

## A note on dragonflies collected at light in a forest in the Ivory Coast (West Africa)

Henri J. DUMONT

Animal Ecology, Ghent University, Ledeganckstraat, 35, B-9000 Ghent.

Dragonflies, although essentially diurnal animals, have from time to time been captured at night, suggesting that at least some species, or particular species in particular circumstances of life, may show nocturnal flight activity. There can be little doubt about certain species caught at night on light ships at sea, far remote from the shore (BOWDEN & JOHNSON, 1976; SCHNEIDER, 1992). Also, species that perform large-scale migrations, like *Pantala flavescens*, that follows the intertropical convergence zone (CORBET, 1999), or *Hemianax ephippiger*, at times traveling thousands of kilometers over the Atlantic between North-West Africa and, ultimately, Iceland (TUXEN, 1976; DUMONT & DESMET, 1990), have no choice but to remain airborne at night. One specimen coming to light in Montenegro was recorded by DUMONT (1977).

Much of the existing information has been reviewed by CORBET (1999). The list of species recorded mainly consists of Anisoptera of the families Libellulidae and Aeschnidae; exceptionally, some coenagrionid zygopterans have also been collected. Case studies referring to Africa include Madagascar (FRASER, 1956), Uganda (CORBET, 1961), Kenya (SEVASTOPOLOU, 1972) and Botswana (PINHEY, 1976). No records seem to be available from West Africa.

Here, I discuss dragonflies collected at a series of light traps, primarily designed to collect moths, in a forest in the south-east of the Ivory Coast by Dr. U. Dall'Asta (Tervuren Museum, Belgium). The collection was made over a short period of time (23 Jan 1996-12 Feb 1996), at 13 stations across the Forêt Classée de Bossematié (for maps, see FERMON *et al.*, 2000). This is a wildlife sanctuary, in which several species of large mammals still hold out, but where invertebrates, e.g. butterflies, are also actively being studied (e.g. FERMON *et al.*, 2000). The

forest is not particularly suited for dragonflies, being devoid of permanent water, but several pools have been built, encased between dikes, to provide watering sites for vertebrates. They are semi-permanent, and certainly adequate for the larval development of standing-water species of dragonflies.

### List of species recorded

#### Zygoptera

1. *Agriocnemis zerafica*, 2♀♀

#### Anisoptera

2. *Aethriamanta rezia*, 1♂
3. *Chalcostephia flavifrons*, 4♂♂, 2♀♀, 3 stations
4. *Gyanacantha bullata*, 4♂♂, 1♀, 2 stations
5. *Gynacantha* sp., 1♀
6. *Hemistigma albipuncta*, 1♀
7. *Olpogastra lugubris*, 1♀
8. *Orthetrum brachiale*, 2♂♂, 4♀♀, 2 stations
9. *Tholymis tillarga*, 15♂♂, 34♀♀, 8 stations

### Discussion

The list above is doubtlessly a restricted sample of the species richness present in and around the forest, and the prevalence of females reflects their cryptic way of life, frequently away from water except at times of oviposition. Moreover, a fair fraction of specimens (all *Orthetrum*, about half of the *Tholymis*) was teneral, suggesting maturation away from water when they were captured by the light traps, or even capture shortly after emergence. *Agriocnemis zerafica* had not been found at light before, but the related *A. exilis* had (PINHEY, 1976). For *Aethriamanta rezia* this is the

second record: it came to light in Botswana as well (PINHEY, loc. cit.).

The absence of the two well-known migrants cited earlier, *Pantala* and *Hemianax*, is noteworthy, but may simply reflect the fact that a forest is the wrong type of environment for them. By far the dominant species in the collection was *Tholymis tillarga*, a species that extends from Africa to the Oriental region, and a reputed migrator (though not in massive numbers). Its crepuscular habits have been known for a long time (for India, see e.g. FRASER, 1936), and in Africa it has been captured at light in Madagascar (FRASER, 1956), and off the coast of Angola (SCHNEIDER, 1992).

In summary, the present collection confirms the ideas of CORBET (1999): night-flying in dragonflies is often linked to long-distance migratory movement and is prompted at the maiden flight or occurs at a very teneral age. Some species, however, may end up in light traps after having been disturbed while roosting at night, and may not normally be night-active at all. This may apply to about half of the present species list!

#### Acknowledgement

I thank Ugo Dall'Asta for allowing me to look at this collection, and Wolfgang Schneider for help with the literature.

#### References

- BOWDEN J. & JOHNSON C. G., 1976. - Migrating and other terrestrial insects at sea. In L. Cheng (ed.), *Marine Insects*. North-Holland, Amsterdam and American Elsevier, New York, 581 pp.
- CORBET P. S., 1961. - Entomological studies from a high tower in Mpanga forest, Uganda. XII. Observations on Ephemeroptera, Odonata and some other orders. *Trans. R. Ent. Soc. Lond.* 113: 356-361.
- CORBET P. S., 1999. - *Dragonflies. Behaviour and Ecology of Odonata*. Harley Books, Martins, 829 pp.
- DUMONT H. J., 1977. - Sur une collection d'odonates de Yougoslavie, avec notes sur la faune des territoires adjacents de Roumanie et de Bulgarie. *Bulletin & Annales de la Société royale belge d'Entomologie*. 113: 187-209.
- DUMONT H. J. & DESMET K., 1990. - Trans-sahara and trans-mediterranean migratory activity of *Hemianax ephippiger* (Burmeister) in 1988 and 1989 (Anisoptera: Aeschnidae). *Odonatologica* 19: 181-185.
- FERMON H., M. WALTERT T. B., LARSEN, DALL'ASTA U. & MÜHLENBERG M., 2000. - Effects of forest management on diversity and abundance of fruit-feeding nymphalid butterflies in south-eastern Cote d'Ivoire. I. *Insect Conserv.* 4: 173-189.
- FRASER F. C., 1936. - *The Fauna of British India, including Ceylon and Birma. Odonata*. Volume III. Taylor & Francis, London, 461 pp.
- FRASER F. C., 1956. - *Faune de Madagascar. I. Odonates Anisoptères*. Publ. Inst. Rech. Sci. Tananarive - Tsimbazaza, 125 pp.
- PINHEY E. C. G., 1961. - *A survey of the dragonflies (Order Odonata) of Eastern Africa*. British Museum, London, 214 pp.
- PINHEY E. C. G., 1976. - Dragonflies (Odonata) from Botswana, with ecological notes. *Occ. Pap. Natn. Mus. Monum. Rhod.* B 5 (10): 524-601.
- SCHNEIDER W., 1992. - *Anax tristis* Hagen, 1867 (Aeschnidae) and *Tholymis tillarga* (Fabricius, 1798) (Libellulidae) recorded from off Angola (Odonata). *Fragm. Entom.* 23: 243-246.
- SEVASTOPOLOU D. G., 1972. - Moth migration in East Africa. *Entomologist* 105: 307.
- TUXEN S. L., 1976. - Odonata. *Zoology of Iceland* 3 (39a): 1-7.