REPLY TO YOU ET AL.:

The World Database on Protected Areas is an invaluable resource for global conservation assessments and planning

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In their Letter, You et al. (1) raise concerns about the use of the World Database on Protected Areas (WDPA) (https://www.protectedplanet.net/) in conservation assessments and planning. Their concern arises from potential differences in protected area (PA) delineations and designations between the WDPA and alternate, national PA datasets, citing China's National Nature Reserves (CNNR) as an example with apparent deviations. You et al. (1) highlight that using the CNNR in calculations of elevational protection yields results that contrast with those published in our original paper (2) using the WDPA.

Several issues with You et al.'s (1) analysis prevent a straightforward comparison with our original results (2). First, the authors analyze protection across China, while our analysis was focused on PAs within mountain ranges. Second, the authors compare their country-level results with our mountain range results aggregated across all of Asia, representing a significant scale mismatch. Third, the authors use data from within all of China's NNRs to compare with our results based only on International Union for Conservation of Nature (IUCN) category I–IV PAs; our analysis considering all PAs within the WDPA yields results that are qualitatively similar to You et al.'s (1) [see figure 1 in our original paper (2)]. Unfortunately, we were unable to provide an unbiased comparison and assess CNNR data quality directly as, to the best of our knowledge, delineations of CNNR PAs are unavailable for download.

Nevertheless, because the use of different PA datasets has obvious potential for discrepancies in the amount and distribution of protection, and thus in assessments of meeting conservation targets, we echo You et al.'s (1) call for conservation practitioners to carefully consider the data sources appropriate for the geographic scope of interest, and to use the best available data for their particular application. Our study of the global protection of elevational gradients (2) required the use of a global PA dataset to minimize biases in comparisons across mountainous regions. As You et al. (1) correctly point out, the WDPA is the authoritative dataset for international PA delineations and designations that follows globally consistent standards, is regularly validated, and is continuously updated following submissions from governments, nongovernment organizations, landowners, and communities (3). Importantly, while the WDPA lists the IUCN designation for each PA, the designations are provided by the contributor and are not mandatory to report (3); contributors must therefore understand and adhere to the reporting guidelines (3) provided by IUCN.

Global databases such as the WDPA have presented innumerable opportunities for broadscale conservation studies, including global assessments of PA performance (4), human pressure within PAs (5), and shortcomings due to inadequate finance and management capacity (6), among others. However, we agree that the full utility of the WDPA—and the validity of the conservation and policy implications arising from its use—hinges on its accuracy and comprehensiveness. Timely reporting and consistent standards are essential to maintain accurate PA databases for use in global conservation assessments and planning.

1 You Z, et al. (2018) Pitfall of big databases. *Proc Natl Acad Sci USA* 115:E9026–E9028.
2 Elsen PR, Monahan WB, Merenlender AM (2018) Global patterns of protection of elevational gradients in mountain ranges. *Proc Natl Acad Sci USA* 115:6004–6009.

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3 UNEP–WCMC (2017) *World Database on Protected Areas User Manual 1.5* (UNEP–WCMC, Cambridge, UK). Available at https://wcmc.io/WDPA_Manual. Accessed August 10, 2018.
4 Watson JEM, Dudley N, Segan DB, Hockings M (2014) The performance and potential of protected areas. *Nature* 515:67–73.
5 Jones KR, et al. (2018) One-third of global protected land is under intense human pressure. *Science* 360:788–791.
6 Gill DA, et al. (2017) Capacity shortfalls hinder the performance of marine protected areas globally. *Nature* 543:665–669.