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Revision of the Palearctic Species of the Genus *Victoria* Warren, 1897

(Lepidoptera, Geometridae)

By **Axel Hausmann**

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Morphological and phenological data on six palearctic *Victoria* species are given. One of them, *Victoria eremita*, spec. nov., is described as new from Yotvata, Southern Israel. The specific status of *Victoria omanensis* Wiltshire, 1980, comb. nov., stat. nov. (described as *Celidomphax omanensis*), sometimes treated as synonym to *Victoria plantei* Herbulot, 1976, is confirmed.

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Introduction

Following Wiltshire (1986 und 1990), there are known only a few (9) specimens of the palearctic species belonging to the genus *Victoria*, which is distributed mainly in Africa:

Victoria plantei Herbulot, 1976 (nec 1977 in Wiltshire 1990): Only the type material from Israel (4 ♀♀). Further 3 specimens from Saudi Arabia characterized as "doubtful conspecific" (1 ♂, 2 ♀♀; see Wiltshire 1990).

Victoria omanensis Wiltshire, 1980: Only the type material from the Oman (2 ♀♀), described as "*Celidomphax*".

The material collected in the project "The Lepidoptera of Israel - a study of the taxonomy and distribution of the entire fauna with the aim of determining conservation needs" contains 638 *Victoria* specimens (from Israel), representing the main subject of this paper.

Acknowledgements

The author wishes to express his gratitude to Mr. C. Herbulot, Paris, and Mr. E. P. Wiltshire C.B.E., Berks U.K., for their scientific correspondence. Thanks are also due to Mrs. Albrecht, ZSM Munich, for revising the manuscript.

Victoria plantei Herbulot, 1976

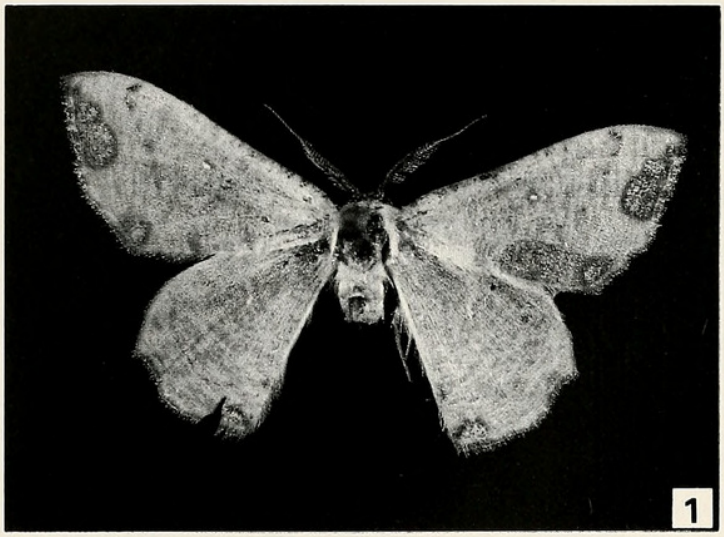
(Fig. 1)

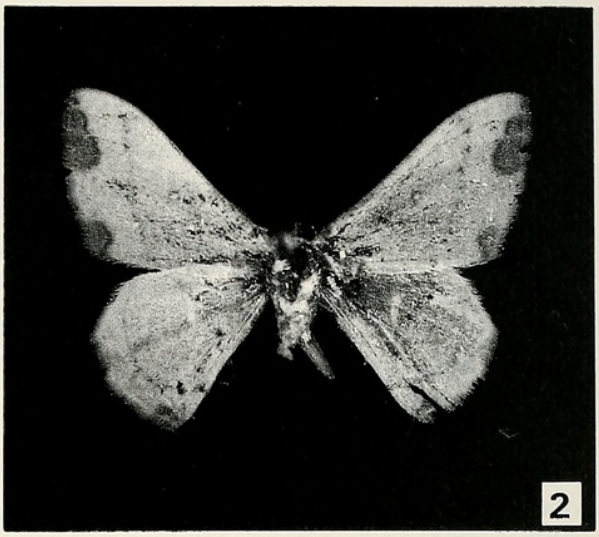
Herbulot, 1976: 290.

