

GLOBAL MANGROVE DISTRIBUTION AND DEGRADATION: HOW GOOD OR BAD IS IT?

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'A world without mangroves' was the title of a recent paper in *Science* on the degradation of mangrove forests world-wide (Duke *et al.*, 2007). These ecosystems are reported to disappear worldwide by 1 to 2% per year, which is the same or even worse as compared to the nearby coral reefs or tropical rainforests (*loc. cit.*). Since most mangrove forests occur in tropical and (sub)tropical developing countries we were interested in investigating for each country how degradation (based on data from FAO, 2007) is related to geography and to demographic and other socio-economic indicators (from FAO, Unesco, WHO, OECD-DAC, CIA-Fact List, etc.). This first research axis also provides information on which species richness is represented in which country. In a second axis, we are interested in providing mangrove species lists for local sites within countries based on existing literature and, if feasible, in linking mangrove area to species present. We are particularly interested in checking how regional or national species richness is related to local species richness.

In the third and final research axis we intend to link species to functionality of mangroves (be it in a reductionistic way by only focussing on the goods and services of the plants). A first step is to synthesize which mangrove tree species has which type of functions and to establish a functionality index for each species. The second and most challenging step is to link this index back to species richness (see second research axis) and to mangrove degradation (see first research axis).

The justification for this research is given by the fact that species extinctions can be followed by loss in functional diversity, particularly in species-poor systems (Petchy and Gaston, 2002). Mangroves are species-poor ecosystems and the number of mangroves has been reported to be directly correlated with forest size (Duke *et al.*, 1998; Ellison, 2002). So, further decline in mangrove area is likely to be followed by accelerated functional losses in the future. The world-wide distribution of mangroves is a good thing, however, it remains uninvestigated how bad their decrease in functionality is. In other words, the global distribution of mangroves does not put any of its tree species on the list of threatened species, but the global threats and reductions in functionality threatens the mangrove as an ecosystem.

References

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