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DELEPROCTOPHYLLA AUSTRALIS (FABRICIUS, 1787) IN ISTRIA AND QUARNERO (NEUROPTERA: ASCALAPHIDAE)

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ABSTRACT

Results of observation of the European ascalaphid Deleproctophylla australis (Fabricius) are presented. Distribution of the species in the northwestern part of the Balkan Peninsula and some limited information concerning adult morphology, habitat characteristics and behaviour are described and figured.

Key words: *Deleproctophylla,* Neuroptera, distribution, Istria, Quarnero
Ključne besede: *Deleproctophylla,* Neuroptera, razširjenost, Istra, Kvarner

INTRODUCTION

Ascalaphidae or owl-flies are medium-sized to very large neuropterans, widely distributed in temperate and tropical regions. About 400 species in ca. 65 genera are known (New, 1989). In Europe there are 15 species and in the northwestern part of the Balkan Peninsula 3 species in 2 genera occur (Aspöck *et al.*, 1980; Aspöck, 1992; Devetak, 1992a).

Deleproctophylla australis (Fabricius, 1787) (Fig. 1) occurs sporadically in the Mediterranean. It has been known from Corsica, southern Italy (including Sicily), and from the coastal region of the Balkan Peninsula (Croatia, Montenegro, Greece and Bulgaria) (Aspöck *et al.*, 1980; Devetak, 1992a, 1992b; Popov, 1992).

The most of the literature on European ascalaphids is strongly biased toward taxonomic studies. Only exceptionally there have been published contributions containing more information on ecology, as for example for French *Libelloides* species (Puisségur, 1967). Here are described distribution and some notes on adult morphology and ecology of *D. australis* from northwestern part of the Balkan Peninsula.

MATERIAL AND METHODS

For the morphological studies adults were pinned and dried or preserved in alcohol. Activity of the animals was recorded in the field with Sony video camera recorder CCD-TR750E. The majority of the studied material is in the author's collection.

RESULTS AND DISCUSSION

1. Distribution in the northwestern part of the Balkan Peninsula

1.1 Literature records (for a review see also Devetak, 1992b):

Germar (1817): Rijeka; Stein (1863): Split; Novak (1891): Hvar; Mocsáry (1899): Senj; Werner (1920): Split and o. Brač: Supetar; Táborsky (1936): Krk.

1.2 Material examined (m, males; f, females):

Croatia

Istria: Premantura 27.VII.1984 2 m, 3 f, leg. D. Devetak; Istria: Rt Kamenjak (a meadow with *Schoenus nigricans)* 27.VII.1995 1 m, 3 f (one with "phylla"), leg. D. Devetak, 1.VIII.1995 1 f, leg. D. Devetak; O. Lošinj: Ćunski VII.1974 1 m, 1 f (with "phylla"), leg. V. Furlan; VII.1986 1 m, 1 f, leg. V. Furlan; VII.1987 1 m, 5 f, leg. V. Furlan; 28.VII.1992 1 f (with "phylla"), leg. D. Devetak; O. Lošinj: Sv. Jakov (a field with *Carlina*

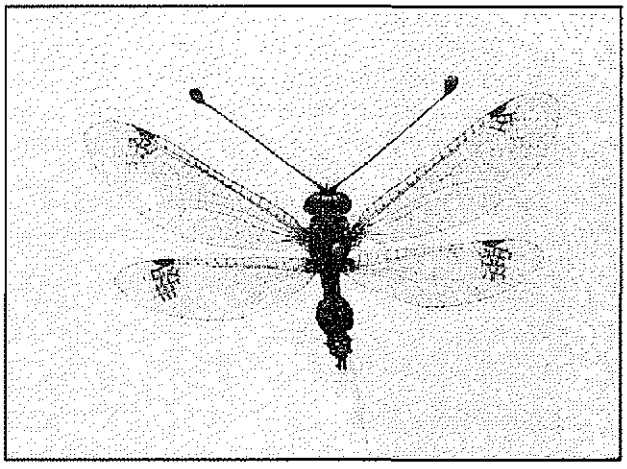


Fig. 1: A female of** Deleproctophylla australis **(Fabricius,1787). Fore wing length 25 mm.
Slika 1: Samica vrste** Deleproctophylla australis **(Fabricius, 1787). Dolžina sprednjih kril 25 mm.

corymbosa) 28.VII.1992 1 f, leg. D. Devetak; Zadar 22.VII.1937 1 f, leg. J. Staudacher, coll. Slovene Natural History Museum (Ljubljana); Oo. Kornati: O. Kornat 5.VII.1986 1 m, 1 f (with "phylla"), leg. M. Franković; O. Brač: Bol 12.VII.1987 1 m, 1 f, leg. D. Devetak.