Type locality: Central Israel, Sodom (Dead Sea).

Types. 4 ♀♀ (Holotype and Paratypes), in coll. Herbulot, Paris.

Unfortunately the female genitalia do not seem to offer significant differential structures. A figure (though not being very exact) of the genitalia of one of the four *V. plantei* types, sent to the author by





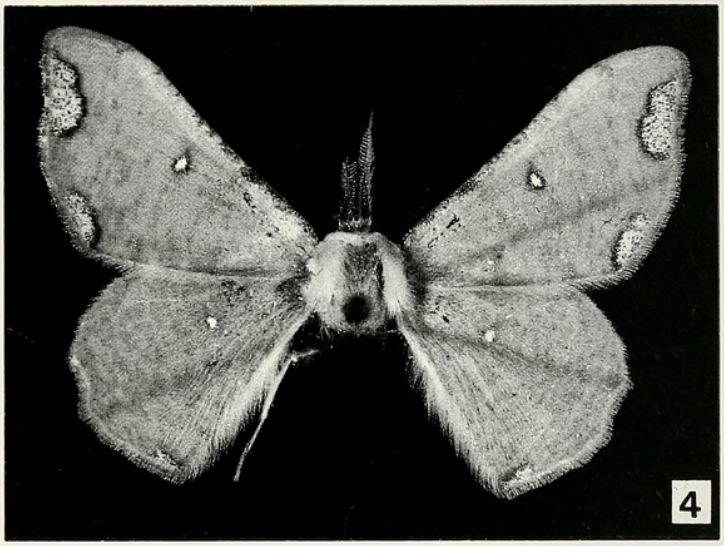


Fig. 1. *Victoria plantei* Herbulot, 1976, ♂, Israel.
Fig. 2. *Victoria eremita*, spec. nov., ♂, Israel, holotypus.
Fig. 3. *Victoria eremita*, spec. nov., ♂, Israel, specimen caught in December.
Fig. 4. *Victoria sematoperas* Prout, 1916, (?), ♂, Sudan.

Mr. Herbulot, resembles somewhat to the genitalia of the females caught at Yotvata, Southern Israel (Figs. 13, 14).

From the Dead Sea region a comprehensive number of moths can be found in our collection. These samples from Enot Zuqim, En Gedi and Neot Hakikkar (very near the type locality of *V. plantei* Herb.) contain only four males from En Gedi (31.3.1989) (in coll. Zoologische Staatssammlung München "ZSM").

The mean of the wing span of the En Gedi specimens is 26,0 mm (24,8-27,4; n=4).

The length of the forewing of the *V. plantei* types is 14 mm, corresponding to a wing span of about 26 mm.

Data on male genitalia see Tab. 3 and Fig. 5.

Unfortunately no *Victoria* female is in the samples from En Gedi studied by the author. The neighbourhood to the type locality (En Gedi-Sodom = 40 km; Yotvata-Sodom = 140 km) and the suspicion of proterandric phenologies of these *Victoria* species indicate that *V. plantei* Herb. is a species of the Dead Sea region flying not only at Sodom but also in En Gedi from springtime until June. In 41 light catches at the type locality of *V. plantei* in the Southern region of the Dead Sea from E10 until M12 no *Victoria* specimens were caught at all!

Specific differences can be found between the En Gedi and the Yotvata populations. The species occurring in Yotvata is described below.

Victoria eremita, spec. nov.
(Figs 2,3)

Material. In the Entomological collections of Israel (Hausmann 1993) one unlabelled male (coll. Volcani Center, Bet Dagan) and one female without abdomen from Nahal Raham, S.-Israel, 21.2.1979 (coll. Tel Aviv University "TAU") are stored.

632 specimens were caught in a light trap operated at Yotvata (Southern Israel). The trap was operated in about 180 nights covering all months, except May.

The phenology is shown in Tab. 1.

