

Additions to the vascular flora of the Berezovye Islands (Koiviston saaret), Karelian Isthmus, Russia

Pertti Uotila & Teuvo Ahti

Uotila, P. & Ahti, T., Botanical Museum, Finnish Museum of Natural History, P.O.Box 7, FI-00014 University of Helsinki, Finland. E-mail: pertti.uotila@helsinki.fi, teuvo.ahti@helsinki.fi

A short history of the floristic studies in the Berezovye Islands [Koiviston saaret] Nature Reserve in the Gulf of Finland, Leningrad Region, Russia, is given. Based on the archival field notes by Viljo Erkamo in 1934, recently discovered in Finland, and new findings by the present authors during an excursion in 2008 42 vascular plant species, subspecies and hybrids are reported as novelties for the Reserve. Further, 37 taxa are new to one or more of the four largest islands, Bol'shoy Berezovyy Island (Koivusaari), Zapadnyy Berezovyy Island (Tiurinsaari), Severnyy Berezovyy Island (Piisaari) and Malyy Berezovyy Island (Vasikkasaari). Further, some taxa, which are lacking in the recent checklist of the archipelago, are listed on the basis of literature. Most of Erkamo's finds are weeds and other species benefited by man's impact, apparently having totally disappeared due to the strong decrease of the human population on the islands after the Second World War. Even the recent novelties are mostly weeds and escaped ornamentals, but they also include several indigenous taxa. Comments on the variation and spreading of some taxa are given.

1. Introduction

Karelian Isthmus is a strip of land between the west shore of Lake Ladoga and the Gulf of Finland. As a result of the Second World War the Karelian Isthmus, which formerly mostly belonged to Finland, was annexed to Russia in 1944. Thus Karelian Isthmus, in the current geographic meaning, consists of the northwestern part of the Leningrad Region. It includes completely the traditional East Fennoscandian biological province *Isthmus karelicus* (*Ik*), the major part of *Karelia australis* (*Ka*), and the southwestern fringe of *Karelia ladogensis* (*Kl*). When still in Finland, the Koivisto Islands [now Berezovye Ostrova] at the southwestern corner of the Karelian Isthmus belonged to the (rural) municipality of Koivisto (*Ka*) (Fig. 1). The three large islands Koivusaari (Bol'shoy Berezovyy Island), Tiurinsaari (Zapadnyy

Berezovyy Island) and Piisaari (Severnyy Berezovyy Island) were densely populated, but at the end of the war (1944) the whole population migrated to other parts of Finland. After the war most of the villages were demolished, and some fishery kolkhoses (Soviet collective farms) were established in some of them. The number of kolkhoses gradually decreased and the last ones were abandoned in the early 1990s. Since then the area has been a more or less closed military area with few permanent inhabitants and a number of summer houses. In recent years visits have been allowed for societies representing the pre-war inhabitants now living in Finland.

The Berezovye Islands were included in the Vyborg Nature Reserve in 1976, and in 1996 they were recognized as an independent Nature Reserve, mainly on a zoological basis (Tzvelev 2007). It is a reserve, although the human impact

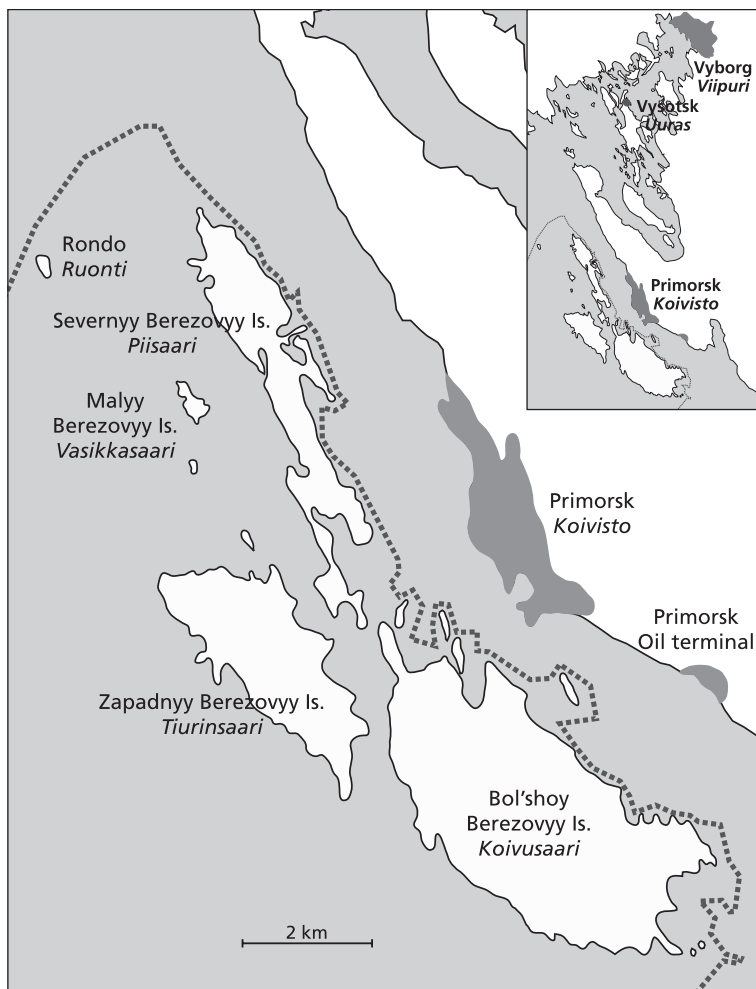


Fig. 1. Berezovye Islands (Koiviston saaret) Archipelago. The border of the Berezovye Islands Nature Reserve marked with broken line.

on the area is marked, especially because of the summer-house settlement in the previous kolkhoz village Krasnyy Ostrov [formerly the Finnish village of Saarenpää] and in some other places. A potential risk is also the neighbouring oil terminal in Primorsk town (formerly Koivisto borough), which was recently constructed on the mainland shore, with only three km wide straits separating the islands from the continent. Further, there is another oil terminal north of the area at Vysotsk (formerly Uuras) island. (Fig. 1)

2. History of the botanical studies

Even though the flora of the Karelian Isthmus was quite well studied by Finnish and early Russian

botanists by about 1940 (Doronina & Piirainen 2009), there were also poorly explored areas (see map in Hiitonen 1946: 7). Koivisto borough and the surrounding rural municipality belonged to the botanically least known areas, and herbarium collections and literature notes from there were few and scattered (Uotila 2009). Most botanists visited only the island of Vasikkasaari [Malyy Berezovyy Island], a small but well-known, peculiarly rich island famous for the rare broad-leaved trees *Ulmus laevis*, *Fraxinus excelsior*, *Quercus robur*, in particular (e.g. Laitakari 1931, Ahokas 2008).

However, according to recently discovered documents in the archives of the Botanical Museum, Finnish Museum of Natural History (H), the Finnish botanist Viljo Erkamo made two field excursions to the archipelago in 1934, reporting 587

field records of vascular plants (Erkamo 1934). He visited Vasikkasaari on Aug. 19 (172 records), southern part of Piisaari on Aug. 19 and Sept. 7 (183 records), middle part of Tiurinsaari on Aug. 18 (174 records) and northern part of Koivusaari on Sept. 6 (58 records). These records have been included in the electronic floristic database of East Fennoscandian vascular plants at the Botanical Museum in 2009. In addition, Erkamo collected at least ca 30 herbarium specimens from the islands (24 recorded by Glazkova & Tzvelev in Tzvelev 2007: 142), but he published only one paper on his findings (Erkamo 1937). Arvi Ulvinen visited several places in Koivusaari and, briefly, Tiurinsaari in the autumn of 1943. His most important findings have been published (Ulvinen 1944; overlooked by the recent Russian authors). Other early Finnish collections and observations from the area are very sporadic.

Russian botanists started an inventory of the archipelago in 1989, when Professor Nikolai N. Tzvelev from the Komarov Botanical Institute, St. Petersburg, studied Zapadnyy Berezovyy Island (Tiurinsaari) and briefly visited Bol'shoy, Severnyy and Malyy Berezovyy Islands (Koivusaari, Piisaari and Vasikkasaari); some of his results were published in Tzvelev (1992). The inventories were continued by several persons in the 1990s and 2000s, and in 2004–2006 Dr. Elena A. Glazkova studied the flora of all the islands. In the first half of the 2000s many other inventories were conducted in the Reserve, resulting in an impressive environmental monograph (Tzvelev 2007). The volume includes a catalogue of vascular plants with indications of their distribution (at least the presence on each island is listed, and for all rare or fairly rare plants also the known localities are indicated), frequency and habitats, prepared by Glazkova and Tzvelev. In addition, an analysis of the ecology, distributional elements and status of the threatened species was made. E. A. Volkova, V. N. Khramtsov, M. A. Makarova and V. A. Smagin made a thorough classification of the vegetation, with many published relevés.

On August 11–14, 2008 a short visit by Finnish biologists and environmentalists was arranged to the Bol'shoy and Zapadnyy Berezovyy Islands (Koivusaari and Tiurinsaari). Altogether 17 persons took part in the excursion (Vauras 2008, Uotila 2009). The botanists Teuvo Ahti, Risto

Hamari, Tapio Lindholm, Tapio Rintanen, Pertti Uotila and Harri Vasander provided altogether ca. 1150 floristic field records from ca. 25 locations and collected ca. 260 herbarium specimens of vascular plants. These data are now also in the database of the Botanical Museum (H).

Distribution maps of plants showing their presence on the Berezovye Islands have been published in several books; see primarily Hiitonen (1946, 1962), Hultén & Fries (1986), Tzvelev (2000), Budantsev & Yakovlev (2006), Doronina (2007), Glazkova (in Tzvelev 2007 map 6). However, for various reasons they seem to be complementary to each other, and in any way, most of them do not include the numerous records in Tzvelev (2007). On the other hand, 5 species missing from Tzvelev (2007) from Zapadnyy or Bol'shoy Berezovyy Island have been given from there by Doronina (2007).

3. Additions to the flora

The following list includes all the vascular plant taxa here reported as new to Tzvelev (2007) for any of the four biggest islands of the Berezovye Islands Nature Reserve or to the whole Reserve as recorded by Erkamo (1934), Ulvinen (1944) or Doronina (2007) or found during the excursion in 2008. As far as possible, the nomenclature follows Hämet-Ahti *et al.* (1998) with some later changes (Hämet-Ahti *et al.* 2005); synonyms from Tzvelev (2000, 2007) are given in parentheses. The ordinal number and frequency of each species given by Glazkova and Tzvelev (in Tzvelev 2007) are mentioned in parentheses; if the species number and frequency are missing the species is new to the archipelago.

If a record is documented by a herbarium specimen preserved in the Botanical Museum, Helsinki, the herbarium acronym H is cited. Some taxa, included in Tzvelev (2007) on the basis of Erkamo's specimens only, have been provided with additional information from Erkamo (1934). Additional localities found during the excursion in 2008 are given for a few species earlier recorded from only one to four localities on Bol'shoy Berezovyy Island or treated collectively by Tzvelev (2007).

The locality names are according to the Finn-

ish topographic maps Koivisto and Tiurinsaari 1:20,000 (1936) or original field notes by Erkamo (1934). Most of the Erkamo localities are also found on the old (1921) Finnish 1:50,000 map, which has been enclosed in the book by Tzvelev (2007).

Achillea ptarmica (*Ptarmica vulgaris*; 273, frequent)
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Adoxa moschatellina
Tiurinsaari (Doronina 2007, map 227).

Alchemilla micans (538, very rare)
Tiurinsaari, Vanhakylä, 14.VIII.2008 Uotila 47165 (H; det. M. Piirainen).

Alopecurus geniculatus (145, rare)
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Anchusa arvensis (*Lycopsis arvensis*)
Tiurinsaari, Vanhakylä – Laurinniitty, 18.VIII.1934; Piisaari, Kiurlahti, potato field, 19.VIII.1934; both Erkamo (1934).

Antennaria dioica (230, rare)
Tiurinsaari, Vanhakylä – Laurinniitty, 18.VIII.1934; Piisaari, Soukanniemi, 19.VIII.1934; Vasikkasaari, 19.VIII.1934; all Erkamo (1934).

Anthoxanthum odoratum (147, frequent)
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Apera spica-venti
Piisaari, Kiurlahti, fallow field, 19.VIII.1934 (Erkamo 1934).

Arctium minus
Koivusaari, Saarenpää, Harilainen, a few plants in grassland near the main pier and a warehouse of a previous shop, 12.VIII.2008 Uotila 47105 (H).

Aronia mitschurinii A.K.Skvortsov & Maitul.
Koivusaari, Saarenpää, Harilainen, small bush on seashore sand, 11.VIII.2008 Uotila. – A casual garden escape, the nearest cultivated bushes at a distance of ca. 50 m.

Artemisia vulgaris (234, frequent)
As given by Tzvelev (2007), both *A. vulgaris* var. *coarctata* (subsp. *coarctata*) and var. *vulgaris* grow along seashores of Koivusaari; the specimens Ahti 68263 from Putronhiekka and Uotila 47095 from Ruonanlahti represent var. *coarctata*

and Uotila 47143 from Kiilinlahti represents var. *vulgaris*.

Atriplex longipes subsp. *longipes*
(*Atriplex longipes*)

Koivusaari, Saarenpää, Harilainen, small boat harbour S of former farmstead Mäkelä, seashore, 14.VIII.2008 Uotila 47157 & Ahti (H).

Atriplex patula (363, rare)
Tiurinsaari, village of Tiurinsaari, fenced arable land, 14.VIII.2008 Hamari.

Avena sativa
Piisaari, Luotsikylä, rubbish heap, 19.VIII.1934 (Erkamo 1934).

Bidens cernua
Koivusaari, Saarenpää, Harilainen, boat harbour in a sheltered bay, shallow water by the pier, 12.VIII.2008 Uotila 47109 (H); Tiurinsaari (Doronina 2007, map 236). – According to E. Glazkova (pers. comm.) accidentally omitted from the vascular plant list in Tzvelev (2007); however, given in a photograph of the book.

Bidens radiata
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Calystegia sepium subsp. *spectabilis*
(*C. spectabilis*)
Koivusaari, Saarenpää, Harilainen, relic of cultivation, probably also escaped, 11.–14.VIII.2008 Uotila.

Campanula persicifolia (326, rare)
Piisaari, S end, Soukanniemi cape, 19.VIII.1934 (Erkamo 1934).

Cardamine pratensis coll. (308 *C. dentata*, fairly rare; 310, *C. pratensis*, fairly rare)
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Carex chordorrhiza (55, very rare)
Koivusaari, Saarenpää, Lake Suurjärvi, N end, shore fen, 11.VIII.2008 Uotila.

Carex leporina (71, fairly common)
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Carex muricata (74, fairly rare)
Tiurinsaari (Doronina 2007, map 63).

Carex viridula var. *pulchella* (*Carex scandinavica*; 85, rare)
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Centaurea cyanus

Koivusaari, Patala, E shore of the bay Patalanlahti, 6.IX.1934; Piisaari, Kiurlahti – Soukanniemi, fallow field, 19.VIII.1934; both Erkamo (1934).

Ceratophyllum demersum (360, rare)

Tiurinsaari, Vanhakylä, the cape NW of the village, drifted to the shore, 14.VIII.2008 Rintanen (H).

Chenopodium album coll. (366, fairly common)
Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Chenopodium glaucum (367, very rare)

Koivusaari, Saarenpää, Harilainen, Mäkelä, seashore, 11.VIII.2008 Ahti 68280 (H). – A robust plant with coarsely lobed leaves representing f. *strictum* (K. Koch) Aellen, which mostly consists of recently introduced casual plants, usually of eastern origin in northern Europe. It does not match with the old seashore or village weeds of southern East Fennoscandia (Uotila & Suominen 1976).

Chenopodium rubrum

Koivusaari, Hietaniemenlahti, beach, along somewhat pebbly shoreline, 1 ex., 13.VIII.2008 Uotila 47133 (H).

Chenopodium suecicum

Koivusaari, Saarenpää, Harilainen, weed in garden, very sparse, 12.VIII.2008 Uotila; Hietaniemenlahti, eutrophied beach, clearly less frequent than *Chenopodium album*, 13.VIII.2008 Uotila 47132 (H). – *C. suecicum* was not distinguished from *C. album* in Tzvelev (2007).

Cichorium intybus

Koivusaari, Patala, Patalanlahti, E shore, 6.IX.1934 (Erkamo 1934).

Cirsium heterophyllum (242, fairly rare)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934). – Given as *C. helenioides* in Hämet-Ahti *et al.* (1998); however, *C. heterophyllum* and *C. helenioides* are different, but closely related taxa.

Cirsium vulgare (245, rare)

Tiurinsaari, Vanhakylä – Laurinlahti, 18.VIII.1934 (Erkamo 1934).

Convallaria majalis (42, frequent)

In addition to the widespread, rather narrow-leaved variant this species is represented in

Koivusaari by a robust morph (with larger pollen grains, for instance) called *Convallaria latifolia* Mill. by Kupriyanova (1986). The taxonomy and nomenclature of this overlooked morph requires further studies, but it appears to be not uncommon also in southern Finland.

Crassula aquatica (*Tillaea aquatica*; 374, rare)

Koivusaari, Patala, Patalanlahti, E shore, 6.IX.1934 (Erkamo 1934).

Cynoglossum officinale

Koivusaari, Saarenpää, Harilainen, Mäkelä, grassland in the backyard of a shop, several plants, 11.VIII.2008 Uotila 47072 & Ahti & Rintanen (H).

Descurainia sophia (311, rare)

Tiurinsaari, Vanhakylä – Laurinniitty, 18.VIII.1934; Piisaari, Kiurlahti, 19.VIII.1934; both Erkamo (1934).

