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Brief reports

Alcids on Lake Ladoga — the old breeding records revisited

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Introduction

Ever since the visit of Ilmari Hildén on 3–5 June 1920 (I. Hildén 1921a, b), both the Finnish and later on the Russian ornithological literature have considered Lake Ladoga as a unique breeding area of the Razorbill *Alca torda* and the Black Guillemot *Cepphus grylle*, as these genuine seabirds are not known to breed on any other lake in the world. At Ladoga, they were regarded as relicts from the postglacial period (I. Hildén 1921a, b) or, in terms of human history, from the later Neolithic age (Neufeldt 1958). Later, however, Hildén's observations were rejected as false by Løppenthin (1963a, b), who considered that breeding of alcids on an isolated freshwater lake was impossible. His view was followed in the new handbooks of Glutz & Bauer (1982) and Cramp (1985).

In summer 1993 the former Finnish part of the Ladogan archipelago was revisited and censused by Pakarinen & Siikavirta (1993). This event induced us to scrutinize once again the disputed question of the breeding of the two alcid species on Lake Ladoga.

Reliability of the old records

When on 27–28 May 1993 RP & HS visited the island of Jalaja, the alleged breeding place of Razorbills in 1920, they were unaware of the sceptical critique cast over I. Hildén's report by Løppenthin (1963a, b). Their suspicions were raised independently, however, by the geomorphological structure of Jalaja. This esker island is made up of sand, gravel and small rounded stones, with bigger rounded stones on the water's edge. It is vegetated with sparse shrub and bushes, with a small stand of trees, mainly aspen, in the middle part. It thus represents an atypical nesting habitat for the Razorbill, as the species prefers rock crevices or sheltered cavities under big boulders as nest sites both in the Baltic and in the Atlantic (e.g. v. Haartman et al. 1963–72, Cramp 1985). Several other Ladogan islands and skerries would suit breeding Razorbills better.

Re-reading carefully the reports of I. Hildén (1921a, b), a question mark has indeed to be added to the supposed breeding of the Razorbill on Jalaja. Hildén does not claim to have observed any Razorbills himself but refers to his companion, ensign A. Kristopovitz, according to whom they bred "numerously" on Jalaja and "surrounding islets" (only one rocky islet, without any crevices, is situated in the vicinity). These places Hildén did not visit.

The possibility of confusion with some other black-and-white bird (Løppenthin 1963a, b) remains obscure. The Razorbill can hardly be mistaken for any other species breeding on Lake Ladoga, and it is also hard to believe that Hildén would have uncritically accepted such a remark-

†Olavi Hildén died on 13 September 1994.

able observation without checking details from Kristopovitz. The atypical structure of the island Jalaja as breeding place of a Razorbill colony nevertheless casts doubt about the reliability of the old record, even though marginal bird populations may adopt exceptional nesting habits (e. g. *Uria aalge*, different from other west Palearctic alcids except *U. lomvia* in using open nest-site (Cramp 1985), nests in crevices like the Razorbill at its few Finnish breeding places).

The observation history is different for the Black Guillemot, as Hildén himself noticed 2–3 individuals at the island Vossina. No nests were found or even sought for. According to Kristopovitz, however, Black Guillemots bred in small numbers on Jalaja also. We find the suggestion by Løppenthin (1963a,b) that the birds observed by Hildén could have been Velvet Scoters *Melanitta fusca*, to be most unlikely. Hildén was an experienced ornithologist, especially in faunistic and quantitative bird studies; later he wrote several scientific papers. Furthermore, Hildén (1921 b) reported both Velvet Scoter and Tufted Duck *Aythya fuligula* (the latter species assumed by Løppenthin to have caused confusion with Razorbill) to be common on Lake Ladoga. Unfortunately, his field notes have not been preserved and so cannot throw any more light on this problem, which was checked by OH after his uncle's death in 1963.

Recent information

Very little more information is available about the alcids on Lake Ladoga. The area was ceded to the Soviet Union after the II World War in 1944, and has since then been closed to Finnish ornithologists until the last few years. As far as we know, no Russian ornithologists made censuses in the area until the 1980s (N. Medvedev, pers. comm.).

