



Species

ISSUE 63

2022 Report of the IUCN Species Survival Commission and Secretariat



The IUCN Species Survival Commission (SSC)

The IUCN Species Survival Commission (SSC) is a science-based network of thousands of volunteer experts from almost every country of the world, all working together toward achieving the vision of “a just world that values and conserves nature through positive action to both prevent the loss and aid recovery of the diversity of life on earth.”

Members of SSC belong to one or more of near 200 Specialist Groups, Red List Authorities, Action Partnerships, Task Forces, and Conservation Committees that make up the Network, each focusing on a taxonomic group (plants, fungi, mammals, birds, reptiles, amphibians, fishes, and invertebrates), national species, or a disciplinary issue, such as sustainable use and livelihoods, translocation of species, wildlife health, climate change, and conservation planning.

Framed by the Species Conservation Cycle, SSC’s major role is to provide information to IUCN on biodiversity conservation, the inherent value of species, their role in ecosystem health and functioning, the provision of ecosystem services, and their support to human livelihoods. This information is fed into the IUCN Red List of Threatened Species.

2021-2025 Species Strategic Plan

The IUCN Species Strategic Plan encompasses the joint work of the IUCN Species Survival Commission and a number of partnerships to achieve more than 2,700 targets proposed by the Network during the 2021-2025 quadrennium.

To accomplish those targets, the Species Conservation Cycle was established, which is the conceptual framework for the Network activities. The Species Conservation Cycle’s main purpose is to guide efforts for valuing and conserving biodiversity through three essential components that are linked to each other:

ASSESS: Understand and inform the world about the status and trends of biodiversity.

PLAN: Develop collaborative, inclusive and science-based conservation strategies, plans and policies.

ACT: Convene and mobilise conservation actions to improve the status of biodiversity.



Their implementation requires two transversal components:

NETWORK: Enhance and support our immediate network and alliances to achieve our biodiversity targets.

COMMUNICATE: Drive strategic and targeted communications to enhance our conservation impact.

SSC Species Report

Annual progress in the implementation of the 2021-2025 Species Strategic Plan is documented in the SSC *Species Report*, which consists of a comprehensive description and analysis of the activities and results generated by the members of the SSC Network each year. Each SSC Group contributes to this document by providing a yearly summarised description of their achievements, which is presented in stand-alone reports.

Structure of the IUCN SSC Stand-alone Report

Stand-alone reports summarize the activities conducted and results generated by each group member of the SSC. Following, is the structure of the stand-alone report and the contents under each session.

Title of the SSC Group

Photograph(s) of the Chair / Co-Chairs

Group information

Includes names of Chair / Co-Chairs, Vice-Chairs, Deputy Chairs, Red List Authority Coordinators and Program Officers, their institutional affiliations, number of members and social networks currently active.

Logo of the SSC Group

Mission statement

Includes the mission of the group.

Projected impact for the 2021-2025 quadrennium

Includes the description of the impact on species conservation resulting from the implementation of the targets formulated by the group for the 2021-2025 quadrennium.

Targets for the 2021-2025 quadrennium

Includes the targets planned by the SSC Group for the 2021-2025 quadrennium ordered alphabetically by component of the Species Conservation Cycle. Each target is labeled with a numerical code (e.g., T-001, T-012) that identifies it in the SSC DATA database and its status for the reported year is indicated (Not initiated, On track or Achieved).

Activities and results

Includes the targets for which activities were conducted and results were generated during the reported year, ordered alphabetically, first by component of the Species Conservation Cycle, and second by Activity Category. Description of activities and results includes the indicator that best describes progress, its associated quantitative or qualitative result, and the narrative description of the activity conducted or result obtained. Each activity or result reported is linked to the Key Species Result to which it is mainly associated (e.g., KSR#1, KSR#5).

Acknowledgements

Includes the acknowledgements to funding agencies, partners, and persons who contributed to the progress of the targets of the group.

