AIISG NEWSLETTER

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AIISG
IUCN SSC
Atlantic Islands Invertebrate Specialist Group
www.aiisg.net

HI AIISG MEMBERS

The December 2024 newsletter highlights updates on invertebrate conservation across the Atlantic Islands.

In this issue we share the outcomes from the 5th SSC Leaders Meeting in Dubai, a conservation initiative in Ascension Island led by Adam Sharp, and a monograph on Saint Helena's spiders presented by Danniella Sherwood.

Núria Macias announces a project to conserve Tenerife's endemic spider *Dysdera curviseta* through genome sequencing, while Paulo Borges shares the green listing of two Azorean beetle species.

Additionally, António Machado introduces his book on Canary Islands Coleoptera and António Franquinho Aguiar details Madeira's *Thysanoptera* fauna.

Finally, Dinarte Teixeira and Mário Boieiro provide updates on two major achievements: the conservation plan workshop for the endangered longhorn beetle *Deucalion oceanicum* and the pioneering trial reintroduction of the critically endangered Desertas land snails.

We hope you enjoy the December 2024 newsletter edition.

Vicky, Paulo and Dinarte

5TH LEADERS' MEETING OF THE IUCN SPECIES SURVIVAL COMMISSION (SSC), DUBAI (23-28 OCTOBER)

By Paulo Borges

Paulo A. V. Borges and Vicky Wilkins, co-chairs of the AIISG, participated in the 5th Leaders' Meeting of the IUCN Species Survival Commission (SSC) in Dubai from October 23 to 28. This prestigious global gathering brought together conservation leaders to discuss and evaluate strategies for species conservation, assess the effectiveness of ongoing efforts, and shape future initiatives to preserve biodiversity worldwide.

A key focus of the meeting was to develop robust mechanisms for monitoring the impact of SSC activities, utilising new data and indicators as benchmarks to guide the global biodiversity strategy. Additionally, central objectives were enhancing the visibility of the SSC's role in conservation and increasing public awareness of its vital partnerships.

During the event, Paulo Borges presented groundbreaking conservation initiatives, including the application of the Green List to three endangered insect species from the Azores. He proposed the creation of a Biotic Integrity Index to monitor arthropod populations on islands. These contributions represent a significant step forward in conserving endemic island species. Meanwhile, Vicky Wilkins played a pivotal role in a high-level meeting of the IUCN Invertebrate Specialist Group Assembly, underscoring the crucial importance of invertebrate conservation in shaping the future of global biodiversity efforts.

"AIISG co-chairs participated in the 5th IUCN SSC Leaders' Meeting in Dubai, presenting conservation innovations for Azorean arthropods while contributing to global strategies for monitoring biodiversity and enhancing the visibility of species conservation efforts."

AIISG CONCLUDE SUCCESSFUL CONSERVATION PROJECT ON REMOTE ASCENSION ISLAND

By Adam Sharp

The AIISG supported the first invertebrate-dedicated conservation project on Ascension Island, which concluded in early 2024. The South Atlantic volcanic island is a UK Overseas Territory of just 88 km^2 in area and one million years in age – it's isolation and youth render its native biodiversity relatively limited, in line with island biogeography theory. However, the small number of Ascension-endemic invertebrate species, 40-50 species, are evolutionarily and ecologically fascinating. These include the world's largest pseudoscorpion *Garypus titanius,* and the flightless fungus moth *Erechthias grayi*.

The project was funded by UK-based Darwin Plus and facilitated through collaboration with the Ascension Island Government Conservation & Fisheries Directorate and Species Recovery Trust (Vicky Wilkins, AIISG Co-Chair). It was led by project coordinator Dr Adam Sharp, who joined AIISG via the project. The ambitious collaboration aimed to 1) expand native invertebrate taxonomic and ecological knowledge on the island, 2) manage invasive species threats to native invertebrates through local capacity building, and 3) boost public engagement with Ascension's under-appreciated invertebrate diversity.

The core aims and outputs of the project have already been achieved. These included a species database of Ascension's invertebrate species and locations, approved government management plans for native and invasive invertebrate species, 13 Red List assessments for island-endemic species, and public engagement materials and in-person events. Besides those core aims, new and branching invertebrate knowledge led to numerous successful side projects including two new and one expanded protected area, two additional small Darwin Plus grants for monitoring specific endemic invertebrates in the long-term, an Indianapolis Zoo grant to fund a Masters-level research project with Imperial College London, collaboration with numerous institutions including the IUCN SSC Mite Specialist Group, and scientific publications in *Diversity and Distributions*, *Biological Invasions*, *Oryx*, *Zootaxa* and several other journals. Newly described species include the pseudoscorpions *Garypus ellickae* and *Neocheiridium ashmoleorum*, and descriptions of a *Niambia* woodlouse, several oribatid mites and several Bethylidae wasps hopefully follow.

> *"The AIISG led the first invertebrate-focused conservation project on Ascension Island, a UK Overseas Territory, achieving significant milestones such as creating a species database, management plans, Red List assessments, and public engagement initiatives, while also enabling side projects including new protected areas, long-term monitoring grants, academic collaborations, and the description of new invertebrate species."*

MAJOR WORK PUBLISHED ON SAINT HELENA'S SPIDERS

By Danniella Sherwood

Our monograph on Saint Helena's spiders, alluded to in the previous issue, has now been published! The work is treatise of the spiders of Saint Helena, including a checklist of every species found from 1869 to 2024, including many new records, and over 300 colour and ink illustrations. The paper also describes two new genera and two new species. We numbered 18 coauthors in total, from institutions in 10 countries. It was a great privilege for me to lead this team and the project over the last two years. Thanks to this work, spiders are now probably the best-studied invertebrate group on Saint Helena with 100% of currently known species having been named and described or redescribed.

Here's some info on the spiders new to science: The Martina Minuscule Spider (*Anapistula martinae*) is a tiny, eyeless, endemic species, named after Martina Peters in recognition of her contributions to nature conservation. The Christy Jo Goblin Spider (*Ischnothyreus christyjoae*) is another small species which evolved to have plate-like armour on its abdomen. This species was named after Christy Jo Scipio-O'Dean in recognition of her contributions to invasive invertebrate management on the island. The new genera described are *Helenidion* (name meaning Saint Helena's comb-footed spiders) and *Trust* (named in honour of the Saint Helena National Trust itself, and recognising the efforts of all staff past and present for protecting the island's natural and cultural heritage).

We proposed three new combinations: *Helenidion sciaphilum* and *Helenidion huberti*, both previously classified under different genera, and *Zelotes funereus*. We also synonymised *Lepthyphantes albimaculatus* with *Lepthyphantes leprosus*. Interestingly, we discovered a bizarre manifestation of epigynal duplication in the prodidomid Zimirina relegata and report this for the first time. Additionally, we restored the endemic genus Lynxosa to include several lycosid species, with new combinations for almost all. We also described the previously unknown sexes of a number of endemic and indigenous species, including the Critically Endangered Napoleon's Jumping Spider (*Paraheliophanus napoleon*). Conversely, we also recorded seven new non-native species, including *Clubiona hitchinsi* and *Latrodectus renivulvatus*, now the second known Latrodectus species on the island.

AIISG members on the paper: Liza Fowler, Natasha Stevens, Daryl Joshua, Christy Jo Scipio-O'Dean, Martina Peters, Gavin Ellick (Eddie Duff), Vicky Wilkins, and Danni Sherwood.

Citation: Sherwood, D., Henrard, A., Jocqué, R., Fowler, L., Marusik, Y. M., Maddison, W., Harvey, M. S., Hormiga, G., Rheims, C. A., Piacentini, L. N., Peters, M., Stevens, N., Joshua, D., Scipio-O'Dean, C. J., Ellick, G., Wilkins, V., Ashmole, M. & Ashmole, P. (2024). Annotated checklist of the spiders of Saint Helena, with new records, descriptions of unknown sexes, new and restored genera, and two new species (Araneae: Araneomorphae). Arachnology 19(9): 1218-1291. http://dx.doi.org/10.13156/arac.2024.19.9.1218

The paper is open access and can be downloaded here:
https://www.researchgate.net/publication/385420955_Annotated_checklist_of_the_spiders_of_Saint_Helena_with_new_records_descriptions_of_unknown_sexes_new_and_restored_genera_and_two_new_species_Araneae_Araneomorphae

"Our newly published monograph on Saint Helena's spiders provides a comprehensive checklist of species from 1869 to 2024, includes over 300 illustrations, describes two new genera (Helenidion and Trust), two new species, and multiple taxonomic revisions, making spiders the best-studied invertebrate group on the island with 100% of known species now described or redescribed."

A NEW REFERENCE GENOME FOR THE CONSERVATION OF COASTAL SPECIES IN THE FACE OF ANTHROPOGENIC CHANGE

By Núria Macias

The project led by the University of Barcelona (Prof. Julio Rozas and Dra. Sara Guirao-Rico) and the University of La Laguna (Dra. Nuria Macías-Hernández) will sequence the complete genome of the spider *Dysdera curviseta*, an endemic species of the Canary Islands that has its natural habitat in the intertidal zone in the coast of Tenerife. This initiative is one of the twenty projects that are promoted by the European Reference Genome Atlas Consortium (ERGA) — the European node of the Earth BioGenome Project (EBP) — which aims to sequence reference genomes of all known species of eukaryotic organisms to improve the management and conservation of biodiversity in European territory.

The main objectives of this project are i) to generate a high-quality chromosome-level reference genome for this species and ii) to uncover the genomic determinants and mechanism behind the particular convergent adaptations needed for life in intertidal areas.

This project will serve as the first step to improving the distribution knowledge of *D. curviseta* in Tenerife and its threats. The genomic information generated within this project will implement conservation initiatives of evolutionarily distinct species or lineages (such as *D. curviseta*) with evolutionary characteristics peculiar to coastal ecosystems that have traditionally been forgotten in conservation agendas. The new information generated in this study will re-evaluate the species *D. curviseta* with the IUCN and Canarian Government criteria for endangered species.

'A project led by the Universities of Barcelona and La Laguna will sequence the genome of Dysdera curviseta*, an intertidal spider endemic to Tenerife, as part of the European Reference Genome Atlas (ERGA) initiative, aiming to produce a high-quality reference genome to understand its unique adaptations, support conservation efforts, and re-evaluate its status under IUCN and Canarian endangered species criteria."*

GREEN LIST ASSESSMENT OF TWO ENDEMIC AZOREAN BEETLES

By Paulo Borges

On October 28, the Green List statuses for two endemic beetle species from the Azores — *Pseudanchomenes aptinoides*, endemic to Pico Island, and *Tarphius floresensis*, endemic to Flores Island — were officially published. This publication marks a milestone for the conservation of Azorean species and symbolises the IUCN's ongoing commitment to protecting island biodiversity.

In addition to his presentations, Paulo Borges was elected to represent invertebrates on the IUCN Green List Development Committee, strengthening the role of the IUCN SSC Atlantic Islands Invertebrate Specialist Group in leading biodiversity conservation initiatives and protecting endangered island species.

Three species are now in the GREEN LIST:

- ***Pseudanchomenus aptinoides***
  https://www.iucnredlist.org/species/97117836/99166554#green-assessment-information
  Borges, P.A.V. 2022. Pseudanchomenus aptinoides (Green Status assessment). The IUCN Red List of Threatened Species 2022: e.T97117836A9711783620242.

- ***Tarphius floresensis***
  https://www.iucnredlist.org/species/112215110/112215127#green-assessment-information
  Borges, P.A.V. 2024. Tarphius floresensis (Green Status assessment). The IUCN Red List of Threatened Species 2024: e.T112215110A11221511020242.

- ***Trechus terrabravensis***
  https://www.iucnredlist.org/species/97126159/99166599#green-assessment-information
  Borges, P.A.V. 2022. Trechus terrabravensis (Green Status assessment). The IUCN Red List of Threatened Species 2022: e.T97126159A9712615920242.

"Two new species of endemic Azorean beetles - Pseudanchomenes aptinoides, endemic to Pico Island, and Tarphius floresensis, endemic to Flores Island - were listed in the IUCN Green List."

IDENTIFICATION KEYS TO CANARY ISLANDS COLEOPTERA

By António Machado

Identifying species is a previous step to any conservation project. This is not always an easy task, particularly in oceanic islands like Macaronesia, where a high proportion of terrestrial invertebrates are endemic. Original descriptions are dispersed in the literature, and available general identification keys usually cover only continental taxa, omitting island endemics.

Being aware of this situation, in particular referring to the Coleoptera, in November 2023, I started an ambitious project of delivering identification keys to all beetles of the Canary Islands, covering about 2,475 species and subspecies (60% endemic).

At present (Nov. 2024), identification keys to 67 families are ready, pending the three larger ones: Carabidae, Staphylinidae and Curculionidae, which represent almost half of the fauna. Keys, duly illustrated with drawings or photographs, are available on my website as PDFs for free download and use under the licence Creative Commons Attribution-ShareAlike 4.0 International.

Anyone interested in receiving a message every time an update or a new family key is added should email me the subject “Keys to Canarian Coleoptera” and say “I am interested”.

For the time being, the keys are only in Spanish.

Email: antonio.machado@telefonica.net

Website: https://www.antoniomachado.net/activities/entomolgy/identification-keys-canary-islands-coleoptera/

> *"An ongoing project aims to create comprehensive identification keys for all 2,475 beetle species in the Canary Islands, 60% of which are endemic, with 67 families completed and free, illustrated PDFs available online."*

NEW PAPER OF THE THYSANOPTERA FAUNA FROM MADEIRA ARCHIPELAGO

By António Franquinho Aguiar

António Aguiar continues to advance his research on introduced phytophagous arthropods in the Madeira Archipelago. His latest work, documenting 27 new thrips (Thysanoptera) records, has been accepted for publication in the Boletim do Museu de História Natural do Funchal.

Additionally, his collaborations with experts on various insect groups, including Coleoptera, Hymenoptera, and Acari, have resulted in four papers currently under review in prestigious journals such as Experimental and Applied Acarology, Journal of Applied Ecology, and Journal of Natural History. Further details will be shared in upcoming newsletter editions.

> “*António Aguiar's research on Madeira's arthropods includes new thrips records and collaborations yielding papers in scientific journals*.”

CONSERVATION STRATEGY FOR THE ENDEMIC LONGHORN BEETLE OF SELVAGENS ISLANDS (MADEIRA, PORTUGAL)

By Dinarte Teixeira and Mário Boieiro

As part of a collaborative initiative by the IUCN Atlantic Islands Invertebrates Specialist Group (AIISG) and the Institute for Forests and Nature Conservation of the Madeira Government (IFCN), two significant events related to the Conservation Strategy for the Endemic Longhorn Beetle of the Selvagens Islands (Madeira Archipelago) were held on December 10 and 11 in Funchal, Madeira Island. These two events counted with the presence of the AIISG co-chair Paulo Borges and the members Pedro Cardoso, Mário Boieiro, Miguel Franquinho and Dinarte Teixeira.

On the morning of December 10, the workshop “Conservation of Invertebrates on Oceanic Islands” welcomed 70 participants. Specialists in taxonomy, in-situ conservation, and ex-situ conservation shared insightful case studies on the conservation of invertebrates in oceanic island ecosystems.

During the afternoon of December 10 and continuing into December 11, the technical workshop “Conservation Strategy for the Longhorn Beetle *Deucalion oceanicum*” convened 22 stakeholders from regional, national, and international institutions responsible for the conservation of protected areas and the target species. The primary objective was to develop a conservation plan defining the vision and outlining essential measures to safeguard *Deucalion oceanicum*, with a minimum implementation period of five years. The finalised conservation strategy is expected to be presented by the end of January 2025.

These events were supported by the project “Assessing to Plan for Madeira's Genetically Unique and Threatened Endemic Longhorn Beetle *Deucalion oceanicum*”, funded by the International Union for Conservation of Nature (IUCN) in collaboration with Re:wild (https://www.rewild.org/). This project operates under the EDGE program, prioritising critically endangered and/or monotypic species. Proposed by AIISG in collaboration with IFCN, the project aims to collect and analyse data to assess the conservation status of *Deucalion oceanicum*, a species both endemic and monotypic to Ilhéu de Fora (Selvagens Islands). The results will culminate in a comprehensive conservation strategy document.

In parallel, the “A2P *Deucalion oceanicum*” project aligns with another initiative, “Saving the Island Endemic Plants and Beetles of Selvagem Pequena and Ilhéu de Fora from Extinction (Selvagens Islands, Portugal)”. Submitted in 2023, this project is funded by Mossy Earth and managed by IFCN, with implementation scheduled through 2028.

> "*The AIISG and IFCN hosted two events in Madeira, focusing on the conservation of the endemic longhorn beetle Deucalion oceanicum. Experts developed a five-year conservation strategy, supported by IUCN's EDGE program and complementary Mossy Earth initiatives.*"

LAND SNAILS SPECIES REINTRODUCTION TRIAL IN BUGIO (MADEIRA, PORTUGAL)

By Dinarte Teixeira

More than 1,300 critically endangered snails have been released into the wild after being rescued from the edge of extinction, with a little help from a team of conservationists from the UK, France and Portugal. Four species of the Desertas Island land snails were thought to have disappeared altogether, having not been recorded living for more than 100 years.

However, between 2008 and 2012, experts at the Instituto das Florestas e Conservação da Natureza (IFCN) rediscovered tiny populations of four endemic species (*Discula lyelliana*, *Atlantica calathoides*, *Geomitra grabhami* and *Geomitra coronula*), each consisting of fewer than 200 surviving individuals, on an isolated island Deserta Grande, in the Madeira Archipelago.

Being at the brinck of extinction, a project supported by AIISG and Re:wild, along with Chester and Bristol Zoos as well as Mossy Earth was carried out since 2021, consisting of a multistep conservation approach to try to save these four endemic land snails species.

Drawing on their technical knowledge, specialists at the leading conservation zoos of Chester, Bristol and Beauval managed to create the perfect conditions for the snails to thrive and made a breakthrough - successfully breeding all species for the first time ever in human care.

Now, 1,329 snails of *D. lyelliana* and *G. coronula* raised in Chester Zoo have returned to Bugio Island in November 2024, as part of a reintroduction. The small island has been specially selected as the main threats which almost wiped out the snails have been removed. Invasive goats, rats and mice, which have decimated the precious landscape, have been eradicated, while work to restore habitat on the island to its former glory has been carried out. Each of the snails reintroduced on Bugio has been individually marked so they can be carefully monitored on the island. If successful, many more snails will join them to help give the species a further boost.

You can find more information about the project and the in-situ and ex-situ conservation actions in the following links:

- https://www.mossy.earth/projects/snail-species-rescue
- https://www.aiisg.net/resources/projects/ver.php?id=106

Youtube series:

- https://youtu.be/bQSEsFhvko8
- https://www.youtube.com/watch?v=AnciOjEy6mw
- https://www.youtube.com/watch?v=itk-jv16pAA
- https://www.youtube.com/watch?v=0ZVNPlQswY8
- We rediscovered a species - now it might go extinct

Species reintroduction media reports:

- https://www.youtube.com/watch?v=heelDUxZoso

> *"1,329 snails of D. lyelliana and G. coronula raised in Chester have returned to Bugio Island in November 2024, as part of a reintroduction."*

FINAL REMARKS

A heartfelt thank you to all the members who contributed to the December 2024 newsletter! Seeing such a wide range of invertebrate projects flourishing across different latitudes is truly exciting.

As our group grows, focusing on expanding into other Atlantic islands and archipelagos, we encourage long-standing and new members to share updates and news about their ongoing initiatives and research. We eagerly anticipate learning about even more groundbreaking projects and developments in invertebrate conservation across the Atlantic Islands.

Finally, we wish you a Merry Christmas and a Happy New Year filled with joy, peace, and success! May this festive season bring warmth to your heart and inspire new accomplishments in the year ahead.

We are looking forward to the next edition!

Vicky, Paulo and Dinarte

Image credits:

Figure 1. *Erechthias grayi*, Adam Sharp

Figure 2. *Garypus ellickae*, Adam Sharp

Figure 3. *Anapistula martinae*, Danniella Sherwood

Figure 4. *Ischnothyreus christyjoae*, Danniella Sherwood

Figure 5. *Dysdera curviseta*, Pedro Oromí

Figure 6. *Pseudanchomenes aptinoides*, Enesima Mendonça

Figure 7. Book frontpage, António Machado

Figure 8. Workshop session, Dinarte Teixeira

Figure 9. Transport boxes with snails specimens to be reintroduced in Bugio (Desertas Islands), Dinarte Teixeira

Figure 10. *Discula lyelliana*, Dinarte Teixeira