

Curriculum in biology applied to agriculture and the environment

Research Theme n. 1

Titolo: Conservation of Amphibian and Reptile populations in Mediterranean rural landscapes
Title: Conservazione delle popolazioni di anfibi e rettili in paesaggi rurali Mediterranei
Tutor Sebastiano Salvidio (UNIGE) Co-tutor Andrea Costa (UNIGE), Stefano Canessa (University of Bern)
Program description including the formation program abroad The PhD program will focus on the estimation of amphibian and reptile population abundances in different Mediterranean rural landscapes. By using robust methods (removal, distance sampling, capture-mark-recapture and hierarchical models) the abundances of amphibian and reptile communities will be related to their preferred microhabitats or traditional management activities in Mediterranean agroecosystems. The program will focus on species listed in annex II and IV of the EU Directive 92/43/CEE "Habitat". Field sampling will focus on agroecosystems representative of the Apennine and Alpine regions, such as vineyards, grazed pastures, mown meadows, chestnut and timber woods. According to the "Nature restoration law" (EU Regulation 2022/869), the ecological role of small agricultural features will be also analyzed. These features are historically widespread in Mediterranean agroecosystems and have a role in maintaining connectivity among habitats. These features are ditches, small streams, dry-stone walls, terraces, hedgerows, small water reservoirs and irrigation tanks. The impact of these features on the conservation status of amphibian and reptile population will be evaluated by using robust statistical methods. During the PhD course, a three-months internship at the Division of Conservation Biology of the university of Bern) will be mandatory for statistical training.
Financial support: 100022-2023-SS-ALTPRIVCOM_002 con attuale disponibilità Euro 3286,50 per eventuale acquisto PC fisso o portatile.
Tutor's publications of the last 3 years (2022-2024) SALVIDIO, S. (2024). Expanding the human-wildlife interaction framework of Galindo-González 2023. <i>Conservation Biology</i> , 38: e14374. ROSA, G., COSTA, A., SALVIDIO, S. (2024). Risk-taking salamanders share less space with conspecifics. <i>Amphibia-Reptilia</i> , 45: 375-380. DOI: 10.1163/15685381-bja1018 COSTA, A., ONETO, F., PASTORINO, M.V., ROSA, G., SALVIDIO, S. (2024). Long-term Dynamics of a Cave Salamander Population in a Region under Changing Climate. <i>Herpetologica</i> 80 (3): 209–220. https://doi.org/10.1655/Herpetologica-D-23-00029 . ROSA G., SALVIDIO S., COSTA A. (2024). The role of familiarity in shelter site fidelity: insights from a mesocosm experiment with a plethodontid salamander. <i>Ethology Ecology and Evolution</i> , 36,: 616-626. CASTELLANO L., PEREZ N., GIUSSANI V., OTTONELLO D., SALVIDIO S., GARIBALDI F., LANTERI L., PUSSINI N., MASOTTI C., GNONE G. 2024. Il gruppo ligure tartarughe (GLIT) e la gestione delle prime nidificazioni di <i>Caretta caretta</i> (Linnaeus, 1758) in Liguria. <i>Biologia Marina Mediterranea</i> 28: 51-54.