Types. Holotype: ♂, Southern Israel, Yotvata, 1.-6.8.1989, leg. Ortal, coll. TAU (G. prp. G 3076). - Paratypes: All paratypes from Southern Israel, Yotvata, leg. Ortal: coll. TAU: 2 ♂♂, 7.XIII.90; 2 ♂♂, 12.XIII.90; 5 ♂♂, 14.XIII.90; 1 ♂, 16.XIII.90; 1 ♂, 17.XIII.90; 2 ♂♂, 21.XIII.90; 2 ♂♂, 24.XIII.90; 2 ♂♂, 26.XIII.90; 2 ♂♂, 30.XIII.90; 5 ♂♂, "IX.90"; 2 ♂♂, 2.IX.90; 4 ♂♂, 7.IX.90; 2 ♂♂, 10.IX.90; 4 ♂♂, 12.IX.90; 3 ♂♂, 13.IX.90; 1 ♂, 16.IX.90;

coll. ZSM: 1 ♂, 30.VII.89; 4 ♂♂, 1.-6.VIII.89; 1 ♂, 8.VIII.89; 2 ♂♂, 10.-13.VIII.89; 1 ♂, 21.-24.VIII.89; 2 ♂♂, 4.-7.IX.89; 2 ♂♂, 11.-15.IX.89; 1 ♂, 24.VII.90; 2 ♂♂, 25.VII.90; 2 ♂♂, 31.VII.90; 1 ♂, 5.VIII.90; 4 ♂♂, 8.VIII.90; 4 ♂♂, 10.VIII.90; 1 ♂, 11.VIII.90; 5 ♂♂, 1 ♀, 14.VIII.90; 1 ♂, 1 ♀, 18.VIII.90; 3 ♂♂, 22.VIII.90; 1 ♀, 29.VIII.90; 1 ♀, 30.VIII.90; 2 ♂♂, 3.IX.90; 1 ♂, 11.IX.90; 1 ♂, 17.IX.90; 1 ♂, 20.IX.90; 1 ♂, 29.IX.90.

Description

The specimens flying E7-E9 are considered the typical *eremita*, spec. nov.

Wing colour and wing pattern rather variable.

Smaller than *V. plantei* Herb. (see Tab. 2). Wing colour variable, from yellowish ochreous near to pink. Wing pattern similar to *V. plantei*, less strongly marked, the post-median fascia in *plantei* dotted, in *V. eremita* almost always uninterrupted. The marginal spots in the forewing in *V. eremita* dark, in *V. plantei* brightly filled. Apical spot in *V. eremita* small, the upper part seldom approaching the apex like in *V. plantei*.

Palps similar to *V. plantei* palps, slightly smaller and narrower. Like *V. plantei* without tongue.

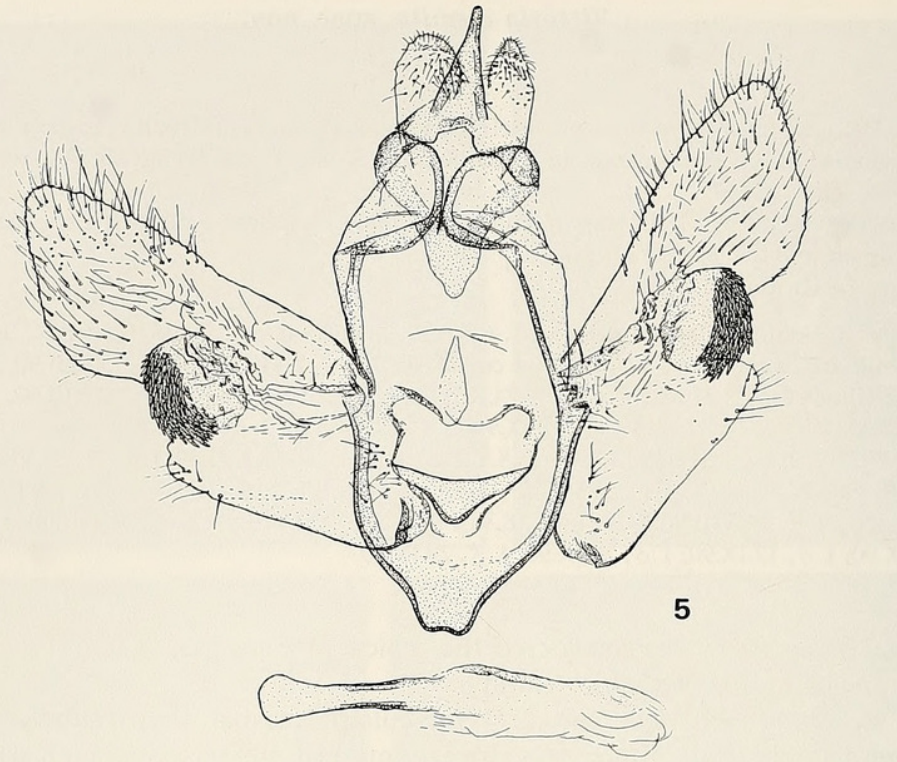
Antennae bipectinate to about 2/3 of the length, their teeth in the male about 0,72-0,80mm long. The specimens flying in October till December of 0,85-0,90. The En Gedi specimens 0,85-0,90 *(V. plantei)*. Teeth of female antennae: ca. 0,40-0,50mm, the E7-female 0,35.

