1. Formulate the ecological question statistically

- What is the goal of the study? (exploration, prediction, testing)
- What statistical relationships need to be included in the model?
- What types of data/study design are needed and relevant?

2. Exploratory data analysis (EDA)

- Identify common and rare species in the data
- “Sanity check” for model output
- Check for colinearity of predictors
- Center and scale predictors

3. Model setup and fitting

4a. Model checking

- Do residual diagnostic plots indicate model fit to the data?
- Are there issues in model convergence? (E.g. “blown up” parameter estimates/uncertainties)
- Comparison with candidate models (e.g. through AIC or goodness-of -fit), if relevant

4b. Model re-fitting

- Use a different response distribution
- Include different latent variables and/or predictors (In line with the goal of the analysis)
- Specify predictors differently (e.g. as random effects)
- Other technical “tricks”; i.e. more starting iterations, fixing disperstion parameters etc.

5. Analysis and inference

- Model summaries
- Ordination diagram of species-, site- and environmental scores
- Looking at uncertainty estimates
- Coefficients of species-specific predictors
- Variation partitioning
- Model predictions