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ON THE IBERIAN DISTRIBUTION OF THE SPECIES OF *TIPULA*, SUBGENUS *TIPULA* (DIPTERA, TIPULIDAE)

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Key words: *Tipulidae*, *Tipula*, Iberian distribution.

ABSTRACT

A list is provided for the species of *Tipula*, subgenus *Tipula*, indicating from which Spanish and Portuguese provinces they are known. *T. (T.) oleracea* is apparently distributed throughout the peninsula, the other three species (*paludosa*, *mediterranea*, and *kleinschmidti*) seem to possess a more limited distribution. The four species are recorded here for the first time from Portugal.

INTRODUCTION

Tipula, subgenus *Tipula*, is represented in the West-palaeartic by ten species (Oosterbroek & Theowald, 1992), four of which are known from the Iberian Peninsula, namely *kleinschmidti* Mannheims, *mediterranea* Lackschewitz, *oleracea* Linnaeus, and *paludosa* Meigen. A fifth species, *subcunctans* Alexander, widespread in the Palaeartic, is known from Mallorca but not from the Iberian mainland.

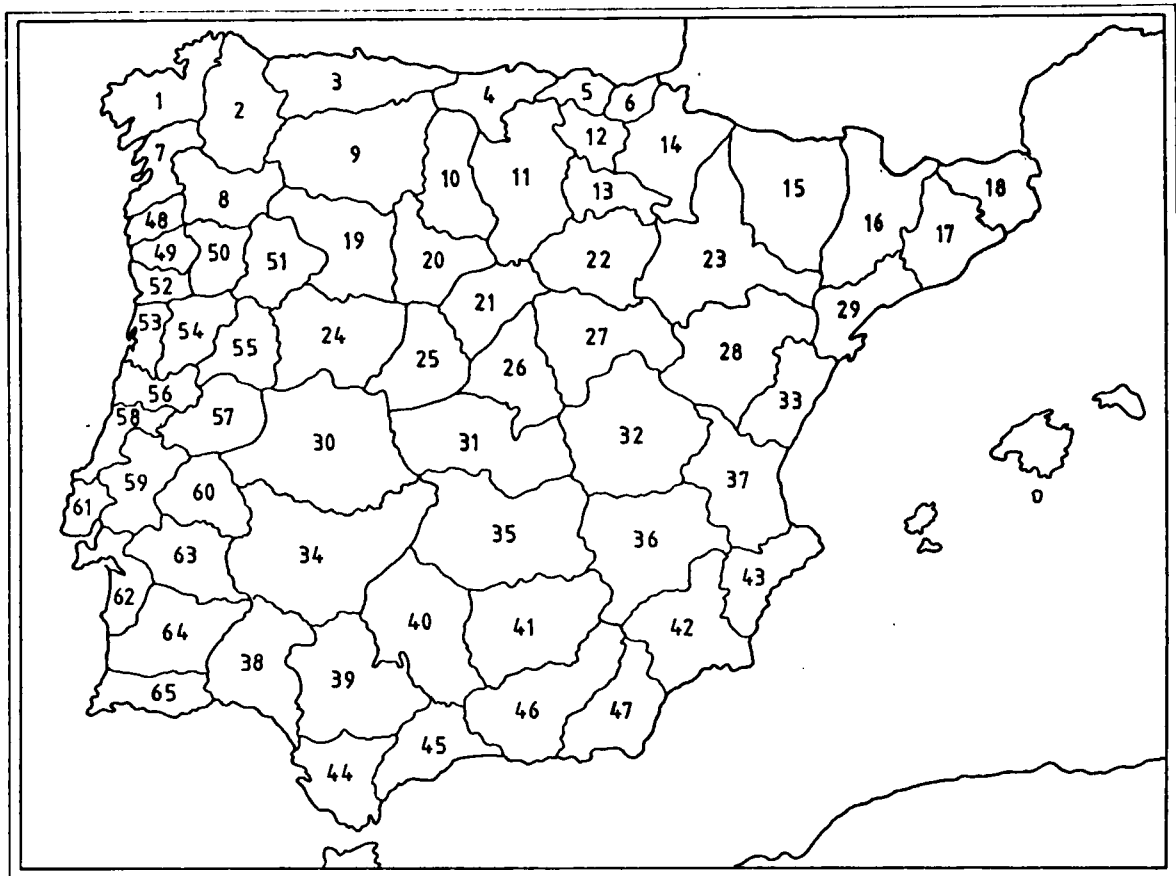
The larvae of the species of *Tipula*, subgenus *Tipula* so-called "leatherjackets", are well known as destructive feeders on especially the roots of grasses and they may cause severe commercial losses by damaging pastures, hayfields, lawns, golf courses, etc. In the more temperate European countries these losses are brought about by especially the species *oleracea* and

paludosa. Damage by *kleinschmidti* in the Spanish province of Lugo is reported by Rupérez (1975).

Theowald (1984) indicated that the four above mentioned species are distributed throughout the Iberian Peninsula. Information for the Iberian part of the maps presented by Theowald (1984) was derived from two sources, viz. 1) the collection of the Zoölogisch Museum, Universiteit van Amsterdam (ZMA), and 2) a manuscript by Mannheims (in litt.), enumerating the Iberian material preserved in the Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn (MAK), as well as material studied by Mannheims from various other collections. This information was used as well by Theowald & Oosterbroek (1981), for their zoogeographical analysis of the Iberian Tipulidae fauna.

Table 1.					
List of Spanish (1-47) and Portuguese (48-65) mainland provinces (map 1), indicating from which provinces the species of <i>Tipula</i> , subgenus <i>Tipula</i> , are known. Reference to published and unpublished records for the provinces is given only if no material from these provinces is present in the collections of the MAK or ZMA.					
		kleinschmidti	mediterranea	oleracea	paludosa
1	Coruña	TS (M50), MAK		E 87, E 88	E 87, E 88
2	Lugo	R 75, E 87, E 88		E 87, E 88	E 87, E 88
3	Oviedo			MAK	M i.l. ('Picos de Europa')
4	Santander	MAK, ZMA		MAK, ZMA	TO 81
5	Vizcaya				
6	Guipuzcoa			MAK, ZMA	
7	Pontevedra	E 87, E 88		E 87, E 88	E 87, E 88
8	Orense	E 87, E 88		E 87, E 88	E 87, E 88
9	León	MAK, ZMA			MAK, ZMA
10	Palencia			MAK, ZMA	
11	Burgos		MAK		M i.l. ('Puerto del Escudo')
12	Alava		M i.l. ('Vitoria')		
13	Logroño				
14	Navarra		TO 81		ZMA
15	Huesca			MAK	ZMA
16	Lérida			MAK	ZMA
17	Barcelona	M i.l. ('Barcelona')		M i.l. ('Barcelona')	M i.l. ('Sta Fe Montseny')
18	Gerona		MAK	MAK, ZMA	ZMA
19	Zamora			ZMA	
20	Valladolid		ZMA	ZMA	
21	Segovia	M i.l. ('Ortosa')	TO 81	MAK, ZMA	MAK
22	Soria				
23	Zaragoza				
24	Salamanca				
25	Avila	TS (M50), MAK, ZMA		ZMA	
26	Madrid	TS(M50), MAK, ZMA	MAK, ZMA	MAK, ZMA	MAK, ZMA
27	Guadalajara				
28	Teruel		ZMA		ZMA
29	Tarragona		ZMA	ZMA	
30	Carceres	ZMA		ZMA	
31	Toledo			MAK, ZMA	
32	Cuenca			ZMA	
33	Castellón		TO 81		
34	Badajoz	ZMA		ZMA	
35	Ciudad Real				
36	Albacete				
37	Valencia		ZMA	T i.l.	
38	Huelva			ZMA	
39	Sevilla				
40	Cordoba		ZMA		
41	Jaén	MAK	MAK		
42	Murcia		M 52		
43	Alicante		L 30		
44	Cádiz		MAK, ZMA	L 30	
45	Málaga		ZMA	ZMA	
46	Granada	MAK	M 69	ZMA	
47	Almería		M 69		M i.l. ('Adra')
48	Viana do Castelo				
49	Braga				
50	Vila Real				
51	Braganca				
52	Porto				
53	Aviero				
54	Viseu				
55	Guarda	MAK, ZMA		MAK	MAK
56	Coimbra				
57	Castelo Branco				
58	Leiria				
59	Santarém				
60	Portalegre				
61	Lisboa			ZMA	

62	Setúbal			
63	Evora			
64	Beja			
65	Algarve	ZMA	ZMA	ZMA
Legend:				
E 87: EIROA, 1987; E 88: EIROA, 1988; L 30: LACKSCHEWITZ, 1930; MAK: Zoologisches Forschungsinstitut und Museum Alexander Koenig; M 50: MANNHEIMS, 1950; M 52: MANNHEIMS, 1952; M 69: MANNHEIMS, 1969; M i.l.: manuscript of Mannheims, 'Die Tipuliden Spaniens'; R 75: RUPÉREZ, 1975; TO 81: THEOWALD & OOSTERBROEK, 1981; TS: Type-series; T i.l.: annotations by Theowald in his copy of TO 81; ZMA: Zoölogisch Museum, Universiteit van Amsterdam.				



Map 1. Spanish and Portuguese provinces of the Iberian mainland, as listed in table 1.

Because of the economic importance of the species it seems adequate to present more detailed information on their Iberian distribution. Study of the material preserved in ZMA and MAK does reveal that *oleracea* is the only species distributed throughout Spain and Portugal; the other three species seem to possess a more limited distribution. Table 1 presents a list of the Spanish and Portuguese provinces (as given in map 1) from which the four species are known. Details on the Palaearctic distribution of the species can be found in Theowald (1984), and Oos-

terbroek & Theowald (1992). More detailed information is presented for the Portuguese material of the four species because to date no records for Portugal have been published.

Identification of the larvae at species level is not possible. Adults of both sexes of *paludosa* can be easily identified by possessing fourteen instead of thirteen antennal segments. Females of *paludosa* can be recognized as well by having the wings shorter than the abdomen; reliable characters to separate the females of the other three species are not available.

Adult males of all four species can be reliably identified by characters of the male hypopygium, as illustrated by Lackschewitz (1930), Mannheims (1950, 1952), Rupérez (1975), and Eiroa (1987).

***Tipula (Tipula) kleinschmidti* Mannheims, 1950**

Iberian mainland: Predominantly in the western half of the peninsula. Toward the east not recorded beyond the line between the provinces Santander-Granada, except for 'Barcelona' (Mannheims, in litt.; Theowald & Oosterbroek, 1981). This record could not be confirmed as no material from Barcelona is present in the MAK or ZMA collections.

Portugal: 5♂, 3♀, Serra da Estrela, Manteigas, 850m, 8-15 IX 1955, H. Noack (MAK, ZMA); 1♂, 2♀, Serra da Estrela, 600m, 2 IV 1967, J. Niethammer (MAK); 4♂, Algarve, Albufeira, 18-21 III 1985, C. & A. Jeekel (ZMA); 1♂, Algarve, Casais near Barão S. Miguel, 19 VI 1991, W. Klein (ZMA).

Period of flight: From early March until mid December (records from 2 III - 17 XII), with distinct peaks in spring and autumn.

Distribution: Endemic to the Iberian Peninsula.

***Tipula (Tipula) mediterranea* Lackschewitz, 1930**

Iberian mainland: Predominantly in the eastern and southern parts of the peninsula. In spite of very extensive collecting not recorded from Galicia (Eiroa, 1987, 1988), most probably absent toward the northwest beyond the province of Valladolid.

Portugal: 6♂, Algarve, Albufeira, 18-21 III 1985, C. & A. Jeekel (ZMA).

Period of flight: Apparently throughout the year (no records from January) but with distinct peaks in spring and autumn.

Distribution: Northwest Africa, Iberian Peninsula, Balearics, southern France, Austria, Italy, Corsica, Sardinia, Sicily, Malta.

***Tipula (Tipula) oleracea* Linnaeus, 1758**

Iberian mainland: Distributed throughout the peninsula.

Portugal: 1♂, Serra da Estrela, Manteigas, 850m,

8-15 IX 1955, H. Noack (MAK); 2♀, Lisboa, Sitimos-Sta Suzana, 17 IX 1960, H. Wiering (ZMA); 2♂, 1♀, Algarve, Maxilhoeira Grande, 4 VI 1970, C. & A. Jeekel (ZMA); 1♀, Algarve, Odelouca, 14 VI 1970, C. & A. Jeekel (ZMA); 14♂, Algarve, Albufeira, 18-21 III 1985, C. & A. Jeekel (ZMA); 1♂, 3♀, Algarve, Luz, 12-18 IV 1985, fam. Brugge (ZMA); 1♀, Algarve, Monte Cordo, dune area, 16 IV 1985, J.A.W. Lucas (ZMA); 1♂, Algarve, Castro Marie, 21 IV 1985, J.A.W. Lucas (ZMA); 1♂, Algarve, Vilazoura, 26 IV 1985, J.A.W. Lucas (ZMA).

Period of flight: From early March until early December (records from 3 III - 4 XII), without distinct peaks, although less frequent in July.

Distribution: Northwest Africa, Europe, also known from the Balearics.

***Tipula (Tipula) paludosa* Meigen, 1830**

Iberian mainland: Apparently distributed in the northern half of the peninsula only. South of the line Guarda - Madrid - Teruel mentioned from Almeria only (Theowald & Oosterbroek, 1981, after Mannheims, in litt.: 'Adra 15 m (Almeria) V.42, R. Arenjo'). This record, which seems doubtful given the month of collecting and isolated southern position, could not be confirmed as no material from Adra or Almeria is present in the MAK or ZMA collections.

Portugal: 1♂, Serra da Estrela, Manteigas, 850m, 8-15 IX 1955, H. Noack (MAK).

Period of flight: From mid April until beginning November (records from 11 IV - 8 XI), but very scarce in spring and summer, very frequent in September and October.

Distribution: Europe.

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