Dianthus deltoides (337, fairly frequent)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Echinocystis lobata (Michx.) Torr. & A. Gray

Koivusaari, Harilainen, fence surrounding yard, 11.–13.VIII.2008 Ahti & Uotila; cultivated and escaped. – This plant is often cultivated as ornamental in NW Russia and it frequently escapes from gardens. In Russian Karelia (Kravchenko 2007: 107), for instance, it has recently been recorded in Sortavala and several localities in *Karelia olonetsensis*. It is therefore expected to soon arrive in SE Finland, where it is not known to occur so far.

Eleocharis palustris (92, fairly frequent)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Eleocharis parvula

Koivusaari, S shore of the island and Saarenpää (Ulvinen 1944); SW corner, the bay Pitkäniemenlahti, sand shore, 13.VIII.2008 Rintanen.

Elymus caninus (161, fairly frequent)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Epilobium ciliatum (*E. pseudorubescens*)

Koivusaari, Saarenpää, Hietaniemenlahti, eutrophied seashore dune, single plants, and Harilainen, 13.VIII.2008, both Uotila.

Erodium cicutarium (422, very rare)

Piisaari, Kiurlahti, potato field, 19.VIII.1934 (Erkamo 1934).

Fallopia dumetorum (481, fairly frequent)

Piisaari, S part, Soukanniemi, 19.VIII.1934 (Erkamo 1934).

Galeopsis ladanum

Koivusaari, Patala, Patalanlahti, E shore, 6.IX.1934; Piisaari, Kiurlahti, fallow field, 19.VIII.1934; both Erkamo (1934).

Galeopsis speciosa (440, rare)

Piisaari, Kiurlahti, Luotsikylä and W shore, 19.VIII.1934 (Erkamo 1934).

Galinsoga parviflora

Koivusaari, Saarenpää, Harilainen, Mäkelä, garden, weed in flower bed, sparsely, 12.VIII.2008 Uotila 47122 & Ahti (H).

Hemerocallis fulva (103, rare)

Koivusaari, Saarenpää, Harilainen, grassland in the village, 11. – 14.VIII.2008 Uotila. – Relic of cultivation.

Hyoscyamus niger

Piisaari, Kiurlahti, several plants, 19.VIII.1934; Tiurinsaari, Vanhakylä – Laurinniitty, several plants, 18.VIII.1934; both Erkamo (1934).

Juncus conglomeratus (113, rare)

Piisaari, Soukanniemi, E shore, 19.VIII.1934 (Erkamo 1934).

Juncus tenuis

Koivusaari, Saarenpää, Harilainen, in 3 different places, 11.–14.VIII.2008 Ahti 68293, 68319 (H), Uotila 47121 & Ahti & Rintanen (H). – According to E. Glazkova (pers. comm.) seen by her in Harilainen, but the report is accidentally missing in Tzvelev (2007).

The history of this originally American introduction on the Karelian Isthmus is interesting. It was neither recorded by the early Finnish botanists in this area (only in SW Finland) nor the Russian ones – being absent from the Flora of the Leninograd Region (Shishkin 1955), for instance. However, in recent Russian floras it is recorded from many places, and Doronina (2007: 217), for instance, recorded it from all her 12 special study areas, even at three localities north of Vyborg! The stands at Harilainen [Krasnyy Ostrov] appeared to be well established, not recent introductions at all. In fact, in the herbarium in Helsinki (H) we detected the following specimen (det. Arto Kurtto

1998) of *Juncus tenuis*: “*Ik*, [Terijoki], Tyrisevä [= St. Petersburg, Kurortnyy District, Ushkovo], 1927 G. Stenius”. It was misidentified by the collector. In Russian Karelia (Kravchenko 1997: 303) the first record was made in 1997, but since that time it has heavily spread in Petrozavodsk (forming mass stands) and also to other places like Suojärvi, Reboly and Belomorsk. In recent times it has been reported at a few new localities in western Finland.

All this seems to indicate that this species was badly overlooked for a long time in Finland and Russia, and more localities are expected to exist. In Canada it is a very aggressive invasive species, which should be able to become widespread in northern Europe.

Lactuca tatarica (*Mulgedium tataricum*, 268, very rare)

Piisaari, Kiurlahti, Luotsikylä and W shore, in different sites, 19.VIII.1934 Erkamo (H; Erkamo 1934, Hiitonen (1944). – The only records for the archipelago (Tzvelev 2007).

Lamium hybridum (444, very rare)

Piisaari, Kiurlahti, 19.VIII.1934 (Erkamo 1934).

Lamium purpureum

Koivusaari, Saarenpää, Harilainen, Mäkelä, garden weed, sparsely, 12.VIII.2008 Uotila 47126 & T. Rytteri (H).

Lapsana communis

Tiurinsaari, Vanhakylä – Laurinniitty, 18.VIII.1934 (Erkamo 1934).

Lemna gibba

Koivusaari, N shore of Hietaniemenlahti, sand bank, drifted, 13.VIII.2008 Rintanen (H); at the end of the bay Pitkäniemenlahti, sparsely along the waterline within 50 m stretch, 13.VIII.2008 Rintanen (H).

Lepidium ruderales (317, rare)

Tiurinsaari, Vanhakylä – Laurinniitty, 18.VIII.1934; Piisaari, Kiurlahti, Luotsikylä and Soukka, 3 finds, 19.VIII.1934; both Erkamo (1934).

Linum usitatissimum

Piisaari, Kiurlahti, Luotsikylä, sparsely, 19.VIII.1934 (Erkamo 1934).

Lolium perenne

Koivusaari, Saarenpää, Harilainen, garden, single probably weedy plants, 12.VIII.2008 Uotila.

Malope trifida

Piisaari, Kiurlahti, rubbish heap, 19.VIII.1934 (Erkamo 1934).

Malva pusilla (458, very rare)

Tiurinsaari, Vanhakylä – Laurinniitty, several plants, 18.VIII.1934; Piisaari, Kiurlahti, Luotsikylä, 2 sites, 19.VIII.1934; both Erkamo (1934).

Melampyrum pratense var. *hians* Druce

This much overlooked variant was probably the only one observed in the area in 2008, and is extremely abundant in the pine forests. It is recognized by its totally yellow (not whitish) flowers, for instance, and was recognized by Tzvelev (2000) as a distinct species, *M. hians* (Druce) Tzvelev. The species *M. pratense* was treated collectively in Tzvelev (2007).

Nardus stricta (197, fairly rare)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Oxalis fontana ‘Rufa’ (*Xanthoxalis stricta*)

Koivusaari, Saarenpää, Harilainen, garden, locally escaped, 12.VIII.2008 Uotila.

Panicum capillare

Piisaari, Kiurlahti, Luotsikylä and W shore, 19.VIII.1934 (Erkamo 1934, as *P. miliaceum*).

Papaver somniferum (473, very rare)

Piisaari, Kiurlahti, Luotsikylä and W shore, 19.VIII.1934 (Erkamo 1934); Tiurinsaari, Vanhakylä, Hoikkala, grassland near the basement of a demolished building, a few plants, 14.VIII.2008 Uotila 47162 (H).

Pastinaca sativa

Tiurinsaari, Vanhakylä – Laurinniitty, by fence, 18.VIII.1934 (Erkamo 1934).

Pedicularis palustris

Piisaari, Kiurlahti, Soukanniemi, E shore, 19.VIII.1934 (Erkamo 1934).

Persicaria minor (486, rare)

Koivusaari, SW corner, NW of the bay Huoparuona, path in spruce-hardwood swamp, 13.VIII.2008 Rintanen.

Plantago media

Tiurinsaari, Vanhakylä – Laurinniitty, grassland, sparse, 18.VIII.1934 (Erkamo 1934).

Prunella vulgaris (447, fairly rare)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Ranunculus flammula (529, rare)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934). – The closely related *R. reptans* is frequent along sea-shores in the area and also grows in Vasikkasaari (Tzvelev 2007). Erkamo does not mention *R. reptans* from his excursions, and he may have included *R. reptans* in *R. flammula*.

Rhinanthus minor (620, fairly rare)

Erkamo (1934) lists this species with a question mark from Vasikkasaari, 19.VIII.1934. – No *Rhinanthus* is mentioned from Vasikkasaari in Tzvelev (2007).

Ribes uva-crispa (*Grossularia uva-crispa*)

Tiurinsaari, Vanhakylä, S part of the village, overgrown old field/meadow, deciduous forest, small shrub, 14.VIII.2008 Uotila.

Rosa glauca

Tiurinsaari, Vanhakylä – Laurinniitty, 2 sites, 18.VIII.1934 (Erkamo 1934).

Rubus arcticus

Koivusaari, Penkkisuo, 12.VIII.2008 Lindholm & Vasander; Tiurinsaari (Doronina 2007, map 146).

Rumex maritimus

Koivusaari, Saarenpää, Harilainen, boat harbour of the village, 12.VIII.2008 Uotila 47107 & Ahti (H), Hietaniemenlahti, sand shore, shoreline among algae mass, 13.VIII.2008 Uotila 47128 (H), Pitkäniemenlahti, sand shore on decaying algae, a few exx, 13.VIII.2008 Rintanen (H), and at the end of the bay Huoparuona, 13.VIII.2008 Rintanen (H).

Salix aurita (599, frequent)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Salsola kali (368, very rare)

Koivusaari, southern shore, sand, very sparsely, 1943 (Ulvinen 1944); Piisaari, Kiurlahti, Luotsikylä and W shore, 19.VIII.1934 Erkamo (H), Erkamo (1934). – Erkamo’s specimen is the only record cited for the archipelago in Tzvelev (2007). During his excursion Erkamo also noted *S.*

kali from two localities on the mainland shore northeast of the Koivisto [Primorsk] harbour in 20.VIII.1934.

Selinum carvijolia (226, rare)

Tiurinsaari, Vanhakylä, around Hoikkala farmstead, grassland near seashore, 14.8.2008 Ahti 68710 (H).

Sinapis alba

Piisaari, Kiurlahti, Luotsikylä and W shore, 19.VIII.1934 (Erkamo 1934); Koivusaari, Saarenpää, Harilainen, garden weed, 12.VIII.2008 Ahti (H), probably also cultivated.

Sisymbrium officinale var. *officinale*
(*Velarum officinale*)

Koivusaari, Saarenpää, Harilainen, near the old pier, in grassy path margin, 12.VIII.2008 Uotila.

Solanum nigrum

Piisaari, Kiurlahti, Luotsikylä and W shore, 19.VIII.1934 (Erkamo 1934); Tiurinsaari, Vanhakylä – Laurinniitty, close to a potato “pit”, 18.VIII.1934; both Erkamo (1934).

Solanum tuberosum

Piisaari, Kiurlahti, Luotsikylä and W shore, rubbish heap, 19.VIII.1934 (Erkamo 1934).

Solidago virgaurea (277, frequent)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Sonchus asper

Piisaari, Kiurlahti, Luotsikylä and W shore, yard, 19.VIII.1934 (Erkamo 1934); Koivusaari, Harilainen, garden weed, 11.VIII.2008 Ahti 68278 (H), 12.VIII.2008 Uotila 47123 (H), the former specimen represents var. *pungens*, the latter var. *asper*.

Sonchus oleraceus (279, very rare)

Koivusaari, Harilainen, garden weed, 12.VIII.2008 Uotila 47124 (H). – The specimen represents *S. oleraceus* var. *lacerus*. The only earlier find of *S. oleraceus* from the area is from Koivusaari, M. Dlinnyy (Tzvelev 2007).

Sparganium angustifolium (207, rare)

Koivusaari, Saarenpää, Hietaniemenlahti, small, shallow oligotrophic pond behind the sea shore dunes, 13.VIII.2008 Uotila.

Sparganium microcarpum

Koivusaari, SW shore, the bay Ruonanlahti, *Alnus*

glutinosa swamp, small colony, 12.VIII.2008 Uotila 47085 (H). – The most notable species of the locality (Fig. 2) include *Circaea alpina*, *Glyceria maxima*, *Carex pseudocyperus*, *C. elongata*, *Rumex hydrolapathum* and *Lemna trisulca*, the three first mentioned species being very rare in the island. No member of the *Sparganium erectum* group was reported from the archipelago by Tzvelev (2007).

