

Dyscia senecai sp. n. from Libya,
with notes on some other N. African *Dyscia* species
(Geometridae, Ennominae)

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Summary

Dyscia senecai sp. n., from the Gharian, Libya, is described in the subgenus *Warneckeella* WEHRLI. *D. plebejaria* OB. and *D. nelvaria* OB. are conspecific and at most represent respectively the western and eastern Algerian subspecies. *Dyscia lentiscaria* DONZEL and *D. l. agacles* OB. male and female genitalia are compared for the first time.

Résumé

Dyscia senecai sp. n. du Gharian en Libye est décrite et figurée, appartenant au sous-genre *Warneckeella* WEHRLI. *Dyscia plebejaria* OB. et *nelvaria* OB. sont conspécifiques ; elles sont au plus sous-espèces caractérisant les formes d'une seule espèce respectivement des provinces occidentales (Oran) et orientales (Constantine) de l'Algérie. Les armures mâles et femelles de *D. lentiscaria* DONZEL et de *D. l. agacles* OB. sont figurées et comparées pour la première fois.

Zusammenfassung

Dyscia senecai sp. n. des Gharian, Libyen, wird beschrieben und abgebildet. Sie gehört zur Untergattung *Warneckeella* WEHRLI. *Dyscia plebejaria* OBTHR. und *nelvaria* OBTHR. sind conspezifisch ; sie stellen die westliche (Oran) und östliche (Constantine) Unterart einer Art in Algerien dar. Das männliche und weibliche Genitalapparat von *D. lentiscaria* DONZEL und *D. l. agacles* OBTHR. werden zum ersten Mal verglichen und abgebildet.

Introduction

Mr. Uffe SENECA NIELSEN collected Heterocera in Wadi el Hira in the district of Gharian, south of Tripoli, Libya, between December 1982 and June 1983. I am obliged to Dr. O. KARSHOLT of the University Museum, Copenhagen, for the opportunity to study these moths.

While most were species already known from Northwest Africa there were two *Dyscia* species, of which only one was a well-known species, *D. nobiliaria* BANG-HAAS 1907 (= *nobiliaria* auctm). The other *Dyscia* species, which was represented by six large specimens in fair condition, proved, after due comparison with other N. W. African species, to be a new species in the subgenus *Warneckeella* WEHRLI 1950, and is described below.

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Dyscia senecai sp. n. (figs. 1, 4, 12, 15)

Dyscia plebejaria KRÜGER, 1939, nec OBERTHÜR, 1910.

HOLOTYPE : ♂, Libya, Gharian, Wadi el Hira, III.1983, Uffe SENECA, in coll. Zoological Museum, Copenhagen University.

PARATYPES : all same locality and collector as holotype ; 1 ♂, same date ; 1 ♀, Prep. WCM.10(L), same date ; 1 ♂, Prep. WCM.10, V.1983, same depository ; also 1 ♂, 1 ♀, both V.1983, in coll. WILTSHIRE, in British Museum (Natural History), London.

Not examined by author : Libya, Cyrenaica, 1 ♀, Wadi Zarzur, 15.VI.1936, leg. KRÜGER : see KRÜGER, 1939 : 357 ; plate 17.

WINGSPAN : 32-35 mm, or up to 38 mm including the female from Cyrenaica, which may be a premature generation, 1 moth appearing in late autumn. A true gen. 2 of *D. senecai*, comparable with the small examples of *plebejaria* OBERTHÜR 1910 taken by POWELL in August and September seems not yet to have been taken. On average, larger than *D. plebejaria*.

HABITUS DIAGNOSIS : paler than *D. plebejaria* and *D. nelvaria* OBERTHÜR 1914, with postmedian dots more strongly marked on both forewing and hindwing, and parallel to, and closer to the termen. Hindwing coloured as in typical *plebejaria* rather than as in *nelvaria*.

