**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OVERALL INFORMATION ON YOUR THESIS \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enrollment: (Bachelor / Master / PhD / other)

*Master, PhD*

Topic of overall thesis:

Climate-mediated plant-bumblebee-antagonist interactions

Short topic <=15 characters:

*climate effects*

Project: (if bachelor/master, also enter who supervised you)

*FORKAST-sequel*

Year:

*2010*

First name:

*Katharina*

Last name:

*Kallnik*

Contact: (personal email still valid after departure)

*K.Kallnik@gmx.de*

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* SPECIFIC INFORMATION (per uploaded dataset) \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Data type you are now uploading: (Dataset / Dataset + Manuscript / Manuscript / Bachelor thesis / Master thesis / Doctoral thesis / GIS)

*Dataset*

Topic and methodology of data type: (broad topic of dataset + small text describing how you obtained the data. If applicable, provide the sources of external databases/GIS-maps you used.)

*Effects of elevation on bumblebee-parasite interactions.*

*We sampled bumblebees on 22 study sites (60 x 60 m) on mountain pastures that covered an elevational gradient in the Berchtesgaden National Park (Germany) in weekly surveys during the vegetation period.*

*Workers and males were killed and stored in the freezer for later dissection and study of parasitoid flies and wasps and parasites (Apicystis, Crithidia, Nosema and tracheal mites) inside the abdomen of bumblebees.*

Short name of data or manuscript (< 15 characters; same as file and folder names):

*field-data\_parasites*

Data format:

*Excel files*

Data start time:

*07/07/2010*

Data end time:

*03/09/2010*

Keywords: (minimum 5; Important keywords are main response and explanatory variables, services and processes, biotope)

*elevation, altitude, Alps, alpine, mountain, climate, temperature, timing, phenology, bumblebee, pollination, social insect,* parasitization*, parasitoid, antagonist, host-parasite interaction, nosema, distribution, abundance, diversity*

Taxa:

host

*bumblebees (Bombus spp.)*

*parasitiods*

*flies (Sicus ferrugineus & Physocephala rufipes, Conops spp., Conopidae/Diptera)*

wasps (Syntretus splendidus, Braconidae/Hymenoptera)

*(endo-) parasites*

*tracheal mites* (Locustacarus buchneri, [Podapolipidae](https://en.wikipedia.org/w/index.php?title=Podapolipidae&action=edit&redlink=1)/Trombidiformes)

*protozoa* (Apicystis bombi, [Lipotrophidae](https://en.wikipedia.org/wiki/Lipotrophidae)/Apicomplexa

Crithida bombi, [Trypanosomatida](https://en.wikipedia.org/wiki/Trypanosomatid)e/Euglenozoa

Nosema bombi, [Nosematidae](https://en.wikipedia.org/wiki/Nosematidae)/Microsporidia[)](https://en.wikipedia.org/wiki/Nosematidae)

*Nematodes (*Sphaerularia bombi, [Sphaerulariidae](https://en.wikipedia.org/w/index.php?title=Sphaerulariidae&action=edit&redlink=1)/Tylenchida)

|  |  |
| --- | --- |
|  |  |

Reference (in abbreviated form):

**IF DATASET: LIST VARIABLES (list all data files with their name and the variables they contain. Include geographical coordinates of sites. One description per file)**

Name of data file 1: (as in folder)

*lab-data\_parasites\_2010\_raw data*

Variable description: (explain all variables, abbreviations and units used in this data table)

|  |  |  |
| --- | --- | --- |
| **Name** | **Units** | **Description** |
| year |  | sampling year |
| sample\_number |  | identification number of bumblebee individuals killed; allocation in chronological order (date – trapping time) |
| size | milimetre | intertegular distance (= shortest linear distance measured between the bee's wing tegulae across its thoracic dorsum) as a proxy for the size of bumblebee individuals killed (and dissected) |
| ecto-mites\_xs |  | number of phoretic mites found on bumblebee surface, morphotype/size XS |
| ecto-mites\_s |  | number of phoretic mites found on bumblebee surface, morphotype/size S |
| ecto-mites\_m |  | number of phoretic mites found on bumblebee surface, morphotype/size M |
| ecto-mites\_l |  | number of phoretic mites found on bumblebee surface, morphotype/size L |
| tracheal-mites |  | parasitization by tracheal mites **0** = no, **1** = low, **2** = middle, **3** = high; according to the number of “nests” found on tracheal surface of bumblebees |
| parasite\_apicystis |  | parasitization by protozoon *Apicystis bombi* **0** = no, **1** = low, **2** = middle, **3** = high; according to the number of cells found on microscope slide (fat body sample) |
| parasite\_nosema |  | parasitization by protozoon *Nosema bombi* **0** = no, **1** = low, **2** = middle, **3** = high; according to the number of cells found on microscope slide (gut sample) |
| parasite\_crithidia |  | parasitization by protozoon *Crithidia bombi* **0** = no, **1** = low, **2** = middle, **3** = high; according to the number of cells found on microscope slide (gut sample) |
| parasitoid\_braconidae\_larvae |  | number of parasitoid larvae of *Syntretus splendidus* found in bumblebee abdomen |
| parasitoid\_conopidae\_ventral\_egg |  | number of parasitoid eggs of *Conopidae* found in bumblebee abdomen (ventral) |
| parasitoid\_conopidae\_ventral\_larvae |  | number of parasitoid larvae of *Conopidae* found in bumblebee abdomen (ventral) |
| parasitoid\_conopidae\_dorsal\_egg |  | number of parasitoid eggs of *Conopidae* found in bumblebee abdomen (dorsal) |
| parasitoid\_conopidae\_dorsal\_larvae |  | number of parasitoid larvae of *Conopidae* found in bumblebee abdomen (dorsal) |
| parasitoid\_conopidae\_dead\_larvae |  | number of parasitoid larvae of *Conopidae* found in bumblebee abdomen (**d**orsal or **v**entral) that already have been dead when bumblebee was killed (larvae=black) |
| nematode |  | number of nematodes (Sphaerularia bombi) found in bumblebee abdomen |
| ovary\_development |  | Ovary development of (worker) bumblebees killed was not = **0**, distinctly = **1**, extremely = **2** visible |
| fatbody\_look |  | opaque/milchig-weiß (-> *Apicystis* infestation); dissolved, enlarged/aufgelöst, vergrößert (-> partly in case of parasitoid infestation);  brown-dotty/braun gepunktet (-> consumption of purple pollen; ± species specific characteristic of *B. soroeensis*); normal |
| comment |  | Diverse comments on diverse topics |
| dissector |  | **K** = Katharina Kallnik (PhD student); **S** = Sindy König , **B** = Benjamin Fischer, **F** = Frank Nirula (student assistants) |

Comments or additional methodology:

**Applicable on all variables in table above:**

**0** = variable can’t be measured (individual not killed) OR figure is zero (individual killed and dissected)

**NA** = variable can be measured but has not been measured yet (individual has not been dissected yet (mainly males) or microscopic slides has not been analyzed yet (mainly workers))

Data on parasitization of bumblebees is associated with data on phenology of bumblebees [field-data\_bumblebees\_2010\_raw-data] via sample\_number and size of bumblebee individuals killed and the bumblebee phenology data again with data on plant phenology [field-data\_plants\_2010\_raw-data] via stage\_(bumb\_)overall.