WAZA

World Association of Zoos and Aquariums

REVERSE THE RED

WAZA × RTR SHORT GUIDE

How your Zoo or Aquarium Can Join Reverse the Red and Halt Biodiversity Decline

Aim of the

WAZA RTR SHORT GUIDE

Zoos and aquariums have a vital role to play in addressing the decline of biodiversity and safeguarding endangered species. Recognising the urgency of this issue, the World Association of Zoos and Aquariums (WAZA), the International Union for the Conservation of Nature Species Survival Commission (IUCN SSC) and other partners jointly launched Reverse the Red (RtR), a movement to inspire action and spread optimism for species conservation. This Short Guide has been developed to provide clarity on the ways that zoos and aquariums can join RtR, contribute to species conservation and optimise the unique skills and reach of our community. We hope you will be inspired and join us.

TOGETHER WE CAN REVERSE THE RED

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CR → EN

Mountain gorilla (*Gorilla beringei beringei*)
© Jeremy Stewardson/Unsplash

EN → VU

Arabian oryx (*Oryx leucoryx*)
© Silvia Razgova

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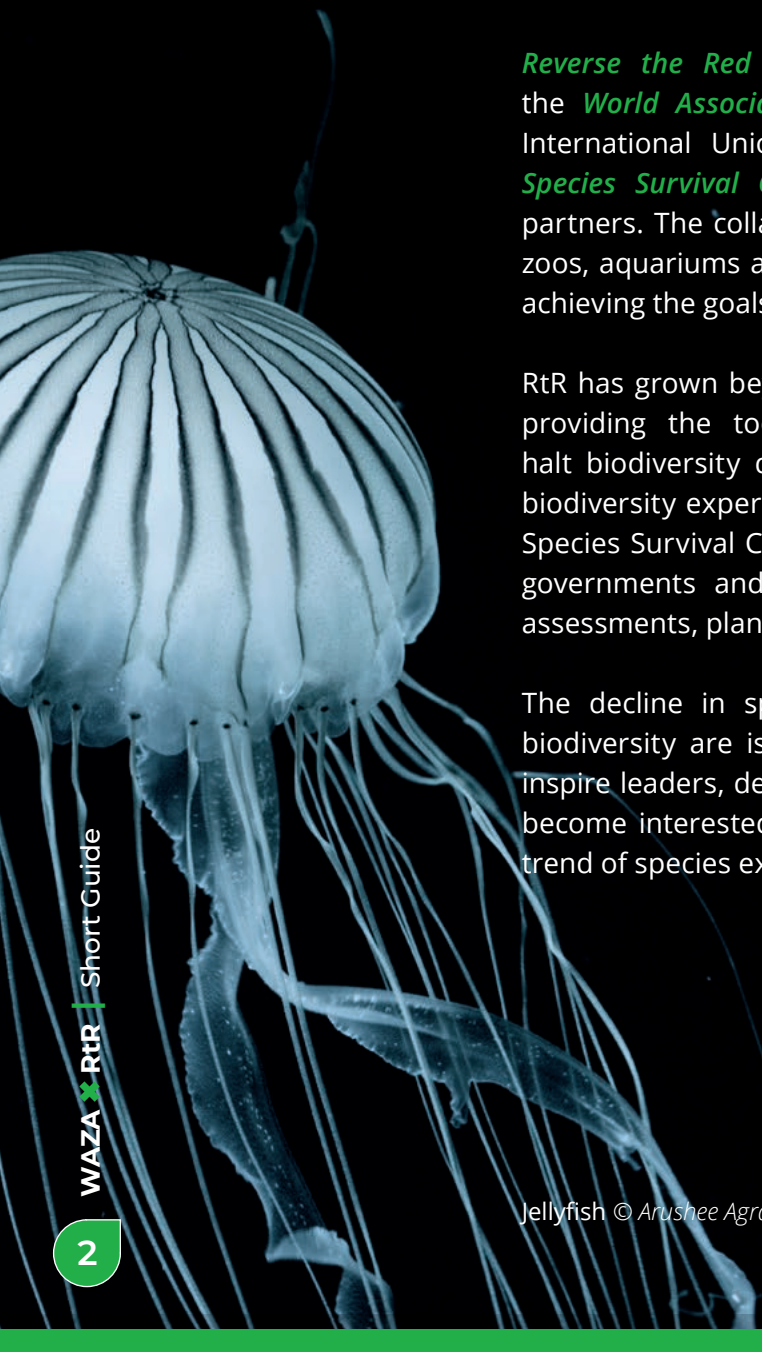
01 WHAT IS REVERSE THE RED?

Reverse the Red is a global initiative that brings together zoos, aquariums, botanic gardens, conservation organisations, storytellers, and leading species experts from around the world, working to promote cooperation and action to reverse the trend of species extinction shown through the IUCN Red List of Threatened Species and promote recovery. By working together, these organisations can have a powerful impact on the conservation of endangered species, contributing to a brighter and more sustainable future for our planet. Zoos and aquariums are pivotal partners in this movement, representing skills, resources and community reach, vital to halt biodiversity decline.

Reverse the Red (RtR) began as a collaboration between the ***World Association of Zoos and Aquariums (WAZA)***, the International Union for the Conservation of Nature's (IUCN) ***Species Survival Commission (SSC)*** and other conservation partners. The collaboration began following the recognition that zoos, aquariums and botanic gardens have a vital role to play in achieving the goals of the IUCN SSC.

RtR has grown beyond zoos and aquariums and into a coalition providing the tools and partnerships to save species and halt biodiversity decline. It aims to convene a broad range of biodiversity experts to form new and diverse volunteer National Species Survival Centers and National Expert Groups to support governments and facilitate science-based decision making in assessments, planning and action.

The decline in species abundance and increasing threats to biodiversity are issues that require urgent action. RtR aims to inspire leaders, decision-makers and people around the globe to become interested and motivated to take action to reverse the trend of species extinction and promote recovery.



Jellyfish © *Arushee Agrawal/Unsplash*

Reverse the Red Executive Committee Members

ZOOS, AQUARIUMS, RTR AND THE KUNMING – MONTRÉAL GLOBAL BIODIVERSITY FRAMEWORK (GBF)

Convention on Biological Diversity

As key partners in the conservation of biodiversity, it is important for zoos and aquariums to align their efforts with the global targets set out in the *Kunming-Montréal Global Biodiversity Framework (GBF)*, particularly Goal A and Target 4, which aim to halt human induced extinction and improve the conservation status of species. Zoos and aquariums can make a significant contribution to changing outcomes for biodiversity by leveraging their passion for saving species, skills and facilities developed to care for animals, and their access to significant audiences.

Goal A of the GBF states

"Human induced extinction of known threatened species is halted, and, by 2050, extinction rate and risk of all species are reduced tenfold and the abundance of native wild species is increased to healthy and resilient levels".

Target 4 specifies a way to achieve Goal A

"Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through *in situ* and *ex situ* conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimise human-wildlife conflict for coexistence."

02 WAZA MEMBERS' COMMITMENT TO BIODIVERSITY

WAZA, through its ***Conservation Strategy*** in 2015, laid the foundation for leveraging the work of leading zoos and aquariums in support of the Kunming-Montréal Global Biodiversity Framework and its goals to address human-induced threats to biodiversity. At the 2022 Annual General Meeting, WAZA members also approved the ***WAZA Resolution 77.2: Changing Outcomes for Biodiversity*** that highlights the urgent need to address the ongoing loss of biodiversity and the failure of the United Nations Decade on Biodiversity 2011–2020 to effectively tackle this issue. The fact that over 40,000 species are listed as Threatened with Extinction on the IUCN Red List (i.e., Critically Endangered, Endangered, and Vulnerable) is a major concern for WAZA and its members.