Spiraea × *rosalba* (586, rare)

Koivusaari, Saarenpää, Harilainen, 14.VIII.2008 Ahti (H). – Relic of cultivation.

Spirodela polyrhiza

Koivusaari, Saarenpää, SW corner, the bay Kiililahti, E part, drifted, 13.VIII.2008 Rintanen (H).

Stachys palustris (450, fairly frequent)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Trifolium pratense (410, fairly frequent)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Trifolium spadiceum (*Chrysaspis spadicea*)

Koivusaari, Patala, Patalanlahti, E shore, 6.IX.1934 (Erkamo 1934).

Typha angustifolia × *latifolia* (*T.* × *glauca*)

Koivusaari, Saarenpää, W shore, the bay Hietaniemenlahti, a small, sterile colony together with the parent species, 13.VIII.2008 Uotila.

Ulmus laevis (630, rare)

Koivusaari (Doronina 2007, map 93).

Urtica dioica (631, frequent)

Koivusaari, SW shore, the bay Ruonanlahti, *Alnus glutinosa* swamp, 12.VIII.2008 Uotila 47082 (H); Tiurinsaari, Vanhakylä, moist *Alnus glutinosa* – *Betula pubescens* wood born in previous grassland, 14.VIII.2008 Uotila 47160 (H). – Geltman in Budantsev & Yakovlev (2006) and Doronina (2007) report another taxon of *Urtica dioica* group, *U. galeopsifolia*, from several places in the Karelian Isthmus, from coastal *Alnus glutinosa* woods and from shores of rivers and lakes. Doronina (2007) points out that often the delimitation of it and *U. dioica* s.str. is not clear, and intermediates are not rare, and she accepts *U. galeopsifolia* as a subspecies of *U. dioica*. Recently, Weigend (2005) concluded that *U. galeopsifolia* Wierzb. ex Opiz is conspecific with another taxon of the group (*U. pubescens* Ledeb.), and the cor-



Fig. 2. *Alnus glutinosa* swamp with, e.g., *Carex pseudocyperus*, *Rumex hydrolapathum*, *Sparganium microcarpum* and almost non-stinging *Urtica dioica*. Photo: 12.VIII.2009 P. Uotila.

rect name of *U. galeopsifolia* sensu Flora Europaea and Russian authors is at the subspecific level *U. dioica* subsp. *subinermis* (R. Uechtr.) Weigend.

Both specimens collected in 2008 have few stinging hairs on stems and leaves. They, especially Uotila 47160, resemble *Urtica dioica* subsp. *subinermis* or better intermediates between subsp. *dioica* and subsp. *subinermis*.

Urtica urens

Tiurinsaari, Vanhakylä – Laurinniitty, 18.VIII.1934; Piisaari, S part, Soukka, 19.VIII.1934; both Erkamo (1934).

Vicia sativa subsp. *segetalis* (*V. segetalis*)

Piisaari, Kiurlahti (Luotsikylä) – Soukanniemi, 19.VIII.1934 Erkamo (H; Erkamo 1934); Koivusaari, Saarenpää, Harilainen, garden weed,

12.VIII.2008 Uotila 47125 (H). – In his field notes and specimen Erkamo used the name *V. sativa*, and the taxon is also cited under this name by Glazkova and Tzvelev in Tzvelev (2007). Erkamo's specimen is quite identical with Uotila 47125, and both match best with subsp. *segetalis*.

Vicia sepium (415; fairly frequent)

Both subsp. *montana* and subsp. *sepium* were found in 2008. The former one was noted in several places in both Koivusaari and Tiurinsaari; subsp. *sepium* was collected in Koivusaari, Saarenpää, Harilainen, 11.VIII.2008 Ahti 68267 (H). – These taxa were not recognized in Tzvelev (2007). Subsp. *montana* is the dominant and common race in the Leningrad Region (Hämet-Ahti 1970, Tzvelev 2000). The more western and

southern race subsp. *sepium* was earlier collected in Russian *Ka*, Seskar (Seiskari) Island, former village Pohjakylä, 1993 R. Lampinen 17084 (H). It was actually also recorded from the Leningrad Region by Tzvelev (pers. comm., 2009) before, although it is not clearly indicated in Tzvelev (2000).

Viola epipsila

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Viola riviniana (642)

Vasikkasaari, 19.VIII.1934 (Erkamo 1934).

Zannichellia palustris var. *pedicellata*
(*Zannichellia pedunculata*)

Koivusaari, S shore (Ulvinen 1944). – Ulvinen writes under *Zannichellia palustris* that also var. *pedicellata* was found in the south shore of Koivusaari. Further, he states that it is the easternmost location of that race.

4. Discussion

Erkamo's floristic observations in 1934 contain seven new species for Bol'shoy Berezovyy Island (Koivusaari), 12 for Zapadnyy Berezovyy Island (Tiurinsaari), 27 for Severnyy Berezovyy Island (Piisaari) and 22 for Malyy Berezovyy Island (Vasikkasaari). These include 23 species which are new for the archipelago. Further, Ulvinen (1944) reported from Bol'shoy Berezovyy Island three species, which are missing from Tzvelev (2007), and of which two are new for the archipelago. Some rare species are probably missing from Tzvelev (2007) only accidentally, because a complete inventory of such large islands is not possible. On the other hand, many of our new species missing from Tzvelev (2007) have presumably disappeared from the area or greatly decreased. For instance, many of the new species only found by Erkamo in 1934 are more or less archeophytic, weedy plants (*Anchusa arvensis*, *Apera spica-venti*, *Cichorium intybus*, *Galeopsis ladanum*, *Hyoscyamus niger*, *Malva pusilla*, *Panicum capillare*, *Pastinaca sativa*, *Plantago media*, *Urtica urens*), which have widely disappeared or become rare in northern Europe due to changing agricultural practices. Still in the 1930s they might have been quite common on the islands, because there were several moderately big rural villages. These spe-

cies probably gradually decreased and finally disappeared together with the fields, cattle and settlements. As to the absence of numerous earlier recorded species from Malyy Berezovyy Island – such as *Achillea ptarmica*, *Alopecurus geniculatus*, *Antennaria dioica*, *Bidens radiata*, *Carex leporina*, *Chenopodium album* coll., *Dianthus deltoides*, *Nardus stricta*, *Prunella vulgaris*, and *Trifolium pratense* – it must be due to the total discontinuation of grazing and other human activity since the war time on that island.

During the 2008 excursion 29 taxa new to Bol'shoy Berezovyy Island and four taxa new to Zapadnyy Berezovyy Island were found. 21 of them were new to the whole Berezovyy Archipelago. The new findings during the excursion consist of three kinds of taxa. Most of them are strongly dependent on man, essentially weeds and escapes from cultivation in the village of Krasnyy Ostrov, such as *Arctium minus*, *Cynoglossum officinale*, *Galinsoga parviflora*, *Sonchus asper*, *Sisymbrium officinale*, *Lamium purpureum*, *Sinapis alba*, *Lolium perenne*, *Aronia mitschurinii*, and *Oxalis fontana* 'Rufa'. Some of them may be quite recent introductions, but many are apparently members of old village flora. It should be remembered that the village was a relatively busy harbour for commercial fishing up to 1940, not at all an isolated place. The second group is formed by apophytic, aquatic and weedy plants along eutrophied sandy shores of somewhat sheltered bays. Probably many of the taxa have spread rapidly and relatively recently into such habitats by waves, water currents and water fowl. These plants include *Spirodela polyrrhiza*, *Lemna gibba*, *Ceratophyllum demersum*, *Rumex maritimus*, *Chenopodium rubrum*, and *C. glaucum*.

The third group is formed by rare, probably indigenous plants, like *Atriplex longipes* subsp. *longipes*, *Carex chordorrhiza*, *Sparganium angustifolium*, *S. microcarpum*, *Rubus arcticus* and *Persicaria minor*.

Acknowledgements. Tapio Rintanen, Risto Hamari, Tapio Lindholm and Harri Vasander are thanked for their contribution in collecting floristic information and herbarium material during the excursion in 2008. Tuomo Hilska and Nadezha Alexeeva are thanked for guidance and practical arrangements of the excursion, Elena Glazkova for useful comments on the manuscript, and Leena Helynranta for compilation of the map in Fig. 1. The excursion was

funded by the Finnish-Russian Working Group on Nature Conservation and the Ministry of the Environment of Finland.

Lisätietoja Karjalankannaksen Koiviston saarten (Berezovye ostrova) kasvistoon

Suomen Neuvostoliitolle luovuttama Koiviston pitäjä Viipurin eteläpuolella (Ka) kuului suomalaisaikana (vuoteen 1944) Karjalankannaksen kasvistollisesti puutteellisimmin tunnettuihin alueisiin. Tämä koski myös Koiviston saaristoa, jonka suurimmat saaret ovat Koivusaari, Tiurinsaari, Piisaari ja Vasikkasaari. Poikkeuksena oli Vasikkasaari, joka oli tunnettu rehevästä lehtokasvillisuudestaan ja jalopuistaan ja joka oli ollut useiden botanistien vierailukohde. Viljo Erkamo merkitsi 1934 saaristosta muistiin kasvihavaintoja, jotka vasta äskettäin ovat tulleet käyttöön, ja ne on tallennettu Luonnontieteellisen keskusmuseon Kastikka-tietokantaan.

Koiviston saaristo sisällytettiin 1976 Viipurin luonnonsuojelualueeseen, mutta vasta 1980-luvun lopulla venäläiset kasvitieteilijät alkoivat tutkia saaria, ja 1996 saaristosta muodostettiin itsenäinen Koiviston saarten (Berezovye ostrova) luonnonsuojelualue. 2000-luvun alkupuolella venäläiset tutkijat inventoivat monipuolisesti saarten luontotyyppejä, kasveja, sieniä ja selkärankaisia eläimiä, ja inventoinnin tulokset julkaistiin paksuna kirjana (Tzvelev 2007). Elokuussa 2008 17 suomalaista kasvitieteilijää, eläintieteilijää ja luonnonsuojelun asiantuntijaa vieraili saarilla neljän päivän ajan. Kasvitieteilijät kirjasiivat kenttäkorteille havaintoja noin 25 paikalta ja keräsivät putkilokasveista runsaasti herbaarionäytteitä. Kenttäkortitiedot on tallennettu Kastikka-tietokantaan ja näytteet ovat Helsingin yliopiston kasvimuseossa (H).

Artikkelissa luetellaan sekä Erkamon muistiinpanojen, Ulvisen (1944) ja Doroninan (2007) julkaisujen että kesän 2008 retken kasvihavainnot kaikista sellaisista lajeista, joita luonnonsuojelualan monografiassa ei ole mainittu joko koko alueelle uusia lajeja, rotuja tai risteymiä on 49, niiden lisäksi yksittäisille saarille uusia lajeja ja rotuja on 40. Erkamon havaintojen monet nykyluettelosta puuttuvat lajit ovat rikkakasveja (*Hyoscyamus niger*, *Centaurea cyanus*, *Galeopsis ladanum*, *Lapsana communis*, *Malva pusilla*, *Trifolium spadiceum*,

Urtica urens), viljelykarkulaisia ja muita kulttuurin seuralaiskasveja, jotka ovat kadonneet saarilta kylien ja laidunten hävittyä, siis maankäytön täysin muututtua sodan jälkeen. Hävinnyt lienee myös hiekkarantojen *Salsola kali*, jota niin Erkamo kuin Ulvinen löysivät.