Differing genitaliter from both these forms, with thinner, finger-like costal process of valve, and so belonging not to subg. *Iberafrina* but to *Warneckeella* WEHRLI 1950, and with longer, more tapering aedeagus. From other *Warneckeella* species it may be distinguished by its lacking the large sub-tornal forewing spots of *D. (W.) holli* OBERTHÜR 1910 ; *D. (W.) dagestana* WEHRLI 1933 is orange-brown, rather as in *D. (I.) plebejaria* ; from the variably coloured *D. (W.) malatyana* WEHRLI, 1933, the new species differs in its tapering aedeagus, terminating in a spatulate beak and lacking the four parallel ridges of *malatyana* ; the aedeagus lacks the free dorsal, lateral process of *D. holli*, and the costal process is wider-based and the gnathos more pointed than in *holli*. The female sterigma (fig. 4) is more sclerotised

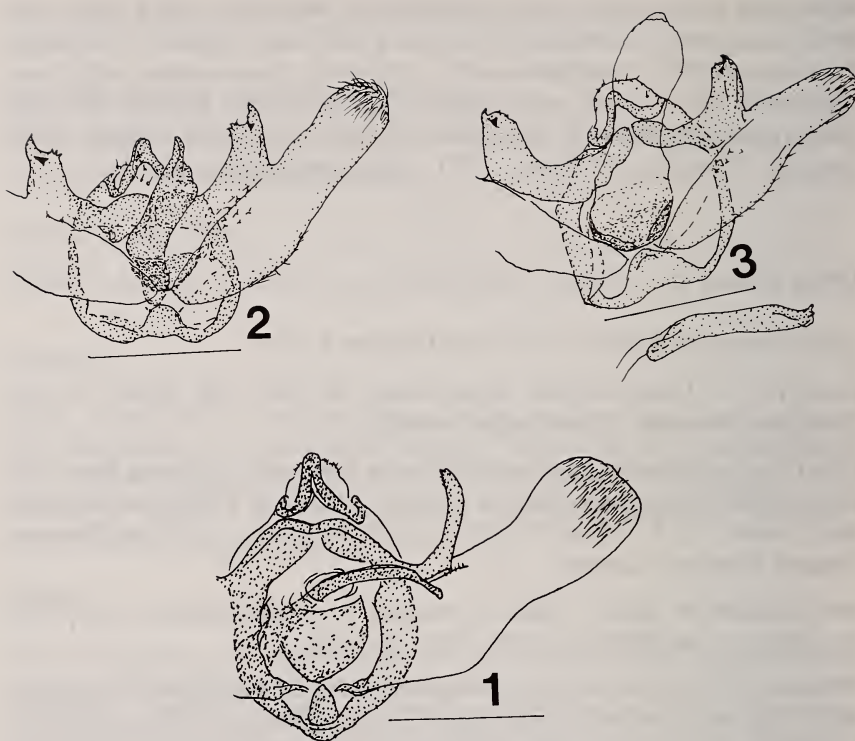


Fig. 1-3. Male genitalia of *Dyscia* spp., omitting all/part of left valve. 1 : *D. senecai* sp. n. (Prep. WCM.10), Libya ; 2 : *D. plebejaria* (Prep. WBM.520), W. Algeria ; 3 : *D. p. nelvaria* (Prep. WBM.558), E. Algeria. The aedeagus is separated in fig. 3.

and lip-like than in *dagestana* (fig. 5) or *holli duponti* (fig. 6). The Cyrenaican *D. galactaria* TURATI, 1934 is milk-white with almost unmarked forewing ; its genitalia are unknown.

DESCRIPTION :

Antenna, of both sexes brown with white scape ; of ♂, bipectinate ; of ♀, appearing simple but under magnification slightly serrate, with short cilia (cf. *plebejaria*, flagellate with short cilia).

Vertex of head, white ; palp, brown ; proboscis, lacking ; breast, with long, light brown hairs ; feet, light brown. Thorax and abdomen, whitish-brown.

Forewing, uniformly light orange-brown or paler yellow brown, but slightly whitish-tinged at base of costa ; termen, fine fuscous, fringe, darker rosy grey. Under magnification, a slight sprinkling of fuscous scales appear, strongest

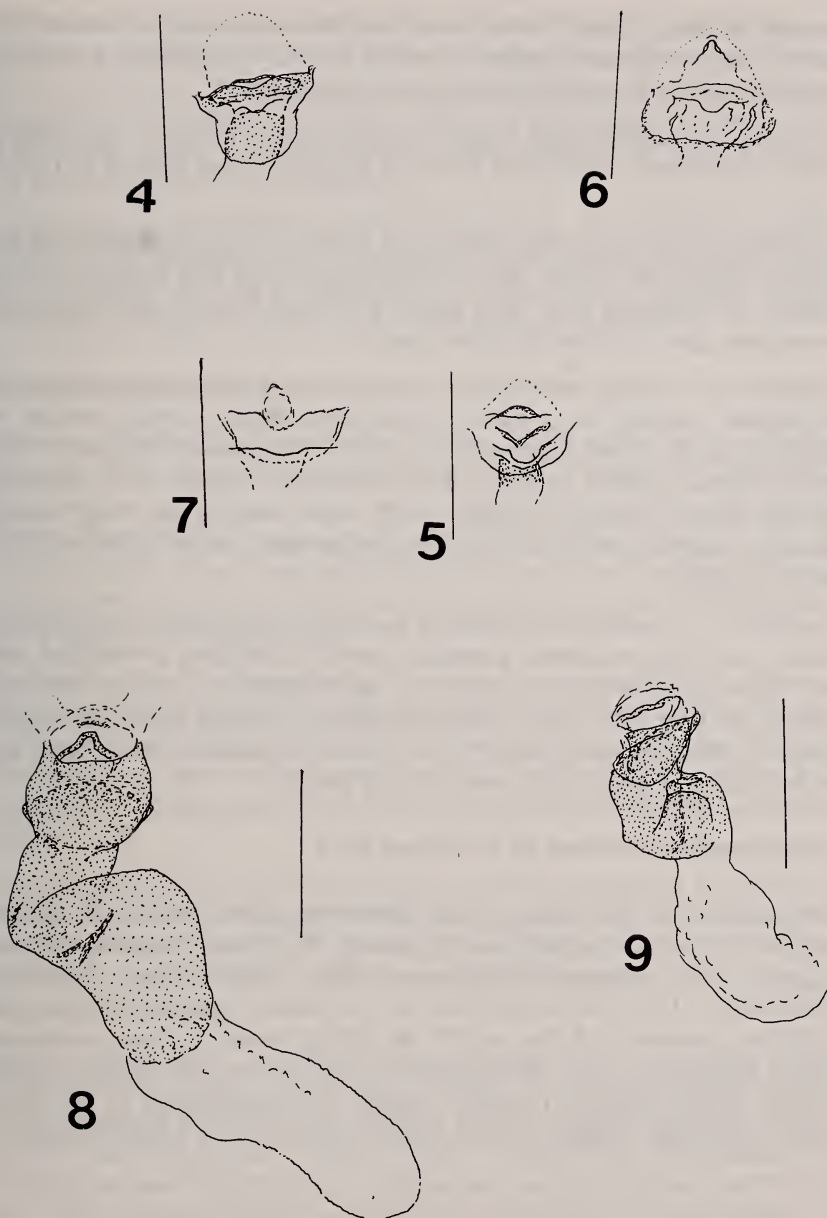


Fig. 4-9. Female genitalia of *Dyscia* spp., 4-7 : sterigma and ostium only ; 8-9 : sterigma and corpus bursae ; 4 : *D. senecai* sp. n. (Prep. WCM.10-L), Libya ; 5 : *D. dagestana*? (Prep. 2584), (N. Arabia) ; 6 : *D. holli duponti* (Prep. WBM.522), Algeria ; 7 : *D. plebejaria* (Prep. WBM.523), Algeria ; 8 : *D. lentiscaria agacles* (Prep. WBM.562), Algeria ; 9 : *D. l. lentiscaria* (Prep. WBM.563), S. France.

towards the hind margin. Of the cross-lines, the antemedian is obsolete, the postmedian, curved and parallel to termen but only traceable by a series of fuscous spots on the nervures, and one on the costa.

Hindwing, the anterior half whitish, the rest orange brown or pale yellow brown ; discal spot, less oblong than that of forewing and at most $1/3$ of its size.

Undersides, of forewing, silky pale yellow, with lines as on upperside, but the oblong discal spot smaller than on upperside ; costa and termen, orange-tinged ; of hindwing, pure silky white, with faint fuscous discal spot and sometimes faint, postmedian neural spots.

Genitalia of ♂ : uncus, membranous, rudimentary ; gnathos, narrow, strongly sclerotised, tapering to a short, round-tipped finger ; costal process, a slender, slightly curved finger with one small distal spine on its apex ; valve form, medially slightly narrower than basally and distally, with smoothly curving ventral border ; aedeagus, with short caecum but long, hardly tapering, slightly curved, and slightly spatulate and rounded distally, otherwise unmodified.

Genitalia of ♀ : posterior apophyses at least three times longer than anterior ; ostium with two transverse, gracefully curved, sclerotised postvaginal and antevaginal lamellae which overlap each other like lips of a mouth, the latter lamella merging into a less sclerotised funnel through which the barrel-shaped colliculum can be clearly seen. Bursa copulationis short, weak and without signum, as in most species of the genus.

Zoogeographical interest of *D. senecai* sp. n.

The majority of the Wadi el Hira Heterocera taken by Mr. U. SENECA NIELSEN were species already known from N. W. Africa, which is considered a part of the Atlanto-Mediterranean (West Mediterranean) "centre of distribution". Libya has proved less rich in endemics than N. W. Africa. The common elements of Libya and N. W. Africa belong to three zoogeographical categories : West Mediterranean, West Eremic and Saharo-Arabian and/or Saharo-Sindian. However, subject to reexamination of all *Dyscia* forms inhabiting Tunisia, the new species seems to be a Libyan endemic.

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Notes on other N. W. African *Dyscia* species

As a precaution, before describing as new the above species, all comparable *Dyscia* species from N. W. Africa and the Middle East were studied. I was

fortunate in having at my disposal the rich material from Algeria from the OBERTHÜR and ROTHSCILD collections, including syntypes taken by POWELL, NELVA, FAROULT, Walter ROTHSCILD and Karl JORDAN. I was less fortunate in trying to see TURATI's Cyrenaican types or in obtaining topotypes of them. I have been unable to learn whether a single example, let alone a male, of *D. galactaria* TURATI is in existence.

Little seems to be known of Tunisian Geometridae. That country is therefore omitted from the Table 1 which shows the known chorology of N. W. African *Dyscia* species. All *Dyscia* species were, of course, revised briefly in WEHRLI, 1950 and in detail by him in SEITZ 1953 supp. 4 : 657-68.

Complex *plebejaria-nelvaria*

Because of KRÜGER's determination of one Libyan species as *D. plebejaria*, this and *nelvaria* OBTHR. attracted special interest. I studied 172 examples of *D. plebejaria* and 76 of *nelvaria*, in the British Museum (Nat. History). Dr. WEHRLI's slides of *D. plebejaria* and *nelvaria* were kindly loaned to me by Dr. STÜNING of the Bonn Zoological Museum, together with relevant photocopies of labels of types. Studying these leads me to propose a modification of the status of two Algerian taxa.

I consider that *D. plebejaria* and *D. nelvaria* are not specifically distinct as supposed by their author OBERTHÜR and their reviser WEHRLI, but at the most subspecies characterising respectively the west and east of the Algerian steppe hinterland ; at more central points, such as Guelt-es-Stel, the species has a majority of *plebejaria*-like forms with ambiguous morphology as detailed below.

This was also the opinion of the late L. B. PROUT expressed in pencil on a pinned label after examining the British Museum material, including the OBERTHÜR and ROTHSCILD collections, when fresher, and of Dr. STÜNING who examined the WEHRLI types and genitalic preparations before loaning them to me recently.

In the long series of *D. plebejaria* and *nelvaria*, the most constant habitus character of the latter is the more uniformly greyish brown hindwing with more complete cross-line separating it from *D. plebejaria* with hindwing white costad and orange-brown elsewhere. OBERTHÜR in his original, brief description, said the hindwing upper surface was greyish black and crossed by a fairly straight black line with little arrowheads all white-edged, and passing close to the discal spot. He said the forewing upperside cross-line was "moniliforme" and parallel to the termen, more rounded and closer to the discal spot than in *plebejaria*. This type of *nelvaria* was taken by Nelva near Batna 1.IV.1913 and figured by CULOT as type in his Noctuelles et

Géomètres d'Europe pl. 68, f. 1362 ; its genitalia are on WEHRLI's prep. 7391.

OBERTHÜR's criteria now appear exaggerated, though one must allow for the lightening of darker shades with the passage of time, 70-80 years since capture.

WEHRLI's genitalic criteria were as follows (1953, in SEITZ Suppl. 4) : "Der ♂ Kopulationsapparat sehr ähnlich dem von *plebejaria* aber das ganze Organ ist erheblich grösser, der Endschnabel der costale Fortsätze nur halb so lang und gegen die Basis nur mit einem Zahn (*plebejaria* mit mehreren Zähnen), der Aedeagus dicker, der Blindsack kürzer, der Sakkus weniger tief konkav".

New genitalia preparations were made from material in the British Museum (Nat. History) showing the habitus characters already mentioned ; the *nelvaria* series is nearly entirely from Batna and Lambèse leg. NELVA :

Costal process of males leg. NELVA nr. Batna and Lambèse :

(a) Prep. WBM.558 (fig. 3) with small hook and only one smaller spine at base ;

(b) WBM.555 with a larger hook and with several smaller spines at base ; nor is it larger than the *plebejaria* male genitalia. Month not mentioned.

(c) Prep. WBM.566 from Lambèse is exceptional, being caught in September by POWELL ; its habitus is paler and somewhat *plebejaria*-like, but its costal process had the short hook of *nelvaria*, combined with several spines at the base, as in *plebejaria*.

(d) An exceptional male from Biskra, S. E. Algeria (leg. HOLL) : Perhaps too far south to be considered a topotype of *D. nelvaria* ; its habitus is *plebejaria*-like. Wingspan : 28 mm. Month not stated. ex. coll. ROTHCHILD. Prep. WBM.557 : Overall size of genitalia, large, as in 555 & 558. Saccus deeply concave. Costal process *plebejaria*-like, with fairly large hook and a number of small spines on the base.

Habitus and genitalia of Guelt-es-Stel males, leg. FAROULT :

(a) Prep. WBM.516 (fig. 13) : Forewing, deep red-brown ; hindwing whitish and reddish : caught 18.IV.1912. Costal process with small hook and one small spine at the base ;

(b) Prep. WBM.517. Habitus similar to 516 ; caught 2.V.1913. Costal process hook rather small, but with several small spines at the base. The habitus is thus that of *plebejaria*, the genitalia, only partly so.

(c) WEHRLI's Preparation 7374, diagnosed as *D. plebejaria*, was also Guelt-es-Stel (3/4.1914, leg. DOMENECH JOSEPH), it did not appear to WEHRLI as morphologically intermediate.

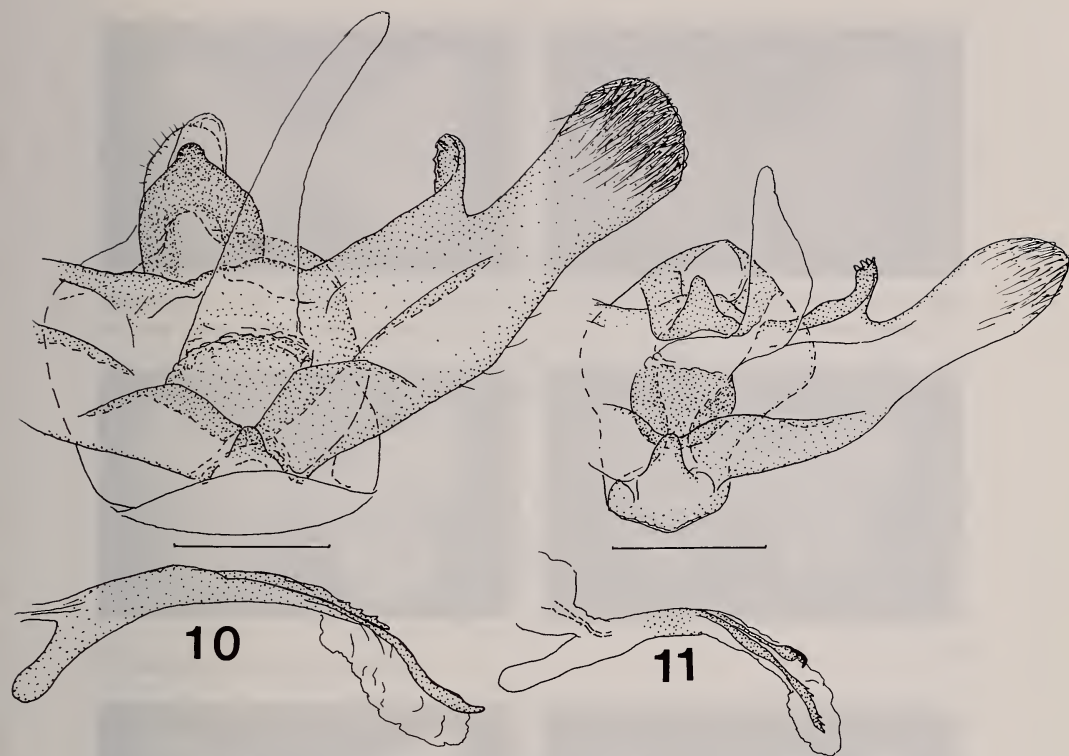


Fig. 10-11 : Male genitalia of *Dyscia* spp., omitting left valve, with aedeagus separated ; 10 : *D. l. agacles* (Prep. WBM.562) Algeria ; 11 : *D. l. lentiscaria* (Prep. WBM.528), Spain.

These specimens, then, have typical *plebejaria* habitus but male genitalia of two, somewhat intermediate, closer to *nelvaria* more than *plebejaria*. If a cline exists between the eastern form *nelvaria* and the western *plebejaria*, this morphology is only to be expected at a point like Guelt-es-Stel in Central Algeria. All three examples are 1st generation.

Costal process of topotypical *D. plebejaria* males from W. Algeria : Only two 1st generation, one from Aflou and also the WEHRLI Prep. 7373 (Sebdou, leg. CODET, 18.II.1881) ; most of the BMNH males are generation 2 and of small size, leg. POWELL :

(a) Prep. WBM.519 (El Aouedje, 27/28.VIII.1907) wingspan : 26 mm ex coll. OBERTHÜR. Overall much smaller than the two *nelvaria* syntypes WBM.555 & 558 ; also smaller than the Guelt-es-Stel intermediate gen. 1 form WBM.517. Costal process with large hook and several small spines at base, as described by WEHRLI for *plebejaria*.



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- Fig. 12. *Dyscia senecai* sp. n. Holotype ♂ (Libya).
 Fig. 13. *Dyscia plebejaria* OBTHR. ♂ (Algeria) (Prep. WBM.516).
 Fig. 14. *Dyscia p. nelvaria* OBTHR. ♂ (E. Algeria) comb. N.
 Fig. 15. *Dyscia holli duponti* THIERRY-M. ♀ (Algeria) (Prep. WBM.522).
 Fig. 16. *Dyscia holli duponti* THIERRY-M. ♀ mislabelled Cape Colony Annshaw.
 Fig. 17. *Dyscia penulataria combustaria* OBTHR ♂ (Algeria, Guelt-es-Stel).

(b) Prep. WBM.520 (Fig. 2) (Aflou, n. of Laghouat, i.e. on slopes of Saharan Atlas range) Month not stated. Wingspan 30 mm : so presumably generation 1. Rather paler than typical. (ex coll. PROUT). Overall much larger than WBM.519, of same size as 555 & 558. Costal process with large hook and three well developed spines at the base.

Saccus slightly concave but more so than in 555 and 558. The third of WEHRLI's criteria, the aedeagus-form, appears equally variable in individual preparations, as the small, thin aedeagus of fig. 3 (topotype *D. nelvaria*) disagrees with WEHRLI's description "thicker". His fourth criterion, the saccus-form, is not appreciable in figs. 2 and 3 ; it depends much on pressure on the valves, gnathos and vinculum, and depth of medium, also on manipulation in preparation ; the differences these may cause are striking between our figs. 8 and 9, which are two different races of *D. lentiscaria* DONZEL discussed below.

One concludes, for *D. plebejaria* and *nelvaria*, that the larger overall size is rather the character of the larger, first generation, and this may be the case also of aedeagus differences ; and that the costal process armature varies individually.

Complex *lentiscaria-agacles*

WEHRLI (1953 : 668) admitted that he had not examined the genitalia of the subspecies *agacles* OBERTHÜR 1923 of the European *D. lentiscaria* DONZEL, 1837. It is therefore interesting to show the genitalic differences between the two subspecies. These are more marked and constant than those between *D. plebejaria* and *nelvaria*, but still do not, in my opinion, justify considering *agacles* as more than a good subspecies of generally larger size.

In *D. l. agacles* males, the whole genitalia are larger, and in the aedeagus the longer of the two distal processes lacks the spines of that of European *lentiscaria* ; in the females, while both subspecies share a similarly sclerotised, wide but zigzagging ductus bursae (which may well be a subgeneric character as it is weaker in other *Dyscia* females I have examined), the Algerian race is not only generally much larger in size, but the lamella postvaginalis projects caudad more than that of *lentiscaria* (fig. 9).

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Chorology of N. W. African *Dyscia* spp.

Morocco is richest in members of the genus, having seven, of which two do not occur in Algeria : *D. atlantica* REISSER, 1933 and *D. rungsi* HERBULOT, 1981.

In Algeria, where five species occur, Guelt-es-Stel, on the Central Plateau, harbours four of them, but surprisingly not the fifth, *D. nobilaria*, although this is the widest distributed of the purely African *Dyscia*; its best locality in Algeria is Bou Saada.

Table 1 shows the chorology of these seven species.

Table 1
N. African *Dyscia* species and subspecies' chorology,
omitting European subspecies

	Libya	Algeria	Morocco	Spain	Portugal	France
D. (?D.) <i>galactaria</i>	x	-	-	-	-	-
D. (W.) <i>senecai</i>	x	-	-	-	-	-
D. (W.) <i>holli</i>	-	-	x	-	-	-
D. (W.) <i>h. duponti</i>	-	x	x	-	-	-
D. (I.) <i>penulataria</i>	-	-	x	x	x	x
D. (I.) <i>p. combustaria</i>	-	x	-	-	-	-
D. (I.) <i>plebejaria</i>	-	x	x	-	-	-
D. (I.) <i>pl. nelvaria</i>	-	x	-	-	-	-
D. (Z.) <i>nobilaria</i>	x	x	x	-	-	-
D. (C.) <i>atlantica</i>	-	-	x	-	-	-
D. (C.) <i>rungsi</i>	-	-	x	-	-	-
D. (R.) <i>lentiscaria</i>	-	-	-	x	x	x
D. (R.) <i>l. agacles</i>	-	x	x	-	-	-

The total range of the genus *Dyscia* is from S. W. Europe through Palaearctic Eurasia to Central Asia. Neither JANSE, 1932 nor PINHEY, 1949 confirm the supposed presence of a *Dyscia* species in S. Africa mentioned by WEHRLI following PROUT in SEITZ 1953 : 657 ; the specimen seen by PROUT must have been mislabelled (fig. 16).

Table 1 also indicates the subgenera proposed by WEHRLI. The genus itself is so characteristic that it is to be hoped that future authors will not elevate these subgenera into genera, as is happening to *Gnophos*. Ecologically it seems to favour steppes and moors, and so is not an Arboreal element. There is no Pan-Eremic species, and it does not appear in tropical steppes, being truly Palaearctic.

Of the N. W. African species the widest-ranging are *penulataria* and *lentiscaria* (Algeria to S. France). Eastwards from Cyrenaica there is a gap, partly occupied by *Xenobiston casta* WARREN & ROTHCHILD, 1903, before several species represent the genus in Arabia and the Middle East. *Xenobiston* is a close but distinct genus.

Little has been published of the biology of N. African *Dyscia* spp. except of those that also occur in Europe : the foodplant of *D. penulataria* is *Doryc-*

nium, and that of *D. lentiscaria*, *Helianthemum*. However, if one looks further in the genus, a fair degree of euryphagy may be noted : in N. European moors, of course, *D. fagaria* THUNBERG, 1784 feeding on *Calluna* and *Erica* ; *D. emucidaria* HÜBNER, 1816 (*) a S. French (?) endemic on *Artemisia* ; and I have observed the larva of the endemic Cyprian *D. simplicaria* Rebel 1939 on *Thymus*. Probably in N. W. Africa a search at night in spring on *Artemisia herba-alba* or some other dwarf shrub would provide information to fill the lacuna.

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(*) According to D. LUCAS in *Bull. Soc. Linn. Lyon* 1950, 19 : 94, is a synonym to *fagaria* THUNBG.

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