

# Sundews

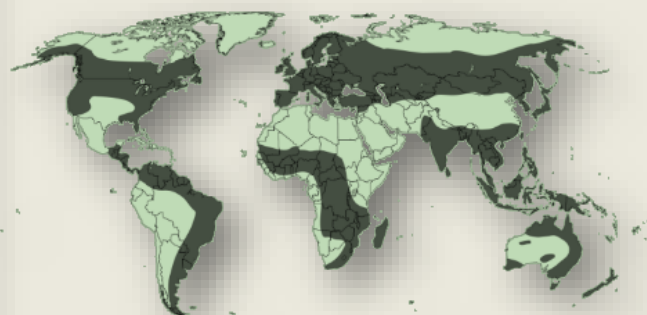
## *Drosera*

*Plants that trap and devour animals!*

After dinosaurs, perhaps the living organisms that generate most interest are carnivorous plants! And it's not only young people. Charles Darwin was also obsessed and wrote: *But I will & must finish my Drosera M.S. which will take me a week, for at this present moment I care more about Drosera (Sundew plants) than the origin of all the species in the world.* An extraordinary concept, plants that capture and consume animals! Best known of all the carnivorous plants are probably Venus Fly Traps and Pitcher Plants, but the carnivorous plant genus with by far the greatest number of species is *Drosera* – Sundews – with close to 200 species. They occur on all continents other than Antarctica. Almost half are from Australia, with other centres of diversity in South America and southern Africa. Either Africa or Australia is considered to be the place of origin of the genus.



A fly, still alive, captured by a Sundew (*Drosera*) Photograph: Helmut Berndt



World distribution of Sundews – *Drosera*.  
Map modified from: Petr Dlouhý, Public domain,  
via Wikimedia Commons

Like most carnivorous plants, *Drosera* plants grow in waterlogged areas with poor soils, often sandy and acidic, and lacking in nutrients, particularly nitrogen. To compensate for lack of nutrients, they have evolved to capture, kill and digest animals, particularly insects and arthropods.

The key to their deadly encounters with (mostly) insects are the glandular hairs on the upper surfaces of the leaves, often referred to as *glandular tentacles*. To capture and kill their prey, firstly the glandular tentacles secrete a sweet mucilage



*Drosera hookeri* – central-western NSW



Leaf of *Drosera capensis* bending in response to a trapped insect.  
Photograph: NoahElhardt, CC BY-SA 3.0  
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that attracts insects. Once the prey has been snared, digestive enzymes such as esterases, peroxidases, phosphatases and proteases are secreted, literally ‘dissolving’ the insect. Finally, to finish the grim task, *Drosera* species have stalkless glands that absorb the insects’ body fluids

*Drosera* have yet more tricks up their sleeves. All species have glandular hairs that can move, and this happens in response to the touch of edible prey landing on the leaf. The hairs bend towards the centre of the leaf, pushing the victim onto even more glandular hairs in the process. This movement is known as *thigmonasty* – the response of a plant to vibration or touch. *Drosera capensis*, from South Africa, can bend a leaf so that its victim is completely enclosed within 30 minutes.

([https://upload.wikimedia.org/wikipedia/commons/transcoded/4/4d/Drosera\\_Capensis\\_eating\\_a\\_fruit\\_fly.webm/Drosera\\_Capensis\\_eating\\_a\\_fruit\\_fly.webm.720p.vp9.webm](https://upload.wikimedia.org/wikipedia/commons/transcoded/4/4d/Drosera_Capensis_eating_a_fruit_fly.webm/Drosera_Capensis_eating_a_fruit_fly.webm.720p.vp9.webm))



*Drosera glanduligera* from central-western NSW. *Snap tentacles* (lacking sticky glands) can clearly be seen around the edge of the leaves.



*Drosera glanduligera* – Photograph Helmut Berndt. Glandular hairs (tentacles) are not only visible on the leaves but also on the flower calyces.

An extraordinary Australian species is the orange flowered carnivorous plant, *Drosera glanduligera*, an ephemeral annual that grows during winter and flowers from late winter through to the end of spring. It differs from other *Drosera* species, in that it has outer, non-sticky tentacles (*snap tentacles*) that, when triggered, catapult its prey onto the sticky, central tentacles in the depression at the centre of the leaf where it can be devoured. It differs from Trigger Plants and Venus Fly Traps in that the *snap tentacles*, once triggered, cannot reset. In an elegant example of evolution, the flowers of most

sundews are produced well clear of the leaves, mounted on long stems, supposedly to keep their desirable pollinators well separated from the ‘insect abattoir’ below. However, we notice that *D. glanduligera* has sticky glandular hairs, even on the calyx (sepals) of the flowers. Perhaps this is one species that is looking for pollinators that are destined to become dinner.

([https://en.wikipedia.org/wiki/File:Drosera\\_glanduligera\\_glue\\_tentacle\\_movement\\_upon\\_manual\\_deposition\\_of\\_fruit\\_fly\\_-\\_pone.0045735.s004.ogv](https://en.wikipedia.org/wiki/File:Drosera_glanduligera_glue_tentacle_movement_upon_manual_deposition_of_fruit_fly_-_pone.0045735.s004.ogv)

[https://en.wikipedia.org/wiki/File:Drosera\\_glanduligera\\_catapulting\\_tentacles\\_capturing\\_fruit\\_flies.ogv](https://en.wikipedia.org/wiki/File:Drosera_glanduligera_catapulting_tentacles_capturing_fruit_flies.ogv))



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Wikipedia: [https://en.wikipedia.org/wiki/Carnivorous\\_plant](https://en.wikipedia.org/wiki/Carnivorous_plant)

Wikipedia: [Drosera - Wikipedia](https://en.wikipedia.org/wiki/Drosera)

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