



ARTÍCULO:

Lost and Found: Rediscovery of type material of some endemic species of the spider genus *Dysdera* (Araneae, Dysderidae) from the Canary islands, and its nomenclatural and taxonomic implications

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LOST AND FOUND: REDISCOVERY OF TYPE MATERIAL OF SOME ENDEMIC SPECIES OF THE SPIDER GENUS *DYSDERA* (ARANEAE, DYSDERIDAE) FROM THE CANARY ISLANDS, AND ITS NOMENCLATURE AND TAXONOMIC IMPLICATIONS

Miquel A. Arnedo

Abstract

The spider genus *Dysdera* has undergone a major process of species radiation in the volcanic archipelago of the Canary Islands, which has been the object of systematic research. The type material of some of the first described species of this group that were thought to be lost has recently been recovered. The examination of this material has revealed several instances of error in the current taxonomy of the group that required nomenclatural changes. The holotype, by monotypy, has been rediscovered for the species *D. gomerensis* Strand, 1911, while lectotypes, and in some cases paralectotypes, are proposed for *D. insulana* Simon, 1883; *D. liostethus* Simon, 1907, *D. macra* Simon, 1883 *D. nesiotes* Simon, 1907; *D. rugichelis* Simon, 1907 and *D. verneai* Simon, 1883; and paralectotypes are proposed for *D. cribellata* Simon, 1883 as well. The species *D. silvatica* Schmidt, 1981 is removed from synonymy and considered a valid species, and the *nomen nudum* status for *D. gomerensis* is removed and now it is considered a valid species. Two new synonymies are proposed: *D. propinqua* Ribera, Ferrández & Blasco 1985 is a junior synonym of *D. verneai* Simon, 1883 and *D. tibicensis* Arnedo & Ribera, 1997 is a junior synonym of *D. rugichelis* Simon, 1907. Two synonymies are transferred to different species because of misidentifications: *D. clavisetae* Wunderlich, 1991 is a junior synonymy of *D. gomerensis* and *D. obscuripes* Wunderlich, 1991 is a junior synonymy of *D. verneai*. The species *D. liostethus*, *D. propinqua*, *D. rugichelis*, *D. tibicensis*, and *D. verneai* have been incorrectly identified in former studies and their descriptions or redescriptions do actually belong to different species. Several misidentifications in the type material and some erroneously assigned localities were also detected and are discussed.

Key words: Araneae, Dysderidae, *Dysdera*, taxonomy, Nomenclature, type designations, Canary Islands.

Objetos perdidos: Redescubrimiento del material tipo de diversas especies del género de arañas *Dysdera* (Araneae, Dysderidae) endémicas de las Islas Canarias, y sus implicaciones nomenclaturales y taxonómicas

Resumen

El género de arañas *Dysdera* ha experimentado un extraordinario proceso de radiación específica en el archipiélago volcánico de las Islas Canarias, el cual ha sido objeto de investigación sistemática. El material tipo de las primeras especies descritas de este grupo que se consideraba desaparecido ha sido recientemente recuperado. El estudio de este material ha puesto de manifiesto la existencia de algunos errores en la taxonomía actual del grupo que deben ser subsanados mediante cambios nomenclaturales. Se ha redescubierto el holotipo, en base a la existencia de un único individuo entre el material tipo, de la especie *D. gomerensis* Strand, 1911; mientras que se proponen lectotipos, y en algunos casos paralectotipos para *D. insulana* Simon, 1883; *D. liostethus* Simon, 1907; *D. macra* Simon, 1883, *D. nesiotes* Simon, 1907; *D. rugichelis* Simon, 1907 and *D. verneai*, Simon, 1883; y también paralectotipos para *D. cribellata* Simon, 1883. La especie *D. silvatica* Schmidt, 1981 deja de ser una sinonimia y pasa a considerarse una especie válida y *D. gomerensis* deja de ser considerada un *nomen nudum* par ser de nuevo también una especie válida. Se proponen dos nuevas sinonimias: *D. propinqua* Ribera, Ferrández & Blasco 1985 es una sinonimia posterior de *D. verneai*, mientras que *D. tibicensis* Arnedo & Ribera, 1997 es una sinonimia posterior de *D. rugichelis*. Se transfieren dos sinonimias a especies distintas como resultado de identificaciones erróneas: *D. clavisetae* Wunderlich, 1991 es una sinonimia posterior de *D. gomerensis* y *D. obscuripes* Wunderlich, 1991 es una sinonimia posterior de *D. verneai*. Las especies *D. liostethus*, *D. propinqua*, *D. rugichelis*, *D. tibicensis* y *D. verneai* han sido incorrectamente identificadas en estudios anteriores y sus descripciones o redescripciones corresponden a especies distintas. Se han detectado también errores en la identificación de algunos especímenes del material tipo y en la asignación de algunas localidades, que son objeto de discusión.

