

Work Package 7: Improving and harmonizing biodiversity monitoring workshop report

International Network for Terrestrial Research and
Monitoring in the Arctic (INTERACT)

Rif Field Station, Raufarhöfn, Iceland August 22-24,
2017

Acknowledgements

CAFF Designated Agencies:

- Norwegian Environment Agency, Trondheim, Norway
- Environment and Climate Change Canada, Ottawa, Canada
- Faroese Museum of Natural History, Tórshavn, Faroe Islands (Kingdom of Denmark)
- Finnish Ministry of the Environment, Helsinki, Finland
- Icelandic Institute of Natural History, Reykjavik, Iceland
- Ministry of Independence, Nature, Environment and Agriculture, Greenland
- Russian Federation Ministry of Natural Resources, Moscow, Russia
- Swedish Environmental Protection Agency, Stockholm, Sweden
- United States Department of the Interior, Fish and Wildlife Service, Anchorage, Alaska

For more information please contact:
CAFF International Secretariat
Borgir, Nordurslod
600 Akureyri, Iceland
Phone: +354 462-3350
Fax: +354 462-3390
Email: caff@caff.is
Website: www.caff.is

CAFF Permanent Participant Organizations:

- Aleut International Association (AIA)
- Arctic Athabaskan Council (AAC)
- Gwich'in Council International (GCI)
- Inuit Circumpolar Council (ICC) – Greenland, Alaska, Canada and Russia
- Russian Indigenous Peoples of the North (RAIPON)
- Saami Council

This publication should be cited as CAFF 2017. Work Package 7: Improving and harmonizing biodiversity monitoring workshop report. Conservation of Arctic Flora and Fauna International Secretariat, Akureyri, Iceland.

Editors: Tom Barry, Kári Fannar Lárusson & Jónína Sigríður Þorlákssdóttir

Cover Photo: Kári Fannar Lárusson

Layout and Graphics: Kári Fannar Lárusson

Funding: CAFF would like to acknowledge the support from INTERACT Horizon 2020

This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/4.0/>. All photographs are subject to a separate restricted copyright and may not be reproduced without explicit consent, which should be sought directly from the copyright holder.

Note: The views expressed in this report are the responsibility of the authors of the report and do not necessarily reflect the views of the Arctic Council, its members or its observers, contributing institutions or funding institutions..



Work Package 7: Improving and harmonizing biodiversity monitoring

International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT)

Rif Field Station, Raufarhöfn, Iceland August 22-24, 2017

1	Overview	1
1.1	Work Package 7 Goals.....	1
1.2	Work Package 7 Deliverables:.....	2
2.	Workshop 1:.....	2
2.1	Outcomes:.....	2
2.2	Decisions:	3
3.	Next steps:	4
	Annex 1: Workshop participants	5
	Annex 2: The Circumpolar Biodiversity Monitoring Program (CBMP).....	5
	Annex 3: The International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT)	5

1 Overview

The *International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT)* is an EU funded initiative working towards building capacity to help identify, understand, predict and respond to environmental changes across the Arctic.

INTERACT Work Package (WP) 7 “*Improving and harmonizing biodiversity monitoring*” is led by the Conservation of Arctic Flora and Fauna (CAFF) Arctic Council Working Group. The overall goal of WP7 is to test the circumpolar [Freshwater](#) and [Terrestrial](#) Arctic biodiversity monitoring plans of CAFF’s cornerstone program, the Circumpolar Biodiversity Monitoring Program (CBMP), at INTERACT stations.”

The goal of the CBMP monitoring plans is to harmonize and integrate efforts to monitor the Arctic's living resources through a network of scientists, governments, Indigenous organizations, and conservation groups. Through this harmonization and integration, the monitoring plans facilitate more rapid detection, communication, and response to the significant pressures affecting the circumpolar world.

1.1 WP7 Goals

- Establish an efficient working interface between CBMP and INTERACT;
- Use advice and experience from the Canadian High Arctic Research Station (CHARS) and the [Zackenbergl Research Station](#) (part of the Greenland Ecological Monitoring (GEM) Program) to inform the development of the [Rif Field Station](#) in Iceland;
- Test the CBMP Circumpolar monitoring plans for Arctic Freshwater and Terrestrial monitoring plans in the field at the [Rif Field Station](#), develop a user manual for their implementation; and
- Identify ways in which biodiversity data generated at INTERACT stations can feed into Arctic Council initiatives.

1.2 WP7 Deliverables:

- Data management plan for the Icelandic Rif station in connection with the Arctic Biodiversity Data Service ([ABDS](#)) for the selected focal ecosystem components.
- User manual for implementing CBMP at INTERACT stations.
- A report describing the flow of data from the field to Arctic Council assessments, monitoring and reporting activities.

