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A summer in Siberia: the travel and the collection itinerary to the mouth of the Ob River by the botanist and ethno-anthropologist Stéphen Sommier in 1880

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ABSTRACT

Stéphen Sommier (1848–1922) was a renowned botanist, plant collector, ethnographer, geographer and photographer. He is best known for his scientific expeditions to Italy, Scandinavia and Russia. This study provides a detailed reconstruction of his travels and collections during the expedition he led to the mouth of the Ob River in Siberia in the summer of 1880. This voyage was of significant botanical importance, with 562 different plant taxa collected, 22 of which were described as new to science at the time. The voyage is also significant from an ethnological point of view, as Sommier was the first Italian scientist to encounter and document the various Siberian populations of the time. The places visited have been georeferenced and presented in a topographical map, which highlights the itinerary and the sites where specimens corresponding to taxa later described as new to science were collected.

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1. Introduction

Carlo Pietro Stefano (Stéphen) Sommier (1848–1922) was an Italian botanist, geographer and ethno-anthropologist born in Florence to French parents that opted for Italian nationality at the age of 21 (Stafleu & Cowan, 1985). According to IPNI (https://www.ipni.org/a/9887-1) Sommier is the author of 140 plant names. He is known for his scientific travels to Italy, Scandinavia and Russia, and for his important botanical collections (Pampanini, 1922). He was in contact with illustrious scientists of his time, including Aleksandr Herzen (Russian politician and writer, 1812–1870), Paolo Mantegazza (pathologist and anthropologist, 1831–1910) and the Italian botanists Enrico Giglioli (1845–1909), Emilio Marcucci (1837–1890), Odoardo Beccari (1843–1920), Filippo Parlatore (1816–1877) and Émile (Emilio) Levier (1839–1911).

Sommier undertook with Levier an important botanical expedition through the Caucasus, which has been the subject of recent publications (Levier, 1894; Viciani et al., 2024). Sommier was an active botanist, founding member and president of the Italian Botanical Society. He was the author of numerous publications, mainly on botany, but also on geography and ethno-anthropology (Pampanini, 1922; Sommier, 1887a; 1887b). After his death, Sommier's herbarium was donated by his heirs to the Herbarium Centrale Italicum (now part of to the Botanical Collections of the Natural History Museum of the University of Florence) in May 1922. It consisted of 475 packages of plants, which were added to the 7,729 specimens that Sommier himself had donated to the Herbarium between 1872 and 1915 (Cuccuini & Nepi, 1999; Viciani et al., 2024). A friend of the great anthropologist Paolo Mantegazza, who had introduced him to this science, Sommier also collected data and objects of ethno-anthropological interest during his travels, most of which he donated mostly to the National Museum of Anthropology in Florence, founded by P. Mantegazza himself (Pampanini, 1922; Roselli, 2016). In fact, several of his finds are currently part of the Anthropological and Ethnological Collections of the Natural History Museum of the University of Florence (Moggi Cecchi & Stanyon, 2014; Roselli, 2007).

The Botanical Collections of the Natural History Museum of the University of Florence have a rich history intertwined with naturalistic explorations in distant and then less known countries, especially from a botanical point of view. This link goes back to before the foundation of the Central Italian Herbarium in 1842 (Moggi, 1994; 2009). However, in the second half of the nineteenth century, Florentine botanists, whether by birth or adoption, undertook extraordinary

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journeys that allowed a large number of plant specimens from areas not previously represented in the existing collections to reach the Central Herbarium. For example, the first director of the Herbarium, Filippo Parlatore (1816–1877), travelled and collected plants in the Scottish Highlands, in Central Europe and in Lapland (Parlatore, 1992); Odoardo Beccari (1843–1920), one of the greatest Florentine botanical explorers, made three journeys to Malaysia, New Guinea, Australia and New Zealand (Cecchi et al., 2022; Nepi, 2009; Viciani et al., 2021). Sommier himself, together with his colleague and friend Émile Levier, undertook a journey in 1890 through the Caucasus, a region little-known and difficult to explore at that time, bringing back a notable number of plant samples of great interest, some of which were later described as new to science (Levier, 1894; Pampanini, 1922; Viciani et al., 2024).

Equally important are Sommier's explorations in the northern territories, namely Siberia and Lapland (Pampanini, 1922). In the summer of 1878 Sommier travelled for the first time through Scandinavia to the North Cape and Lapland, together with Paolo Mantegazza, collecting many plant specimens, but also many ethno-antropological data and objects concerning the Laplanders (Mantegazza, 1881; Mantegazza & Sommier, 1880; Pampanini, 1922; Sommier, 1881a). He was a rich man, and was so fascinated by these studies that he planned to travel to more distant regions, namely to the mouth of the Ob River in Siberia, for the love of science and adventure, with the aim of exploring one of the largest rivers in the north, to study the flora, the environment and the natives who lived in these places (Andres, 2019; Sommier, 1885). In June 1880, Sommier entered Russia from the Baltic Sea and stopped briefly in St. Petersburg, where he was welcomed by members of the Imperial Academy of Sciences, and other scholars and explorers that knew Siberia, receiving official and private letters of recommendation for his journey. From here he reached Moscow, where again he was kindly welcomed by some professors of the University. A few days later, he left the capital, alone, to undertake the most difficult part of his journey.

The aim of this work is to accurately reconstruct Sommier's travel itinerary from Moscow to the mouth of the Ob River in Siberia (Figure 1), linking the site names he used to the current ones, and placing them in a temporal sequence on an updated georeferenced map. For the description of the journey we based on the book by Sommier (1885). Despite the fact that this work is focused on cartography and not to strictly botanic and typification aspects, we also aim to show on the map the sites where the specimens of plant taxa that were later described as new to science, were collected by Sommier, as it can be very important for nomenclatural reasons (e.g. the position of the 'locus typicus' of each taxon) and for the historical documentation of the botanical knowledge of an area (e.g. Mesquita et al., 2022). For the floristic list and descriptions, we based on the articles published on this topic by Sommier (1890; 1892; 1893a; 1893b; 1896a; 1896b), which are also collected in a complete compendium and published as a single book, entitled 'Flora dell'Ob Inferiore. Studio di geografia botanica' (Sommier, 1896c).

2. Methods

2.1. The map

The map was prepared using ESRI ArcGIS 10.8.2 for all data processing, mapping and design. The map is projected in the coordinate system EPSG:32641 WGS 84 / UTM zone 41N with a zoom on the part of the territory related to the lower course of the Ob River and its estuary.

The cartographic background intentionally omits infrastructure in order to emphasise morphology and orography. These are derived from the following sources: IHO World Seas: a vector layer of open data used for the boundaries of the world's major oceans and seas (Flanders Marine Institute, 2018); EarthEnv-DEM90: a digital elevation model with a resolution of approximately 90 metres (Robinson et al., 2014); SRTM Plus elevation data: a raster layer showing grey-scale shaded relief of land areas (Becker et al., 2009). The last two sets of elevation data were used to graphically highlight the geomorphology. SRTM Plus shows grey-scale shaded landforms, while EarthEnv_-DEM90 is placed on top of SRTM Plus with transparency to achieve the desired effect on the map.

The lines of the route were faithfully drawn based on Sommiers's indications (Sommier, 1885; 1890; 1892; 1893a; 1893b; 1896a; 1896b; 1896c). These texts give details on his journey, so several toponyms have been identified. We have also used the two maps that accompany the text by Sommier (1885), produced by him, which give a detailed account of the route and the stages covered, with a reliable reconstruction of the territory at the time (images inserted in the Main Map). The first map shows the route from the confluence of the Irtysch and Ob Rivers to the mouth (scale 1:4,000,000), the second a detail of the exploration at the estuary (scale 1:560,000). We then produced a Chronological Travel Table, which was the basis for the precise reconstruction the explorer's route and collection sites.

Each point has been identified on current maps by comparison with numerous websites of geographic services [https://earth.google.com/; https://www.google.it/maps/; https://mapcarta.com/; https://www.oldmapsonline.org/;http://www.etomesto.com/map-atlas_topo-russia/]. If a toponym could not be found on current

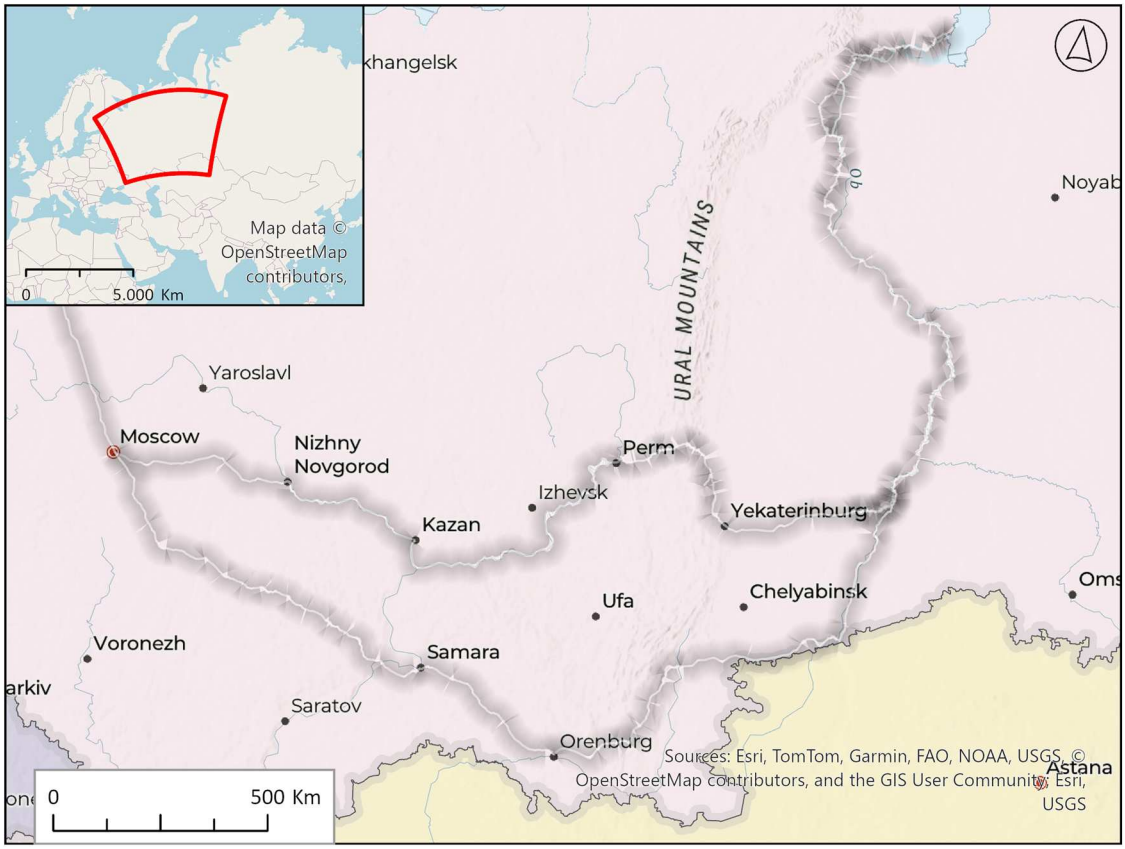

Figure 1. A synthetic view of Sommier's travel itinerary from Moscow to the mouth of the Ob River in 1885.

maps, we explain it in the Chronological Travel Table and assume its geographical position based on Sommier's description in the text, on his original maps mentioned above and on an interpolation between the previous and subsequent georeferenced sites.

Each point was georeferenced using WGS84 (EPSG4326) geographical coordinates system and labelled with a current topographic place name. The accuracy of each location was assessed, using a distance radius of 1,000 m. The tolerance range takes into account the uncertainty in identifying the position of an ancient place name on modern maps. In addition, changes in the course of the river have eliminated ancient settlements, which have been placed on the current map with great approximation.

2.2. Taxa considered new to science

Here we consider as new all taxa described by Sommier (and experts reported by the author), based on the material collected during Sommier's journey to the mouth of the Ob River, and reported in his botanical works (Sommier, 1890; 1892; 1893a; 1893b; 1896a; 1896b; 1896c). It is important to note that this work does not deal with taxonomic or nomenclatural issues, such as verification of materials' types, nomenclatural validity, or current synonyms.

Plant names referred in the text follow Plant of the World Online [https://powo.science.kew.org/].

2.3. Names of the peoples used by Sommier

It should be stressed that the names used by Sommier in his publications to refer to the peoples he met on his travels are often considered derogatory today. For example, instead of 'Samoyeds', it is currently preferable to use the names of the ethnic groups that make them up: Nenetzi, Nganasan, Enetzi, Selcup. The same problem exists for the 'Ostyacs' (Chanty, Kantek, Mansi), and others. In the text, we have had to use the names reported by Sommier, also because we do not know which of the ethnic groups, with their current names, he met at the time, but this aspect must be emphasised (Roselli, 2006).

3. Results and discussion

3.1. The map

Sommier's travel itinerary (the Chronological Travel Table) is available in Supplement 1, and includes a list of all the places visited with coordinates, original and current site names, and was used to produce the map. The names used by Sommier and the current ones are sometimes very similar (e.g. Tiumen–Tyumen; Beriòsof–Beryozovo; Iamburi–Yambura) while sometimes very different (e.g.: Samàrova–Khanty-Mansiysk; Obdòrsk–Salekhard). The Main Map, released at the scale 1:2,000,000, shows the collection itinerary, starting from Nižnij Tagil, the place reached by Sommier travelling by the Transuralic train, and

continuing to the Gulf of the Ob River, also highlighting the route directions. At the top of the map, there is an enlargement with a more detailed scale (1:750,000), to better visualise the route in the area of the lower course and mouth of the Ob River, from Salekhard to Yar-Sale. The white dots with black outlines along the route indicate the places reached during the journey, while the green dots indicate the sites where collected specimens correspond to taxa later identified as new in Sommier (1890; 1892; 1893a; 1893b; 1896a; 1896b; 1896c). On the side of the Main Map, the scanned and revisited images of the old maps of the routes drawn by Sommier and attached to his book (Sommier, 1885) are shown.

3.2. The trip

Sommier arrived alone in Moscow in June 1880 and left by train for Nižnij Novgorod on 21st June 1880. Once there, he took a steamboat up the Volga River to Kazan and then up the Kama River to Perm, from where he took a train to Yekaterinburg. From here he continued his journey by 'tarantas', an uncomfortable horse-drawn wooden cart, typical of Siberia, which took him to Tyiumen. Then, again by steamboat up Tura, Tobol and Irtysh Rivers to Khanty-Mansiysk, at the confluence of the Irtysh and Ob Rivers.

The route where the greatest number of plants were collected starts here, at 61° North parallel, and continues by 'lodka', a small rowing boat (with rowers, men and women, hired from time to time) along the course of the Ob River. The voyage continued to Salekhard, below the Arctic Circle, and from there up the wide estuary to one of the last fishing stations ('Nipte', a place name that does not currently appear on the maps, near Yar-Sale), beyond which the 'Samoyeds' who accompanied him on the voyage refused to go, because they considered it too dangerous, since the coast was no longer protected by islands and, being marshy, it was impossible to land there in the event of a storm.

Once in Salekhard, he crossed the river and arrived to Labytnangi on the left bank, from where he attempted to reach the Urals in a march of several days. However, adverse weather conditions and the swampy terrain forced the expedition to turn back without having reached its destination (Sommier, 1881b).

On the return journey, Sommier retraced much the same route to Tobolsk, then turned south and took the 'tarantas' again from Tobolsk to Orenburg and then the railway to Moscow, where he arrived on 25 October (Della Vedova, 1885; Sommier, 1885).

This is the outline of the journey in a nutshell (Figure 1; Main Map): about 6,000 kilometers covered in four months and five days. For more than 1,700 kilometers and for more than 15 days he traveled in the uncomfortable 'tarantas', for more than 2,200 kilometers the journey was by boat on the waters of the Ob River, in the narrow and equally uncomfortable 'lodka', and for about a thousand kilometres he travelled beyond the Arctic Circle, among the 'Samoyeds', around the immense and very little known estuary of the great river (Della Vedova, 1885; Sommier, 1885).

3.3. Notes on the characteristics of the areas visited and the botanical importance of the travel

The floristic information available for the area before Sommier's journey was very scarce, as few botanists and explorers in general had visited it before (Sommier, 1896c). Sommier's plant collections already began during the journey by train or steamer to the Ob River, in the various stops along the way to Khanty-Mansiysk. From here, as mentioned above, the journey continued by rowing boat to the mouth of the Ob River, and the collections took place both on the outward and return journeys. Herborisations were carried out through short trips to the banks or river islands, taking advantage of breaks to change the rowers, or through specific stops in areas of particular interest. The data recording and the preparation of the collected materials took place directly on the boat. Adverse weather conditions, swampy soil and, above all, swarms of very annoying mosquitoes were the main obstacles during the herborisations (Sommier, 1896c).

The collections covered the many different habitat types that Sommier encountered along the way: from dry forests dominated by conifers and *Betula pendula*, to alluvial forests dominated by several taxa of the genus *Salix*; from tundra vegetation, rich in mosses and sphagnum as well as in many hygrophilous vascular plants of great interest, to peat bogs; from swamp vegetation, in areas of prolonged submergence, dominated by Poaceae and Cyperaceae, especially of the genus *Carex*, to submerged areas dominated by true water plants of the genera *Potamogeton*, *Myriophyllum*, *Hippuris* and by extensive floating meadows of *Persicaria amphibia*. The marshy areas in some cases posed several technical difficulties for the collection of plants, as the water depth was too shallow and the boat could run aground. On the other hand, these areas were dangerous to access on foot, due to the marshy ground and the high risk of sinking (Sommier, 1896c).

The floristic lists provided by Sommier (1890; 1892; 1893a; 1893b; 1896a; 1896b; 1896c) include 460 taxa of vascular plants, bryophytes, algae and fungi native to the area from the confluence of the Irtysch River to the mouth of the Ob River, to which two further bryophyte taxa of the genus *Dicranum*, indicated by the

Figure 2. Two herbarium specimens of the Central Italian Herbarium (Botanical Collections of the Natural History Museum of the University of Florence) collected by Sommier on his voyage to the mouth of the Ob River. Note the pre-printed herbarium labels dedicated to the voyage ('Stéphen Sommier – Iter Sibiricum'). A: *Lycopodium clavatum* L., from Obdòrsk (today Salekhard). A note by Sommier reports that another specimen from Samàrova (today Khanty-Mansiysk) was sent to P. Magnus '*for a nice fungus on the fruiting spike*'. B: *Dianthus superbus* L., collected at Sob iurti (today near Katrovozh).

author in the 'Errata Corrige', must be added, bringing the total number of taxa to 462. To this list, other 100 taxa collected south of the 61° North parallel, that the author includes in the list without numbering, must be added. These numbers increase enormously when the taxonomic ranks below the species, in particular the varieties and forms, are considered. The taxa reported derive almost entirely from Sommier's own collections, although some other taxa (just under 50), collected by some of the explorers who had previously visited the same stretch of the Ob River (namely K. von Waldburg-Zeil, C. Hage, V. Fuss and H.W. Arnell), are also listed (Sommier, 1896c). Sommier was responsible for the identification of most of the specimens collected, although for some particularly critical or specialised groups he relied on the identifications provided by other botanists, e.g. Paul Wilhelm Magnus (1844–1914) for fungi (Figure 2), Antonio Jatta (1852–1912) for lichens, Viktor Ferdinand Brotherus (1849–1929) for mosses, Konrad Hermann Heinrich Christ (1833–1933) for the genus *Carex*, Franz Georg Philipp Buchenau (1831–1906) for the genus *Juncus* and Eduard Hackel (1850–1926) for the family Poaceae. Although fewer in number than on other botanical expeditions carried out in other areas by botanists of the time, such as O. Beccari or Sommier himself, some taxa new to science were discovered during this exploration of the lower Ob River. The new taxa are about 20, a negligible number compared to the more than 250 ones described by Sommier and Levier for the Caucasus (Sommier & Levier, 1900; Viciani et al., 2024) or to the still unspecified but certainly much higher number resulting from Beccari's explorations (Barosi, 2010; Cecchi et al., 2022; Pichi Sermolli, 1994; Viciani et al., 2021). This is undoubtedly due to the more homogeneous environments, the Siberian boreal types, visited by Sommier during this trip. Sommier himself, in some passages of his book, describes the monotony of the environments he crossed, the poverty of the local flora and fauna, the sense of melancholy that the landscape sometimes inspired. Among the new taxa described during this trip to Siberia, there are two new species, and 20 varieties and forms, listed with references to the original publications in Supplement 2. Almost all the new taxa were described by Sommier, with the exception of a few ones that were described by the above mentioned specialists

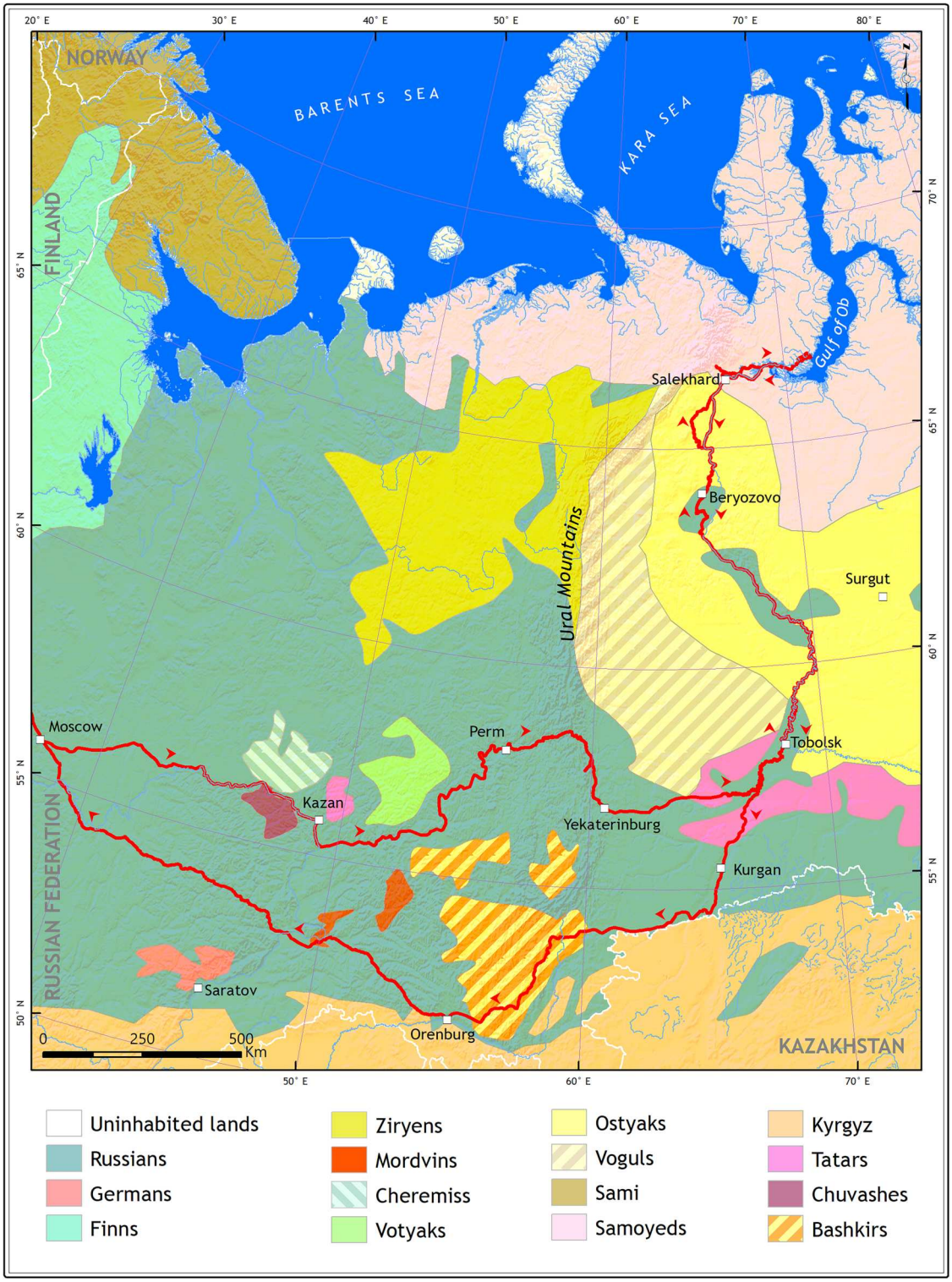

Figure 3. An ethnographic map of central and north-western Siberia and north-eastern Scandinavia at the time of the voyage, based on Sommier (1885), but redrawn, modified and partially corrected.

