



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.

Example for the recommended citation:

Donaldson, J, and Griffith, MP. 2023. 2022 Report of the Cycad Specialist Group. 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. 4 pp.

Animalia

Fungi

Plantae

National Species

Disciplinary

Action Partnership

Task Force

Red List Authority

Committee

Center for Species Survival

IUCN SSC Cycad Specialist Group



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**RED LIST AUTHORITY
COORDINATOR**

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NUMBER OF MEMBERS

44

SOCIAL MEDIA AND WEBSITE

Facebook: Cycad Specialist Group

Website: www.cycadgroup.org

Mission statement

The Cycad Specialist Group (CSG) exists to bring together the world's cycad conservation expertise, and disseminate this expertise to organisations and agencies which can use this guidance to advance cycad conservation.

Projected impact 2021–2025

In this quadrennium, the Cycad Specialist Group will impact on cycad species conservation by: (1) ensuring that no cycad becomes extinct, by enhancing assurance colonies for Critically Endangered and Extinct in the Wild species; (2) increasing population numbers of target Critically Endangered species as part of a process to improve their conservation status from Critically Endangered to Endangered; (3) working to reverse pollinator extinctions which will also potentially change the conservation status of three Critically Endangered species; and (4) securing habitat for species and effectively protecting these sites from habitat loss and illegal collecting of plants.

Targets 2021–2025

ASSESS

T-003 Update Red List and Red List Index for all species described up to 2020.

Status: Achieved

T-009 Assess newly described taxa.

Status: Not initiated

T-010 Improve the evidence base for cycad conservation and management.

Status: Achieved

PLAN

T-006 Identify priority sites for cycad conservation.

Status: On track

ACT

T-004 Enhance the percentage of Extinct in the Wild and Critically Endangered Cycad species represented in assurance colonies.

Status: On track

T-005 Implement genetic analysis of priority taxa to guide conservation action.

Status: On track

T-008 Secure priority sites for cycad conservation.

Status: On track

NETWORK

T-002 Establish the Global Cycad Conservation Consortium and ensure it is operating.

Status: On track

COMMUNICATE

T-001 Publish the official newsletter of the Cycad Specialist Group.

Status: On track

T-007 Promote positive cycad conservation action stories.

Status: On track

Activities and results 2022

ASSESS

Research activities

T-010 Improve the evidence base for cycad conservation and management. (KSR 5)

Number of research projects completed or supported by SSC members per taxonomic group and region: 19

Result description: Members of the Cycad Specialist Group have published 19 papers providing a taxonomic backbone for conservation planning and assessment and dealing with other issues of relevance to cycad conservation. The list of publications is as follows: (1) Clugston JAR, Kenicer GJ.



Zamia chigua in habitat in Colombia
Photo: Michael Calonje CC BY-NC-SA 4.0



Encephalartos friderici-guilielmi in habitat in South Africa
Photo: Michael Calonje CC BY-NC-SA 4.0

(2022). 'Sexing cycads — a potential saviour'. *Nat. Plants* 8, 326–327. <https://doi.org/10.1038/s41477-022-01133-x>; (2) Clugston, JAR *et al.* (2022). 'Conservation genomics of an Australian cycad *Cycas calcicola*, and the absence of key genotypes in botanic gardens'. *Conserv. Genet.* 23, 449–465. <https://doi.org/10.1007/s10592-022-01428-8>; (3) Favian-Vega, E *et al.* (2022). 'Genetic diversity and differentiation in *Zamia furfuracea* (Zamiaceae): an endangered, endemic and restricted Mexican Cycad'. *Taiwania* 67.3: 302-310; (4) Feng, X *et al.* (2022). 'Geographical isolation rather than convergent evolution explains significant high genetic but low morphological differentiations between two cycad species'; (5) Glos RAE *et al.* (2022). 'Leaflet anatomical diversity in *Zamia* (Cycadales: Zamiaceae) shows little correlation with phylogeny and climate' *The Botanical Review* 1-16; (6) Gosetti *et al.* (2022). 'Emerging insights into the ecophysiology of dioecy in cycads: a call for research'; (7) Habib S *et al.* (2022). 'Phylotranscriptomics reveal the spatio-temporal distribution and morphological evolution of *Macrozamia*, an Australian endemic genus of Cycadales' *Annals of Botany* 130.5: 671-685; (8) Herrera-Blitman N *et al.* (2022). '1039 ZAMIA DECUMBENS: Cycadales, Zamiaceae'. *Curtis's Botanical Magazine* 39.3: 517-539; (9) Hui-Hui XI *et al.* (2022). 'Resources and protection of *Cycas* plants in China'. *Biodiversity Science* 30.7: 21495; (10) Li, J *et al.* (2022). 'Not that young: combining plastid phylogenomic, plate tectonic and fossil evidence indicates a Palaeogene diversification of Cycadaceae'. *Annals of Botany* 129.2: 217-230; (11)

Martínez-Domínguez, L, *et al.* (2022). '*Ceratozamia oliversacksii* (Zamiaceae), a new species of gymnosperm from western Oaxaca, Mexico'. *Kew Bulletin* 77.1: 211-219; (12) Martínez-Domínguez L *et al.* (2022). 'Temporal shifts in reproductive phenology of cycads: a comparative study in *Ceratozamia*'. *Botany* 100.11: 827-838; (13) Pagán-Jiménez JR (2022). '*Zamia* in the insular Caribbean: New insights into the historical ecology of an ancient wild food plant'. Under the shade of Thipaak: the ethnology of cycads in Mesoamerica and the Caribbean. 97-124; (14) Pérez-Farrer MA *et al.* (2022). '*Ceratozamia schiblii* (Zamiaceae): A new cycad species from the eastern mountains of Oaxaca, Mexico'. *Taxonomy*, 2, 324-338. <https://doi.org/10.3390/taxonomy2030025>; (15) Roemer, RB *et al.* (2022). 'Insights from an ancient gymnosperm lineage: ambient temperature and light and the timing of thermogenesis in cycad cones'. *American Journal of Botany* 109(1): 151– 165. <https://doi.org/10.1002/ajb2.1810>; (16) Sánchez-Tinoco MY *et al.* (2022). 'Salient ovule features of *Zamia furfuracea* L. fil.: Early stages of megagametophytogenesis'. *Flora* 296: 152168; (17) Segalla R *et al.* (2022). 'Phenology of *Zamia boliviana* (Zamiaceae), a threatened species from a seasonally dry biodiversity hotspot in South America'. *Plant Species Biology* 37.1: 118-131; (18) Skelley, PE *et al.* (2022). 'Review of *Pharaxonotha* Reitter (Coleoptera: Erotylidae: Pharaxonothinae) inhabiting the cycad genus *Dioon* Lindl. (Cycadales), with descriptions of nine new species and comments on *P. kirschii* Reitter'. *Insecta Mundi* 0917: 1–41; (19) Tang W and Gomez H. (2022). 'Two new species of Pharaxonothinae beetles (Coleoptera:

Erotylidae) inhabiting cones of the cycad *Ceratozamia santillanii* Pérez-Farr. and *Vovides* (Cycadales: Zamiaceae) in Mexico'. *Zootaxa* 5150.3: 428-442.

COMMUNICATE Communication

T-007 Promote positive cycad conservation action stories. (KSR 13)

Number of communication products using innovative tools: 4

Result description: In 2022, the following stories were published in various media: Botanist fights to save cycads, the 'dinosaur' plants threatened by land clearing and zealous collectors (ABC News 19 August 2022); Disappearing pollinators and extinction of the world's oldest seed plants (Current Conservation 16.3 November 2022); A plant that outlived dinosaurs is being poached to extinction, crime analysts warn (Euronews, January 2022); Many of These Plants Older Than Dinosaurs Face Extinction (Smithsonian Magazine, April 2022).

Summary of achievements

Total number of targets 2021–2025: 10

Geographic regions: 8 Global, 2 Africa, 2 America, 1 Asia

Actions during 2022:

Assess: 1 (KSR 5)

Communicate: 1 (KSR 13)

Overall achievement 2021–2025:

