

ARTÍCULO:

*Iberesia*, a new genus of trapdoor spiders (Araneae, Nemesiidae) from Portugal & Spain.

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ARTÍCULO:

## *Iberesia*, a new genus of trapdoor spiders (Araneae, Nemesiidae) from Portugal & Spain

Arthur Decae & Pedro Cardoso

**ABSTRACT:**

A new genus, *Iberesia*, is formed to receive species endemic to the Iberian Peninsula traditionally included in *Nemesia* Audouin, 1826, but to be distinguished by the absence of posterior median spinnerets.

*Iberesia* includes *I. machadoi* sp. n., the type species which is widely distributed in Portugal as well as two species transferred from *Nemesia*: *I. brauni* (Koch, 1882) comb. n. from the Balearics and *I. castillana* (Frade & Bacelar, 1931) comb. n. from Avila, central Spain. We group *Iberesia* with *Nemesia* and *Brachythele* in the tribe Nemesiini Raven, 1985. The characters on which this grouping is based are discussed. Also discussed is the taxonomic confusion about the identity of *Nemesia hispanica* (L. Koch, 1871) in relation to that of *I. machadoi* sp. n. The type of *Nemesia hispanica* is considered to be an adult female.

**Key words:** Araneae, Mygalomorphae, Nemesiidae, Nemesiini, *Iberesia* gen. n., taxonomy, systematic biology, Spain, Portugal.

**Taxonomy:** *Iberesia* gen. n., *Iberesia machadoi* sp. n.

### *Iberesia*, a new genus of trapdoor spiders (Araneae, Nemesiidae) from Portugal & Spain.

**RESUMEN:**

Se describe un nuevo género que agrupa especies endémicas de la Península Ibérica que tradicionalmente estaban incluidas en el género *Nemesia* Audouin, 1826, aunque carecen de las hileras medianas posteriores.

El género *Iberesia* incluye *I. machadoi* sp. n. especie ampliamente distribuida en Portugal, y dos especies más transferidas del género *Nemesia*: *I. brauni* (Koch, 1882) comb. n. procedente de las islas Baleares e *I. castillana* (Frade & Bacelar, 1931) comb. n. de Avila. Se propone la agrupación de *Iberesia*, *Nemesia* y *Brachythele* dentro de la tribu Nemesiini Raven, 1985, y se discuten los caracteres utilizados para esta agrupación. Así mismo se comenta la confusión taxonómica sobre la identidad de *Nemesia hispanica* (L. Koch, 1871) e *I. machadoi* sp. n. Se considera que el Tipo de *Nemesia hispanica* es una hembra adulta.

**Palabras clave:** Araneae, Mygalomorphae, Nemesiidae, Nemesiini, *Iberesia* gen. n., taxonomía, biología sistemática, España, Portugal.

**Taxonomía:** *Iberesia* gen. n., *Iberesia machadoi* sp. n.

### Introduction

At least three authors to date failed to notice the absence of the posterior median spinnerets (PMS), present in most mygalomorphs (Raven, 1985), in some species previously placed in *Nemesia*. L. Koch (1882) described *Nemesia brauni* from a male and a female but, despite the detailed description, the absence of the PMS was not noted. Much later, in newly describing *Nemesia castillana*, Frade & Bacelar (1931) also failed to note the absence of the PMS. António de Barros Machado (1944) was the first to notice the reduction of the posterior median spinnerets (PMS) in several *Nemesia* species and the complete absence of these spinnerets in a species he thought to be *Nemesia hispanica* L. Koch, 1871. Based on these observations, Machado (1944, p. 26) concluded that *N. hispanica* was not only the first ctenizid known to possess only one pair of spinnerets (the posterior laterals, PLS), but also that *Nemesia* is the only spider genus in which the number of

spinnerets was variable (either one or two pairs are present). From our point of view on mygalomorph systematics Machado's conclusions have to be modified. First, *Nemesia* is no longer regarded as a ctenizid since Raven (1985) transferred it to the Nemesiidae; second, we find that the species that Machado studied was not *N. hispanica* because a re-examination of the type specimen in the BMNH on our request (Hillyard, pers. comm.) revealed that *N. hispanica* actually possesses PMS. Our studies on newly collected Nemesiidae indicate that the PMS (although present in *N. hispanica*) are missing in several described and undescribed Iberian species, one of which is common and widespread in Portugal. From this we conclude that Machado's observation on the missing PMS in Portuguese Nemesiidae refers to a hitherto undescribed species that we here describe as *Iberesia machadoi* sp. n., and that this species (on grounds of the shared absence of the PMS) should be grouped with *I. brauni* (comb. n.) from the Balearics, and *I. castillana* (comb. n.) from central Spain in the new genus *Iberesia* gen. n.

