Plan Overview

A Data Management Plan created using DMPonline

Title: Sequential social information use in foraging great tits (Parus major): determinants and mechanisms, BHE, PhD project

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Project Administrator: Dr. Chris Tyson, Prof. Dr., Kees van Oers, prof. dr. Marc Naguib, Dr. Lysanne Snijders

Contributor: Dr. Chris Tyson, Prof. Dr., Kees van Oers, prof. dr. Marc Naguib, Clara Vinyeta Cortada, MSc, Dr. Lysanne Snijders

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Template: Data Management Plan | Wageningen University and Research

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Project abstract:

Animals can obtain valuable information about their surroundings to survive, for example by observing or communicating with other individuals to optimize foraging efficiency. Social information use involves acquiring, applying and exploiting this information. Success at each step depends on individual traits, social dynamics and ecological context—shaping when, what and who animals copy. For example, sex or age may affect dominance hierarchies, modulating how successfully females and juveniles can exploit food. Despite much research has been devoted to studying the use of social information, little is known about why some individuals fail in the sequence. I will study the great tit (*Parus major*), a well-established model species, to fill this gap. This bird is a well-known research species for behavioural ecologists. Their social patterns change throughout the year; in fall-winter they form groups to forage. I want to address 1) how males, females, and juveniles acquire information about food (via presence of others or calls). I will also explore if 2) dominance-related constraints prevent females and juveniles from using social information. Later, I will 3) experimentally test how male presence influences female foraging behaviour. Lastly, I will 4) assess if individuals rely more on social information when food availability is less predictable. To answer these questions, I will combine field with aviary experiments (Westerheide forest & NIOO-KNAW, NL). I will track locations using radio-tags, monitor feeding patterns using RFID-feeders, and analyse behaviour. I expect to find that dominance heavily influences how females and juveniles can use social information, and that these dynamics will be flexible according to the predictability of the resource. Overall, this project will clarify how individual variation shapes the value of social information, contributing to broader insights into animal

behaviour.

ID: 180277

Start date: 01-03-2025

End date: 01-03-2029

Last modified: 09-09-2025

Sequential social information use in foraging great tits (Parus major): determinants and mechanisms, BHE, PhD project

A. Describe the research project

1. Name researcher (please, add your full name):

Clara Vinyeta Cortada

2. What is the name of your department(s)?

- Animal Sciences

3. What is the name of your chair group(s) or business unit(s)? English name and abbreviation for chair groups from this page; business units from this page (expand to Wageningen Research and keep expanding to find your specific division / group). Examples: Bioprocess Engineering (BPE) or Contract Research Organization (CRO).

Behavioural Ecology Group (BHE)

4. Describe the organisational context of your research project.

DMP version (or date last modified)	16-06-2025
Supervisor / (co-)promotors	Dr. Lysanne Snijders, Dr. Chris Tyson, Dr. Kees van Oers, Dr. Marc Naguib
Graduate School (WU only)	WIAS
Start date of project	01-03-2025
End date of project	01-03-2029
Project number	
Funding body	Chairgroup BHE

5. Give a short description of your research project.

Title	**Sequential social information use in foraging great tits (*Parus major*): unravelling determinants and mechanisms.**
Summary	Animals can obtain valuable information about their surroundings to survive, for example by observing or communicating with other individuals to optimize foraging efficiency. Social information use involves acquiring, applying and exploiting this information. Success at each step depends on individual traits, social dynamics and ecological context—shaping when, what and who animals copy. Dominance hierarchies, linked to sex and age, may modulate how successfully females and juveniles can exploit food. Despite much research has been devoted to studying the use of social information, the determinants of successful sequential social information use remain understudied. I will study the great tit (*Parus major*), a well-established model species, to fill this gap. This bird is a well-known research species for behavioural ecologists. Their social patterns change throughout the year; in fall-winter they form groups to forage. I want to address 1) which mechanisms modulate acquisition of social information about food in great tits across sex and age. I will also explore if 2) dominance prevents subordinates from using social information. Later, I will 3) experimentally test how male presence influences female foraging behaviour. Lastly, I will 4) assess if individuals rely more on social information when food availability is less predictable. To answer these questions, I will combine field and captive experiments (Westerheide forest & NIOO-KNAW, NL). Proposed methods include radio telemetry to track bird locations, RFID-feeders to monitor feeding patterns, acoustic analyses to detect vocalizations, and video-analyses of behaviour in the foraging context. I expect to find that dominance heavily influences how females and juveniles can use social information, and that these dynamics will be flexible according to the predictability of the resource. Overall, this project will clarify how individual variation shapes the value of social information, contributing to broader insights into animal behaviour.

6. List the individuals responsible for the following data management tasks.

Data collection	Clara Vinyeta Cortada (PhD candidate)
Data quality	Clara Vinyeta Cortada, Lysanne Snijders
Storage and backup	Clara Vinyeta Cortada, Lysanne Snijders
Data archiving / publishing	Clara Vinyeta Cortada, Lysanne Snijders
Data stewardship / support	Jori Noordenbos
Any other role [.....]	

