



COMPILING REINDEER STATISTICS

CHARTER Deliverable 3.1

Grant Agreement Number: 869471

Project Acronym: CHARTER

Project title: Drivers and Feedbacks of Changes in Arctic Terrestrial Biodiversity

Starting Date: 01/08/2020

Project Duration: 48 months

Project Officer: Alberto Zocchi

Project Coordinator: Bruce Forbes / LAY

Author: UHAM

Contributing partners: UHAM, LAY, NINA, NMBU, UmU



Co-financed by the Connecting Europe Facility of the European Union



Compiling Reindeer Statistics

CHARTER Deliverable 3.1

Grant Agreement Number: 869471

Project Acronym: CHARTER

Project title: Drivers and Feedbacks of Changes in Arctic Terrestrial Biodiversity

Starting Date: 01/08/2020

Project Duration: 48 months

Project Officer: Alberto Zocchi

Project Coordinator: Bruce Forbes / LAY

Author: UHAM

Contributing partners: UHAM, LAY, NINA, NMBU, UmU

Due Submission Date: 31/07/2021

(postponed until the beginning of September after discussing with CHARTER PO)

Actual Submission Date: 7/09/2021

Status	
Draft	
Final	x

Type		
R	Document, report	x
DEM	Demonstrator, pilot, prototype	
DEC	Websites, patent filings, videos, etc.	
OTHER		

Dissemination level		
PU	Public	x
CO	Confidential, only for members of the consortium (incl. the Commission services)	



www.charter-arctic.org
[@CharterArctic](https://twitter.com/CharterArctic)



ARCTIC CENTRE
University of Lapland

Revision history

Date	Lead author(s)	Comments
27/08/2021	J. Otto Habeck	1 st draft version
30/08/2021	Sirpa Rasmus	2 nd draft version
03/09/2021	Tim Horstkotte, Kirill Istomin, Hans Tømmervik, J. Otto Habeck	3 rd draft version
07/09/2021	Coordination team / LAY	Final version 1.0, submitted

1. Description of the Task

Task 3.1 of CHARTER (Deliverable 3.1, D10) was formulated as follows: “Statistics on animal husbandry, *inter alia* reindeer (UHAM, LAY, NMBU, UTU, UmU) Provide statistics for reindeer, cattle and sheep numbers per administrative unit; organisational structures and pertinent changes; reindeer herd dynamics (for Russia: as regards collective; personal; and private reindeer numbers) since the 1960s, and an assessment of the validity of data” (CHARTER DoA, Annex 1, Part A)

2. State of Work under D3.1

Statistics on reindeer have been compiled for the entire CHARTER area, whereas statistics for cattle and sheep have not yet been collected systematically. We hope to address this in future months, establishing a general timeline of interactions of different branches of animal husbandry at meso or macro scale in the countries under study. The time frame for reindeer statistics has been extended: it includes the period from 1945/46 to the present. Availability of data for different regions in different decades is somewhat uneven, for reasons to be explained below. *Availability, reliability* and the *structure* of data (i.e., the categories being used in statistics) will be discussed in a scientific paper (in progress, lead author: Kirill Istomin). The descriptive analysis of the numerical data will tie into Task 3.4.



3. Contextualisation of the Task within the CHARTER research agenda

CHARTER examines the interdependencies of biodiversity, long-term and short-term environmental change, and land-use strategies with the aim to formulate strategies supporting Arctic communities. Reindeer are a key species in circumpolar ecosystems. Reindeer husbandry is widespread form of resource use, i.e., of human engagement with Northern landscapes. Reindeer herding is of economic and cultural importance for indigenous and some other local communities in the northernmost part of Europe and of Asiatic Russia. Any study of past and current dynamics in reindeer herding and semi-domestic reindeer populations needs an assessment of the *scope* of the phenomenon: we need to know how and why reindeer numbers have changed over time.

Graphs of the overall number of reindeer per country (Norway, Sweden, Finland, Russia) are available from several published works, most importantly the comparative study conducted by Jernsletten & Klovov (2002) on the state of reindeer husbandry in the four countries and Alaska. This publication also contains some finer-grained analyses at sub-state level. While this landmark study provides for certain regional comparisons, it does not address the local level to the extent needed for CHARTER.

Compiling reindeer statistics under CHARTER D3.1 has a twofold purpose. First, by documenting the changing magnitude of reindeer herds roaming the tundra and forest tundra, the project can assess the role of this species in socio-ecological systems at macro and micro levels. Second, by retrieving different statistics, comparing the categories used in those statistics, and juxtaposing them, we seek to understand the internal logics of the reindeer-herding units and the state authorities that deal with them. Following the approach of James Scott's seminal book *Seeing Like a State* (1998), our aim is to investigate the logics of reindeer bureaucracy, the criteria that matter, and the ways of counting. In other words, the question is "what counts" in reindeer herding – from the authorities' point of view. For example, nation-state and regional administrations need to know reindeer figures to calculate and allocate subsidies for reindeer-herding enterprises.

The interests of the authorities – agricultural administrations in the first place – are *partly* congruent with those of the herders and the reindeer-herding households. The interests of the latter are to be studied under Task 3.4: interviews with reindeer herders about past, current, and future practices will help elicit their point of view, including their strategies to grapple with environmental change, which is the central theme of CHARTER. But these strategies always occur in a politico-economic framework, which itself is liable to





change. Herders thus need to find ways of reconciling their own interests, administrative measures, changing markets, and changing environmental conditions.

4. Data Sources

Russia: unpublished sources

- Murmansk Region: Tsentral'noe Statisticheskoe Upravlenie RSFSR, Statisticheskoe upravlenie Murmanskoi oblasti, Sektor statistiki sel'skogo khoziaistva: files no. 328, 338, 358, 364, 371, 382, 394, 406, 419, 428, 447, 457, 480, 496, 517, 528, 555, 578, 597, 619, 647, 676, 701, 732, 765, 800, 837, 875, data for 1951-1980, compiled by Tatiana Mulina, student assistant for Kirill Istomin and Yulian Konstantinov for a research project preceding CHARTER
- Nenets Autonomous Okrug: data for 2001-09 compiled for the previous research project MODIL-NAO, PI: Winfried Dallmann
- Republic of Komi (former Komi ASSR): Tsentral'nyi gosudarstvennyi Arkhiv Respubliki Komi, fund 140, part 2: files 2658, 3730, 3750, 3771, 3794, 3797, 4819, 4859, 4895, 5806, 5845, 5881, 6563, 6607, 6643, 7769, 7808, 7903, data for 1949-1969, compiled by Kirill Istomin. Tsentral'nyi gosudarstvennyi Arkhiv Respubliki Komi, fund R-408, part 1: files 1962, 2080, 2101, 2139, 2175A, 2282, 2315A, data for the 1950s, compiled by J. Otto Habeck
- Yamal-Nenets Autonomous Okrug: data from the regional Department for Agriculture and Indigenous Peoples, compiled by Konstantin Klokov
- Yamal-Nenets Autonomous Okrug: data from various *unpublished* and *published* sources, compiled by Roza Laptander

Russia: published sources

- All-Russian: Federal'naia sluzhba gosudarstvennoi statistiki Rossiiskoi Federatsii (2008). *Itogi vserossiiskoi sel'skokhoziaistvennoi perepisi 2006 goda*, tom 5: pogolov'e sel'skokhoziaistvennykh zhitovnykh. Moskva: IITs Statistika.
- All-Russian: Federal'naia sluzhba gosudarstvennoi statistiki Rossiiskoi Federatsii (2018). *Itogi vserossiiskoi sel'skokhoziaistvennoi perepisi 2016 goda*, tom 5: pogolov'e sel'skokhoziaistvennykh zhitovnykh. Moskva: IITs Statistika.
- Yamal-Nenets Autonomous Okrug: *Statisticheskii sbornik Yamalo-Nenetskogo avtonomnogo okruga*. Annual reports.





Norway: unpublished sources

- Reintall_fylker_kommuner_rbd_tamreinlag_27_05_2019_rev.xls (compiled by Hans Tømmervik et al., NINA)
- Bailiff's yearly reports for reindeer husbandry in Norway 1945-1980 (unpublished on CD).

Norway: published sources

- Ruong, I. (1937). Fjällapparna i Jukkasjärvi socken. *Geographica*, 3, 1-76.
- Norsk-svensk reinbeitekommissjon av 28. februar 1964 (1967). Innstilling fra den norsk-svenske reinbeitekommissjon av 1964. Oslo: Utenriksdepartementet
- Tømmervik, Hans & Jan Åge Riseth (2011). Historiske tamreintall i Norge fra 1800-tallet fram til i dag. *NINA Rapport*, 672. <https://brage.nina.no/nina-xmloi/bitstream/handle/11250/2474419/672.pdf?sequence=2&isAllowed=y>
- Riseth, J.Å., Tømmervik, H. & Bjerke, J.W. (2016). 175 years of adaptation: North Scandinavian Sámi reindeer herding between government policies and winter climate variability (1835–2010). *Journal of Forest Economics*, 24, 186-204
- Landbruksdirektoratet's annual reports, "Ressursregnskap for reindriftsnæringen" at <https://www.landbruksdirektoratet.no/nb/nyhetsrom/aktuelle-tema/ressursregnskapet-for-reindriftsnaeringen>

Sweden: unpublished sources

- Data of individual *samebyar* for the period from 1995 to 2019, provided by Sametinget for Johan Olofsson (UmU)

Sweden: published sources

- Ruong, I. (1937). Fjällapparna i Jukkasjärvi socken. *Geographica*, 3, 1-76.
- Statistiska Centralbyrån (1959). Historisk statistik för Sverige, II: väderlek, lantmåteri, jordbruk, skogsbruk, fiske t.o.m. år 1955. (Historical Statistics of Sweden: climate, land surveying, agriculture, forestry, fisheries – 1955). Stockholm: Statistiska Centralbyrån.
- Norsk-svensk reinbeitekommissjon av 28. februar 1964 (1967). Innstilling fra den norsk-svenske reinbeitekommissjon av 1964. Oslo: Utenriksdepartementet.
- Betänkande avgivet av svensk-norska renbeteskommissionen av 1964. Stockholm: Kungl. Utrikesdepartementet 1967.
- Renbetesmarkerna betänkande avgivet av Renbetesmarksutredningen. Statens Offentliga Utredningar (Jordbruksdepartementet) 1966: 12.





Finland: published sources

- Reindeer numbers per herding district are published annually, i.e., in the second issue of each annual volume of *Poromies*, the journal published by the Reindeer Herders' Association in Finland. From 1948 onwards the reports are annual and rather reliable. Sirpa Rasmus (LAY) compiled numbers from this journal and provided the file `Reindeer_numbers_Finland_estimates_1948_2018.xlsx`

5. The Process of Compilation

From the data sources mentioned above, we took the overall number of reindeer for the beginning of each year, depending on the period documented. In all four countries, it is common practice to report the number of reindeer as of 1 January, i.e., after the slaughter (in November/December) but before the calving season (in April). We copied these figures into an Excel spreadsheet that contains columns for each year from 1945 to 2020. The rows contain areas: this may be a single enterprise, a local association of reindeer herders, or an administrative unit. While all the data have been aggregated from primary sources, i.e., the actual head counts, our emphasis was to document reindeer numbers at the smallest possible regional/local level. This offers the basis for analysing the spatial expansion/contraction of reindeer herding in the four countries.

The data sources usually contain more than just overall numbers of reindeer per year. Herd composition (sex/age cohorts of the animals), the number of calves, and the number of slaughtered deer are often included in reindeer statistics. In addition, many of the sources we used include meat output and indicators of productivity. The structure of the statistics thus varies. We decided not to include the more specific data on herd composition, etc.; however, we paid attention to the different layouts of statistics, the categories, and how the use of categories changes over time.

Our special emphasis on high spatial resolution shaped the process of selecting data sources. Generally, more detailed sources were preferred to large-scale compilations. In case that fine-grained spatial data were not available, we took to sources with data aggregated for larger spatial entities, i.e., larger administrative districts. Data were entered into the Excel spreadsheet by Dr. Stephan Dudeck in late 2020 and Nathalie Isaak in early 2021, both working under the supervision of J. Otto Habeck (WP3 Lead, UHAM).



www.charter-arctic.org
[@CharterArctic](https://twitter.com/CharterArctic)



ARCTIC CENTRE
University of Lapland



6. Results

Data availability. For a regionally detailed study like this, published statistics are of limited help because figures are aggregated at macro or meso scale. In Russia, the micro level can best be explored through archives. For the Soviet period, abundant sources exist in regional archives and can be accessed, provided that the researcher obtains permission to work in the respective archive. These data are generally systematic and comprehensive. However, it may be difficult to retrieve the relevant documents. The above findings also apply to the Post-Soviet period; however, over the last few years there is a tendency in some regions (e.g., Murmansk Region) not to disclose the reindeer numbers of single units. This is because of “commercial secrets”. We may thus hypothesise that Russia’s so-called transition to a market economy may result in a gradually decreasing transparency of reindeer numbers. For Finland we find that reindeer numbers are published annually in one and the same journal (*Poromies*) since the late 1940s. Since these statistics refer to the individual herding districts, they offer the degree of spatial resolution that is sought for in this study. *Poromies* journal exists only in printed version, hence why these data cannot be found online. Sweden has a reputation of high transparency of administrative decisions and bureaucratic measures. Reindeer numbers are freely provided at the level of the counties (and the entire state) on the website of the Swedish Sámi Parliament, but reindeer numbers at the level of individual *samebyar* or lower (such as *siidas*) are not shared publicly. As to Norway, the Agricultural Directorate has been publishing online annual reports since 2002/2003; these statistics also contain data for the preceding years (since approx. 1979/1980). Availability of data in Norway for the 20th century has been discussed by Tømmervik & Riseth (2011).

Data reliability. Reindeer statistics always need to be taken with a pinch of salt. In countries with officially established maximum numbers of reindeer per herding district, the reindeer-herding associations may exceed these limits, but the more they do, the more likely they will be confronted with administrative interventions. The number of reindeer is a sensitive topic and so is the process of setting the maximum allowed numbers of reindeer per herding district. The process differs between three Scandinavian countries. Various contextual aspects (e.g., laws, other land users, trends in science, herding practices, and historical developments) affect what is considered as sustainable maximum number of reindeer; this has also changed in the course of time (for further details, see Johnsen et al. 2017; Pekkarinen et al. 2021). Competing and/or heavy pasture use do occur in some regions, but reindeer numbers roughly correspond with the officially established carrying capacity in most regions. – In Russia, reindeer statistics have long





been “targeted” towards increasing productivity along with increasing number of reindeer. In this light, the category of *reindeer losses* was and continues to be a salient and simultaneously opaque one. The issue of heavy grazing is currently of significance on Yamal Peninsula and the Tazovskii District, possibly also in the Priural'skii and Nadym'skii districts of the Yamal-Nenets Autonomous Region; in all other parts of the country, the reindeer numbers are considered to be slightly or significantly below the carrying capacity.

Ownership. This was one of the most crucial categories in Soviet years, hence why we devote it a separate sub-section. Ownership was reported systematically in all statistics: the number of individually owned reindeer was to decrease whereas the number of collectively or state-owned reindeer was to increase. Konstantinov et al. (2018: 110) mention reindeer merely existing on “paper” (i.e., in statistics) in their analysis of *de-facto* private reindeer in the collective herd. Furthermore, Istomin (2020) describes three regional trajectories of reindeer ownership and management in different parts of the Russian North. Yulian Konstantinov is currently writing a manuscript for WP3 on what reindeer statistics disclose and what they conceal, analysing the situation in Murmansk Region.

Spatial Contraction of the reindeer-herding areas. This trend can be discerned in Murmansk Region and even more clearly in the Komi Republic (former Komi ASSR). During the 1950s and 1960s, reindeer herding ceased to exist in the entire southern half of the territory of Komi ASSR. This dynamic was induced from above. State authorities propagated reindeer herding in the tundra regions across the Soviet North (indeed, reindeer numbers peaked around 1970 in many of the Far-North regions) whereas reindeer herding in more southerly regions of the Soviet Union – also in the southern parts of Siberia – gradually waned. It was deemed as less efficient. Statistics played some role in this: shrinking numbers could be used to persuade reindeer-owning enterprises that reindeer herding was in decline (a self-fulfilling prophecy). The spatial contraction of reindeer herding in Russia continued during the 1990s due to the overall economic turmoil; since the 2000s, there are signs of expansion in some regions. –

In Norway and Sweden, loss of pastures continues to occur in connection with new industrial or infrastructural projects (Hovelsrud et al. 2020). However, the reindeer-herding area in its entirety has not been shrinking in recent decades. In Finland too, the borders of the officially designated reindeer management area have been rather stable over decades; likewise, the number of herding districts and also their boundaries.





Specialisation/professionalisation. Concomitant with long-term shifts in global agriculture, reindeer herding has gradually turned into a specialised domain. In comparison with previous decades, the number of workers has generally decreased while “herd productivity” has remained rather stable or even increased. For Russia, the statistics show a shrinking number of enterprises engaged in reindeer herding along with a shrinking diversity of actors in this domain. Well into the 1950s and 1960s, many enterprises combined reindeer herding with other activities. Specialisation has thus been typical in most regions. However, in the Yamal-Nenets Autonomous Region the number of officially registered enterprises has been on the rise, starting from approximately 1990. This region is exceptional in that privatisation has become a reality: so-called *obshchiny* (kin-based cooperatives), *fermerskie* (literally: farmers’) and other small reindeer-herding enterprises have been founded. The overall number of enterprises on Yamal has thus markedly increased, some of them having rather small numbers of deer. – Since there never was collectivisation of reindeer herding in Finland, Sweden, and Norway, the situation there developed differently. Many reindeer-owning households have been drawing on various sources of income (within the limits of certain nation-state stipulations, to be addressed under CHARTER Task 3.5). While the number of reindeer owners and herd sizes did not change strongly in Finland, a certain tendency towards specialization is being induced by state subsidies for those who own 80 reindeer at least (Landauer et al. 2021). This policy is meant to secure stable income from herding, but contradicts the idea of a mixed economy, i.e., households generating income from multiple sources.

Next Steps

While data for some regions (notably, Arkhangelsk Region including the Nenets Autonomous Okrug) and for some decades (e.g., 1966-1978 for Sweden) still need to be added, the process of compiling statistics as such has already been proven to be a valuable and insightful exercise. The next steps will be:

- Cross-checking data
- Discussion on practical improvements and data reliability, e.g., with the Association of World Reindeer Herders
- Distribution among all CHARTER work-packages
- Publication Istomin et al. on *availability, reliability* and the *structure* of data
- Book manuscript by Yulian Konstantinov, discussing *inter alia* the social and political aspects of reindeer statistics (Murmansk Region)





- Juxtaposing the messages told by the statistics (i.e., the bureaucratic view) with reindeer herders' statements about their own categories of counting, their own priorities and their interpretation of the situation of reindeer herding (Task 3.4)

References (in addition to those listed in Section 4)

Hovelsrud, G. K., Risvoll, C., Riseth, J.-Å., Tømmervik, H., Omazic, A., & Albihn, A. (2021). Reindeer herding and coastal pastures: Adaptation to multiple stressors and cumulative effects. In: Nord, D. C. (ed.): *Nordic Perspectives on the Responsible Development of the Arctic: Pathways to Action*, pp. 113-134. Springer Polar Sciences. Cham: Springer. https://doi.org/10.1007/978-3-030-52324-4_12

Istomin, K. V. (2020). Post-Soviet Reindeer Herders: Between Family and Collective Herding. *REGION: Regional Studies of Russia, Eastern Europe, and Central Asia*, 9 (1): 25-52.

Istomin, K. V. et al. (forthcoming). Reindeer Herding Statistics in Russia and Nordic Countries: issues of reliability and interpretation.

Jernsletten, J.-L. & Klovov, K. B. (2002). *Sustainable Reindeer Husbandry*. [Report for the] Arctic Council 2000-2002. Tromsø: Centre for Saami Studies, University of Tromsø. <http://www.reindeer-husbandry.uit.no>

Johnsen, K. I., Mathiesen, S. D., & Eira, I. M. G. (2017). Sámi reindeer governance in Norway as competing knowledge systems: a participatory study. *Ecology and Society*, 22 (4): 33. <https://doi.org/10.5751/ES-09786-220433>

Konstantinov, Y., Istomin, K., Ryzhkova, I., & Mitina, Y. (2018). “Uncontrolled sovkhosism”: administering reindeer husbandry in the Russian far north (Kola Peninsula). *Acta Borealia*, 35 (2): 95-114.

Landauer, M., Rasmus, S., & Forbes, B. C. (2021). What drives reindeer management in Finland towards social and ecological tipping points? *Regional Environmental Change*, 21 (2): 1-16.

Pekkarinen, A. J., Kumpula, J., & Tahvonen, O. (2021). What Drives the Number of Semi-domesticated Reindeer? Pasture Dynamics and Economic Incentives in



www.charter-arctic.org
[@CharterArctic](https://twitter.com/CharterArctic)



ARCTIC CENTRE
University of Lapland



Fennoscandian Reindeer Husbandry. In: Nord, D. C. (ed.): *Nordic Perspectives on the Responsible Development of the Arctic: Pathways to Action*, pp. 249-270. Springer Polar Sciences. Cham: Springer. https://doi.org/10.1007/978-3-030-52324-4_12

Sandström, P., Cory, N., Svensson, J., Hedenås, H., Jougda, L.; & Borchert, N. (2016). On the decline of ground lichen forests in the Swedish boreal landscape: Implications for reindeer husbandry and sustainable forest management. *Ambio*, 45 (4): 415-429.

Scott, J. (1998). *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. NewHaven, CT: Yale University Press.



www.charter-arctic.org
@CharterArctic



ARCTIC CENTRE
University of Lapland