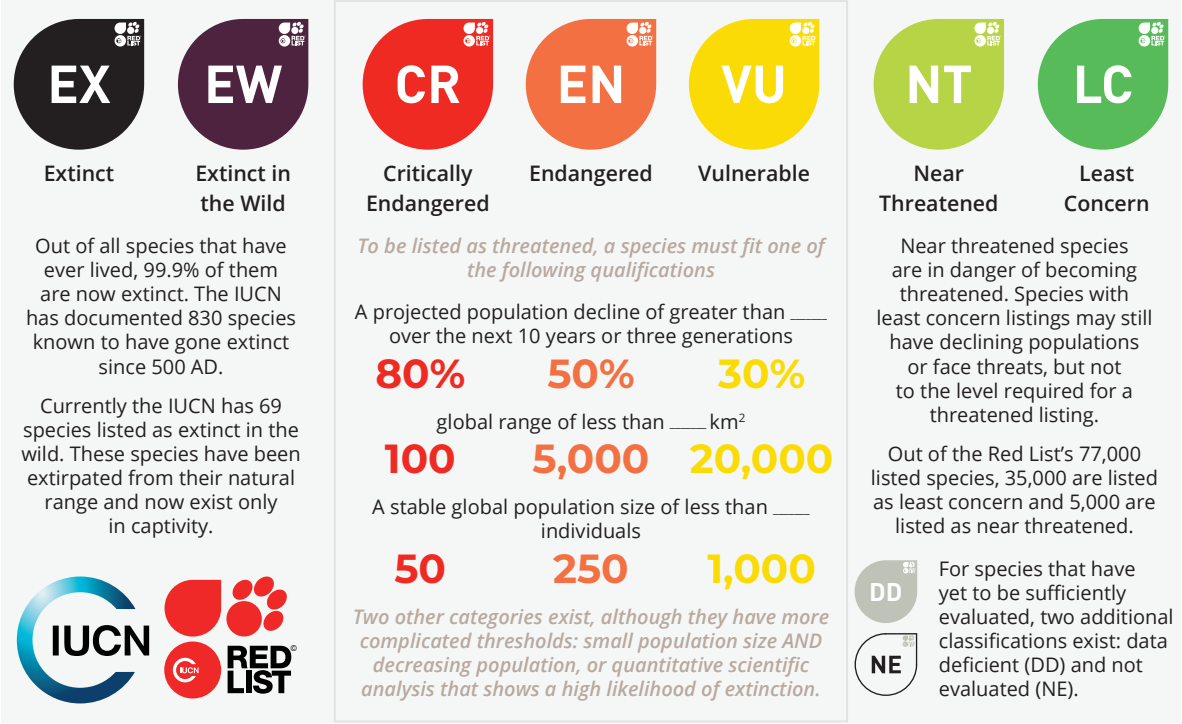
To address this, WAZA members can join the movement and Reverse the Red through a number of ways which will be elaborated on in this Short Guide.

Release of a Yellow Cardinal (*Gubernatrix cristata*)
© Fundación Temaikèn

Assessing the Conservation Status of Species

Improvement in conservation status is a significant measure of success, as it indicates that conservation efforts are having a positive impact on a particular species or group of species. Using the IUCN Red List assessments as a guide for selecting species for conservation programmes and developing appropriate conservation strategies, is crucial for achieving a genuine change in extinction risk.

Recognising the ***IUCN Red List*** as a primary measure of conservation status is essential for tracking and monitoring the conservation status of species around the world, and for prioritising conservation efforts where they are most needed. Additionally, using ***improvements in conservation status*** as a measure of success can help to motivate and encourage ongoing conservation efforts, and can ultimately lead to more positive outcomes for biodiversity and ecosystems.



Assessing the current status of species is a critical first step in developing a successful programme for ***improvement on conservation status***.

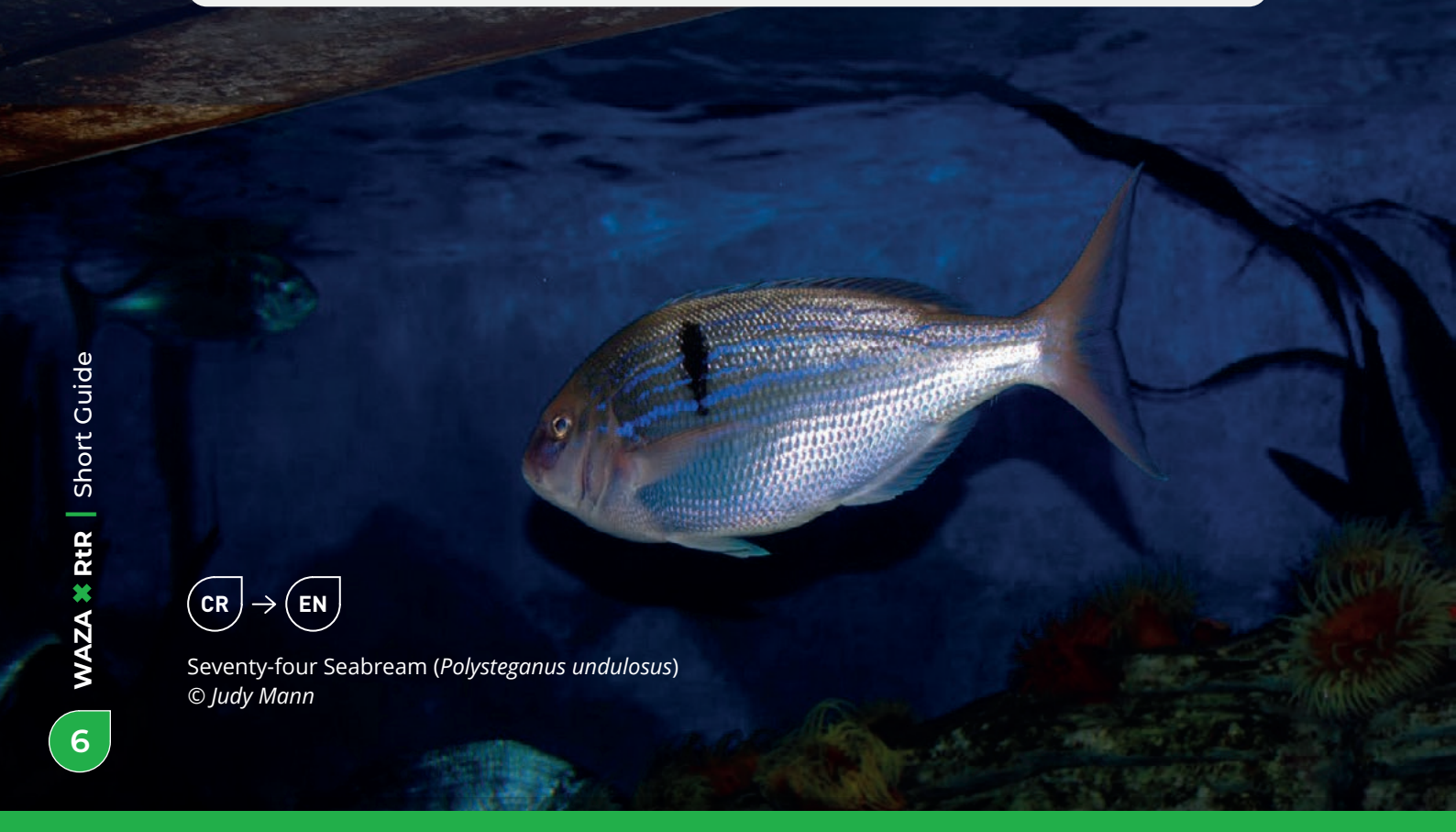
The ***IUCN Red List*** is one of the most authoritative sources of information on the conservation status of species. Zoos and aquariums are encouraged to use these assessments as a basis for their conservation programmes, as they contain valuable data on the best knowledge available for a species, including their global distribution and the threats they face. To achieve a genuine change in extinction risk, conservation interventions must focus on actions that are highly likely to lead to improvements in at least one Red List or ***Green Status*** category for each of the species selected, and have evidence of sustained change. Therefore, it is essential to use the IUCN Red List assessments as a guide for selecting species for conservation programmes and developing appropriate conservation strategies.

Case Study

Fisheries Management Gives Hope for Seventy-four Seabream Recovery | SAAMBR

In 1910, a handful of line-fishing boats operating out of Durban Harbour, South Africa, were catching over 1,000 tonnes of seventy-four seabream (*Polysteganus undulosus*) per year. However, by the late 1980s, commercial line-fishers were catching less than 10 tonnes of this popular table fish per year. Scientists at the South African Association for Marine Biological Research (SAAMBR) started researching the biology of this fish population and discovered that its numbers had collapsed by the early 1960s, and by the mid-1990s, its population was estimated to be at less than 5% of its original unfished level. Data from these population assessments and catch history was used to create the first IUCN Red List assessment for the species published in 2014, which listed the seventy-four seabream as Critically Endangered (CR) due to its dramatic population decline during the 20th Century. A set of management actions, including species-specific fishing regulations (e.g. daily bag limits, minimum size limits and a closed season) were first implemented in 1984 and strengthened in 1992 and when these didn't work, a moratorium on the capture of seventy-four seabream in South African waters was implemented in 1998. In addition, several large no-take marine protected areas (MPAs) have been established along the South African coast during the past 50 years.

Based on recent observations from fishery-independent surveys using remote operated vehicles and baited remote underwater videos conducted along the Eastern Cape and KwaZulu-Natal coast, as well as anecdotal evidence from fishermen of increasing abundance of juveniles, it is believed that the population of seventy-four seabream is slowly recovering and that conservation efforts to protect this critically endangered species have been successful. A recent re-assessment of seventy-four seabream has therefore recommended the revision of its status to Endangered (EN) based on the current low levels of fishing mortality exerted on the species and its perceived recovery.



CR → EN

Seventy-four Seabream (*Polysteganus undulosus*)
© *Judy Mann*

Tequila Splitfin (*Zoogoneticus tequila*)
© Universidad Michoacana de San Nicolás de Hidalgo

Case Study

Reintroducing the Tequila Splitfin | Chester Zoo

The Tequila Splitfin (*Zoogoneticus tequila*) fish species was on the brink of extinction in the wild until a small population of less than 50 adults was found in 2001. A Critically Endangered (CR) assessment was published on the IUCN Red List of Threatened Species in 2009. However, that population also became extinct a few years later, leaving the species surviving only in human care.

Following the *IUCN Guidelines for Reintroductions and Other Conservation Translocations* (2013), a recovery plan for the Teuchitlán ecosystem was developed thanks to funding from several partners, including WAZA members in the UK, Germany and France. The founding population of the Tequila Splifin came from Chester Zoo with Universidad Michoacana de San Nicolás de Hidalgo being the main executor of the project. During the initial phase of the recovery plan, a large earthen pond was created simulating the most natural conditions possible. By 2016, the pond had an estimated population of 10,000 individuals.

After reintroduction, the population grew exponentially for two years and then stabilised. Due to these conservation efforts the Red List status was changed to Endangered (EN) in 2019. The population was estimated at more than 800 individuals.

Monitoring the reintroduced populations of *Zoogoneticus tequila*

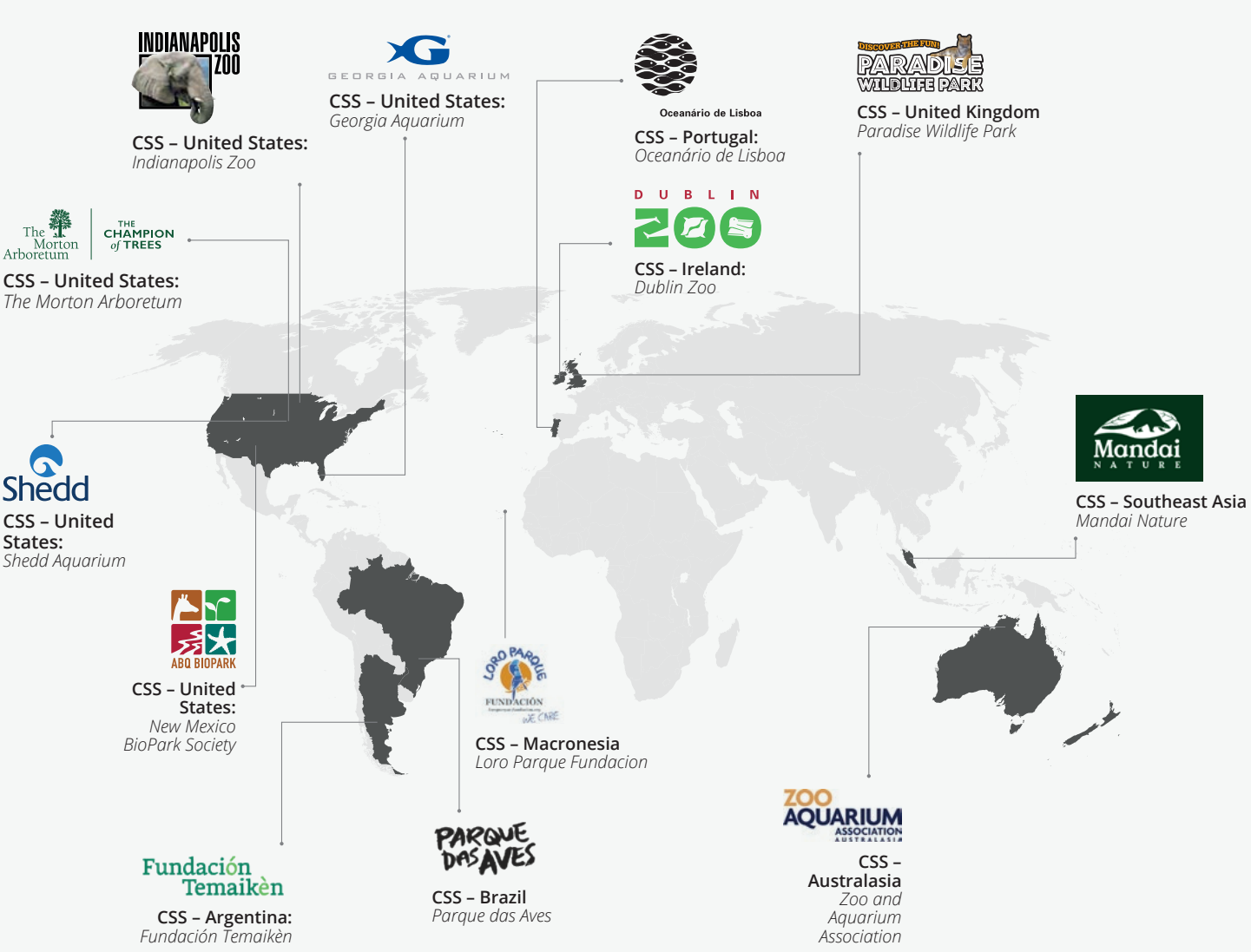
Selection of the individuals to release

Pre-reintroduction of the specimens in a mesocosm

Photos © Universidad Michoacana de San Nicolás de Hidalgo

The Centers for Species Survival

Centers for Species Survival (CSS) are created in partnership with the IUCN SSC and work with global expert networks to catalyse priority species conservation efforts. Centers provide dedicated staff to assess and plan for the recovery of threatened species. They play a key role in protecting and restoring threatened species by providing specialised facilities, expertise, and collaborative networks.



CSS as of 31 May, 2023

CSS have several key functions, including:

- Assessing the status of species for inclusion on the IUCN Red List,
- Convening key stakeholders to develop conservation action plans across *in situ* and *ex situ* priorities,
- Connecting conservationists, communities and governments to work more collaboratively towards species recovery,
- Taking action to ensure species survival.

CSS are engaged in collaborative conservation efforts that involve multiple organisations and agencies working together to protect endangered species.

Zoos and aquariums can collaborate with a CSS that focuses on their priority species or region, working together to secure the future of species.

Any zoo or aquarium wanting to establish a CSS should contact the IUCN SSC here: *ssc@iucn.org*.

Case Study

The ABQ BioPark Center for Species Survival | New Mexico BioPark

The ABQ BioPark set up a team of three full-time Species Survival Officers, each aligned with one of the BioPark's three facilities; the Aquatics Species Survival Officer, aligned with their Aquarium, has helped lead extinction risk assessments of freshwater fish across Mexico and Central America and has been instrumental in species recovery efforts for identified priority species. The Botanical Species Survival Officer, aligned with their Botanic Garden, has contributed to a greater understanding of the conservation status of medicinal plants, while the Invertebrate Species Survival Officer focuses on the conservation of pollinator species across North America to align with one of the Zoo's priority conservation flagship initiatives.

This team is now taking a global leadership role in training and providing management support to the network of Species Survival Officers based at other partner organisations. The extent of their work, which the New Mexico BioPark Society funds, has also enabled ABQ BioPark to become an IUCN Red List Partner and, therefore, hold a seat on the global Red List's governance board.

The Center for Species Survival team at Albuquerque BioPark © *ABQ BioPark*

Case Study

The IUCN SSC Center for Species Survival Southeast Asia | Mandai Wildlife Group

Sabah Hornbill Workshop © *Sanjitpal Singh*

Straw-headed Bulbul
© *Mandai Wildlife Group*

The IUCN SSC Center for Species Survival: Southeast Asia (CSS SEA) was established in 2022 and is hosted by Mandai Nature, the conservation arm of Mandai Wildlife Group. CSS SEA aims to catalyse *assessment, planning and action* for highly threatened species in the region within the IUCN SSC'S Assess-Plan-Act conservation approach:

Assess: Strengthen the IUCN Red Listing processes by providing training and support for species assessments in Singapore and Southeast Asia.

