

How to predict plant population dynamics out of static information - A case study of *Succisa pratensis*

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Keywords: integral projection models; ordination; effects of vegetation gradient on population dynamics;

Abstract: Our goal is to outline a prediction model, which would be able to predict for a given plant species and population its demographic fates (growth, survival and reproduction) based on the knowledge of local environmental conditions (as reflected by the surrounding vegetation) and current state of the focal species' population (as measured by a single semiquantitative census). We adopted a two-stage approach. First, we studied detailed demography of our focal plant, *Succisa pratensis*, in 27 populations (and 112 patches as sampling unit) for 2 to 7 years in the whole range of ecological conditions it occurs and summarized it by means of IPM. Second, we attempted to outline possible classifications of population dynamics according to their original state and environmental conditions (both by using clustering and ordination techniques). We validated our predictions on an independent sample of 120 populations. We discuss best possible solutions both from the point of precision of prediction and from the point of applicability in conservation practice (e.g. necessary sampling effort), since our focal plant species is the only host plant of NATURA 2000 protected butterfly, *Euphydryas aurinia*.