Wing span. The unlabelled specimen from the Volcani Center collection spans 21,8 mm. The female from Nahal Raham is very large (30 mm). The wing spans of the Yotvata specimens are shown in Tab. 2.

In the male genitalia (Figs. 5, 6, Tab. 3) there are remarkable differences in the width of the field of spines on the harpe, which is narrow in *V. eremita*, and in the length of the valva, which is small in *V. eremita*. These characters are numerically shown in Tab. 3. Gnathos narrow, pointed in *V. eremita*

Tab. 1 Phenology of *Victoria eremita* sp. nov. in a light trap at Yotvata, Southern Israel (B = Beginning; M = Mid; E = End)

Decade	total	females	% females	Decade	total	females	% females
B4	1	-	-	B9	41	2	5
B6	1	-	-	M9	89	2	2
M6	1	-	-	E9	51	1	2
E6	3	-	-	B10	44	2	5
B7	2	-	-	M10	92	-	-
M7	10	-	-	E10	35	-	-
E7	30	1	3	B11	32	-	-
B8	34	-	-	M11	18	-	-
M8	47	6	13	E11	21	-	-
E8	64	3	5	B12	16	-	-
				total	632	17	2,7



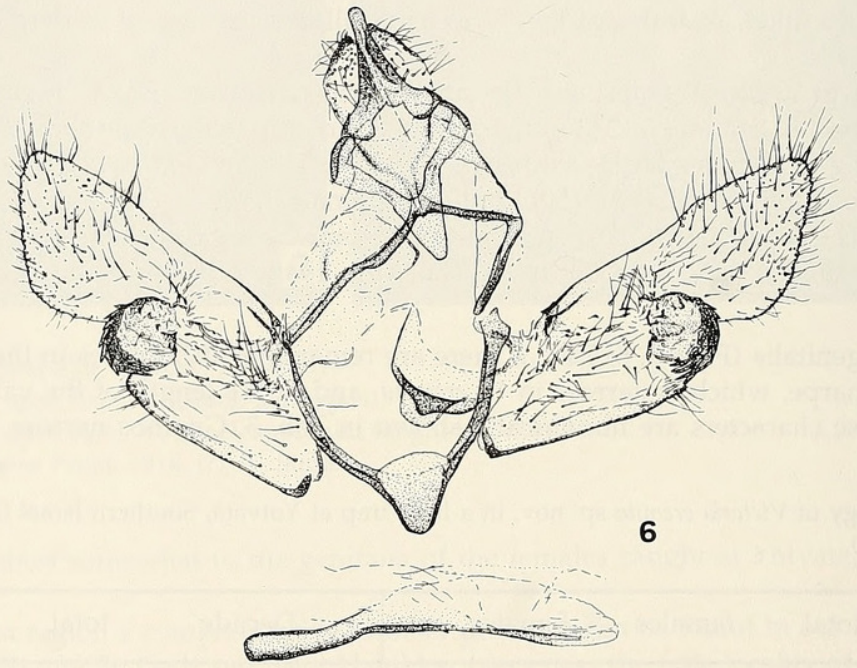


Fig. 5. *Victoria plantei* Herbulot, 1976, male genitalia (G.prp. G 941).
Fig. 6. *Victoria eremita*, spec. nov., male genitalia (Paratypus, G.prp. G 3075).

(in *V. plantei* broader), vinculum pointed (in *V. plantei* double-pointed), caudal top of the 8th sternit (octavals) quite blunt in *V. eremita* (rectangular in *V. plantei*).

Spines on the harpe much more dense in *V. plantei*, their number is about 20-35 in typical *eremita*, 50-65 in some specimens caught in December or April and more than 80 in *V. plantei*. These spines are smaller and narrower in *V. plantei*. In *V. eremita* there are always some large spines raising from the harpe.

In the Tab. 3 given below there are shown data regarding some particular structures of the male genitalia of Victoria specimens from Israel. In the various months and localities there are to be found differences in the angle of the top of the 8th sternit, in the structure of the field of spines on the harpe and in the length of the valva.

The length of the valva seems to be correlated with the wing span. With increasing size of the imago also the copulation organs are larger.

The label of the female taken at Nahal Raham indicates, that the larva was found on Loranthus acaciae.

Discussion

The phenology (see Tab. 1) shows peaks in B8, M9, M10 and a little one E11-B12. Female rate is very low in the light trap samples. "Higher" percentages of females are found in M8-E8 and B10 (see Tab. 1).

Data on wing span show a "unit" with comparable values from E6 to M7, then E7-E9 (maybe better E7-E8; B9-E9), B10-E11 (B10 still mixed with smaller individuals of the preceeding "unit") and 12 (see Tab. 2).

Data on the male genitalia show a similar pattern: Concerning the structure of the harpe groups with

Tab. 2 Wing span of *Victoria eremita* sp. nov. caught in a light trap near Yotvata (Southern Israel) and their pattern in the various decades from B6-B12.

Decade	wing span males [mm]	variation	n	wing span females [mm]	variation	n
B6	21,3	-	1	-	-	-
M6	21,6	-	1	-	-	-
E6	19,4	18,8-19,8	3	-	-	-
B7	19,6	-	2	-	-	-
M7	19,5	18,2-22,5	10	-	-	-
E7	18,8	16,8-21,4	10	26,1	-	1
B8	18,8	16,9-19,5	10	-	-	-
M8	18,7	17,0-19,8	10	22,3	20,4-23,2	6
E8	18,3	16,8-19,6	10	22,8	22,7-23,0	3
B9	19,0	17,8-21,0	10	23,8	23,5-24,1	2
M9	18,9	17,7-20,4	10	23,2	-	1
E9	19,0	17,9-19,9	10	23,0	-	1
B10	19,8	19,0-21,0	10	25,4	25,2-25,5	2
M10	20,0	18,5-23,0	10	-	-	-
E10	20,3	17,9-21,6	10	-	-	-
B11	20,7	18,4-21,7	10	-	-	-
M11	21,2	20,2-22,1	4	-	-	-
E11	20,7	19,6-21,6	10	-	-	-
B12	22,0	19,8-23,5	10	-	-	

Tab. 3 Data on male genitalia of *Victoria* specimens from Israel

locality	month	n	octaval angle in °	(min., max)	relation spines/harpe in %	(min., max.)	width of field of spines [in mm]	(min., max)	length of valva [in mm]	(min., max.)
En Gedi	III	4	92	90-95	42%	40-44%	0,150	0,148-0,155	1,72	1,67-1,80
? (*)	?	1	120		39%		0,148		1,72	
Yotvata	IV	1	130		46%		0,170		1,79	
Yotvata	VI	4	119	115-120	30%	29-32%	0,093	0,089-0,096	1,59	1,54-1,62
Yotvata	VII	5	114	100-135	28%	26-30%	0,089	0,096-0,089	1,56	1,45-1,61
Yotvata	VIII	5	143	130-150	32%	26-35%	0,108	0,089-0,118	1,50	1,42-1,57
Yotvata	IX	5	122	120-125	28%	21-35%	0,108	0,082-0,126	1,60	1,54-1,65
Yotvata	X	6	122	105-135	34%	29-37%	0,114	0,104-0,126	1,60	1,52-1,67
Yotvata	XI	5	117	110-120	33%	30-38%	0,118	0,104-0,133	1,64	1,61-1,65
Yotvata	XII	6	102	90-120	37%	30-42%	0,129	0,111-0,148	1,67	1,57-1,75

