

PRESENT AND FUTURE CITIZEN SCIENCE IN SVALBARD

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A presentation of established CBM and CS projects through the Polar Citizen Science Collective and projects such as iNaturalist, eBird, and Happywhale for

Community-based Monitoring and Citizen Science in the Svalbard Area

A workshop organised by the Nansen Environmental and Remote Sensing Center (NERSC) as part of the CAPARDUS H2020 project and Norwegian Institute for Cultural Heritage Research (NIKU) as part of the CULTCOAST project

Longyearbyen, Svalbard, 8 August 2022.



The Research Council
of Norway



Report from
workshop

Cruise Expedition
Monitoring
Workshop and
Dialogue-Seminar

On improving and expanding the
environmental monitoring efforts
of cruise ships in the Arctic

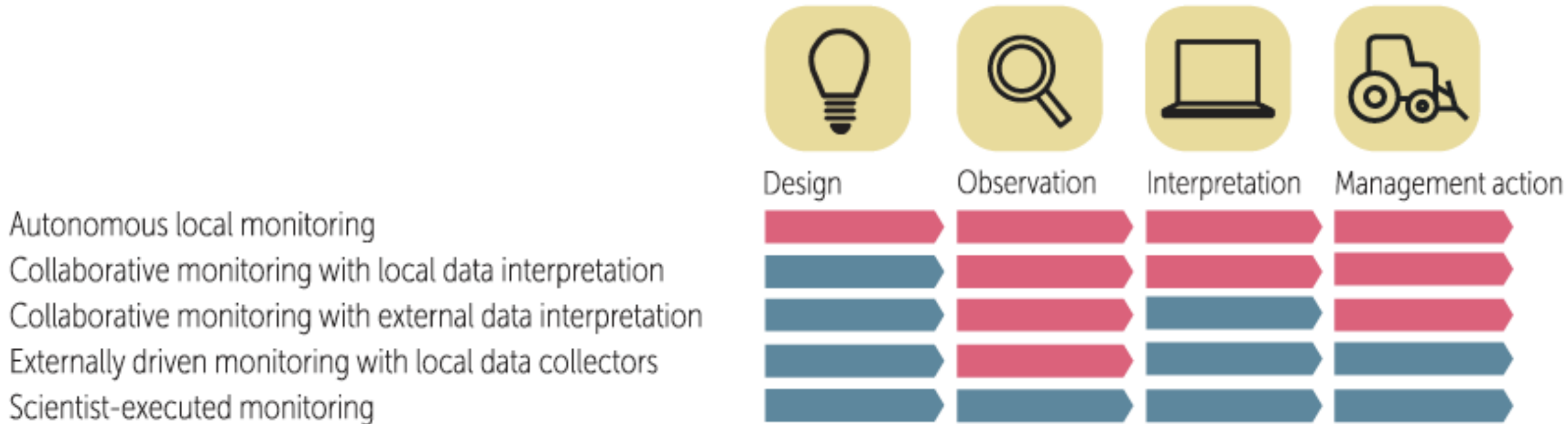
March 7-8 2019,
Longyearbyen, Svalbard



Spectrum of approaches to monitoring

“Community-based Monitoring” - Monitoring where community members are contributing with more than just observations

“Citizen-science” - Research and monitoring involving community members (often used when community members, citizens, only contribute with data gathering)



■ = Community members
■ = Scientists

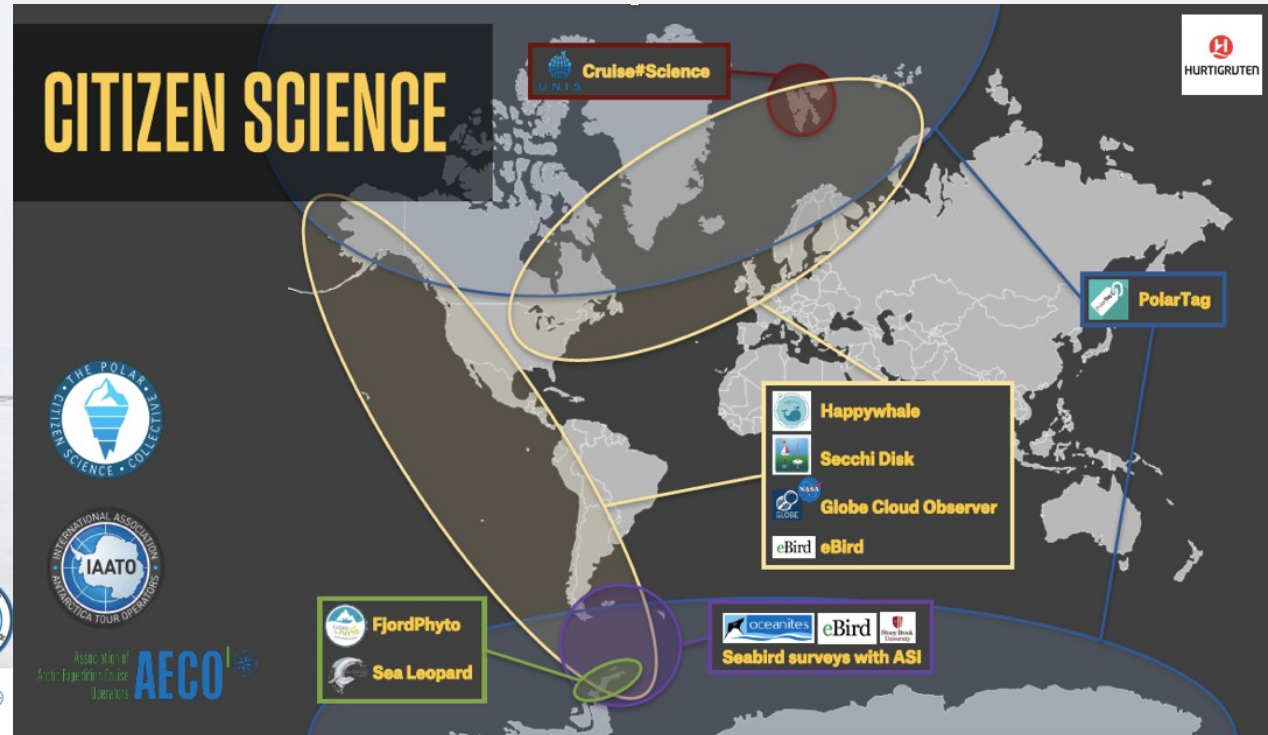
CRUISE EXPEDITION MONITORING WORKSHOP - 2019

- The INTAROS project and the Association of Arctic Expedition Cruise Operators (AECO) arranged a workshop in Longyearbyen in March 2019
- The participants were representatives of cruise operators, citizen science programs, local government and scientists.
- We wanted a better understanding of the existing use of CS by expedition cruises in Svalbard and to discuss what can be done to enhance these efforts.



The INTAROS project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 727890.

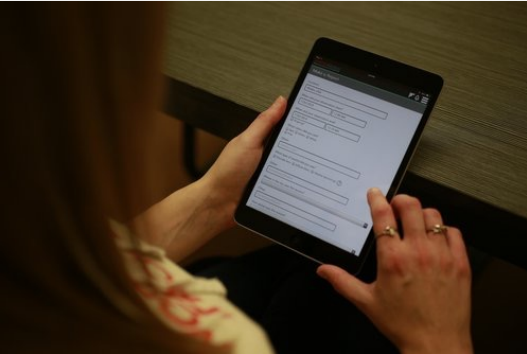
COLLABORATION IN FACILITATING CITIZEN SCIENCE IN SVALBARD



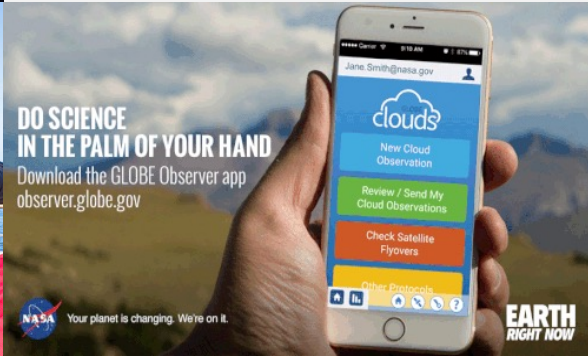
A group of scientists and expedition cruise experts have set up an organisation called the Polar Citizen Science Collective (www.polarcollective.org) which facilitates ship-based citizen science projects on IAATO and AECO vessels. Hurtigruten is one of the cruise operators getting deeply involved in developing citizen science.

- Also to be mentioned: "Cultcoast" and "Hearts in the Ice".

POLAR CS COLLECTIVE SUPPORTS CITIZEN SCIENCE PROJECTS (2022)



- **Aurorasaurus** - Track auroras around the world (scientific partner: NASA Science Activation)
- **NASA GLOBE Clouds** - Cloud Observations & Atmospheric Measurements (scientific partner: NASA GLOBE Observer)
- **Seabird Surveys** for the Antarctic Site Inventory (scientific partner: eBird)
- **Secchi Disk Study** - Long-term Changes of Phytoplankton (scientific partner: Secchi Disk Foundation)
- **Happywhale** - Marine Mammal Photo-ID (scientific partner: International Whaling Commission and multiple regional research partners)
- **FjordPhyto** Phytoplankton Sampling (scientific partner: Vernet Lab at Scripps Institution of Oceanography)



POPULAR CS PROGRAMS IN SVALBARD

(Updated 4 August 2022)

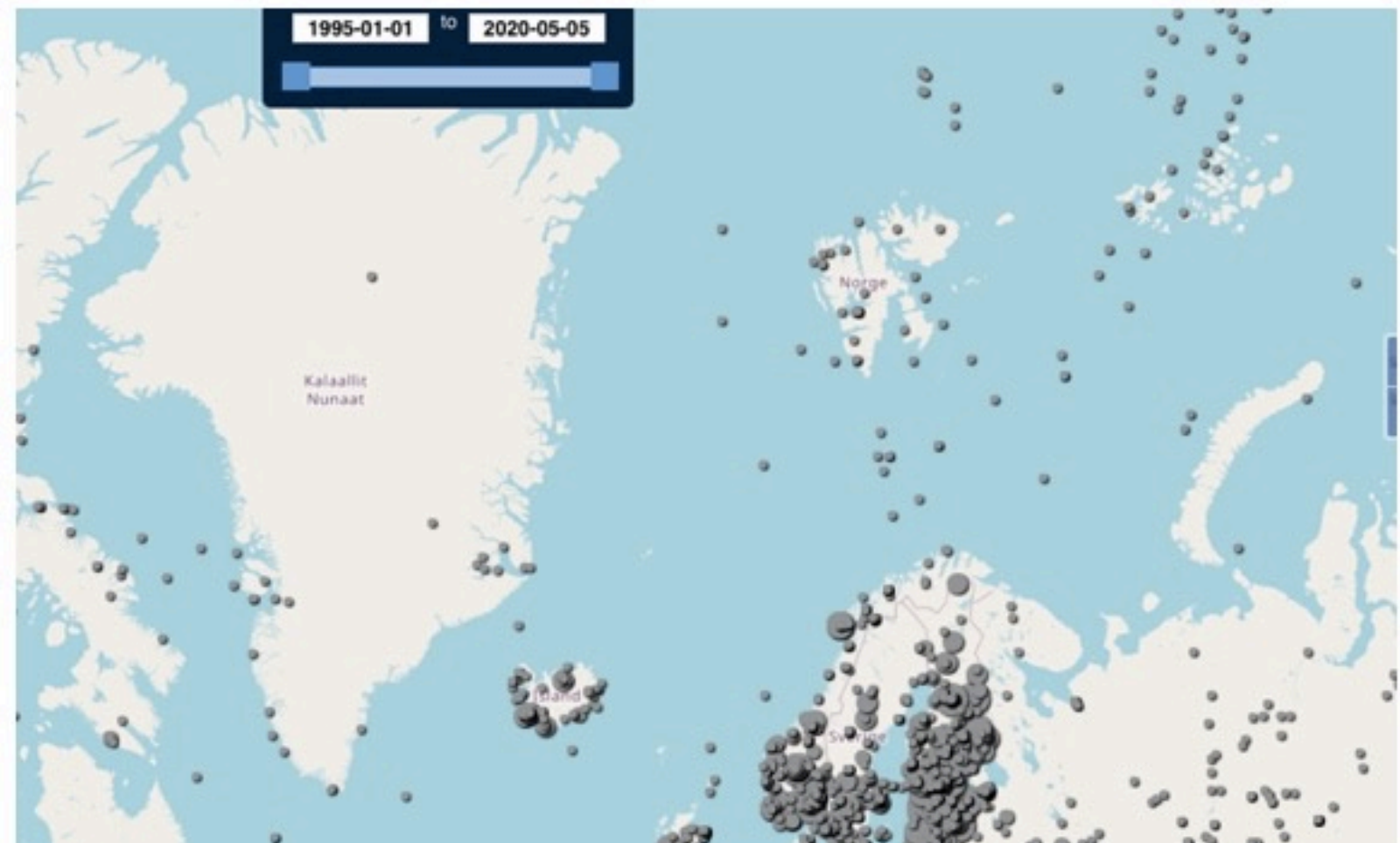
	Observations	Species	Observers
iNaturalist Worldwide	109,899,401	388,842	2,304,763
iNaturalist Svalbard	4,056	268	236
eBird Worldwide	*69,604,719	10,623	797,448
eBird Svalbard	*4,145	103	475
Artsobservasjoner Svalbard	102,544	1,220	656
Happywhale Worldwide	222,056	**111	12,667
Happywhale Svalbard	334	16	

GBIF 30.000 hold records from Svalbard (2021).

* for eBird is no. of observations = no. of checklists (with multiple species)

** Mostly Humpback Whale (with 207,222 records). 48 species with less than 10 records

GLOBE CLOUD OBSERVATIONS



Sites in and around Svalbard with GLOBE Cloud Observations during 1995-May 2020.

Participants are photographing clouds and recording sky observations, using the GLOBE Observer app, for comparison with NASA satellite data. Participants can time their observations of clouds with that of satellite observations. This will help refine satellite-derived models and enhance scientific understanding of Earth's atmosphere.

SECCHI DISK



HOME SECCHI DISK PROJECT WHO ARE WE? PRIVACY AND DATA POLICIES

Define search boundary
 Limit by boat

Secchi Depth =

From Date

To Date

Free Search

Enter a Location

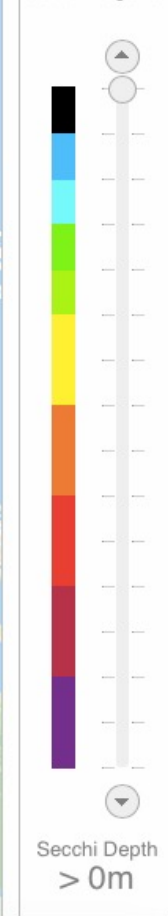
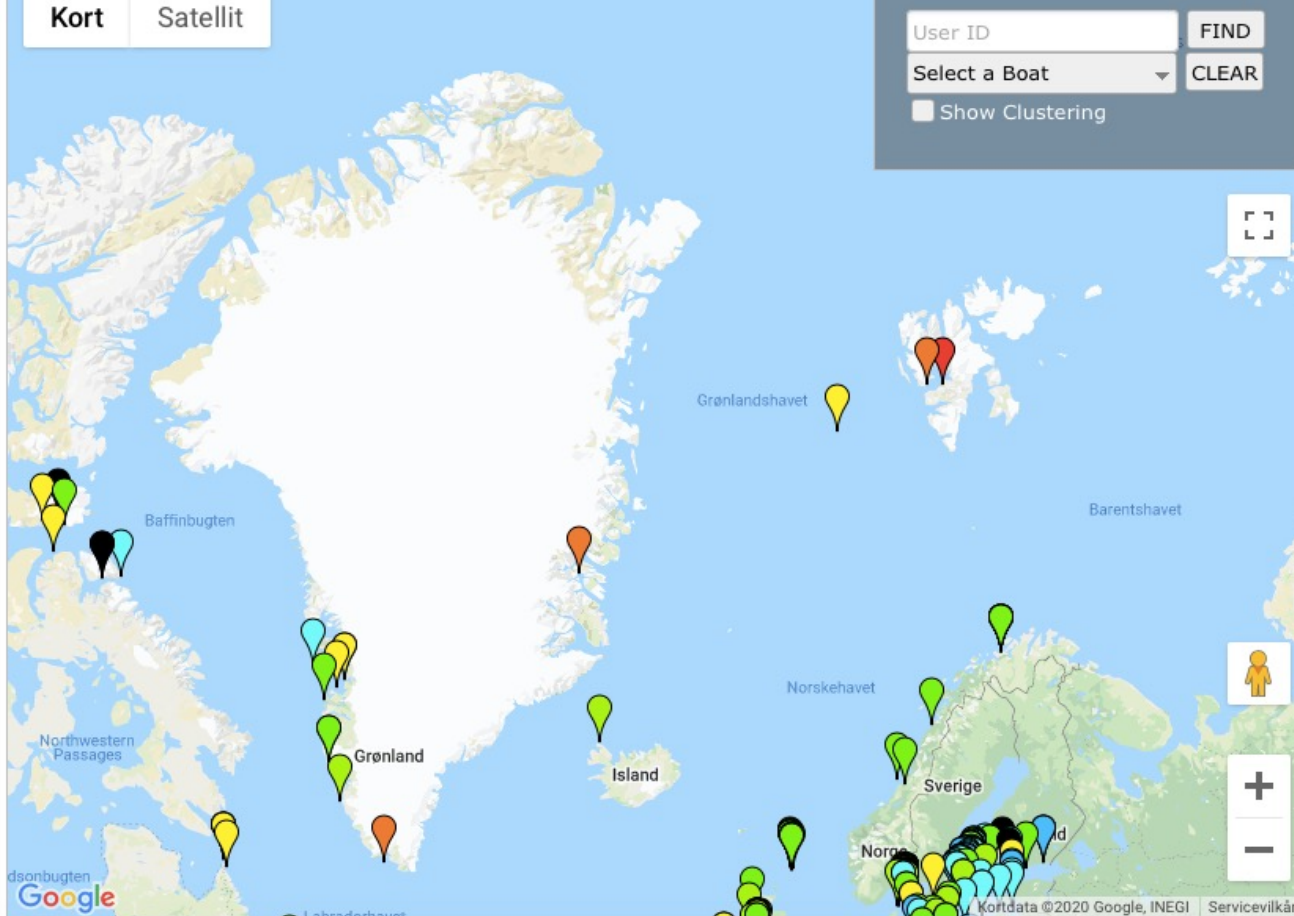
Radius around Free Search

Kilometers

210 240 270 300 330 360 390 420 450 480 500

180 150 120 90 60 30 0

20.0



In 2013, the global citizen science Secchi Disk programme was established for seafarers to study the marine phytoplankton.

The Secchi disc is lowered slowly down in the water. The depth at which the disk is no longer visible is taken as a measure of the transparency of the water.

Sites in and around Svalbard with Secchi Disk measurements during 2013-2019.

Happywhale

Your Whales as Individuals

Happywhale engages citizen scientists to identify individual marine mammals, for fun and for science

Submit Images

Browse Data



How It Works



You submit photos of your marine mammal encounters













Happywhale tracks your whales around the globe

Happywhale

Number: 80573











Furthest Traveled

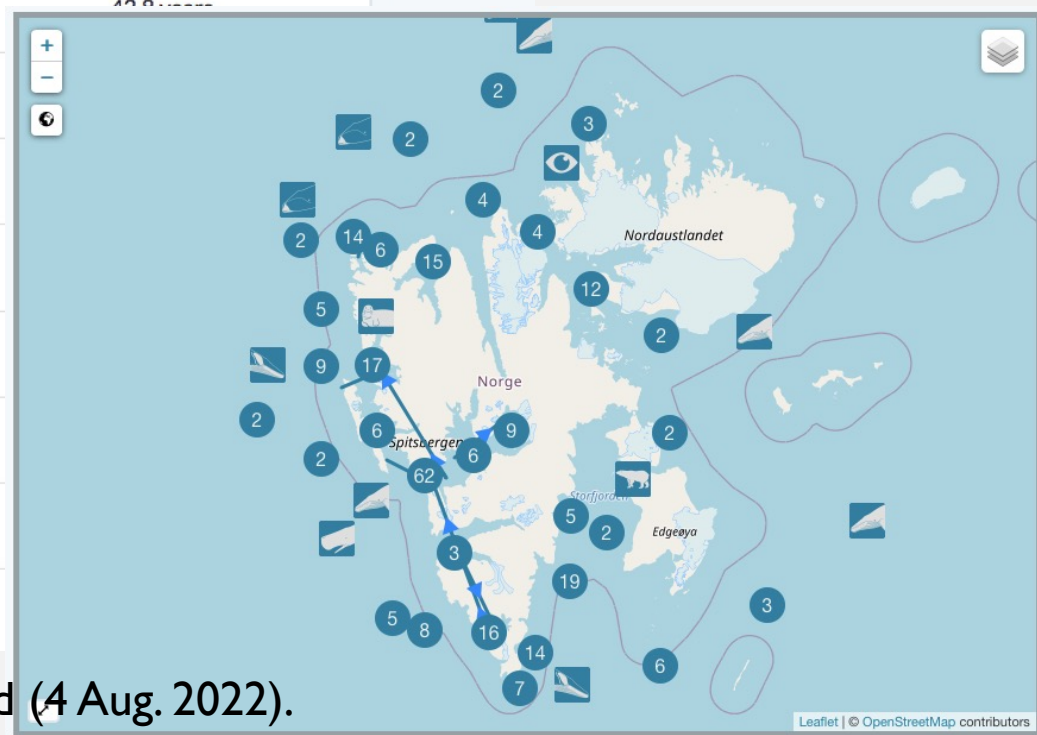
Individual	Distance (km)
 Humpback Whale Фродо (RCHP)	11261
 Humpback Whale ID: PAN-1814	11026
 Humpback Whale ID: HW-MN1300886	10931
 Humpback Whale ID: UABCS-MN2-04B0151	10531
 Humpback Whale Trans-Pacific	10338
 Humpback Whale ID: PAN-1249	9171
 Humpback Whale ID: SPWRC-TGVA0058	9143
 Humpback Whale Tongatapu Traveler	9117
 Humpback Whale ID: SPWRC-TGVA0240	9027
 Humpback Whale ID: HW-MN1300655	8621

Longest Time Between Sightings

Individual	Interval
 Humpback Whale ID: NA-1842	43.0 years
 Humpback Whale ID: NA-1904	42.7 years
 Humpback Whale ID: NA-1044	41.1 years
 Humpback Whale ID: NA-1745	41.0 years
 Humpback Whale ID: NA-1995	40.1 years
 Humpback Whale ID: NA-3085	40.1 years
 Humpback Whale ID: NA-1637	40.1 years
 Humpback Whale ID: NA-1751	40.1 years
 Humpback Whale Hepzibah	40.0 years
 Humpback Whale ID: NA-1101	40.0 years

Longest Time Between First and Last Sightings

Individual	Interval
 Humpback Whale Hepzibah	45.0 years
 Humpback Whale ID: NA-1842	43.0 years
 Humpback Whale Swazz (FS)	42.9 years
 Humpback Whale ID: NA-1904	41.0 years
 Humpback Whale ID: NA-0030	40.9 years
 Humpback Whale ID: NA-3160	40.8 years
 Humpback Whale ID: NA-1162	40.7 years
 Humpback Whale ID: NA-1044	40.6 years
 Humpback Whale ID: NA-1745	40.5 years
 Humpback Whale ID: NA-1965	40.4 years



A total of 234 encounters with 16 species of marine mammals from Svalbard (4 Aug. 2022).



eBird: "Open access to eBird data is critical for conservation actions and we are committed to ensuring that your data will be put to the best use possible for research, conservation, and education".

Use a phone to track trip and record bird species for a checklist in eBird. Photos and sound recordings can be added

NAME	DATE/TIME	LOCATION	SPECIES
Michael Køie Poulsen	7 Aug 2022 15:34	Longyearbyen, Svalbard	10
Marcus Bergström	7 Aug 2022 15:17	Nordvest-Spitsbergen NP--Fjortende Julibreen, Svalbard	11
Bernardo Alps	7 Aug 2022 13:30	Recherchefjorden, Svalbard, SJ (77.493, 14.688), Svalbard	7
Michael Køie Poulsen	7 Aug 2022 10:20	Hiorthamn, Svalbard	13
Michael Køie Poulsen	7 Aug 2022 10:10	Longearbyen Havn (Longearbyen Harbour), Svalbard	3
Michael Køie Poulsen	7 Aug 2022 09:12	Longyearbyen, Svalbard	7
Marcus Bergström	7 Aug 2022 09:00	Ny-Ålesund, Svalbard	13
Bernardo Alps	7 Aug 2022 08:01	Bamsebu, Svalbard, NO (77.551, 15.063), Svalbard	10
Rémi Bigonneau	6 Aug 2022 15:41	Borebukta, Svalbard	9
Bernardo Alps	6 Aug 2022 14:32	Kronebreen, Kongsfjorden, Svalbard, NO (78.894, 12.539), Svalbard	7
Michael Køie Poulsen	6 Aug 2022 13:13	Longyearbyen, Svalbard	2
Kini Roesler	5 Aug 2022 13:39	Kapp Lee, Svalbard	9
Michael Køie Poulsen	5 Aug 2022 13:25	Longyearbyen, Svalbard	10

CHECKLIST S116477315
Sun 7 Aug 2022 10:20 AM [Edit date and effort](#)
 Hiorthamn Svalbard, Svalbard [Edit location](#)

Michael Køie Poulsen [Share](#)

Traveling Complete 📍
 1 3 hr 2 km

Submitted from eBird for iOS, version 2.13.20
[Edit comments](#)

SUBMIT ANOTHER FOR...

- Same location and date
Hiorthamn, Svalbard, SJ on Sun Aug 07, 2022
- Same location
Hiorthamn, Svalbard, SJ
- Same area and date
Another location near Hiorthamn, Svalbard, SJ on Sun Aug 07, 2022
- Same area
Another location near Hiorthamn, Svalbard, SJ
- Same date
Sun Aug 07, 2022
- Different location and date

MEDIA POWERED BY MACAULAY LIBRARY

13 Species observed
202 individuals

- 70 Barnacle Goose
- 11 Common Eider
- 5 Rock Ptarmigan
- 4 Common Ringed Plover
2 adults with 2 puiii
- 2 Dunlin
- 6 Purple Sandpiper
- 1 Parasitic Jaeger
- 8 Black Guillemot (mandtii)
- 5 Black-legged Kittiwake
- 55 Glaucous Gull
- 20 Arctic Tern

eBird [Submit](#) [Explore](#) [My eBird](#) [Science](#) [About](#) [News](#) [Help](#) [Donate](#) Michael Køie Poulsen (MichaelK Poulsen) Language

DATA FOR: World LIST: 7 Aug 2022 - Hiorthamn, Svalbard, SJ [Change species](#) [Common Eider](#) [Common Ringed Plover](#)

Rock Ptarmigan
Lagopus muta

LC Least Concern

SEEN PHOTO AUDIO YEAR

Identification
POWERED BY MERLIN

Plump chickenlike bird found in rocky tundra and alpine summits. Plumage changes strikingly throughout the year. In winter, both sexes are pure white with black outer tail feathers. As summer progresses, male develops cold grayish-brown feathers on head, neck, and back; generally quite splotchy looking. Summer female is paler golden-brown with intricate black and white markings. Female nearly identical to Willow Ptarmigan; look for slightly smaller bill. Summer male Willow and Rock Ptarmigans can be separated by the colder grayish plumage on Rock Ptarmigan and in winter by the distinctive black eyeline on Rock Ptarmigan. Also note habitat differences. Best distinguished from White-tailed Ptarmigan by black outer tail feathers. Vocalizations include guttural groaning and clucking notes.

Statistics

	Observations	With photos	With audio
You	2	2	0
eBird	15.431	1.690	68

Range Map [Large map](#)

Weekly Bar Chart

Choose a region to view Weekly Bar Chart

Media All media My media

Top photos [View all](#)

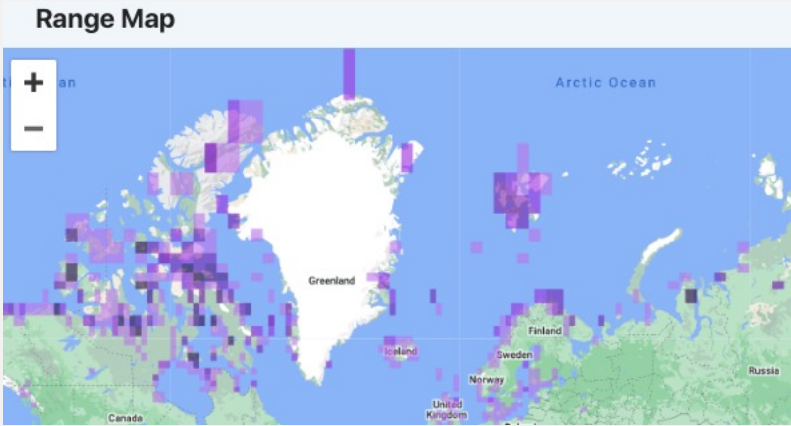
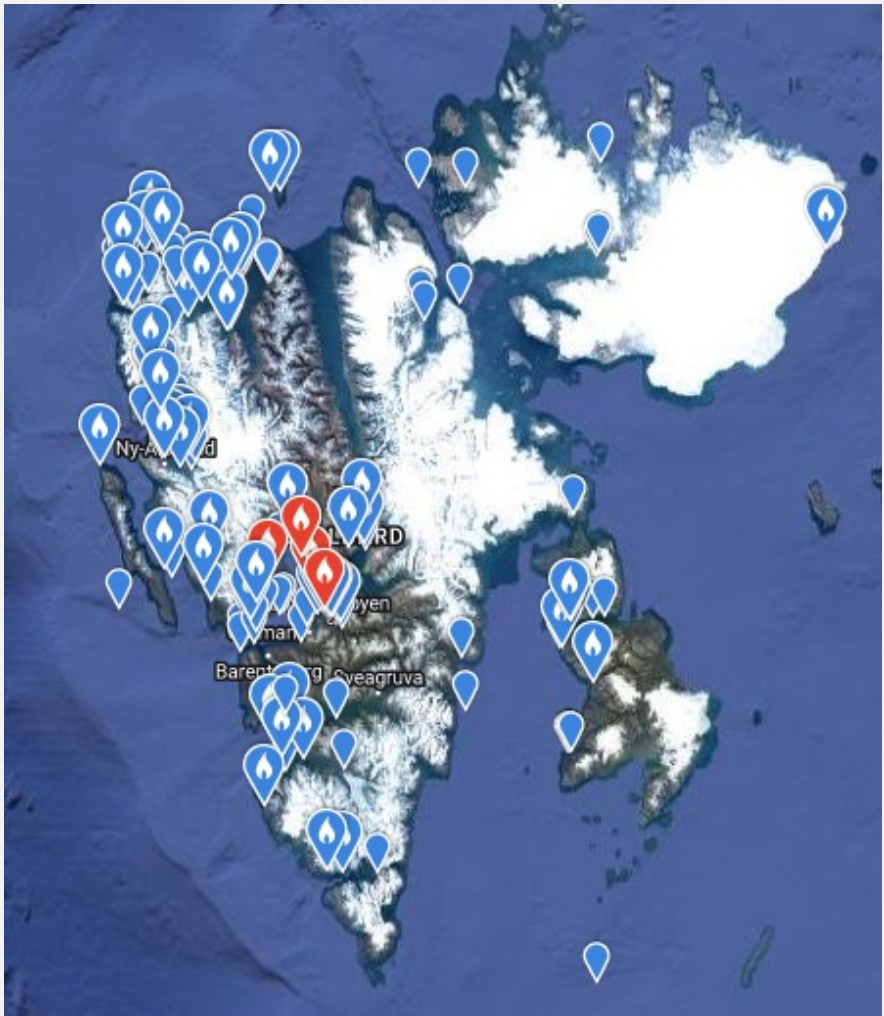
Rock Ptarmigan Rock Ptarmigan Rock Ptarmigan Rock Ptarmigan Rock Ptarmigan Lagopus muta

