

Instructions for saving data within the camera-trap-monitoring

General reminders

Use only IDs officially used within the project to name folders and not internal ID as we must rename them anyways, which creates unnecessary, additional work.

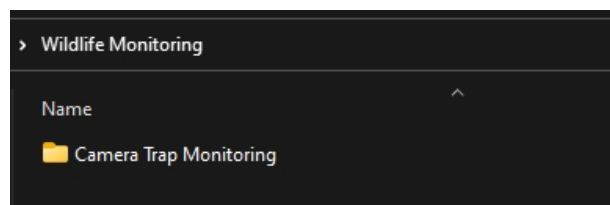
Do not store timelapse and motion pictures in the same folder (unless you use Bolyguard cameras)

Do not create empty folders within collections.

Only use lower case letter for collection and location IDs, as TRAPPER cannot handle upper case letters.

1. Prepare folders for data

- a) Create a folder called **Wildlife Monitoring** and a subfolder **Camera Trap Monitoring**



- b) In the **Camera Trap Monitoring** folder create five subfolders called:

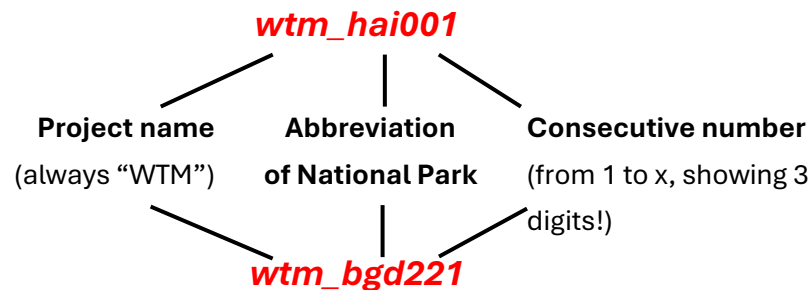
- **Collections**
- **Distance**
- **Field protocols**
- **Habitat**
- **Site pictures**
- **Timelapse (not needed for Bolyguard Cameras)**



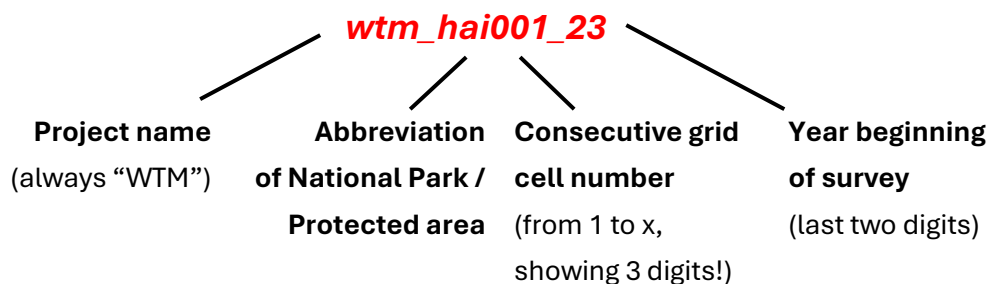
The **Collections** folder will later contain all camera trap pictures recorded when the camera got triggered. The **Timelapse** folder will contain the daily pictures which are made automatically by the cameras even without movement. The **Distance** folder will contain the pictures of the distance measurements, and the **Habitat** folder will contain the pictures of canopy and vegetation density which were made at the camera trap site. The folder **Site Pictures** will contain the pictures of the camera site. In the folder **Field protocols**, you should save the scanned field protocols and the Excel file with the digitalized data.

2. IDs of grid cells and camera trap locations

- a) In order to facilitate the comparison of camera trap data between different surveys, guarantee a standardized storage on TRAPPER and facilitate analysis of data, all **grid cells** in one study area are labelled in a **standardized** way from north-west to south-east:



- b) Each grid cell contains one potential camera trap location in its center. These potential camera trap locations have the **same** ID as the grid cell they are located in.
- c) For **each survey**, a random subset of the potential camera trap locations is chosen and the camera-traps are installed at these locations within a radius of maximum 25 meters. In order to distinguish between deployed camera trap locations within the same grid cell during different surveys, the year in which the survey started is appended to the ID of the camera-trap. This **ID stays constant, even if the number of the year changes** during the survey! The ID of each location can be found in the shapefiles with the randomly selected camera trap locations.



