

**The Social Structure and Population Dynamics of *Myrmica* Ants and
How this Regulates the Parasitic Butterfly Genus *Maculinea*.**

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The red ant genus *Myrmica* is one of the most widespread of the northern, temperate ant genera. Nests of its numerous species dominate a large number of habitats, ranging from woodland to scrub, and from tundra to warm, exposed grasslands. However, I have found that all the species that I have studied in detail so far, share many common life-history traits. All are potentially polygynous. Gynes and males emerge in early summer and swarm and mate in August and September. The newly mated queens frequently attempt to gain admission into an established colony. While a few colonies are established by solitary queens, particularly in new habitats, most reproduction in established habitat is by colony fission. Often there is considerable contest for established nest sites when they become vacant, or when resident colonies are weakened.

All Lycaenid butterflies, about one third of the world's species, have evolved some form of relationship with ants. In the temperate north *Myrmica* often figure prominently in these relationships. One of the most highly evolved examples is found in the genus *Maculinea*. I will show how each of the European *Maculinea* species has evolved to be a specific parasite of a different *Myrmica* host species, and how the biology of the host affects the life-history of the butterfly. Finally, I will outline a model that I and my colleagues have developed to simulate the population dynamics of one of the *Maculinea* species.