2. Workshop 1:

As part of INTERACT WP7 a group comprising experts from Canada, the Kingdom of Denmark, Iceland, Sweden and Ireland met on **August 22-24 in Raufarhöfn**, Iceland to help improve and harmonize biodiversity monitoring in the Arctic by pooling resources and experiences. This workshop helped in moving our work forwards where advice and experience from the CHARS and the Zackenberg Research Stations helped inform the development of the Rif Field Station.

The first day of the workshop focused on setting the stage and reviewing the goals and objectives of the workshop. Areas covered included:

- Introduction to Rif Field Station and its environment;
- CBMP Terrestrial and Freshwater monitoring plans and guidance relevant for planning site based monitoring;
- Zackenberg research station: lessons learned, adaptive approach and data management; and
- CHARS: monitoring plan, objectives, implementation, and lessons learned.

Day 2 and 3 focused on how the CBMP Terrestrial and Freshwater monitoring plans should be implemented at Rif and their application at the CHARS and Zackenberg research stations. Areas covered included:

- Which Focal Ecosystems Components¹ (FECs) are monitored across all three locations?
- How can these stations work together and upscale their outputs?
- Guidance to Rif on which FECs it should monitor.
- Data management practices: the Arctic Biodiversity Data Service (ABDS), CHARS and the Zackenberg research station.

2.1 Outcomes:

- **Workshop report** providing an overview of the meeting and its outcomes, i.e. decisions and actions to be taken including timelines and responsible parties for each action
- **Project website** including a meeting login site where all WP7 documents and presentations can be accessed [<https://caff.is/interact>]
- **Regular teleconferences**, the first scheduled for early November (exact date tbc)
- **WP7 meetings:**

¹ CAFF uses the term Focal Ecosystem Components (FEC) to describe biological elements that are considered central to the functioning of an ecosystem, of major importance to Arctic residents, and/or are likely to be good proxies of change in the environment.

- August 2018 (exact date tbc): annual workshop, location to be determined either in Cambridge bay or Denmark.
- October 12: WP meeting, Rovaniemi, Finland: in conjunction with the Arctic Biodiversity Congress.
- August 2019 (exact date tbc): annual workshop: to be held in Raufarhöfn, Iceland.

2.2 Decisions:

- **Melrakkaslétta peninsula defined as the Rif monitoring area** with the Rif site as the core of intensive monitoring accompanied by a network of satellite sites located throughout the peninsula. [\[Location map to be added here\]](#)
- **List of selected FECs as proposed in the draft monitoring plan finalized.**
- **Lessons learnt from CHARS and Zackenberg to be documented:** in a short report with a focus on learning from mistakes and including new methods and technologies to inform implementation of the CBMP monitoring plans at Rif.
- **Develop a model for how to conduct monitoring at Rif** which will entail:
 - Identification of 2 core sites (1 near the coast and 1 inland), preferably without history of intense farming/grazing to differentiate between impacts caused by climate change and traditional land use;
 - Ensuring that the core sites are spatially and temporally aligned;
 - Compiling an inventory of available data and resources to facilitate selection of sites;
 - Ensuring that the model design includes areas of exposed mineral soil; and
 - Establishing satellite sites where necessary to include parameters not found within the core sites.
- **Develop a strategy for Rif** (comprising a project overview; monitoring plan; data management plan; communications plan and a business plan).
- **Develop a mapping database for Rif** to facilitate change mapping as a critical first step in the preparation for testing the CBMP monitoring plans. This will entail:
 - Mapping of vegetation and hydrology;
 - Determining the data available to use, e.g. remote sensing, aerial photography and the CBMP land cover change index;
 - Determining the technical resources available;
 - Provision by CHARS of the necessary algorithms;
 - Contacting the Arctic Spatial Data Infrastructure (SDI) and the National Land Survey of Iceland to determine what support they might provide; and
 - Exploring the possibility of change mapping at Rif as a graduate project.
- **Explore the potential of benefiting from relevant INTERACT work Packages**

3. Next steps:

Component	Actions	Responsible	Deadline
Overall actions	Provide corresponding plans/documents from each station	CHARS, Zackenberg	Sept 15, 2017
	Develop a mapping database for Rif	Rif, CAFF	Oct 15, 2017
	Explore potential of benefiting from relevant INTERACT work Packages	CAFF, Aarhus University	Nov 1, 2017
Overview document: describing WP7 i.e. Rif and the role of CHARs and Zackenberg; why is this important, defining clients and international linkages.	Provide text on relevance and international linkages	CAFF, Aarhus University, Rif	Sept 30, 2017
	Draft 1 (outline) circulated for review	CAFF, Aarhus University	Dec 31, 2017
	Draft 1 comments due	CAFF, Aarhus University, Rif	Jan 31, 2018
	Draft 2 circulated	CAFF, Aarhus University, Rif	March 1, 2018
Monitoring plan (Rif): describing what should be monitored and how. Should include stressor analysis/conceptual model with emphasis on stressors	Submit comments to the draft Rif monitoring plan, including prioritizing FECs with regards to the equipment that can be afforded.	All members of WP7	Sept 15
	Travel to CHARs/Zackenberg to see how these stations operate.	Rif, CHARs, Zackenberg	Sept-Oct 13: call for applications for support from INTERACT transnational access
	Consider how using components of the EU water Framework Directive might facilitate ease of reporting and relevance	Rif, Swedish University of Agricultural Sciences	Sept 30
	2018		
	Circulate revised draft for review	Rif	Jan 15
	Monitoring plan finalized	Rif	Feb 15
	Facilitate visit of Rif to Zackenberg	Zackenberg	Summer (exact timing tbc)
	2018		
Data management plan : Focusing on how data from Rif on selected focal ecosystem components feeds into the ABDS.	Draft 1 (outline) circulated for review	CAFF, Aarhus University	Jan 15
	Draft 1 comments due	CAFF & Aarhus University	Feb 15
Communications plan	Draft 1 circulated for review	Rif	June 15
	Draft 1 comments due	Rif	July 15
	Draft a news story for INTERACT newsletter and partners.	CAFF	Aug 31
Long term business plan	Draft 1 circulated for review	Rif	March 1
	Explore the potential other funding possibilities to provide support to Rif e.g. the Northern peripheries Arctic program.	Rif	Ongoing

Annex 1: Workshop participants

- Donald McLennan, CHARS research station
- Tom Christensen, Aarhus University and CBMP
- Tom Barry, CAFF secretariat
- Kári Fannar Lárusson, CAFF secretariat
- Hólmgrímur Helgason, CAFF secretariat
- Starri Heiðmarsson, Icelandic Institute of Natural History, CBMP Terrestrial co lead and Rif board
- Niels Martin Schmidt, Zackenberg research station
- Jónína Sigríður Þorláksdóttir, Rif station manager
- Mora Aronsson, Swedish University of Agricultural Sciences and CBMP Terrestrial co-lead
- Willem Goedkoop, Swedish University of Agricultural Sciences and CBMP Freshwater co-Lead
- Embla Eir Oddsdóttir, Icelandic Arctic Cooperation Network and Rif board
- Þorkell Lindberg Þórarinnsson, Northeast Iceland Nature Research Centre and Rif board

Annex 2: The Circumpolar Biodiversity Monitoring Program (CBMP)

The Circumpolar Biodiversity Monitoring Programme (CBMP) Circumpolar Biodiversity Monitoring Program (CBMP) is a cornerstone program of the Conservation of Arctic Flora and Fauna ([CAFF](#)) Arctic Council Working Group. It is an international network of scientists, government agencies, Indigenous organizations and conservation groups working together to harmonize and integrate efforts to monitor the Arctic's living resources.

The CBMP is developing four coordinated and integrated Arctic Biodiversity Monitoring Plans to help guide circumpolar monitoring efforts. Results will be channeled into effective conservation, mitigation and adaptation policies supporting the Arctic. These plans represent the Arctic's major ecosystems: Marine; Freshwater; Terrestrial; and Coastal

The CBMP facilitates Arctic biodiversity conservation and the sustainable use of the region's natural resources. Its goal is to facilitate more rapid detection, communication, and response to significant biodiversity-related trends and pressures. It does this by:

- Harmonizing and enhancing Arctic monitoring efforts, thereby improving the ability to detect and understand significant trends; and,
- Reporting to, and communicating with, key decision makers and stakeholders, thereby enabling effective conservation and adaptation responses to changes in Arctic biodiversity.

Annex 3: The International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT)

INTERACT is an infrastructure project under the auspices of SCANNET, a circumpolar network of currently 79 terrestrial field bases in northern Europe, Russia, US, Canada, Greenland, Iceland, the Faroe Islands and Scotland as well as stations in northern alpine areas. INTERACT specifically seeks to build capacity for research and monitoring in the European Arctic and beyond, and is offering access to numerous research stations through the Transnational Access program.

Funded by the EU, INTERACT has a main objective to build capacity for identifying, understanding, predicting and responding to diverse environmental changes throughout the wide environmental and land-use envelopes of the Arctic. This is necessary because the Arctic is so vast and so sparsely populated that environmental observing capacity is limited compared to most other latitudes.

INTERACT is multidisciplinary: together, the stations in INTERACT host thousands of scientists from around the world who work on projects within the fields of glaciology, permafrost, climate, ecology, biodiversity and biogeochemical cycling. The INTERACT stations also host and facilitate many international single-discipline networks and aid training by hosting summer schools.

INTERACT station managers and researchers have established partnerships that are developing more efficient networks of sensors to measure changing environmental conditions and the partnerships are also making data storage and accessibility more efficient through a single portal. New communities of researchers are being offered access to terrestrial infrastructures while local stakeholders as well as major international organizations are involved in interactions with the infrastructures.

Further information can be found on the project website: <https://caff.is/interact>