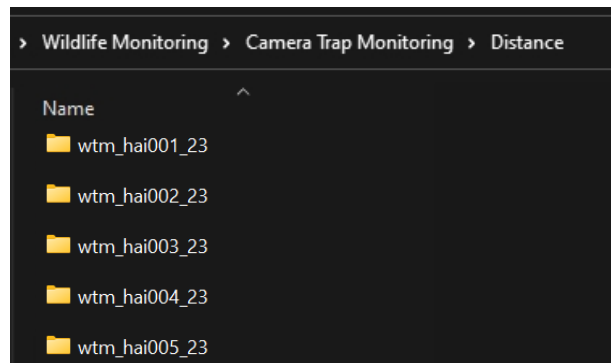
- d) The following abbreviations are used:

Bayerischer Wald	BYW	Niedersächsisches Wattenmeer	NWM
Berchtesgaden	BGD	Schwarzwald	SWA
Eifel	EIF	Sächsische Schweiz	SSC
Hainich	HAI	Unteres Odertal	UOT
Harz	HRZ	Vorpom. Boddenlandschaft	VBL
Hunsrück-Hochwald	HHO	Wildnisgebiet Lieberose	LBR
Kellerwald-Edersee	KWE	Wildnisgebiet Jüterbog	JTB
Müritz	MRZ		

3. Management of distance pictures

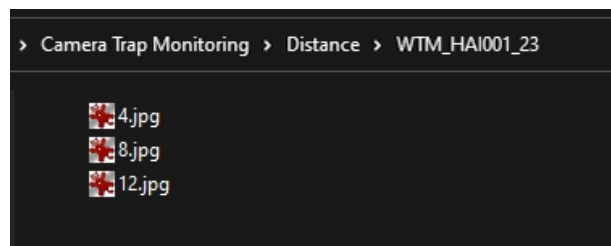
a) Open the folder **Distance** which you created in step 1

b) Create one folder for each camera trap site using IDs of the camera trap locations explained in 2C. All camera trap IDs can be found in the respective shapefiles provided.



c) For each camera trap location you will have **3 pictures** showing the red towel in 3 different positions / distances:

- 4 meter
- 8 meter
- 12 meter

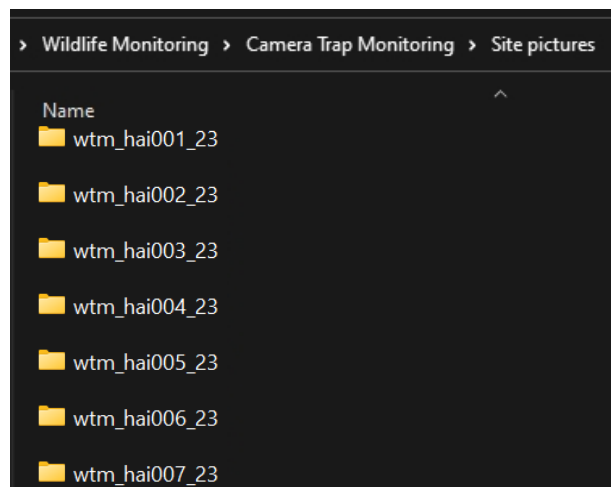


4. Management of site pictures

a) Open the folder **Site pictures** which you created in step 1

b)

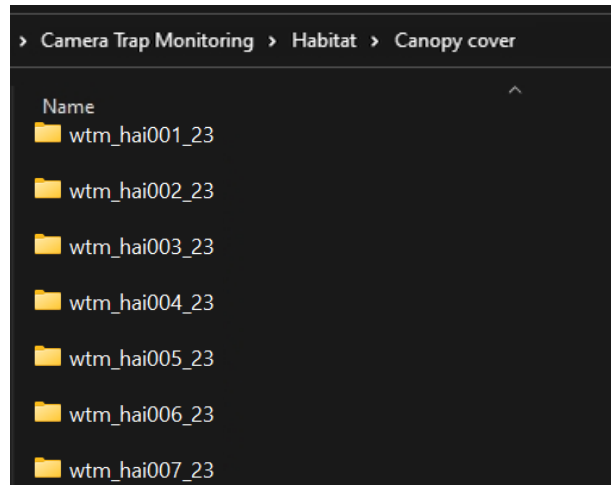
c) Create one folder for each camera trap site using IDs of the camera trap locations explained in 2C. All camera trap location-IDs can be found in the respective shapefiles provided. Save the three pictures of every site in the respective folder. It does not matter how the pictures themselves are named.



