

Summary of the Henk Siepel's presentation:

**“How to handle biodiversity for nature managers and policy-makers?”**

The presentation threw in a new Life History Tactics (LHT) approach to handle changes in biodiversity when discussing with policy-makers. Key issues in understandable discussion are simplified messages – e.g. aggregated terms like “number of species declined” and “index is 10 % lower than”. But an expert needs to understand also species characters.

An example of the impacts of management to species adaptation can be found from forestry. Key characters in LHTs are e.g. fast/slow development, obligate/no diapause, large/small eggs, capability to dispersal etc. There were the biggest number of fast reproducing invertebrates in study area during 1946-1960; 1960-1990 slow reproducers were disappeared because of active forestry. Another example was a comparative study of forest soil and grassland macrofauna. The study show that because of forest habitat was more stable than grassland there were more asexual LHTs whilst in grassland there were more sexual LHTs. It is interesting from human impact perspective that asexual LHT forms increased again after tens of years of pesticide use that made the grassland environment more stable.

One famous example to understand species traits and their input to needs of conservation is the Habitat Templet of Southwood (1977). In that he distributes species to a quartet based on their optimal reproducing investment: here now, here later, elsewhere now, elsewhere later. This leads to the question: What traits are relevant? Considering traits should show trade offs in spending of energy and nutrients. Possible trade offs might be: egg-size vs. number of eggs, careful oviposition vs. number of eggs, brood care vs. number of eggs or batches, individual lifetime vs. reproductive investment, dispersal vs. reproductive investment (e.g. oogenesis-flight syndrome etc.). Trade offs can be seen also in synchronization and in dispersal: diapause vs. alternative host plants, aestivation vs. continues generations (r- & K-strategies; specific tools as extra hairs, big size, tools, learning), invest in wings and fly mussels, organs for phorecy, organs to be blown away or carried with streams. Also bet-hedging as alliance can be affecting trade offs.

Because relevant traits show trade offs these characters can be used in specific investigations. Species can be grouped by life history tactics, but its important to remember that tactics are not dependent on taxonomy or species affinity. LHTs can be also either facultative or obeyed. Conclusion for the usefulness of the LHTs is that they

- serve good testable hypotheses
- enables the comparison over systematic groups
- can be used to demonstrate and understand meaningful changes in environment.

In discussion Franz Essl asked if pesticides enhances genetic drift making space for new incomers, but there was not so much variability seen in that. Wolfgang Cramer was looking for simplification through plant examples, but animal LHTs aren't completely comparable to plant growth history tactics. One common problem in audience was that the topic was quite unknown to the most of people and running thus too fast occasionally. A bit more concreteness were lacked towards the political decision-making processes as by the title of the presentation was assumed. Theoretically topic was really interesting. Finally Harald Bugmann remembered that a message of asexual strategies doesn't necessary work very well with policy-makers from Christian party. ;-)