Antworten für *RecovFun*

1. Projekt Information

1.1 Allgemeine Projektinformationen

Q1.1: Wie lautet der Name des Hauptprojekts?

Biodiversity Exploratories

Q1.2a: Name of funder (prefilled, don't change)

Deutsche Forschungsgemeinschaft

Q1.2b: Funder ID type (prefilled, don't change)

ROR

Q1.2c: Funder ID (prefilled, don't change)

https://ror.org/018mejw64

2. Projektbeschreibung

2.1 Projektbeschreibung

Q2.1: Wie lautet der offizielle Name Ihres Forschungsprojekts?

Recovery mechanisms of above and belowground diversity and function of grassland, following reduction in intensity of land use

Q2.2: Wie lautet das Akronym Ihres Forschungsprojekts?

RecovFun

Q2.3: Fassen Sie Ihr Projekt zusammen oder beschreiben Sie Ihre Arbeit und die damit verbundenen Daten.

The ReCovFun project proposes a novel, holistic framework and novel approaches to uncover potential and mechanisms of land-use extensification as grassland restoration tool; and building scenarios and management guidelines of when extensification is suitable to restore grassland diversity, trophic interactions, functioning and service provisioning. To reach this aim, the RecovFun project will use the plots of the grassland experiment (LUX, REX) and the respective control plots in the EPs. Within all selected plots RecovFun will collect data on plant biomass and composition, plant leaf and root traits, soil geochemistry, soil functioning (enzymatic kinetics) and soil microbial communities. While the plant community data (composition and biomass) will be collected jointly with the Botany Core team from the Heilige Fläche, soil samples will be taken separately form the soil sampling campaign in 5 spots surrounding the Heilige Fläche (5 soil cores with diameter 5cm and depth 10cm). The latter is necessary to retrieve closely coupled data on above- and belowground communities that can serve for analysis of biotic interactions between those communities. Microbial community analysis will be analysed in cooperation with the Microbial Core team. Data will be collected once in spring 2023, plant biomass data will be collected in every year.

Q2.4: Welche Zeitspanne umfasst die aktuelle Projektphase der BE?

2023 - 2026

Q2.5: Zu welchen Kategorien gehört Ihr Projekt?

Plants

Q2.6a: Name

Set #1, Set #1: Ute Hamer

Set #1, Set #2: Norbert Hölzel

Set #1, Set #3: Lena Neuenkamp

Q2.6b: ORCID

Set #1, Set #1: 0000-0002-3845-3983

Set #1, Set #2: 0000-0002-6367-3400

Set #1, Set #3: 0000-0001-6108-5720

Q2.6c: E-mail

Set #1, Set #1: ute.hamer@wwu.de

Set #1, Set #2: nhoelzel@uni-muenster.de

Set #1, Set #3: lena.neuenkamp@uni-muenster.de

Name des Geldgebers

Set #1, Set #1: Deutsche Forschungsgemeinschaft

ID Typ

Set #1, Set #1: ROR

Geldgeber ID

Set #1, Set #1: https://ror.org/018mejw64

Q2.8: Is your project a core, contributing, or cooperation project?

Contributing project

Q2.9: Is your cooperation project part of another primary project? If yes, what is the name of the project?

3. Datenbeschreibung

3.1 Inhaltliche Datenbeschreibung

Auf welche Weise entstehen neue Daten?

Beobachtungen (durch Menschen, Instrumente oder Sensoren)

Werden existierende Daten wiederverwendet?

Ja, sie bilden die Basis für das Projekt

Wenn ja, bitte beschreiben Sie kurz, welche Daten Sie wiederverwenden möchten.

Existing biomass nutrient data will be used with the newly collected ones to update the calibration of the near-infrared-spectroscopy (NIRS) Data from other BE projects: - Vegetation Records (Botany Core Team) - Leaf and Root Traits (Botany Core Team, RootFun) - LUI (LUI tool)

Auf welche Weise werden die Daten in Ihrem Projekt gesammelt und verarbeitet? Bitte beschreiben Sie kurz die verwendeten Standards, Methoden oder Werkzeuge.

Plant community root and leaf biomass: Collecting fresh biomass in the fields, drying it, collecting dry weight and analyzing nutrient contents. Plant community root and leaf traits: Taking a subset of leaf and root samples and measuring morphological traits. Soil samples: Collecting soil in the field and analyzing it for plant available nutrient contents and enzymatic activities as well as microbial communities. Light measurements: Using sensor techniques to measure light penetration of grasslands.

