



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:

Lewis, S, and Jusoh, W.F.A. 2023. 2022 Report of the Firefly 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. 6 pp.

Animalia

Fungi

Plantae

National Species

Disciplinary

Action Partnership

Task Force

Red List Authority

Committee

Center for Species Survival

IUCN SSC Firefly Specialist Group



CO-CHAIR
Sara Lewis
Department of
Biology, Tufts
University, Medford,
Massachusetts, US



CO-CHAIR
Wan F.A. Jusoh
School of Science,
Monash University
Malaysia

**RED LIST AUTHORITY
COORDINATOR**
Vor Yiu
Hong Kong
Entomological Society,
Yuen Long, Hong Kong

NUMBER OF MEMBERS
47

SOCIAL MEDIA AND WEBSITE

Facebook: Friends of Fireflyers International
Instagram: @iucnfireflies
TikTok: @iucnfireflies
Twitter: @IUCNFireflies

Mission statement

Our mission is to compile existing knowledge for ca. 2000 lampyrid species worldwide on their geographic range, population size, and population trends, identify major extinction threats and risk factors, increase public knowledge concerning firefly diversity, ecology and behaviour, and promote long-term conservation efforts.

Projected impact 2021–2025

By the end of the quadrennium we hope to: (1) establish monitoring programmes for most of the threatened firefly species on the Red List (Critically Endangered, Endangered, Vulnerable); (2) distribute guidelines for sustainable tourism to places where firefly tourism is rapidly developing; and (3) complete the Assess to Plan (A2P) process for congregating mangrove fireflies of Southeast Asia.

Targets 2021–2025

ASSESS

T-004 Write and publish a scientific article with guidelines for sustainable firefly tourism.
Status: Achieved

T-005 Submit global assessments for North American firefly species.
Status: Achieved

T-006 Write and publish scientific articles including new species descriptions, ecology and behaviour, and threats.
Status: Achieved

T-007 Complete global assessments of fireflies in Hong Kong, Thailand, Malaysia, Europe and Taiwan.
Status: On track

T-008 Develop and disseminate standardised methodologies for monitoring firefly species abundances.
Status: On track

PLAN

T-009 Identify stakeholders and hold a national Workshop on Guidelines for Sustainable US Firefly Tourism.
Status: Achieved

T-010 Organise a regional Key Biodiversity Area/Conservation Planning Workshop to protect habitat of congregating mangrove fireflies with other taxa in Southeast and East Asia.
Status: On track

T-011 Identify stakeholders and hold a national Conservation Planning Workshop for threatened US fireflies (south-eastern and mid-Atlantic states).
Status: On track

T-012 Identify stakeholders and hold a national Conservation Planning Workshop in Mexico to discuss guidelines for sustainable tourism for the endemic firefly *Photinus palaciosi*.
Status: Not initiated

T-013 Start developing guidelines for captive breeding and restoration of firefly populations.
Status: On track

T-018 As needed, issue regional-specific position statements addressing major drivers and/or emerging threats of firefly species/population loss.
Status: On track

ACT

T-014 Act as consultant to Forestry Research Institute of Malaysia (FRIM) on their 6-year project to do national conservation planning and tourism guidelines for congregating mangrove fireflies in 12-14 river systems.
Status: On track

T-015 Provide technical consults for national and local entities to support firefly conservation efforts, including local Firefly Sanctuaries.
Status: On track

T-016 Prepare intervention letters addressing major drivers and/or emerging threats of firefly species/population loss.
Status: On track

Fireflies light up in the darkness of the Anamalai Tiger Reserve, Tamil Nadu, India
Photo: Sriram Murali



T-017 Establish biological monitoring programmes to determine population trends for threatened firefly species by working with citizen science groups, volunteers, local and state agencies.

Status: On track

T-020 Disseminate to other countries firefly tourism guidelines developed in Thailand, Malaysia, Taiwan and Mexico to encourage sustainable natural resource use.

Status: On track

NETWORK

T-001 Strengthen existing partnerships with Xerces and New Mexico BioPark Society for species assessment and planning.

Status: Achieved

T-002 Strengthen existing partnership with Fireflyers International Network for outreach and communication.

Status: Achieved

T-019 Strengthen ties with the International Dark-Sky Association (IDA) for IDA/Firefly Sanctuary certification.

Status: On track

T-026 Recruitment of new members to aid biodiversity exploration in poorly known regions (Israel, Philippines/Indonesia, India, Africa).

Status: On track

COMMUNICATE

T-021 Compile a list of relevant documents and make them publicly available (e.g. on the Fireflies International Network website).
Status: On track

T-022 Work with IUCN Communications, national and international media to publicise threatened firefly species, conservation actions and outcomes.

Status: Achieved

T-023 Appoint a focal person to manage social media outreach (e.g. Twitter, Instagram, others).

Status: On track

T-024 Give interviews and presentations to schools, communities, government agencies and the public.

Status: Achieved

T-025 Harness the power of visual imagery by collaborating with artists, videographers, photographers and musicians to spread awareness of firefly ecology and conservation.

Status: Achieved

Activities and results 2022

ASSESS

Red List

T-007 Complete global assessments of fireflies in Hong Kong, Thailand, Malaysia, Europe and Taiwan. (KSR 6)

Number of new global Red List assessments completed: 20

Result description: In 2022, Global Red List assessments were submitted and are now being processed by the Red List Unit for ca.10 European firefly species, four southeast Asian *Pteroptyx* species, and six Hong Kong species. We have continued to work with CPSG on A2P for Congregating Mangrove Fireflies in southeast Asia.

Research activities

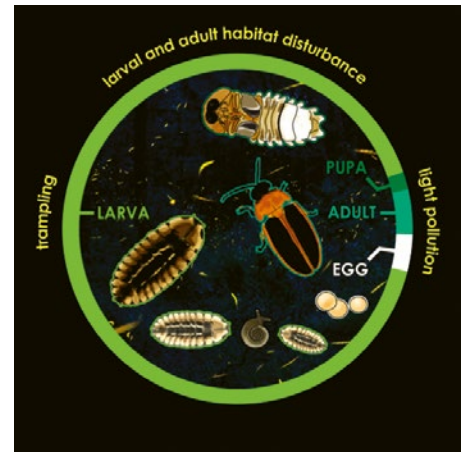
T-004 Write and publish a scientific article with guidelines for sustainable firefly tourism. (KSR 5)

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

Result description: Our published guidelines for sustainable firefly tourism have been adopted by numerous sites in the US, Canada, and Mexico.

T-006 Write and publish scientific articles including new species descriptions, ecology and behaviour, and threats. (KSR 5)

Many stages in the firefly life cycle are vulnerable to tourism-associated threats
Illustration: Anchana Thancharoen



Number of scientific publications about species research that acknowledge SSC affiliation: 40

Result description: In 2022, our Firefly SG members contributed ca. 40 peer-reviewed articles, and talks on firefly species descriptions; ecology and behaviour; light pollution impacts on fireflies and other insects.

T-008 Develop and disseminate standardised methodologies for monitoring firefly species abundances. (KSR 6)

Publication of standardised monitoring protocols: Ongoing.

Result description: A draft document prepared by Vor You (Red List Authority Coordinator), Raphael de Cock and Wan F.A. Jusoh was presented at IFS2022 in Portugal. The Xerces Society has agreed to work on and circulate a revision of this document for eventual publication and distribution.

PLAN

Planning

T-010 Organise a regional Key Biodiversity Area/Conservation Planning Workshop to protect habitat of congregating mangrove fireflies with other taxa in southeast and east Asia. (KSR 8)

Number of conservation plans/strategies developed: 0

Result description: Following discussions with the Conservation Planning Specialist Group, we have started the Assess-2-Plan process for congregating mangrove fireflies in southeast Asia (*Pteroptyx*). These assessments were drafted at the June workshop, reviewed, and submitted to the RLU in September 2022. We are currently working with CPSPG to organize regional/national planning workshops for these vulnerable species.

T-011 Identify stakeholders and hold a national Conservation Planning Workshop for threatened US fireflies (south-eastern and mid-Atlantic states). (KSR 8)

Number of conservation plans/strategies developed: 1

Result description: In collaboration with the Xerces Society, surveys were conducted in summer 2022 to gather additional occurrence data for about 18 high-priority/threatened fireflies in three US regions during summer 2022: mid-Atlantic, south-east, and western. In collaboration with the Xerces Society, we have met virtually with federal, state, and local officials in all three US regions to exchange information and answer questions. In addition, the Xerces Society has prepared petitions to list several threatened US fireflies under the Endangered Species Act. The Xerces Society has developed a web portal for volunteers to report data (Xerces/Firefly Atlas) and will be continuing surveys during summer 2023.

T-013 Start developing guidelines for captive breeding and restoration of firefly populations. (KSR 8)

Number of conservation plans/strategies developed: 1

Result description: Dr Chiahsung Wu (Taiwan) has met with Dr Anchana Thancharoen (Thailand) to discuss captive breeding and habitat restoration methods for terrestrial fireflies. Initial discussions of guidelines are underway. During 2022 members held a webinar to exchange information on this topic.

T-018 As needed, issue regional-specific position statements addressing major drivers and/or emerging threats of firefly species/population loss. (KSR 8)

Number of position statements issued: 2

Result description: In collaboration with the Xerces Society, we published information and guidelines for US firefly tourism (<https://xerces.org/endangered-species/fireflies/tourism>). Work is underway toward an IUCN Issues Brief 'Light Pollution and Nature' to summarize how light pollution impacts wildlife and threatens several recently assessed European glow-worm species.

ACT

Conservation actions

T-016 Prepare intervention letters addressing major drivers and/or emerging threats of firefly species/population loss. (KSR 10)

Number of intervention letters addressing major drivers/emerging threats of species or population loss: 1

Result description: We are currently preparing an IUCN Brief describing the impact of artificial light at night (ALAN) on fireflies, glow-worms and other nocturnal wildlife.

T-017 Establish biological monitoring programmes to determine population trends for threatened firefly species by working with citizen science groups, volunteers, local and state agencies. (KSR 10)

Number of threatened species being monitored for population trends: 3

Result description: We are working with the Xerces Society to survey and eventually monitor population trends for 18 threatened US firefly species.

Technical advice

T-015 Provide technical consults for national and local entities to support firefly conservation efforts, including local Firefly Sanctuaries. (KSR 10)

Number of technical consultations provided to support conservation actions: 1

Result description: Several FSG members were invited to give presentations at a Firefly Conservation conference organized by Environmental Management and Policy Research Institute (EMPRI) in Bengaluru, Karnataka, India. We continue to provide technical consults to support understanding of firefly diversity, taxonomy and conservation in India.

T-020 Disseminate firefly tourism guidelines developed in Thailand, Malaysia, Taiwan and Mexico to other countries to encourage sustainable natural resource use. (KSR 11)

Number of sustainable use practices supported: 1

Long exposure image shows unique flash pattern of the threatened US Cypress Firefly (*Photuris walldoxeyii*)
Photo: Radim Schreiber | FireflyExperience



Result description: We are now working with members in India and Indonesia concerning firefly tourism.

NETWORK

Membership

T-026 Recruitment of new members to aid biodiversity exploration in poorly known regions (Israel, Philippines/Indonesia, India, Africa). (KSR 2)

Number of SSC members recruited: 6

Result description: We have recruited Ella Fishman, a new FSG member from Israel, who has now gone through Red List training and is currently working on Red List assessments for about 20 Middle East firefly species. Our members participated in an informational webinar for new members in India and began recruiting members in Indonesia.

Synergy

T-001 Strengthen existing partnerships with Xerces and New Mexico BioPark Society for species assessment and planning. (KSR 1)

Number of 'in kind' partnerships established and maintained: 2

Result description: During 2022, we continued working closely with colleagues at the New Mexico BioPark Society and the Xerces Society to launch targeted survey efforts for approximately 18 high-priority threatened firefly species located in the southeastern, mid-Atlantic, and southwestern US. In 2022 Xerces published a document intended for state and local managers (State of the Fireflies) that describes ecology, habitat and threats for these at-risk US species. In 2022 we continued working with NMBS on Red List assessments for Europe and southeast Asia, and also began collaborating with BugLife UK, CPSG, and GCSS.

T-002 Strengthen existing partnership with Fireflyers International Network for outreach and communication. (KSR 1)

Number of 'in kind' partnerships established and maintained: 1

Result description: In June 2022, the International Firefly Symposium was held in

Porto, Portugal and hosted by the Parque Biológico de Gaia, with many FSG members in attendance. Following the meeting, PBG hosted a 2-day workshop where we drafted Red List assessment for Europe and south-east Asia (workshop funded by IUCN SSC and MbZ, facilitated by Anna Walker and Sergio Henriques).

T-019 Strengthen ties with the International Dark-Sky Association (IDA) for IDA/Firefly Sanctuary certification. (KSR 1)

Number of 'in kind' partnerships established and maintained: 1

Result description: Dr Avalon Owens has been acting as our FSG liaison with IDA Dark Sky. In September 2022 we held a meeting with European Dark Sky activist Dr Alejandro Sanchez de Miguel, IDA board member and Cities4Night; we are currently working on an IUCN Brief describing how light pollution impacts fireflies, glow-worms and other nocturnal wildlife.

COMMUNICATE Communication

T-023 Appoint a focal person to manage social media outreach (e.g. Twitter, Instagram, others). (KSR 12)

Social media engagement: 36

Result description: As of June 2022, FSG member Vickly Mobilim (Institute for Tropical Biology and Conservation at Universiti Malaysia Sabah) is our new social media director and has established accounts for the FSG on Instagram, Twitter, and TikTok.

T-024 Give interviews and presentations to schools, communities, government agencies and the public. (KSR 13)

Number of SSC members' presentations developed in relation to specific taxonomic groups: 0

Result description: In 2022, Firefly SG members continued to write articles and give public talks about firefly conservation. In 2022, Firefly SG members' activities were covered online, and in interviews on radio, TV, newspapers and podcasts. See attached spreadsheet for links.

T-025 Harness the power of visual imagery by collaborating with artists, videographers, photographers and musicians to spread awareness of firefly ecology and conservation. (KSR 13)

Number of communication products using innovative tools: 8

Result description: Two new group members were appointed as Visual Storytelling Specialists, and their photographs were used in IUCN Red List publications (including Amazing Species profile for the Mysterious Lantern Firefly) and peer-reviewed publications on threats from firefly tourism.

Acknowledgements

We thank the IUCN SSC CPSG, the Xerces Society for Invertebrate Conservation, the Center for Species Survival at the New Mexico BioPark Society, and the Center for Species Survival at the Indianapolis Zoo. We also thank the Mohamed bin Zayed Species Conservation Fund and the IUCN SSC for funding the red listing workshop held at the Parque Biológico de Gaia in Gaia, Portugal in June 2022.

Summary of achievements

Total number of targets 2021–2025: 25

Geographic regions: 17 Global, 5 America, 3 Asia

Actions during 2022:

Assess: 4 (KSR 5, 6)

Plan: 3 (KSR 8)

Act: 4 (KSR 10, 11)

Network: 4 (KSR 1, 2)

Communicate: 3 (KSR 12, 13)

Overall achievement 2021–2025:

