**Dicranopalpus caudatus** Dresco, 1948: not a synonym of *Dicranopalpus ramosus* (Simon, 1909) but a valid species after all (Arachnida, Opiliones)

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Abstract: *Dicranopalpus caudatus* Dresco, 1948, formerly considered a synonym of *Dicranopalpus ramosus* (Simon, 1909), is revalidated based on a comparative characterisation of both taxa by studying specimens from the Iberian Peninsula, France, England and The Netherlands. Until now, *D. caudatus* has been confirmed for Spain, Portugal and England. Both species show allopatric distributions in the Iberian Peninsula, with *D. caudatus* distributed along the western, southern and eastern Iberian coasts and *D. ramosus* only on the northern Cantabrian coastal strip. In contrast, both species seem to be sympatric in southern England. However, the current status of *D. caudatus* in England needs to be assessed, since it was last recorded 30 years ago. Diagnostic characters, illustrations and distribution maps are provided for both species.

Key words: Opiliones, *Dicranopalpus*, revalidation, Iberian Peninsula, southern England.

*Dicranopalpus caudatus* Dresco, 1948 no es un sinónimo de *Dicranopalpus ramosus* (Simon, 1909) sino una especie válida, después de todo (Arachnida, Opiliones)

Resumen: Estudiando especímenes procedentes de la Península Ibérica, Francia, Inglaterra y Holanda, se revalida *Dicranopalpus caudatus* Dresco, 1948, anteriormente considerada un sinónimo de *Dicranopalpus ramosus* (Simon, 1909), en base a una caracterización comparativa de ambos taxones. Hasta ahora, *D. caudatus* ha sido confirmada para España, Portugal e Inglaterra. Ambas especies muestran áreas de distribución alópatricas en la Península Ibérica, con *D. caudatus* repartida por una ancha franja que sigue la costa occidental, meridional y oriental, mientras que *D. ramosus* ha colonizado solamente la Cornisa Cantábrica. Por el contrario, ambas especies parecen ser simpácticas en el sur de Inglaterra, aunque la situación actual de *D. caudatus* requiere reevaluación, ya que no se ha encontrado desde hace más de 30 años. Se proporcionan caracteres diagnósticos, ilustraciones y mapas de distribución para ambas especies.

Palabras clave: Opiliones, *Dicranopalpus*, revalidación, Península Ibérica, sur de Inglaterra.

Introduction

*Dicranopalpus ramosus* (Simon, 1909) is a conspicuous harvestman species, allegedly of Ibero-Maghrebian origin, that has invasively spread across Western-Europe during the last few decades (see references below). Both sexes are characterised by their resting position (legs held parallel and stretched out sideways) and extremely elongated patellar apophysis, giving the pedipalps a forked appearance. Females develop a distinct protuberance on the back end of the opisthosoma. Because the species has been regarded as easily identifiable -especially in European countries where no other *Dicranopalpus* species occur- most attention has concentrated on its invasive nature, seemingly without a need to further verify morphological details. We herein reveal that it is not justified to consider *D. caudatus* and *D. ramosus* conspecifics by analysing historical accounts on both species and by re-examining specimens mostly from the Iberian Peninsula and additional material from France, southern England and The Netherlands. We revalidate *D. caudatus* by comparing it with *D. ramosus* and provide diagnostic characters. Finally, an appeal is made to other researchers to check their *Dicranopalpus* collections in order to verify our findings and clarify the historical as well as the current distribution of both species dealt with here.

Historical accounts on the identity of *D. ramosus* and *D. caudatus*

The genus *Dicranopalpus* Doleschall, 1852 belongs to the superfamily Phalangioida (suborder Eupnoi) and presently has no family assignment (Crawford, 1992). Apart from *D. ramosus*, four other *Dicranopalpus* species are known from the Iberian Peninsula: *D. pyrenaeus* Dresco, 1948 from the Pyrenees, *D. martini* (Simon, 1878) (= *D. cantabricus* Dresco, 1953) from the Cantabrian Mountains and Central Iberian System, *D. pulchellus* Rambla, 1960 from the southwestern corner of Iberia and *D. bolivari* Dresco, 1949 (= *D. dispar* Rambla, 1967) from the Central Iberian System (Dresco, 1953; Rambla, 1959, 1960, 1967a; Starega, 1973). These species have distinct penial and/or pedipalpal morphology and cannot be confused with *D. ramosus* s.l.

In 1909 Simon described *Dicranochirus ramosus* from Morocco. Although he stated that it was present ”En grand nombre”, his description was succinct and no mention was made of male or female characters (according to Starega (1973) Simon’s material -or what had remained of it- consisted of a male and three females). Simon referred to it as related to *Dicranopalpus* Doleschall, 1852 but did not illustrate the species. In 1948 Dresco described *Dicranopalpus caudatus* based on a female collected by C. Mazarredo from the Serra da Estrela, Portugal. It was characterised by a large dorsal protuberance on the opisthosoma, but no measurements were provided. Rambla (1965) redescribed *D. caudatus* from specimens from La Floresta, near Barcelona, presenting a first illustration of the male penis, which has a simple, cylindrical truncus and an outward-pointing stylus; she also studied a female from the Serra da Estrela (also collected by C. Mazarredo, probably at the same time and location as Dresco’s holo-
type). Subsequently, in 1973 Starega redescribed *D. ramosus* based on the Moroccan type material, selecting a male as lectotype and synonymising it with *D. caudatus* (without actually seeing neither the female holotype of *D. caudatus* nor the specimens of Rambla's redescription). The penis of this single male specimen available to him, had "a -hardly visi-
ble!- dorsal cavity in the distal third portion of the approxi-
mate tube-shaped truncus" ("Corpus fast röhrchenförmig, mit
einer dorsalen Einsenkung im apikalen Drittel (kaum sichtbar!)") and a downward-pointing stylus (Starega, 1973:
Fig. 3-5). We were unable to examine this male lectotype in
the Paris collections, but herein uphold this taxon because
Fig. 3-5). We were unable to examine this male lectotype in
the Paris collections, but herein uphold this taxon because
subsequently, in 1973 Star

The current taxon of *D. ramosus* from Rambla (1965). Other figures
(Wijnhoven, 2009, 2013) from Dutch specimens belong to the
'D. ramosus type' with truncus cavity. Summarising, the refer-
ences suggest that two penial types are represented within the
current taxon of *D. ramosus*: the 'caudatus type' (Rambla,
1965; Martens, 1978; Hillyard & Sankey, 1989) and the
'ramosus type' (other references).

**Historical accounts on the distribution of *D. ramosus* and *D. caudatus***

The Moroccan type specimens of *D. ramosus* were collected in 1907 in Mogador (currently Essaouira), Morocco (Simon, 1909). Iberian records of *D. caudatus* are from the Serra da Estrella, Portugal (Dresco, 1948; Rambla, 1967b) and Barce-

tlona, Spain (Rambla, 1965). After the synonymisation of *D.
caudatus* by Starega (1973), *D. ramosus* was recorded from
cosopolitan regions of Catalonia, Levante and Murcia (Rambla,
1977, 1986) and an isolated sierra (San Juan de la Peña) in the
southron slope of the Central Pyrenees (Rambla, 1985). Re-
cently, it has been recorded from Asturias, Cantabria and
Basque Country (Merino-Sáinz et al., 2013). Sankey & Sto-
rey (1969) reported *D. caudatus* from France and southern
England (Hove near Brighton, Sussex; Bournemouth, Hamp-
shire; with first English records dating from 1957); Wheatley
(1971) mentioned it from Helston and the Lamorna Valley
(Cornwall), Hillyard & Sankey (1989) stated that "since its
British discovery at Bournemouth in 1957 this species has
established many thriving colonies in the south." In the con-
text of our current re-evaluation, however, the identity of the
specimens mentioned by these authors remained in most cases
obscure and therefore it has been one of our aims to re-
examine some of the material (see Material examined and
Geographic distribution).

Since around 1990 *D. ramosus* has been steadily mov-
ing north along the Atlantic coast, initially avoiding the Cen-
tral-European region. In France there are additional records
from the south-western Atlantic regions from the departments
of Pyrénées-Atlantiques and Landes (Rambla 1986, Delfosse
2004) and the Mediterranean department of Pyrénées-
Orientales (Rambla, 1986; Delfosse, 2004, Ledoux et al.,
1996; Ledoux & Emerit, 2006), first records in north-eastern
France in 2004 (Iorio, 2007) and recently also records from
several eastern departments (Delfosse & Iorio, in prep.). Thus
far, the species has been recorded as new to the Netherlands
in 1993 (Cuppen, 1994; Noordijk et al., 2007), Belgium in
1994 (Sloose, 1995; Vanhencer, 2004), Ireland in 1994 (Caw-
ley, 1995), Scotland in 2000 (Hillyard, 2000; Davidson, 2012;
Nicholson, 2014; Usher, 2014), Germany in 2002 (Schmidt,
2004, with European distribution map; http://spiderling.de/
arages/index2.htm, visited December 2014), Denmark in 2007
(Toll & Hansen, 2011; Enghoff et al., 2014) and Sweden in
2012 (Jonsson, 2013).

**Material examined**

Abbreviations: CP, C. Prieto; CRBA, collection Maria
Rambla, Centre de Recursos de Biodiversitat Animal,
Universitat de Barcelona; HW, H. Wijnhoven; ZUPV, Zoo-
logical collection of the Departamento de Zoología y Biología
Celular Animal, Universitat del País Vasco; CJM, collection
J. Martens, Institut für Zoologie, Johannes Gutenberg-
Universität Mainz.

**Dicranopalpus caudatus**

*Portugal.* 1M {ZUPV4587}, Bragança: Largo S. Bartolomeu
(Bragança, 29TPG872295, 800m), 20.10.2009, leg. J. Benhadi. 1J
{ZUPV3336}, Miranda do Douro: Picote (Bragança, 29TQ2280845,
630m), 06.09.2001, leg. P. Cardoso. 1F {ZUPV4551}, Valverde:
Erdeda de Mitra (Evora, 29NSCN655, 220m), 16.03.2007, leg. S.
Henriques. 1M {ZUPV4521}, ibid., 03.12.2004, leg. S. Henriques. 1F
{CRBA3627}, Serra da Estrella (Guarda, 29TPE07), leg. Maza-
redo. 1J {ZUPV4412}, Serra da Estrela: Seia: Cabeça (Guarda,
29TPE0664, 550m), XI.1999, leg. Goso-Lllo-

*Spain.* 1F, 1J {CRBA3613}, Petrel: Sierra Carrascal (Alicante,
30SXH96), leg. Español. 1F, 3J {CRBA5001}, St.Lorenzen; C. Tri-
angle Animal, Universidad del País Vasco; CJM, collection
J. Martens, Institut für Zoologie, Johannes Gutenberg-
Universität Mainz.
Comparative characterisation of *Dicranopalpus ramosus* and *D. caudatus*

The examined material confirms the presence of two penial types (Fig. 4). Females are also clearly distinct in the two species. The general appearance of *D. caudatus* is that of a small and delicate species, almost giving the impression of a juvenile or subadult of *D. ramosus*. Especially when placed side by side *D. caudatus* in every aspect is conspicuously smaller than *D. ramosus* (Fig. 1; Table I).

**Colouration and dorsum.** Background colour of *D. ramosus* yellowish-brown. Most males have a distinct black transverse band running across the eyes which has given them the nickname ‘Zorro’ (e.g. Fig. 1 in Wijnhoven, 2013). Males rarely have a dark median longitudinal stripe on the opisthosoma. The colour pattern of females usually is more contrasting with a characteristic pattern of silvery and black.
Table I. Discriminative features of males D. ramosus (n=6) and D. caudatus (n=4). Measurements in mm.

<table>
<thead>
<tr>
<th></th>
<th>D. ramosus</th>
<th>D. caudatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body length</td>
<td>3.12-4.12</td>
<td>2.10-2.97</td>
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<tr>
<td>Length femur I</td>
<td>5.80-6.24</td>
<td>4.35-4.95</td>
</tr>
<tr>
<td>Length patellar apophysis</td>
<td>0.95-1.22</td>
<td>0.77-0.92</td>
</tr>
<tr>
<td>Length pedipalpal tibia</td>
<td>1.50-1.83</td>
<td>1.17-1.25</td>
</tr>
<tr>
<td>Ratio pedipalpal apophysis/tibia</td>
<td>0.63-0.68</td>
<td>0.66-0.73</td>
</tr>
<tr>
<td>Penis length</td>
<td>2.03-2.25</td>
<td>1.40-1.45</td>
</tr>
<tr>
<td>Penis truncus</td>
<td>Fusiform, with dorsal cavity</td>
<td>Cylindrical, solid, no cavity</td>
</tr>
<tr>
<td>Penis stylus</td>
<td>Slender, ventral setae near top</td>
<td>Robust, lateral setae in midsection</td>
</tr>
<tr>
<td>Angle truncus/stylus</td>
<td>0-5º</td>
<td>30-40º</td>
</tr>
</tbody>
</table>

Fig. 2. Right Chelicera of Dicranopalpus ramosus (A, B) and D. caudatus (C, D). Top median view, bottom lateral view. A, C: Female. B, D: Male. Scale bars 0.5 mm. (Figures A and B have been previously published in Wijnhoven 2013).

transverse patches on the abdomen; occasionally with a black median longitudinal stripe. This species is highly variable in coloration with animals getting darker and more reddish-brown when aging. In December to February especially females may have gone almost deep reddish grey-black.

