



Somaliland Biodiversity Foundation

September 2024—Newsletter 10

In this issue

Editorial	1
How many insect species are in Somaliland?	2
Learning more from GBIF	3
Using iNaturalist	4
Teaching laboratory.....	5
Introduction to plants of Central Somaliland	6
Learning about arthropod collection..	7
Other Foundation news.....	8

This issue of the Newsletter has several articles relating to insects. One reason for the emphasis is that insects are everywhere, in our homes, in the soil, on other animals and plants. Some tend to be regarded as harmless, others as pests. They are also an important component of many ecosystems, loosening the soil so rain and air can penetrate, converting other organisms into nutrients, and pollinating flowers. Some are also disease vectors and voracious eaters of living plant tissue, both woody and leafy.

Featured Species

Prosopocera marmorata

Motherhead Borer



Because of the harm that some insects do, there has been considerable interest in the development of insecticides, chemicals that will kill insects, but it is now accepted that insecticide use should be minimized. Not only is it expensive, but continued use leads to selection of insecticide-resistance. Also, insecticides be designed for one kind of insect but usually impact many different kinds. Today, research is focused on identifying the best approaches for controlling insects. Understanding the diversity and biology of insects is an important step in developing such approaches.

Highlights from the Foundation’s activities since the last Newsletter are on last pages. One of these, which is still in progress, is development of a new website. It features a new page, one asking for volunteers. Please consider helping us, either by volunteering in one of the ways suggested or in some other way.

Mary E. Barkworth

Mark Spicer’s photograph of [Prosopocera marmorata](#) shows its excellent camouflage and the long antennae that make recognizing it as a longhorn beetle easy. It lays its eggs in the bark of living and

dying trees. Once hatched, the larvae bore into the wood, often causing extensive damage. Other longhorn beetles have similar preferences. They use smell to find their preferred host.

There are ~35,000 species of longhorn beetles in the world, but the genus *Prosopocera* has only 320. They are known only from sub-Saharan Africa.

How many insect species does Somaliland have?

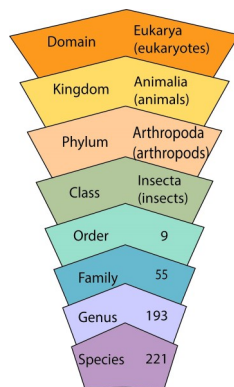
Mary E. Barkworth

Short answer? No one knows. People have collected insects in Somaliland, but finding out which species is difficult. There is, however, one excellent source of information, the Global Biodiversity Information Facility or [GBIF](#).

GBIF is not a physical collection. It is a platform that gives access to occurrence records from collections around the world. An occurrence record is a record that states what, when, where, and by whom a particular organism was observed. Today, GBIF provides access to almost 3 billion occurrence records. Not bad for an organization established in 2001!

Unfortunately, only 527 of GBIF's records were of insects from Somaliland on Sep 21. Google Scholar and iNaturalist add a few more, but only a few. But even this small number of records provides some information about Somaliland's insect diversity.

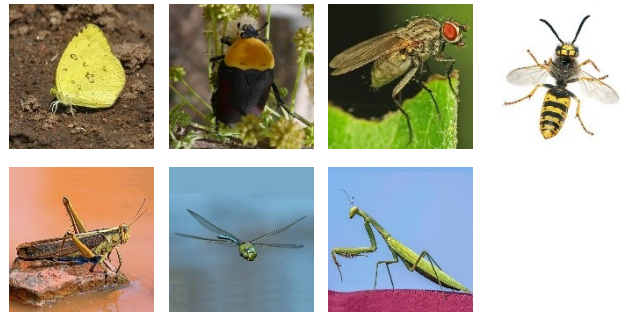
Using the taxonomic hierarchy helps when in summarizing diversity records. It organizes organisms into successively larger groups (see diagram). Species are the foundation group; domains form the top group. Insects form a class, a midlevel group above a family and below a phylum.



What can be learned from GBIF's 527 insect records from Somaliland? Insects are a Class, *Insecta*, which is the largest of the 22 classes in the Phylum *Arthropoda*. The insect records from Somaliland represent 222 species. This is many fewer than the 1,130 that would be predicted from its land area. It suggests there are many more insect species to be found in Somaliland. This is not surprising given how few insect records GBIF had from Somaliland.

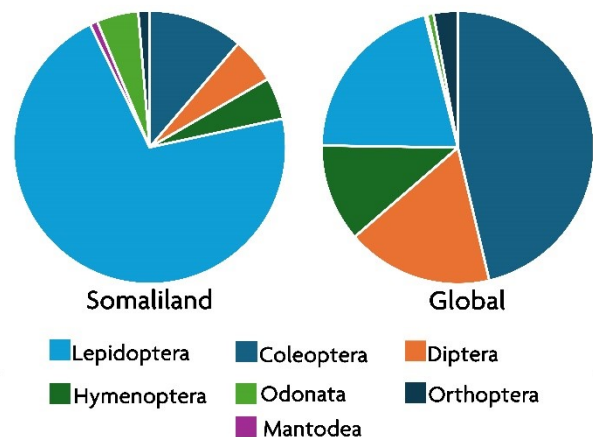
GBIF's records for Somaliland include only 7 of the world's 29 insect orders. They are (*Lepidoptera* (butterflies and moths), *Coleoptera* (beetles),

Diptera (flies), *Hymenoptera* (bees, wasps, and ants), *Odonata* (dragonflies), *Orthoptera* (grasshoppers), and *Mantodea* (praying mantises).



Representative images of the insect orders known to be in Somaliland. Row 1 (left to right) *Lepidoptera*, *Coleoptera*, *Diptera*, *Hymenoptera*. Row 2. *Orthoptera*, *Odonata*, *Mantodea*. (Most images from Wikipedia; *Coleoptera* SBF)

More surprising is how poorly the number of species in each order in Somaliland reflects the global pattern. The pie charts below, in which the size of the slices reflects the proportion of species in each order, make the difference evident.



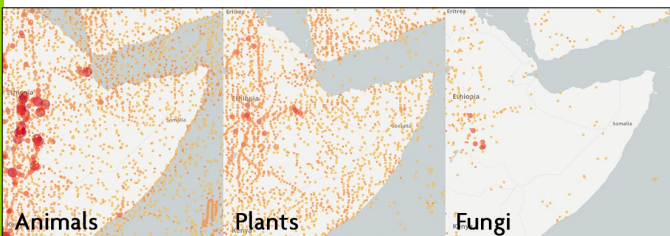
Is the difference real or is it a consequence of too few collections? Undoubtedly, too few collections.

Increasing knowledge of Somaliland's insects is critical because they are important in almost every ecosystem. They serve many functions, including pollination, waste removal, and builders of tunnels that allow air and water to penetrate the soil.

Learning more from GBIF: Animals, plants, and fungi in Somaliland

Mary E. Barkworth

After learning from GBIF about Somaliland's insect diversity, I decided to look into some other groups. The maps show all the GBIF records with latitude and longitude data for animals, land plants, and fungi in the area shown.



Representation of different organismal groups in GBIF. Only records with latitude and longitude data are shown.

The numbers for all records (those with and without latitude and longitude data) show the difference in representation even more clearly. There are 11,236 (82%) animal records, 2,442 (18%) plant records, and only 10 (0.8%) fungal records. The proportion of records for each group is very different from the proportion of species in each group on a global basis: animals 1,500,000 (19%), plants 280,000 (4%), fungi 6,000,000 (77%). Why the difference? Probably because plants are easy to see, easy to collect, and to identify.

ANIMAL RECORDS

Looking at the 11,236 animal records, 10,094 (90%) are for chordates (animals with backbones) of which 8,918 (79%) are for birds. This relative abundance of bird records is common throughout the world. It is also much greater than the proportion of chordate species that are birds, 14%.

Possible reasons for the abundance of bird records include their being easy to see and identify from their appearance and flight characteristics. There are also many apps available for identifying

birds and recording their presence in a region, but these may be a consequence, not a cause, of the enjoyment many people find in watching birds.

PLANT RECORDS

All but one of the 2,442 plant records are for vascular plants. Of these, 2364 or 97% are for flowering plants. This is the same as proportion of flowering plants species compared to all vascular plant species in the world.

The one record that is not of a vascular plant is of a moss, *Splachnobryum aquaticum*. Mosses are bryophytes. Searching in damp or moist places will undoubtedly reveal more bryophytes. Start looking!

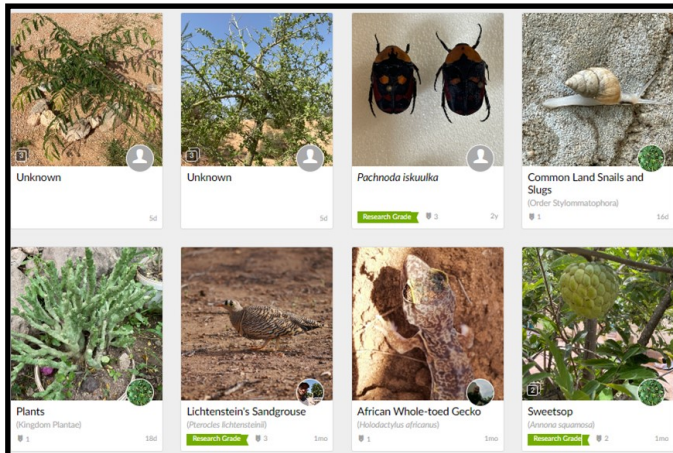


Splachnobryum aquaticum in Oman
Photo by Carl Rothfels).

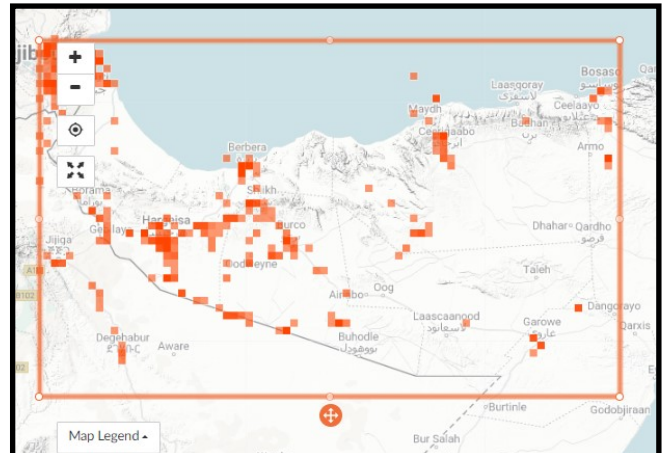
FUNGAL RECORDS

The number of fungal records from Somaliland is tiny compared to the number of animal and plant records. It is actually only 10, not 22, because examination of the records showed that 12 of the records were NOT from Somaliland. They had been attributed to Somaliland because they had latitude and longitude data that mapped there.

This discovery reminded me of the importance of checking the data one provides to GBIF, and of checking data downloaded from GBIF. Such checking is called **DATA CLEANING**. It is a very important process. I reviewed all the numbers on this and the previous page after being reminded of the importance of data cleaning! Some needed to be changed. The differences were small, but some changes were needed.



Pictures from Somaliland in iNaturalist. "Research grade" means three people have agreed on the identification.



Sources of pictures from Somaliland in iNaturalist. Fill in the gaps with high quality, identifiable pictures!

Have a gorgeous picture of an organism you'd like to share with the world?

Add it to iNaturalist!

Want to find out the name of an organism? Take a good picture (or set of pictures) and

Add it to iNaturalist!

Want to see what others have photographed in Somaliland (or other parts of the world)?

Visit iNaturalist!

Want to add to what is known about the distribution of a species. Take a picture and

Add it to iNaturalist!

Want to contribute to the world's biodiversity data resources?

Join iNaturalist!

iNaturalist is a free resource designed to promote collaboration and interaction among naturalists, no matter what their preferred organisms or position in life. Becoming involved is as simple as registering and starting to submit photographs, either to ask for assistance or to show what you have found.

The pictures must include the latitude and longitude where the organism was observed, but **iNaturalist** can read this from a cell phone image. Alternatively, this can be done online, using the tools in **iNaturalist**.

If you are looking for help with identification but know roughly what it is, for example, a bird of a flowering plant, say so. That will help draw it to the attention of the right group of experts (all of whom are volunteers).

Pay attention to the quality of your images and, if you can, provide images of different parts/r views of the organism. Both make identification easier (= more likely). Be aware that, even with the best images, identification to species may not be possible. But if you are curious, it is worth a try.

Mary E. Barkworth



Foundation news

Benches and chairs create a basic teaching laboratory



Donations by [54Thrones](#) and the **Foundation** converted an almost empty new classroom at the University of Hargeisa into a basic teaching laboratory. They allow students space to examine specimens, compare notes, and listen to presentations. This versatility, together with the ongoing development of teaching modules that encourage engagement, will help the students learn “to do” rather than just “about” a subject.

When the room is not needed for laboratory-oriented classes, use it for student-led clubs such as one focused on improving their knowledge of Somaliland’s insects by combining use of iNaturalist with collection of specimens from the campus and their addition to the Biodiversity Museum.



The past

Another new Aloe species described

In March, Ahmed Awale, Faisal Gelle, and Kennedy Matheka described and formally named as a new species plants that Kayse Ali who drew it to Ahmed’s attention because it seemed different. After detailed study, Ahmed, Faisal, and Kennedy agreed that it is different from any other named species. They named it *Aloe kaysei* in honor of Kayse Ali, the person who first realized it was different. This marks, so far as we are aware, the first taxonomic paper to be written entirely by people from the Horn of Africa and honoring a Somalilander. The formal citation of the name is *Aloe kaysei* Awale, Gelle & Matheka. The article is

Awale, A.I., F.G. Gelle, and K. Matheka (2024) A new species of *Aloe* (Asphodelaceae) from *Acacia* “woodlands of hardship” in Adadley District, Somaliland. *Cactus World* 42: 11-17.

Second Edition of Popular Book Published

The Foundation has published a second edition of the popular book *Introduction to Plants in Central Somaliland*. The new edition, unlike the first, is bilingual. It also includes more photographs, additional information, correction of errors discovered in the first edition, and a stronger binding. The book covers 150 species, all photographed in Central Somaliland, though many also grow in other parts of Somaliland and nearby countries. It starts with an over-view of Somaliland's location, history, and natural regions, followed by the species treatments. Each treatment includes the scientific and Somali name of the species, along with (for most) a brief description and distribution

Acanthaceae

Barleria argentea Geed Riyood



Very small perennial herb, much grazed by goats. Leaves opposite, green, lance-shaped with entire margins. Flowers trumpet shaped, pale mauve with darker stripes in the throat. Fruit a capsule.

Habitat: Open sandy areas, altitude 100–1500 m

Distribution: Tropical East Africa and Arabia.

Geed hoosaad aad u yar oo gu'yaal jire ah, oo ay aad u jecel yihiin riyuhu. Caleemo iska soo hor jeed u baxay, cagaar ah, oo sida waranka ah, hareerahana ka dhameystiran. Ubax sida tumabada muuqiga u samaysan, soos-ali kharifa ah, oo xanjimo madaw ku leh dhuunta. Miidho ku jira dahaadhi.

Sabo: Dhul burciideed furan, joog ah 100–1500 m.

Filiqsanaan: Kulaalaha Bariga Afrika iyo Carabaha.

Barleria proxima Qodaxtool



Small shrub up to 25 cm with prominent grey spines. Leaves opposite, oval, pale green with entire margins. Flowers bright yellow with four petals above and one smaller below the prominent stamens. Fruit a capsule with a long beak.

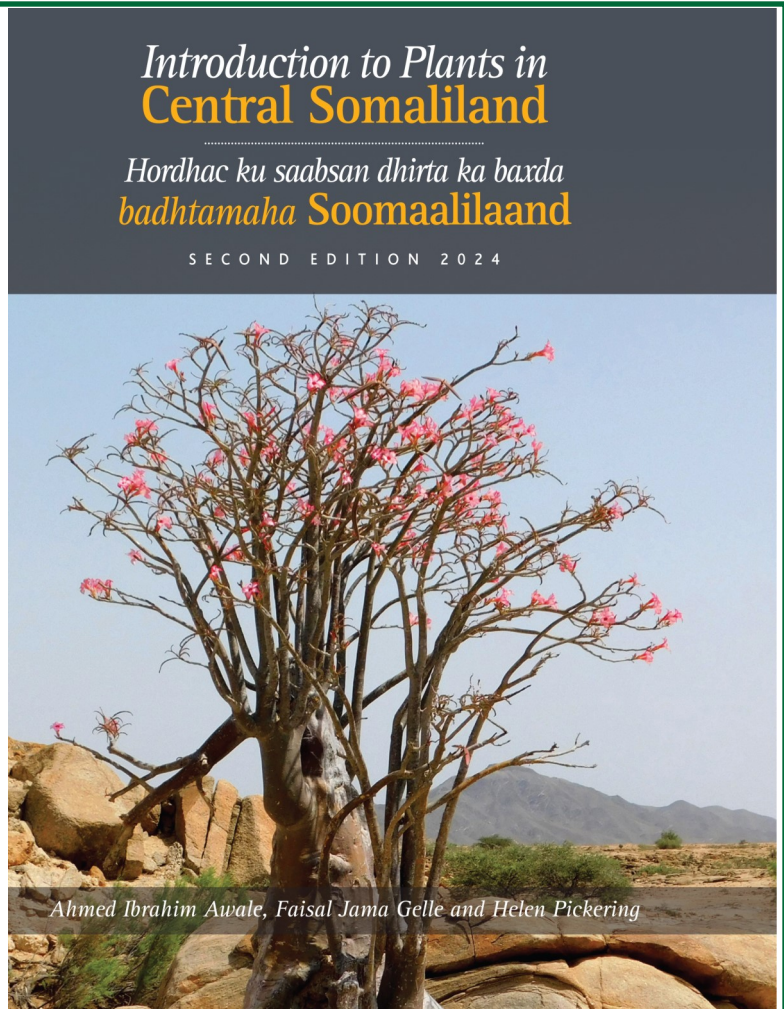
Habitat: Stony scrub and along roadsides, up to 1400 m.

Distribution: East Africa to southern Arabia.

Geed gaab yar oo illaa 25 cm ah, oo leh qodro dameeri ah oo soo taagan. Caleemo isasoo eegaya, sida uguanta ah, oo cagaar kharifa ah, hareerahana ka buuxa. Ubax huruud dhalaalaya ah oo leh Afar laace oo ka sarreeya faxalsidaha taagan iyo mid yar oo ka hooseeya. Miidho gal ku jira oo leh af fiigan.

Sabo: Kayn dhagax ku badanyahay iyo waddada hareeraheda, joog ah illaa 1400 m.

Filiqsanaan: Bariga Afrika illaa Koorfurta Carabaha.



Introduction to Plants in Central Somaliland

Hordhac ku saabsan dhirta ka baxda badhtamaha Soomaalilaand

SECOND EDITION 2024

Ahmed Ibrahim Awale, Faisal Jama Gelle and Helen Pickering

information. The book concludes with references, a glossary, indices of Somali and scientific names, and an explanation of why scientific names may change, but not Somali names.

It can be purchased from [BRIT Press](#) (outside Somaliland) or [HEMA Books](#) (inside Somaliland). If considering donating a copy to relatives, friends, or colleagues in Somaliland, enable them to purchase it in Somaliland. The Foundation's contract with BRIT Press allows the books to be sold for less there. Even so, its publication would not have been possible without a generous donation from an anonymous donor.



Abundance of the 150 species in nearby countries

Learning about arthropods (especially insects)

In August, the Foundation combined with the University of Hargeisa and the Geed Deeble Botanic Garden to sponsor a second workshop by Dr. Tharina Bird of DITSONG National Museum of Natural History, South Africa, on “Basic arthropod collection, preparation, and curation” to selected entomology students from the university. She was assisted by two students from the workshop she had offered in 2022. Like the previous workshop, this year’s workshop was highly successful. Tharina commented afterwards that “she really enjoyed meeting and interacting with the students” and that the two assistants, Nimco Deq Abdi and Mohamed Abdi Muse, “were invaluable”. In addition, she identified Yusuf Hussein Ahmed as the best student overall and Abdihajib Xusen Ismail as the maker of the best collection.

The Foundation thanks Dr. Bird for offering the workshops and Dr. Lorenzo Prendini for suggesting we ask her to do so.

Pictures (from bottom to top)

1. Find insects.
2. Put in separate bottles.
3. Examine.
4. Place in box based on what kind they are.
5. Receive certificate.
6. Presentation by Dr. Bird on “The importance of collections” at ceremony.



Other Foundation news

Collections growth

The herbarium now 813 specimens, of which 573 have been identified to species. The data have been included in downloads cited in 282 peer reviewed papers. Many more were collected this year. We hope to be able to hire a student to assist in preparing them for deposition in the herbarium, a time consuming task. The insect collections have not yet been added to OpenZooMuseum. We shall look into doing so next spring.

Web sites

A major decision this year was contract with Firespring, a U.S.-based company for redesign and management of the Foundation's website. The new [site](#) is faster than the previous one and, importantly, is easier to update. It also includes some new features, including a request for volunteers.

Although the [new site](#) is now live, at the same URL as the old one, some work remains. The change is taking a long time because the old site contained many pages and needed significant modification. In addition, the new site will make new resources available and initiate new activities. It has been "opened" before completion for use in publishing this Newsletter.

The Foundation uses two additional sites to provide information about Somaliland's species, [OpenHerbarium](#) and [OpenZooMuseum](#). Several changes have been made to each of these, most of which are not evident. One of these changes was the addition of the names of all insects known from Somaliland and its immediate neighbors to OpenZooMuseum. The articles on pages 2 and 3 reflect that activity.

Expansion

The Foundation agreed to expand its work in Somaliland to include Amoud University and the University of Burao in addition to the University of Hargeisa. This will enable more rapid development of knowledge concerning Somaliland's biodiversity and, importantly, opportunities in Somaliland to learn how to build such knowledge.

New board member

In August, the Foundation's board unanimously approved the addition of Sara Wilkinson-Lamb to the Board. Sara is a highly regarded science elementary science teacher who also has experience in adult education. She is a welcome addition to the board.

Breaking News

The Rift Valley Institute has awarded a grant to the Foundation for a proposal written by Stephen Johnson titled "**Learning from Swayne and today's elders**". Swayne was a big game hunter who, while based in Aden as a captain in the British Army, went hunting in Somaliland. He wrote a book, *Seventeen Trips Through Somaliland. A Record of Exploration & Big Game Shooting from 1885 to 1893* that includes descriptions, photographs, illustrations and maps of his travels. The project will compare the current condition of some of Swayne's sites with his account and explore perceived reasons for the differences seen. Stephen prepared the proposal and will lead the project. Faisal Jama (SBF) and Ismael Hayir (MoECC) will conduct the fieldwork and work with Stephen on preparing the reports.