Where and what are biomes? And how can museum specimens help to define them?

Tiina Särkinen

Plants, Dep. Of Life Sciences, NHM

Wednesday 5 of December 11:00
Sir Neil Chalmers seminar room, Darwin Centre LG16 (below Attenborough studio)

Biodiversity studies aim to understand species diversity gradients and distribution patterns. Many of such studies rely on maps depicting distributions of species assemblages, from local communities to ecosystems and biomes. But how good are our current ecosystem maps? Do we know exactly where rain forests, coral reefs, or savannas occur? And what data should ultimately be used to define and delimit biomes? My talk will focus on these questions, and provide some potential answers. I will present a case study of the Seasonally Dry Tropical Forest (SDTF) biome of South America, a relatively newly defined biome with a poorly known distribution. I argue that georeferenced specimen data have a significant role to play in biome mapping, firstly through predictive modelling where specimen data is used to model biome distributions, and secondly, as a validation tool for *in silico* ground-truthing of remote sensing maps. Ecologists have classically defined biomes as structurally homogeneous units, but biomes should be seen as biologically meaningful units, i.e. large evolutionary meta-communities that are not only ecological similar but share evolutionary lineages (species, genera, families, and orders). This is of particular importance as the gap between the fields of ecology and evolution is closing, and there is a growing need for a common frame of reference with which to test hypotheses that bridge the fields.