### Methods and Terminology

**METHODS:** Males of *Iberesia machadoi* sp. n. studied were collected in a pitfall trapping program running between 1997 and 2003 at various locations in Portugal. Females were hand collected between 1999 and 2003. Information provided on *I. brauni* (L. Koch, 1882) comb.n. is based on a recent study by Decae (2005), for *I. castillana* (Frade & Bacelar, 1931) comb.n. the male type specimen in the MNHN was re-examined.

The pitfall trapping program was conducted by Cardoso and co-workers in a series of protected areas in Portugal. These were the Nature Parks of Arrábida (PNA) during 1997 and 1998, Douro Internacional (PNDI) during 2001, Serras de Aire e Candeeiros (PNSAC) during 2002 and Vale do Guadiana (PNVG) during 2000 and 2003, the Nature Reserve of Paúl do Boquilobo (RNPB) during 2002. The traps were filled with ethylene glycol 50% diluted with water, placed in each of the main habitat types present at each area, and checked every 2 weeks during about one year at each site. All specimens were transferred to 70% ethanol, studied and photographed fully submerged in this medium under a CETI-MEDO-2 binocular, as described by Decae (2005).

**TERMINOLOGY:** most terms used are standard in arachnological literature (e.g. Decae, 2005 p. 146). The following terms are of descriptive or diagnostic value in the Nemesiini (Nemesiidae, Nemesiinae).

**CREST-ZONE:** a usually contrasting lighter coloured narrow longitudinal zone running centrally over the highest part of the caput in most Nemesiini. In *Iberesia*, the crest-zone is generally indistinct in males and females (Figs. 1-2).

**CREST-SETAE:** recurved setae placed in the crest-zone, usually in one straight longitudinal row, but occasionally more irregularly placed in both sexes.

**FRINGE-SETAE:** outwardly directed setae along lateral

and caudal edges of the carapace, variable in conformation between species and distinct only in males.

**FURROW-TEETH:** teeth arranged in prolateral longitudinal rows along the cheliceral furrow can be diagnostic in their total number and relative sizes. The teeth are numbered from distal to proximal (Fig. 3).

**SUPER-SPINE:** distinctly stronger built, mostly curved and obliquely upward directed spine set in a particularly large socket on retrolateral tibia III (Fig. 4).

**CLASPER-FIELD:** zone with specialised short setae, often in species specific setting, on the ventral metatarsus I of males (Fig. 6).

### DESCRIPTIVE FORMULAE AND RATIOS

Spine patterns are variable and difficult to interpret unambiguously in Nemesiini, and have therefore been of minor use in systematic descriptions of this group (Blasco, 1986; Cardoso, 2000; Decae, 2005). However, the patellar spine patterns can be interpreted relatively unambiguously and therefore are of taxonomical value, particularly if the observed variation can be summarised in a short formula. The following descriptive formulae are used to summarise the patellar spine patterns (and variation therein) for *I. machadoi*. (See also Decae, 2005): prolateral (PSP) and retrolateral (RSP) patellar spine formulae for the patterns in one specimen such as the male holotype and the individually described female paratype. An example: PSP [p=0-0; I=1-1; II=1-1; III=2-1; IV=0-0] means that there are no prolateral spines on either of the palp patellae, one prolateral spine on patellae I & II (one left and one right), two spines right and one spine left on patellae III, and no prolateral spines on patellae IV. PSPvar and RSPvar are used to summarise the variation in patellar patterns in the type sample (7 males and 10 female paratypes). An example: RSPvar [p=1(0-2); I=1; II=1(2); III=1(0-2); IV=0] means that usually there is one retrolateral spine on a palp patella, but there might be none or two, there is invariably one spine on retrolateral patella I; patella II usually has one retrolateral spine, but occasionally two and so on.

Quantitative characters of the eye-group are summarised in three ratios: anterior row width/eye-group length (AR/EL), anterior row width/posterior row width (AR/PR), maximal diameter anterior lateral eye/maximal diameter posterior lateral eye (ALE/PLE). The eyes are measured as in Decae, 2005. Length/width ratios are abbreviated as (l/w) under the description of the segment concerned.

**ABBREVIATIONS OF INSTITUTION NAMES:** MNHN (Muséum National d'Histoire Naturelle, Paris), NMR (Natuurhistorisch Museum Rotterdam), BMNH (Natural History Museum, London).

### *Iberesia* new genus

**TYPE SPECIES:** *Iberesia machadoi* sp. n.

**OTHER SPECIES INCLUDED:** *Iberesia brauni* (L. Koch, 1882) comb. n., *Iberesia castillana* (Frade & Bacelar, 1931) comb. n.

ETYMOLOGY: the generic name is a noun derived from the name of the Iberian Peninsula where the genus was discovered and appears to have a wide distribution.

