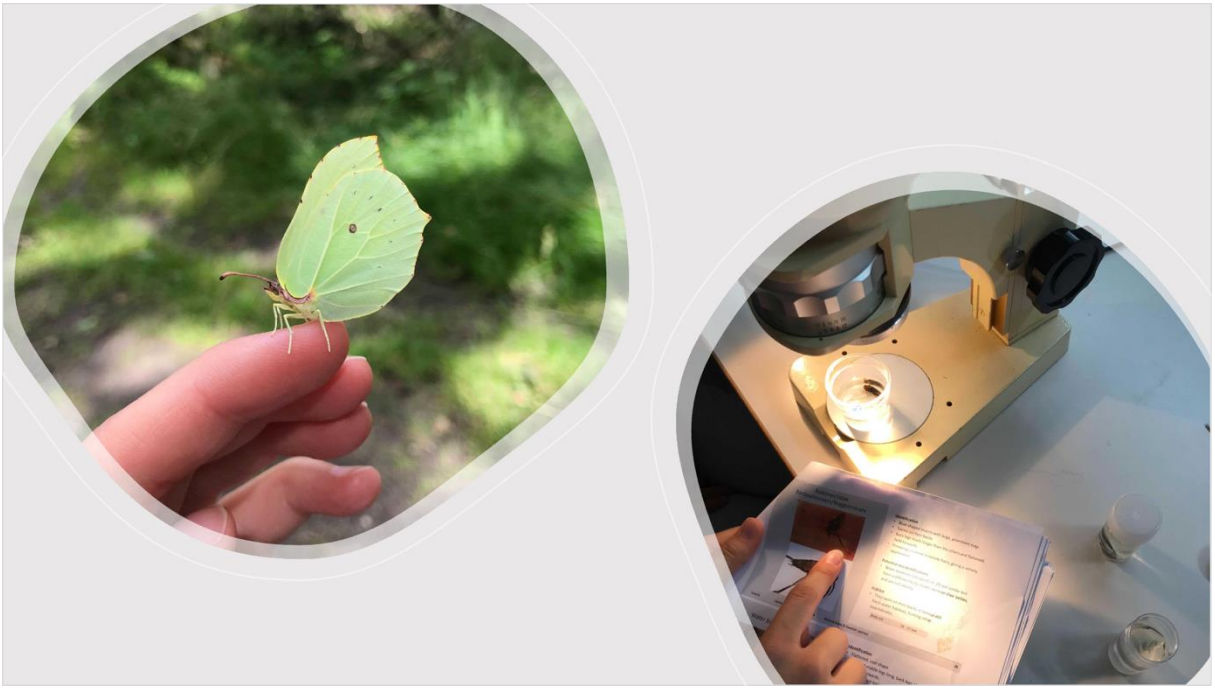
UNIVERSITY OF GOTHENBURG

GOTHENBURG GLOBAL BIODIVERSITY CENTRE



Instructions for using educational material on 500 Swedish animals

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How to use

Usage and acknowledgements

All text is written by Heléne Aronsson, Madeleine Berry, Oscar Gran, Christina Jönander, and Søren Faurby. We also thank Ted von Proschwitz and Mats Olsson for vital input. Pictures are, unless specified elsewhere, copied from Wikipedia Commons. Maps of records are replicated (with permission) from ArtFakta.se.

All information is free to use. If anyone wants to use a modified version such as e.g. choosing a smaller subset of the species for teaching purposes you are welcome to email soren.faurby@bioenv.gu.se to get access to the original PowerPoint files.

Organism selection

We have selected 500 different animals, including some individual species and some groups of species. The organisms are selected based on being cool-looking, evolutionary distinct and/or common i.e., organisms you are most likely to want to get to know. The guide is written with western Sweden in mind (here defined as Västra Götaland and Halland) and we only selected species which can be found there, but the text sometimes notes similar species in other parts of Sweden. The chosen organisms are based on two different criteria which are rarely used in projects like this. This may mean that some groups we have chosen differ from the animals often selected in e.g. field guides to common animals.

A) We strived to reduce the number of misidentifications and aimed to select animals which consistently and reliably can be identified. This means that some charismatic groups, e.g. bees had to be excluded. Most bees are easy to recognize as bees, but the group is also super variable, and it is very difficult to write a description with characters that is true for all bees and no-other common Swedish insects.

B) We have tried to include all larger groups of animals. Many times using the guide, you will not be able to say exactly what species you are looking at but you will be able to assign them to a more general category (e.g a duck or a butterfly). In order to fulfil this goal, some of the selected animals are rather uncommon but are selected because they are evolutionarily very far from all other animals in Sweden.

Organism hierarchy

We are using a hierarchical system which can be explained by a rather long example.

Imagine that you are looking at a beautiful insect with scales on its wings. The scales(fjäll) means it belongs to Lepidopterans/Fjärilar which contains many groups

including moths and butterflies. Imagine then, that you see that the insect's antennas are clubbed (i.e., getting broader towards the tip). If you see this, you can also say it is a butterfly/dagfjäril.

You also note that the insect is really big and the wings create a long tail. Then you know it is an Old World swallowtail/Makaonfjäril. In this case you were thus able to identify what species it was using our material but you could also have stopped earlier, saying it is a butterfly or it is a Lepidoptera. Next time you use the material you may however see a moth that does not belong to any of the groups we include in which case you will have to settle with deciding that it belongs to Lepidopterans/Fjärilar and nothing more.
Subgroups are included for only a small number of the groups as illustrated in this example. As we note on the Slide layout below this is clearly noted for each animal if we include subgroups within them as well as the overall group.

Material layout

In addition to this file we provide eight separate files discussing selected animals within different groups.

Mammals contain information on 40 selected mammals.

Birds contain information on 120 selected birds.

Herptiles contain information on 15 selected amphibians or reptiles.

Fish contain information on 75 selected fish (here defined as all vertebrates which are not included in any grouping above).

Insects contain information on 120 selected insects.

Arthropods (Leddjur) contain information on 46 selected arthropods which are not insects.

Molluscsa (Blötdjur) contain information on 42 selected mollucs.

Remaining animals contain information on 42 selected animals not belonging to any of the other groups.

Slide layout

For each of the 500 animals the information we provide is organized in nine points. The text solely focuses on identification meaning that the cool natural history of each organism is only mentioned when it is beneficial for identification. Users have to search online for other sources to learn more about the biology of the selected organisms.

1. **Names**
   At the top left we provide the name of each organism ; the scientific name in the first row and the English and the Swedish in the second. For English and Swedish names, we use singular when it is a single species and plural if it is a group of species.

2. **Images**
   The remaining part of the left side is devoted to pictures used for identification. Sometimes they may be enough in isolation but generally they need to be combined with the text on the right side.

3. **Redlist status/ Hierarchy**
   If the animal is a single species, we provide the national Red List status in the top right corner. This gives information on the conservation status of the breeding population of the species in Sweden (more information can be found here: https://www.nationalredlist.org/tag/sweden/).

   When the animal is a group of species we instead often write something like "*Nr 100 – 120 belong to this group*" as we write for butterflies (Insects nr 99). The numbers mean that these animals are specific types that belong to this group of animals. I.e. in this specific cases the insects numbered 100-120 in our material are types of butterflies (see also the section *Organism hierarchy*).

4. **Identification**
   The upper right corner contains the text needed to identify the animal.

5. **Potential misidentifications**
   Contains information on what animals you can mistake the featured organism for and what to look out for in each particular animal to avoid the mistake.

6. **Habitat**
   Contains information on where the animal can be found and, when relevant, also during what time of year the animal is likely to be found.

7. **Size box**
   A grey box with one or more size measurements which may be useful for identification.

8. **Distribution map**
   In the lower right corner is a map showing all the records of the animal within Sweden. It is important to note that this shows where the animal has been recorded which is not all the places where the animal lives. Animals which are often looked for like butterflies and in particular birds will look very common based on these maps compared with less studied animals. The maps can however be used to compare how common the organisms are within groups (for example comparing one butterfly species with another). For nearly all animals it also gives a good indication of what parts of Sweden the animal is most likely to be seen in.

9. **Taxonomy bar**

   At the bottom of each side we have what we call the taxonomy bar. This line provides information on how the different animals are placed on the branches of the tree of life. If it is a group of species and not a specific species, we end the line by noting how many species there are in Sweden within the group. For non-biologists this part may appear very complex, but the material can be used without understanding the taxonomy bar. We may list phylum, class, order, family, genus and species when applicable (You can read more about what the different taxonomic levels mean at: https://en.wikipedia.org/wiki/Taxonomic_rank). When the animal is a specific example of a wider group of species (see the organism hierarchy section) the name of it is always listed in the taxonomy bar even it if is not a class, order or family. Butterflies is e.g. neither a family nor an order but since we have butterflies as one of the selected animals, we also list the scientific name of butterflies in the taxonomy bar for all butterflies.