(H. Christ and P. Magnus) on the basis of the specimens sent to them by Sommier himself. In order to complete the floristic information of this area, Sommier (1896c) also reports the floristic lists of the collections made by the Hungarian philologist Carlo Papai (88 taxa), and by the French geographer and explorer Charles Rabot (1894) (36 taxa), between the Urals and the lower course of the Ob River in the areas not explored by him.

As in other similar cases, these expeditions had an important impact on the herbaria where the explorers deposited their collections (Figure 2). Sommier brought back from Siberia numerous plant taxa, usually collected in several specimens, which filled a geographical gap and later enriched the collections of the Central Italian Herbarium, now part of the Natural History Museum of the University of Florence, which holds most of the material collected by

Figure 4. Five objects of ethnographic interest brought back by Sommier from his journey to Siberia in 1880, currently exhibited in the Anthropological and Ethnological Collections of the Natural History Museum of the University of Florence. A: 'Swan neck' harp, called 'Toropin' or 'Kotang', of the 'Ostyaks' from Kieusci (today Keushki); B: Cradle made of wood and birch bark, of the 'Ostyaks' from Obdòrsk (today Salekhard); C: Woman's bag made of fur and cloth, of the 'Samoyeds'; D: Dolls, toys with fur clothes, of the 'Samoyeds' from Laiu (Lajù); E: Metal and bead earrings, of the 'Samoyeds' from Puikova (Màlaia Pùikova, an isle of the Ob River estuary, which no longer exsists).

Sommier (Cuccuini & Nepi, 1999; Stafleu & Cowan, 1985).

3.4. Notes on the importance of travel for the history of ethno-anthropology

As planned, Sommier's journey brought him into contact with many of the peoples who inhabited and made up the ethnic mosaic of northern and central-western Russia (Sommier, 1885). An ethnographic map of the area at that time, based on Sommier (1885) but redrawn, modified and partially corrected, is shown in Figure 3. Among these peoples, Sommier was particularly attracted by the 'Samoyeds', a term used to indicate the populations settled further north than the others, specialised in coping with very harsh climatic conditions. In Italy, these peoples were only known through literature, as no Italian traveller had ever ventured into these territories for scientific purposes (Andres, 2019; Sommier, 1885). The bibliography, which Sommier studied carefully, included various texts and accounts of journeys undertaken by foreign scientists. This literature included the expeditions of the Russian Geographical Society in 1847, 1848 and 1850, Otto Finsch's German expedition in 1876 and Ivan Poliakov's account of the same year (Finsch, 1879; Poliakov, 1877; Ruprecht, 1850; Tolmacheva, 2017). The studies of the Finnish philologist and ethnologist Matthias Alexander Castrén (1813–1852) were his point of reference for the study of the natives in many respects, from the linguistic to the more strictly ethnographic (Castrén, 1857; Pentikainen, 2007; Sommier, 1885). However, Sommier did not fail to supplement his preparation with texts on demography, botany, geography and climatology. A little further south, Sommier also came across the 'Ostyaks' who, like the northern groups, were seminomadic and reindeer herders, an activity which, together with fishing and gathering in the forests, ensured their subsistence. The harsh climate and the fact that the land was frozen for much of the year allowed for very poor farming. Sommier published several articles on the ethno-anthropological aspects of his journey (e.g. Sommier, 1887a; 1887b). What fascinated him, however, was the spiritual life of these peoples, consisting of a rich pantheon of natural deities and the practice of shamanism (Sommier, 1885). The shaman was the reference point for the community, since he was able to contact

Figure 5. Some images from Sommier (1885), published in his book as drawings made by E. Mazzanti from photographs taken by the author. A: 'Ostyac' women; B: 'Ostyac' girl from Nadìm; C: 'Ostyacs' from Obdòrsk (today Salekhard); D: a Sacred Totem Pole of the 'Samoyeds'; E: 'Ziryens' from Ijma River; F: Tatars from Orenburg; G: Kyrgyz man and woman on horseback.