GENUS DIAGNOSIS: member of the tribe Nemesiini sensu Raven (1985, p.47). *Iberesia* differs from other Nemesiini (*Nemesia* & *Brachythele* Ausserer, 1871) by the absence of the posterior median spinnerets (PMS) and consequently the possession of only one pair of spinnerets (Fig. 9), the posterior laterals (PLS). Other diagnostic characters are: the short, single rows of spiky cuspsules ( $n=3-6$ ) along the proximal edge of the maxillae (Fig. 7), the presence of a super-spine (Fig. 4) retrolaterally on tibia III of the females.

GENUS DESCRIPTION: Robustly built Nemesiini (total lengths males (mm) 12.5-18.5; females 17.5- 31.5) of a general brownish appearance. Strong sexual dimorphism. Females with elevated caput, smooth fang keel, no patellar spines, reduced combs on inner paired claws of legs III, IV. Males with low caput, serrated or smooth fang keel, spines on leg patellae, well developed combs on inner paired claws of legs III, IV. Males may have distinct colour patterns and dense pubescence on the carapace (Fig. 1), whereas conspecific females have thin pubescence and indistinct colour patterns (Fig. 2).

#### Key to the species of *Iberesia* (males):

1. Embolus tip smooth and only slightly bent .....  
.....*I. castillana* (Fig. 14)
- .- Embolus tip clearly bent and furnished with 2 or 3 tiny denticles ..... 2
2. Embolus tip sigmoid, denticles on convex side  
.....*I. machadoi* (Fig. 12)
- .- Embolus tip bent, three minute denticles on concave side .....*I. brauni* (Fig. 13)

#### *Iberesia machadoi* new species

(Figs 1-4, 6-7, 9, 12, 15)

*Nemesia hispanica* (misidentification): Frade & Bacelar 1931 p. 233-234. Bacelar 1932 p.20-21. Machado 1944 p. 25-26. Buchli, 1968 p. 70, Fig. 43c. Blasco, 1986 p. 345,347 fig. 2D. Cardoso 2000 p. 31-36.

ETYMOLOGY: the species is named in honour of António de Barros Machado who first recognised the taxonomic importance of spinneret morphology in the Nemesiidae.

DISTRIBUTION: the species occurs in many locations throughout Portugal, but it appears to be more common in central and southern Portugal than in the north (see map 1).

TYPE: male holotype (leg. P. Cardoso PMC0018D, collected 23 Oct. 2000) deposited at the MNHN, Paris Nr. AR14312.

TYPE LOCALITY: Algodôr, South Portugal, UTM 29SPB07, habitat *Quercus ilex* woodland.

PARATYPES: collected at several locations in central and southern Portugal; five males from Ribeira de Limas UTM 29SPB28; three females from Mértola UTM 29SPB16 (leg. P. Cardoso); three females from Terras do Risco UTM 29SMC95 (leg. A. Decae). All deposited at MNHN (AR14313 – AR14323).

One male from Braciais UTM 29SPB26 (leg. P. Cardoso); four females, one from each of the following locations: Guadalupe (Évora) UTM 29SNC86; Castelo de Vide 29SPD36; Escusa (Marvão) 29SPD36; Porto de Espada 29SPD45 (leg. A. Decae). All deposited at NMR (9972.4024 – 4028).

DIAGNOSIS: differs from other *Iberesia* species by the morphology of the embolus tip that is distinctly sigmoid (Fig. 12) and bears two tiny denticles on the convex side. Females differ from those of *I. brauni* (the female of *I. castillana* is not known) by the tripartite spermathecae (Fig. 15).

#### DESCRIPTION OF MALE HOLOTYPE<sup>1</sup>

MEASUREMENTS (mm): total length 17.6, carapace 7.0 long 6.5 wide, sternum 3.5 long 3.5 wide, lengths legs (measured from bases of paired claws to femur – trochanter junction) I = 22.2, II = 22.4, III = 21.7, IV = 28.4, length palp 10.0.

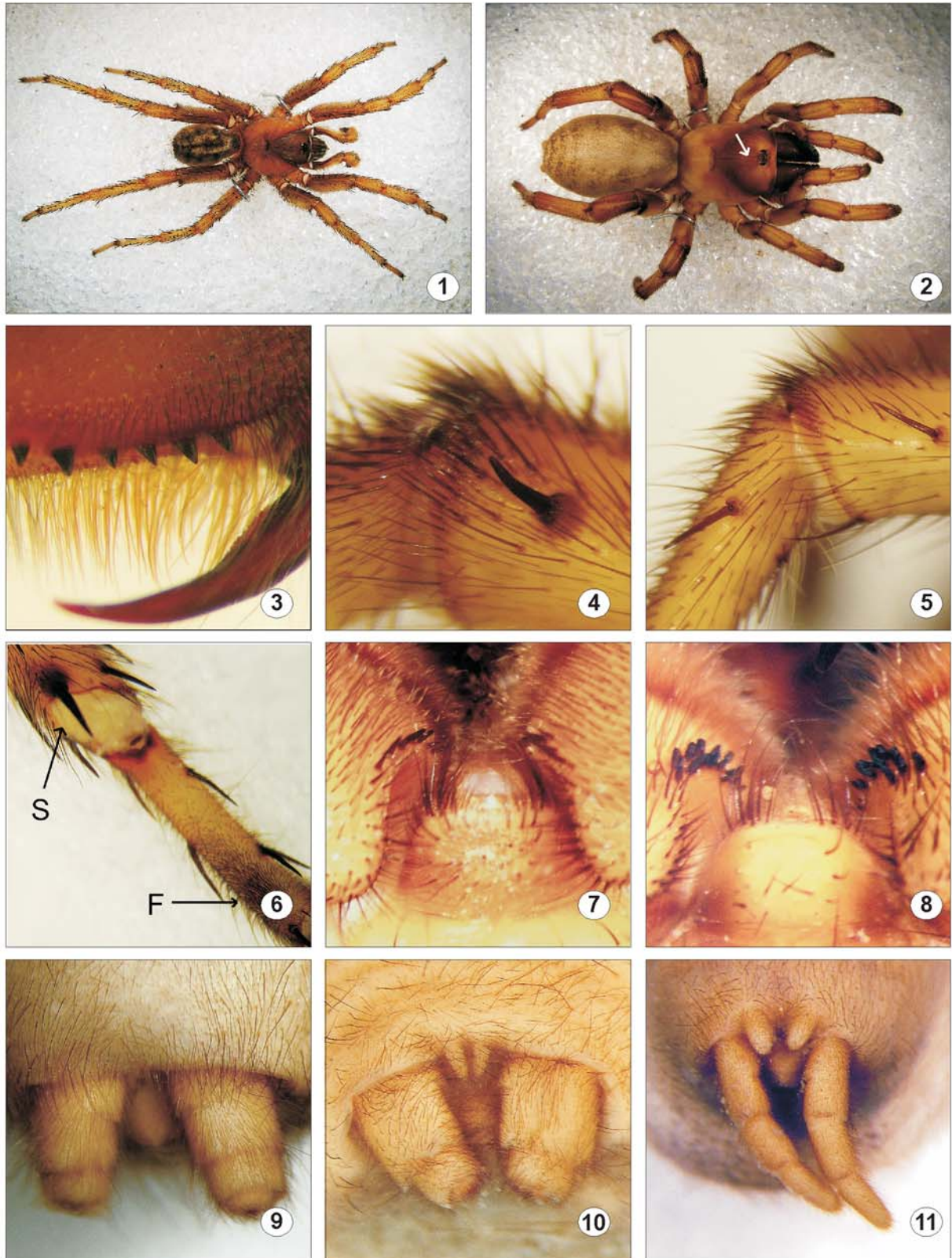
#### PATELLAR SPINE FORMULAE:

PSP [p=1-1, I=2-2, II=2-2, III=2-2, IV=2-2]

RSP [p=0-0, I=1-1, II=1-0, III=1-1, IV=1-1]