Summary of achievements

Summarises information of the group's strategic plan for the quadrennium and progress achieved implementing targets for all the components of the Species Conservation Cycle during the reported year.

Animalia

Fungi

Plantae

National Species

Disciplinary

Action Partnership

Task Force

Red List Authority

Committee

Center for Species Survival

Example for the recommended citation:

Mueller, G. 2023. 2022 Report of the Fungal Conservation Committee. In: Nassar, JM, García, L, Mendoza, L, Andrade, ND, Bezeng, S, Birkhoff, J, Bohm, M, Canteiro, C, Geschke, J, Henriques, S, Ivande, S, Mileham, K, Ramos, M, Rodríguez, A, Rodríguez, JP, Street, B, and Yerena, E (Eds.). 2022 Report of the IUCN Species Survival Commission and Secretariat. International Union for Conservation of Nature. 6 pp.

IUCN SSC Fungal Conservation Committee



SOCIAL MEDIA AND WEBSITE

Twitter: @IUCNfungi

Website: <https://www.iucn-fungi.org>

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**RED LIST AUTHORITY
COORDINATOR**
Gregory M. Mueller
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NUMBER OF MEMBERS
17

Mission statement

The Fungal Conservation Committee (FunCC) aims to raise awareness of the importance of fungi and the need to conserve them, enhance coordination among the fungal and the broader conservation communities, and foster action.

Projected impact 2021–2025

Assess the extinction risk of fungal species to inform conservation planning and action for species in most need.

Targets 2021–2025

ASSESS

T-004 Coordinate and support Fungal Specialist Groups to produce and submit 3,000 global assessments.
Status: On track

T-010 Support Fungal Specialist Groups to produce 200 national assessments.
Status: On track

T-011 Work with scientists at Kew, Albuquerque BioPark, or others to refine and modify the artificial intelligence system developed and being utilised for rapidly sorting species into Data Deficient, Least Concern or need for detailed assessment.
Status: On track

T-012 Compile annotated bibliography of conservation mycology. Put a list of publications together and agree on controlled vocabulary for topic terms.
Status: On track

T-013 Refine research agenda for conservation mycology.
Status: Not initiated

T-014 Compile list of fungi with threat assessments, not just those on the IUCN Red List but for national and regional lists.
Status: Not initiated

T-015 Review new research findings, especially on population genetics and utility of environmental sampling, to update fungal Red List guidelines including more emphasis on microfungi.
Status: Not initiated

PLAN

T-017 Work with countries and regions to develop national strategies for conservation of fungi.
Status: On track

T-018 Investigate and strategise integrating fungi into Multilateral Environmental Agreements and other multinational policies.
Status: On track

T-019 Produce Assess to Plan species assessments focused on fungi.
Status: Not initiated

ACT

T-016 Work with national and regional agencies, landowners/land trusts and corporations that manage land to include fungi in conservation planning.
Status: On track

T-020 Initiate and/or enhance existing conservation action plans.
Status: Not initiated

T-021 Enhance *ex situ* and *in situ* conservation and sustainable use initiatives.
Status: Not initiated

T-022 Produce intervention letters and policy recommendations to address specific needed actions.
Status: Not initiated

NETWORK

T-001 Create regional conservation fungal networks/working groups as a partnership among the five Fungal Specialist Groups.
Status: Not initiated

T-002 Add additional members to the FunCC as additional thematic needs are identified.
Status: Achieved

T-003 Identify potential new Fungal Specialist Groups, either taxonomic, thematic, or geographic, and propose formation if appropriate leadership is available.
Status: On track



Cortinarius sp.
Photo: Aida Vasco

T-007 Continue to build capacity within Fungal Specialist Groups across the Species Conservation Cycle, communication and other issues.

Status: On track

T-008 Continue building capacity within the mycological community through symposia, short courses and workshops.

Status: Achieved

COMMUNICATE

T-005 Develop and implement a communication strategy engaging all members of the FunCC including a logo, website, and social media.