Archivieren Sie physische Objekte zusammen mit Ihren Daten?

nein

Wenn ja, beschreiben Sie bitte kurz Ihre Objekte und wie diese gelagert werden.

Rohdaten

- Yes, it is based on stored samples (and the workflow is described)
- Other: Light measurements only in the field

Prozessierte Daten

Yes, the raw data is available, and the processing workflow is described

Q3.6: Do you want to provide additional information regarding reproducibility?

3.2 Technische Datenbeschreibung

Welche Datentypen, im Sinne von Datenformaten (z. B. Bilddaten, Textdaten oder Messdaten) entstehen in Ihrem Projekt?

- (text) *.docx
- (text) *.pdf
- (text) *.bib
- (data) *.asc
- (data) *.cdf, *.nc

Welches Datenvolumen ist für den Datensatz zu erwarten?

noch nicht bestimmt

Q3.9: Please estimate the number of files you will create.

< 100

4. Dokumentation und Datenqualität

4. 1 Dokumentation

Welche Ansätze werden verfolgt, um die Daten nachvollziehbar zu beschreiben (z. B. Nutzung vorhandener Metadaten- bzw. Dokumentationsstandards oder Ontologien)?

A dataset in BExIS consists of metadata, the data structure with defined variables, the primary data, a reference to other entities (data records, publications), and attachments. The metadata is based on a schema specially designed for the BE. Mandatory fields of common standards and project-specific necessities were taken into account. Some fields of the metadata schema are populated with controlled lists. BExIS allows mapping from a project's metadata scheme to different metadata standards so that data can be exported following community-agreed standards.

Q4.1a: Does your project use further approaches to describe the data in a comprehensible manner? Please describe it.

References to standardized methods (DNA analysis, soil analysis, biomass analysis)

Welche digitalen Methoden und Werkzeuge (z. B. Software) sind zur Nutzung der Daten erforderlich?

All data collected or produced within the BE which is of potential future use will be deposited in the central information system, called BExIS. Where reasonable, data may be deposited in another well-established, domain-specific archive. Tabular data can be downloaded in BExIS as *.xlsx or a text file. A corresponding program is required for Excel files. Text files can be viewed in simple editors. In addition, non-tabular data can be downloaded. These files were made available by the scientists and may require special programs. These should be explained in the metadata of the data set.

Q4.2a: What project-specific digital methods and tools (e.g. software) are required to use the data?

4.2 Datenqualität

Welche Maßnahmen werden getroffen, um eine hohe Qualität der Daten zu gewährleisten?

- Verwendung einer Kalibrierungsmethode: for the biomass analysis
- Validierung der Dateneingabe und Datenausgabe: for all samples
- Nutzung eines vordefinierten Qualitätskriterienkatalogs: for DNA and bioinformatic analysis
- Nutzung eines kontrollierten Vokabulars: for all labwork
- Überprüfung durch Expertinnen oder Experten

- Schulung/Sensibilisierung der Mitarbeitenden

Sind Qualitätskontrollen vorgesehen und wenn ja, auf welche Weise?

- Datenerhebung - Kalibrierung von Instrumenten (Genauigkeit/Skala)
- Datenerhebung - mehrere Messungen, Beobachtungen oder Proben
- Datenerhebung - Standardisierten Methoden und Protokolle (mit klaren Anweisungen)
- Digitalisierung und Dateneingabe - Detaillierte Beschriftung von Variablen- und Datensatznamen
- Digitalisierung und Dateneingabe - Verwendung einer speziell entwickelten Datenbankstruktur zur Organisation von Daten/Dateien
- Digitalisierung und Dateneingabe - Begleitende Hinweise und Dokumentation zu den Daten
- Datenüberprüfung - Doppelte Überprüfung der Daten und Ausreißerwerten
- Datenüberprüfung - Überprüfung der Vollständigkeit
- Datenüberprüfung - Überprüfung auf Doppeleingaben
- Datenüberprüfung - Statistische Analysen wie Häufigkeiten, Mittelwerte, Streuung oder Clusterung zur Aufdeckung von Fehlern und anomalen Werten
- Datenüberprüfung - Korrektur von Fehlern, die bei der Eingabe entstanden sind
- Datenüberprüfung - Peer-Review

Q4.5: Are quality controls planned by the project's internal repository (BExIS)? (prefilled, don't change)

Data curation with respect to data quality is the duty of the data creators and the ultimate responsibility for data quality lies with the project leader (§5 Data and publication policy of the BE). The project leader(s) acts as the long-term contact person (§2 Data and publication policy of the BE). However, the central data management team actively curates every dataset together with the data creators during the project phase. This curation is focused on high metadata quality. Data quality control is partly carried out by the use of BExIS. Data columns have a defined data type and therefore only allow the upload of corresponding data. Some data columns have a controlled list or a defined range. Furthermore, a data curation tool in the current state of development has a check for missing values, duplicate rows, and outliers.

5. Speicherung und technische Sicherung während des Projektverlaufs

5.1 Datenspeicherung während des Projekts

Auf welche Weise werden die Daten während der Projektlaufzeit gespeichert und gesichert?

- Zentraler Speicher- und Datenmanagement- Service der Einrichtung
- GitHub/GitLab
- Dezentrale Lösung (z. B. Server im Institut oder Lehrstuhl, etc.)
- Lokaler Rechner

5.2 Technische Datensicherung während des Projekts

Q5.2: Do you expect any sensitive data during the project?

nein

Wie wird die Sicherheit sensibler Daten während der Projektlaufzeit gewährleistet (Zugriffs- und Nutzungsverwaltung)?

BExIS offers the possibility to embargo data. For sensitive data, indefinite embargo periods are possible. Embargoed data is available to BE project members only and therefore only available to a limited group of people. Before getting access to data a request to the dataset contact person via BExIS has to be made. Every data access is done via BExIS and thus transparent for the data holders and the data manager. The Central Data Management team makes datasets publicly available manually and thereby considers sensitive data (e.g. coordinates and personal names). Sensitive data can be degraded or excluded from the release sets.

Q5.2b: Which kind of sensitive data do you expect? What are further project-specific approaches to address the security of sensitive data?

6. Rechtliche Verpflichtungen und Rahmenbedingungen

6.2 Beschränkungen bei der Veröffentlichung

Sind Auswirkungen oder Einschränkungen in Bezug auf die spätere Veröffentlichung bzw. Zugänglichkeit zu erwarten?

Nein, es liegen keine Einschränkungen vor

6.2 Wissenschaftliche Besonderheiten

Existieren wichtige wissenschaftliche Kodizes bzw. fachliche Normen, die Berücksichtigung finden sollten?

- DFG Code of Conduct - Guidelines for Safeguarding Good Research Practice
- Rules of Procedure of the BE (incl. attachments)
- Institution-specific open access policies

Q6.2a: Are there other domain-specific or project-relevant codes or standards existing? Please describe them.

6.3 Rechtliche Einschränkungen

Auf welche Weise werden nutzungs- und urheberrechtliche Aspekte sowie Eigentumsfragen berücksichtigt?

Usually, all data collected or produced within the BE will be deposited in BExIS. By default data in BExIS will be made publicly available under a Creative Commons Attribution License (CC-BY) but an embargo period of three years from the end of data collection/data assembly will be observed for all contributing and cooperation projects. Data of the core projects does not underlie an embargo period. There is an external data agreement that defines the Creative Commons Attribution License (CC-BY) for all public data and rules about co-authorship and acknowledgment of the original data suppliers. Several roles and responsibilities are defined in the Data and publication policy of the BE. Rights holders are the universities or research institutions for which the data are collected within a subproject of the BE. They are represented by the respective principal investigators (PI). Project leaders are persons responsible for the dataset (from a long-term perspective) - usually the principal investigators (PI) of the project. The contact person is managing and granting access to the dataset as named in BExIS. In general, the contact person is the project leader or a person designated by the project leader (most often a data creator). The contact person receives dataset access requests and controls the decision. The contact person is responsible to communicate with project leaders, data creators, and collectors where necessary.

Welche weiteren rechtlichen Besonderheiten bestehen im Zusammenhang mit dem Umgang mit Forschungsdaten in Ihrem Projekt?

7. Datenaustausch und dauerhafte Zugänglichkeit der Daten

7.1 Nachnutzung

Bieten sich diese Daten für die Nachnutzung in anderen Kontexten an?

Ja, eine Nachnutzung der Daten durch Forschende der folgenden Disziplin ist denkbar

Nach welchen Kriterien wird dieser Datensatz ausgewählt, um diesen für die Nachnutzung durch andere zur Verfügung zu stellen?

