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New release! Geospatial tools for Sonoran Desert threats and protection of rare and threatened plant species now freely available

To help slow the unprecedented global loss of biodiversity, we need tools that quickly and effectively evaluate species at risk and the threats facing them. Threat maps can be a crucial component of informed conservation actions when employed in a structured decision-making process that considers the specific impact of threats on species of interest.

The Categories and Criteria of the IUCN Red List process, based on extinction risk theory, is used to assess a species comprehensively and systematically. The methods have been rigorously developed and are the most widely used and accepted measure of global threat at the species level. To complete IUCN Red List species assessments, extensive species-specific data are collected in consultation with species experts, available literature and other sources. Of the biodiversity assessment data fields, identifying threats is one of the most important, yet difficult, areas to complete. Because threats often occur at a regional level, a threats mapping approach has often been employed.

The Sonoran Desert ecoregion spans more than 320,000 km² across the USA and Mexico, hosting a high diversity of habitats and endemic species. This is one of the most rapidly urbanizing regions in North America, with accompanying habitat loss and fragmentation, invasive species and other anthropogenic impacts. Because of the immediate threats and its high species richness, we chose the Sonoran Desert as a target system to create a downloadable threat map to assist in evaluating spatially explicit threats to plant species for use in Red List assessments and conservation planning. Our goals were to create a map in which threats could be evaluated for

individual species, and to develop protocols for using the map in the Red List assessment process.

In May 2024, the completed Sonoran Desert threats map with associated documentation and help guides became publicly available (github.com/mereclay/North-America-Threats-Map). Documentation includes methods, instructions for installing and using the map in QGIS, and guidelines for applying the map results to IUCN Red List criteria. The map was developed from existing, high quality data layers. The threats not included in the map are either not relevant to the region or require data that is not fully known or mapped. This threats map provides, for the first time, a spatial tool to assess the threat of habitat loss, fragmentation and land degradation to a plant species, and is a powerful tool for assisting with assessments of extinction risk.

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New otter conservation network in Central America

Otters are top wetland predators and their decline has a profound impact on food webs, biodiversity and habitats. They need good water quality and are therefore useful environmental indicators. Three otter species have been recorded in Central America. The Near Threatened Neotropical otter *Lontra longicaudis* is the most widely distributed species in the region. It has suffered from habitat loss and hunting and is now close to extinction in some areas. The Least Concern North American river otter *Lontra canadensis* was only confirmed in the region in 2019, in north Mexico, and more information on this species is required. The Endangered southern sea otter *Enhydra lutris nereis* was once common in Baja California, Mexico, but was wiped out by hunting for its fur. There have been sightings of this species in the region since 1961, most recently in 2011, and it has been suggested that reintroduced animals may have spread from St Nicholas Island, California.

Otters in Central America are threatened by climate change, habitat degradation, pollution, overfishing and conflicts with fishers, but few people are studying otters and their habitats in the region. To support the next generation of otter researchers, the International Otter Survival Fund and Nutrias de México, an NGO specializing in otter conservation, held a training workshop in November 2023 in Mexico.

Forty-seven participants attended in person or virtually from eight of the nine countries with native wild otters (Belize, Costa Rica, El Salvador, Guatemala, Mexico, Nicaragua, Panama, and Trinidad and Tobago); only Honduras was not represented. In the last session of the workshop the participants joined together to form the Nutrias de Centromérica Network, and they have already made significant progress. All members are now searching for data to establish the status of otters in their countries. In Belize, otter spraint has been recorded and camera traps installed (donated by Idea Wild), and World Otter Day will be celebrated with primary schoolchildren in two communities. The International Otter Survival Fund Costa Rica has been formed and is working on education/awareness and research.

In Mexico, monitoring of otter populations and habitat quality, and environmental education programmes, continue. The NGO Okapia, with support from various organizations, experts and university students, is surveying five rivers in Morelos State and measuring water quality to assess threats to otters; tracks have been found at two sites, one for the first time. Priorities for the Nutrias de Centromérica Network will be research and school and community education, and the enthusiasm of the members will undoubtedly lead to practical and effective otter conservation programmes in Central America.

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Under pressure: the Critically Endangered common hamster in Hungary reached an all-time demographic low in 2024

In 2020 the common hamster *Cricetus cricetus* was reclassified from Least Concern to Critically Endangered on the IUCN Red List. This rodent species originally lived on the Eurasian Steppe but has adapted to the large-scale transformation of its original habitat to agricultural land. The increasing intensification of agricultural practices has, however, brought new challenges.

In 2020, contrary to the global trend, hamster populations appeared to be stable in central Europe. Within this area, the Pannonian region, with Hungary in its centre, hosts the largest population, and this population has displayed decade-long fluctuations. In 2020 there was a peak in population size, followed by a rapid decline, and the hamster population in Hungary has now reached an all-time low.

It is unclear whether the population will recover, as the hamster faces a paradoxical conservation status in Hungary. Although protected, farmers have the right to



Female common hamster *Cricetus cricetus* at her burrow. Photo: V. Nyíri.

exterminate populations at the first signs of any unfolding population increase, without the need for permission. Although this practice is intended to safeguard farmers' legitimate interests, emerging evidence suggest it may jeopardize hamster populations regionally.

Adding to the complexity of the situation, during the last population increase in Hungary the hamster started to utilize village gardens. Contrary to expectations, these semi-urban populations have thrived even as rural populations have declined. Although this suggests a potential novel way for the species to survive, it raises new challenges and underscores the need for innovative conservation.

We launched a detailed population genomics study in 2023, within the Biodiversity Genomics Europe project, to investigate the intricate genetics of the Pannonian hamster population. As part of this, field surveys uncovered a significant decline in numbers. However, there was a noticeable contrast either side of the Danube River, with a decline in