



Species

ISSUE 64

2023 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 trans-versal 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 and Centers for Species Survival (CSS) each year. Each SSC and CSS 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 and CSS Stand-alone Reports

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

Title of the group

Photograph(s) of the Chair/Co-Chairs

Group information

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

Logo of the 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 or CSS 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. and Furci, G. 2024. 2023 Report of the Fungal Conservation Committee. In: IUCN SSC and Secretariat. *2023 Report of the IUCN Species Survival Commission and Secretariat*. Gland, Switzerland: IUCN. 8 pp.

IUCN SSC Fungal Conservation Committee



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NUMBER OF MEMBERS
17

SOCIAL MEDIA AND WEBSITE

X: @IUCNfungi

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

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 a list of fungi with threat assessments, not just those on the IUCN Red List but for national and regional lists.
Status: Achieved

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: On track

T-022 Produce intervention letters and policy recommendations to address specific needed actions.
Status: On track

NETWORK

T-001 Create regional conservation fungal networks/working groups as a partnership among the five Fungal Specialist Groups.
Status: No longer a priority

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



Clavulina kunmudlutsa
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 2023

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: 157

Result description: One hundred and fifty-seven new global assessments were published on the 2023 Red List Update, bringing the total number of fungi included on the Red List to 781 species. Another 500 assessments are complete or nearly complete and await review and publication, with another over 1,000 assessments in progress.

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

Number of new national Red List assessments published: 400

Result description: At least 58 countries have National Red Lists or Red Data Books for fungi, encompassing over 20,000 species. The development of fungal Red Lists for China, India, Serbia etc., are relatively new initiative, while several European countries are in the process of updating their fungal Red Lists. There is an ongoing initiative working with NatureServe to bring US and Canadian

fungi assessed using the NatureServe ranking system into IUCN listings.

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: 5

Result description: A small grant from the Indianapolis Zoo is supporting efforts to modify the rapidLC for Plants tool developed by Royal Botanic Garden Kew for fungi. This pilot project is focused on North American macrofungi. Excellent progress was made during 2023 and it is anticipated that the tool will quickly identify LC species and generate their assessments thereby enabling assessors to focus on species likely in need of conservation action. Moreover, work supported by the Mohamed bin Zayed Species Conservation Fund undertaken by a Brazilian team led by Dr Elisandro Ricardo Drechsler-Santos focused on the Critically Endangered (CR) *Wrightoporia araucariae*. The project provided robust data to improve the knowledge of the target species, especially regarding its molecular identification and

distribution and brought it into *ex situ* conservation. Also, a project led by Dr Zhu-Liang Yang is focused on documenting the diversity, distribution and conservation status of macrofungi occurring in Yunnan Province, China. Likewise, with support from the MBZ Species Conservation Fund, Reda Iršėnaitė is undertaking a project entitled 'Distribution and ecology of Vulnerable wood-inhabiting fungus *Baeospora myriadophylla* in Lithuania: site selection for protection'. The project is contributing to the knowledge of the distribution, habitat requirements of the species to help select suitable habitats and tools for conservation. Additionally, as part of efforts to document the diversity and uses of fungi in South Africa, Mariëka Gryzenhout is leading a project entitled 'Utilization of indigenous medicinal and psychedelic fungi'. This project is focused on determining what species are used and to what extent as well as investigating their bioactive properties. Finally, alien plant species invading natural environments are an increasing problem, but the effect on fungal communities is seldom considered. To address this, Claudia Perini is examining if, and how strong, the fungal community is changing in sites where the alien black locust (*Robinia pseudoacacia*) is replacing native forests in Tuscany, Italy.

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: 1

Result description: Recent literature was added to the [IUCN Fungal Conservation Committee website](#), including, May, T. (2023). 'Annotated bibliography of conservation mycology'.

T-014 Compile a list of fungi with threat assessments, not just those on the IUCN Red List but for national and regional lists. (KSR 5)

Number of scientific publications about species research that acknowledge SSC affiliation: 1

Result description: In 2023, one publication acknowledged SSC affiliation: Niskanen, T. et al. (2023). 'Pushing the Frontiers of Biodiversity Research: Unveiling the Global Diversity, Distribution, and Conservation of Fungi'. *Annual Review of Environment and Resources*, Vol. 48:149-176.

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: 0

Result description: Ongoing efforts by mycologists in Central and South America and the Caribbean to develop a regional strategy for fungal conservation. A dedicated session at the Latin American Mycological Congress in Panama was held to move the initiative forward. Funding through the Darwin Initiative spearheaded by David Minter is focused on fungal conservation in Sub-Saharan Africa including reducing the impact of fungal diversity loss on the livelihoods of rural women. In 2023,

for the first time, the Brazilian Ministry of the Environment and Climate Change recognised Fungi as an important group of organisms in Brazil and recommended that States contact the BrazFunSG to generate their fungal Red Lists. This was accomplished through collaboration between BrazFunSG, the Brazilian National Center for Plant Conservation, and the IUCN SSC Species Survival Center Brazil. A visible result of this is that the online flora of Brazil is now the Flora e Funga do Brasil.

Policy

T-018 Investigate and strategise integrating fungi into Multilateral Environmental Agreements and other multinational policies. (KSR 9)

Number of documents provided to support/guide policy-making: 0

Result description: Efforts to develop a Global Strategy for the Conservation of Fungi, roughly analogous to the Global Strategy for Plant Conservation that has been so impactful for the plant conservation community, were initiated in 2023. Discussions focused on investigating and developing strategies integrating fungi into Multilateral Environmental Agreements, including CITIES and other multinational policies, e.g. CITES, ongoing through 2024 were restarted in 2023.

ACT Conservation actions

T-021 Enhance *ex situ* and *in situ* conservation and sustainable use initiatives. (KSR 10)

Number of threatened species benefiting from *ex situ* conservation action: 0



Lactifluus neotropicus
Photo: Aida Vasco

Result description: A working group on *ex situ* conservation collections led by a member of the FunCC was established in 2023. While there are between 25,000 species of fungi preserved in culture collections throughout the world, these collections only house 25 of the over 352 species assessed as globally Threatened or Near Threatened (data from Tuula, 2023). Thus, a concerted effort is needed to get species that can be cultured into culture collections.

T-022 Produce intervention letters and policy recommendations to address specific needed actions. (KSR 10)

Number of intervention letters addressing major drivers/emerging threats of species or population loss: 0

Result description: FunCC members and their networks continue to work with national and regional agencies, landowners / land trusts and corporations that manage land to include fungi in conservation policies and planning.

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: 1

Result description: Efforts to collate existing conservation action plans to be published on the FunCC website are ongoing with an anticipated completion date in 2024. The year 2023 saw concerted efforts to engage the NatureServe Network – the network that collects, analyses and delivers biodiversity knowledge to support biodiversity conservation in the US and

Canada. Efforts included interviewing selected state and province Heritage Botanists to understand the needs of the community, developing a set of recommendations/options for including fungi based on the findings of these interviews, identifying potential partners for sampling/ monitoring and identification of fungi that would work with state and province Heritage teams, and plan a workshop at the 2024 NatureServe biannual meeting.

T-021 Enhance *ex situ* and *in situ* conservation and sustainable use initiatives. (KSR 11)

Number of sustainable use practices supported: 1

Result description: A Fungal Use Group within the Sustainable Use and Livelihood Specialist Group (SULi) was established in 2023. Additionally, collaboration with the FairWild Foundation continued in 2023 to develop standards and criteria for certifying sustainably collected and marketed wild fungi. A pilot project focused on edible fungi in Malawi is testing the protocols being developed.

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: 42

Result description: Fungi red listing training workshops were held during the Latin American Mycological Congress

in Panama, the Congress of European Mycologists in Italy, and as part of several small online classes.

Number of people trained in communication skills: 0

Result description: All the Fungal Conservation Committee members and most members of fungal specialist groups are accomplished oral communicators with years of experience giving presentations to a broad range of audiences. Experience and proficiency with social media and other forms of communication vary across the network so training would be of value. Efforts to find appropriate training opportunities will continue in 2024.

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: 6

Result description: Conservation symposia were delivered during the Latin American Mycological Congress, the Congress of European Mycologists, the Royal Botanic Garden's State of the Worlds Plants and Fungi Symposium, and the NESS International Symposium in China. Individual fungal conservation talks were given at numerous national mycological and botanical society meetings. Fungal Red List workshops in 2023 included the 3rd IUCN Latin American Workshop for the evaluation of fungal and lichen species and The Mediterranean Initiative 2023 workshop prior to the XIX Congress of European Mycologists in Italy. Both workshops were preceded by online training sessions to prepare participants.

Gloeocantharellus purpurascens.
Preliminary assessed NT D1.
Photo: M.G. Wood



Membership

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

Number of SSC members recruited: 3

Result description: Three additional members were recruited for the Fungal Conservation Committee: Dr Elisandro Ricardo Drechsler-Santos, Co-Chair of the IUCN SSC Brazil Fungal Specialist Group; Dr Sally Fryar, Co-Chair of the Aquatic Fungi Specialist Group, and Dr Elizabeth Barron Chair of the Fungal Use Group within the Sustainable Use and Livelihoods Specialist Group. Additional members will be recruited in 2024 to include representatives from the 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: 3

Result description: In 2023 the Fungal Conservation Committee supported the creation of three new groups: Brazil Fungal Specialist Group, Aquatic Fungi Specialist Group, and Fungal Use Group within the Sustainable Use and Livelihoods Specialist Group.

COMMUNICATE

Communication

T-005 Develop and implement a communication strategy engaging all members of the FunCC including a logo, website and social media. (KSR 13)

Number of digital communication outputs developed in relation to specific taxonomic groups: 3



Hygrophorus vernalis.
Preliminary assessed NT Ac3
Photo: Sava Krstic

Result description: Online stories were posted throughout the year through the FunCC X account, in collaboration with the communications team at the Global Center for Species Survival at the Indianapolis Zoo, and other partners. Blogs and podcasts included an episode on Conservation Conversations with the CEO of Nature Serve and a blog about Cordyceps fungi published in the Global Center for Species Survival website.

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: Continued efforts, including working with fungal NGOs and associations, conservation agencies, etc., on campaigns to highlight the importance of fungi, e.g. emphasizing the need to include fungi when talking about biodiversity – fauna, flora, funga – and incorporate fungi in conservation initiatives and land management decisions, education initiatives, etc. These efforts included raising awareness of and importance of conservation initiatives and action within the mycological community through symposia, short courses, and workshops, including several high-profile documentaries that highlight Fungi as a separate kingdom, information on their ecological roles and importance, and the importance of conserving their diversity,

e.g. ‘Fungi - Web of Life’ featuring Merlin Sheldrake and narrated by Bjork, ‘Follow the Rain’, a film by Stephen Axford and Catherine Marciniak.

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: 40

Result description: Fungal Conservation Committee members each give several seminars/public talks nearly every year to a broad range of audiences. For example, Chair Mueller was a guest on the Conservation Conversation podcast with NatureServe CEO Sean O’Brien, quoted in CNN and other articles, and created a video distributed through the Chicago Botanic Garden; Deputy Chair Giuliana Furci was featured in a number of articles, including Time Magazine and New York Times as well as presented talks at several public events; GCSS Fungal Coordinator Cátia Canteiro gave a number of presentations to students and the general public, and member Susana Gonçalves spread the word about value of citizen science projects for documenting the diversity and distribution of fungi in both natural and urban environments.

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 the 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, and the Indianapolis Zoo for funding this project. 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 2023:

Assess: 5 (KSR 5, 6)

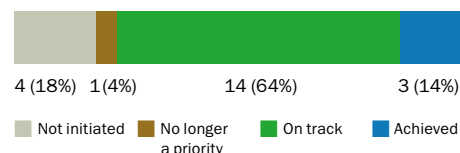
Plan: 2 (KSR 8, 9)

Act: 4 (KSR 10, 11)

Network: 5 (KSR 2)

Communicate: 3 (KSR 13)

Overall achievement 2021–2025:





Nothobranchius fuscotaeniatus
Photo: Csenge Nagy



Tetra Parnaiba
Photo: Karina Molina



Trioceros hoehnelii
Photo: Christopher V. Anderson



Sternberia lutea
Photo: Hayri Duman



Egretta rufescens
Photo: Ernesto Gómez



Lactifluus neotropicus
Photo: Aida Vasco



Mayfly nymph (*Ecdyonurus* sp.)
Photo: Astrid Schmidt-Kloiber and Wolfram Graf