Plan: Through the Conservation Planning Specialist Group (CPSG) Southeast Asia Resource Center hosted by Mandai Nature, the CSS SEA continues to expand on species planning efforts to align conservation needs for priority species using the One Plan Approach across *in situ* and *ex situ* initiatives.

Act: Addressing the urgent need for increased conservation action, the CSS SEA supports partnerships and activities that directly and positively impact the survival of threatened Southeast Asian species using modern and integrated conservation tools and One Plan Approach to Conservation. Through the IUCN SSC Asian Species Action Partnership (ASAP), the CSS SEA continues to prioritise and support action for ASAP species – Critically Endangered land and freshwater vertebrate species found in Southeast Asia.

The CSS focuses on various conservation priorities, including species recovery, habitat restoration, combating illegal wildlife trade, and engaging local communities in conservation efforts. It supports projects across Southeast Asia, providing resources, technical expertise, and guidance to ensure the success and sustainability of conservation initiatives.

By leveraging Mandai Nature's expertise and resources, combined with the SSC's global network of experts, the CSS aims to make a significant positive impact on biodiversity conservation in Southeast Asia. Their collaborative efforts will help safeguard the region's unique ecosystems and species for future generations.

The Conservation Status Improvement Approach

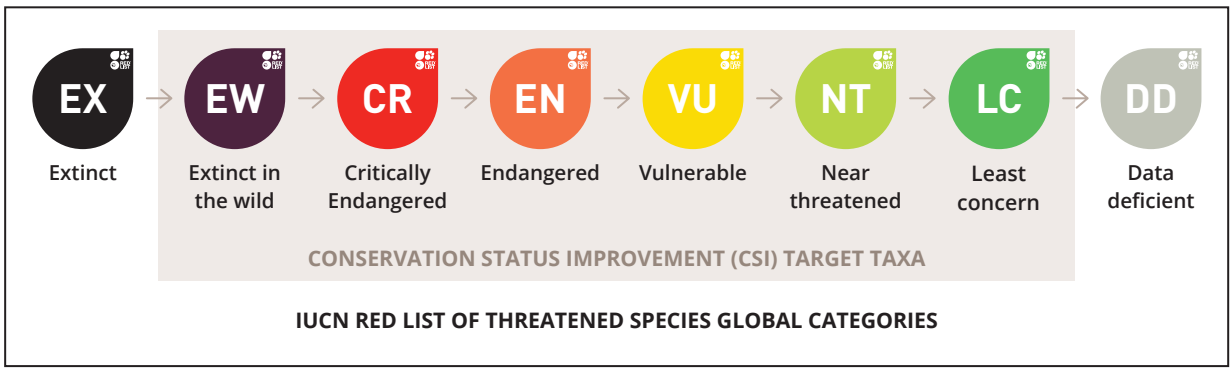
The Conservation Status Improvement (CSI) approach is a strategic and focused approach to conservation that provides a framework aiming to identify species with the highest potential for improving their conservation status, as well as for the development of plans that promote recovery and communicate success, generating momentum in political will and resource allocation.

Reverse the Red's CSI approach focuses on mitigating or halting the main threats to a species, implementing effective measures aimed at species recovery, or both. When successful, this can result in a species moving to a lower extinction risk threat category or at least one step toward recovery.

The CSI approach highlights the incremental changes required to move species away from extinction and toward recovery by targeting species that are close to Red List criteria thresholds and generates an understanding of the resources required to deliver this change while communicating successes along the way. The CSI approach generates momentum in political will and resource allocation through clearly articulated goals, steps, and potential for success.

Guidelines have been developed to assist zoos and aquariums in the creation of Conservation Status Improvement plans for species in their care or projects they support *in situ*. The document provides a strategy for practitioners with five steps to integrate into their conservation planning process, allowing them to measure and communicate their success, and have a greater conservation and social impact.

DOWNLOAD THE CSI GUIDELINES



Incremental changes in the IUCN Red List categories as proposed by the CSI approach. Taxa listed in the categories EW, CR, EN, VU and NT are generally in need of species-specific actions to support recovery.

Case Study

Changing the Conservation Status for the Eastern Barred Bandicoot | Zoos Victoria

In 1989 the total population of Eastern Barred Bandicoots (*Perameles gunnii*) was fewer than 150 and in 2013, the species was declared as Extinct in the Wild (EW) on mainland Australia. Zoos Victoria is thrilled to share that the conservation status of the Eastern Barred Bandicoot has been reclassified from Extinct in the Wild to Endangered (EN). The changed status is a first for an Australian threatened species and enables Zoos Victoria to end its 30-year conservation breeding and insurance programme.

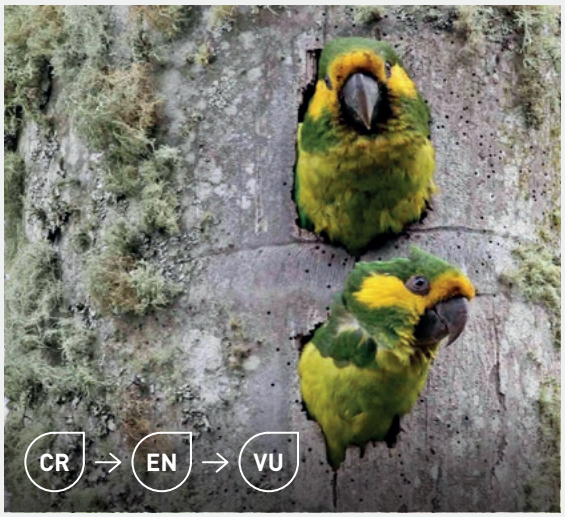
Eastern Barred Bandicoot (*Perameles gunnii*)
© Zoos Victoria

Case Study

Twelve Species Saved from Extinction | Loro Parque Fundación

Loro Parque Fundación has saved 12 species of parrots from imminent extinction in nature. Enormous joint efforts between the foundation, other NGOs, partners, and experts have resulted in the recovery of these species. Among the most extreme cases are the Lear's Macaw (*Anodorhynchus leari)*, whose global population was reduced to 22 individuals in 1999, and the Yellow-eared Parrot (*Ognorhynchus icterotis*), with 82 live individuals that same year. Loro Parque Fundación's efforts to increase the number of existing individuals has been reflected in the successful *downlisting* of these species on the Red List. The Lear's macaw and the Yellow-eared Parrot have shifted their Red List Status from Critically Endangered (CR) to Endangered (EN) and Vulnerable (VU), respectively.

Lear's Macaw (*Anodorhynchus leari*)



Yellow-eared Parrot (*Ognorhynchus icterotis*)

Photos © Loro Parque Fundación

THE ROLE OF ZOOS AND AQUARIUMS IN IMPROVING THE CONSERVATION STATUS OF SPECIES

Zoos and aquariums have a crucial role to play in reversing species decline. Research suggests that zoos and aquariums build capacity and bring species management expertise and community engagement to species conservation. Additionally, they play a crucial role in breeding, husbandry, pathology, veterinary science, conservation medicine, genetic management, community engagement and behaviour, fundraising, research, rescue and release. Some of the ways in which WAZA member zoos and aquariums can further their work in improving the conservation status of species include:

1. Provide care, knowledge, and management of *ex situ* populations of fauna, flora, and fungi.
2. Use the skills and experience of zoo and aquarium veterinary and pathology teams to assist wild populations.
3. Work to secure populations to reinforce wild populations for reintroduction and other conservation translocations.
4. Fund and undertake research and science-based investigations to expand knowledge of species.
5. Use social science and advocacy to engage and assist stakeholders and the community to address threats to species survival.
6. Build capacity and resources to save species, including supporting in-field activities and partners.
7. Support conservation programmes with a clear plan and pathway to down-listing species.
8. Provide funds and expertise to programmes that are targeted at improving the status of threatened species.
9. Collaborate with global organisations and prioritise species that are housed in zoos and aquariums to help ensure effective and impactful financial contributions.

