Summer 2014 Issue 7

PREDICTS Newsletter

Projecting Responses of Ecological Diversity In Changing Terrestrial Systems

STOP PRESS: First PREDICTS data analysis published open - access in Proceedings of the Royal Society B

"We present the most comprehensive analysis of changes in the structure of ecological communities in tropical and sub-tropical forests as a result of land-use change, and the first analysis from the PREDICTS Project (www.predicts.org.uk). We show that the biggest differences are in areas of human-dominated land uses, with more people, more removal of vegetation by humans and less forest cover. Importantly, we show that different species are affected differently, with greater losses of narrowly distributed species and species that specialize on forest habitat, and smaller losses of widely distributed species that are less dependent on forest habitat."

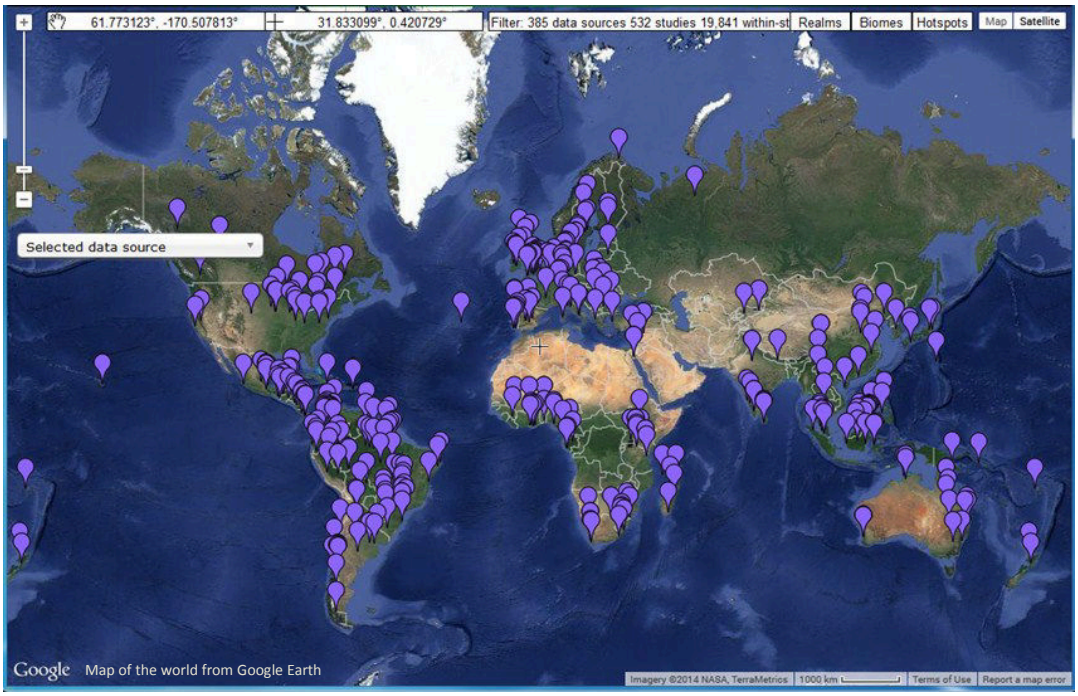
Dr Tim Newbold, UNEP - WCMC

Newbold T *et al* . 2014 'A global model of the response of tropical and sub-tropical forest biodiversity to anthropogenic pressures.' *Proc. R. Soc. B* 281: 20141371. http://dx.doi.org/10.1098/rspb.2014.1371

PREDICTS Database Manuscript submitted!

We have just submitted the manuscript that describes the PREDICTS database for open-access publication in *Ecology and Evolution*. The manuscript fully describes how the database was designed, populated and validated. The manuscript presents assessments of the data's taxonomic, geographic and temporal coverage, based on a snapshot of the database taken at the end of March this year, at which time the database contained 1.6 million samples taken in 78 countries and representing over 28,000 species. Alongside the manuscript, we will make available a site-level summary dataset that contains, for each sampling location, the predominant habitat, land-use intensity, type of habitat fragmentation, geographic coordinates, sampling dates, country, biogeographic realm, ecoregion, biome, biodiversity hotspot, taxonomic group studied and the number of measurements taken.

A massive thank-you to everybody who generously contributed their data and to all who provided comments on the draft of the manuscript. Apologies to those who have contributed data to PREDICTS that were not loaded into the database before the end of March. We will focus on processing these data in time to include them in the first public release of the database next year. Everyone who has provided data that we release will be offered authorship on an accompanying paper.



Database progress

In the four months since taking the snapshot for the manuscript, the PREDICTS database has reached some important milestones. The database now contains just over two million samples taken from more than 500 different studies, taken in 88 countries and representing over 35,000 species.