Kesän uusista löydöistä monet ovat rikkakasveja (*Cynoglossum officinale*, *Arctium minus*, *Chenopodium rubrum*, *Galinsoga parviflora*, *Juncus tenuis*, *Lamium purpureum*, *Sonchus asper*, *Sisymbrium officinale*, *Sinapis alba*), koristekasvikarkulaisia (*Aronia mitschurinii*, *Calystegia sepium* subsp. *spectabilis*, *Echinocystis lobata*) ja vesikasveja (*Lemna gibba*, *Rumex maritimus*, *Sparganium microcarpum*, *Spirodela polyrhiza*, *Typha angustifolia* x *latifolia*), joista eräät ovat hyvinkin voineet saapua saarille vasta aivan äskettäin. Koivusaarelle ja Tiurinsaarelle uusiin lajeihin kuuluu kulttuurin seuralaisten (mm. *Atriplex patula*, *Chenopodium glaucum*, *Papaver somniferum*, *Ribes uva-crispa*) lisäksi muutamia alkuperäislaajekin (*Carex chordorrhiza*, *Persicaria minor*, *Rubus arcticus*, *Sparganium angustifolium*).

References

- Ahokas, H. 2008: Kasvien löytöpaikkatietoja 1600–1800-luvulta käsikirjoituksista. H. A. Reinholmin floristinen muistio vuodelta 1847. — *Sorbifolia* 39: 12–23.
- Budantsev, A. L. & Yakovlev, G. P. 2006: Illustrated keys to the flora of the Leningrad Region. 800 pp. — T-vo nauchnykh izdaniy KMK, Moskva. (In Russian).
- Doronina, A. 2007: Vascular plants of the Karelian Isthmus (Leningrad Region). — 574 pp. KMK Scientific Press Ltd., Moscow. (In Russian with English Summary).
- Doronina, A. & Piirainen, M. 2009: History of the floristic study of the Karelian Isthmus, Leningrad Region. — *Memoranda Soc. Fauna Flora Fenn.* 85: 45–60.
- Erkamo, V. 1934: Field Book 23. Kasvistollisia tietoja. Koivisto 1934. — Manuscript, Archives of Botanical Museum, Finnish Museum of Natural History, Helsinki.
- Erkamo, V. 1937: *Centunculus minimus* L. in Koivisto (Ka) gefunden. — *Ann. Bot. Soc. Zool.-Bot. Fenn. Vanamo* 9 (7): 1–8.
- Hämet-Ahti, L. 1970: Taxonomy of *Vicia sepium* L. (Leguminosae) in Finland. — *Ann. Bot. Fenn.* 7: 170–176.
- Hämet-Ahti, L., Suominen, J., Ulvinen, T. & Uotila, P. (ed.) 1998: Retkeilykasvio. Ed. 4. — 656 pp. Luonnontieteellinen keskusmuseo, kasvimuseo, Helsinki.

- Hämet-Ahti, L., Kurtto, A., Lampinen, R., Piirainen, M., Suominen, J., Ulvinen, T., Uotila, P. & Väre, H. 2005: Lisäyksiä ja korjauksia Retkeilykasvion neljanteen painokseen. — *Lutukka* 21: 41–85.
- Hiitonen, I. 1944: Suomen kasviston uusimmat uutuudet. III. — *Luonnon Ystävä* 48: 119–126.
- Hiitonen, I. 1946: Karjalan kannas kasvien vaellustienä lajien nykylevinneisyyden valossa. — *Ann. Bot. Soc. Zool.-Bot. Fenn. Vanamo* 22(1): 1–206.
- Hiitonen, I. 1962: Über die natürliche Südostgrenze des östlichen Fenno-skandien unter besonderer Berücksichtigung der Karelischen Landenge. — *Memoranda Soc. Fauna Flora Fenn.* 37: 13–69.
- Hultén, E. & Fries, M. 1986: Atlas of North European vascular plants north of the Tropic of Cancer. I–III. — 1172 pp. Koeltz Scientific Books, Königstein.
- Kravchenko, A. V. 2007: A compendium of Karelian flora (vascular plants). — 403 pp. Karelian Research Centre RAS, Petrozavodsk. (In Russian).
- Kupriyanova, L. A. 1986: Some problems in systematics and palynology of some species of the genus *Convolvularia* (Asparagaceae). — *Bot. Zhurn.* 71: 185–194. (In Russian).
- Laitakari, E. 1931: Koiviston Vasikkasaari. Luonnon luoma dendrologinen puisto. — *Metsätaloudellinen aikakauskirja* 48: 203–206.
- Shishkin B. K. (ed.) 1955: Flora of the Leningrad Region 1. — 287 pp. Izdatel'stvo Leningradskogo universiteta. Leningrad. (In Russian).
- Tzvelev, N. N. 1992: Protected areas. Vyborgskii. — *Trudy Bot. Inst. Komarova A. N. S.S.S.R.* 5: 22–31. (In Russian).
- Tzvelev, N. N. 2000: Manual of the vascular plants of North-West Russia (Leningrad, Pskov and Novgorod provinces). — 781 pp. Izdatel'stvo SPHFA, St. Petersburg.
- Tzvelev, N. N. (executive ed.) [Volkova, E. A., Glazkova, E. A., Isachenko, G. A. & Khramtsov, G. A., (eds.)] 2007: Environment and biological diversity of Berezovye Islands Archipelago (The Gulf of Finland). — 368 pp. + 9 maps. Committee on Natural Resources and Environmental Protection of the Leningrad Region Government, etc., St. Petersburg. (In Russian, with English Summary).
- Ulvinen, A. 1944: Merenrantakasveja Suomenlahden itäosasta. — *Ann. Bot. Soc. Zool.-Bot. Fenn. Vanamo* 20 (Notulae): 32–35.
- Uotila, P. 2009: Kasviretki Koiviston saarille Karjalankannakselle. — *Lutukka* 25: 3–15.
- Uotila, P. & Suominen, J. 1976: The *Chenopodium* species in Finland, their occurrence and means of immigration. — *Ann. Bot. Fenn.* 13: 1–25.
- Vauras, R. 2008: Venäjän Koiviston saaristo on hiekkaa ja hiljaisuutta. — *Ympäristö* 22 (7): 24–26.
- Weigend, M. 2005: Die Erben *Pokornys* – Ein Beitrag zur Abgrenzung der Sippen *Urtica galeopsifolia* und *Urtica pubescens* in Mittel- und Osteuropa. — *Hoppea* 66: 101–118.