Supporting Information for ‘How percentage-protected targets can support positive biodiversity outcomes’.

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Supporting Information Table S1. Data and model-based approaches for monitoring achievement of biodiversity outcome goals in relation to percentage-protected targets. See UNEP-WCMC website "Indicators for the post-2020 global biodiversity framework" (https://www.post-2020indicators.org/) for further information on several of these metrics and others not listed here.

Scale of biodiversity	**Data source**	**Model**		**Outcome targets by scale of biodiversity**	**Indicators relevant to percentage-protected targets**	**Challenges and limitations**
1. Ecosystem	Remote sensing of land and climate attributes	Ecosystem classification[1], intactness[2], connectivity[3], ecosystem process[4] (e.g., disturbance)		Net gain in area of intact ecosystems	Representation of conservation features within ecoregions[5], intactness	Heterogeneity within ecoregions, limitations on remotely sensed indicators of ecosystem intactness, ecosystem classification issues
2. Species	a. Environmental attributes from remote sensing, ground observations, climate projections, etc.)	Species distribution models (SDM)[6]	Red List and other expert-based thresholds[7], species-area relationship[8], spatially-explicit population models[9]	Reduction in species extinction rate and risk	Hotspots of species richness and endemism, Species Protection Index[10]	Limitations on explanatory power of SDMs and species-area models, limitations in expert-based extinction risk thresholds
	b. Monitoring data on species abundance and distribution		Red List and other expert-based thresholds[11]	Reduction in species extinction rate and risk	Representation of imperiled species[12]	Limited availability of monitoring data
3. Intraspecific diversity	Monitoring of species distribution, genetic variation	Ecotype classification[13]		Retention of existing diversity	Representation of ecotypes or other divisions within ranges[14]	Limited correspondence between environmental attributes and genetic types

4. Multi-scale site-based	KBA database[15], species distribution data or models	Systematic conservation planning[16], representation (gap) analysis[17]	Multi-scale: No loss of irreplaceable sites	Representation of irreplaceable sites, KBA[18]	KBA database limitations, inconsistencies among SCP processes

Footnotes. 1. Watson et al., 2013; 2. Watson et al., 2018; 3. Saura et al., 2018; Ward et al., 2020; 4. Leroux et al., 2007; 5. Dinerstein et al., 2017; 6. Warren et al., 2018; 7. Allan et al., 2019; 8. Wilson, 20169. Carroll et al., 2006; 10. GEOBON, 2015; 11. Rodrigues et al., 2006; 12. Faith et al., 2008; 13. Hanson et al., 2020; 14. Rochat et al., 2021; 15. Eken et al., 2004; 16. Margules & Pressey, 2000; 17. Rodrigues et al., 2004; 18. Allan et al., 2019; Dinerstein et al., 2020.

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