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Human activity devastating marine species from mammals to corals - IUCN Red List

Montreal, Canada, 9 December 2022 (IUCN) – Today's update to the IUCN Red List of Threatened Species™ highlights a barrage of threats affecting marine species, including illegal and unsustainable fishing, pollution, climate change and disease. Populations of **dugongs** – large herbivorous marine mammals – and **44%** of all **abalone** shellfish species enter the IUCN Red List as threatened with extinction; the **pillar coral** has deteriorated to **Critically Endangered** due to accumulated pressures.

The IUCN Red List now includes 150,388 species, of which 42,108 are threatened with extinction. Over 1,550 of the 17,903 marine animals and plants assessed are at risk of extinction, with climate change impacting at least 41% of threatened marine species.

"Today's IUCN Red List update reveals a perfect storm of unsustainable human activity decimating marine life around the globe. As the world looks to the ongoing UN biodiversity conference to set the course for nature recovery, we simply cannot afford to fail," said Dr Bruno Oberle, IUCN Director General. "We urgently need to address the linked climate and biodiversity crises, with profound changes to our economic systems, or we risk losing the crucial benefits the oceans provide us with."

Abalone species are sold as some of the world's most expensive seafood, with unsustainable extraction and poaching primary threats compounded by climate change, disease and pollution. Twenty of the world's 54 abalone species are now threatened with extinction, according to the first global Red List assessment of these species.

In South Africa, poaching by criminal networks, many connected to the international drugs trade, have devastated populations of the Endangered perlemoen abalone (*Haliotis midae*). Increasingly frequent and severe marine heatwaves have caused mass mortalities, killing 99% of Roe's abalones (*H. roei*) in its most northerly reaches of Western Australia in 2011. Marine heatwaves have exacerbated abalone diseases worldwide, affecting the Critically Endangered black abalone (*H. cracherodii*) in California and Mexico, and the Vulnerable green ormer (*H. tuberculata*), found from the English Channel to Northwest Africa and the Mediterranean. Marine heatwaves also kill the algae that abalones depend on for food. Pollution from agricultural and industrial run-off cause harmful algal blooms, which have eliminated the Endangered Omani abalone (*H. mariae*), a commercial species found in the Arabian Peninsula, across half of its range. Toxins such as antifouling boat paint further deplete populations.

"Abalones reflect humanity's disastrous guardianship of our oceans in microcosm: overfishing, pollution, disease, habitat loss, algal blooms, warming and acidification, to name but a few threats. They really are the canary in the coalmine," said Dr Howard Peters, member of the IUCN SSC Mollusc Specialist Group and research associate at the University of York, UK, who led the abalone assessment. "The most immediate action people can take is to eat only farmed or sustainably sourced abalones. Enforcing fishery quotas and anti-poaching measures is also critical. However, we need to halt the changes to ocean chemistry and temperature to preserve marine life including abalone species over the long term."

Dugong populations in East Africa and New Caledonia have entered the IUCN Red List as **Critically Endangered** and **Endangered** respectively; the species remains **Vulnerable** globally.



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There are now fewer than 250 mature individuals in East Africa and under 900 in New Caledonia. The primary threats are unintentional capture in fishing gear in East Africa and poaching in New Caledonia, and boat injuries in both locations. In East Africa, oil and gas exploration and production, bottom trawling, chemical pollution and unauthorised coastal development are damaging and destroying the seagrasses that dugongs depend on for food. The degradation and loss of seagrasses in New Caledonia is the result of agricultural run-off, pollution from nickel mining and coastal development, and damage from boat anchors. The impacts of climate change present a threat throughout the dugongs' wide range.

*"Strengthening community-led fisheries governance and expanding work opportunities beyond fishing are key in East Africa, where marine ecosystems are fundamental to people's food security and livelihoods," said **Evan Trotzuk, who led the East Africa Red List assessment.** "Further, the creation of additional conserved areas in areas where dugongs live, particularly around Bazaruto Archipelago National Park, would also empower local communities and other stakeholders to find, implement, and benefit from solutions that halt long-term declines in dugong abundance, as well as in seagrass extent and quality."*

The **pillar coral** (*Dendrogyra cylindrus*), found throughout the Caribbean from the Yucatan Peninsula and Florida to Trinidad and Tobago, has moved from **Vulnerable to Critically Endangered** on the IUCN Red List, after its population shrunk by over 80% across most of its range since 1990. The most urgent threat is Stony Coral Tissue Loss Disease, which has emerged in the past four years and is highly contagious, infecting between 90 and 100 metres of reef per day. Bleaching caused by increased sea surface temperatures and excess antibiotics, fertilisers and sewage running into the sea have weakened corals and made them more susceptible to disease. Overfishing around coral reefs has depleted the number of grazing fish, allowing algae to dominate and putting further pressure on corals.

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Supporting quotes

*"The pillar coral is just one of the 26 corals now listed as Critically Endangered in the Atlantic Ocean, where almost half of all corals are now at elevated risk of extinction due to climate change and other impacts," said **Dr Beth Polidoro Associate Professor at Arizona State University and Red List Coordinator for the IUCN SSC Coral Specialist Group.** "These alarming results emphasise the urgency of global cooperation and action to address climate change impacts on ocean ecosystems."*

*"With this latest update of the IUCN Red List, the total number of native trees assessed for Papua New Guinea reaches over 2,500 or 88% of the country's native tree flora. Over 140 Critically Endangered, endemic trees have been identified. Without these assessments, conservation efforts could not be targeted towards the most threatened species, but with them there is now a road map to prioritise conservation of the country's unique and rich tree diversity," said **Megan Barstow, Conservation Officer, Botanic Gardens Conservation International.***

*"With this devastating IUCN Red List update on the status of marine species, it is clear that business as usual is no longer an option," said **Ashleigh McGovern, vice president, Center for Oceans at Conservation International.** "Human activity has had devastating effects on marine ecosystems and biodiversity, but it can also be harnessed to drive action as a matter of survival, equity and climate justice. If we are to secure a new future for the world's oceans and the essential biodiversity they harbour, we must act now."*

"This update reinforces IUCN's urgent call for a Post-2020 Global Biodiversity Framework that will be ambitious enough to cease destruction of our life support system and catalyse the necessary action



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and change to secure life on this planet,” said **Dr Jane Smart, Director of IUCN’s Science and Data Centre.**

“Most of the Earth’s biosphere, 99% of all liveable space on our planet, is under water. Humanity acts as if oceans were inexhaustible, capable of sustaining infinite harvest of algae, animals and plants for food and other products, able to transform vast quantities of sewage and other pollutants that we pour in coastal areas, and absorb the CO₂ generated by land-use change and burning fossil fuel. This Red List update brings to light new evidence of the multiple interacting threats to declining life in the sea,” said **Professor Jon Paul Rodríguez, Chair of the IUCN Species Survival Commission.**

“The awful status of these species should shock us and engage us for urgent action. These magical marine species are treasured wildlife, from the wonderful abalone to the charismatic dugong and the glorious pillar coral, and we should safeguard them accordingly. It is vital that we manage fisheries properly, constrain climate change and reverse habitat degradation,” said **Professor Amanda Vincent, Chair of the IUCN SSC Marine Conservation Committee.**

“The compounding effects of human activity on wildlife populations is undeniable,” said **Dr Sean T. O’Brien, President and CEO of Nature Serve.** *“This Red List update provides the latest evidence of how humans are failing to meet our responsibilities as stewards of the Earth and how unprecedented levels of climate change are threatening biodiversity. We must work together to make science-based decisions that prioritise conserving our natural world.”*

“Reversing these downward trends requires a holistic ecosystem approach, one that takes into account the critical benefits of protecting and restoring land—such as an island—to the marine environment around it,” said **Dr Barney Long, Re:wild senior director of conservation strategies.** *“Re:wild, Island Conservation and Scripps Institution of Oceanography at the University of California San Diego launched the Island-Ocean Connection Challenge to restore at least 40 globally significant island ecosystems to benefit islands, oceans and communities by 2030. We call on others to join us.”*

“Several dugong populations are now listed as Endangered or Critically Endangered. The dugong is the largest surviving species of Sirenians, an ancient order of mammals that possess unique adaptations and a deep evolutionary history. It is critical to provide protection to the dugong to avoid the fate of the Steller’s sea cow, which was discovered in 1741 and extinct within 27 years. We know that human activities can impact these species negatively and quickly, thus the urgency of providing immediate conservation action,” said **Dr Thomas Lacher, Jr., Texas A&M University.**

“While COP15 participants debate whether to set aside 30% of land for biodiversity conservation, the results of ongoing work in Mozambique’s Tropical Important Plant Areas (TIPAs) highlight the great potential of even incremental increases in Protected Areas coverage. Completion of IUCN Red List assessments of Mozambique’s endemic species to inform TIPAs designation indicates that over 80% of the country’s known threatened plant species could be safeguarded by formally protecting just 3% of its land area,” said **Dr Iain Darbyshire, Research Leader - Africa Team at Royal Botanic Gardens, Kew.**

“Earlier this year, we published a study that found the Chinese dugong population is functionally extinct – now two more dugong populations are one step closer to disappearing forever,” said **Professor Samuel Turvey, Zoological Society of London.** *“From habitat pollution to warming oceans, ongoing human impacts continue to prevent marine ecosystem recovery, threatening the future of both these iconic animals and the many other species they live alongside. We need urgent action to fight climate change and biodiversity loss, as these two crises simultaneously threaten life on earth as we know it.”*



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Editor's notes

IUCN actively supports the development of an ambitious Post-2020 Global Biodiversity Framework. The IUCN Red List of Threatened Species™ and Red List Index will be used to track progress towards species conservation targets.

The IUCN Red List

Global figures for the 2022-2 IUCN Red List of Threatened Species:

TOTAL SPECIES ASSESSED = 150,388

(Total threatened species = 42,108)

Extinct = 902

Extinct in the Wild = 84

Critically Endangered = 9,251

Endangered = 16,364

Vulnerable = 16,493

Near Threatened = 8,816

Lower Risk/conservation dependent = 152 (this is an old category that is gradually being phased out of The IUCN Red List)

Least Concern = 77,491

Data Deficient = 20,835

The figures presented above are only for those species that have been assessed for The IUCN Red List to date. Although not all of the world's species have been assessed, The IUCN Red List provides a useful snapshot of what is happening to species today and highlights the urgent need for conservation action. Relative percentages for threatened species cannot be provided for many taxonomic groups on The IUCN Red List because they have not been comprehensively assessed. For many of these groups, assessment efforts have focused on threatened species; therefore, the percentage of threatened species for these groups would be heavily biased.

For those groups that have been comprehensively assessed, the percentage of threatened species can be calculated, but the actual number of threatened species is often uncertain because it is not known whether Data Deficient (DD) species are actually threatened or not. Therefore, the percentages presented above provide the best estimate of extinction risk for those groups that have been comprehensively assessed (excluding Extinct species), based on the assumption that Data Deficient species are equally threatened as data sufficient species. In other words, this is a mid-point figure within a range from x% threatened species (if all DD species are not threatened) to y% threatened species (if all DD species are threatened). Available evidence indicates that this is a best estimate.

The IUCN Red List threat categories are as follows, in descending order of threat:

Extinct or Extinct in the Wild

Critically Endangered, Endangered and Vulnerable: species threatened with global extinction.

Near Threatened: species close to the threatened thresholds or that would be threatened without ongoing conservation measures.

Least Concern: species evaluated with a lower risk of extinction.

Data Deficient: no assessment because of insufficient data.

Critically Endangered (Possibly Extinct) or Critically Endangered (Possibly Extinct in the Wild): these are not IUCN Red List Categories, but are tags developed to identify those Critically Endangered species that are in all probability already extinct but for which confirmation is required; for example, through more extensive surveys being carried out and failing to find any individuals.

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About The IUCN Red List of Threatened Species™

The IUCN Red List of Threatened Species™ (or The IUCN Red List) is an invaluable resource to guide conservation action and policy decisions. It is a health check for our planet – a Barometer of Life. It is the world's most comprehensive information



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source on the global conservation status of plant, animal and fungi species. It is based on an objective system for assessing the risk of extinction of a species should no conservation action be taken.

Species are assigned to one of eight categories of threat based on whether they meet criteria linked to population trend, population size and structure and geographic range. Species listed as Critically Endangered, Endangered or Vulnerable are collectively described as 'threatened'.

The IUCN Red List is not just a register of names and associated threat categories. It is a rich compendium of information on the threats to the species, their ecological requirements, where they live, and information on conservation actions that can be used to reduce or prevent extinctions. When an animal, fungus or plant changes Red List Category for genuine reasons, this reflects a change in the extinction risk for that species. It is therefore a key indicator for tracking conservation successes and failures. The IUCN Red List is a joint effort between IUCN and its Species Survival Commission, working with its IUCN Red List partners – ABQ BioPark; Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; Missouri Botanical Garden; NatureServe; Re:wild; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London. This work has been made possible with the essential contribution of the Red List Partners. www.iucnredlist.org [Facebook](#) [Twitter](#).