7. I have requested a review of this data management plan from:

- WUR Library - Data Management Support (data@wur.nl).

8. Name of the data management support staff and / or data steward consulted during the preparation of this plan and date of consultation.

Data Steward BHE: Jori Noordenbos.

Data Steward from WUR Library - Research Data Management Support; Dr. Sydney Jordan; data@wur.nl; Reviewed on Date: 2025-09-09

B. Describe the data to be collected, software used, file formats and data size.

9. Will you use existing data for this project?

- No. Please describe below any constraints to reusing existing data.

All data used will be collected after the start of the project. Reusing data is not feasible, as data does not exist on this topic.

10. Will new data be produced?

- Yes.

11. Please describe the data you expect to generate and / or use in the table below. Include reused existing data as well (as these are files that you manage and store).

File contents	Data type	Software	(Open) file format	Estimated size of each file (range)	Estimated number of files (range)
(e.g. lab analysis, gene sequence, interviews, lesion scores, etc.)	(e.g. numerical)	(e.g. Excel)	(e.g. .csv)	(e.g. 20-50 Mb)	(e.g. 50-100)
Behavioural data at feeders	numerical	Excel	.csv	2-50Mb	20-100
Biometric data	numerical, text	Excel, MS Access	.csv	2-50Mb	2-20
Visual behaviour analysis	video, numerical	Boris	.mp4, later converted to .csv	<1TB	50-500
Acoustic behaviour analysis	audio	Audacity	.mp3, later converted to .csv	<50GB	??
Ecological data	numerical, text	Excel	.csv	50Mb	5-50
Radio-tracking data	numerical, text	Excel	.csv	<50GB	100-500
Processed data	numerical, text	Excel	.csv	<1TB	100-500
Research output, documentation, protocols, metadata	text, images	Various	.jpeg; .docx, .R, .rmd	<10GB	100-500

12. Estimate how much data storage you require in total (e.g. by using the information in the table at question 11).

- 100-1000 GB

C. Storage of data and data documentation / metadata during research

13. Where will the data,code and accompanying documentation / metadata be stored and backed up during the research project (see the WUR Data Storage Finder)? Include platforms you use to share data, collect data on, or send data to for processing or analysis.

- WUR OneDrive for Business - only when an up to date version of the research data is also safely stored on the W:drive or Yoda.
- Git@WUR (GitLab locally hosted at WUR)
- W:drive Enterprise File Storage (WUR network drive).
- Yoda (data management platform; SURF hosted WUR instance).
- WUR SharePoint / Teams - only when an up to date version of the research data is also safely stored on the W:drive or Yoda.

Daily, data will be in OneDrive. Additionally, data will be stored mainly in W: drive. Intermediary working copies will be stored in the M: drive and on teams. The folder structure indicated in the chairgroup protocol will be used. Video material is very heavy, so it will be stored in hard drives. Hard drives will periodically be updated to serve as a backup for all data. Yoda will also hold back-up of documents periodically (at least 2x/year, and more often in periods of data collection). Scripts will be stored in Git@WUR.

D. Structuring your data and information

14. Give a (visual) representation of the folder structure you intend to use.

readme_folder_structure.txt -->(document explaining the codebook of acronyms, structure of folder, etc.)

project_parus >

- parus_exp_av>
- parus_exp_rd>
- parus_exp_tr>
  - readme_tr_01012025.txt
  - codebook_tr_01012025_v01.csv
  - raw_data_tr >
    - s1_raw_data_tr>
      - s1_vid_raw_tr>
        - s1_vid_loc_C_tr_20250101_0001_raw.mp4
        - s1_vid_loc_B_tr_20250101_0564_raw.mp4
      - s1_fdr_raw_tr>
        - s1_fdr_loc_C_tr.csv
      - s1_voc_raw_tr>
        - s1_voc_loc_E_tr_20250101_0042_raw.mp3
    - s2_raw_data_tr>
    - s3_raw_data_tr>
  - results_tr>
    - plot_agg_sa_tr_20250506_pubr.jpeg
  - scripts_tr>
    - process_tr_s1_20250102.R
    - process_tr_s2_20260705.R
  - processed_data_tr>
    - all_trials_obs_tr_20251203.csv

all_siu_tr_s1_20250602.csv

    - all_aggression_obs_tr_20250815_v02.csv
  - deprecated_tr>
  - documentation_tr>
    - manuscripts_tr>
    - old_versions_tr>

15. Describe the file naming conventions you intend to use. Please give one or multiple example(s).

I intend to identify each document to its pertaining project, type of data, date of that version, and individual code. For example, raw data of the project "tr" will be s1_vid_loc_C_tr_20250101_0001_raw.mp4: from season 1, a video from location C, from the tr (tracking) project, collected on the 1th of january 2025, video number 0001 (there may be many videos in the same date and location), raw (unprocessed). This folder and naming structure will simplify making sure each document is where it belongs. All the codes and acronyms will be collected in a readme file and codebook file, which will be stored together with each folder. This ensures other users can understand the information encoded in the names of my files and folders, even after the completion of the project.

16. How will you distinguish between versions of files (multiple answers possible)?

- We will use Git versioning for code / scripts.
- The designation 'vRAW' is added to file names that contain raw unaltered data (before any processing and cleaning). Any alteration of RAW data is done on a copy of the RAW data and appended with a version number which increases with each file modification (e.g. v01, v02, v03 etc.).
- Dates within file names are updated when files are modified.

Older, deprecated versions will be kept in a separate folder to avoid confusion.

E. Data documentation and data quality

17. Describe below what data documentation and metadata will accompany the data to help make the data findable, understandable, and reproducible.

- Elaborate documentation and notes within scripts / codes.
- The WUR codebook template (see template at https://doi.org/10.5281/zenodo.7701727).
- The Yoda metadata form (see the public Yoda metadata editor at https://utrechtuniversity.github.io/yoda-portal/).
- The WUR readme file template (see template at https://doi.org/10.5281/zenodo.7701727).

Physical log notebooks will be used at the field, tracking procedures (e.g. if feeder F01 is replaced by F02 at location D). This data will be put in an excel file (e.g. inventory_feeders) at the end of the season, to track every change of feeder in the raw data.

18. Describe what data and analysis quality controls will be used?

- We will use standardised coding and terms of data throughout all experiments so that data descriptions are equal throughout various datasets created.

- Supervisors or peers will review the data and results for any anomalies (e.g. unexpected inconsistencies, outliers, correct labeling of data and / or treatments, correct and consistent coding applied, etc.).
- We will use a statistical power analysis before and after the experiment.
- Statistical model assumptions are adhered to and assessed (e.g. (residual) distribution analysis, outlier analysis, (accounting for) independence, homogeneity of variance, etc.).
- We will use repeated measurements to validate results (e.g. duplicate or triplicate analysis, multiple observer agreement, measurements taken over time, etc.).
- We will use standard and validated protocols where appropriate.
- We will perform preliminary (pilot) experiments to validate intended experimental methods.

F. Working with sensitive data (personal data, ethics), data ownership, sharing and access

19. Who is the (rights)holder of the data (commonly known as the owner of the data)?

- WUR is not the (only) (rights)holder of the data and a WUR approved formal (consortium) agreement or contract between WUR and other parties is present.

NIOO-KNAW will be a rightsholder of part of the collected data.

20. What is the data classification for your project (for example as specified in SmartPIA) taking into account the (privacy) sensitivity of the data?

- Negligible.

21. Is this project registered in SmartPIA?

- No. Please register in SmartPIA in the case (privacy) sensitive data is collected (when applicable: via your supervisor, the project manager, see guidance).

22. Please specify the (sensitive) data and privacy protection measures. Note that any measures undertaken should be consulted with the Information Security Officer (ISO) and Privacy Officer (PO).

- Data is classified as negligible and standard WUR security measures are undertaken.

23. Are there other ethical issues that need to be taken into account which may include

approval from ethical committees?

- I work with animals and will seek / have approval of the ethics committees involved (Animal Welfare Body (IvD), Animal Tests Committee (DEC), Central Animal Testing Committee (CCD)).

24. Will there be any intellectual property (IP) rights or alternative applications or routes to impact (such as commercial interests) associated with the data?

- No.

G. Data archiving and publishing

25. Are there reasons to restrict access to the data or limit which data will be made publicly available?

- No.

26. Describe what data from question 11 will be archived internally (e.g. WUR network drive / Yoda@WUR) and not published, for a minimum of 10 years? Include the exact name for the storage medium chosen (see the WUR Data Storage Finder).

- Not applicable as data will be published.

27. What data will be published and made available for reuse via a data repository?

- Data underlying publications or reports. Please specify below which data listed in question 11.

All data.

28. When will the data be available for reuse, and for how long will the data be available?

- Data will be available for at least 10 years upon completion of the project.
- Data will be available for at least 10 years as soon as the article or report is published and not required for any other article publication.
- Publication of data not underlying an article or report will be considered at the end of the project.
- Other, please specify below.

The data will be made available through publications. Moreover, data will be made publicly available in a repository, to promote FAIR data and provide additional research output.

29. Which data repository do you intend to use to make the data findable and accessible (see the WUR Repository Finder)?

- Zenodo.

I will use WUR standards.

30. Which metadata standard will be used to describe the data during internal archiving and / or depositing in a data repository?

- Yoda metadata (DataCite metadata standard).

31. Which licence/terms of use will be applied to the data?

- Open access (Creative Commons Attribution licence (CC BY); anyone can access and reuse with attribution).

H. Data management costs

33. What resources (in time and / or money) will be dedicated to data management, data archiving or publication, and ensuring that data is reusable? Indicate as well how these costs will be covered.

- The PhD candidate and supervisor will spend at least 10% of their time on research data management to approach the FAIR principles as much as possible.
- All costs for 10 year data storage and access management to that data after journal publication or report are covered by the research group / project.