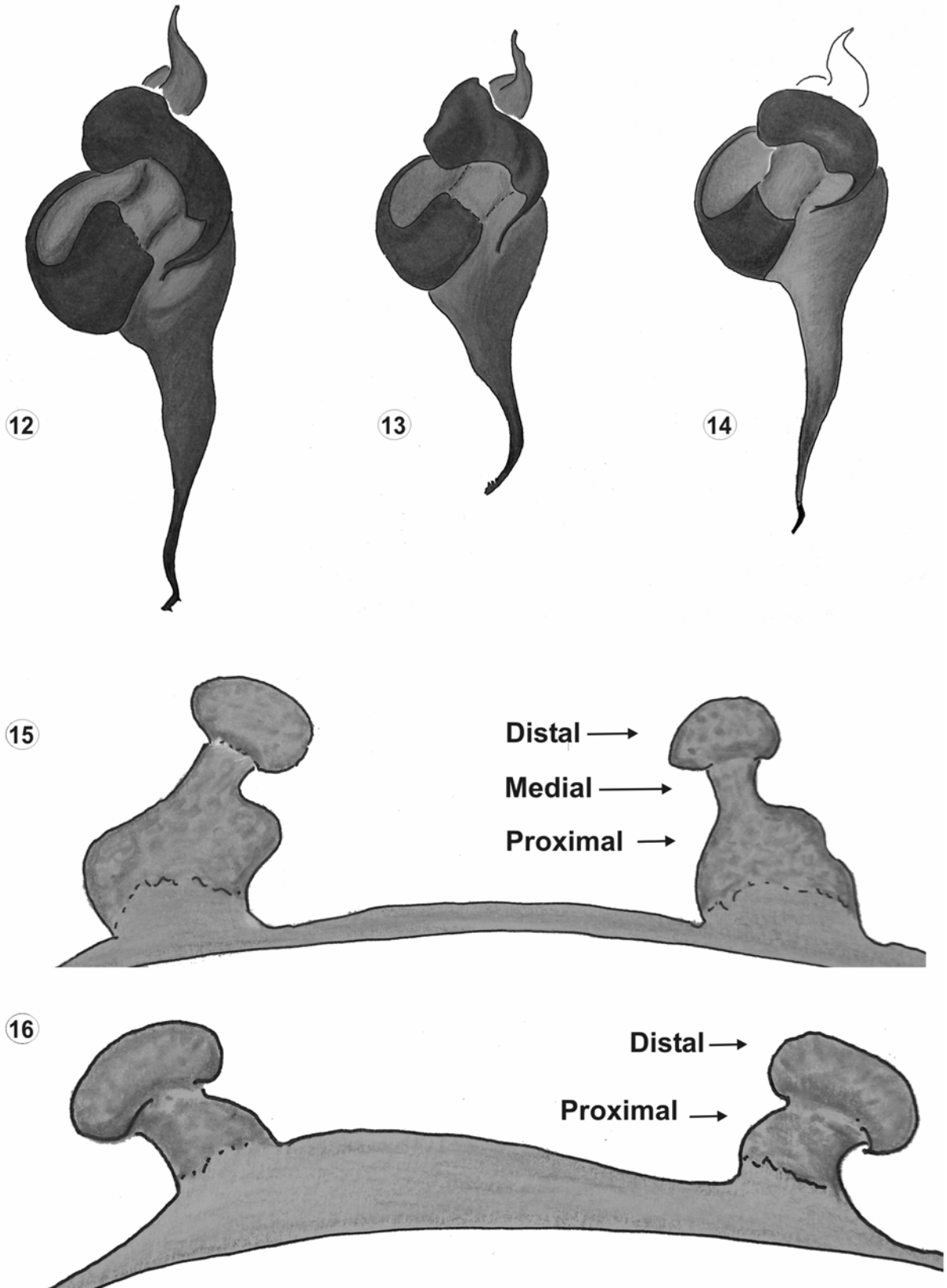
Carapace: (colour in alcohol) distinct pattern with dark head and warm yellow thorax, dark colour extends from caput over central carapace to caudal edge (Fig. 1), caput moderately elevated, dense silvery pubescence concentrated on the caudal flanks of caput and irregularly located elsewhere on carapace, crest-setae in a somewhat irregular row, crest-zone indistinct, fringe-setae fine procurved on posterior carapace, recurved from coxae III forward, dense silvery pubescence between fringe-setae on carapace edge. Clypeus: slightly higher than diameter ALE. Eye-group: eight eyes in two rows, compactly grouped on distinct tubercle, posterior row longest, periocular pigmentation lighter around AME, shining black connecting all other eyes. (AR/EL 2.1), (AR/PR 0.9), (ALE/PLE 1.1). Fovea: wide, recurved, central longitudinal groove indistinct. Chelicerae: dark brown, not contrasting with colour of caput, strong setae along dorsal crest distally merging with rastellum, zones of dense silvery pubescence dorsally and laterally, ventrally row of six prolateral furrow teeth, numbers 1, 2 and 5 larger than others (Fig. 3), rastellum

<sup>1</sup> The male of this species has recently been described by Cardoso (2000) as the presumed male of *N. hispanica*. To avoid confusion we have selected another specimen (than those described by Cardoso) to function as holotype. The description given here largely overlaps with that of Cardoso (2000) and slight differences noted are regarded to result from intraspecific morphological variation.



**Figs. 1-11.** *Iberesia machadoi*, dorsal habitus 1. Male 2. Female (arrow indicates crest-zone) 3. Chelicera prolateral view showing furrow-teeth, scopula and fang serrations 4. Super-spine on retrolateral tibia III in *I. machadoi* 5. Ordinary spines on retrolateral tibia III in *N. hispanica* 6. Clasper in male *I. machadoi* spur (S) and field (F) 7. single row of spiky maxillary cuspules, *I. machadoi* 8. Double rows of knob-shaped cuspules, *N. hispanica* 9-11. spinnerets ventral view 9. *I. machadoi* 10. *N. hispanica* 11. *Brachythele spec.*





**Figs. 12-14.** *Iberesia* species, comparative bulb morphology (similar orientations) 12. *I. machadoi* 13. *I. brauni* 14. *I. castillana* **Figs. 15-16.** *Iberesia* comparative morphology of spermathecae in dorsal view 15. *I. machadoi* (tripartite) 16. *I. brauni* (bipartite).