Compared to D. ramosus the background colour of D. caudatus is shinier, more silvery. Our male specimens are yellowish brown, mostly with a silvery-yellow, black-spotted dorsum. The black transverse band across the eye tubercle area is indistinct. Females silvery-greyish brown with one or more dark transverse bars on the opisthosoma and a rather vague pale median longitudinal stripe.

Females of both species develop a distinct hump on the dorsal tergites, which is more pronounced in D. caudatus females; moreover, the venter of D. caudatus females is clearly swollen (Fig. 1A, B; Martens, 1978: Fig. 717).

Chelicerae. Smaller in D. caudatus (compare scale bars in Fig. 2) and with a less pronounced armature of tubercles. Colouration in D. ramosus distinctively sexually dimorphic, lateral side with a glossy black longitudinal band (Fig. 2a) in the female while they are uniformly yellowish-brown in the male. In D. caudatus colouration more intersexually uniform, female with indistinct darker longitudinal band.

Pedipalps. D. caudatus has smaller pedipalps (Fig. 3a, b, e), femoral apophysis shorter and thicker in both sexes (Fig. 3i), patellar apophysis longer relative to the tibia (Table I). Tibia mediodistally with small, but distinct apophysis (Fig. 3i), which is no more than a rounded projection in D. ramosus (Fig. 3j). This feature is more prominent in females than in males. In both species the females have plumose glandular setae on the pedipalpal femur, femoral apophysis (Fig. 3k, l), patella (including the whole surface of its apophysis) and the tibia (Fig. 3i, j).

Legs. Legs are shorter in D. caudatus. Male leg III in both species provided with numerous bipterate setae (Wijnhoven, 2013: Fig. 2, 3, 5c, d and 10) on metatarsus and proximal tarsomeres. In D. ramosus male leg IV also has some bipterate setae (about 100), but none were found in D. caudatus male leg IV.

Penis. Although the penial morphology in both species is clearly different (Fig. 4), there are anatomical similarities: truncus base heavily sclerotised bearing two dorsally curved lateral projections serving as attachment sites for extrinsic penial muscles (Wijnhoven, 2013); stylus with grouped sensory setae.

Dicranopalpus ramosus is characterised by a long and slender fusiform truncus with a fusiform dorso-distal cavity, opening to the exterior via a simple, single median slit with the length of the cavity, which is confirmed by cross sections (Fig. 4a; Wijnhoven, 2013). With a large intrinsic penial muscle approximately in the basal 4/5th of the truncus. Glans more rectangular in lateral view with a bulge above the stylus (Fig. 4c). Stylus slender, bent downwards, in resting position almost parallel to the truncus (Table I). Close to the stylus top with a ventral cluster of setae (Fig. 4e), dorsally with two or three pairs of minute teeth (rudimentary in some individuals).

Penis of D. caudatus smaller, truncus almost cylindrical, no dorsal cavity present (Fig. 4b). Glans more rounded, stylus...
and stylus tip more robust, pointing outwards, in resting position making an angle of 30° to 40° with the truncus (Fig. 4d; Table 1). Midsection of the stylus with a cluster of setae, placed on an indistinct lateral knob (Fig. 4f).

**Seminal receptacles.** Most characteristic in *D. ramosus* are the long tubular receptacles attached to an ‘m’-shaped apical structure (Fig. 5a). In *D. caudatus* the tubular receptacles are smaller, they attach to a globular structure, ‘m’-shape less distinct (Fig. 5b).

**Geographical distribution**

From our morphological evaluation the geographical distributions of both species emerge (Fig. 6, 7; Table II). On the Iberian Peninsula *Dicranopalpus caudatus* has been verified from several provinces of the Spanish Mediterranean coast and some Portuguese districts, suggesting a continuous broad distribution along the coastal zone, avoiding the central regions of the peninsula. From southern England two records of *D. caudatus* are confirmed: the male and female from Hove, donated by the late J. Sankey to J. Martens (CJM 847, September 1967) which were figured in Martens (1978: Fig. 711-718); one female (CJM 2809, 26-10-1984) from Combe, Bath.

*Dicranopalpus ramosus* has been recorded from the eastern Cantabrian region (Spanish provinces of Asturias, Bizkaia, Gipuzkoa, Navarra and the French department of Pyrénées-Atlantiques), north along the French coast (departments of Landes and Gironde) and further inland. As mentioned before, its rapid colonisation of Western Europe has received considerable attention and has been well documented (Fig. 7).
Conclusions and discussion

Based on the present morphological study, we herein revalidate *Dicranopalpus caudatus* Dresco, 1948. Although we did not see Dresco's type, a revalidation is corroborated by the cited historical accounts as well as by the exclusive occurrence of *D. caudatus* in the type locality. Since Starega (1973) did not have the opportunity to study the male specimen of Rambla's *D. caudatus* (Rambla, 1965) he could not judge the differences in penial morphology. His peculiar remark "kaum sichtbar!" ("hardly visible!") referring to the penial truncus cavity of the Moroccan male *D. ramosus* syntype suggests that he was well aware of the inconsistencies of his own findings with those of Rambla (1965). As we recognize now, figure 4 of Rambla (1965; *D. ramosus*) as well as figures 3-5 of Starega (1973; *D. ramosus*) are rather accurate, enabling a historical reconstruction of this taxonomic inaccuracy. On the other hand, Rambla accepted the action of Starega and used the name *D. ramosus* throughout her subsequent publications (e.g. Rambla, 1977, 1986) although the majority of her samples proved to be *D. caudatus*.

As mentioned earlier, the genus *Dicranopalpus* (superfamily Phalangioidea) presently has no family assignment but
Fig. 6. Records of *Dicranopalpus caudatus* (blue dots ●) and *D. ramosus* (red dots ●) based on new or revised records. Years are of confirmed records. Included are also records based on photo-identifications (small squares ■ of the corresponding colour; see Table II) and unconfirmed bibliographical citations of *D. ramosus/D. caudatus* (● small yellow dots). Fig. 7. Reconstruction of the European distributions of *Dicranopalpus ramosus* (orange grey █) and *D. caudatus* (yellow grey ■ and two asterisks in southern England) and the years of first recording in each country or region (references in text).
Table II. Photographic records of *Dicranopalpus* housed on the website 'Insectarium Virtual' (http://www.biodiversidadvirtual.org/insectarium/). For each record, locality, biotope, county, province or department, coordinates, altitude, date, photographer, sex (J=juvenile) and image number are provided. Source http://www.biodiversidadvirtual.org/insectarium/Dicranopalpus-group.-cat19686.html FR: France; SP: Spain; F: female; J: juvenile; M: male.

<table>
<thead>
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<th>Biotope</th>
<th>Province</th>
<th>Coordinates</th>
<th>Altitude</th>
<th>Date</th>
<th>Photographer</th>
<th>Sex</th>
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<td>Tíbi</td>
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<td>837</td>
<td>08/12/2012</td>
<td>Germán Muñoz</td>
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<td>Adra</td>
<td>Shrub with Cycas, thorns, pines</td>
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<td>Gijón</td>
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<td>SP</td>
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<td>30VN306942</td>
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<td>Garden, house wall</td>
<td>SP</td>
<td>30VP250105</td>
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is placed in the so-called *Dicranopalpus*-group, containing seven genera (Crawford, 1992; Pinto-da-Rocha & Giribet, 2007). So far, the systematic relationships between these taxa have not been analysed nor has *Dicranopalpus* been included in phylogenetic studies based on morphological and/or molecular data (Giribet et al., 2002; Hedin et al., 2012; Sharma & Giribet, 2014). *Dicranopalpus ramosus* and *D. caudatus* show a mosaic of morphological features also present in diverse taxa of Phalangiidea and sister groups. For example, plumose pedipalpal setae have been reported for many adult Phalangiidea, Caddoidea, and for some juvenile Eupnoi, as well as for Ischyropsalidoidea, indicating that the presence of plumose setae is plesiomorphic for Palpatores (Giribet et al., 2002; Hedin et al., 2012; Sharma & Giribet, 2014). *Dicranopalpus ramosus* and *D. caudatus* show a mosaic of morphological features also present in diverse taxa of Phalangiidea and sister groups. For example, plumose pedipalpal setae have been reported for many adult Phalangiidea, Caddoidea, and for some juvenile Eupnoi, as well as for Ischyropsalidoidea, indicating that the presence of plumose setae is plesiomorphic for Palpatores (Giribet et al., 2002; Hedin et al., 2012; Sharma & Giribet, 2014). Second, what are the biogeographic origins and affinities of the diverse central Asia fauna (e.g., Himalayas; Martens, 1973, 1982, 1987)?"

The apparently allopatric geographical distributions of *D. ramosus* and *D. caudatus* on the Iberian Peninsula further support our conclusions (Fig. 6, 7), with *D. caudatus* widely distributed along the Mediterranean and western Atlantic regions of Iberia, and *D. ramosus* occurring only in the Cantabrian region (including the adjacent French Pyrenees and further north). Some photographic records from Andalusia also suggest a continuous occurrence of *D. caudatus* along its coastal zones. Its presence in the French department of the Pyrénées Orientales (referred to as *D. ramosus* by Rambla, 1986; Ledoux et al., 1996; Ledoux & Emerit, 2006 and Del-Fosse, 2004) seems plausible because we confirmed *D. caudatus* from Sant Pere de Roda (province of Girona) close to the French border. The only far inland *D. caudatus* record in San Juan de la Peña (Rambla, 1985) may be explained by the southern Ebro basin, acting as an inland dispersal route for Mediterranean species. Juveniles (probably belonging to *D. caudatus*) have been found in the Ebro basin (e.g., Moncillo, in Zaragoza province, 30TTYM1513, 9.10.1994, leg. J. A. Pinzolas).
The findings of *D. caudatus* in southern England as early as 1957 are intriguing and rather puzzling. Two exclusive hypotheses are possible: it is an indigenous species that had been overlooked or it is a recent introduction. The latest additions to the British harvestmen fauna are *Sabacan viscayanus* Dresco, 1952, discovered in 1982 from Wales (Martens, 1983) and *Nemastomella bacillifera* (Simon, 1879), discovered in 1988 from Devon (Smithers & Hogg, 1991). Both share a similar distribution in the Cantabro-Pyrenean region of the Iberian Peninsula and both have been considered introductions from the Pyrenees (Hillary, 2005). The phalangiid *Paroligolophus meadli* (Pickard-Cambridge, 1890) was regarded a British endemic until Martens (1978) reported it from the Cantabrian Mountains. However, an indigenous status for these three species cannot yet be excluded, as they have been collected in (semi)natural biotopes and there are no synanthropic records (Hillary, 2005). The role of southern Great Britain as a glacial refuge, as demonstrated by Coope (1979) for Carabidae (Coleoptera), also supports this hypothesis. Yet, it is still premature to propose *D. caudatus* as a native species for England, as the possibility of an introduction from the Iberian Peninsula cannot be excluded. Then again, an introduction within a short time span of two congeneric species would seem highly unlikely. A further complicating factor is that *D. caudatus* may have been overrun, and perhaps replaced by *D. ramosus* during the 1980s and 1990s, thus "blurring" its true identity. Yet, both species have been confirmed for Britain, with the latest record of *D. caudatus* dating back to 1984. Whether this species managed to survive in some area would be particularly interesting to assess.

In Spain *Dicranopalpus ramosus* is restricted to the eastern Cantabrian region. Interestingly, the oldest French records are from 1967, a female from Biarritz, Pyrénées-Atlantiques (Sankey & Storey, 1969) and from 1974, two females from Arcachon, Gironde (Rambla, 1986). An additional record, a female from Gavarnie, Hautes-Pyrénées dated 1980 (see Material), while the oldest Cantabrian record, three juveniles from the province of Bizkaia, dates back to 1981. Towards the west, it has been recorded from Muros de Nalón (province of Asturias; Merino-Sáinz, 2012) and it has been photographed in the province of Lugo, in Galicia (Fig. 6). According to these data, we hypothesise that colonisation of the Cantabrian region occurred from east to west and started in southern France. This may indicate that *D. ramosus* originates in Morocco and has been introduced into Europe in southern France approximately in the 1960s, from where it dispersed east along the French Pyrenees (collected in 1980 from Hautes-Pyrénées) and north along the Atlantic coasts of France, reaching Arcachon (department of Gironde) before 1974 (Rambla, 1985). Possibly it crossed to Great Britain during this period. However, all this remains to be confirmed. Therefore, we herein do make an appeal to European harvestman researchers (especially from France and England) to check their *Dicranopalpus* collections in order to verify our findings and clarify the current distribution of *D. caudatus*. Also data on habitat, altitude, and phenology are required.

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**References**