According to Finnish ringing statistics, one Black Guillemot was found in the Karelian Isthmus in August 1972, and another near Käkisalmi (Priozersk) in November 1973; both birds recovered were juveniles. Malchevskii & Pukinskii (1983) did not know of these recoveries, but they mention one observation of a bird from the River Vuoksi near Käkisalmi from 19 October 1958. This individual had been ringed in Kandalaksha Bay (Kantalahti) in the White Sea. They also reported that a Razorbill ringed in Finland had been found in May 1961 near Käkisalmi (Priozersk) on Lake Ladoga. On closer examination, this record seems to have arisen from confusion in place names. Malchevskii & Pukinskii (1983:378) quote two observations of the Razorbill in Leningrad oblast: one in December 1865 in the Gulf of Finland near St. Peterburg, and another, an individual bearing a Finnish ring, found in May 1961 on Lake Ladoga near Priozersk; the time elapsed from ringing was 2 years 10 months. Finnish ringing records do not contain any recoveries from Priozersk, but there is one which resembles it closely (Nordström 1963:111): an individual ringed on 8 July 1959 in Pernaja, eastern Gulf of Finland, was found on 6 May 1962 in Primorsk (Koivisto), on the Baltic coast of the Karelian Isthmus. The time elapsed between these events was 2 years 10 months, exactly as mentioned in the Russian text.

This Finnish record not mentioned by Malchevskii & Pukinskii (1983) would have been the third observation ever in Leningrad oblast, where Primorsk as well as Priozersk are situated. As the age of the bird and the months of recovery are identical, we are convinced that Malchevskii & Pukinskii have made an error of one year in the recovery date, and a lapsus in the place names Primorsk and Priozersk based on closely associated words 'море' = sea and 'озеро' = lake.

During our visit in 1993, no alcids were found on Ladoga; and, apart from the ringing recoveries cited above, no observations are known to us since those reported by I. Hildén (1921a, b).

The relict theory

I. Hildén (1921a) presents as a bold conclusion of his observations the relict theory concerning, in addition to the two alcids, also *Phalacrocorax carbo*, *Haematopus ostralegus*, *Philomachus pugnax* and *Larus argentatus*. It is presented as a suggestion: "Lake Ladoga developed from the Yoldia Sea and after the glacial period remained long directly connected to the sea. At that time a purely marine nature prevailed there, and is still in broad outline preserved. Thus, the seabirds

concerned should not be considered occasional visitors to Lake Ladoga, but rather, as far as I understand, they should be regarded as relict animals and forms indicating ancient circumstances. Amongst mammals, an analogous case is represented by the Ringed Seal that has developed to a geographical variety since the isolation of Ladoga; amongst fish, phenomena of the same type occur." (originally in Finnish).

Later interpretations of Hildén's suggestion have been too simplistic: the Finnish, Swedish and Russian literature were written as though it was a well-established fact that Razorbills and Black Guillemots do breed in small colonies on Lake Ladoga as relicts from the postglacial period (from Kivirikko 1927 to O. Hildén 1993; Jägerskiöld & Kolthoff 1926; and from Dementiev & Gladkov 1951 to Malchevskii & Pukinskii 1983). As for the Ruff, Oystercatcher and Herring Gull, the theory was soon forgotten. The Common Eider *Somateria mollissima* probably did not breed on Lake Ladoga in the 1920s (Pakarinen & Siikavirta 1993) — at least Hildén did not meet the species. Yet he, or any other contemporary naturalist, would most probably have included the Eider in the list of typical relict species.

In this connection, it is necessary to correct a translation mistake from the Russian original of Ilichev & Flint (1982:28) to the German edition (Ilichev & Flint 1985:27): I. Hildén (1921a, b) did not report nesting of the Eider ("... berichtete über das Brüten der Eiderenten auf der Insel Jalaja"), but the nesting of the Razorbill ("... сообщает о гнездовании на о-ве Ялая гагарок"). The translator has mixed up the closely associated Russian bird names 'гага' *Somateria mollissima* and 'гагарка' *Alca torda*.

The heavy scepticism of Løppenthin (1963a, b) is based mostly on his refutation of the generally approved relict theory (e.g. Ekman 1922, Voous 1960, Cramp 1985) concerning alcids of the Baltic. He denies categorically the possibility that alcids could have bred there during the freshwater Ancylus period (as it is usually interpreted) and thus also on Lake Ladoga. Løppenthin also emphasizes that alcids would not have been able to overwinter on Lake Ladoga, totally frozen during severe winters, like the Ringed Seal, a genuine relict. This argument raises little objection. He also finds a regular 100 kilometer migration over the Karelian Isthmus (or swimming via River Neva) "if possible, even less probable than the idea of isolation in a freshwater area for thousands of years" (Løppenthin 1963a). Consequently, the breeding of alcids would have been impossible on Lake Ladoga, and also on Ancylus Lake, he argues. Further arguments are based on the health problems caused to alcids by fresh water in captivity.

At present, neither the Razorbill nor the Black Guillemot are known to migrate regularly over land. Erring individuals are occasionally observed inland. However, if the few ringing recoveries of the Black Guillemot are not just rare occasions of birds which have gone astray in storms, they show that there could still be some migration or dispersal from both the Baltic and the White Sea to Lake Ladoga.

The recent establishment of a breeding Eider population on Lake Ladoga (Medvedev 1992, Pakarinen & Siikavirta 1993, Peiponen & Kolunen 1993) calls for caution, not only against the old relict theory, but also against the categorical refutation of the possibility of ancient freshwater populations of seabirds. Løppenthin (1963a) argues that the Eider belongs to fresh water as little as alcids, although it is able to fly over dry land and migrates mainly on the wing, not partly swimming, as alcids do. He denies the possibility of continuity of an Eider population during the Ancylus stage, as its food species would have disappeared from a lake. In the light of the recent situation on Lake Ladoga, he underestimates the flexibility of this species.

Recent information from other regions contribute to a more nuanced picture of the seabird nature of the Eider, Black Guillemot, and Razorbill. The Eider is known to breed on freshwater ponds at the coast in several places — Barents Sea (Merikallio 1939), Gotland and southern coasts of Sweden (SOF 1990), and Canada (subspecies *borealis*, Chapdelaine et al. 1986). A new, genuine inland breeding area has recently been colonized at Lake Geneva (V. Keller in litt. to M. Hario), comparable to Lake Ladoga. The Black Guillemot nests on freshwater bodies of water in a few isolated cases in northern Scotland and nearby islands (P. Ewins in litt.) — probably feeding at the sea. As far as we know, the Razorbill has not been claimed to nest at fresh water since I. Hildén (1921a, b).

Considering these examples, we would hesitate to categorically refute the possibility of small populations of the Black Guillemot or even the Razorbill on Lake Ladoga in 1920, although the observations reported by I. Hildén (1921a, b) do not prove nesting. Accepting his original interpretation would, however, necessitate a bold hypothesis on adaptations to cope with special nutritional demands, nesting habits and migration over a slowly developing isthmus — analogous to the somewhat disputed explanation of the relict origin of the alcids in the Baltic Sea.

Conclusions

1) The breeding of the Razorbill on Lake Ladoga in 1920 is based on a layman's information; nest records are not known. Jalaja, the named breeding island, represents atypical breeding habitat. There are no later observations — the ringing recovery cited by Malchevskii & Pukinskii (1983) was based on confusion in place names and is actually situated in the Gulf of Finland. Thus, the nesting of the Razorbill cannot be verified and may be considered improbable (Cramp 1985). The possibility of a genuine observation remains, however.

2) The observation of Black Guillemots in 1920 by Ilmari Hildén seems to us reliable enough; no nest records are known. Judged by ringing data, some dispersal may occur from the Gulf of Finland to Lake Ladoga.

3) Alcids are not known to migrate regularly over land, but individuals are occasionally observed on lakes. Physiological barriers for their breeding in fresh water are not known. Thus, the categorical denial of their possible breeding on Lake Ladoga or the Ancylus Lake (Løppenthin 1963a, b) is insufficiently supported.

4) The recent breeding of the Eider on Lake Ladoga shows very high adaptive flexibility in a marine bird species and calls for caution when speculating on either the possibility or the impossibility of avian freshwater relicts.

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Selostus: **Laatokan ruokkilintujen vanhojen pesimähavaintojen uudelleenarviointi**

Ruokin ja riskilän reliktiluonteinen pesintä Laatokalla v. 1920 vakiintui Ilmari Hildénin havaintojen perusteella suomalaiseen ja venäläiseen kirjallisuuteen. Tieto ruokin pesinnästä Jalajan saarella perustuu kuitenkin maallikkohavaintoon, eikä Hildénin itsensä havaitsemasta riskilästä ole pesälöytöjä. Kesällä 1993 tutkitulta Jalajalta puuttuvat kallionhalkeamat ja kivenaluset, joten se olisi ruokin pesäpaikaksi epätyypillinen, eikä ruokkia myöskään ole sen koommin tavattu Laatokalta; nämä seikat eivät sulje pois pesinnän mahdollisuutta poikkeuksellisessa ympäristössä 1920-luvulla. Riskilästä on myös myöhempiä rengaslöytöjä (1 Laatokalta ja 2 Karjalan kannaksen järviltä). Bernt Løppenthin kiisti v. 1963 Hildénin lajinmääritykset; ne eivät näet sopineet häneen teoriaansa, jonka mukaan ruokkilinnut olisivat saapuneet Itämereenkin vasta makeavetisen Ancylus-kauden jälkeen. Laatokalla nykyisin pesivä haahka osoittaa kuitenkin "aidonkin" merilinnun voivan sopeutua makeaan veteen. Haahka on Laatokalla ilmeinen uudistulokas, joten merilinnun järvipesinnän tulkitseminen reliktiluonteiseksi voi johtaa harhaan.

References

Chapdelaine, G., Bourget, A., Kemp, W. B., Nakashima, D. J. & Murray, D. J. 1986: The Common Eider populations of the northern Quebec coast (in French with an English summary). — In Reed, A. (ed.), Eider ducks in Canada. Canadian Wildlife Service Report Series 47:39–50.

Cramp, S. 1985: Handbook of the Birds of Europe the Middle East and North Africa. 4. — Oxford, New York.

Dementev, G. P. & Gladkov, N. A. 1969: Birds of the Soviet Union 3. — Jerusalem.

Ekman, S. 1922: Djurvärldens utbredningshistoria på Skandinaviska halvön. — Stockholm.

Glutz, U. N. & Bauer, K. M. 1982: Handbuch der Vögel Mitteleuropas 8. — Wiesbaden.

von Haartman, L., Hildén, O., Linkola, P., Suomalainen, P. & Tenovuo, R. 1963–72: Pohjolan linnut värikuvin 1–2. — Helsinki.

Hildén, I. 1921a: Havaintoja linnustosta Laatokan ulkosaarilla. — Luonnon Ystävä 25:53–57.

— 1921b: Lintutieteellisiä havaintoja Jaakkimasta ja Juuasta. — Medd. Soc. Fauna Flora Fennica 47:59–62.

Hildén, O. 1993: Saariston luonto ja linnusto. — In: Hildén, O. & Hario, M. (eds.), Muuttuva saaristolinnusto: 9–46. Forssa.

Ilichev, V. D. & Flint, V. E. (Ильичев, В. Д. & Флинт, В. Е.) 1982: Birds of the USSR. 1. (In Russian) — Moscow.

Ilichev, V. D. & Flint, V. E. 1985: Handbuch der Vögel der Sowjetunion, 1. — Wittenberg.

Jägerskiöld, L. A. & Kolthoff, G. 1926: Nordens fåglar. — Stockholm.

Kivirikko, K. E. 1927: Suomen linnut 2. — Porvoo.

Løppenthin, B. 1963a: Betragtninger over de dansk-baltiske alkefuglebestande. Modsigelse af relitkteorien. — Dansk Ornithol. For. Tidsskr. 57:85–93.

— 1963b: Immigration and distribution of the Alcidae in the Baltic area. — Proc. XIII Intern. Ornithol. Congr. 1128–1133.

Malchevskii, A. S. & Pukinskii, Yu. B. (Мальчевский, А. С. & Пукинский, Ю. Б.) 1983: [Birds of the Leningrad oblast and adjacent regions. 1]. (In Russian) — Leningrad.

Medvedev, N. V. 1992: Palinsaari. — Carelia (Petrozavodsk) 1992(5): 134–139 (in Finnish).

Merikallio, E. 1939: Heinäsaarten lintukuvakirja.

Neufeldt, I. A. (Нейфельдт, И. А.) 1958: [On the avifauna of Southern Karelia]. (In Russian) — Trudy Zool. Inst. Akad. Nauk SSSR 25:183–254.

Nordström, G. 1963: Die Vogelberingungen in Finnland im Jahre 1962. — Memoranda Soc. Fauna Flora Fennica 40:5–176.

Pakarinen, R. & Siikavirta, H. 1993: Breeding birds on northwestern Lake Ladoga (in Finnish with an English summary). — Linnut 28(5): 36–39.

Peiponen, V. A. & Kolunen, H. 1993: Laatokan lintuja — tutkimusretki ulkosaaristoon 1. — 4.7.1993. — Päijät-Hämeen linnut 24:116–123.

SOF. 1990: Sveriges fåglar, 2. ed. — Stockholm.

Voous, K. H. 1960: Atlas of European birds. — London.