well developed, fang-keel serrated. Maxillae: slightly darker than sternum, ( $l/w = 1.75$ ), anterior distal process distinct, cuspules spiky grouped in short rows of four. Sternum: yellow, setae evenly distributed, lateral setae slightly stronger built, three distinct pairs of sigilla, all placed more than their diameter from edge. Labium: darker than sternum, shape shorter than wide ( $l/w 0.5$ ), labial furrow wide and glabrous. Legs: ventrally yellow grading to darker brown dorsally, spines prominent on all metatarsi, tibiae, patellae and femora, absent from other segments, trichobothria in irregular longitudinal row on dorsal tarsi, distinct distal group and proximal row on dorsal metatarsi, two parallel but alternating rows on dorsal tibiae, scopulae only distinct on ventral tarsi I & II: all paired claws with two distinct combs of teeth: metatarsi and tibiae of leg I slightly shorter than of leg II, tibia IV shorter than either metatarsus or femur IV, metatarsus IV slightly longer than femur IV. Palp: colour, spine and trichobothria patterns as legs. Abdomen: dense dorsal pattern of irregular dark brown and light yellow patches, ventrally uniformly yellow. Spinnerets: PMS absent, PLS similar colour as ventral abdomen, basal segment longer than median and distal segment together, distal segment very short and rounded (domed). Clasper (Fig. 6): clasper-field of short distally curved spiky hairs on ventral metatarsus I, tibial spur robust, on prominent tubercle and only slightly curved. Bulb (Fig. 12): long, slender embolus with sigmoid, denticulate tip.

**DESCRIPTION OF FEMALE PARATYPE:** (leg. A. Decae 02/07/99-3) deposited, MNHN, AR14314.

**MEASUREMENTS (mm):** total length 28.7, carapace 9.4 long 8.3 wide, sternum 5.2 long 4.8 wide, lengths legs (measured as in holotype) I = 20.8, II = 18.3, III = 18.0, IV = 26.6, length palp 15.0.

**PATELLAR SPINE FORMULAE:**

PSP [p=0-0; I=0-0; II=0-0; III=0-0; IV=0-0]

RSP [p=0-0; I=0-0; II=0-0; III=0-0; IV=0-0]

Carapace: pattern indistinct (Fig. 2), flanks of caput slightly darker than other parts of carapace, crest-zone indistinct, crest-setae few and fine, fringe-setae absent, pubescence fine silvery white and concentrated on posterior caput. Clypeus: as wide as height of eye-formation. Caput: strongly elevated. Eyes: eight in two rows of equal length, compactly set on distinct tubercle, periocular pigmentation distinctly broken between AME and ALE and between ALE and posterior eyes, (AR/EL 1.9), (AR/PR 1.0), (ALE/PLE 1.2). Fovea: recurved, somewhat hooked, deep central depression. Chelicerae: massive, dark brown contrasting with colour of carapace (Fig. 2), dorsal setae and silvery pubescence present but less developed than in males, furrow teeth as for male: rastellum well developed with several strong rigid spines on protracted apical process. Fang with smooth, not serrated keel. Maxillae: slightly darker than sternum, ( $l/w 1.65$ ) distal process indistinct, cuspules spiky, in short rows. Sternum and Labium as in male. Legs: col-

our as in male, short spines only on ventral sides of tarsi, metatarsi and tibiae I & II and on lateral tibiae and metatarsi III, super-spine on retrolateral tibia III distinct (Fig. 4), trichobothria as in male, scopulae on tarsi and metatarsi I & II extending to distal tibia I, combs on paired claws tarsi III & IV somewhat irregular and reduced. Leg formula 4-1-2-3, tibia IV longer than either metatarsus IV or femur IV, femur IV longer than metatarsus IV. Palp: colour like legs: scopula dense on ventral tarsus with interspersed short spines: one lateral spine proximally on either side of tarsus, tibial spines located ventrally and lightly built: claw smooth. Abdomen: uniform greyish with faint pattern of irregular darker patches dorsally. Spinnerets (Fig. 9): PMS absent, PLS slightly darker in colour than abdomen, otherwise as for male. Spermathecae (Fig. 15): tripartite, basal part wide, connected by narrow central part to domed distal part, glandular tissue evenly dense on all parts except proximally on distal part where this tissue is absent.

**VARIATION**

**MALES (N=7):** total length 16.7-18.2; carapace 6.7-8.2 long, 5.9-6.5 wide; sternum 3.1-4.1 long, 3.3-3.5 wide; leg lengths: I = 19.0-22.2, II = 19.1-22.4, III = 17.9-21.7, IV = 23.9-28.4; palp length 9.2-10.0; eye-group: AR/EL 1.8-2.1, AR/PR 0.9-1.0, ALE/PLE 0.9-1.1.

**PATELLAR SPINE FORMULAE:**

PSPvar [p=0(1); I=2(0-1); II= 2(0-1); III=0(1); IV=1(0-3)]

RSPvar [p=0; I=0(1-2); II=0(1-2); III=1; IV=1(0-3)]

**FEMALES (N=10):** total length 19.9-29.1; carapace 6.5-10.0 long, 5.6-8.4 wide; sternum 3.7-5.2 long, 3.7-4.0 wide; leg lengths I = 14.8-20.8, II = 13.5-18.9, III = 13.7-18.0, IV = 20.4-26.6; palp length 11.0-15.5; eye-group: AR/EL 1.8-2.3, AR/PR 1.0-1.0, ALE/PLE 1.0-1.5

**PATELLAR SPINE FORMULAE**

There are no spines, prolateral or retrolateral, in any of the 10 specimens studied.

### ***Iberesia brauni* (L. Koch, 1882) comb. n.**

(Figs. 13,16)

*Nemesia braunii* L. Koch, 1882: 642, pl. 20, fig. 21(mf). *Nemesia brauni*: Simon, 1892: 113. Reimoser, 1919: 6. Frade & Bacelar, 1931: 226, figs. 7-8 (m). Decae, 2005: 148-151, figs. 9-19 (mf).

**TYPE MATERIAL:** BMNH (Hillyard, pers. com), see Decae, 2005 p. 148-151

**TYPE LOCALITY:** Palma, Majorca, Spain.

**DIAGNOSIS:** differs from all other *Iberesia* species by three minute denticles on the concave embolus tip.

**REMARKS:** Koch's (1882) original description of this species is detailed but it does not mention the absence of the PMS. In fact, this character was never mentioned in any paper on *I. brauni* until Decae (2005) who in a re-

cent study on newly collected specimens from Majorca, redescribed the species and gave new information on the morphology of the sexual organs and spinnerets, and furthermore on its distribution and behaviour.

***Iberesia castillana* (Frade & Bacelar 1931)**

**n.comb.**

(Fig. 14)

*Nemesia castillana* Frade & Bacelar, 1931:222-226, figs. 5-6 [holotype MNHN AR4341, pot 58, Simon nr. 6045, examined].

TYPE LOCALITY: Avila, Spain.

DIAGNOSIS: differs from all other *Iberesia* species by the absence of denticles near the tip of a curved long slender embolus

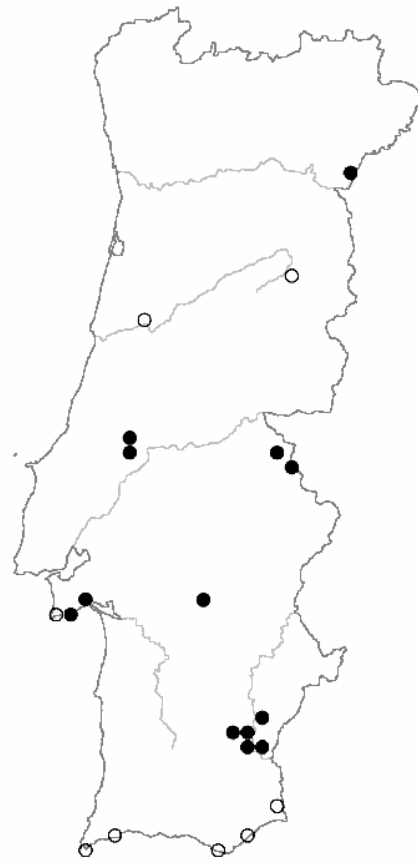
REMARKS: Frade & Bacelar (1931) described this species from an adult male specimen that they found, unnamed, in the collection of E. Simon (MNHN Paris 6045/AR4341, Pot 58). We recovered the type specimen and found the original description correct although somewhat incomplete. Particularly, the observations on spinneret morphology and embolus structure, in retrospect, were important omissions. We found that the PMS are absent in the type specimen and therefore we place the species in *Iberesia*. The female of *I. castillana* remains unknown.

DISTRIBUTION: *I. castillana* has only been reported from its type locality.

**Iberesia BURROWS:** Only the burrows of *I. machadoi* and *I. brauni* have so far been observed. Both species construct a typical 'cork nest' as described and beautifully illustrated for *Nemesia caementaria* by Moggridge (1873 p. 94 Plate VIII, see also Decae, 2005 p. 150, figs. 68, 75,79).

### Discussion of *Iberesia* relationships

In his cladistic and systematic revision of the Mygalomorphae, Raven (1985) delimited the tribe Nemesiini to include only the two south-western Palaearctic genera *Nemesia* and *Brachythele*. The recurved shape of the fovea and the conformation of the spur on tibia I of males were proposed to be the synapomorphies that unite the Nemesiini, although the morphology of the tibial spur differs markedly between *Nemesia* (single spur) and *Brachythele* (dual spurs). Here we propose an extension of the tribe Nemesiini to include a third genus, *Iberesia* gen. n., that shares the foveal shape with both *Brachythele* and *Nemesia* and the conformation of the single tibial spur with *Nemesia* alone. We base the genus level taxonomy within the Nemesiini on the variation in spinneret morphology. In *Brachythele*, the posterior median spinnerets (PMS) are well developed, widely separated and the distal segment of the posterior



**Map 1.** Currently known distribution of *Iberesia machadoi*. Black dots are collection sites of material used in this study, open circles are locations reported in earlier literature.

lateral spinnerets (PLS) is digitiform (Fig. 11); in *Nemesia* the PMS are reduced, closely set and the distal segment of the PLS is domed (Fig. 10); in *Iberesia*, the PMS are absent and the PLS are as in *Nemesia* (Figs. 9). Further, non-diagnostic macro-morphological characters shared by all Nemesiini are: the presence of eight eyes in a rectangular group on a distinct ocular tubercle; scopulae on tarsi and metatarsi I & II; biserially dentate paired claws (in both sexes but particularly well developed in males); cheliceral furrow with a retrolateral scopula and a prolaterally a row of strong triangular teeth.

The recognition of the tribe Nemesiini (Raven, 1985 p. 47) seems to make sense, not only from a phylogenetic point of view, but also in terms of biogeography. The distributions of the three genera are continuous and locally overlapping. *Brachythele* is the eastern genus reported from south-western Asia, Anatolia and south-eastern Europe where it overlaps with *Nemesia*.

The range of *Nemesia* extends from south-eastern

Europe southward and westward through northern Africa and southern Europe to the shores of the Atlantic Ocean. On the Iberian Peninsula<sup>2</sup> the range of *Nemesia* fully overlaps with that of *Iberesia* where several *Iberesia* species, described and undescribed, occur sympatrically and even syntopically with different *Nemesia* species.

### Discussion of *Nemesia hispanica* sensu Frade & Bacelar (1931)

The specimens described here as *I. machadoi* have long been incorrectly identified as *Nemesia hispanica*. The confusion originated from a discussion of *N. hispanica* by Frade & Bacelar (1931) based on their study of museum specimens collected in Spain and Portugal. There is no mention of spinnerets in this discussion (in fact they almost totally ignored the spinnerets in the entire paper except for noting that they are present on the end of the abdomen of *Nemesia fagei*, p. 232) and, apparently, Frade & Bacelar did not check their material against the holotype. They did consult the original description (Ausserer, 1871) however, on which they made some interesting remarks that might illuminate the origin of the long-lasting misidentification of *N. hispanica*. Frade & Bacelar unjustly disqualified one of Ausserer's diagnostic characters; the double row of cuspules on the ventral proximal maxillae (Fig. 8). They justified their disqualification of the diagnostic value of the double row of maxillary cuspules as follows: '*Le nombre et la disposition de ces denticules sont loin d'être des caractères fixes permettant la séparation des espèces* (p. 234)' (the number and arrangement of these denticles is not sufficiently constant for the distinction of species). From recently collected material in our private collection (8 specimens) and observations on the collection of the MNHN, however, it is clear that there exists a species in central and southern Spain of which the female normally possesses double rows of cuspules on the maxillae (Fig. 8), a character otherwise very rare in *Nemesia*. Moreover, our specimens share the double row of cuspules with the possession of PMS as also present in the type of *N. hispanica* in the BMNH (Hillyard, pers. comm.). Therefore, we conclude that this combination of characters (double row of cuspules and PMS present) is diagnostic for *N. hispanica* L. Koch in Ausserer, 1871. *N. hispanica* sensu Frade & Bacelar apparently is a different species. That Frade & Bacelar (1931, pp. 233-234, fig. 19) actually discussed an *Iberesia* species under the name of *N. hispanica*, we conclude from their description of the spine pattern on tibia III – *avec l'épine sub-apicale interne, robuste et courbée* (with a sub-apical robust and curved retrolateral spine) – in which we recognise the 'super-spine' mentioned here as indicative for *Iberesia*. The retrolateral spines on tibia III of both sexes in *N. hispanica* sensu Ausserer, 1871, are normal spines, not usually strongly built (Fig. 5).

Given the wide distribution in Spain and Portugal that Frade & Bacelar reported for their *N. hispanica* it seems likely that these authors grouped a number of different *Iberesia* species under this one species name, probably including *I. machadoi* and *I. castillana* and some, as yet, undescribed species of which we have so far seen insufficient material. Preliminary research on specimens in Simon's collection reported as *N. hispanica* by Frade & Bacelar (1931, p. 233-234) appears to support this hypothesis (Caranhac, pers. comm.), although further study is necessary to clarify this.

Finally, Frade and Bacelar (1931) may hint at another long standing problem concerning *N. hispanica*. Roewer (1942: followed by Platnick 2005) indicated that Ausserer's description of Koch's type of *N. hispanica* is based of a juvenile specimen and that Frade & Bacelar (1931) first described the adult female. This is very unlikely, however, because Ausserer reported that the spider was –*Etwas grösser und stämmiger gebaut als N. caementaria* – (somewhat larger and sturdier built than *N. caementaria*). We consider that this statement (by an expert in the field in 1871) could only have been made on the basis of an adult specimen.

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<sup>2</sup> While we were preparing the final version of this text, G. Caranhac reported unnamed Nemesiids from Algeria missing the PMS in Simon's collection (MNHN), indicating *Iberesia* is not restricted to the Iberian Peninsula.



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