

## **Hybrid evolution in plants: case studies on willows (*Salix*) and buttercups (*Ranunculus*)**

Natural hybridization and polyploidy are important evolutionary processes in flowering plants and are regarded key factors for diversification of angiosperms. Homoploid hybridization may result in introgression of adaptive traits or even in hybrid speciation. Hybridization connected to polyploidy (allopolyploidy) creates a rapid crossing barrier against the parents, and hence novel lineages can rapidly establish and evolve into separate species. I will present research on willows (*Salix*) and buttercups (*Ranunculus*) exemplifying processes of hybrid formation, hybrid establishment and post-origin evolution of hybrid species. In willows, secondary contact hybridization and ecological shifts play an important role for evolution. Polyploid willows retain sexual reproduction and possess highly complex genomes with signatures from hybrid origin, introgression and species-specific evolution. *Ranunculus* is a model system for hybridization connected to shifts to asexuality, resulting in a huge diversity of lineages and morphotypes. Models for the long-term evolution of hybrid lineages will be discussed.