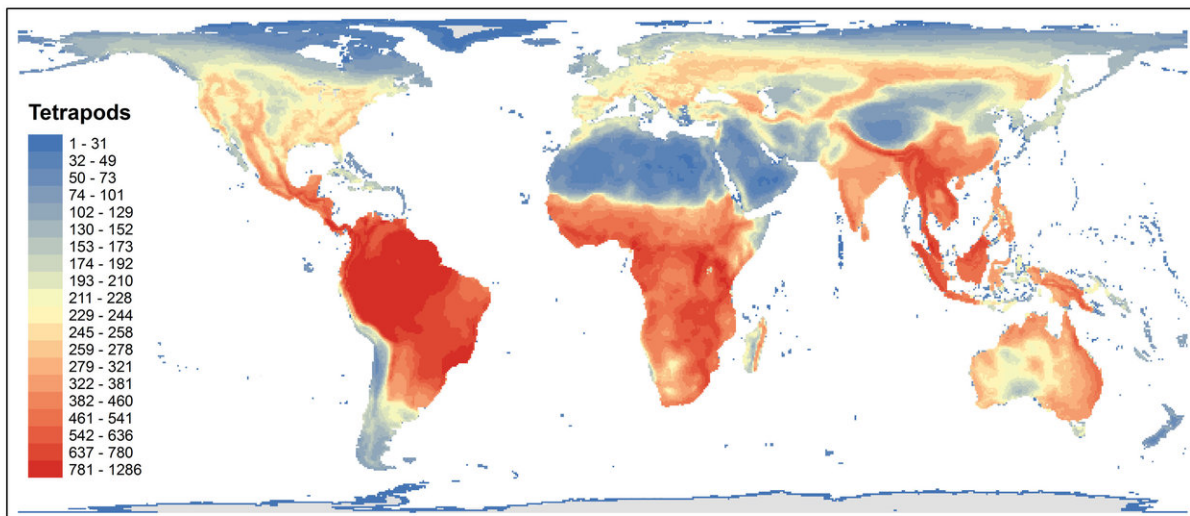


Scientists complete conservation puzzle, shaping understanding of life on Earth

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These maps show for the first time the complete distribution of global terrestrial vertebrate biodiversity on Earth. They comprise approximately 31,000 species of mammal, bird, amphibian and now reptiles. Credit: University of Oxford

An international team of scientists have completed the 'atlas of life' - the first global review and map of every vertebrate on Earth.

Led by researchers at the University of Oxford and Tel Aviv University, the 39 scientists have produced a catalogue and atlas of the world's reptiles. By linking this atlas with existing maps for birds, mammals and amphibians, the team have found many new areas where [conservation](#)

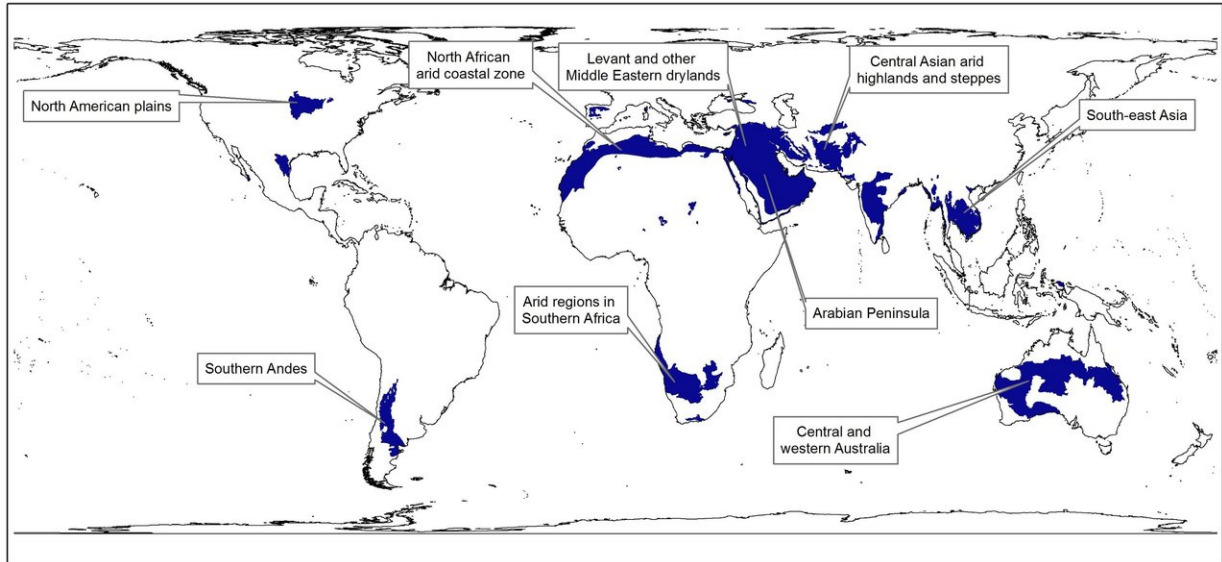
action is vital.

In order to best protect wildlife, it's important to know where species live, so the right action can be taken and scarce funding allocated in the right places. With this in mind, an international group of researchers have produced detailed maps highlighting the whereabouts of all known land-living species of vertebrate on Earth.

Maps showing the habitats of almost all birds, mammals and amphibians have been completed since 2006, but it was widely thought that many reptile species were too poorly known to be mapped.

In research featured in *Nature Ecology & Evolution*, scientists from the University of Oxford School of Geography and Environment worked in close collaboration with colleagues from of Tel Aviv University and 30 other institutions to produce the new reptile atlas, which covers more than 10,000 species of snakes, lizards and turtles/tortoises. The data completes the world map of 31,000 species of humanity's closest relatives, including around 5000 mammals, 10,000 birds and 6000 frogs and salamanders.

The map has revealed unexpected trends and regions of biodiversity fragility. They include the Arabian Peninsula and the Levant, inland arid southern Africa, the Asian steppes, the central Australian deserts; the Brazilian caatinga scrubland, and the high southern Andes.



These basic infographics show the regions of the world which have gone up the most in conservation importance now we know where all the snakes and lizards can be found. Credit: University of Oxford

Lead author Dr Uri Roll, now of the Ben Gurion University of the Negev, said: 'Lizards especially tend to have weird distributions and often like hot and dry places, so many of the newly identified conservation priority areas are in drylands and deserts. These don't tend to be priorities for birds or mammals, so we couldn't have guessed them in advance.'

Dr Richard Grenyer, Associate Professor in Biodiversity and Biogeography at Oxford University, said: 'On the one hand, finding vital areas in arid regions is a good thing because the land is fairly cheap. But deserts and drylands are also home to lots of other modern activities, such as major irrigation projects, huge new solar power developments, and sometimes widespread land degradation, war and conflict. This makes them very challenging environment for conservationists to work.'

The maps have also allowed conservationists to ask whether environmental efforts to date have been invested in the right way, and how they could be used most effectively.

Dr Grenyer added: 'Thanks to tools like our atlas, scientists can for the first time look at the terrestrial Earth in its entirety, and make informed decisions about how to use conservation funding. This is not to say that the work done to date has been inaccurate: based on our knowledge at the time, conservationists have often made some really good decisions. But now conservation has the data and tools required to bring planning up to the same level as the businesses and governments who might have an eye on land for other uses. Maybe we're actually a bit better, and we're doing it in the open.'

Professor Shai Meiri from Tel Aviv University, who first planned the project more than ten years ago, said: 'Mapping the distributions of all reptiles was considered too difficult to tackle. But thanks to a team of experts on the lizards and snakes of some of the most poorly known regions of the world we managed to achieve this, and hopefully contribute to the conservation of these often elusive vertebrates that suffer from persecution and prejudice'.

The International Union for the Conservation of Nature (IUCN) are currently classifying the species featured in the map with a rating, from "critically endangered" to "least concern". Once this work is complete, the interactive resource will be freely available for public access and use. Moving forward, its creation will allow a range of stakeholders, from countries, to conservation organisations, businesses and individuals, to understand the biodiversity in their surrounding environment, its importance and crucially, what they can do to better protect it.

More information: Uri Roll et al, The global distribution of tetrapods reveals a need for targeted reptile conservation, *Nature Ecology &*

Evolution (2017). [DOI: 10.1038/s41559-017-0332-2](https://doi.org/10.1038/s41559-017-0332-2)

Provided by University of Oxford

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