About IUCN

IUCN is a membership Union uniquely composed of both government and civil society organisations. It provides public, private and non-governmental organisations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together.

Created in 1948, IUCN is now the world's largest and most diverse environmental network, harnessing the knowledge, resources and reach of more than 1,400 Member organisations and some 15,000 experts. It is a leading provider of conservation data, assessments and analysis. Its broad membership enables IUCN to fill the role of incubator and trusted repository of best practices, tools and international standards.

IUCN provides a neutral space in which diverse stakeholders including governments, NGOs, scientists, businesses, local communities, indigenous peoples organisations and others can work together to forge and implement solutions to environmental challenges and achieve sustainable development.

Working with many partners and supporters, IUCN implements a large and diverse portfolio of conservation projects worldwide. Combining the latest science with the traditional knowledge of local communities, these projects work to reverse habitat loss, restore ecosystems and improve people's well-being. www.iucn.org.

About the Species Survival Commission (SSC)

With nearly 10,000 members in 174 countries, the Species Survival Commission (SSC) is the largest of the six expert commissions of IUCN and enables IUCN to influence, encourage and assist societies to conserve biodiversity by building knowledge on the status and threats to species, providing advice, developing policies and guidelines, facilitating conservation planning, and catalysing conservation action. [Learn more](#).

About ABQ BioPark

Located along the Rio Grande River near downtown Albuquerque, New Mexico, ABQ BioPark consists of: The ABQ BioPark Zoo, Botanic Garden, Aquarium and Tingley Beach. Welcoming more than 1.3 million visitors per year, we are the top tourist destination in the state of New Mexico and a critical resource for education and conservation in the Southwest US. Through captive breeding programs, large-scale freshwater fish rearing and reintroduction, habitat restoration initiatives, and seed banking, ABQ BioPark is committed to building sustainable conservation initiatives that benefit New Mexico and the world. ABQ BioPark supports conservation measures within the Assess, Plan, Act model by contributing directly to research, providing technical and logistical support for the IUCN SSC, and engaging in direct conservation action. The New Mexico BioPark Society (NMBPS), the nonprofit support organization for the ABQ BioPark, funds the Center for Species Survival New Mexico and the Red List partnership in its entirety and employs three CSS Officers at the ABQ BioPark. To learn more about the ABQ BioPark, visit their website, or follow them on Twitter, Facebook, or Instagram. For more information on NMBPS, visit www.bioparksociety.org.

About Arizona State University (ASU)

Ranked #1 in the U.S. for innovation, Arizona State University (ASU) is a new model for American higher education, combining academic excellence, entrepreneurial energy and broad access. It serves more than 70,000 students in metropolitan Phoenix, AZ. ASU champions intellectual and cultural diversity, and welcomes students from all fifty states and more than one hundred nations across the globe. ASU's Center for Biodiversity Outcomes (CBO) is a partnership between the Julie Ann Wrigley Global Institute of Sustainability (GIOS) and the School of Life Sciences (SoLS) via partnerships with NGO's, companies, and governmental organisations. Follow CBO's work on [Twitter](#). www.asu.edu.

About BirdLife International

BirdLife International is the world's largest nature conservation partnership, uniting over 100 national partners worldwide. Through our unique local-to-global approach, we deliver high impact and long-term conservation for the benefit of nature and people. As the official authority for birds for the IUCN Red List, BirdLife coordinates the process of evaluating all of the world's bird species against the Red List categories and criteria. Find out more at: www.birdlife.org.



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About Botanic Gardens Conservation International (BGCI)

BGCI is an international organisation that exists to ensure the world-wide conservation of threatened plants, the continued existence of which are intrinsically linked to global issues including poverty, human well-being and climate change. BGCI represents over 700 members - mostly botanic gardens - in 118 countries. We aim to support and empower our members and the wider conservation community so that their knowledge and expertise can be applied to reversing the threat of extinction crisis facing one third of all plants. www.bgci.org.

About Conservation International (CI)

Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature, our global biodiversity, for the long term well-being of people. Founded in 1987 and marking its 25th anniversary in 2012, CI has headquarters in the Washington DC area, and 900 employees working in nearly 30 countries on four continents, plus 1,000+ partners around the world. For more information, please visit www.conservation.org, or follow us on [Facebook](#) or [Twitter](#).

About Missouri Botanical Garden

Founded in 1859, the Missouri Botanical Garden is the oldest continuously operating botanical garden in the USA and a National Historic Landmark. MBG is a center for botanical research, conservation, and science education. The information contained in the MBG herbarium, one of the world's largest, and in the TROPICOS® database, coupled with broad staff expertise in systematics and ecology, support a wide array of conservation activities conducted by members of the Science & Conservation Division, including basic and applied research, conservation of important groups such as orchids, the management of a dozen community-based conservation sites in Madagascar, and risk of extinction assessments, all of which form part of MBG's contribution to the IUCN Red List Partnership. www.missouribotanicalgarden.org.

About NatureServe

For nearly 50 years, NatureServe has been the authoritative source for biodiversity data and the central coordinating organization for a network of over 60 member programs throughout North America. Together, NatureServe and the network of member programs are dedicated to developing, collecting, and analyzing biodiversity information to support informed decisions about managing, protecting, restoring, and conserving natural resources. NatureServe and the Network develop and manage data for over 100,000 species and ecosystems, answering fundamental questions about what exists, where it is found, and how it is doing. www.natureserve.org.

About Re:wild

Re:wild protects and restores the diversity of life on Earth through innovative collaborations among individuals, communities, Indigenous peoples, governments, scientists, and businesses to drive the most pressing nature-based solutions to our planet's urgent crises. Radical change requires radical collaboration. For more information, visit their [website](#) or follow them on Twitter ([@rewild](#)) or [Facebook](#).

About the Royal Botanic Gardens, Kew

The Royal Botanic Gardens, Kew is a world-famous scientific organisation, internationally respected for its outstanding collections as well as its scientific expertise in plant and fungal diversity, conservation and sustainable development in the UK and around the world. Kew Gardens is a major international and a top London visitor attraction. Kew Gardens' 132 hectares of landscaped gardens, and Wakehurst, Kew's wild botanic garden in Sussex, attract over 2.5 million visits every year. Kew Gardens was made a UNESCO World Heritage Site in July 2003 and celebrated its 260th anniversary in 2019. Wakehurst is home to Kew's Millennium Seed Bank, the largest wild plant seed bank in the world, as well as over 500 acres of designed landscapes, wild woodlands, ornamental gardens and a nature reserve. The Kew Madagascar Conservation Centre is Kew's third research centre and only overseas office.. RBG Kew receives approximately one third of its funding from Government through the Department for the Environment, Food and Rural Affairs (Defra) and research councils. Further funding needed to support RBG Kew's vital work comes from donors, membership and commercial activity including ticket sales. www.kew.org.

About Sapienza University of Rome

With over 700 years of history and 113,000 students, Sapienza is the largest University in Europe, the second in the world after El Cairo: a city within the city. The University includes 11 faculties and 58 departments. In Sapienza there are over 3,311 professors, and 4,000 administrative and technical staff. Sapienza offers a wide choice of courses including 281 degree programs. There are 9,234 foreign students. Sapienza plans and carries out important scientific investigations in almost all disciplines, achieving high-standard results both on a national and on an international level. Eugenio Gaudio has been the Rector of Sapienza University since November 2014. www.uniroma1.it.

About Texas A&M University

From humble beginnings in 1876 as Texas' first public institution of higher learning, to a bustling 5,200-acre campus with a nationally recognised faculty, Texas A&M University is one of a select few universities with land-grant, sea-grant and space-grant designations. With an enrolment of about half men and half women, 25 percent of the freshman class are the first in their family to attend college. Here, 39,000-plus undergraduates and more than 9,400 graduate students have access to world-class research programs and award-winning faculty. Texas A&M has two branch campuses, one in Galveston, Texas, and one in the Middle Eastern country of Qatar. This research-intensive flagship university with 10 colleges was recently ranked first in the nation by Smart Money magazine for "pay-back ratio" (what graduates earn compared to the cost of their education). The 2011



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U.S. News and World Report ranked Texas A&M second nationally in their "Great Schools, Great Prices" category among public universities and 22nd overall. Many degree programs are ranked among the top 10 in the country. www.tamu.edu.

About ZSL

Founded in 1826, ZSL (Zoological Society of London) is an international scientific, conservation and educational charity whose mission is to promote and achieve the worldwide conservation of animals and their habitats. Our mission is realised through our ground-breaking science, our active conservation projects in more than 50 countries and our two Zoos, ZSL London Zoo and ZSL Whipsnade Zoo. For more information visit www.zsl.org.

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