ResNet Data Policy Read Me

What's here?
This document defines roles and responsibilities, data publication, and data usage policies within the network. Think of it as the "Why, What, Who, When" for open science within NSERC ResNet.

What's not?
Generally, the "How"s. There are two separate documents in development that complement this Data Policy.

The "Data Guides" are a series of instructions and tutorials to assist researchers with data management. They detail workflows for preparing data for submission and using the Data Portal.

The network level "Data Management Plan" is a technical description of our data infrastructure. How the Data Portal is constructed, details of the standards implemented, security and data recovery procedures. This information shouldn't be relevant to most members in the network, but is important to its operations.

How to contribute?
Your input is critical to creating a data policy that works for everyone while fostering open science, maximizing our contributions to the public, and enhancing the impact of our work.
If you have questions, comments, concerns, we absolutely want to hear them!

- Use the discussion section below for general feedback
- Reach out directly

NSERC ResNet Data Policy

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Introduction

NSERC ResNet: A network for monitoring, modelling and managing Canadian ecosystem services for sustainability and resilience unites a broad community of scholars and resource managers from across academic, government, non-governmental organizations (NGO) and industry sectors to identify paths for sustainable landscape management that ensure biologically diverse, resilient and adaptive social-ecological systems amid the complexity of competing values, stakeholders and political jurisdictions. The network's mission is to transform Canada's capacity to monitor, model and manage its working landscapes and all the ecosystem services they provide for long-term well-being and shared prosperity of all Canadians in a way that reflects their fundamental inter-relationships, and thus fundamentally improve integrated decision-making for working landscapes across the country.

This document formalizes and describes policies for the publication and usage of data within NSERC ResNet. It clarifies and extends the NSERC ResNet Network agreement. Portions were adapted from the PermafrostNet Data Policy [1] and the ArcticNet Data Policy [2].

Principles

ResNet operates under the principles of fostering open science, accommodating diverse data needs, and working to balance benefits of science to researcher, network, and the public.

Foster Open Science

The timely and comprehensive exchange of ideas among ResNet members, including partners, is critical to the success of ResNet. This exchange requires that we are able to share data, and data documentation and publication is a critical mechanism for collaboration, both internal and external.

The ResNet data policy is intended to encourage reproducible research and data interoperability. To this end, ResNet will strive to implement FAIR data principles: data that are Findable, Accessible, Interoperable, and Reusable [3].

Accommodate Diverse Data Needs

Data publication may not be feasible or appropriate in all circumstances. ResNet data policy must therefore respect existing agreements, restrictions, and policies controlling the distribution and storage of sensitive and proprietary data, such as University ethics agreements. The rights of local and traditional knowledge holders will be safeguarded by applying CARE and OCAP principles [4].

Balance Benefits and Obligations

Finally, ResNet data policy must strike a balance between burden on researchers in terms of the time required to prepare data for sharing and benefit to the network, and public. We will strive to:

- Comply with grant and regulatory agency requirements
- Establish clear standards and expectations
- Enhance research visibility and impact
- Provide robust infrastructure and support

Scope and Terms

- Research Data - Data collected and produced by ResNet scientists and ResNet funded projects.
- Data Publication - Process of preparing and releasing research data for use by others.
- Data Portal - Web-based platform for the publication and discovery of ResNet Research Data.
- Data Contributor - Individual conducting research and producing data.
- Research Group - Network members affiliated with a Theme or Landscape.
- Data Steward - Responsible for coordinating Data Contributors within a Research Group. (Co-)lead or delegated by lead of Landscape or Theme.
- Data Administrator - Network Administrative Centre and Data Manager.

Roles and Responsibilities

Each member of ResNet has roles and responsibilities vis a vis data and data management.

Data Contributor

- Communicate expected data outputs from scientific research to Research Group Data Steward. Update as necessary.
- Document all data inputs. Create basic metadata where missing. Comply with existing usage requirements/policies for data inputs.
- Ensure accuracy of results to the best of ability.
- Declare and document data sensitivity or agreements with external parties.
- Package data and author comprehensive metadata in accordance with Network policies.
- Submit outputs to Data Portal for publication. Coordinate with Data Administrator as needed.

Data Steward

- Foster the active participation of network members in the data publication process.
- Coordinate the efforts of Data Contributors within a Research Group.
- Report expected data outputs and progress of Data Creators within the Research Group to the Data Administrator on a regular basis.

Data Administrator

- Establish data and metadata standards.
- Review data submissions and prescribe revisions as needed.

- Manage data infrastructure and moderate publication through online data portal.
- Compile reports of data activities within Research Groups and communicate to the Network at large.
- Provide training and support for data publication.
- Ensure the security and preservation of published data.