By default, BE data are made publically available. The overall criterion is time. For contributing and cooperation projects by default, an embargo period of three years from the end of data collection/data assembly will be observed to give data creators time to perform their analysis. This period can be extended. Data of the core projects does not underlie an embargo period. Another criterion is the sensitivity of data. Sensitive data (e.g. coordinates and person names) will be degraded or excluded from the released datasets. Usually, all data collected or produced within the BE will be deposited in BExIS. By default data in BExIS will be made publicly available under a Creative Commons Attribution License (CC-BY). Datasets are released once a year preferably at the end of a year. Embargoed data is available for members of the BE project and access can be requested via BExIS. Externally interested

persons can request embargoed or sensitive data via a request. Data owners can decide at any point in time to make data publicly available before the end of the embargo period.

Q7.2a: Are there project-specific criteria regarding data availability that apply? Please describe it.

Wann ist dieser Datensatz für Dritte nutzbar?

Direkt nach Projektende

Q7.3a: If you have selected "Other" above, please describe what and why there are differences.

7.2 Archivierung

Planen Sie die Archivierung Ihrer Daten in einer geeigneten Infrastruktur? Wie und wo?

All data collected or produced within the BE which is of potential future use will be deposited in the central information system, called BExIS. Where reasonable, data may be deposited in another well-established, domain-specific archive, usually with a long-term storage perspective. Data held by BExIS is secured for the duration of the BE project. At the end of the project, it is the task of the central data management team to transfer the data to suitable archives.

7.4a: Are you planning to go for specific archives other than BExIS? How and where?

Not planned.

8. Verantwortlichkeiten und Ressourcen

8. 2 Verantwortlichkeiten

Wer ist verantwortlich für den adäquaten Umgang mit den Forschungsdaten (Beschreibung der Rollen und Verantwortlichkeiten innerhalb des Projekts)?

Several roles and responsibilities are defined in the Data and publication policy of the BE. The central data management team is responsible for maintaining the central information system BExIS and offers data-related support and help, e.g., in data curation. Quality control is primarily the duty of the data creators. The ultimate responsibility for data quality lies with the project leader. A dataset contact person is managing and grants access to a dataset. The contact person receives dataset access requests and controls the decision. The contact person is responsible to communicate with project leaders, data creators, and collectors where necessary. The contact person is the place to go for troubleshooting or questions related to the dataset.

Q8.2a: Name of the person responsible for data management in the project

Set #1, Set #1: Lena Neuenkamp

Set #1, Set #2: Norbert Hölzel

Set #1, Set #3: Ute Hamer

Q8.2b: ORCID of the person responsible for data management in the project

Set #1, Set #1: 0000-0001-6108-5720

Set #1, Set #2: 0000-0002-6367-3400

Set #1, Set #3: 0000-0002-3845-3983

Q8.2c: E-mail of the person responsible for data management in the project

Set #1, Set #1: lena.neuenkamp@uni-muenster.de

Set #1, Set #2: nhoelzel@uni-muenster.de

Set #1, Set #3: ute.hamer@wwu.de

Q8.2d: Role in the project (e.g., PI, PhD, etc.)

Set #1, Set #1: PI

Set #1, Set #2: PI

Set #1, Set #3: PI

Wer ist für die Pflege der Daten nach Abschluss des Projekts verantwortlich?

Data curation in respect of data quality is the duty of the data creators and the ultimate responsibility for data quality lies with the project leader (§5 Data and publication policy of the BE). The project leader(s) acts as the long-term contact person (§2 Data and publication policy of the BE). However, the central data management team actively curates every dataset together with the data creators during the project phase. Depending on the collaboration, the data set should meet high-quality standards when archived and require no further curating.

Wer ist für die Pflege der Daten nach Abschluss des Projekts verantwortlich?

8.2 Ressourcen

Welche Ressourcen (Kosten, Zeit oder anderes) sind erforderlich, um einen adäquaten Umgang mit Forschungsdaten im Projekt umzusetzen?

With the BE project, there is the infrastructure project: Core 4 Central Data Management. We rely on the services of the Core4 project. The goals, work packages, and tasks of the Core 4 project to handle the data of the individual projects, to support the scientists with data-related issues, and to support the BE project as a whole are proposed on a 3-yearly basis.

Welche zusätzlichen Ressourcen (Kosten, Zeit oder andere) sind erforderlich, um den Umgang mit Forschungsdaten im Projekt umzusetzen?

In addition to the Core 4 services, the Ph.D. student will spend 10 hours/year on data upload... The PI will contribute 8 hours over the course of the project for assisting and organizing data handling. For intermediate storage of data (before uploading to BExIS), we require approximately 100GB of storage space. This is provided by the University of Muenster.