Status: On track

T-006 Work with fungal NGOs and associations, conservation agencies, etc., on campaigns to highlight the importance of fungi, include fungi when talking about biodiversity (fauna, flora, Funga), and incorporate fungi in conservation initiatives and land management decisions, education initiatives, etc.

Status: On track

T-009 Raise awareness and importance of conservation initiatives and action within the mycological community through symposia, short courses, and workshops.

Status: On track

Activities and results 2022

ASSESS

Red List

T-004 Coordinate and support Fungal Specialist Groups to produce and submit 3,000 global assessments. (KSR 6)

Number of new global Red List assessments completed: 80

Result description: Red List assessments have been produced as part of the 2nd Fungal Red List Workshop of South America in Argentina, as well as specific projects focused on EDGE species (Evolutionary Distinct and Globally Endangered species) and the genus *Cantharellus* – some of which are published, others in the queue.

T-010 Support Fungal Specialist Groups to produce 200 national assessments. (KSR 6)

Number of new national Red List assessments published: 74

Result description: Prof Zhu-Liang Yang, from the Kunming Institute of Botany (KIB) of the Chinese Academy of Sciences, has also been coordinating a project on Action for effective conservation of fungi in Gaoligong Mountains to uncover and document the species diversity and distribution patterns of macrofungi in this area; establish systems for rapid species identification, resource evaluation and strain preservation, and create a resource information platform; and assess and put forward a red list of the region's macrofungi. The

book Red List of Macrofungi of India was published in 2022 providing a checklist of 1,795 species, of which 74 were assessed.

Research activities

T-011 Work with scientists at Kew, Albuquerque BioPark, or others to refine and modify the artificial intelligence system developed and being utilised for rapidly sorting species into Data Deficient, Least Concern or need for detailed assessment. (KSR 5)

Number of research projects completed or supported by SSC members per taxonomic group and region: 1

Result description: Funding was secured for a pilot project to develop a computer-based toolkit to predict the extinction risk of fungi, especially Least Concern species, initially focusing on the 20,000+ mushrooms and other macrofungal species reported from the US and Canada. Recruitment will start in 2023 by the Royal Botanic Gardens, Kew.

T-012 Compile annotated bibliography of conservation mycology. Put a list of publications together and agree on controlled vocabulary for topic terms. (KSR 5)

Number of scientific publications about species research that acknowledge SSC affiliation: 0

Result description: Currently, information on the conservation of fungi is scattered in scientific literature and various reports, so this target aims to compile a

Cyttaria darwinii
Photo: Aida Vasco



comprehensive bibliography of conservation mycology and annotate each item with terms to cover the various topics of interest. Compilation of literature is underway, and selected publications have been included on the Fungal Conservation Committee website (<https://www.iucn-fungi.org/services-7>).

PLAN

Planning

T-017 Work with countries and regions to develop national strategies for conservation of fungi. (KSR 8)

Number of plans invited/endorsed by national governments/conservation authorities: 1

Result description: A Cuban National Strategy for the Conservation of Fungi, co-authored by the Fungal Conservation Committee members Dr Mayra Camino and Dr David Minter, was submitted for publication. Dr David Minter has also been working with key partners and stakeholders in West Africa and Bolivia, and Giuliana Furci and Dr Aida Vasco-Palacios in Latin America.

ACT

Technical advice

T-016 Work with national and regional agencies, landowners/land trusts and corporations that manage land to include fungi in conservation planning. (KSR 10)

Number of technical consultations provided to support conservation actions: 2

Result description: The Chair of the Fungal Conservation Committee, Dr Gregory Mueller, has been working with NatureServe on efforts for their partner states to include fungi in some of their work. A survey was conducted to understand which states were including or were interested in including fungi, from which we received 18 positive responses. Individual interviews will be held in 2023 to understand the current status, challenges and opportunities. Dr Gregory Mueller also has worked closely with the Fungal Diversity Survey (FunDiS) to focus their efforts on generating data useful for conservation action and red listing.

