

STUDIES ON THE FAUNA OF CURAÇAO AND OTHER  
CARIBBEAN ISLANDS: No. 70.

A NEW SUBSPECIES OF THE SCORPION  
RHOPALURUS HASETHI

by

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In his paper on "Scorpions" from Curaçao, Aruba, Bonaire and the Venezuelan Islands, WAGENAAR HUMMELINCK (Stud. fauna Cur. 2, 1940, p. 141) drew attention to the fact that specimens of *Rhopalurus hasethi* from the island of Aruba possess, on the average, four pectinal teeth less than specimens from Curaçao, the island from which the species was originally described. Lack of time and material prevented this author from paying full attention to other differences. He confined himself to giving a small table, in which the following numbers of pectinal teeth were reported, without a distinction being made between males and females.

Curaçao (85 specimens)	(22-) 25 - 27.0 - 29 (-30)
Bonaire (38 specimens)	24 - 26.6 - 28 (-29)
Ave de Barlovento (4 specimens)	24 - 25.4 - 27
Aruba (19 specimens)	21 - 23.1 - 25

In later years HUMMELINCK succeeded in gathering much more material from the Netherlands Antilles, which made it possible to make a more thorough comparison of the *Rhopalurus* populations of these islands.

The present publication gives the results of a comparison between the Curaçao, Aruba and Bonaire populations of *Rhopalurus hasethi*, in so far as this could be done by measurements and counts, and within the scope of a student's six-months practical course in

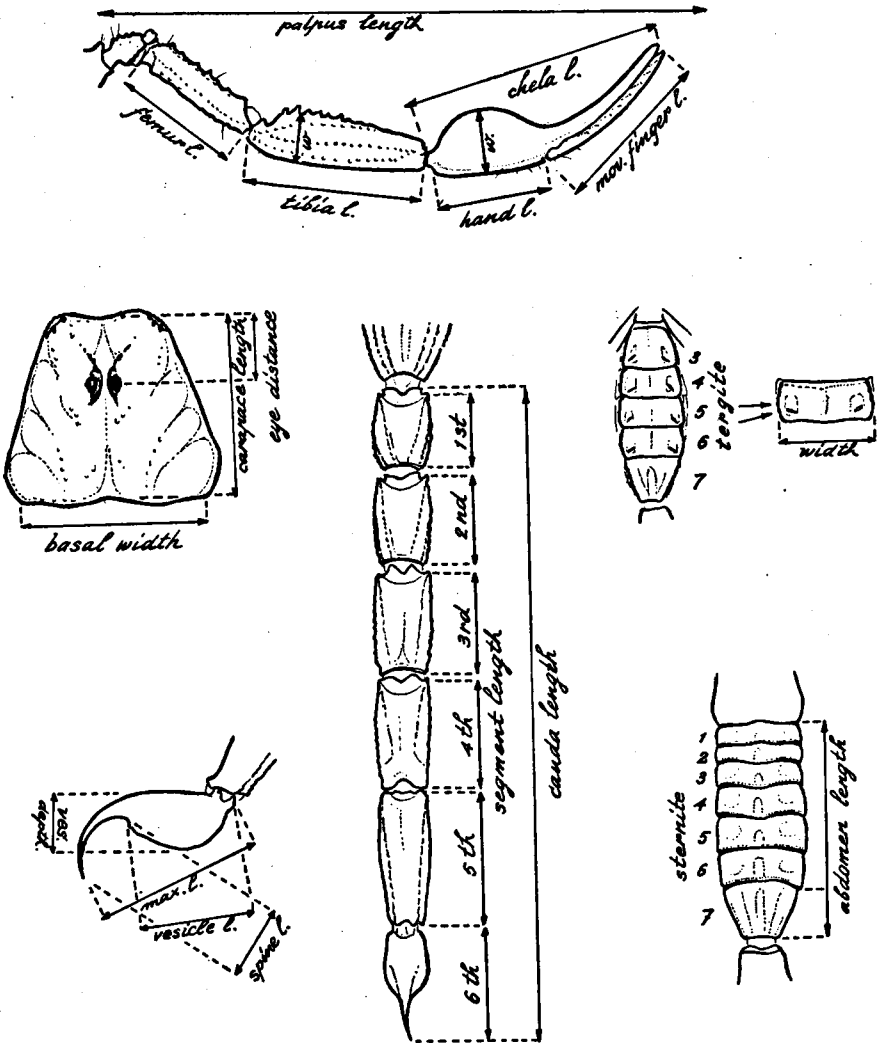


Fig. 16. The way in which the measurements of *Rhopalurus hasethi* were taken. Cf. Tables 11-14. — Drawing of a male specimen from Curaçao.

taxonomy, under the supervision of Dr. P. WAGENAAR HUMMELINCK, for whose constant help the author is most grateful. Since the differences between the material available from Curaçao and Bonaire are only very slight, the author devoted her main attention to differentiation of the *Rhopalurus* populations of Curaçao and Aruba, with the result that she feels justified in considering the Aruba specimens as belonging to a new island race or subspecies: *Rhopalurus hasethi arubensis*.

