

Book review

KELLER, L. & GORDON, E. 2006: La vie des fourmis. – Odile Jacob, Paris, 303 pp., 21.90 €

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There are quite a number of books on ants, mostly in English, but a couple also in French language. Each of them has its particular advantages and disadvantages. One of the most recent scientific books on ants is that of PASSERA & ARON (2005), (cf. review by D. CHERIX 2006). "La vie des fourmis" by Keller & Gordon is evidently aimed at a different readership: the interested lay public. Most aspects of ant life are addressed, though not going much into depth.

Chapter I out of VIII is dedicated to the ecological success of ants, their omnipresence, the high numbers of individuals, of colonies and species. Other sections in this chapter refer to sizes and colours, the strategies of success, the ecological impact, and the antiquity of ants as observed in the fossil record as well as in the organization of "living fossils" like *Nothomyrmecia*.

Chapter II attends to social life, colony foundation, division of labour, defence, communication, and some sparse information on social parasitism and slavery can be found. It is somewhat surprising that the American *Polyergus breviceps* EMERY, 1893 has to serve as the example for the life habits of the Amazon ants, while the European *P. rufescens* (LATREILLE, 1798), studied most extensively in Switzerland, France, and Italy, is only briefly mentioned. According to the same section genetic studies demonstrated that about one half of the colonies of *Leptothorax longispinosus* ROGER, 1863 in America were pillaged by the slave-maker *Harpagoxenus americanus* (EMERY, 1895). Though, these *Leptothorax* now have to be named "*Temnothorax*", and "*Harpagoxenus americanus* forms a separate genus, *Protomognathus*.

Chapter III is on ant groups with particular life habits, such as the legionary ants, the weaver ants, and honeypot ants, but also includes a chapter on navigation and orientation in *Cataglyphis* desert ants.

Beneficial symbioses among ants and other organisms are subject of chapter IV, with a first section on the relations of ants to honeydew-producing aphids, on tropical nomadic herdsmen of the genus *Dolichoderus*, studied by Maschwitz and his students, and on the relations of ants to caterpillars mainly of lycaenid butterflies, that produce sweet secretions but become predators of ant brood after getting access to the colonies. An own section here is devoted to the associations of ants with trees, and another section describes the association of leafcutter ants with their fungus cultures.

"On bloody pests" is the title of chapter V, presenting examples of harmful ants. Most important are the so-called invasive species that have been imported from for-

eign countries and have become serious pests. Examples are *Linepithema humile* (MAYR, 1868) in the Mediterranean areas, the fire ant *Solenopsis invicta* BUREN, 1972, *Pheidole megacephala* (FABRICIUS, 1793), the Pharaoh's ant, and others. At the end of a section on supercolonies and unicoloniality it is clearly and correctly stated that an ant species, after having become invasive, can never be eradicated again!

Chapter VI is on altruism and sociobiology, within-colony conflicts and nepotism. It ends with a couple of more recent subjects. The amazing studies of Sara Helms Cahan are presented, who found that in American *Pogonomyrmex* caste determination may be genetic. Crossbreeding of two species is involved, and only "pure" larvae become young queens whereas all workers are hybrid. Or, in *Cataglyphis cursor* (FONSCOLOMBE, 1846), the queen lays fertilized and unfertilized eggs that both may become daughters. With respect to cloning, or even double cloning in the case of *Wasmannia auropunctata* (ROGER, 1863), the authors perhaps go beyond the understanding of the ordinary reader: How it works that queens of this species produce but genetically identical queens, and males produce but males, without ever exchanging genes, and workers only arise from fertilized eggs, this is tough reading even for the scientist! – Male cloning in this instance is possible because certain sperm cells destroy and replace the nucleus within the egg cell, whereas other sperm normally fuse with the egg nucleus to form female larvae. These, however, become workers which never reproduce.

Chapter VII, on Sociogenetics, tells about genetic structure of colonies, particularly in monogynous and polygynous fire ants, on social environment, and the genetics and genomics of behaviour.

The final chapter VIII, ants in high-tech, is no longer just on real ants. Presently a lot of information technologists are inspired by the emerging capacities of numerous small independent individuals, "ants", when cooperating. "Swarm intelligence" and "collective intelligence", are keywords in this chapter on a very modern development.

The bibliography of the book comprises a selection of more or less scientific textbooks and publications. It also contains the URLs of a couple of internet forums, picture galleries, and taxonomic sites. A reliable index refers to the pages where the relevant keywords can be found.

As stated before, this book is evidently aimed at interested laymen. It may be recommended to those for whom PASSERA & ARON (2005) is too scientific. The content is based on science, but it is also popular, thus for most of its length quite easily understandable. This is certainly due to the fact that the second author, Élizabéth Gordon, is a science journalist.

References

CHERIX, D. 2006: PASSERA, L. & ARON, S. 2005: Les fourmis: comportement, organisation sociale et évolution. – Myrmecologische Nachrichten 9: 90.