Montenegro

Možura near Ulcinj (no other information on the label), 2 f, coll. Natural History Museum of Serbia (Belgrade).

The collection sites in NW Balkan are shown in Fig. 2. Istria and Quarnero are the northernmost part of the areal of *D. australis*.

2. Morphology

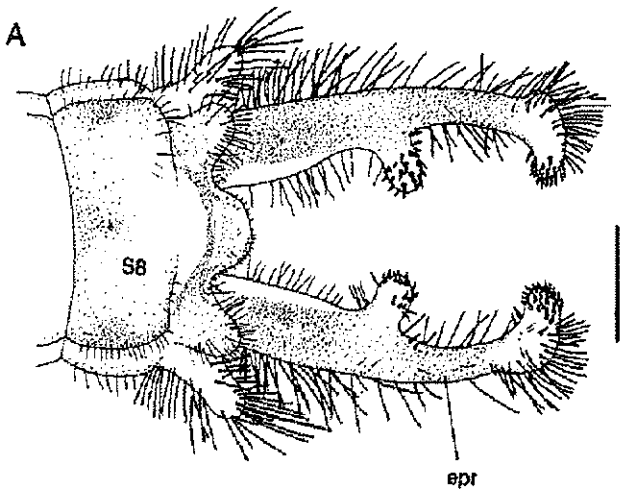
Deleproctophylla australis (Fig. 1) is a medium-sized ascalaphid, morphologically clearly separated from the other two European species by a yellow brown spot near pterostigma in the forewings. Fore wing length: males 21-25 mm, females 21-26 mm.

For general adult morphology see Van der Weele (1908) and Aspöck *et al.* (1980), for distinguishing 3 European species of the genus *Deleproctophylla* see Aspöck *et al.* (1980).

In the male genitalia ectoprocts (caudal claspers) are of a very characteristic form (Fig. 3A). In the middle of the ectoproct there is a short process.

"Phylla"

At the tip of the abdomen of some females elongate



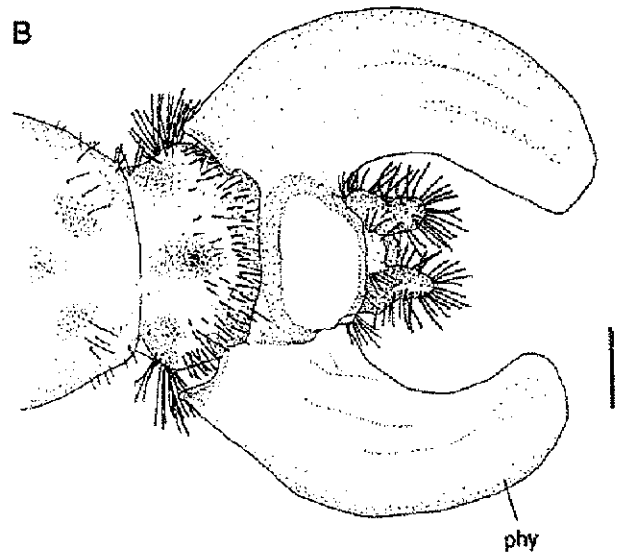


Fig. 3: Distal part of the abdomen in a male (A) and a female (B), ventral side. Abbreviations: epr, ectoproct; phy, "phylla"; S8, 8th sternite. Bar 1 mm.
Slika 3: Distalni del abdomna samca (A) in samice (B) z ventralne strani. Okrajšave: epr, ectoproct; phy, "phylla"; S8, 8. sternit. Merilo: 1 mm.

and flattened structures, so called "phylla" can be seen (Figs. 3B, 4). After Tjeder (1977), they often number 2, or even 3 or 4; in our material from Croatia they are always paired. The "phylla" are presumably spermatophores and mistakenly considered to be female structures (Tjeder, 1977; Aspöck *et al.*, 1980). In specimens from Croatia, there is a great variability in the form and length of "phylla", in many cases an assymetry occurs (Fig. 4). The "phylla" are well preserved in our dried specimens and in alcohol material.

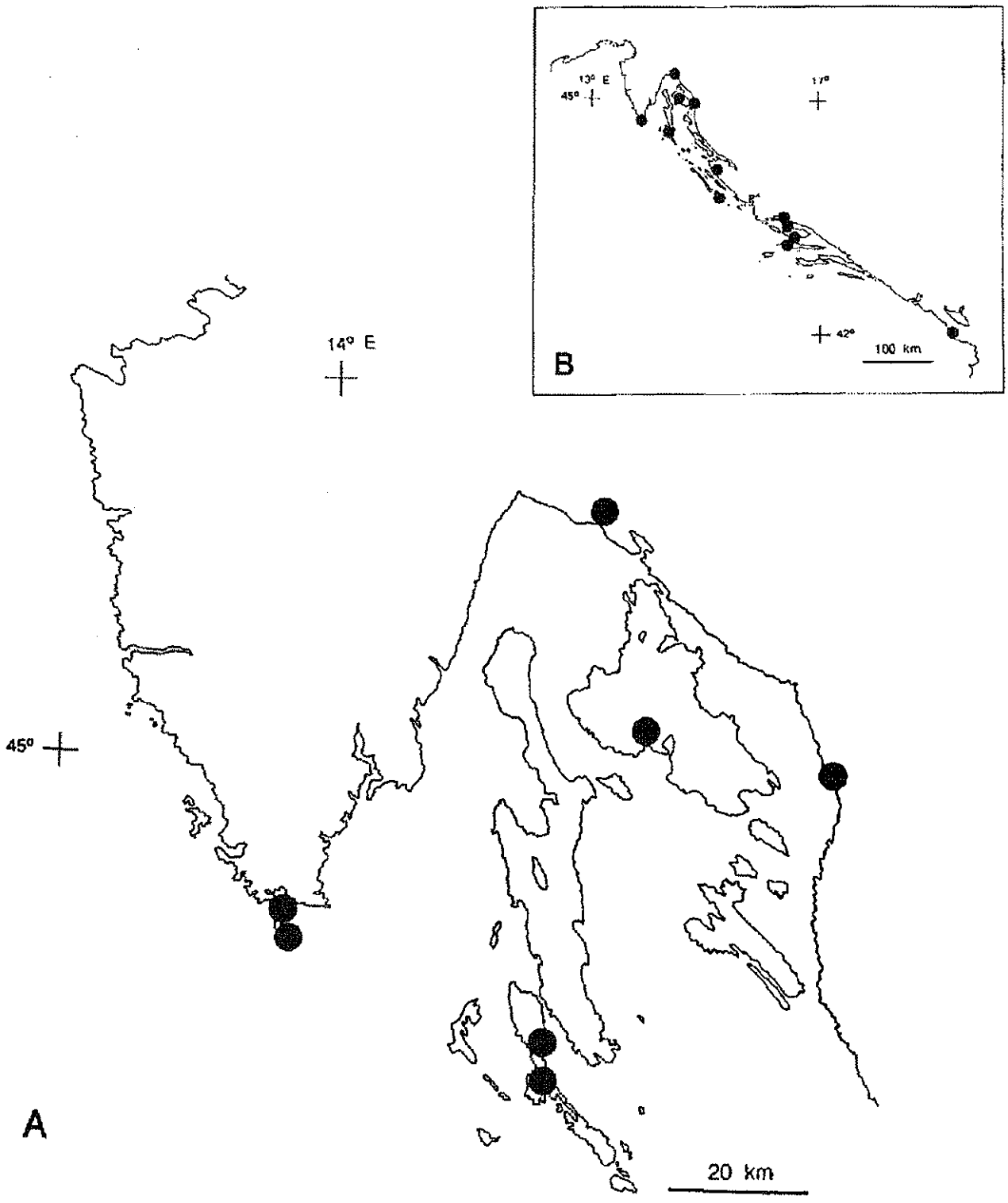


Fig. 2: Collection sites of** D. australis **in Istria and Quarnero (A) and in the northwestern part of the Balkan Peninsula (B).
Slika 2: Razširjenost vrste** D. australis **v Istri in Kvarnerju (A) in v severozahodnem delu Balkanskega polotoka (B).

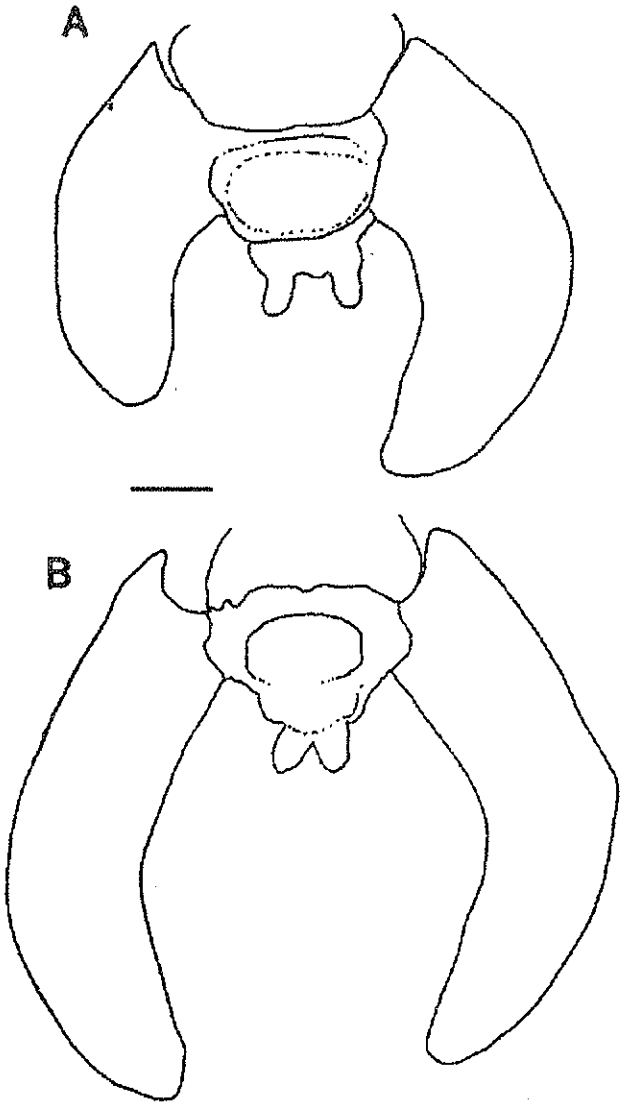


Fig. 4: Assymetry of the "phylla" in two females, ventral side: A, Rt Kamenjak; B, Ćunski. Bar 1 mm.
Slika 4: Asimetrija "phylla" pri dveh samicah z ventralne strani: A, Rt Kamenjak; B, Ćunski. Merilo: 1 mm.

3. Remarks on the habitat

D. australis was found in steppe or grass-land where stones or rocks occur regularly. In Premantura (Istria) the adults were collected in a rocky grass-land habitat near the coast (Fig. 5). The dominant plant was *Schoenus nigricans* L.

In Ćunski (Island Lošinj) the insects were found at a pasture (Fig. 6) and in Sv. Jakov (Island Lošinj) they were observed on an abandoned field with *Carlina corymbosa* as a dominant plant.

In Rt Kamenjak (Istria) the species was captured in a rocky meadow in the vicinity of the coast where *Schoenus nigricans* and *Euphorbia nicaeensis* were

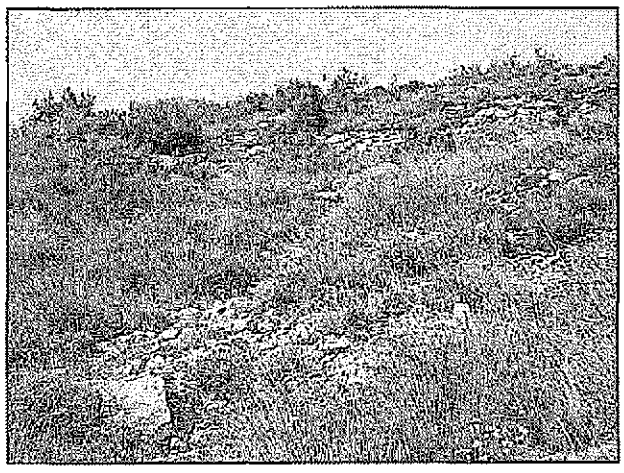


Fig. 5: Rocky meadow with** Schoenus nigricans **in Premantura July 1984.
Slika 5: Skalnati travnik s** Schoenus nigricans **v Premanturi, julija 1984.

dominant plants. It seems rocks or big stones are an important element in the habitat of *D. australis*. Plant species occuring in this habitat in July 1995 are listed in Table 1.

Schoenus nigricans L.
Euphorbia nicaeensis All.
Salvia officinalis L.
Betonica serotina Host
Helichrysum italicum (Roth) G.Don
Avena sterilis L.
Centaurea cristata Bartl.
Ruta divaricata Ten.
Koeleria pyramidata (Lam.) Domin.
Petrorhagia prolifera (L.) P.W. Ball et Heywood
Satureja montana ssp. *variegata* (Host) P.W.Ball
Cistus villosus L.
Eryngium amethystinum L.
Juniperus oxycedrus L.

Table 1 - A list of the abundant plant species in a habitat of** D. australis **at Rt Kamenjak (July 1995)
Tabela 1 - Seznam pogostih rastlinskih vrst v življenjskem okolju vrste** D. australis **na rtu Kamenjak

4. Notes on flight activity and resting postures

Like other owl-flies *Deleproctophylla* is an active aerial predator able to fly at high velocities in pursuit of small insects. The animals were recorded to be very sensitive to air current. In Rt Kamenjak (in July 1995) their activity ceased when wind started to blow.
The resting behaviour and flying was studied through recording with video camera. Three resting postures of the animals sitting on a plant stem were documented

Fig. 6: A pasture near Ćunski (Lošinj), July 1992.
Slika 6: Pašnik blizu kraja Ćunski (Lošinj), julij 1992.

(Fig. 7). Wings were folded or they were spread. This wing position during the rest is also comparable with the behaviour of the European species of the genus *Libelloides* (Eglin, 1940).

In two resting postures of *Deleproctophylla* the abdomen was oriented more horizontally while the rest of the body was vertical and parallel with the plant stem (Fig. 7). This orientation of the abdomen in *Deleproctophylla* resembles to the similar posture in the American owl-fly *Ululodes* (Henry, 1977).

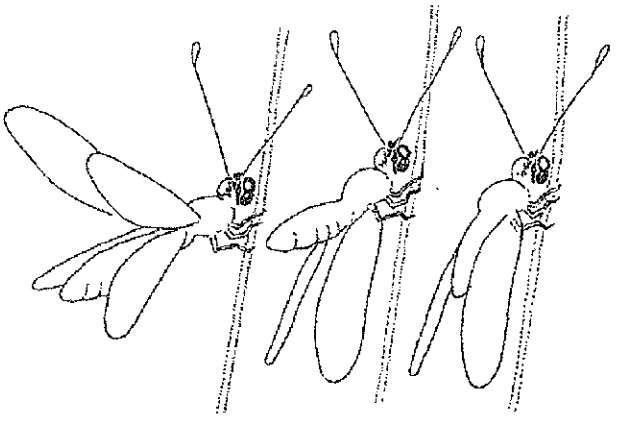


***Fig. 7: Three resting postures of** D. australis.*
***Slika 7: Trije različni mirovalni položaji vrste** D. australis.*

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POVZETEK

V prispevku podajamo nekaj podatkov o metuljčnici vrste Deleproctophylla australis (Fabricius, 1787) (sl. 1) iz Istre in Kvarnerja. Vrsta, ki je razširjena v srednjem in vzhodnem Sredozemlju, je v severozahodnem delu Balkanskega polotoka (sl. 2) razmeroma redka.

Za genitalije samca so značilni parni ektoprokti, ki imajo kratek izrastek (sl. 3). Pri samicah smo opazili veliko variabilnost v obliki in velikosti "phylla" (sl. 4).

Odrasle živali smo nabirali na suhih skalnatih travnikih ali opuščenih kmetijskih površinah. Na skalnatih travnikih sta bili dominantni rastlini Schoenus nigricans *L. (blizu Premanture, sl. 5) in* Euphorbia nicaeensis *All. (na Rtu Kamenjaku). Na opuščenih njivah (v Sv. Jakovu na Lošinju) je bila dominantna rastlina* Carlina corymbosa *L. Izgleda, da je prisotnost skal ali večjih kamnov značilnost habitatov vrste* D. australis.

S pomočjo video kamere smo beležili aktivnost odraslih živali. Žuželka preneha letati in se usede na podlago, čim začne pihati veter. Žival sedi na podlagi (rastlinski bilki) vsaj v treh različnih položajih, ki se razlikujejo po tem, ali so krila razprta ali zložena ob telesu in po legi zadka glede na podlago (sl. 7).

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