other hand, is limited to montane regions (Harz, Black Forest, Alps), but recently only single specimens were brought on record.

Es wurde die Verbreitung von *A. subarctica* und *S. alpestris* in der Bundesrepublik Deutschland an Hand von 10-km-UTM-Rasterkarten, wie sie in dem Projekt "Erfassung der Wirbellosen Europas" ("European Invertebrate Survey") Verwendung finden, dargestellt. *A. subarctica* ist an allen Sphagnum-Mooren mit hinreichend großen, unbetratbaren Schwingrasen, die in jüngerer Zeit untersucht wurden, nachgewiesen. Ihre Verbreitung entspricht unter Berücksichtigung der Untersuchungsintensität der Verbreitung passender Biotope. Die Vernichtung des Biotops durch Entwässerung, Kultivierung oder Verlandung wirkt sich direkt auf die Verbreitung der Art aus. *S. alpestris* ist dagegen auf höhere Berglagen (Harz, Schwarzwald, Alpen) beschränkt und in jüngerer Zeit nur noch vereinzelt nachgewiesen.

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**OBSERVATIONS ON LIBELLULA FULVA MÜLL. IN THE CENTRAL NETHERLANDS (ANISOPTERA: LIBELLULIDAE)**

*L. fulva* is a rare and very local species in the Netherlands. May 20, 1978, 2♀ were taken near the village of Breukelen (Utrecht Prov.). The subsequent records were made, all in 1978, in the surroundings of the Kortenhoyse Plassen (i.e. the "Oppad"), in Bussum (the estate "Beek"; both Noord-Holland Prov.) and at the Loosdrechtse Plassen ("Kromme Rade", the border area between the Utrecht and Noord-Holland Prov.). The species has been seen on wings for the last time on July 13. It is amazing that in spite of very thorough surveys in the area during the preceding five years, *L. fulva* has not been encountered earlier in the region. The causes of its sudden massive occurrence in 1978 remain a puzzle.

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**COMPARISON OF THE HABITAT AND POPULATION STRUCTURE OF ISCHNURA ELEGANS (VANDER L.) AND I. PUMILIO (CHARP.) IN A CENTRAL NETHERLANDS LOCALITY (ZYGOPTERA: COENAGRIONIDAE)**

The field observations carried out systematically (1978, 1979) at the locality "Steengroeven", near the village of Winterswijk (Gelderland Prov.), which supports a population of some 400 individuals of *I. elegans* and 800 of *pumilio*, yielded (preliminarily) the following evidence: (1) *I. pumilio* prevails in the grassland habitats, while *elegans* mainly occurs in the Typha vegetation; (2) *I. pumilio* is on wings earlier in the season and in greater numbers than *elegans*; the balance in numbers is achieved early in August, while in the late summer *I. elegans* is dominant and its adult season considerably exceeds that of *pumilio*; (3) *I. pumilio* requires higher atmospheric temperatures than *elegans*, hence its activity commences later in the day than that of the latter species; (4) during the rain *pumilio* completely disappears from sight, while the *elegans* individuals may still be active. It is likely that there are some distinctions in the sexual behaviour between the two species, but our evidence on this aspect is insufficient.

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**THE ODONATE FAUNA OF THE SURROUNDINGS OF EINDHOVEN, SOUTHEASTERN NETHERLANDS**

During 1974-1979 the odonate fauna of the broader surroundings of the city of Eindhoven has been systematically studied. The prevailing biotopes include lowland brooks, canals, heaths and man-made ponds and lakes. Out of the 68 species known to occur in the Netherlands, 40 were recorded in the region. Among these is *Oxygastra curtiisi*, which represents the second record of this species in
the Netherlands (recorded for the first time in 1926; cf. M.A. LIEFTINCK, 1926a, Ent. Ber., Amsterdam 7: 43-45; - 1926b, Tijdschr. Ent. 59: IX-X; - 1927, Ent. Ber., Amsterdam 7: 165-170; it is interesting that after nearly eight decades the species has recently also reappeared in Belgium; cf. H.J. DUMONT, 1977, Bull. Ann. Soc. r. belge Ent. 113: 26). Our record of Cordulegaster boltoni refers to one of its very few still existing populations in the Netherlands (cf. Br. ARNOUD, 1969, Natuurhist. Maandbl. 58: 72-73; - J. BELLE, 1971, Ent. Ber., Amsterdam 31: 140-142; - 1972, loc. cit. 32: 105-111). The following is an annotated list of species:

**Platycnemididae:** Platycnemis pennipes (Pall.): common at brooks and canals, in heaths sporadically; at the Eindhoven Canal migrations were noticed over a distance of up to 1.5 km.

**Coenagrionidae:**
- Cercion lindeni (Sel.): 1 teneral ♀, Eindhovense Canal, 23-VI-1976; -
- Coenagrion lunulatum (Charp.): heaths and lakes, rare (♀, II-VI-1976; 3♀, 12-VI-1977; 3♀, 4-VI-1978); -
- C. puella (♀): common; -
- C. pulchellum (Vander L.): common at lakes, less so at brooks and in heaths; -
- Enallagma cyathigerum (Charp.): nearly ubiquitous, but mostly in heaths; -
- Erythromma najas (Hans.): in most habitats, in brooks prevailing in places with overhanging vegetation; -
- E. viridulum (Charp.): 2♀, 1♂, Strabrechtse Heide, 7-VIII-1977; -
- Ischnura elegans (Vander L.): everywhere common; -
- K. pumilio (Charp.): common in heaths and ponds, rare at brooks; -
- Pyrrhosoma nymphula (Sulf.): common, less so in heaths.

**Lestidae:**
- Lestes barbarus (Fabr.): heaths, rare; -
- L. sponsa (Hans.): very common; -
- L. viridis (Vander L.): common; -
- Sympecma fusca (Vander L.): 1 spec., Elshouters Brook; -
- S. paedisca (Br.): no recent records.

**Calopterygidae:**
- Calopteryx splendens (Har.): common at most brooks, particularly so below the dams (cf. Fig. 1); -
- C. virgo (L.): 2 localities only (Kampina, Bergeijk).

**Gomphidae:**
- Gomphus pulchellus Sel: not common, a resident population in the Kleine Dommel brook, Colse Zegge.

**Aeshnidae:**
- Aeshna cyanea (Müll.): common; -
- A. grandis (L.): common in heaths, less so at lakes; -
- A. juncea (L.): heaths, common; -
- A. mixta Latr.: heaths and ponds, common; -
- Anax imperator Leach: common; -
- Brachytron pratense (Müll.): not common.

**Cordulegasteridae:**
- Cordulegaster boltoni (Don.): a resident population in the Dommel.

**Corduliidae:**
- Cordulia aenea (L.): common; -
- Oxygastra curtisi (Dale): 1 immature ♀, Colse Zegge (5 km E of Eindhoven), 6-VI-1976; 1♀, same locality, 2-VII-1976; -
- Somatochlora metallicla (Vander L.): common on brooks.

**Libellulidae:**
- Leucorrhina dubia (Vander L.): heaths, common; -
- L. rubicunda (L.): heaths, rare; -
- L. depressa (L.): in heaths more common than at brooks and ponds; -
- L. fulva Müll.: rare, along canals and brooks: earliest record: June 8 (1976), latest record: June 23 (1975); -
- L. quadrimaculata (Sulf.): in heaths occasionally in very large numbers, elsewhere less common; -
- Orthetrum cancellatum (L.): common; -
- Sympetrum danae (Sulf.): very common, particularly in heaths; -
- S. flavolium (L.): common at stagnant water habitats; -
- S. sanguineum (Müll.): common; -
- S. striolatum (Charp.): not common; -
- S. vulgatum (L.): common in heaths, less so at
BOOK REVIEWS

TASMANIAN ODONATA. By Piers ALLBROOK. Fauna of Tasmania Handbook No. 1, 84 pp., 107 figs., 27 maps incl. Fauna of Tasmania Office, University of Tasmania (Box 352 C, G.P.O.), Hobart, 1979. — Price: A $2.00.

Biogeographers and odonatologists will welcome the University of Tasmania's initiative in producing a series of inexpensive handbooks on the Tasmanian fauna, beginning with this one on Odonata. Although only 26 species of Odonata have been reliably recorded from Tasmania (as compared with almost 300 from the Australian mainland), this fauna is the outcome of changing climate and fluctuating sea-level associated with the Pleistocene glaciations, during which Bass Strait disappeared and Tasmania from time to time became a broad peninsula attached to the south-eastern coastline of Australia. The last of these land connections was probably not completely broken until about 10,000 - 15,000 years ago.

Nevertheless, such zygopteran genera as Argiolestes (Megalopodagrionidae), Caliagion (Coenagrionidae), Diphebia (Amphipterygidae), and Synlestes (Chlorolestidae), are absent from Tasmania. Yet at least half the known Australian species of each of these genera, including the most abundant and widespread ones, occur in the cool moist "Bassian" climates of the coastal uplands, of southern Australia. Among Anisoptera, the most surprising absentees from Tasmania are the Petaluridae, the cordulephyine and gomphomacromiine Corduliidae, also all but one species of Gomphidae, Austrogomphus guerini (Rambur). The Libellulidae are represented only by Austrothemis and Nanophya, both mainly Bassian genera. Surprisingly, both Orthetrum and Diplacodes, the two most abundant and widespread libellulid genera on the Australian mainland are absent.

The most interesting of known Tasmanian Odonata are the two archaic, probably relict species — Archipetala auriculata and Synthemiopsis gomphomacromioides, both described by Tillyard in 1917.

While many "absentees" from the list of Tasmanian Odonata are unlikely to have been overlooked if present, others might be missed through peculiarities in their spatial or seasonal distribution, or in their breeding biology or habitat usage. (For example, it was only after twenty years of intensive collecting by colleagues and myself that a breeding colony of Petalura gigantea Leach was found on the New England tablelands — and then only because a new road provided access to a formerly quite inaccessible area of alpine bogs. Yet P. gigantea is one of the largest, most conspicuous and most easily recognised in flight of all Australian dragonflies!). Tasmania, although colonised early in the history of white settlement in Australia, still contains large areas of mountainous virgin wilderness, accessible only on foot and then often with some difficulty. The excellent distribution maps in the Handbook may generate interest in recording Odonata among amateur naturalists, fishermen and others who find their recreation in the wilderness. This might lead to fuller knowledge of the fauna and perhaps even to descriptions of new taxa.

It is a pity that most users of the book will be misled and confused by many uncorrected errors, ambiguities and contradictions in the text, especially the keys, and to a lesser but important extent in the illustrations. A correction slip gummed to page 4 lists over 40 errors in 84 pages of text; some are of minor importance, but others (e.g. the statement that "auricles" form part of the wings!) are serious. All these, and many others not listed on the correction slip should have been picked up at or preferably before galley proof stage, when the text should have been submitted to an experienced odonatologist for advice and further criticism.

It is no pleasure to comment adversely on a book as potentially useful as this one might have been. A great deal of work must have gone into its preparation, but this has been offset by the author's inexperience, by some