- CANESSA S., COSTA A., ROSA G., SALVIDIO S. (2024). Dealing with a Batrachochytrium salamandrivorans outbreak in Italy: are conservationists prepared? *Biological Conservation*, 292: 110562. doi.org/10.1016/j.biocon.2024.110562.
- ROMANO A., BERNABO' I., ROSA G., SALVIDIO S., COSTA A. (2023). Artificial paradises: man-made sites for the conservation of amphibians in a changing climate. *Biological Conservation*. doi.org/10.1016/j.biocon.2023.110309.
- COSTA A., LUNGI E., ROSA G., SALVIDIO S. (2023). Recent advances in the behavioral ecology of European plethodontid salamanders. *Animals*, 2023, 13, 3667. <https://doi.org/10.3390/ani13233667>.10.3390/ani13233667A
- COSTA A., ROSA G., SALVIDIO S. (2023). Individual contribution to niche expansion in amphibians: a test of the niche variation hypothesis. *Ecography*, 2023: e06257. doi: 10.1111/ecog.06257
- DONDERO L., ALLARIA G., ROSA G., COSTA A., FICETOLA G.F., COGONI R., GRASSELLI E. SALVIDIO S. (2023). Threats of the emerging pathogen Batrachochytrium salamandrivorans (Bsal) to Italian wild salamander populations. *Acta Herpetologica*, 18: 3-9. DOI: 10.36253/a_h-13279
- ROSA G., SALVIDIO S., COSTA A. (2023). Disentangling Exploitative and Interference Competition on Forest Dwelling Salamanders. *Animals*, 2023, 13, <https://doi.org/10.3390/ani13122003>.
- ROSA G., SALVIDIO S., COSTA A. (2023). Size-mediated trophic interactions in two syntopic forest salamanders. *Animals*, 13, 1281. <https://doi.org/10.3390/ani13081281>.
- ROSA G., BOSIO M., SALVIDIO S., COSTA A. (2023). Foraging success is differently affected by local climate in two syntopic forest-dwelling salamanders. *Ethology Ecology Evolution*, 35:424–433. doi.org/ 10.1080/03949370.2022.2094470.
- DEMORI I., EL RASHED Z., DE NEGRI ATANASIO G., PARODI A., MILLO E., SALIS A., COSTA A., ROSA G., ZANOTTI RUSSO M., SALVIDIO S., CORTESE K., GRASSELLI E. (2022). First Evidence of anti-steatotic action of Macrotympanin A1, an amphibian skin peptide from Odorrana macrotympana. *Molecules* 2022. 27: 7417. <https://doi.org/10.3390/molecules2721741>
- ARILLO A., CANESSA S., COSTA A., ONETO F., OTTONELLO D., ROSA G., SALVIDIO S. (2022). Artificial tanks for amphibian conservation in Mediterranean rural landscapes. *Bulletin Environmental and Life Sciences*, 4: 4-11.
- ROMANO A., ROSA G., NOVAGA R., SALVIDIO S., COSTA A. (2022). How landscape and biotic interactions shape a Mediterranean reptile community. *Landscape Ecology*. doi.org/10.1007/s10980-022-01517-6.
- DONDERO L., ALLARIA G., ROSA G., PARCO NAZIONALE DEL CIRCEO, MAGGESI M., CROVETTO F., PERRONE M., ROMANO A., PARCO NAZIONALE DEL POLLINO, CARAFA M., ZUFFI M., PETRONI G., SALVIDIO S., COSTA A., GRASSELLI E. (2022). Monitoring Batrachochytrium dendrobatidis in Italy. *Naturalista Siciliano* 46: 181-186. <https://doi.org/10.5281/zenodo.6787202>.
- SALVIDIO S., (2022). The ecological role of salamanders as predators and prey. *Diversity*, 14(3): 218. doi.org/10.3390/d14030218
- ROSA G., SALVIDIO S., TROMBINI E., COSTA A. (2022). Estimating density of terrestrial reptiles in forest habitats: the importance of considering availability in distance sampling protocols. *Trees Forests and People*, 7: 100184. doi.org/10.1016/j.tfp.2021.100184
- ROSA G., SALVIDIO S., COSTA A. (2022). European Plethodontid Salamanders on the Forest Floor: Testing for Age-Class Segregation and Habitat Selection. *Journal of Herpetology*, 56(1): 27-33. DOI: 10.1670/20-151
- COSTA A., ROSA G., ROMANO A., SALVIDIO S. (2022). Weighted individual-resource networks in prey-predator systems: the role of prey availability on the emergence of modular structures. *Integrative Zoology*, 17: 115-127. doi.org/10.1111/1749-4877.12520.