Recent checklists from Svalbard

'Our' checklist from Hiorthamn

eBird info on Rock Partridge

KING EIDER



eBird King Eider distribution map



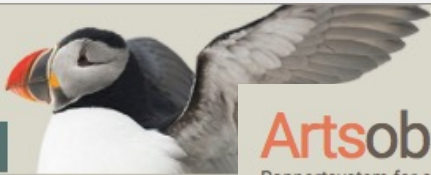
King Eider distribution map lacking Svalbard

Svalbard records of King Eider in eBird

ARTSOBSERVASJONER

Artsobservasjoner
Rapportssystem for arter

[Home](#) [Submit sightings](#) [Search sightings](#) [Lists](#) [Themes](#) [Images](#)



English (United Kingdom)

Artsobservasjoner
Rapportssystem for arter

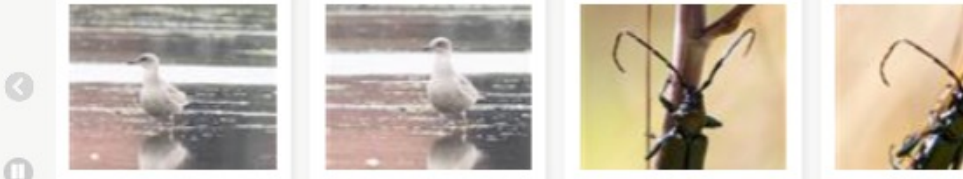
[Home](#) [Submit sightings](#) [Search sightings](#) [Lists](#) [Themes](#) [Images](#)



Michael Kjøie Poulsen • Log out

[My pages](#)

Today's images



Today's sightings

OBSERVERT

SPECIES GROUP

4265 Sightings

Today Yesterday

All

1124 Species



[+ Add sighting](#) [Review & publish \(0 sightings\)](#) [Diary](#)

Sighting properties

Species name **Dunlin** Uncertain identification Unspontaneous
Calidris alpina (Linnaeus, 1758)

Insert date Today Yesterday Now Last Reset

Start date: **05/08/2022** Start time: HH:MM

End date: **05/08/2022** End time: HH:MM

Quantity: Unit: *Not for this taxon*

Age/stage: Gender:

Activity: **Foraging** Discovery method: *Not for this taxon*

Do not clear after saving

Public comment:

Private comment:

Note of interest

Not recovered

Not present

Determination method:

Hide until: DD/MM/YYYY

Length (mm): *Not for this taxon*

Weight (g): *Not for this taxon*

Site

Småbåthavna

Coordinates: E15.54319, N78.2388138 (±707m)
Geographic(WGS 84)

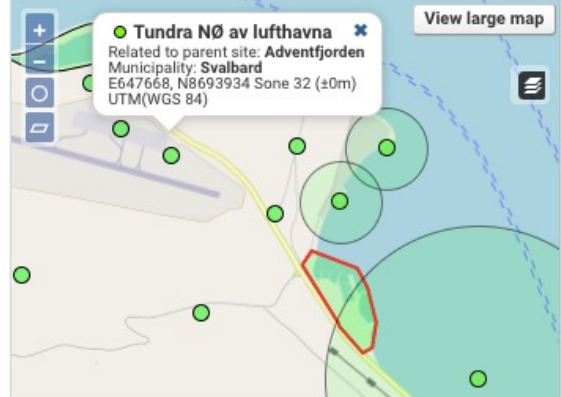
Related to parent site: Adventfjorden

[Show sightings from this site](#)

[Map](#) [New site](#) [My sites](#)

Favorites:

Search Site:





Keep Track

Record your encounters with other organisms and maintain life lists, all in the cloud.



Crowdsource Identifications

Connect with experts who can identify the organisms you observe.



Learn About Nature

Build your knowledge by talking with other naturalists and helping others.



Create Useful Data

Help scientists and resource managers understand when and where organisms occur.



Become a Citizen Scientist

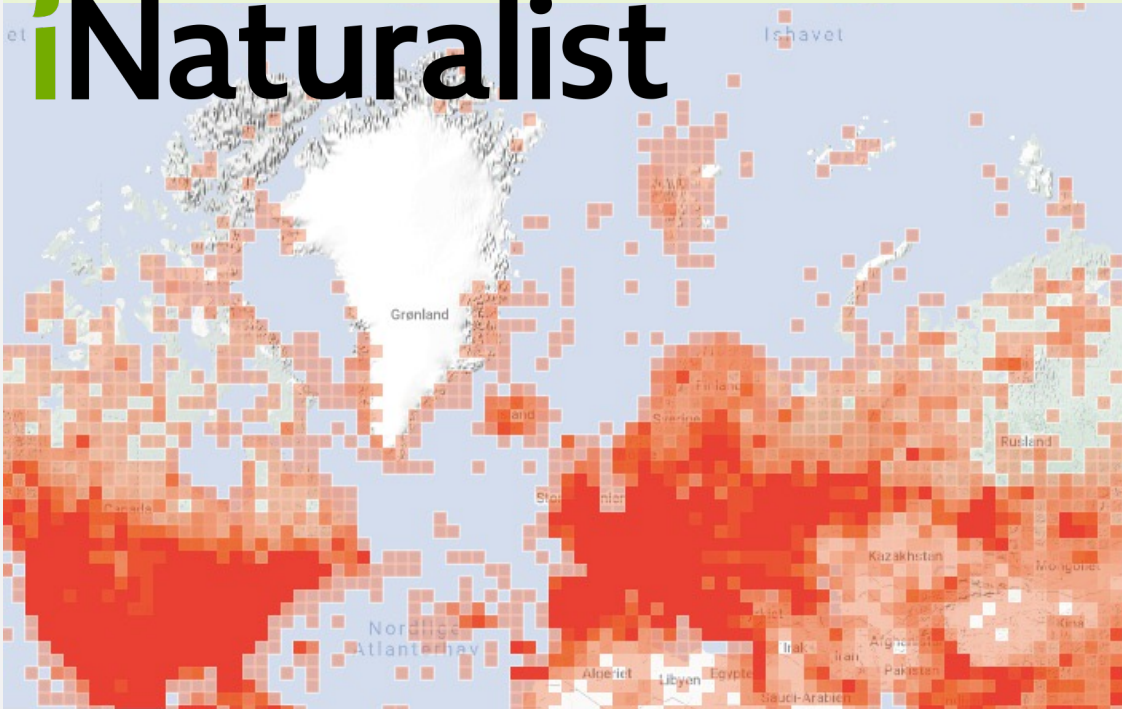
Find a project with a mission that interests you, or start your own.



Run a Bioblitz

Hold an event where people try to find as many species as possible.

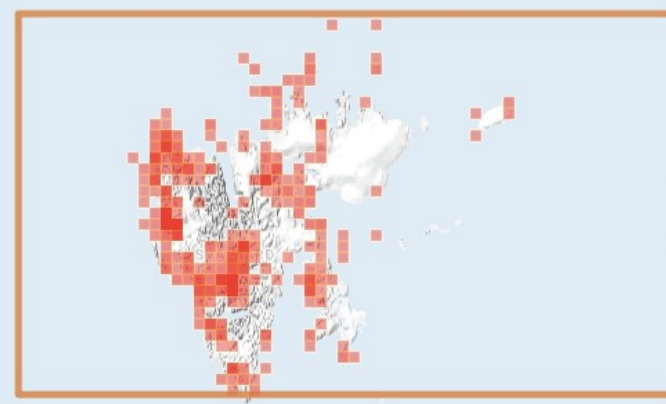
iNaturalist



Geografisk område ▾ **2,670** OBSERVATIONER **163** ARTER **585** IDENTIFIKATOREF➔ **174** OBSERVATØRER ➔

Kort Gitter Liste Interessante steder Gentag søgning på kort

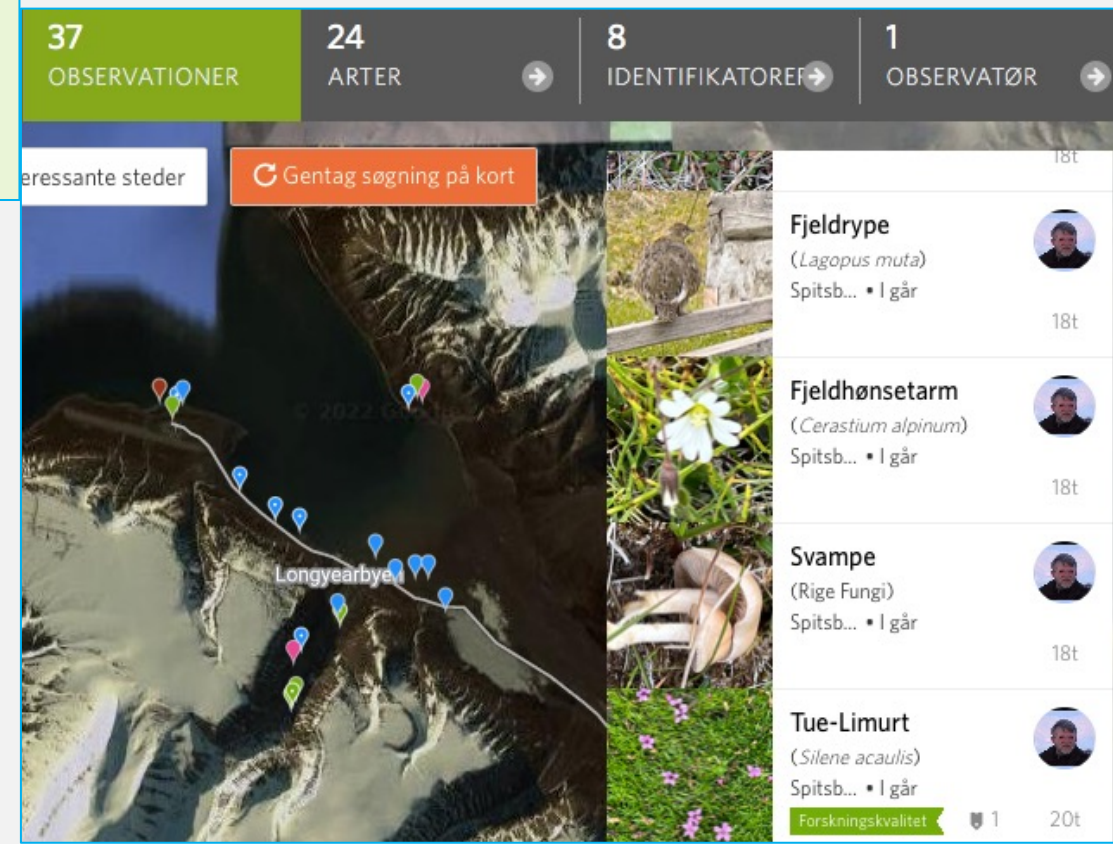
+
-
📍
📏



- Lagopus muta hyp...**
Spitzb... • 15. okt 2021
forskningskvalitet 1 14d
- Ride**
(*Rissa tridactyla*)
Spitzb... • 3. okt 2021
forskningskvalitet 1 1må
- Hvidnæse**
(*Lagenorhynchus albiros...*)
Spitzb... • 3. okt 2021
forskningskvalitet 1 1må
- Ride**
(*Rissa tridactyla*)
Spitzb... • 3. okt 2021
forskningskvalitet 1 1må
- Reyndyr**

