kazakhstan Region, and similarly two weeks at Lake Taldykol, Kustanay region. These birds then flew south crossing over the northern part of the Caspian Sea, had a short staging period of six days from 27th October in Dagestan before flying to the Aras water reservoir/Dam on the border between Iran and the Nakhchivan Autonomous Republic of Azerbaijan. "Dark" disappeared abruptly there 20th January, while "Brave" disappeared even earlier on 11th November.

PTT 126645 "Last" started the autumn migration with a two days stop from 31st August in the same site in the Ob River as "Dark" and "Brave" before continuing 190km south to another staging area in the Ob River just across the border from the Khanty-Mansiisk District where it stayed for eight days. It then had another short stop in the river 260km further south before arriving in Zhetykol, Orenburg, Russia where it stayed for 23 days. It then left to the Nakhchivan Autonomous Republic of Azerbaijan where it arrived 9 October. This bird used the Aras Dam, but also areas further north in the river valley close to the borders of Iran and Turkey. Spring migration started in late March, and on 24th March this goose was located in Dagestan on the coast of the Caspian Sea.

PTT 126646 "Kom" never gave any useful data, with transmissions ending just six days after catching.

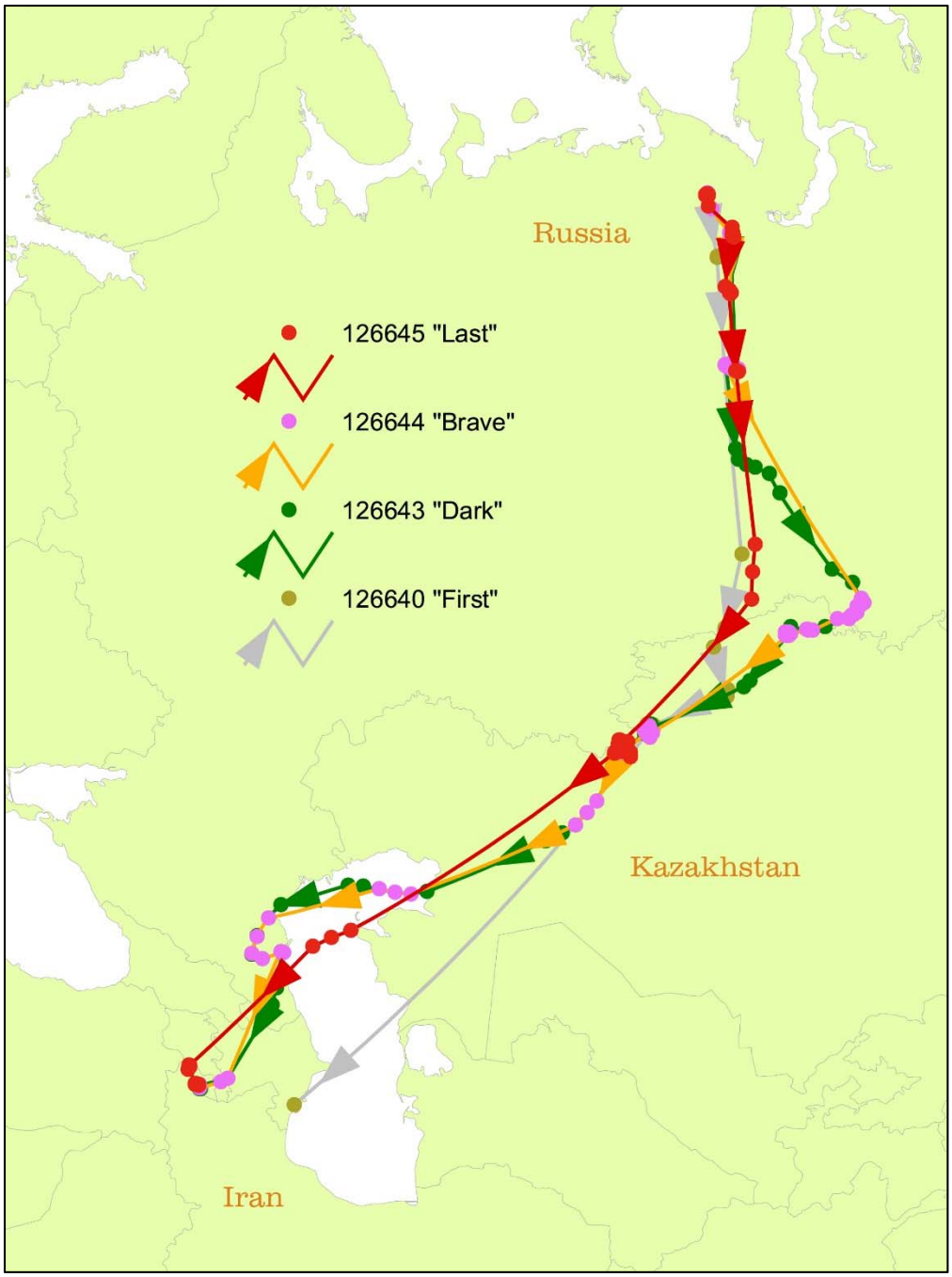

Figure 12. Migration tracks of the four migrating Lesser White-fronted Geese caught in the Polar Urals during summer 2014.

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