



Germination ecology and seed-coating for the conservation of *Lindernia procumbens* (Krock.) Philcox

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Understanding germination traits is essential for both predicting species invasiveness and designing *ad hoc* conservation strategies. We investigated the germination requirements of two congeneric species occurring in paddy fields of Northern Italy: the invasive *Lindernia dubia* (L.) Pennell and the native, threatened *Lindernia procumbens* (Krock.) Philcox. Seeds were tested under a range of temperatures and light conditions, including cold-wet stratification, and gibberellic acid application. *L. dubia* exhibited broader ecological tolerance, faster and higher germination rates, and a lighter, non-deep physiological dormancy compared to *L. procumbens*, suggesting a competitive advantage in the early stages of plant regeneration.

Building on these findings, we explored a seed-based conservation strategy for *L. procumbens*, whose dust-like seeds hinder direct seeding and cultivation in nursery prior to translocation. Seed coating - which involves covering seeds with powders and binders to enhance seed performance - is commonly used in agriculture, while is getting importance in restoration practices and is unexplored for conservation purposes. To spread the species in paddy fields using an efficient and cost-effective conservation action, *Lindernia procumbens* seeds were encrusted to the surface of rice seeds, acting as carriers. Two binder (i.e., polyvinyl alcohol; PVOH) concentrations were evaluated for their effects on *L. procumbens* germination, along with the impact of sowing depth. Germination was not inhibited by PVOH, and seedling emergence was higher under light-exposed conditions. Field trials showed limited emergence but suggested potential for seed bank formation. Combining germination ecology with seed enhancement technologies - offers promising perspectives for reintroducing rare species in agroecosystems. Our results support the use of seed-coating to overcome critical steps in restoration and conservation of small-seeded species.

Biography

Anna Corli is a Researcher (RTD-A) at the Department of Earth and Environmental Sciences of the University of Pavia. She obtained a PhD in Environmental and Applied Botany in 2022 at the same University. Her research activities focus on the conservation of rare and threatened plant species and the study of plant species for habitat restoration within a Nature-based Solutions framework.

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Category: Oral presentation