

Can Habitat Monitoring Schemes Capture Ecosystem Services?

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In recent times, the political focus on biodiversity (IPBES, CBD Aichi targets 2020) extends to ecosystem services (EU targets 2020). Monitoring schemes currently in place within Europe tackle many different system levels and topics, from EU-wide general land cover mapping to taxonomically oriented species monitoring. From a monitoring perspective several levels of biodiversity must be considered: landscape, habitat, life forms, species and genes. Most of the monitoring biodiversity schemes focus on the habitats and species levels. Although the habitat level is possibly the most suitable for ecosystem services monitoring, it is yet unclear how well these habitat monitoring schemes can provide valuable information on ecosystem services and what additional information could be needed to monitor them efficiently.

Among the various notions embedded in the concept of ecosystem services, a difference is acknowledged between the provisioning of services and the actual uptake of services. Biodiversity monitoring schemes generally provide records of the environmental and biological context, hence they record the potential of provisioning of services, but barely record any information on the uptake or use of services.

We compared 7 monitoring systems addressing three levels of biodiversity (landscape, habitat and species) for their potential to monitor ecosystem services and we discuss what steps could be taken to extend biodiversity monitoring schemes to ecosystem services monitoring. For the seven monitoring schemes, either on-going or experimental (CORINE, LUCAS, EBONE, BioBio, NILS and Pan-European Birds and Butterfly monitoring), field instructions and nomenclature were analysed on parameters that could potentially contribute to the computation of ecosystem service indicators. The schemes were subsequently ranked for providing proxies for the specific services and were then compared based on their score per service category. The monitoring systems aimed at habitat level (i.e. NILS, EBONE, BioBio) appeared to be the most effective in providing proxies for the provisioning of ecosystem services.

What is required to improve capacity of the monitoring schemes in capturing ecosystem services? Certain services and indicators are currently not monitored in any schemes, e.g. soil, marine and freshwater services. Some services may be monitored by only the environmental setting (biomass production, air purification), whereas for others the actual uptake of the service by people is a more important factor, e.g. recreation. Changes in sampling density and sampled parameters can result in a data improvement from indirect to direct indicator.

Conclusion: Of the here reviewed monitoring schemes, habitat monitoring schemes provide the best potential for capturing ecosystem services. However, additional efforts will be required to sufficiently monitor ecosystem services.

Acknowledgement: this research was funded by FP7 projects EBONE (GA No. 212322) and BioBio (GA No. 227161).