University of Genova

Department of Earth, Environmental and Life Sciences

Doctorate Course in Earth and Environmental Science and Technology

Università degli Studi di Genova

SIAT

Dottorato in Scienze e Tecnologie per l'Ambiente e il Territorio

Curriculum in biology applied to agriculture and the environment

Research Theme n. 4

Titolo (Italiano) - Biologia riproduttiva di specie endemiche e relazioni pianta-insetto in una prospettiva di Cambiamento Globale Title (inglese) - Global Change and effects on the relationship insect/plant within the reproductive biology of endemic species
Tutor (name and email) and eventual co-tutor - Luigi Minuto luigi.minuto@unige.it
Program description including the formation program abroad (Inglese) Global change will induce changing habitats are stressful environments, characterized by harsh climatic conditions because of varying temperature, changing vegetation period, and increasing weather-related extreme events. Under such harsh and stochastic climatic conditions, pollinators may become scarce resulting in a reduction of flower visitation rate, pollen loads and opportunities for cross-pollination, which lead to a low fruit and seed production. Entomophily is a common strategy and low pollinator visitation rates might be critical for reproductive success in these habitats. When species face incoming or chronic pollination limitation, two main hypotheses can explain their resistence: "reproductive assurance" and "increased pollination probability". In any case, these strategies are affected by the available resources. Individual plant size is usually considered one of the best predictors of reproductive output. At plant level, the reproductive output is expected to increase with size as a consequence of a greater availability of resources for large plants. To investigate further all these aspects, some plants endemic to small areas will be studied in order to understand how they might survive in the framework of climate change. The purpose of this study will be to investigate the reproductive ecology in some plant species endemic to NW Italy. The specific goals of this study will be: a) to describe the phenology of flowers and inflorescence; b) to evaluate the type and the frequency of pollinators; c) to define the reproduction mode of the species; d) to quantify its resources investment, sex allocation, and reproductive success.
Financial support
Tutor's publications (max 3) CASAZZA G., ABELI T., BACCHETTA G., DAGNINO D., FENU G., GARGANO D., **MINUTO L.**, MONTAGNANI C., ORSENIGO S., PERUZZI L., VARALDO L., ROSSI G., 2021 - Combining conservation status and species distribution models for planning assisted colonisation under climate change. Journal of Ecology 109: 2284–2295. DOI: 10.1111/1365-2745.13606 CASAZZA G., MACRÌ C., DAGNINO D., GUERRINA M., JUIN M., **MINUTO L.**, THOMPSON J.D., BAUMEL A:, MEDAIL F., 2021 - When ecological marginality is not geographically peripheral: exploring genetic predictions of the centre-periphery hypothesis in the endemic plant Lilium pomponium. PEERJ 9: e11039. DOI: 10.7717/peerj.11039 GUERRINA M., CASAZZA G., DAGNINO D., MACRÌ C., ROCCOTIELLO E., **MINUTO L.**, 2020 - Reproductive ecology of Saxifraga florulenta, a monocarpic perennial paleo-endemic of the Alps. Plant Biosystems published on-line. DOI: 10.1080/11263504.2020.1852328