-  **Keep Track**
Record your encounters with other organisms and maintain life lists, all in the cloud.
-  **Crowdsourcing Identifications**
Connect with experts who can identify the organisms you observe.
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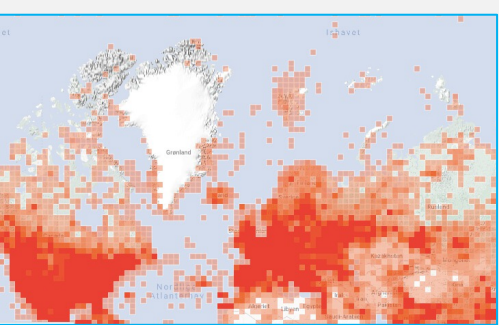
iNaturalist



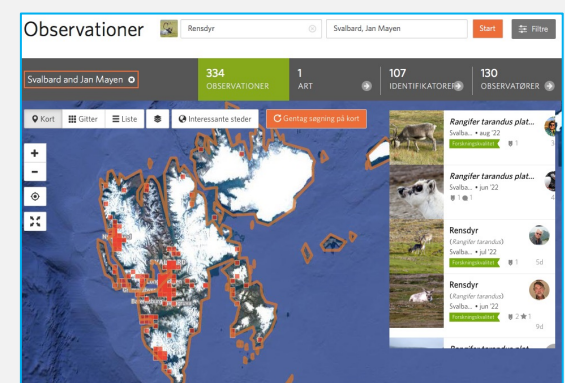
37 OBSERVATIONER 24 ARTER 8 IDENTIFIKATOREF 1 OBSERVATØR

ressante steder **Gentag søgning på kort**

- Fjeldrype** (*Lagopus muta*) Spitsb... • I går 18t
- Fjeldhønsetarm** (*Cerastium alpinum*) Spitsb... • I går 18t
- Svampe** (Rige Fungi) Spitsb... • I går 18t
- Tue-Limurt** (*Silene acaulis*) Spitsb... • I går 20t



Density of iNaturalist observations



Observationer Rensdyr Svalbard, Jan Mayen

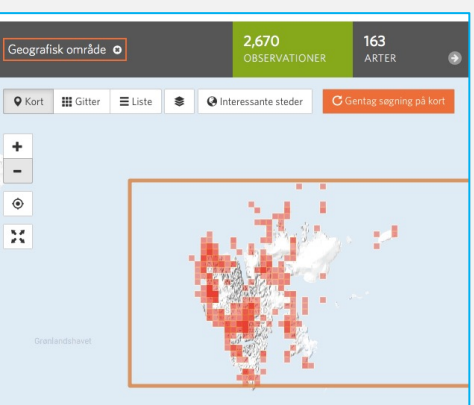
Svalbard and Jan Mayen 334 OBSERVATIONER 1 ART 107 IDENTIFIKATOREF 130 OBSERVATØRER

Rangifer tarandus plat... Svalba... • aug 22

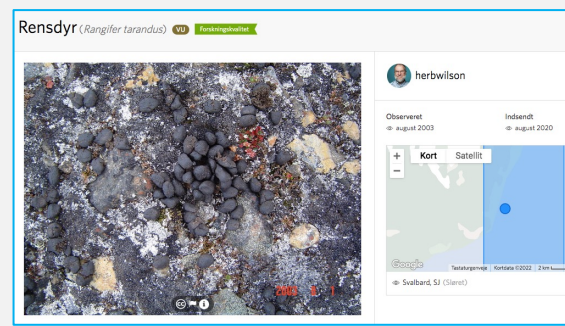
Rensdyr (Rangifer tarandus) Svalba... • jul 22

Rensdyr (Rangifer tarandus) Svalba... • jan 22

Reindeer observations from Svalbard in iNaturalist



Density of iNaturalist observations, Svalbard



Rensdyr (Rangifer tarandus) Forskningskvalitet

herbwilson

Observert august 2023 Indsendt august 2020

Kort Satellit

Svalbard, SJ (Sjælland)

One of the Reindeer observations from Svalbard in iNaturalist

iNaturalist showing some of 'our' observations from Hiorthamn

A RECENT "PROJECT" FROM SVALBARD IN NATURALIST



DIS AE SVALBARD 2022
JUL 11, 2022 - JUL 15, 2022

Om Tilslut 1

Discover, identify and log species during our field trip to Svalbard.
[Læs mere >](#)

Projektjournal

Overblik **64** OBSERVATIONER **45** ARTER **21** IDENTIFIKATORER **8** OBSERVATØRER ⚡ Statistik

Seneste observationer →

[Vis alle](#)



Papaver dahlia



1 21d



Havterne

Sterna paradisaea



1 20d



Stor Præstekrave

Charadrius hiaticula



1 20d

iNaturalist can be used for Bioblitz

CITY NATURE CHALLENGE BORN, LUXEMBOURG 30 APR. – 1 MAY 2021

The screenshot displays the iNaturalist mobile application interface. At the top, a dark navigation bar shows the current location 'Ramborn Orchard Hiking' and summary statistics: 701 OBSERVATIONS, 249 ESPÈCES, 129 IDENTIFICATEURS, and 72 OBSERVATEURS. Below this is a map of Born, Luxembourg, with an orange boundary indicating the challenge area. The map is populated with numerous colored location pins. A search bar at the top of the map area contains the text 'Refaire la recherche sur la carte'. To the left of the map are navigation controls for map style (Carte, Grille, Liste), zoom in (+), zoom out (-), location, and full-screen view. On the right side, a vertical list of species observations is shown, each with a photo, the species name, common name, location, and time. The visible entries are:

- Ixodes ricinus*** (Tique du Mouton) Born, Mompach, Dis... • Hier, 1h
- Genre *Heracleum*** Born, Mompach, Dis... • Hier, 1h
- Pararge aegeria*** (Tircis) Born, Mompach, Dis... • Hier, Niveau de recherche, 1h
- Buteo buteo*** (Buse Variable) Born, Pétzwee, 666... • Hier, Niveau de recherche, 13 h
- Nedyus quadrimaculatus***

At the bottom left corner, the 'FRAMEWORK' logo is visible, featuring a stylized green and yellow landscape graphic above the word 'FRAMEWORK' in blue capital letters.



SYSSELMESTEREN PÅ SVALBARD – THE GOVERNOR OF SVALBARD

Reporting hunting and fishing activities is mandatory

- You are required to submit hunting, trapping and fishing reports in Svalbard.
- There is a large potential for expanding the use of CS to contribute to the basis for environmental policies and management decisions.