



Eidgenössische Technische Hochschule Zürich
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ETH Zurich - D-UWIS - ITES - Ecosystem Management - People - PhD Students - Klank, Charlotte

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Curriculum Vitae

- Current: Institute for Terrestrial Ecology, ETH Zürich: PhD student with Prof. Jaboury Ghazoul, Ecosystem Management.
- 2005: Graduation as Diplom-Biologin (MSc)
- 2004 – 2005: MSc thesis: 'The Spatial Variability and its Relationship with Crown Structure in a Natural Forest and an Agroforest on Sulawesi, Indonesia'; University of Goettingen & STORMA (SFB 552)
- 2002: Environmental Sciences & Biology, University of Queensland, Australia
- 1999 – 2005: Biological Sciences, University of Goettingen

PhD Project

The Persistence of an Obligate Mutualism at Low Plant Densities: The *Trollius europaeus* – *Chiaetocheta* spp. Interaction.



The relationship between the globeflower *T. europaeus* and some fly species of the genus *Chiastocheta* is one of the few obligate mutualisms known between a plant and its pollinator. While the yucca – yucca moth or fig – fig wasp associations have been rather well studied, the relationship between *Chiastocheta* spp. and *T. europaeus* has not received as much attention.

The globeflower plant is a perennial, hermaphroditic plant that grows throughout northern and middle Europe, mostly on moist meadows. It has a bright yellow flower which gave the plant its name, as the petals form a tightly closed, globose sphere. This shape is also the key factor to the obligate mutualism between the pollinator and plant, as it excludes other insects besides *Chiastocheta* from entering the flower to pollinate and/or forage on nectar and pollen. The *Chiastocheta* flies hatch in time for the flowering period of the globeflowers, which they use as shelter, foraging grounds and for mating. Both male and female flies then pollinate the globeflower through their foraging behaviour. The female fly then lays her eggs onto the carpels or developing seeds of *T. europaeus*, where the larvae then develop and feed on the seeds before dropping to the ground to pupate and overwinter.

Thus, the relationship evolved to be a 'seeds for seeds' paradigm, where the plant has to sacrifice a certain proportion of its offspring to ensure offspring. Eintrag löschen Eintrag nach unten schieben Eintrag nach oben schieben

My aim will be to investigate the viability of this mutualism at low plant densities, as the globeflower is in decline in middle Europe. As the populations become increasingly smaller and isolated, is this mutualism able to persist and to guarantee a viable population or do other mechanisms for reproduction take over?

To investigate this, we will conduct various experiments in study site in Zürich and its surrounding Kantons. The study sites vary in population size and density to give us a better understanding of the mechanisms in reproduction strategies of *Trollius europaeus*.

For further information you are welcome to contact me.