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Figure: Recent screenshot from our database showing the distribution of the 385 data sources included in the database today.

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It presently contains 1% as many species as have been formally described within many taxonomic groups – including flowering plants, gymnosperms, birds, mammals, reptiles, amphibians, beetles, lepidopterans and hymenopterans. Birds are extremely well represented with observations of just over 3,000 species - more than 30% of described avian species. Mammals are less well represented with 566 species but even this constitutes more than 10% of described mammals.

The database still has many gaps. For example we have few samples collected in tundra or tropical and subtropical coniferous forests and no data from the 'flooded grasslands and savannas' biome. Democratic Republic of Congo - one of the world's 17 megadiverse countries - is not represented at all and we have few data from Oceania, central Asia, Russia and large areas of Africa. Several biodiversity hotspots are either still unrepresented - Caucasus, Irano-Anatolian, Horn of Africa, Madrean Pine-Oak Woodlands and New Caledonia. Fewer than 1% of described diptera (true flies) are represented. We have few data of parasites and none of microbes.

Despite these data gaps, the PREDICTS database, which will be made freely available at the end of the current phase of the project in 2015, constitutes a large evidence base for analyses such as the responses of biodiversity to human impacts for different countries, biomes and major taxonomic groups, the differing responses within and outside protected areas and how traits such as body size, range size and ecological specialism mediate these responses. We continue to work to increase all areas of the database's coverage and greatly value all your contributions of data.

Dr Lawrence Hudson, Natural History Museum London

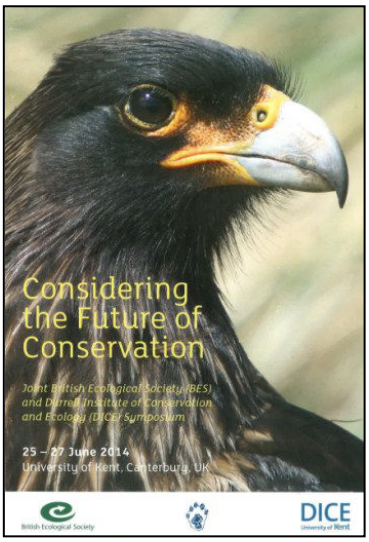
PREDICTS at the BES-DICE Conservation Symposium, 25-27 June 2014, University of Kent, UK

At the end of June we presented some preliminary results from our analysis of the effectiveness of protected areas. The British Ecological Society conference was really enjoyable, with a back-to-back line up of plenary talks interspersed with a poster session, and workshops. A wide range of topics were discussed, from the importance of short-term responses to climate change, working with large corporations, embracing new technologies, dealing with corruption and celebrity advocacy within conservation.

It was also a great opportunity to get some feedback on our results so far, and the first chance to discuss the questions we are asking with a wide range of different people. Everyone we talked to was impressed by the size and coverage of the PREDICTS database, for which we thank everyone who has contributed data. We were also able to get useful insights into how other researchers are handling common issues like the process of matching sites inside and outside protected areas.

The discussions helped to refine which are the most interesting, key results of our work so far and which parts of our methods need to be carefully described for new audiences. We look forward to sharing our findings with the wider PREDICTS community later this year.

Dr Claudia Gray University of Sussex and Dr Samantha Hill UNEP-WCMC &NHM




Leigong Shan National Nature Reserve, Guizhou Province, China
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New intern Katie Threadgill

"As an intern at UNEP-WCMC this summer, I am working to identify studies from the published literature which may provide useful data for extending PREDICTS to temporal comparisons of before and after land-use change. The use of longitudinal studies aims to provide a test of the assumptions of space-for-time substitutions in the existing PREDICTS project and provide additional information about how changes in biodiversity proceed, by tracking single sites over the course of changes in human pressures. By collecting preliminary information from these studies, I am looking to assess the availability and geographical and taxonomic distribution of the relevant literature."

Katie Threadgill, UNEP– WCMC

Adriana De Palma, a PhD student with PREDICTS, recently spent three months on a placement at the Parliamentary Office of Science and Technology (POST). During her time there, she organised a seminar on the National Pollinator Strategy, which will considers the evidence used to inform measures likely to be set out in the Strategy delivery plan.
Details of the event will be publicised on the POST website shortly. Please contact postevents@parliament.uk to attend.
Seminar on the National Pollinator Strategy, organised by the Parliamentary Office of Science and Technology.
Time and Date: 28th October 2014, 4-6pm Location: Jubilee Room, Parliamentary Estate

Thanks to Domenico Tozzi for producing the PREDICTS logo.