(*) unlabelled specimen from the Volcani Center Collection

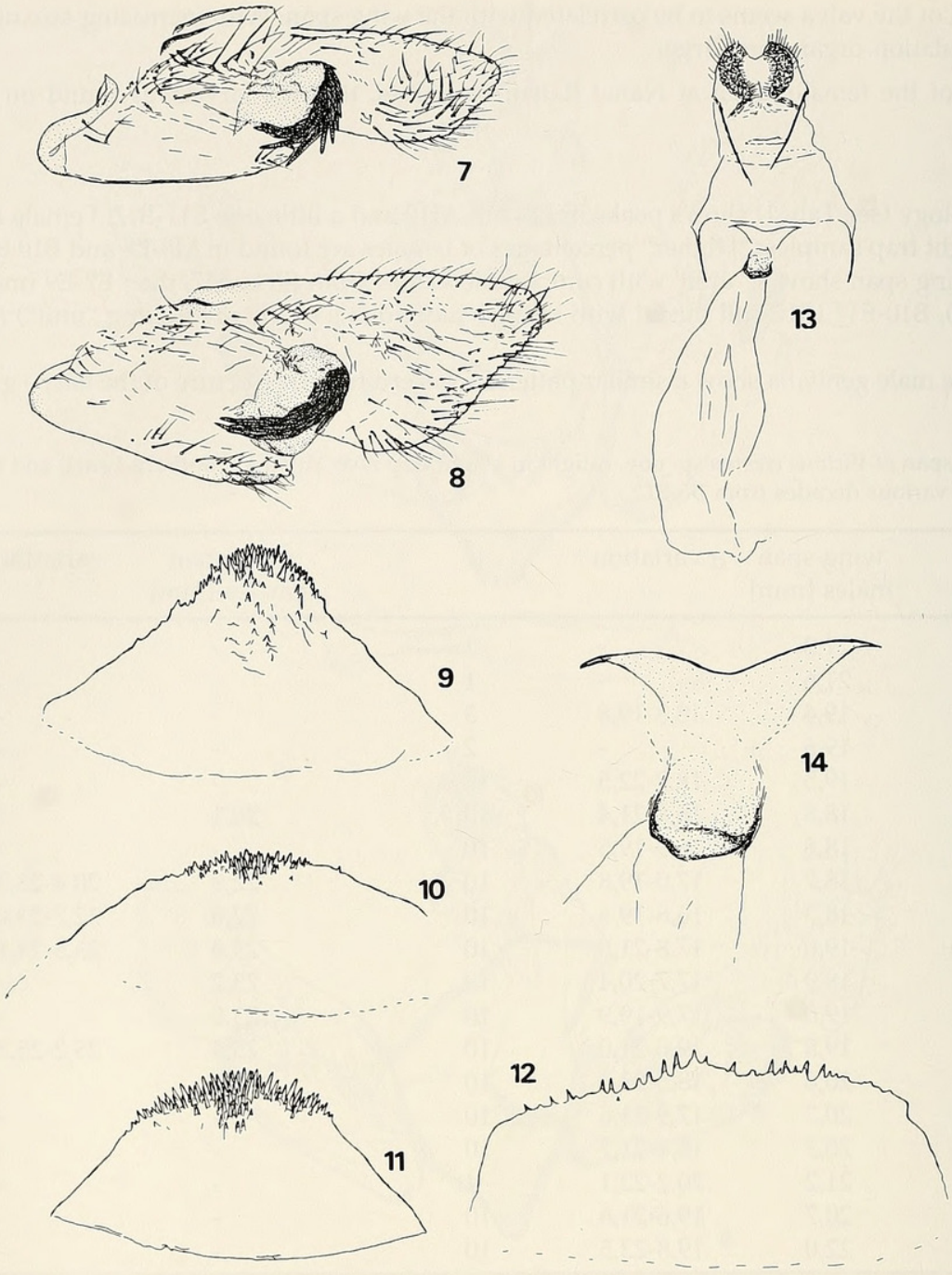


Fig. 7. *Victoria* spec. (Saudi Arabia), right valva (G.prp. WBM 316).
Fig. 8. *Victoria sematoperas* Prout, 1916, (?) right valva (G.prp. G 4147).
Figs 9-12. 8th sternit (octavals) of *V. plantei* Herb. (9), *V. eremita*, spec. nov. (10), *Victoria* spec. (Saudi Arabia; 11), and *V. sematoperas* Prout, 1916 (?).
Fig. 13. *Victoria eremita*, spec. nov., female genitalia (G.prp. G 3077).
Fig. 14. *Victoria eremita*, spec. nov., detail of the Ostium Bursae region.

similar values in VI-VII, VIII-IX, X-XI and XII respectively can be found. As far as the other structure details in genitalia are concerned, data indicate a division into distinct seasonal units in the same way it has been discussed by the criterion of the wing span (see above).

Further indications on such a change of various seasonal reproduction units are fresh specimens emerging mainly in the decades of E7, B9, B10, M11-B12. Wing pattern and colour of the December specimens and many others from M11-E11 is quite different from the typical *V. eremita*: Colour and pattern are much more intense. Postmedian line here dark, very distict and not so straight as in typical *V. eremita*. Also in August/September wing colour and pattern are brighter, get darker and more intense in October.

The data given above are to be interpreted as the consequence of a system of syntopic, but seasonally

more or less separated reproduction units. These units are probably univoltine populations and show the tendence to a morphological division from each other.

The December specimens (and some of the earlier emerging moths from M11-E11) are perhaps a third species in statu nascendi. More data are required. Specimens should be reared.

Genitalically, the specimens caught in December and those of April seem to be transitional in their genitalic structure to *V. plantei*, but still nearer to *V. eremita*.

The male caught in April could be equivalent to the males in the December "unit" and represent a bivoltine seasonal group. This phenology is to find also in other species occurring in Yotvata like *Enconista exustaria* Staudinger, 1897 (see Hausmann 1990). Another possibility is, that April specimens in Yotvata are true *V. plantei*. There is more material required to decide this question. As to the genitalia, the unlabelled male from the Volcani Center Collection largely corresponds to the Yotvata male from April.

Victoria spec.

The specimens mentioned in Wiltshire (1986 and 1990) from Saudi Arabia probably pertain another new species. Until now only 3 specimens are known: 2 ♀♀ from Fifa (B4) and one male from Tarima (November; not "Taif" as spelled in Wiltshire 1986 and 1990).

The figure of a female from Fifa (Wiltshire 1990) reveals a wing span of 31 mm. Wing colour and pattern seem to be different from both *V. plantei* Herb. and *V. eremita*, spec. nov. The palps are characterized by Wiltshire in a letter to the author as short like in *V. plantei* and *V. eremita*.

Male genitalia (the author examined the preparate WBM 316, see fig. 9): 8th sternit with a broad caudal top and a spine field, which is broader than in the species known from Israel. Although this structure reveals in the Yotvata population a relative high variability, it never approaches a form similar to the sternit of the Saudi Arabian specimen. Spines of the harpe somewhat like in *V. eremita*, spec. nov., but basically more dense (see also the figure in Wiltshire 1986; the left valva is drawn better here). Length of the valva: 1,66 mm.

More material is required for a description.

Victoria sematoperas Prout, 1916

Prout, 1916: 142; plate II, fig. 26

(*Victoria sematoperus* in Zool.Rec. 1916, XII, p. 198).