EW → CR → EN

Black-footed ferret (*Mustela nigripes*)

Case Study

Indianapolis Zoo Saving Species Challenge | Indianapolis Zoo

Aphelocoma coerulescens
© Indianapolis Zoo

Baby radiated tortoises
© Carla Knapp

American alligator (***Alligator mississippiensis***) *© Mark Potter*

In 2023, Indianapolis Zoo took a bold step by creating an initiative to have a measurable and sustainable impact on the survival of an animal species. Through their Saving Species Challenge, they aim to combine proven science with an entrepreneurial spirit to find and fund solutions to improve our natural world and fulfil our mission to protect nature.

The Zoo announced their international grant to save an animal species from extinction. The Indianapolis Zoo Saving Species Challenge is a grant that will award $1 million to one organisation anywhere in the world that can develop and execute a plan that will lead to the improvement of an animal species' status on the International Union for Conservation of Nature's Red List.

Poecilotheria metallica *© Indianapolis Zoo*

The Conservation Role of Effective and Impactful Zoo and Aquarium Population Management

Population management programmes are an important component of ex situ conservation, which involves managing and conserving populations of threatened species in human care outside their natural habitat, such as in zoos, aquariums, or other settings. One of the many goals of these programmes is to maintain genetically diverse and viable populations, which can serve as a source for reintroduction, translocation or reinforcement of wild populations, or as a safeguard against extinction.

The IUCN SSC developed the ***Guidelines on the use of ex situ management for species conservation***, which provide a framework for the implementation of population management programmes. These guidelines emphasise the importance of the integration of *ex situ* and *in situ* conservation efforts.

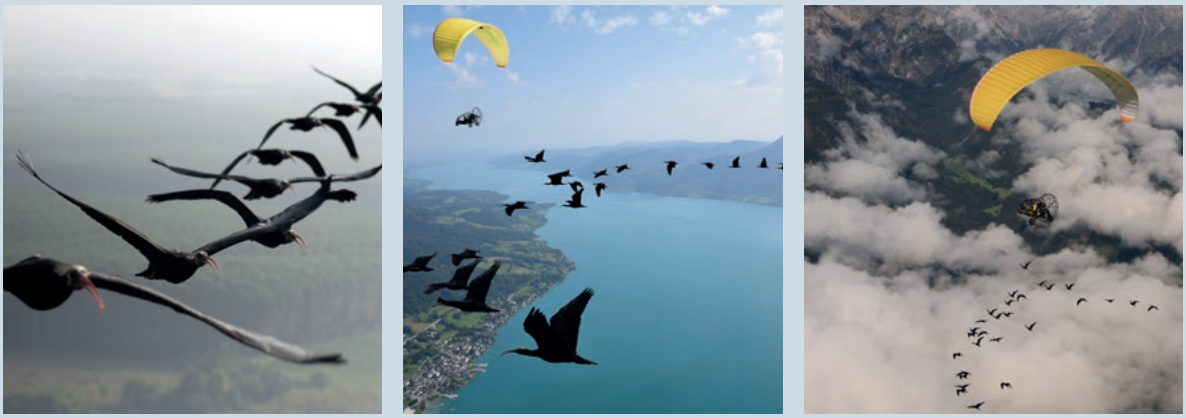
One important aspect of population management programmes is the consideration of conservation translocations, which involve moving individuals of a species from one location to another for conservation purposes. This can include reintroduction, which involves releasing animals into their former habitat where they have become extinct, and reinforcement, which involves releasing animals into an existing population to increase its size or genetic diversity. To ensure that these programmes contribute to the ***improvement of a species'*** IUCN Red List Status, it is essential to apply the ***One Plan Approach*** developed by the Conservation Planning Specialist Group (CPSG) and follow the IUCN ***Guidelines for reintroductions and other conservation translocations***. This approach ensures that conservation efforts are integrated and coordinated across different sectors and stakeholders, including *ex situ* programmes, to maximise their impact on species conservation.

TOWARDS A WAZA POPULATION MANAGEMENT GOAL

In 2023, the WAZA Committee for Population Management (CPM), took the first step towards developing a framework for the WAZA Population Management Goal (PMG).

The WAZA PMG will establish common ground among regions for science-based population management and will aim to enhance the role that WAZA member zoos and aquariums have in supporting the implementation of such frameworks.

Members of the WAZA Committee for Population Management after the workshop to discuss a Population management goal for WAZA.



Northern Bald Ibis (*Geronticus eremita*) © *Waldrappteam Conservation & Research*

Case Study

Flying the Northern Bald Ibis away from Extinction | Schönbrunn Zoo and Waldrappteam Conservation & Research

The Northern Bald Ibis (NBI) (*Geronticus eremita*) was locally extinct in Europe by the 17th century, but a project has been initiated to reintroduce this species in Central Europe. The main objective of the project is to teach the NBI its migratory flight route to the overwintering grounds during its first year of life. This groundbreaking endeavour represents the world's first-ever attempt to reintroduce a migratory bird species that had become locally extinct.

To achieve this, chicks are hatched in zoos and are hand-raised by human foster parents. Through this process, the birds imprint on their human caregivers, who act as co-pilots in ultralight aeroplanes, guiding the birds and training them to follow the aircraft. By following these aeroplanes, the ibis chicks learn the migration route, leading them to the overwintering grounds in Tuscany. When the NBI reaches the age of two to three years, they can migrate independently to the breeding grounds for reproduction. The wild-hatched juveniles then follow their conspecifics to the wintering site, perpetuating the tradition and ensuring the continuation of the species' migration.

Oriental white stork (*Ciconia boyciana*)
© Ltshears/Wikimedia [CC BY-SA 3.0]

Case Study

Bringing Back the Oriental White Stork from Extinction in Japan | JAZA

The Oriental white stork (*Ciconia boyciana*) became extinct in Japan in 1971. Although *ex situ* breeding was attempted at the Toyooka Stork Breeding Centre and several zoos in Japan prior to extinction, breeding with the Japanese population was unsuccessful. However, after 25 years of effort, breeding using white storks from Russia and China was successful. The first offspring was born at Tokyo Tama Zoological Park in 1988, followed by the Toyooka Breeding Centre and other zoos. With the increase in the number of white storks under human care, a reintroduction plan was initiated in 1992. Thanks to habitat restoration efforts, the current wild population of the Oriental white stork in Japan has increased by over 300 individuals. Some researchers have recommended the reassessment and *downlisting* of the species from Critically Endangered (CR) to Endangered (EN) on the *Japanese Red List*.

Oriental white stork (*Ciconia boyciana*) at Hyogo Park of the Oriental White Stork © *JAZA*

03 BRINGING REVERSE THE RED TO OUR COMMUNITIES

Zoos and aquariums have the potential to educate and share information with a large global audience on the conservation status of species and the IUCN Red List. Through various initiatives, zoos and aquariums can help raise awareness about the threats facing wildlife and the importance of coordinated conservation efforts.

With over 700 million annual visitors, zoos and aquariums have a unique opportunity to share information on the IUCN Red List and the conservation status of various species. This may be done in several ways such as displaying the IUCN Red List information through species signage, interactive displays, themed habitat messaging, and developing educational materials, developing educational programmes to involve students ranging from kindergarten to university. Other ways include animal related talks wherein visitors can learn from zoo or aquarium staff about the care and conservation of the species and how they can help protect diversity.

Barcelona Zoo successfully reintroduced 267 Spanish Killifish (*Apricaphanius iberus*), an Endangered species of fish endemic to the Iberian Peninsula into its habitat
© BSM/Barcelona Zoo

Case Study

The Red List Centre at Zoo Schwerin | Zoologischer Garten Schwerin

The Zoologischer Garten Schwerin, also known as Zoo Schwerin, is located in the city of Schwerin in northern Germany. The Zoo opened in 1956 with one keeper and only 17 animals but has expanded over the years to house over 1,700 animals representing nearly 140 species. The Zoo is a scenic park idyllically framed by the Schwerin lakes.

Education plays a significant role within the Zoo, and one of the core focus areas is on endangered species and international breeding programmes. In addition, Zoo Schwerin has its own zoo school, which welcomes around 10,000 school pupils every year.

In 2021, the zoo opened the Red List Centre, a new thematic concept based on the IUCN Red List of Threatened Species. The Centre is located at the Zoo entrance and is the first thing visitors encounter when they step into the Zoo. The Centre teaches visitors about the Red List, the different categories and how to use them as a tool for conservation.

Photos: Zoo Schwerin's Red List Centre © *Zoo Schwerin*

EW → CR → EN

Przewalski's horse (*Equus przewalskii*)
© Rick Stevens

© Uganda Wildlife Conservation Education Center

Social change, our social responsibility

Behaviour change programmes are an important tool for zoos and aquariums in promoting conservation and sustainability. By educating visitors, encouraging them to take action, and engaging them in hands-on activities and experiences, zoos and aquariums can help to inspire positive change and make a real difference for the natural world.

Zoos and aquariums play a critical role in educating visitors and the community about the important role of biodiversity in human survival and the intrinsic value of fauna, flora, and fungi; and in promoting conservation and sustainability. Behaviour change programmes typically take a multi-faceted approach that includes education, engagement, and action and are designed to educate visitors and encourage them to make positive changes in their behaviour that can help to reduce their impact on the environment and support conservation efforts.

Zoos and aquariums have broad access to educational materials and up-to-date education science, philosophies and techniques, and can offer both informal and formal educational opportunities, such as classes, summer camps, school programmes and field trips, lectures, intern programmes, virtual programmes, webinars, family nature days, and more.

Through its set of recommendations, *Social Change for Conservation: The World Zoo and Aquarium Conservation Education Strategy* guides zoos and aquariums to achieve educational and social outcomes crucial to their organisational mission.

© Zoo Zürich

© Georgia Aquarium

© Saint Louis Zoo

Behaviour change programmes can have several key objectives:

1. **Help visitors understand the impact of their actions on the environment and the natural world.**
   This can involve teaching visitors about issues such as climate change, habitat destruction, and overexploitation of natural resources, and showing them how their actions can contribute to these problems.
2. **Help visitors develop the knowledge and skills they need to take action to support conservation efforts.**
   This may involve providing visitors with practical tips on how to reduce their carbon footprint, conserve water, or support sustainable food production, for example.
3. **Encourage visitors to connect with the natural world and gain a greater appreciation for conservation by providing hands-on activities and experiences.**
   This may involve opportunities to interact with animals, explore natural habitats, or participate in conservation projects.

Case Study

Monterey Bay Sustainable Seafood | Monterey Bay Aquarium

Monterey Bay's Seafood Watch initiative assesses how specific fisheries or farms perform against their rigorous environmental sustainability standards and then assigns ratings based on the outcomes. With the aim to influence consumer decisions, they suggest buying Best Choice, Good Alternative, or recommended certified seafood where possible or choosing a plant-based alternative. In addition to this, they partner with zoos, aquariums, science museums, nature centres, and other non-profits to promote sustainable seafood. They also engage with businesses and restaurants to assist seafood buyers, distributors, retailers, food service professionals, and chefs in moving towards environmentally responsible fisheries and aquaculture operations.

From top: Greater Stick-nest Rat release © *Zoos South Australia*, Brazilian three-banded armadillo (***Tolypeutes tricinctus***) ©*Liana Sena,* Majorcan midwife toad (***Alytes muletensis***) reintroduction © *Barcelona Zoo,* Mesopotamian fallow deer (***Dama dama mesopotamica***) © *The Jerusalem Biblical Zoo*

Case Study

Conserving the Aruba Island Rattlesnake: From an AZA SSP to the Aruban Florin

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© Kalea Morgan/Unsplash

The Aruba Island rattlesnake (*Crotalus durissus unicolor*) Species Survival Plan (SSP), established in 1982, has become a global programme aimed at preserving the species and its unique ecosystem on Aruba Island. Initially created to document and analyse the population dynamics in human care, the *ex situ* management plan has grown into a conservation success story. The programme has not only provided zoological institutions with individuals representing their wild counterparts, but it has also contributed to the formation of an Aruban government authority overseeing the island's conservation issues. The SSP's efforts gained attention and collaboration with the Aruba Island government, leading to the first Population and Habitat Viability Assessment (PHVA) in 1992. This event resulted in an action plan for both wild and *ex situ* populations and the establishment of the Arikok National Park, which preserves 19% of the island for conservation.

The collaboration between the SSP and Arubans has also resulted in ecological research, training, management recommendations, capacity building, workshops, public relations, and education initiatives to build awareness in the community, changing community perception and reducing human-induced threats, which has led to significant conservation achievements. The genetic diversity of the *ex situ* population exceeded 94% by 2014, and the importance of the Aruba Island rattlesnake is further recognised by its depiction on the 25 Florin bill, issued by the Central Bank of Aruba, reflecting the community's interest in the snake's conservation. The dedication of the AZA community to ensuring the survival of the Aruba Island rattlesnake serves as a model for reptile conservation efforts in zoos.

Aruba Island Rattlesnake (*Crotalus unicolor*) © Josh More/Flickr

04 AMPLIFY AND HELP GROW AND REVERSE THE RED

To effectively Reverse the Red and ensure the survival of as many species as possible, it is imperative to join forces with colleagues and other active conservation entities and allies.

Take Action to Reverse the Red for as many Species as Possible

Collaboration and partnerships play a crucial role in maximising our impact, as they enable organisations to combine their resources, expertise, and knowledge to tackle common goals for conservation.

Step 1 **Identify potential partners and explore opportunities for collaboration with them.**

This could include reaching out to local, regional, and international conservation organisations with similar goals. Include local communities, businesses, indigenous or first nations people and government agencies and to involve them in the conservation efforts. Partners may include local schools and community – based organisations.

Step 2 **Establish a shared vision and goals.**

This could include developing a joint strategy that outlines specific actions, timelines, and milestones for reversing the red for targeted species. Develop the strategy collaboratively, with each partner contributing their expertise and resources.

Step 3 **Establish a monitoring and evaluation system to track progress and measure the impact of the actions taken.**

This could involve developing metrics and indicators that measure the health and population status of targeted species, as well as the effectiveness of conservation actions taken.

Mexican leaf frog (*Agalychnis dacnicolor*)
© Chester Zoo

Case Study

The Conservation of Campbell's Alligator Lizard | Oklahoma City Zoo and Botanical Garden

The small, arboreal Campbell's alligator lizard (*Abronia campbelli*) was thought to be lost by the scientific community, forgotten by national conservation efforts, unknown to the world and feared and persecuted by local people due to the belief that they are venomous. Severe habitat loss resulted in habitat fragmentation to such an extent that what little remained, consisted of highly isolated mature oak trees. This compromised natural movement and dispersal, and thus limited gene flow, resulting in a low population. The site of the original description was the only known distribution zone for the species, until recently, when we discovered two new distribution zones, bringing great hope for conserving *A. campbelli*, and prompting us to scale up our habitat restoration efforts. In partnership with the Foundation for the Endangered Species of Guatemala (FUNDESGUA) and with a goal of planting 40,000 trees of key forest species, this project, also supported by our partners from the Auckland Zoo Conservation Fund, will make it possible to create biological corridors to continue to close the gap between one of these new distribution zones and the original area by 80%. Reconciling local livelihoods with conservation is key in this effort, making habitat restoration compatible with productive activities on which local human development depends.

Campbell's alligator lizard (*Abronia campbelli*) © *Oklahoma City Zoo and Botanical Garden*

Engaging governments, communities, supporters, partners and visitors

To effectively address threats to biodiversity, it is important to partner with multiple stakeholders while also working with governments, and other decision makers at the local, regional, and global level. Zoos and aquariums can leverage their relationships at these levels to further their work on implementing conservation policy changes, laws, regulations, and standards. At the international level, WAZA can support members as they seek to influence change through the *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*, the *Convention on Biological Diversity (CBD)*, and the Convention on the *Conservation of Migratory Species of Wild Animals (CMS)*.

Case Study

The Center for Species Survival Australasia | Zoo and Aquarium Association Australasia (ZAA)

Pookila New Holland Mouse (*Pseudomys novaehollandiae*)
© Doug Becker

The ZAA CSS Team
© ZAA Australasia

Spot-tailed Quoll (*Dasyurus maculatus*)
© Michael J Fromholtz

ZAA, as a champion for the WAZA/IUCN SSC global Reverse the Red initiative, is an IUCN SSC Center for Species Survival (CSS).

ZAA follows the IUCN SSC's Assess-Plan-Act model, also known as *The Species Conservation Cycle*, to assist valuable work to save species. This approach is conducted by ZAA's CSS team who plan this work alongside Government partners in the region and other relevant stakeholders, including indigenous communities, academia, ZAA member zoos and aquariums, and CPSG teams.

ZAA's CSS is dedicated to the *Assess* and *Plan* aspects of the Species Conservation Cycle, while the *Act* strategies identified support the conservation projects carried out by ZAA members. This model also offers support to ZAA members who might not yet be actively involved in conservation projects for specific species thereby providing additional opportunities for participation.

The collaboration with Government partners is vital, as it leads to official recognition of assessment status and ensures broader stakeholder engagement. Government-endorsed species assessment outcomes become available for IUCN Red-Listing, and for Reverse the Red reporting. Furthermore, the joint *Assess* and *Plan* work with Government partners has significantly strengthened ZAA's relationships with the government, a long-term advantage for ZAA Members.

Action Indonesia Day activities at Chester Zoo © *Chester Zoo*

Action Indonesia Anoa and Babirusa Rescue Training in Makassar © *PKBSI*

Action Indonesia Education Training © *PKBSI*

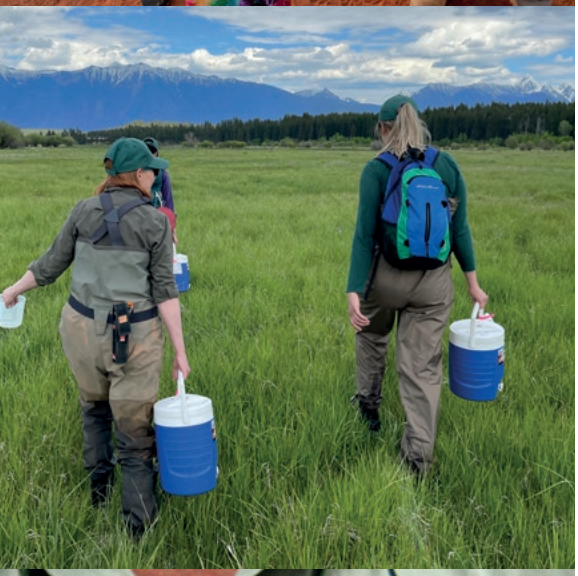
Case Study

Action Indonesia: A global collaboration to conserve Anoa, Banteng and Babirusa

In 2009, the Indonesian Government and IUCN SSC Asian Wild Cattle Specialist Group (AWCSG) collaborated to develop a National Species Action Plan for Anoa, Banteng and Babirusa. The plans focused stakeholders' efforts on activities to save these species, and included the recommendation to maintain an *ex situ* assurance population for these taxa. In 2015, the *Action Indonesia Global Species Management Plans (GSMPs)* were founded by an international collaboration of IUCN SSC specialist groups, the Indonesian Ministry of the Environment and Forestry, and adopted by both national and regional zoo associations using a WAZA framework to support conservation efforts.

Over 190 practitioners from Indonesian institutions have gained skills in husbandry and transportation of the species, more than 150 educational practitioners have gained skills in conservation education, 62 zoos and institutions, over four continents, actively participated in Action Indonesia Day from 2019- 2022; and over 37 successful births following breeding recommendations have occurred in Indonesian zoos to date. Action Indonesia has also supported the first park wide banteng population monitoring survey in Alas Purwo National Park, a priority area for Javan banteng conservation.

Action Indonesia Participants at the 2nd GSMP planning workshop 2018 © *PKBSI*



Sharing stories of success

Sharing stories of conservation success is an important way for zoos and aquariums to promote conservation, build community support, and demonstrate their leadership in the field of conservation. By showcasing the impact of their work, zoos and aquariums can help to inspire action and make a positive difference for endangered species, their habitats, and the natural world.

An effective way for zoos and aquariums to contribute to conservation is by sharing stories of their successes with the wider community.

Sharing stories of conservation success can help to:

1. **Raise awareness of the importance of conservation and inspire action.**
   These stories can showcase the impact that conservation efforts have on endangered species, habitats, and communities, and demonstrate that positive results can be achieved through collaboration and innovation.
2. **Build community support for conservation efforts.**
   By highlighting the work that zoos and aquariums are doing to protect endangered species and their habitats, and the positive outcomes that are being achieved, zoos and aquariums can build community support for conservation initiatives and encourage people to take action to protect the natural world.
3. **Build the reputation of zoos and aquariums as leaders in the field of conservation.**
   By demonstrating the impact of their work and the positive outcomes that are being achieved, zoos and aquariums can build trust and credibility with the wider community, and position themselves as important partners in global conservation efforts.
4. **Foster collaboration and knowledge sharing between zoos and aquariums.**
   By highlighting the work that is being done by different organisations around the world, and the lessons that have been learned from different conservation initiatives, zoos and aquariums can share knowledge and expertise, and work together to achieve even greater results.

From top: Taronga Zoo collaborates with Traditional land Owners and other stakeholders to conserve bilbies © *Taronga Conservation Society Australia*, Wilder Institute team transporting northern leopard frog tadpoles in temperature-controlled coolers to release at a reintroduction site in British Columbia © *Wilder Institute/Calgary Zoo*, Greater bilby joey © *Paul Fahy*, © *Loro Parque Fundación*

Zoos and aquariums have played a significant role in the successful *downlisting* of several species on the IUCN Red List, demonstrating their potential to contribute to species conservation in a meaningful way.

The success stories that you'll find throughout the pages of this Short Guide and *reversethered.org* demonstrate the important role that zoos and aquariums can play in species conservation and the potential for collaborative conservation efforts to have a positive impact on the survival of threatened species.

Share your stories of success with the WAZA Executive Office at

conservation@waza.org

Organising and Participating in Reverse the Red events and celebrations

Reverse the Red Day

7 February is celebrated as Reverse the Red Day, a day when insititutions and organisations globally share and celebrate conservation success stories.

On 7 February 2023, Reverse the Red Day was launched with zoos and aquariums participating across 45 countries/regions. Actions included increased social media coverage, staff engagement and community actions.

Every year on February 7, *Reverse the Red Day* will be celebrated worldwide. Institutions and organisations can participate in the celebrations by engaging in social media campaigns, organising in person events, and utilising other communication channels. These communication activities celebrate conservation success stories and promote awareness and action.

RtR tshirts during the World Conservation Congress in Marseille in 2021. © *Kelly Griese*

WAZA Member participation on the first RtR Day on 7 February 2023

Case Study

A pledge to Reverse the Red | Johannesburg Zoo

On 7 February 2023, to mark the first Reverse the Red Day, all Johannesburg Zoo staff members were given red branded t-shirts. To promote community awareness, we organised a staff event that showcased exhibitions highlighting the conservation projects of the Zoo. During the event, we made a verbal pledge, followed by a written pledge from all staff members. As part of our commitment, we decided to wear our red T-shirts every Friday, and we have been consistently doing so. The purpose behind this initiative is to actively engage our visitors and create a living example of our dedication to conservation.

Our efforts were documented by creating a video, which was featured on WAZA's Instagram account, reaching a wider audience and spreading our message beyond the Zoo premises.

Joburg Zoo's event on Reverse the Red Day © *Johannesburg Zoo*

Case Study

Live Well! Not Farewell! – Taipei Zoo's Reverse the Red Exhibition | Taipei Zoo

To encourage Taiwanese people to learn about and participate in the global movement of Reverse the Red, the Taipei Zoo has been incorporating the concept of RtR into their education and interpretation since 2021. On December 1, 2022, Taipei Zoo launched the special exhibition titled *Live Well! Not Farewell! – Reverse the Red*. This exhibition aims to introduce the RtR concept to the community and establish a connection with the conservation of native wild animals.

To celebrate the first RtR Day ever, which took place on 7 February 2023, Taipei Zoo organised a guided tour of the special exhibition and camp education activities for February. Taipei Zoo's goal is to encourage more Taiwanese people to support and join the RtR movement.

Taipei Zoo's exhibition on Reverse the Red: Live Well! Not Farewell! © *Taipei Zoo*

World Species Congress – 24 hours of hope and action

In 2018 in Bangkok, WAZA resolved to organise a World Species Congress to address the conservation and extinction crises.

In 2024, the first World Species Congress will be held as a 24-hour global, virtual congress sharing stories of hope and profiling the amazing people working to save threatened species.

All WAZA members are invited to participate through providing contacts and key speakers, sharing stories of Conservation Status Improvements, sharing data and expanding the Reach of the first Global Species Congress through outreach and property-based programmes.

Specifically, you are invited to:

1. Sponsor the World Species Congress – get in touch with ***communications@reversethered.org***
2. Join a regional organising committee – email ***conservation@waza.org***
3. Share details on your programmes for saving threatened species – get in touch with ***communications@reversethered.org***
4. Host an event at your zoo or aquarium for donors, visitors, members or schools. Run parallel Species Congress while making use of the global content and supplementing with your own content.
5. Contact your local media to promote the role of zoos and aquariums as part of the World Species Congress – get in touch with ***communications@reversethered.org***
6. Promote the World Species Congress through your social media, to donors and members.
7. Be proud of the amazing work of our community and showcase your work and the work of WAZA members in saving species all around your property.