NETWORK

Capacity building

T-007 Continue to build capacity within Fungal Specialist Groups across the Species Conservation Cycle, communication, and other issues. (KSR 2)

Number of people trained in assessment tools: 20

Result description: Capacity building courses on Red Listing were held for interested mycologists in Argentina and Cuba, including two members of the Fungal Specialist Groups who became official IUCN Red List Trainers (Dr Elisandro Ricardo Drechsler dos Santos and Kelmer Martins da Cunha). The workshop in Argentina was organised in partnership with MIND.Funga Research Group (MICOLAB/UFSC/Brasil) and Fungi Foundation.

Number of people trained in conservation planning: 10

Result description: The Fungal Conservation Committee also supported and promoted the webinars organized by the Global Center for Species Survival on Conservation Planning and CITES, with at least 10 members attending.

T-008 Continue building capacity within the mycological community through symposia, short courses and workshops. (KSR 2)

Number of symposia, short courses, and workshops for the wider mycological community: 7

Result description: Besides the red listing workshops mentioned in the previous target, the Fungal Conservation Committee supported the organisation of a Symposium on 'Fungi in ecosystem restoration' held at the Serralves Foundation in Porto, Portugal, and led by Dr Susana Gonçalves from Coimbra University. This hybrid symposium counted with participants from different parts of the world and was key to raising awareness on the role of fungi in reforestation and ecosystem restoration, as well as different approaches to restoring habitat for fungi. Prof Ahmed

Abdel-Azeem and Dr Marieka Gryzenhout supported the organization of the 1st African Fungus Day on May 25, 2022 with participation online from different regions of the world, and topics included climate change and extinction risk assessments. Our members also participated in several different conferences, actively promoting the conservation of fungi, such as the organisation of the Symposium 'The Power of Citizen Science to Advance Fungal Conservation' during the annual conference of the Mycological Society of America, by Dr Susana Gonçalves (<https://vimeo.com/734207071>); the Symposium on Conservation of Fungi in Colombia, led by Dr Aida Vasco-Palacios; and Dr Gregory Mueller presented at the NatureServe Biodiversity Without Boarders meeting and Italian Botanical Society.

Membership

T-002 Add additional members to the FunCC as additional thematic needs are identified. (KSR 2)

Number of SSC members recruited: 2

Result description: Two new members were recruited for the Fungal Conservation Committee: Patricia Parkinson, an expert on environmental law and active member of the IUCN World Commission on Environmental Law and Commission on Environmental, Economic and Social Policy; and Dr Viviana Motato-Vásquez, Co-chair of the IUCN SSC Colombia Fungal Specialist Group and with a number of different expertise and a particular interest in *ex-situ* conservation. Additional members will be recruited in 2023 to include representatives from all new fungal specialist groups being created.

T-003 Identify potential new Fungal Specialist Groups, either taxonomic, thematic, or geographic, and propose formation if appropriate leadership is available. (KSR 2)

Number of new SSC groups established: 1

Result description: In 2022 the Fungal Conservation Committee supported the creation of a new Colombia Fungal Specialist

Nephroma arcticum
Photo: Jessica Allen



Sarcodon rufobrunneus
Photo: Aida Vasco



Russula sp.
Photo: Aida Vasco

Group. A proposal was also submitted for the creation of a Brazil Fungal Conservation Committee, and good progress was made towards the proposal of an Aquatic Fungal Specialist Group and a Fungal Use Group within the Sustainable Use and Livelihoods Specialist Group. The Committee also worked with National Species Specialist Groups to ensure the inclusion of mycologists in their membership, in particularly with the China, Colombia and Indonesia Species Specialist Groups.

COMMUNICATE Communication

T-006 Work with fungal NGOs and associations, conservation agencies, etc., on campaigns to highlight the importance of fungi, include fungi when talking about biodiversity (fauna, flora, Funga), and incorporate fungi in conservation initiatives and land management decisions, education initiatives, etc. (KSR 13)

Higher visibility of fungi: Ongoing.