Palabras Clave: Araneae, Dysderidae, *Dysdera*, Taxonomía, Nomenclatura, designación de tipos, Islas Canarias,

Introduction

The spider genus *Dysdera* is a conspicuous component of the Mediterranean arachnofauna. The genus includes roughly 250 species of nocturnal wandering hunters that inhabit damp but warm ground habitats and spend daylight in self-made silk cocoons under stones and bark (Cooke, 1965a, 1965b, 1968). The so-called Macaronesian archipelagoes constitute the westernmost limit of the distribution range of the genus. Although, *Dysdera* species have been reported from most of these archipelagoes, the Canary Islands, located hardly 100 Km. far from the northwestern African shores, stands up because of the remarkably high number of endemisms it harbors. As many as 43 endemic *Dysdera* species are currently known from the seven major islands that form this volcanic archipelago (Arnedo et al., 1996; 2000; Arnedo & Ribera, 1997, 1999).

The first Canarian endemic *Dysdera* species were described by the great French arachnologist Eugene Simon in two articles (Simon, 1883, 1907). His first paper on Canarian *Dysdera* was based on the material collected by Dr. Verneau in an expedition to the islands. Unfortunately, Dr. Verneau was apparently not too worried about locality data and the four newly described species of *Dysdera* (*D. cribellata* Simon, 1883, *D. insulana* Simon, 1883; *D. macra* Simon, 1883 and *D. verneau* Simon, 1883), as well as the remaining collected material, lacked any locality information other than "Canaries". However, in a subsequent trip to the Canaries on 1888 and after Simon's request, Dr. Verneau was more careful and collected additional spider specimens labeling them with more accurate locality information. As a result of this, *D. verneau* was known to inhabit the island of Gran Canaria (Simon, 1889). A new collection trip to the Canaries, this time by M. Ch. Alluaud, provided new *Dysdera* material to Simon not only to describe three new species (*D. liostethus* Simon, 1907; *D. nesiot* Simon, 1907; and *D. rugichelis* Simon, 1907) and one subspecies (*D. crocata lancero-tensis* Simon, 1907) but also to complete some of his former description with more detailed geographical information and some rectification of his original measurements.

Although additional new species and taxonomic updates were published in the following years (Ribera & Blasco, 1986; Ribera et al., 1985; Schmidt, 1973, 1981, 1982), it took almost 80 years before it was fully realized to what extent the genus *Dysdera* had diversified in the Canarian archipelago (Wunderlich, 1987, 1991). More recently, the group has been the object of a thorough taxonomic revision (Arnedo et al., 1996; 2000; Arnedo & Ribera, 1997, 1999) and a phylogenetic analysis (Arnedo et al., 2001). In the course of this taxonomic revision it was realized that most of the type material used in Simon's original descriptions had been lost, which had been already pointed out by former authors (Wunderlich, 1991).

Although Simon, like most arachnologist in those years, rarely established explicit formal types in his species' descriptions, most of the material he studied was generally deposited at the Muséum National d'Histoire Naturelle in Paris. However, although the specimens used by Simon to describe the first Canarian endemics of *Dysdera* were actually registered in the Paris Muséum records, it could not be located neither there nor in any other likely institution or private collection. It became necessary to establish neotypes for the following Simon's species: *D. rugichelis* in Arnedo et al., 1996, *D. insulana* and *D. verneau* in Arnedo & Ribera, 1997, *D. macra* in Arnedo & Ribera, 1999 and *D. nesiot* in Arnedo et al., 2000. Simon's was not the only material to have been apparently lost. The subspecies *D. insulana gomerensis* was originally described by the Norwegian arachnologist E. Strand (Strand, 1911) and subsequently elevated to species (*D. gomerensis*) by Wunderlich (1991). Surprisingly, the species category was proposed on the only grounds that no other case of subspecies of Canarian endemics was known to the author, because he could not locate Strand's material (most of Strand's types are deposited at the Museum für Naturkunde in Berlin and the Deutsches Entomologisches Institut in Eberswalde, the remaining Strand collection is deposited at the Zoologisk Museum in Oslo). Finally, Arnedo et al. (1996) proposed *D. gomerensis* to be a *nomen dubium* after they were unable to find the type material either and because of the lack of both drawings and diagnostic characters in Strand's description.

On March 2002, the type material of most of Simon's Canarian *Dysdera* species and Strand's single species was finally found in a private collection, after almost 15 years during which this material has been thought to be lost.

The study of these specimens has revealed some discrepancies and mistakes in the current taxonomy of the group, which certainly have not come as a surprise. Both Simon's and Strand's original description and drawings were in general very vague, and, in most cases, could fit more than one of the currently known species. It must be pointed out that at the time when Simon and Strand described the first Canarian *Dysdera* species, nobody could probably imagine that this group would turn up to be one of the most remarkable cases of an insular radiation in the Canaries. It is not strange that the taxonomic decisions made in subsequent revisions, some of them very pragmatic, were subject to error given the scarcity of information of the available descriptions coupled with the lack of type material for comparison.

The aim of this paper is to provide identification and additional information of the rediscovered type material and to formalize the taxonomic and nomenclatural changes that result from the study of these specimens.

Material and Methods

The recovered material included male, females and juvenile specimens kept in 12 vials with labels stating the following information (number and sex of the specimens included in brackets):

- “2656. *D. insulana* E.S. Can. Palma. Lanzarote (vern. all.)” [2 males, 2 females]
 “2665. *D. macra* E.S. Canariae (V. Chu.). 2655” (note numeration mismatch) [1 male, 1 juv.]
 “*D. cribellata* E.S. Canariae (V.) 5.720” [2 males, 3 females]
 “Museum Paris AR.3456. *Dysdera verneaui*. Canariae (V.) Det. E.S.” [2 males, 1 female]
 “Museum Paris AR.3457. *Dysdera nesiotas* E.S. Can. Palma (Allaud). Det. E.S.” [1 male, 2 females]
 “Museum Paris. AR.3458. *D. rugichelis* E.S. Can. Palma (Allaud) Det. E.S.” [2 males, 2 females]
 “Museum Paris. AR.3460. *Dysdera liostethus* E.S. Canariae” [1 male]
 “10761. *D. nesiotas* E.S. Lanzarote (all.)” [5 males, 5 females, 6 juv.]
 “*D. wollastoni* Blackwall. Ins. Salvages (Gareta). 20570” [1 male]
 “20290. *D. macra*. E.S.(?) lobos (all.)” [1 female]
 “15210. *D. crocata* C.K. Bal. Palma (H.M.)” [5 males, 5 females]
 “*Dysdera insulana* Sim. Var. 1 female”, “Gomera, Kanarin W. May leg.”, “187 Ermita de las Nieves 1.II.1908. 7242 c.st.” (Three labels included in the same vials) [1 female].

The writing and state of preservation of some labels suggest that they are original and were probably written by the own authors. This is not true for the labels with numeration beginning with the acronym AR, which clearly correspond to labels printed afterwards using modern technology. However, in all this cases it is clearly stated on the label that the determination of the material was done by E. Simon (E.S.).

Morphological characters were investigated using a Wild Heerbrugg (12-100x) dissecting microscope with fiber optic illumination. All the specimens examined in the present paper have been deposited back at the Muséum National d'Histoire Naturelle in Paris.

Abbreviations used in text:

CRBA: Centre de Recursos de Biodiversitat Animal, Universitat de Barcelona (Barcelona, Spain).

MNHN: Muséum National d'Histoire Naturelle (Paris, France).

SMF: Forschungsinstitut und Naturmuseum Senckenberg (Frankfurt, Germany).

UL: Colecciones de la Universidad de La Laguna (Tenerife, Canary Islands, Spain)

Results and Discussion

It can be safely assumed that the (V.) and (all.) abbreviations in the labels of some of the vials correspond to the collectors M. Dr. Verneau and M. Ch. Allaud because they perfectly match the species described from the material they collected. The abbreviation (vern. all.) in vial 2656 certainly refers to the names of the two

collectors and probably means that specimens collected by each of them were put together in the same vial, as inferred from the fact that Simon assigned some island locality to his species described from Verneau material using Allaud's collections. The coincidence between the collectors name and the species name, the clear similarity between the original drawings of the male bulbs and the detached bulbs that are found in each vial, and the fact that the labels make clear that the identification were made by the original authors suggest that most of the vials contain the material originally used to write the descriptions of the species. Therefore, the specimens contained in those vials can be considered as the type material (syntypes) of Simon (article 72.4.1.1 of the ICZN). Moreover, the label information unambiguously identifies one of the specimens studied as the material used in Strand's description of *D. insulana* var. *gomezensis*.

Examination of the type material revealed that in all cases where one vial contained more than one specimen, the specimens actually belonged to more than one species. When possible, lectotypes have been established to avoid the confusion derived from the former situation. Fortunately, the type material of Simon's species included in all cases males with detached bulbs which very likely were the ones used in the original illustrations. Those males were the specimens selected to be the lectotypes as recommended by the Code. The remaining syntype specimens in each vial that could be identified to be conspecific with the lectotypes were considered and labeled as paralectotypes.

Some of the vials examined did not contain type material. This is the case of the tubes numbered 20290, which contains a specimen collected by Allaud's but corresponds to a species described by Simon from Verneau's material, and 15210, which included specimens identified as the cosmopolitan species *D. crocata* C. L. Koch, 1838. The 20570 contains one male specimen identified as *D. wollastoni* Blackwall from the Selvagens Islands, which probably corresponds to the material that Simon used to propose his original *D. nesiotas* as a subspecies of *D. wollastoni* (Simon, 1912), as suggested by the collector information (Garreta).

The taxonomic and nomenclatural changes resulting from the study of the type material are formally proposed in the following section:

Family DYSDERIDAE

Genus *DYSDERA* Latreille 1804

Dysdera cribellata Simon 1883

Dysdera cribellata Simon 1883: 294-295, figs. 17 [%].

Two males paralectotypes from unknown locality in the Canary Islands; M. Dr. Verneau leg.; num. 5.720; Deposited at MNHN.- Bösenberg 1895: 7.- Reimoser 1919.- Denis 1941: 108.- Schmidt 1973: 360-361.- Arnedo et al. 1996: 243.- Arnedo & Ribera, 1999: 620-623, figs. 54-65 [% &].

D. medinae Wunderlich 1991: 299, figs. 57-60 [%&].

D. volcania sensu Ribera, Ferrández & Blasco 1985: 59-61, figs. 3E-F [%] (&, non %) [Misidentification].

COMMENTS: The studied material includes two males, one of which has a bulb detached and was probably used for the drawings of Simon's description. However, in this particular case the recommendation of the ICZN regarding the selection of the syntype specimen used in drawings to designate the lectotype could not be followed. Arnedo & Ribera (1999) examined material corresponding to three females collected by Verneau and identified by Simon (num. B-356 deposited at MNHN). Because of the collector information and the fact that the material had been identified by Simon himself, these authors considered the three females to be part of the original type material. Given that, at that time, the male material was thought to be lost, these authors designated a lectotype female from that series. The three females that accompanied the two male paralectotypes in the same vial do not correspond to this species but to *D. tilosensis* Wunderlich, 1991.

The assignment of La Palma as locality for *D. cribellata* in a Simon's subsequent paper is considered to be doubtful and mostly probably the result of a misidentification (Arnedo & Ribera, 1999). All the specimens belonging to this species with locality collection information studied to date have been collected in Tenerife.

***Dysdera gomerensis* Strand, 1911**

Dysdera insulana Simon, 1883 var. *gomerensis* Strand, 1911: 190. Holotype female by monotypy from Ermita de las Nieves, Gomera, Canary Islands; 1 Feb 1908, W. May leg.; 7242 c.st. Deposited at MNHN.

Dysdera insulana ssp. *gomerensis* Strand, 1911.- Denis, 1941: 108.- Schmidt, 1973:360-361.- Wunderlich, 1991: 67, 294.

Dysdera gomerensis Strand, 1911.- Wunderlich, 1991: 294.

D. clavisetae Wunderlich 1991: 291-292, figs. 24-27 [%, &]. Holotype female; Mirador de Frontera, El Golfo, El Hierro, 8 July 1973, J. Wunderlich leg. Not examined. Paratypes; 1 male, Mirador de Frontera, El Golfo, El Hierro, 8 July 1973, J. Wunderlich leg., num. 03842. Deposited at UL, examined. 1 male, MSS Salvador-3, El Hierro, 19 August 1987, A.L. Medina leg., num H-C3-378. Deposited at UL, examined.-Arnedo et al. 1996: 247-251, figs. 6A-D, 7A-D and 8A-B [%, &]. **Transferred synonymy.**

Dysdera liostethus sensu Arnedo, Oromí & Ribera, 2000: 272-273, not *D. liostethus* Simon, 1907 [Misidentification].

COMMENTS: This species originally described as a variety by Strand (1911) was subsequently considered first a subspecies by Denis (1941) and then a species by Wunderlich (1991), although none of these authors did actually examine the original material. In fact, Wunder-

lich proposition of species status was based on the only grounds that no other case of Canarian *Dysdera* subspecies was known to him. The apparent loss of the type material for comparisons together with the lack of drawings and diagnostic features in the original description led Arnedo et al. (1996) to recommend *D. gomerensis* as a *nomen dubium*. The rediscovery of Strand's material dismisses the *nomen dubium* status of *D. gomerensis*. Examination of the single female specimen reveals that it belongs to the same species as the material misidentified by Arnedo et al. (2000) as *D. liostethus*. Therefore, all the specimens formerly identified as *D. liostethus* and the redescription of this species by Arnedo et al. (2000) must be considered as *D. gomerensis*. Moreover, the junior synonymy of *D. clavisetae* with *D. liostethus* (Arnedo et al. 2000) has to be transferred to *D. gomerensis*.

***Dysdera insulana* Simon 1883**

Dysdera insulana Simon 1883: 294-295, fig. 19 [%] (% non &). Lectotype male (larger specimen with bulb detached) by present designation from unknown locality in the Canary Islands; M. Dr. Verneau and M. Ch. Alluaud leg.; num. 2656; Deposited at MNHN. Paralectotype male (smaller specimen with bulbs not separated) and female by present designation with same data as lectotype.- Simon 1907: 257-258, fig. A [%].- Strand 1911:190.- Reimoser 1919.- Denis 1941: 108.- Denis 1953: 2.- Schmidt 1973: 360-361.- Wunderlich 1991: 67, 296.- Arnedo et al. 1996: 271-272.- Arnedo & Ribera 1997: 220-222, figs. 14A-F, 15A-D, 16A-C.

Dysdera gibbifera sensu Wunderlich, 1991: 293-294, figs 37 and 40 [%] (&, non %) [Misidentification].

COMMENTS: The rediscovery of Simon's original material of *D. insulana* sets aside the neotype that had been previously proposed for this species (Arnedo & Ribera, 1997). One of the two females included in the type material is a misidentification and actually belongs to *D. alegranzaensis* Wunderlich, 1991. Simon (1907) transferred to *D. nesiotetes* the female material that he used in his original description of *D. insulana* (Simon, 1883) and it is very likely that the misidentified specimen corresponds to this material.

Simon assigned the island locality of *D. insulana* in a subsequent paper after study of the material collected by Alluaud. Arnedo & Ribera (1997) argued against these localities based on the fact that no records of *D. insulana* exist from these islands since Simon's works. The fact that one of the specimens from the type material turned out to be a different species that is known to occur in Lanzarote (*D. alegranzaensis*) would explain at least one of the wrong locality assignments.

***Dysdera liostethus* Simon 1907**

Dysdera liostethus Simon 1907:261, fig. 4E [%]. Lectotype male by present designation from unknown locality in the Canary Islands (see comments be-

low); unknown date; M. Ch. Alluaud; num. AR. 3460. Deposited at MNHN.

Dysdera verneaui sensu Arnedo & Ribera, 1997: 223-237, figs. 26A-I, 27A-E, 28A-C, not *D. verneaui* Simon, 1883 [Misidentification].

COMMENTS: The recovered holotype of *D. liostethus* is clearly co-specific with the specimens wrongly identified by Arnedo & Ribera (1997) as *D. verneaui*. The neotypes proposed for the later species by these authors are set aside.

According to the original description *D. liostethus* would occur in the island of Lanzarote. However, the label included in the specimen's vial gives "Canariae" as the only locality information, without mentioning any specific island. Moreover, all the studied material studied after Simon's work identified as *D. liostethus* have been collected in Gran Canaria.

***Dysdera macra* Simon 1883**

Dysdera macra Simon 1883: 295-296, fig. 18 [%] (% non &). Lectotype male by present designation from unknown locality in the Canary Islands; unknown collection date; M. Dr. Verneau leg.; num. 2665. Deposited at MNHN.- Simon 1907: 256-267, 259-260; fig. 3D [%].- Strand 1911: 189.- Reimoser, 1919: 200.- Denis, 1941: 108.- Schmidt 1973: 360-361.- Arnedo et al. 1996: 272.- Arnedo & Ribera, 1999: 639-644, figs. 124-136.

D. teneriffensis Strand 1908: 772 [&].

D. pergrada Wunderlich 1991: 305-306, figs. 83-91 [% &].

D. pseudopergrada Wunderlich 1991: 306, figs. 94-97 [% &].

D. tabaibaensis Wunderlich 1991: 308, figs. 103-107 [%].

D. teideensis Wunderlich 1991: 309-310, figs. 112-118 [% &].

COMMENTS: The neotype established by Arnedo et al. (1999) must be put aside given that the examination of the holotype confirms that both of them belong to the same species. A second specimen in the holotype's vial was identified as a juvenile of the cosmopolitan species *D. crocata* as already pointed out by Simon's himself in subsequent papers (1907).

***Dysdera nesiotetes* Simon 1907**

Dysdera wollastoni sensu Kulczynski 1899: 23-26, fig. 22-24 [%], not *Dysdera wollastoni* Blackwall 1864 [Misidentification].- Reimoser 1919: 200.- Berland & Denis 1946: 224. Wunderlich 1991: 312, fig. 129 [%]. Simon 1912: 59.

Dysdera nesiotetes Simon 1907: 260-261, fig. 4G [%]. Lectotype male (male with bulb detached) by present designation from La Palma, Canary Islands; unknown collection date; M. Ch. Alluaud leg.; num. 3457. Deposited at MNHN.- Reimoser 1919: 200.- Denis 1963: 37-38.- Schmidt 1973: 360-361.- Rambla 1978: 132-133. - Arnedo et al. 1996: 272.

Arnedo et al. 2000: 277-281, figs. 56-69 [% &].

Dysdera wollastoni nesiotetes Simon 1912: 59-60.- Denis 1941: 108.

COMMENTS: The material examined was stored in two vials, one with specimens collected in Lanzarote and the other one with specimens collected in La Palma, the two islands where Simon indicated the species was distributed. The male from La Palma is here chosen to be the lectotype since it has the bulb detached and thus is very likely the one used in the original description's drawing. The lectotype is accompanied by two additional female specimens that are not conspecific. One of them is *D. alegranzaensis*, a species so far only reported for the island of Lanzarote and islets nearby and the second female is *D. arabisenen* Arnedo et al. 1997, a species from Gran Canaria. The material collected in Lanzarote includes four males and four females of *D. nesiotetes* but also one male and one female of *D. alegranzaensis*. The remaining females and 6 juveniles could correspond to either *D. nesiotetes* or *D. alegranzaensis* since there is no characters to distinguish them. A male neotype had been proposed for *D. nesiotetes* from a series of specimens collected in the Selvagens Islands by Garreta but identified by Simon as *D. wollastoni*. After studying the material from Selvagens, Simon realized that *D. nesiotetes* was remarkably similar to *D. wollastoni* although with some marginal differences, and regarded the former species as a subspecies of the later, with the name *D. wollastoni nesiotetes*. Subsequently, Denis (1963) pointed out that Kulczynski's superb redescription of *D. wollastoni* was based on a misidentification and that it did not correspond to the original *D. wollastoni*, a junior synonymy of *D. crocata*, but to *D. nesiotetes*, since he deemed the populations of the Selvagens and Lanzarote to be the same species. In any case, the neotype established by Arnedo et al. (2000) is set aside after the recovery of the original type material. An additional vial available in the present study labeled "*D. wollastoni* Blackwall. Ins. Salvages (Gareta). 20570" contained one male of *D. nesiotetes* that probably belonged to the same lot that Simon studied in his 1912 paper.

The presence of *D. nesiotetes* in La Palma has never been corroborated by additional collections. Conversely, it is currently known that this species is relatively abundant in the island of Lanzarote and islets nearby (Alegranza, Montaña Clara and Graciosa) and the Selvagens Islands. A possible explanation to this observation would be a misidentification. Strangely enough, even though two misidentifications have actually been detected in the type material, none of them supports La Palma as locality for *D. nesiotetes*. The species *D. arabisenen* is only known from Gran Canaria, while *D. alegranzaensis* is also exclusive from Lanzarote and surrounding islets.

***Dysdera rugichelis* Simon, 1907**

Dysdera rugichelis Simon, 1907: 260-261, fig. 261 [%].

Lectotype male (larger specimen with bulb deta-

ched) by present designation from unknown locality in the Canary Islands; unknown collection date; M. Ch. Alluaud leg.; num. AR-3458. Deposited at MNHN.- Denis 1941: 108. Schmidt, 1973: 360-361.
Dysdera tibicensis Arnedo & Ribera, 1997: 226-229, figs 20A-H, 21A-D, 22A-C. Holotype male from Pinar de Tamadaba, Agaete, Gran Canaria, Canary Islands; 14 Feb 1996; MA. Arnedo, B. Emerson, R. Fragoso, C. Juan & P. Oromí leg.; num. 3049. Deposited at CRBA, examined. **New synonymy.**

COMMENTS: The vial that is considered to contain the type material of *D. rugichelis* included 2 male and 2 female specimens. The bulb of one of the males, which had been detached, perfectly matched the drawing in Simon's description. However, the remaining specimens were not conspecific. The additional male belonged to the species *D. alegranzaensis* and the two females to *D. verneaui*. Therefore, the male with detached bulb was considered to be the lectotype. It was also realized that the holotype of *D. rugichelis* is not distinguishable from the specimens of *D. tibicensis* Arnedo et al., 1997, and thus the second species must be considered a junior synonym of *D. rugichelis*.

Similarly to some of the former species, the island localities assigned by Simon to this species seem to be erroneous. According to Simon, *D. rugichelis* would be present in La Palma. Again, none of the data made available after Simon's studies support this observation, not even the misidentifications detected, which correspond to species known to inhabit different islands: *D. verneaui* is confined to Tenerife (Simon's locality is almost certainly the result of incorrect identification, see below) and *D. alegranzaensis* to Lanzarote. The fact that so many of Simon's species seem to have incorrect island locality assignment, which cannot be explained solely on the grounds of incorrect identifications, points toward a major error in the locality labeling of the material collected by M. Ch. Alluaud.

***Dysdera silvatica* Schmidt, 1981**

Dysdera silvatica Schmidt, 1981: 89-90. Holotype juvenile from Mte. del Cedro, La Gomera; ?/6/1976; G. Schmidt leg.; num. 34583. Deposited at SMF, examined.

Dysdera rugichelis sensu Arnedo & Ribera, 1997: 267-270, fig. 23A-F, 24A-D, 25A-C [% &], not *Dysdera rugichelis* Simon, 1907 [Misidentification]

Dysdera ?rugichelis sensu Wunderlich, 1987: 57, fig. 18 [%] [Misidentification].

COMMENTS: The examination of the rediscovered *D. rugichelis* type material clearly shows that the redescription of *D. rugichelis* by Arnedo et al. (1996) does not correspond to this species. The name *D. silvatica*, which was formerly considered a junior synonymy of the misidentified *D. rugichelis*, is available for the

species to which this redescription refers to. Unfortunately, the type material of *D. silvatica* is a juvenile, not an adult female as asserted by Schmidt. However, it is still possible to distinguish it from the very closely related *D. enghoffi* Arnedo et al., 1996 and *D. hirgvan* Arnedo et al., 1996 based on the leg spination pattern, remarkably reduced in *D. silvatica* in comparison to the former species.

***Dysdera verneaui* Simon, 1883**

Dysdera verneaui Simon, 1883: 296-297, fig. 19 [%].

Lectotype male (larger male with bulb detached) by present designation from unknown locality in the Canary Islands; unknown collection date; M. Dr. Verneau; num. AR-3456. Paralectotype female by present designation same data as lectotype. - Simon 1889: 302.- Simon 1907: 259, fig. 3C [%].- Reimoser, 1919.- Denis, 1941: 108.- Schmidt, 1973: 360-361.- Wunderlich, 1991: 287.

Dysdera propinqua Ribera, Ferrández & Blasco 1985: 61-63, fig. 4A-D [%].- Arnedo & Ribera, 1999: 650-654, figs. 160-172. **New synonymy.**

D. obscuripes Wunderlich 1991: 302-303, figs. 72-76 [% &]. **New synonymy.**

COMMENTS: The three specimens (2 males and 1 female) examined are thought to belong to the type material used by Simon to describe the species. However, they actually correspond to two different species. The largest male with the bulb detached exactly matches Simon's description drawing of *D. verneaui* and is proposed as lectotype. The female is conspecific and is thus considered to be a paralectotype. However, the smaller male corresponds to the species *D. tilosensis*, which has only been reported from the island of Gran Canaria so far. The later specimen could actually correspond to the material collected by Verneau in his second expedition and that Simon used to assign Gran Canaria as the distribution range of *D. verneaui* (Simon, 1889).

So far all the specimens assigned to this species have been collected exclusively in the island of Tenerife, and Simon's original suggestion of Gran Canaria as locality is almost certainly the result of the misidentification of the *D. tilosensis* specimens.

As commented in the introduction, the Canarian species of the genus *Dysdera* have recently been object of a phylogenetic analysis (Arnedo et al., 2001), which is directly affected by some of the nomenclatural changes proposed in the current paper. In order to facilitate the conversion of the former species names used in this phylogenetic analysis with the valid names after the present revision, a summary of the nomenclatural changes is provided in table I. A summary of the endemic *Dysdera* species currently known from each Canarian island is shown in table II.

Table I
Summary of the species names used in Arnedo et al. (2001) phylogenetic analysis of the Canarian *Dysdera* species with the valid names of these species after the current revision.

Species names used in Arnedo et al. (2001)	Valid species names after revision
<i>D. cribellata</i> Simon, 1883	<i>D. cribellata</i> Simon, 1883
<i>D. liostethus</i> Simon, 1907	<i>D. gomerensis</i> Strand, 1911
<i>D. insulana</i> Simon, 1883	<i>D. insulana</i> Simon, 1883
<i>D. verneai</i> Simon, 1883	<i>D. liostethus</i> Simon, 1907
<i>D. macra</i> Simon, 1883	<i>D. macra</i> Simon, 1883
<i>D. nesiotetes</i> Simon, 1907	<i>D. nesiotetes</i> Simon, 1907
<i>D. tibiçena</i> Arnedo & Ribera, 1997	<i>D. rugichelis</i> Simon, 1907
<i>D. rugichelis</i> Simon, 1907	<i>D. silvatica</i> Schmidt, 1981
<i>D. propinqua</i> Ribera et al., 1985	<i>D. verneai</i> Simon, 1883

Table II
List of endemic *Dysdera* species currently known from each Canarian island

Fuerteventura	Lanzarote	Gran Canaria	Tenerife	La Gomera	La Palma	El Hierro
<i>D. lancerotensis</i>	<i>D. alegranzaensis</i>	<i>D. andamanae</i>	<i>D. ambulotenta</i>	<i>D. calderensis</i>	<i>D. calderensis</i>	<i>D. gomerensis</i>
<i>D. longa</i>	<i>D. lancerotensis</i>	<i>D. arabisenen</i>	<i>D. brevisetae</i>	<i>D. enghoffi</i>	<i>D. ratonensis</i>	<i>D. orahan</i>
<i>D. spinidorsum</i>	<i>D. nesiotetes</i>	<i>D. bandamae</i>	<i>D. brevispina</i>	<i>D. hirguan</i>	<i>D. silvatica</i>	<i>D. silvatica</i>
<i>D. sanborondon</i>		<i>D. iguanensis</i>	<i>D. chioensis</i>	<i>D. levipes</i>		
		<i>D. insulana</i>	<i>D. cribellata</i>	<i>D. gomerensis</i>		
		<i>D. levipes</i>	<i>D. hernandezii</i>	<i>D. orahan</i>		
		<i>D. liostethus</i>	<i>D. gollumi</i>	<i>D. ramblae</i>		
		<i>D. paucispinosa</i>	<i>D. curvisetae</i>	<i>D. silvatica</i>		
		<i>D. rugichelis</i>	<i>D. esquiveli</i>			
		<i>D. tilosensis</i>	<i>D. gibiffera</i>			
		<i>D. yguanirae</i>	<i>D. guayota</i>			
			<i>D. iguanensis</i>			
			<i>D. insulana</i>			
			<i>D. labradaensis</i>			
			<i>D. levipes</i>			
			<i>D. macra</i>			
			<i>D. minutissima</i>			
			<i>D. montanetensis</i>			
			<i>D. unguimmanis</i>			
			<i>D. verneai</i>			
			<i>D. volcania</i>			
4	3	11	21	8	3	3

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References

- ARNEDO, M. A., P. OROMÍ & C. RIBERA 1996. Radiation of the genus *Dysdera* (Araneae, Haplogynae, Dysderidae) in the Canary Islands: the Western Islands. *Zoologica Scripta*, **25**: 241-274.
- ARNEDO, M. A., P. OROMÍ & C. RIBERA 2000. Systematics of the genus *Dysdera* (Araneae, Dysderidae) in the Eastern Canaries. *Journal of Arachnology*, **28**: 261-292.
- ARNEDO, M. A., P. OROMÍ & C. RIBERA 2001. Radiation of the spider genus *Dysdera* (Araneae, Dysderidae) in the Canary Islands: Cladistic assessment based on multiple data sets. *Cladistics*, **17**: 313-353.
- ARNEDO, M. A. & C. RIBERA 1997. Radiation of the genus *Dysdera* (Araneae, Haplogynae, Dysderidae) in the Canary Islands: The island of Gran Canaria. *Zoologica Scripta*, **26**: 205-243.
- ARNEDO, M. A. & C. RIBERA 1999. Radiation of the genus *Dysdera* (Araneae, Dysderidae) in the Canary Islands: The island of Tenerife. *Journal of Arachnology*, **27**: 604-662.
- COOKE, J. A. L. 1965a. A contribution to the biology of the British spiders belonging to the genus *Dysdera*. *Oikos*, **16**: 20-25.
- COOKE, J. A. L. 1965b. Spider Genus *Dysdera* (Araneae, Dysderidae). *Nature*, **205**: 1027-1028.
- COOKE, J. A. L. 1968. Factors affecting the distribution of some spiders of the genus *Dysdera* (Araneae, Dysderidae). *Entomologist's monthly magazine*, **103**: 221-225.
- RIBERA, C. & A. BLASCO 1986. Aranéidos cavernícolas de Canarias I. *Vieraea*, **16**: 41-48.
- RIBERA, C., M. A. FERRÁNDEZ & A. BLASCO 1985. Aranéidos cavernícolas de Canarias II. *Mém. Biospéol.*, **12**: 51-66.
- SCHMIDT, G. 1973. Zur Spinnenfauna von Gran Canaria. *Zool. Beitr.*, **19**: 347-392.
- SCHMIDT, G. 1981. Zur Spinnen-fauna von La Gomera. *Zool. Beitr.*, **27**: 85-107.
- SCHMIDT, G. 1982. Zur Spinnen-fauna von La Palma. *Zool. Beitr.*, **27**: 393-414.
- SIMON, E. 1883. Études Arachnologiques XIV Mè., materiaux pour servir a la faune arachnologique des îles de l'Océan Atlantique. *Ann. Soc. ent. Fr.*, **6**: 294-298.
- SIMON, E. 1889. Liste des arachnides recueillis aux îles Canaries, en 1888, par M. le Dr. Verneau, Liste des arachnides recueillis aux îles Canaries, en 1888, par M. le Dr. Verneau. *Bull. Soc. zool. Fr.*, **14**: 300-305.
- SIMON, E. 1907. Étude sur les Araignées de la sous-section des Haplogynes. *Ann. Soc. ent. Belg.*, **51**: 246-264.
- SIMON, E. 1912. Arachnides recueillis par M.L. Garreta à l'île Grande-Salvage. *Bull. Soc. ent. Fr.*, **2**: 59-61.
- STRAND, E. 1911. Arachniden von der Kanarischen Insel Gomera, gesammelt von Herrn Prof. Dr. W. May. *Arcn. Naturg.*, **77**(1): 189-201.
- WUNDERLICH, J. 1987. *Die Spinnen der Kanarischen Inseln und Madeiras*. Taxon. Ecol., 1: 1-435.
- WUNDERLICH, J. 1991. Die Spinnen-fauna der Makaronesischen Inseln. *Beitr. Araneol.*, **1**: 1-619.