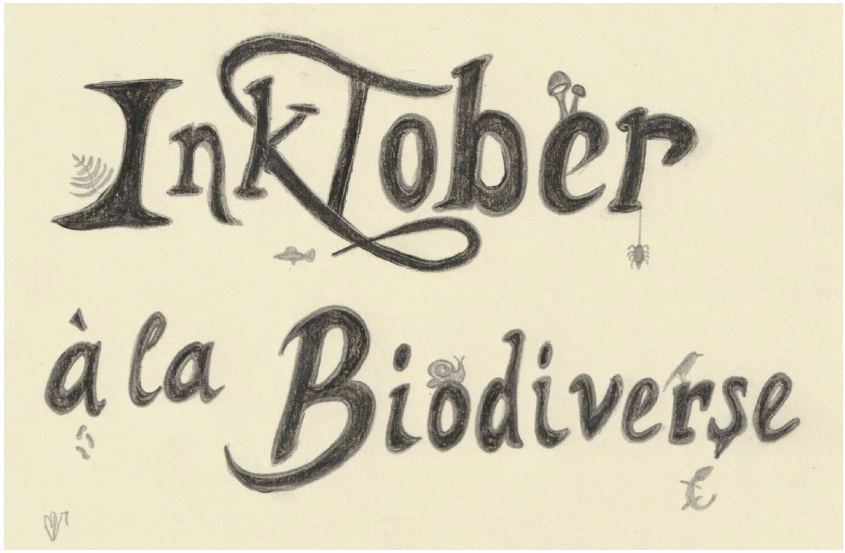
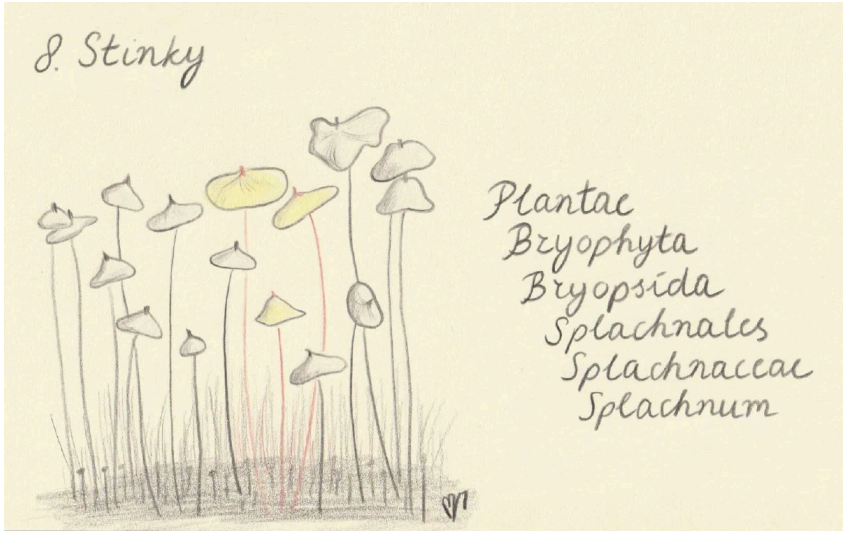
CREATURES

Inktober à la Biodiverse, day 8 to 13

Biodiversity covers the daily drawing prompts.



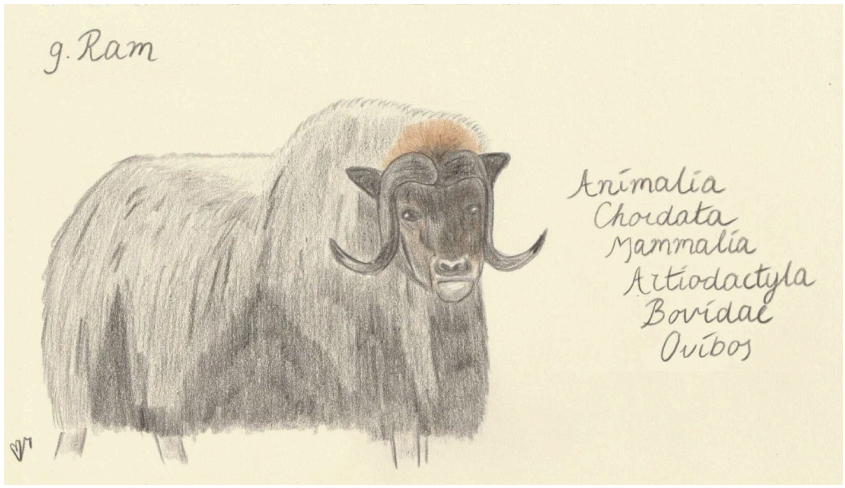


Based on 'Splachnum luteum 20250808 1' by SkärFoto. Licensed under CC BY 4.0.

8. Stinky - Dung moss

Dung moss is a plant that uses odours and bright colours to attract flies[1]. The odour of the spore capsules mimics decaying organic matter. Once the flies touch the spore capsules of the plant, the plant's sticky spores attach to the fly. Once the fly takes off, the spores are relocated to a new place, usually dung

(sometimes a cadaver) to germinate. Different mosses use different visual (colour) and chemical (odour) cues, which may allow different moss species to coexist in the same environment. About half of all 73 dung moss species depend on flies to spread their spores, and spore dispersal using flies evolved several times. Interestingly, changes to the shape of the spore capsules are thought to have followed (not preceded) the switch to fly dispersal.

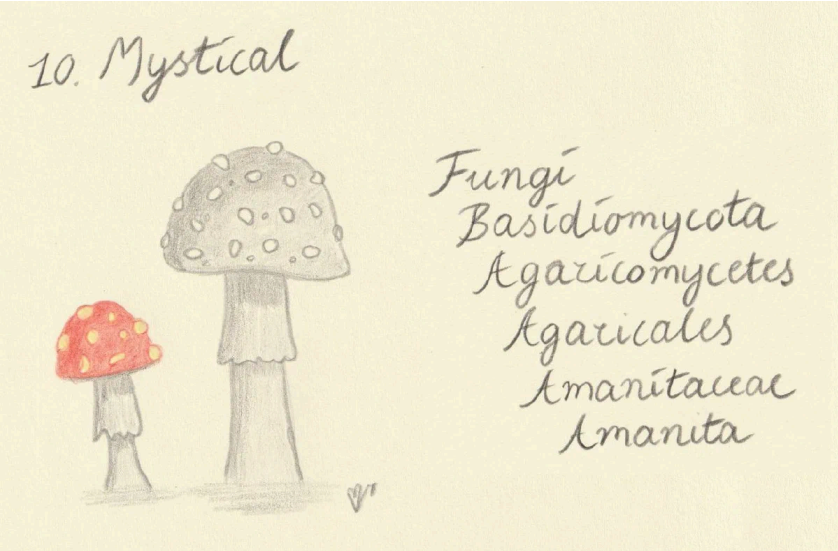


Based on 'Golden Light Muskox' by Bering Land Bridge National Preserve. Licensed under CC BY 2.0.

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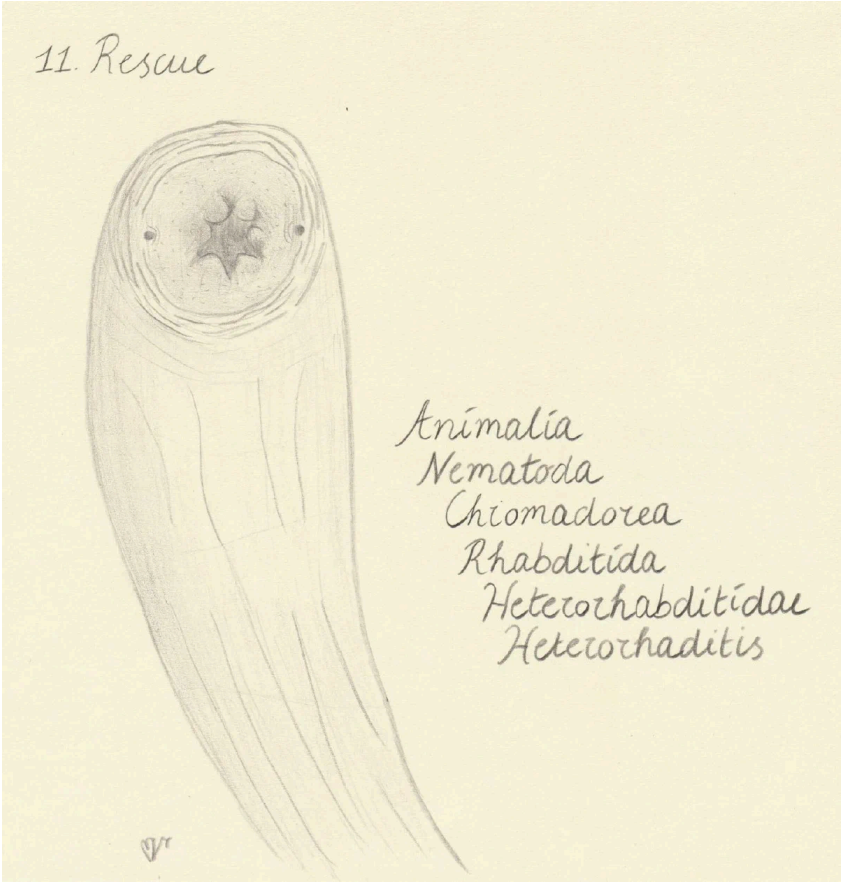
9. Ram - Musk ox

Musk ox is a large herbivore living in the Arctic. Some populations, re-introduced and native, have declined in recent years likely because of climate change, disease, and habitat loss. Musk oxen have little genetic variation, including the genes of the immune system, so it is uncertain how these animals will cope with rapid change in the Arctic and infectious diseases[2]. A study investigating Musk ox parasites predicted that lungworms, which Musk oxen pick up by eating slugs, develop faster when temperatures increase. A speedier cycle of the parasite could increase breathing problems and could lead to a higher risk of being killed by predators, such as wolves and grizzly bears[2,3]. Better monitoring of numbers and health, and sharing data across countries, is seen as the key to protecting Musk oxen[2].



10. Mystical - Fly agaric

The **fly agaric** is a well-known fungus with its characteristic red cap and whitish spots. What may not be common knowledge is that the fly agaric lives in close association with several trees, including pine and birch. The mushroom is only the fruiting body, the structure that produces spores. The fungus itself is an underground network of threads called hyphae. This hyphal network forms an ectomycorrhiza with the tree and grows between the root cells, exchanging nutrients and carbon. The fly agaric is native to temperate forests of the northern hemisphere and was brought to Australia with pine plantations. In a Victorian forest, the fungus switched from pine to a native southern beech[4], forming a mycorrhizal partnership within a few decades. Introduced fungi can thus invade native forests, where native fungi could be displaced with unknown consequences.



Based on Fig. 6 of 'Description of *Heterorhabditis americana* n. sp.' by Machado *et al*. Licensed under CC BY 4.0.

11. Rescue - Entomopathogenic nematode

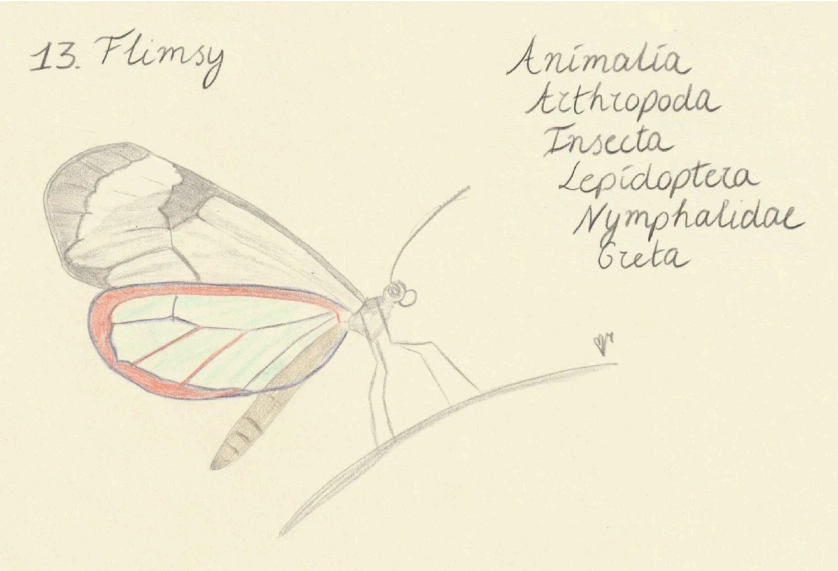
Insects can be very detrimental to plants or crops when their developmental stages feed in large numbers on plant tissues. An example is the western corn rootworm, a beetle whose larvae feed on the roots of maize plants. Consequently, the plants have less water and nutrients available for growth. Once the beetle larvae start feeding, some maize varieties send out a chemical signal from their roots that attracts **entomopathogenic nematodes** (roundworms that kill insects)[5]. These worms enter the beetle larvae through natural openings, such as the mouth or anus, or directly through the skin. Once inside, the nematodes release symbiotic bacteria that multiply and inhibit the beetle larva's immune system. The bacteria also release toxins and enzymes that break down tissues, eventually killing the larva[6]. The nematodes may thus come to the rescue of the maize plant.



Based on 'Octopus tetricus 118664956' byt Niki Hubbard. Licensed under CC BY 4.0.

12. Toss - Debris-throwing octopus

Animals have found remarkable ways to use objects as tools, such as chimpanzees using sticks to get at termites and sea otters using rocks to break open shellfish. A descriptive report on a wild population of **octopuses** in Jervis Bay in Australia[7] revealed what may be another case: Debris (such as shells and silt) thrown through the water with a jet from the siphon (the muscular tube octopuses normally use to swim), sometimes hitting other octopuses, and occasionally fish. It is not yet clear whether octopuses in other populations show the same behaviour, whether the throws are intentional, or what the longer-term (social) consequences are. It thus remains to be seen whether debris-throwing in these octopuses is a real example of tool use.



Based on 'Greta oto (1335322484)' by Alias 0591 from the Netherlands. Licensed under CC BY 2.0.

13. Flimsy - Glasswing butterfly

Butterflies and moths typically have scales that cover their wings; hence the name Lepidoptera which comes from the Greek words for scale (lepís) and wing (pterón). Some species, such as the **glasswing butterfly**, have severely reduced scales on parts of their wings, which leaves the transparent wing membrane exposed[8]. The membrane is covered with a coating of tiny bumps and wax pillars that reduces reflection, so the wing reflects very little light. Transparent wings appear to have evolved several times independently in butterflies and moths and are thought to help avoid predators.

Dr. Bertanne Visser, Research Associate of the Fonds de la Recherche Scientifique at the University of Liège, Gembloux, Belgium.

1 Marino P *et al*. 2009. The ecology and evolution of fly dispersed dung mosses (Family Splachnaceae): manipulating insect behaviour through odour and visual cues. Symbiosis 47: 61-76.

2 Cuyler C *et al*. 2020. Muskox status, recent variation, and uncertain future. Ambio 49: 805–819.

3 Kutz SJ *et al*. 2005. Global warming is changing the dynamics of Arctic host–parasite systems. Proc R Soc B 272: 2571–2576.

4 Dunk CW *et al*. 2012. Characterisation of ectomycorrhizal formation by the exotic fungus *Amanita muscaria* with *Nothofagus cunninghamii* in Victoria, Australia. Mycorrhiza 22: 135–147.

5 Rasmann S *et al*. 2005. Recruitment of entomopathogenic nematodes by insect-damaged maize roots. Nature 434: 732–737.

6 Machado RAR *et al*. 2025. Description of *Heterorhabditis americana* n. sp. (Rhabditida, Heterorhabditidae), a new entomopathogenic nematode species isolated in North America. Parasit Vectors 18: 101.

7 Godfrey-Smith P *et al*. 2022. In the line of fire: Debris throwing by wild octopuses. PLoS ONE 17: e0276482.

8 Pomerantz AF *et al*. 2021. Developmental, cellular and biochemical basis of transparency in clearwing butterflies. J Exp Biol 224: jeb237917.

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