The Biology and Ecology of Insects that Live in Plant Galls

Blanche, R. 2012. Life in a gall. The biology and ecology of insects that live in plant galls. CSIRO Publishing, Collingwood, VIC, Australia. 80 pp. Paperback, ISBN 9780643106437, Australian $29.95.

Plant galls are outgrowths of plants tissue, malformations resulting from stimulation by insects, mites, nematodes, bacteria, fungi, and sometimes other organisms. The source of the unusual, exaggerated growth of plant cells is certainly induction by the aforementioned organisms, but the exact chemical/genetic nature of the gall-inducing stimuli is debatable. What is clear is that the causative organism tends to act is a consistent manner, so the galls take on characteristic growth patterns that are quite diagnostic of the stimuli.

Insects and mites are among the most common stimuli inducing gall formation on plants. Usually the insect takes up residence within the gall for at least for one stage in its life cycle, sometimes most of its existence. Although some view these structures negatively because they are viewed as disease or deformity, they also are intriguing parasitic relationships. So scientists have long been fascinated with these structures.

Rosalind Blanche lives 'Down Under', so her view of galls has a distinct Australian perspective. Galls in Australia are concentrated especially in eucalypts, but also are common in acacias and figs. There also is an absence of gall induction by aphids, cynipid wasps, and sawflies, which can be important on other continents. Thus, there are differences between plant gall patterns in Australia and some other continents. However, there are some commonalities as well, with flies, thrips, chalcid wasps, coccid bugs (Hemiptera: Sternorrhyncha), and a few beetles and moths inducing gall formation. So Blanche's description of arthropod-induced galls is universally appealing because it is broadly descriptive, despite the Aussie 'flavor'.

Blanche provides a concise, nontechnical description of galls and gall inducers that should be readable by almost anyone. It is well written and free from errors. The text is supported by a glossary and an index. The reference list ('further reading') is rather short. A real strength of the book is the photography; it is extremely well illustrated. My only lament is that some of the photographs would have benefited from arrows pointing out the subject (s). For example, the first photograph purports to show two galls induced by two different insects. One gall is obvious; the other is so cryptic that I can't perceive it.

Despite its abundance of illustrations, "Life in a Gall' is not a field guide, but rather a concise description of gall biology and a compendium of different types of galls, and types of gall inducers. The book is organized into several sections, namely:

- An overview of the insect-plant gall relationship—what is a gall, how is it induced, and how are the insect and plant affected
- Gall-inducing insects and their host plants – the principal insect groups causing galls (in Australia)
- Adaptations – typical life cycles and unusual aspects of gall-insect relationships
- Enemies of gall-inducing insects – what feeds on gall-forming insects
- Problems caused by gall-inducing insects – direct effects of galls on plants, and indirect effects on organisms such as endangered wildlife that also utilize the host plant
- Benefits of gall-inducing insects – the role of gall formers as plant biological control agents, pollinators, and production of galls as food
- Studying galls and their insects – how to go about knowing and appreciating galls and gall-inducing insects.

The audience for this little book is unstated. However, it should be interesting to naturalists and gardeners, and would be a handy reference for middle or high school students, and undergraduate college students who need an in-depth but not too technical description of galls. The chapter on studying galls offers some good ideas for student and/or teachers in need of science projects.

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