Result description: The Flora, Fauna, Funga initiative led by Deputy Chair, Giuliana Furci from Fungi Foundation, continues to significantly contribute to raising awareness on the importance and need to protect fungi, with institutions from 20 countries adopting the term “Funga”. The term has also been used extensively on various social media platforms and podcasts. The Symposium led by Dr Susana Gonçalves on ‘Fungi in ecosystem restoration’ also contributed to highlighting the importance of fungi through public events and campaigns hosted by the Serralves Foundation. Dr Gonçalves has also worked on the project ‘Mushrooms in the City [Cogumelos na Cidade]’, which maps the diversity of mushrooms in the urban perimeter of the city of Coimbra, Portugal through the engagement of citizen scientists, voucher and DNA barcoding (<https://www.wilder.pt/historias/cidadaos-ja-encontraram-mais-de-160-especies-de-cogumelos-em-coimbra/>; <https://www.inaturalist.org/projects/cogumelos-na-cidade>); and appeared in a

number of Portuguese media platforms: Portuguese television – <https://www.rtp.pt/play/p9740/e651358/biosfera>, Wilder Magazine – <https://www.wilder.pt/historias/cidadaos-ja-encontraram-mais-de-160-especies-de-cogumelos-em-coimbra/> and <https://www.wilder.pt/diversoes/seis-cogumelos-para-descobrir-na-cidade-durante-o-inverno/>. Dr Gregory Mueller produced the Visual Abstract from the publication Mueller, GM *et al.* (2022). ‘What Do the First 597 Global Fungal Red List Assessments Tell Us about the Threat Status of Fungi?’ *Diversity* 14(9):736 (found here: <https://doi.org/10.3390/d14090736>), in collaboration with the Global Center for Species Survival, which has reached more than 400 views on YouTube (<https://youtu.be/CZzIDng8CM?si=EoIKnOZsb5koRaC1>).

T-009 Raise awareness and importance of conservation initiatives and action within the mycological community through symposia, short courses and workshops. (KSR 13)
Number of SSC members’ presentations developed in relation to specific taxonomic groups: 7

Result description: The Fungal Conservation Committee supported the organization of a Symposium on ‘Fungi in ecosystem restoration’ held at the Serralves Foundation in Porto, Portugal, and led by Dr Susana Gonçalves from Coimbra University. This hybrid symposium counted with participants from different parts of the world and was key to raising awareness on the role of fungi in reforestation and ecosystem restoration, as well as different approaches to restoring habitat for fungi. Prof Ahmed Abdel-Azeem and Dr Marieka Gryzenhout supported the organization of the 1st African Fungus Day on May 25, 2022 with participation online from different regions of the world, and topics included climate change and extinction risk assessments. Our members also participated in several different conferences, actively promoting the conservation of fungi, such as the organization of the Symposium

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Acknowledgements

The Fungal Conservation Committee is thankful to the Mohamed bin Zayed Species Conservation Fund, SSC and On the Edge for funding and the IUCN Red List Unit for their support with the extinction risk assessments of fungi. We would also like to thank Royal Botanic Gardens, Kew for collaborating in the development of tools and procedures to accelerate the number of fungal species published in the Red List. Fungi Foundation has been a key partner and leader in fungi conservation, especially with their efforts to increase recognition of fungi and their inclusion in conservation policy. Our final acknowledgments go to the Indianapolis Zoo and its Global Center for Species Survival, mainly through the support of the Plants and Fungi Conservation Coordinator.

Summary of achievements

Total number of targets 2021–2025: 22

Geographic regions: 22 Global

Actions during 2022:

Assess: 4 (KSR 5, 6)

Plan: 1 (KSR 8)

Act: 1 (KSR 10)

Network: 5 (KSR 2)

Communicate: 2 (KSR 13)

Overall achievement 2021–2025:

