Letter to the Editor

Reply to Jenkins and Joppa – Expansion of the global terrestrial protected area system

The Convention of Biological Diversity (CBD) has established a target for the protection of 10% of the world's ecological regions by 2010 (CBD Decision VII/30, target 1.1). This target has motivated many governments of the world to review and improve their protected area networks. Two recent analyses have measured protected area coverage for each of the world's realms, biomes and ecoregions (UNEP-WCMC, 2008; Jenkins and Joppa, 2009, abbreviated to JJ09 below), using the WWF Terrestrial Ecoregions of the World. However, data handling procedures differ between these analyses, resulting in differences in the protection statistics reported by JJ09 and those developed by UNEP-WCMC for reporting to the Convention on Biological Diversity and the 2010 Biodiversity Indicators Partnership (UNEP-WCMC, 2009). Here we outline differences in the use of datasets, present alternative analyses of the protected area coverage of WWF realms, biomes and ecoregions for 2009, and compare the two estimates of protected area coverage.

To calculate updated global protection statistics, we used the 2009 release of the World Database on Protected Areas (WDPA; www.wdpa.org), and followed standardised analysis methods (UNEP-WCMC, 2009). Analytical methods were the same as those used by JJ09; however, the protected area dataset differed in two main ways:

1. *Inclusion of internationally recognised protected areas:* The WDPA 2009 release holds data for 4275 international sites, including UNESCO World Heritage sites, UNESCO Man and Biosphere reserves and Wetlands of International Importance (Ramsar), which were excluded in the JJ09 analyses. These international sites are selected for their outstanding natural/biodiversity value, because they are very likely to correspond to national protected areas for which we might not have boundary data, and are supported by international conventions; hence internationally designated sites should be included when reporting on ecological protection.

2. *Use of the 2009 version of the WDPA for USA protected areas:* In 2008 UNEP-WCMC received a new Protected Areas Database for the United States (PAD-US). USGS-GAP, working with UNEP-WCMC and IUCN on behalf of the new PAD-US Partnership, has ensured that the USA protected areas data conform to the definitions of a protected area according to new IUCN guidelines (http://www.iucn.org/about/union/commissions/cem/cem_resources/?1662/Guidelines-for-applying-protected-area-management-categories). Areas that did not conform to this definition have been removed. JJ09 replaced the protected area data for the USA in the WDPA 2009 release with that from the 2007 release, which included protected areas that did not conform to the IUCN definition, and thus resulted in increased protected area coverage for the USA.

Differences in the datasets used for analysis result in substantial differences in protected area coverage. Global protected area coverage based on our analyses is 13.4%, somewhat higher than the 12.9% reported by JJ09. There are further differences in protected area coverage among WWF realms, biomes and ecoregions.

Levels of protection for realms (Table 1) are predominantly higher than those presented by JJ09, primarily due to the inclusion of internationally recognised protected areas. Only for the Nearctic realm are estimates for protection 3% lower than reported by JJ09, due to changes in the USA dataset.

Nearly all biomes (12 out of 14; Table 1) have higher percentage protection than reported by JJ09. The largest difference is observed for the 'flooded grasslands and savannahs' biome, where there are several large internationally protected Wetlands of International Importance (Ramsar) and UNESCO Man and Biosphere (MAB) reserves, resulting in a 20% difference between estimates. The two biomes which have lower percentage protection than JJ09 are temperate biomes, located partially within the USA.

Of the 821 ecoregions used by JJ09 (excluding 'rock and ice', 'lake' and Antarctic ecoregions), 447 (54%) meet the 10% target in our analysis, compared to 410 reported by JJ09. However, the actual ecoregions meeting the target differ, mainly due to the changes to the USA dataset. Detailed methods and results are available in Coad et al. (2009), including data tables of percentage and area protection for individual realms, biomes and ecoregions.

The differences in protected area coverage calculated by different groups using the same basic datasets, highlights the need for standardised datasets and methodologies when assessing protected area coverage. For analyses pertaining to international conventions this is especially important as there are significant political implications of reporting when Parties have either achieved or missed protected area coverage targets set by CBD. As a move towards encouraging standardisation, UNEP-WCMC has published guidelines (UNEP-WCMC, 2009) to facilitate comparison across analyses.

References

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