Research Data Publication

Metadata

Metadata is critical for the discovery and reuse (interoperability) of research data. The Data Administrator will identify and adopt a metadata schema compliant with federal requirements. The Data Contributor will provide a preliminary description of the data as early in a research project as possible. Prior to the end of a project, the Data Contributor will provide a complete metadata record to be validated against the schema standards by the Data Administrator, and revised by the Data Contributor as needed. Once completed, the record will be publicly accessible and machine readable.

Where appropriate, research data should be associated with a persistent identifier (e.g. DOI). This will provide a permanent link to the metadata record that can be cited by subsequent studies that reuse the data.

The Data Administrator will work to streamline this process, provide technical support, and clarify requirements, but authoring the content will be the sole responsibility of the Data Contributor.

Data

The Data Administrator will define a set of standardized formats for common types of Research Data (e.g. tabular, spatial) to ensure stability and interoperability across Research Groups. Data Contributors will have access to documentation, training, and support for these formats. For atypical formats (e.g. transcripts, multimedia), the Data Contributor and Administrator will collaborate to determine best practices.

Data will be publicly accessible through the Data Portal when not precluded by exceptions (below) or infrastructure limitations. Large datasets will be available to interested external parties on request, and transmission will be facilitated by the Data Administrator. When exceptions apply, the Data Contributor, Steward, and Administrator will establish appropriate access policies on a case-by-case basis.

Code

Access to code created to process and analyze data is an essential component of open and reproducible research. Code should be preserved, documented, and packaged with research data whenever possible.

Licensing

Data licensing is a complex and evolving issue. Researchers should strive to apply a license as open-access as possible[1]. The Data Administrator will curate a collection of common licenses and assist with selection, but it is the responsibility of the Data Contributor to identify and communicate all licensing considerations applicable to their Research Data. This may include restrictions inherited from data inputs, the nature of the data produced, and/or agreements with external parties.

Usage

Embargo

Per Section 8.2 of the Network Agreement:

- Data will belong to the Landscapes and Themes which generated them.
- Network members in these areas will have exclusive use for a maximum of six (6) months beginning from when the data is fully-acquired.
- Data will be communicated to the Administrative center as rapidly as possible.
- Network members will then have 12 months of privileged, password-protected access to the data.
- Afterwards, data will be shared with the public on the Network website to be managed by the Network data manager.

Acknowledgment

Users of ResNet Research Data must formally acknowledge data creators, contributors, and sources. This acknowledgment should appear as a citation, such as when citing a book or journal article.

Exceptions

While ResNet will make every effort to publish open data, this will not always be possible. Common types of exceptions are included below. The Data Contributor, Steward, and Administrator will work together to establish suitable access in these instances. At minimum, identifying metadata should be made available to the network.

Traditional Knowledge

The rights of traditional knowledge holders supersede the policies described in this document. Researchers are responsible for engaging with knowledge holders on a project-by-project basis to establish appropriate agreements regarding the collection, usage, storage, and dissemination of data. Existing frameworks such as OCAP[4] should be applied during this process.

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[1] Resources to assist with license selection include https://opendatacommons.org/licenses/ and https://www.crkn-rcdr.ca/en/model-license

Human Subjects

Where human subjects are involved, privacy and confidentiality must be protected. Access to personal information and human biological samples may be provided in accordance with applicable legislation, regulations, ethics approvals and policies.

Sensitive Data

Where data release may cause harm, specific aspects of the data may need to be kept protected (for example, locations of nests of endangered birds or locations of sacred sites).

Existing Restrictions

Where pre-existing data are subject to access restrictions, those restrictions must be honoured.

Other Exceptions

All other exceptions will be reviewed by the Data Administrator on a case-by-case basis.

Governance

Compliance

The disbursement of Network funding to Partners is contingent on participation in data publication in adherence to this policy.

Dispute Resolution

Any disputes pertaining to this Data Policy will be resolved following the procedures detailed in Section 12 of the Network Agreement.

- Disputes that cannot be resolved within ninety (90) days through consultation and discussion shall be submitted to a mutually acceptable mediator chosen by those Parties who are involved in the dispute.
- Disputes which are not resolved by mediation within ninety (90) days shall be submitted to arbitration. The Parties who are involved in the dispute shall each appoint an arbitrator to adjudicate the issue. The arbitrators shall appoint one additional arbitrator, and these arbitrators shall constitute a panel. The arbitration shall be held in a place mutually agreed on by the Parties involved in the dispute. If such parties cannot agree on a place for the arbitration, the arbitration shall be held in a major Canadian city that is relatively equidistant from the Parties involved in the dispute. The panel shall be required to adjudicate the dispute within thirty (30) days of it being submitted for arbitration.
- The decision of the panel shall be binding on the Parties involved in the dispute. The Parties shall each bear their own expenses and shall share the cost of the panel equally unless otherwise awarded by the panel.

Amendments

All modifications of this policy must be approved by the Science Advisory Committee. The Board will be informed of any modifications.

Disclaimer

Data provided by the network are distributed “as is”, and both the network and the data creator exclude all representations, warranties, obligations, and liabilities, whether express or implied, to the maximum extent permitted by law.

Neither the network or the data creator is liable for any errors or omissions in the information, and will not under any circumstances be liable for any direct, indirect, special, incidental, consequential, or other loss, injury or damage caused by its use or otherwise arising in connection with this licence or the data, even if specifically advised of the possibility of such loss, injury or damage.

References

[1] “NSERC PermafrostNet Data Policy Version 1.0.” [Online]. Available: https://www.permafrostnet.ca/wp-content/uploads/2020/08/pn_NSERCPermafrostNetDataPolicy_v1.pdf

[2] “ArcticNet Data Policy.” [Online]. Available: https://arcticnet.ulaval.ca/arcticnet-data

[3] M. D. Wilkinson *et al.*, “The FAIR Guiding Principles for scientific data management and stewardship,” *Sci Data*, vol. 3, no. 1, p. 160018, Dec. 2016, doi: 10.1038/sdata.2016.18.

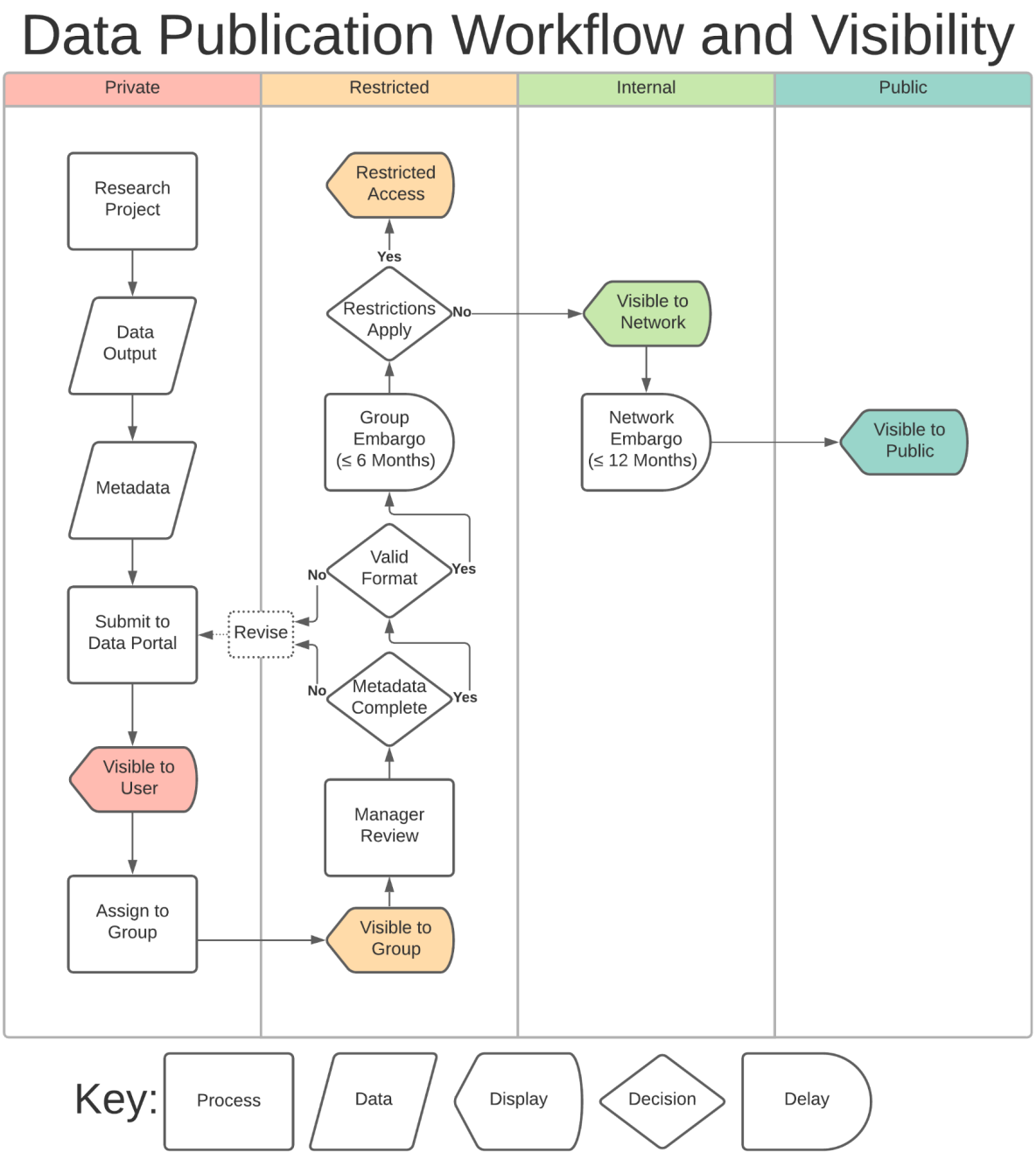
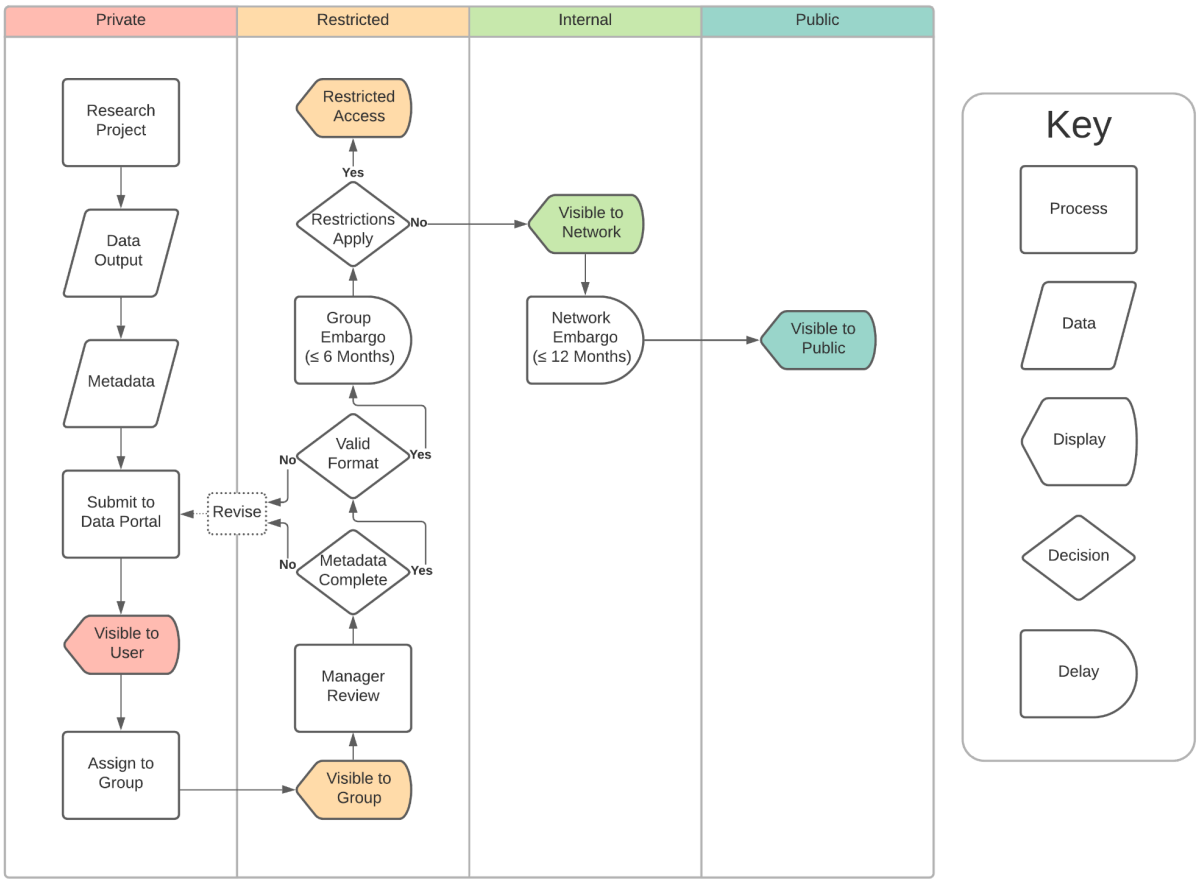
[4] S. R. Carroll, E. Herczog, M. Hudson, K. Russell, and S. Stall, “Operationalizing the CARE and FAIR Principles for Indigenous data futures,” *Sci Data*, vol. 8, no. 1, p. 108, Dec. 2021, doi: 10.1038/s41597-021-00892-0.

Version History

Versioning will begin following discussion with SAC

Appendices

Publication Workflow



Data Publication Workflow and Visibility