Type locality: Mandere on the border between Somalia and Kenia.

Types: Holotype: ♂, 14.III.1909. - Paratypes: 2 ♀♀, 30.XII.1909 and 2.I.1910.

Herbulot (1976) mentiones specimens from Senegal, Cameroon and Kenia; these localities require confirmation. From West African countries the author could find only the somewhat similar *Victoria triplaga* Prout, 1915.

Wingspan of the types (♂, ♀) 32-33 mm! Sure *Victoria sematoperas* Prout is known only in the types. Following Prout (original description), the species is evidently a near ally of *V. triplaga* Prout. Wing colour following Herbulot (1976) green. Also Prout characterizes it in the original description as "green (in all three discoloured by relaxing)". The figure (showing an ochreous specimen), however, corresponds rather well to the specimens taken in Israel (*V. plantei* Herb. and *V. eremita*, spec. nov.).

One deep green male in the ZSM from Sudan (Ed Damer, Hudeiba; E.I.1962; Fig. 4) is perhaps conspecific. However, topotypical males of *V. sematoperas* Prout are not known to the author. Ambivalence in wing colour (reddish/green) is known also for some other Geometrinae species in this region (e.g. *Hemidromodes robusta* Prout, 1913).

Palps of the Sudanese male short like in *V. plantei* Herb. and *V. eremita*, spec. nov. Teeth of the antennae 0,92 mm long! Wing span 27,7 mm. Genitalically different from *V. plantei*, *V. eremita*, and the Saudi Arabian populations in the structure of the harpe (see fig. 8) and the form of the 8th sternit. Gnathos pointed. Vinculum somewhat like in *V. plantei*.

Victoria omanensis Wiltshire, 1980, comb. nov., stat. nov.

Wiltshire, 1980: 191, plate 4.

Type locality: Oman, Dhofar Prov., Ayun Pools.

Types: Holotype: ♀, 12.X.1977, leg. Guichard, coll. The Natural History Museum, London. - Paratype: ♀, Northern Oman, Mu'askar al Murtafa'a VI-IX 1977, leg. F.J. Walker, coll. The National Museum of Scotland, Edinburgh.

In the original description the paratype was determined as "♂". The correction of the sex was communicated to the author by Mr. E. P. Wiltshire, Berks, and by the curator of the National Museum of Scotland, Edinburgh, Dr. M. R. Shaw.

Wing span (♀) "28mm" (Wiltshire 1980). Female Antennae bipectinate (typical for the genus *Victoria*).

In a letter (with drawings of head parts and frenulum) Mr. E. P. Wiltshire communicated to the author that the palps of the female holotype are twice as long as the palps of *V. plantei* Herb., *V. eremita*, spec. nov. and the Saudi-Arabian populations. So, the taxon *omanensis* Wiltshire, 1980, described as *Celidomphax* (Wiltshire 1980) and mentioned as doubtfully conspecific with *V. plantei* Herb. in Wiltshire (1986 and 1990) is surely different on species level from the other palearctic species.

Victoria fuscithorax Warren & Rothschild, 1905

Warren & Rothschild, 1905: 387.

Type locality: Uganda, Entebbe.

Types: Holotype: ♀, March 1902, leg. Cpt. Rattray, coll. The Natural History Museum, London.

This pretty African species is mentioned in Prout (1913) and Prout in Seitz (1930) as occurring also in Sudan (which part?). No recent captures from Sudan are known. Requires confirmation. Probably not approaching the palearctic region.

Zusammenfassung

In der vorliegenden Revision der paläarktischen Vertreter der Gattung *Victoria* werden Informationen zu Morphologie, Phänologie und Verbreitung von 6 verschiedenen Arten an die Hand gegeben. Aus Yotvata, Südisrael, wird *Victoria eremita*, spec. nov. als neu beschrieben. Der Artstatus für *Victoria omanensis* Wiltshire, 1980, comb. nov., stat. nov., wird belegt. Die als *Celidomphax omanensis* beschriebene Art war des öfteren als Synonym von *Victoria plantei* Herbulot, 1976, betrachtet worden.

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