2021 Report

IUCN SSC Galapagos Plant Specialist Group

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NUMBER OF MEMBERS
11

Mission statement

The Galapagos Plant Specialist Group promotes the conservation of all Galapagos native plants and plant-like organisms (including algae, fungi, lichens and similar taxa), with the intention to be inclusive rather than exclusive.

Projected impact 2021–2025

Most of our projects are directed at the conservation of highly threatened plant species and their habitats, including restoration of degraded habitats and reduced populations. During this quadrennium, we expect to have stabilised or improved the conservation status of more than ten Galapagos endemic plant species, across at least ten sites and at least five islands, by means of management of threats (e.g. invasive species), population enhancement and site restoration.

Targets 2021–2025

ASSESS

T-001 Search for presumably extinct and rare plants on Floreana and Santiago islands.

T-002 Contribute to the assessment of the distribution of some endangered endemic vascular plants.

T-003 Re-evaluate endemic vascular plants.

T-004 Red List all ca. 200 Galapagos endemic species of lichenised fungi.

T-005 Assess the population status of species of Galapagos algae deemed Data Deficient by the IUCN.

T-006 Investigate invasive species impacts on endemic flora.

T-007 Generate distribution maps and ecological information for iconic endemic plant groups.

T-009 Assess the value of water-saving technology on the recovery of threatened plant populations.

T-010 Conduct phylogenetic and morphological studies of Families Amaranthaceae, Asteraceae and Zygophyllaceae of the Galapagos.

T-012 Evaluate the conservation status of endangered populations of endemic plants on the islands of Santa Cruz, Isabela and Floreana.

PLAN

T-011 Formulate management recommendations for three invasive plant species (*Rubus niveus*; Guava, *Psidium guajava*; and Quinine, *Cinchona pubescens*) to protect endangered populations of endemic plants.

ACT

T-008 Restore threatened and endangered plant populations in protected areas and populated zones.

T-013 Restore endangered populations of *Scalesia pedunculata* (Santa Cruz) and Heart-leafed Scalesia *(Scalesia cordata*; Isabela).

Activities and results 2021

ASSESS

Red List

T-004 (KSR 6)

Number of new global Red List assessments completed: 1

Result description: In 2021, an additional Galapagos lichen species, Fragile Ramalina *(Ramalina fragilis*; see https://www.iucnredlist.org/species/97459969/97462842), was Red Listed as Vulnerable during a workshop by the IUCN Lichen Specialist Group and the Global Fungal Red List Initiative (http://iucn.ekoo.se/en/iucn/welcome). With Galapagos Spiny Gladiator Lichen *(Acantholichen galapagoensis*) previously listed in 2017 (see https://www.iucnredlist.org/species/95836378/95838134), we now have two endemic Galapagos lichen species included in the Global IUCN Red List. As part of an agreement between IUCN and Arizona State University, the Global Red List of Lichenised Fungi has been made available through the Consortium of North American and Latin American Lichen Herbaria (https://lichenportal.org/cnalh/ and https://lichenportal.org/chlal/, respectively) and can be accessed here: https://lichenportal.org/cnalh/projects/index.php?pid=556. All new assessments of globally Red Listed species of lichenised fungi are being added to these checklists in the Lichen Consortium as soon as the assessments are published. The assessment of endemic species of lichenised fungi

Leucocarpus sp
Photo: Patricia Jaramillo

from the Galapagos continues. We built a database with assessment criteria for the ca. 200 endemic species now known from the archipelago. The assessment criteria have been entered in the IUCN Species Information Service (SIS) and we are in the process of adding the profiles for all species to the Global Fungal Red List Initiative. Using the information from the Galapagos Biodiversity inventory, we are working on a publication that will define how Red List criteria can best be applied to endemic lichen species in the Galapagos. Among the ca. 200 species, several groups of lichens can be identified that are subjected to similar threats and to assess these species together it appears to be more efficient to identify guilds of species with similar ecology and thus subject to similar ecological impacts. A student at Arizona State University's Barret Honors College, Niles Clipson, is now working on this project as part of an honour's thesis. It is anticipated that results of this work will also benefit the upcoming IUCN workshop of the Lichen Specialist Group, which will focus on establishing guidelines to assure that IUCN Red Listing criteria can be applied to lichenised fungi in a way that does justice to the complex biology of these organisms (e.g. IUCN concepts like 'mature individuals', 'generation time', etc., are very challenging to apply to a group of organisms like lichens, where reproduction and means of dispersal are

Galvezia sp
Photo: Patricia Jaramillo

Scalesia retroflexa
Photo: Anna Calle

poorly understood and organisms are not single individuals, but complex symbiotic systems).

T-005 (KSR 6)

Number of global Red List reassessments completed: 50

Result description: Three expeditions were conducted during 2021 to collect more specimens for correct identification. Ongoing work on identification of species is taking place.

Research activities

T-001 (KSR 5)

Number of research projects completed or supported by SSC members per taxonomic group and region: 0

Result description: During 2021, a draft of a new review article was produced on the taxonomy, distribution and conservation of *Psychotria rufipes-P. angustata* from Florena Island. It constitutes the main basis for taking conservation actions. During 2022, we plan to write a proposal in search of funds for field work and publications.

T-009 (KSR 5)

Number of research projects completed or supported by SSC members per taxonomic group and region: 0

Result description: In 2021, the Galapagos Verde 2050 project (GV2050) published a paper on the cost-effectiveness of water-saving technologies for restoration in the Galapagos. This year, 1,200+ endemic and native plants were planted with water-saving technologies and 6,000+ individuals planted in previous years were monitored during 170 visits to GV2050 study sites.

T-010 (KSR 5)

Number of research projects completed or supported by SSC members per taxonomic group and region: 2

Result description: In 2021, the entire genome of *Scalesia atractyloides* was sequenced by José Cerca and Mike Martin, and two publications are expected for 2022. Three genetic permits for projects studying *Scalesia*, *Lecocarpus* and the hybridisation between endemic species and between endemic and introduced species were authorised by the Ministry of Environment, Water and Ecological Transition. A thesis on the genus *Tribulus* (Zygophyllaceae) by PhD student Daniel Reyes is under way.

T-012 (KSR 5)

Number of research projects completed or supported by SSC members per taxonomic group and region: 5

Result description: In 2021, research projects were successfully carried out on the islands of Santa Cruz, Floreana, San Cristóbal and Isabela for the following endemic species: *Scalesia pedunculata*,

Heart-leafed Scalesia *(S. cordata)* and *Miconia robinsoniana*, and the following invasive species: *Rubus niveus* and Quinine (*Cinchona pubescens*).

PLAN

Planning

T-011 (KSR 8)

Number of conservation plans/strategies developed: 4

Result description: Management recommendations about blackberry (*Rubus niveus*), Quinine (*Cinchona pubescens*) and Siam Weed (*Chromolaena odorata*) were formulated and passed on to the Galapagos National Park Directorate in 2021. A national workshop on the advances in development of a biological control agent for *Rubus niveus* was postponed to 2022 due to the COVID-19 pandemic.

ACT

Conservation actions

T-008 (KSR 10)

Number of areas under management for the species or group of species: 7

Result description: In 2021, the natural regeneration of *Galvezia leucantha* var. *leucantha* was observed for the first time since recovery efforts by the GV2050 project began. These new seedlings were protected by fences. Thirty individuals of *Lecocarpus lecocarpoides* grown ex situ produced 5,000+ seeds. The search for individuals of *Scalesia retroflexa* in Santa Cruz Island began, with one expedition already conducted. Production of Radiate-headed Scalesia (*Scalesia affinis*) plants started in plant nursery. The GV2050 planted 1,200+ endemic and native plants on 7 islands. At the end of 2021, the Galapagos National Park Directorate approved a new project dedicated to the recovery of threatened plant species that forms part of the Galapagos Verde 2050 Programme. As part of this project, we will begin the re-assessment of all the endemic plants of the Galapagos in 2023, focusing first on priority species for the GV2050.

T-013 (KSR 10)

Number of species with increased or prevented decrease in population or range size, as a result of conservation actions: 7

Result description: In 2021, the following endemic species and their populations benefited from control of invasive species, mainly *Rubus niveus*: *Scalesia pedunculata*, Heart-leafed Scalesia (S. cordata), *Miconia robinsoniana*, *Cyathea weatherbyana*, Galapagos Justicia (*Justicia galapagana*), *Psidium galapageium* and *Croton scouleri*. The following endemic species have been reproduced in the greenhouse and planted at conservation sites: *Scalesia pedunculata* and Heart-leafed Scalesia (S. cordata).

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Summary of achievements

Total number of targets 2021–2025: 13

Geographic regions: 13 America

Actions during 2021:

Assess: 6 (KSR 5, 6)
Plan: 1 (KSR 8)
Act: 2 (KSR 10)

Overall achievement 2021–2025: