10,000 types of plant outgrowths bundled

October 9 2019

For nine years he worked on the three-volume standard work *Plant Galls of Europe*. It yielded 2300 pages about 10,000 species of European galls, abnormal outgrowths in plants caused by parasites. Hans Roskam from the Institute of Biology Leiden: "The abundance of galls says something about the natural value of a site."

Have you ever seen leaves or a tree with weird bumps or bulges during a forest walk? These might have been plant galls. Emeritus associate professor Hans Roskam: "Many plants can form these galls. They are swelling growths caused by an insect or fungus and used for food or protection. The host plant is generally not bothered by it." Roskam is a cecidologist; he investigates galls. Only a few experts in the Netherlands and around fifty scientists worldwide publish about galls in top journals. Roskam is one of them.

Three volumes

In the new standard work *Plant Galls of Europe*, Roskam describes around 1,250 new malformations in addition to the more than 8,000 already known galls. Roskam: "After I published the fourth edition of a book about Dutch galls in 2009 by W.M. Docters van Leeuwen, I started this project. This three-part edition is based on earlier works by Houard from 1913 and Buhr from 1965. I have combined these two very thick books, one in French and one in German, and added new knowledge. Many new insights have emerged in recent years, mainly thanks to DNA research. By bundling that information, three volumes of 2300 pages in total were created. It contains large identification tables about the galls

on host plants, the external characteristics of those galls, their distribution and the corresponding causers. That is important information about plants and their parasites."

Natural value

Roskam has been researching galls for more than fifty years. He is particularly interested in the history that a parasite and host plant share with each other. Roskam: "My Ph.D. research in the 1960s was about the co-evolution between parasites and host plants. As a plant evolves, the need arises for a parasite to adapt as well. You can see that in the galls on such a plant. They are ideal systems to study the relationship between parasites and their host." Galls are not only interesting from an evolutionary point of view. Roskam: "The wealth of galls represents the natural value of a site, among other characteristics. That provides useful nature conservation information."

DNA research

After writing this bulky edition, Roskam does not intend to sit still. He was asked to participate in an Israeli/American project in which several gall experts aim to investigate the DNA in order of a large group of around 400 species of gall midges. By means of this molecular research Roskam and colleagues hope to construct a mitochondrial gene tree and gain insight into their kinship and co-evolution with their host plants.

Provided by Leiden University

Citation: 10,000 types of plant outgrowths bundled (2019, October 9) retrieved 1 April 2023 from https://phys.org/news/2019-10-outgrowths-bundled.html