Get in touch with ***conservation@waza.org*** for more information on how to get involved.

From top: Wilder Institute/Calgary Zoo team member taking a photograph of a Vancouver Island marmot as part of their conservation program © *Wilder Institute/Calgary Zoo*, Desertas Islands land snails © *Chester Zoo*, Kea © *Prague Zoo*, Spiny softshell turtle (***Apalone spinifera***) © *Zoo de Granby*

Film festivals

Consider all available mediums to share your stories of hope and optimism. By utilising and participating in conservation film festivals, zoos and aquariums can effectively communicate their conservation efforts and success stories to a broader audience, including environmental enthusiasts, nature lovers, and conservation advocates, and inspire action, and foster partnerships to support and maximise their conservation work.

Case Study

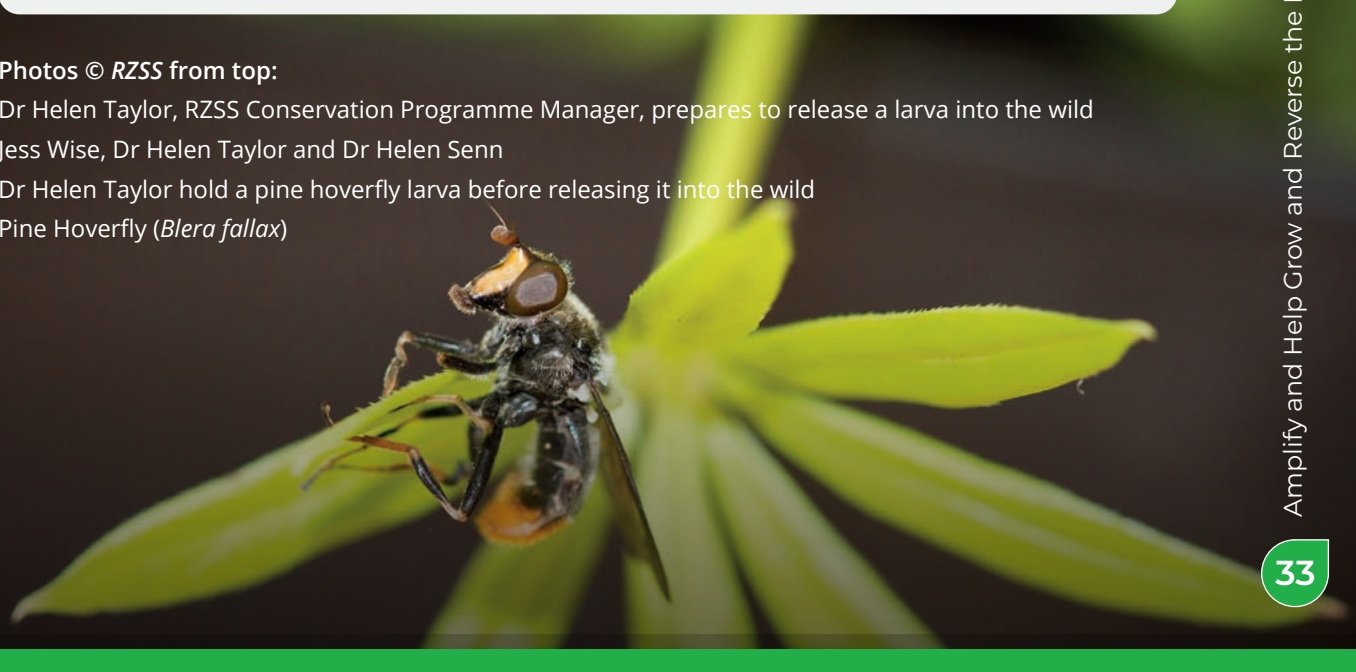
RZSS Wins Conservation Film Festival Award | RZSS

The film '*Standing up for the little guys*' by the Royal Zoological Society of Scotland (RZSS) emerged victorious in the inaugural Edinburgh Conservation Film Festival, securing the top spot in the innovation and tools category.

The film sheds light on RZSS' endeavours to protect the pine hoverfly, a species listed as Critically Endangered in the United Kingdom, and exemplifies the charity's commitment to wildlife conservation. The innovation and tools category honours remarkable progress made in extraordinary advances in social, scientific, technological, and engineering sectors, that contribute to the preservation of biodiversity and the planet.

Dr Helen Taylor, conservation programme manager at RZSS said, "An adult pine hoverfly hadn't been spotted in the wild in Britain for over a decade, but our charity's dedicated teams and project partners have worked hard to create a lifeline for the species. These tiny invertebrates play very important roles in forest ecosystems, acting both as pollinators and waste recyclers. We are delighted that our little guys have been recognised for making a big difference".

Photos © *RZSS* from top:
Dr Helen Taylor, RZSS Conservation Programme Manager, prepares to release a larva into the wild
Jess Wise, Dr Helen Taylor and Dr Helen Senn
Dr Helen Taylor hold a pine hoverfly larva before releasing it into the wild
Pine Hoverfly (*Blera fallax*)



By actively participating in Reverse the Red, zoos and aquariums can play a significant role in halting the decline of biodiversity and conserving endangered species. This Short Guide has outlined various steps that WAZA members can take to join RtR and shared success stories from organisations that have made notable contributions. By implementing these strategies, member institutions can inspire action, spread optimism, and make a tangible difference in the conservation of our planet's precious biodiversity.

Together, we can create a brighter future for endangered species.

TOGETHER WE CAN REVERSE THE RED

© Firoshv Photography/Unsplash

ACTION SUMMARY

05

Based on the ***WAZA Resolution 77.2: Changing Outcomes for Biodiversity***, this section gives an overview and checklist to get your organisation started in supporting Reverse the Red.

Action 1

RECOGNISE the IUCN Red List as one of the primary measures of conservation status and an improvement in conservation status as a significant measure of success.

Recommendations

- **PROVIDE** resources and support to enable the assessment of species at national and global levels;
- **ASSESS** the success of conservation programmes against clear goals, recognising that improving the status of threatened species and effectively reversing Red List assessment is one such goal;
- **USE** Red List Assessments when identifying roles and targets for conservation programmes; and
- **SUPPORT** conservation programmes based on their potential to improve the conservation status of species.

Reintroduction of the European Bison in 2019 in Romania © *Tierpark Berlin*

Action 2

TAKE ACTION to improve the conservation status of species.

Recommendations

- **ENGAGE** and inform visitors on the IUCN Red List Status of the species we protect and care for;
- **EXPAND** population management programmes for species where there is identified need, knowledge and opportunity for *ex situ* conservation to make a positive impact on the IUCN Red List Status through the application of the IUCN SSC Guidelines on the Use of Ex situ Management for Species Conservation.
- **ENSURE** that *ex situ* conservation programmes [or *ex situ* populations] supplying specimens for conservation translocations applying the One Plan Approach as developed by CPSG and follow the IUCN guidelines for Reintroductions and Other Conservation Translocations.
- **JOIN** local, regional and global actions to address threats, through discussions with governments, authorities and other decision makers, sharing of information and opportunities with visitors, partners and members.
- **ENGAGE** visitors and partners in addressing human-induced threats to biodiversity;
- **PROVIDE** funds and expertise to programmes that are targeted at improving the status of threatened species;
- **SHARE** programmes and activities to build the Reverse the Red movement and the global call for action; and
- **CAPTURE** and share data on the effectiveness of actions with WAZA and Reverse the Red.

California condor (*Gymnogyps californianus*)
© San Diego Zoo Wildlife Alliance

Educational programme at Georgia Aquarium

Gallery window at Georgia Aquarium

Action 3

JOIN with colleagues and other active conservation entities to make 2023 a year of actions to Reverse the Red for as many species as possible.

Recommendations

- **SHARE** stories of success in improving the status of threatened species with Reverse the Red;
- **PARTICIPATE** in Reverse the Red events and celebrations including Global Reverse the Red Day, species campaigns and storytelling; and
- **INVITE** participation from government, community, supporters, partners and visitors.

Sandbar Shark (*Carcharhinus plumbeus*)
Photos: © *Georgia Aquarium*

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JOIN US, TOGETHER WE CAN

REVERSE THE RED