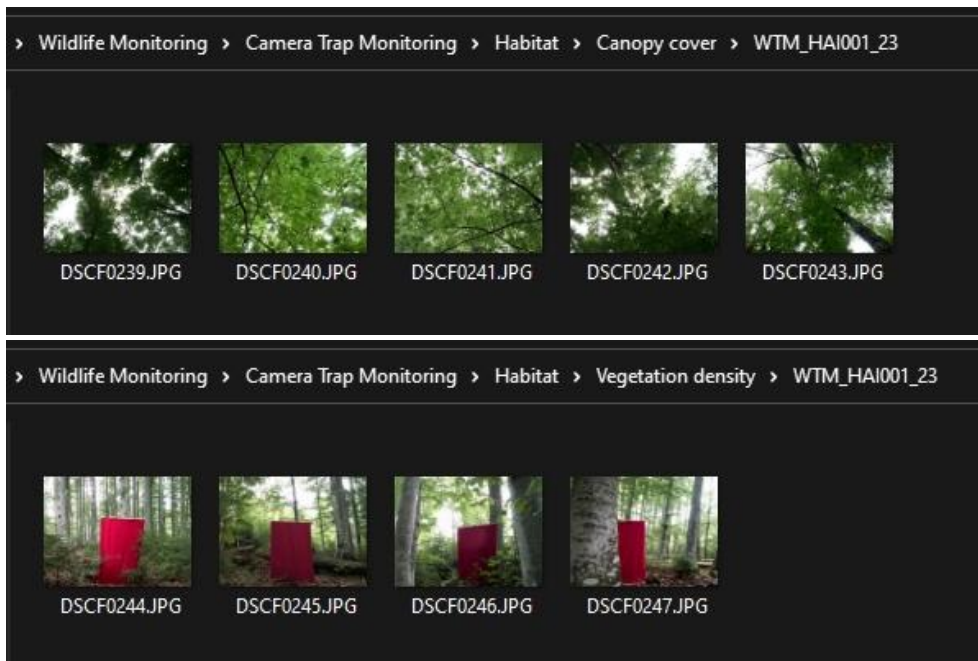
5. Management of habitat pictures (canopy and vegetation density)

- a) Open the folder **Habitat** which you created in step 1
- b) In the **Habitat** folder create two subfolders called:
 - **Canopy cover**
 - **Vegetation density**

- c) Create one folder for each camera trap site using IDs of the camera trap locations explained in 2C in both the **Canopy cover** folder and the **Vegetation density** folder.



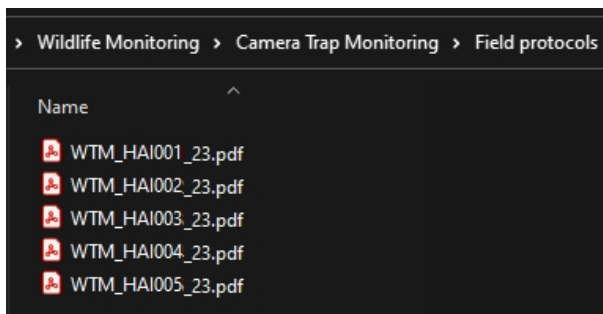
- d) Store the five canopy pictures and the four vegetation pictures with the red towel of each camera-trap location in the respective subfolders. It does not matter how the pictures themselves are named.



Example of pictures stored in the canopy folder (top) and vegetation density folder (bottom)

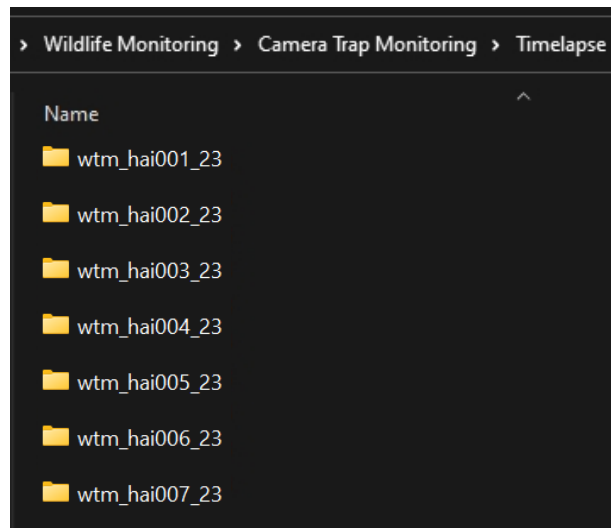
6. Digitalization of field protocols

- a) Scan all field protocols and save the pdfs in the folder **Field protocols**, which you created in step 1.
- b) Name the protocols after the respective ID of the camera-trap location, explained in 2C. All location-IDs can be found in the respective shapefiles provided.
- c) Open the File **FieldProtocols.xlsx** and digitalize the field protocols. For each camera trap there is one line. The file should then be saved in the **Field protocols** folder.



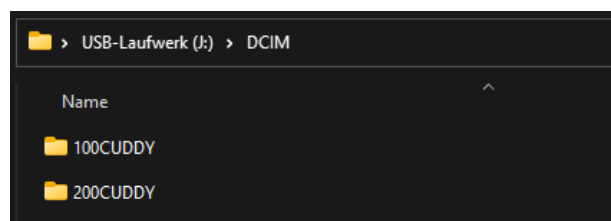
7. Management of timelapse pictures (not for Bolyguard cameras, as timelapse pictures are stored in the same folder as movement pictures)

- a) Open the folder **Timelapse** which you created in step 1
- b) Create one folder for each camera trap site using IDs of the camera trap locations explained in 2C. All location-IDs can be found in the respective shapefiles provided.



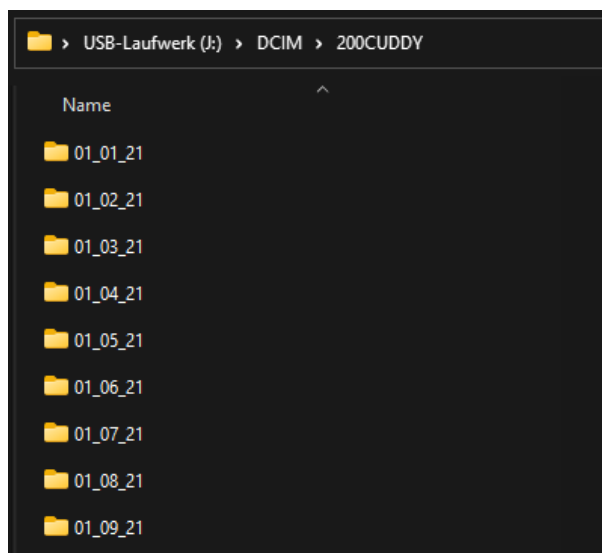
Cuddyback cameras

- c) When you put the SD-card of a given camera-trap location in your computer, you will see a folder called **DCIM** and two subfolders:
100CUDDY
200CUDDY



d) The **100CUDDY** folder contains all images that were taken when the camera was triggered by motion. The **200CUDDY** folder contains the **timelapse** images that were taken automatically each day at the same time.

e) If you open the **200CUDDY** folder, you will see one folder for each day the camera was active. Each folder will contain at least one image. In the example on the right side, the camera was active from January 1st 2021 to January 9th 2021.



f) Copy all the subfolders from the **200CUDDY** folder to the respective subfolder within the **Timelapse** folder.

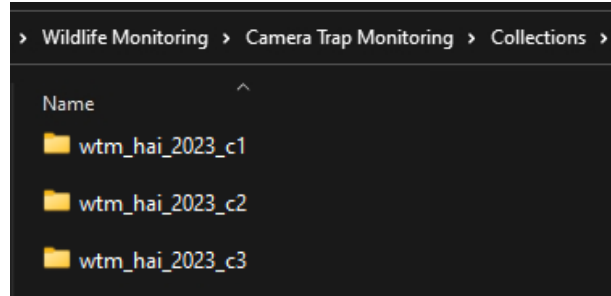
For the next control you should proceed the same way and copy the pictures of a certain camera in the **same** subfolder in the **timelapse** folder. Do not create separate subfolders for each control.

Please note: when transferring timelapse pictures during the second or later controls, you may get a message that pictures already exist, asking if you want to replace them. If you get this message, please click **No!** That is because if the camera was set to take several timelapse pictures each day and controlled, for example, at 10 am on June 6, it will have already taken some pictures that day. Those pictures were stored in the timelapse folder after the first control. For the second control, a folder with timelapse pictures taken on June 6 may also exist, as the camera took more timelapse pictures after 10 am. Therefore, the timelapse pictures are not the same! Open the folder with the last date on the SD-card, rename the pictures inside so their numbers follow the ones in the already existing timelapse folder of that day on your computer. Store the renamed pictures in the respective folder on your computer.

8. Management of motion pictures (pictures with animals etc.)

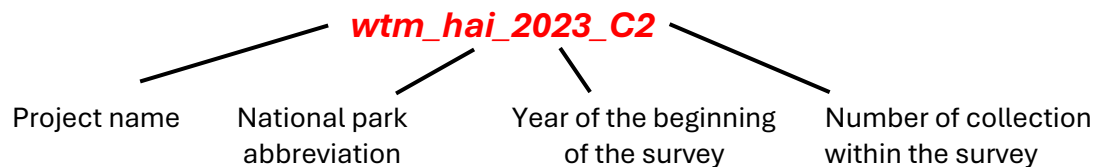
a) Open the folder **Collections** which you created in step 1

b) Create a **subfolder for each control** of the camera traps, also defined as one “**collection**”. Collections start with control 1 (= c1), followed a few months later by control 2 (=C2) etc.. Depending on how often you control the camera-traps, you will have more or less collections in the end.



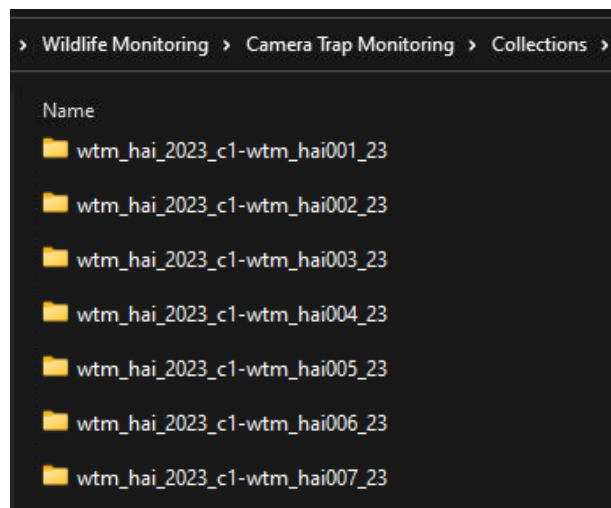
c) The collection folders have to have strictly standardized names, for example:

- **Wtm_hai_2023_c1**
- **wtm_hai_2023_c2**



a) In each **collection** you should now create a subfolder, also called a “**deployment**” for each camera-trap location of which pictures are available.

The names of these deployments should be named in the following way:



Deployment = Name of collection - Name of camera-trap location

wtm_hai_2023_c2-wtm_hai001_23

Grid cell ID

Last two digits of year in which survey began

- b) **If there are no pictures of a camera-trap location, do not create a deployment folder for this camera-trap location!** Create a txt.-file and note down why a certain folder is missing, for example, broken SD-card, stolen, etc.
- c) When you control the camera-traps, you should exchange the full SD-card by an empty one and the full SD-card should be taken home. In order to not confuse the SD-card with another one from another location, it is best to mark it with a piece of marking tape and write down the location id.

- d) When you put the SD-card in your computer and you used a Cuddyback Camera, you will see a folder called **DCIM** and two subfolders:

- **100CUDDY**
- **200CUDDY**



The **100CUDDY** folder contains the images that were taken when the camera was triggered by motion.

For Bolyguard Cameras, there is only one folder with pictures available.

- e) Copy all files from the **100CUDDY** folder to the respective collection and deployment folder. The **pictures themselves do not have to be renamed!**