1107-62-190   **Frédéric Mortier*** (`fmortier@cirad.fr`), UPR B&sef, Dept. Environnements et Sociétés du CIRAD, Campus International de Baillarguet, TA C-105, 34398 Montpellier, France. *Mixture of inhomogeneous matrix models for species-rich ecosystems.*

Understanding how climate change could impact population dynamics is of primary importance for species conservation. Matrix population models are widely used to predict population dynamics. However, in species-rich ecosystems with many rare species, the small population sizes hinder a good fit of species-specific models. In addition, classical matrix models do not take into account environmental variability. We propose a mixture of regression models with variable selection allowing the simultaneous clustering of species into groups according to vital rate information (recruitment, growth, and mortality) and the identification of group-specific explicative environmental variables. We develop an inference method. We first highlight the effectiveness of the method on simulated datasets. Next, we apply it to data from a tropical rain forest in the Central African Republic. We demonstrate the accuracy of the inhomogeneous mixture matrix model in successfully reproducing stand dynamics and classifying tree species into well-differentiated groups with clear ecological interpretations. (Received January 14, 2015)