the deities through a state of consciousness known as trance, in order to obtain their protection and benevolence for the whole community. For his 'journey' into the spirit world, the shaman used certain objects, first of all the drum, which, beaten with a cadenced rhythm, facilitated the trance (Roselli, 2007; Sommier, 1885). Sommier took a shamanic drum with him, along with about 150 objects of different types, representing various aspects of the spiritual, cultural and daily life of these peoples, to donate them to the Florentine Museum of Anthropology and Ethnology (Dei, 2016; Moggi Cecchi & Stanyon, 2014), where they are currently on display in a dedicated room (Figure 4). In his attempt to provide a scientifically rigorous account of the peoples of north-west Siberia, Sommier also collected anthropometric data, as recommended by the 'Instructions for Naturalist Travellers' of the time. He went to great lengths to convince the obviously suspicious people to have themselves measured, and recorded data on the state of their dentition, body temperature, and the frequency and nature of recurrent diseases. Sommier's ethno-anthropological interest continued throughout the voyage, both on the outward and return journeys, and included many different peoples. This is also evidenced in his book by the presence of many data and drawings based on photographs (Sommier, 1883) taken by himself (Figure 5), since he was also a founding member of the Italian Photographic Society and he usually carried his

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— ***Lonicera Xylosteum*** L. — [Nij. Tag., Tob., *fl. et fr.*]. — In sylvaticis.

112. ***L. coerulea*** L. forma ***stipuligera*** Somm. N. G. Bot. XXII, pag. 218 et tab. II. — [Nij. Tag.], inter Iel. et Suk., Voik., Sciur., inter Labt. et Ur., Vorovaskii,** Nij. ostr., *fr.* — In regione sylvatica et in tundra.

Specimina mea, praeter stipulas, omnes formas praebent ab α *glabrescente* Rupr. ad β *villosam* Torr. et Gray et γ *edulem* Turcz. Baccae comeduntur ab incolis riparum fluminis Ob inferioris.

113. ***Linnaea borealis*** L. — [Iek.], Sam., Vor., Por., Ber., Kusciov., Langhiorskija,* Muji, Obd., Orn., *fl.*, L. M. *Æst.*** — In umbrosis sylvarum usque ad ultimos arborum limites.

Figure 6. An image, from Sommier (1886c), of the page where *Lonicera coerulea* L. forma *stipuligera* Somm. was published. Note the abbreviations of the collection sites, difficult to interpret without considering the book with the entire description of the journey (Sommier, 1885).

cutting-edge photographic equipment with him (Chiozzi, 2014). Together with climatic, geographical and, above all, botanical data, the study of ethno-anthropological aspects contributed in no small measure to the publication of Sommier's book (1885), not coincidentally entitled 'A Summer in Siberia among Samoyeds, Ostiaks, Zyriens, Tatars, Kyrgyz and Bashkirs'.

4. Conclusions

The Main Map we have produced and the data provided in Supplement 1 and Supplement 2 are of considerable historical and botanical value. Our work tries to solve a common problem when considering the locations reported in old botanical works. Very often, in fact, the site names were published as abbreviations in the articles. As an example, we report what was published by Sommier (1896c) about *Lonicera coerulea* forma *stipuligera* (Figure 6). As can be noted, considering abbreviations and transliterations, a modern scholar would hardly be able to place the sites on the route without also taking into consideration the entire description of the journey (Sommier, 1885): in the example of Figure 6, 'Nij. Tag.' means Nijni Taghilsk (today Nižnij Tagil), 'Voik.' means Voikarskii (today Ust'-Voykar), 'Sciur.' means Sciuriskàr (today Shurishkary), and so on. The present work can therefore constitute a useful and sometimes indispensable basis for botanical research, such as nomenclatural and typification works (e.g. Cecchi et al., 2022; Mesquita et al., 2022), reconstruction of flora and plant landscapes of the past (e.g. Buldrini et al., 2023). It will also be useful for other purposes to botanists, ethno-anthropologists, historians and curators of natural history museums studying specimens collected by Sommier during his voyage to the mouth of the Ob River or working on Siberian flora, vegetation, ethno-anthropology, history and landscape.

Software

The maps were created and edited using the software ESRI ArcGIS 10.8.2.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data that supports the results of this study is mostly available in Supplement 1 and in the vector layers of the Main Map. Additional data can be obtained by contacting the corresponding author.

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