The available material comprised 73 ♂♂, 131 ♀♀ and 65 undifferentiated specimens (mostly juveniles, indicated by question marks) from Curaçao; 59 ♂♂, 68 ♀♀ and 51 ?? from Aruba; and 18 ♂♂, 33 ♀♀ and 32 ?? from Bonaire – including those specimens which had already been studied by WAGENAAR HUMMELINCK.

From this material the 30 ♂♂ and 60 ♀♀ listed below, were studied in detail. They were divided into 9 groups of 10 individuals each, which were assumed to characterize the island populations, and might, therefore, possibly furnish some information about geographical variation and environmental influences.

HATO (= Dr. Albert Plesman Luchthaven), central Curaçao: XII.1948 (A. D. Ringma; 9 ♂ 5 ♀); 1949/1950 (A. D. Ringma; 1 ♂ 5 ♀).

W. CURAÇAO: Hofje St. Kruis, 23.IV.1930 (H. J. Mac Gillavry; 1 ♀); 24.IV.1930 (2 ♀). Seroe Pieter, top, 22.IV.1930 (1 ♀). Boca Santa Martha, in shed, XII.1954 (P. A. van der Werf; 3 ♀). Klein St. Martha, 5.I.1947 (B. A. Bitter; 2 ♀); in stone wall, 19.II.1947 (B. A. Bitter; 1 ♀).

DAKOTA AIRPORT (= Prinses Beatrix Luchthaven), SW. Aruba: 10.XI.1948 (A. D. Ringma; 10 ♂ 10 ♀).

E. ARUBA: Savaneta, 1954 (J. G. van den Bergh; 2 ♀); in house, 1.V.1955 (2 ♀). Seroe Colorado, 2.V.1955 (5 ♀). Sta. 252, Vader Piet, 9.II.1937 (1 ♀).

KRALENDIJK, W. central Bonaire: VIII–IX.1948 (3 ♂ 1 ♀); XII.1948 (1 ♂ 2 ♀); 23.IX.1949 (5 ♀); 28.III.1955 (1 ♀); 13.IV.1955 (1 ♂). Pos Caranja, Lima, 24.III.1955 (1 ♀).

NW. BONAIRE: Sta. 198, Pos Bronswinkel, 27.III.1937 (1 ♀). Dos Pos, 24.V.1930 (2 ♂ 5 ♀); 1.VI.1930 (3 ♂ 2 ♀). Sta. 193A, Hofje Fontein, 11.IX.1948 (1 ♀). Onima, 2.IV.1955 (1 ♀).

The measurements in Tables 11–14, and the counts given in Table 15, refer to these specimens.

The way in which measurements were taken is illustrated in Fig. 16.

In Tables 11–13 (compare also Table 14) the following measurements are recorded successively:

Body length, including chelicera and spine.

Carapace length, taken medially; basal width (over surface).

Eye distance, from centre of eyes to frontal margin of carapace.

Abdomen length (mediodorsally).

Width of 3rd and of 4th sternite (over surface).

Cauda length, excluding and including pedicles (measured in its entirety).

Length and maximum width of 1st, 2nd, 3rd and 4th segments.

Length, maximum width, proximal width and distal width of 5th segment.

Length (straight) and maximum width (= width of vesicle) of 6th segment.

Spine length (straight), vesicle length and vesicle depth.

Palpus length, including trochanter.

Femur length (dorso-lateral).

Tibia length (dorso-lateral) and width, excluding tubercles.

Chela length, including pedicle.

Length (straight) of movable finger.

Hand length (straight), width and depth.

The remaining material has been studied only with regard to body length, carapace length, cauda length, length of the 5th caudal segment, palpus length and number of pectinal teeth, with the exception of a number of juveniles, which were found still clinging to their mother's body. In these last, only the pectinal teeth were counted.

The resulting data – concerning Curaçao and Aruba – are summarized in Figs. 17–21. In Figs. 17–20 the averaged measurements of groups of 5 specimens of about the same size are given, as expressed in their respective averaged carapace lengths. The medial carapace length (abbreviated: car. l.) was taken as standard, because it was felt that this would provide a reliable and simple method of studying relative growth in scorpions.

Study of the material led to the following conclusions.

In Aruba, specimens of *Rhopalurus hasethi* do not reach the size of those from Curaçao; they are even distinctly smaller than those from the western part of Curaçao, where the specimens are only slightly smaller than those from more populated centres in the central part, which might provide many more favourable circumstances. (Tables 11 and 13; Figs. 17 and 19.)

Possibly in connection with their smaller size, the Aruba specimens already show distinct sexual dimorphism on attaining a carapace

length of  $3\frac{1}{2}$ –4 mm, whereas in the Curaçao ones secondary external sexual differences are not clearly visible until a carapace length of  $4\frac{1}{2}$ –5 mm has been reached. (Figs. 17–20.)

In Aruba, the average cauda length of larger female specimens does not even attain 6.3 car. l., whereas in Curaçao that of the larger females is about 6.7 car. l. The average cauda length in large Aruba males does not reach 7.5 car. l., whereas in large Curaçao males it exceeds 8.0 car. l. (Figs. 17 and 19.)

In Aruba the average palpus length of larger males is about 4.5 car. l., whereas in larger Curaçao males it is about 4.8 car. l. The average palpus length in larger Aruba females is 4.2 car. l., in larger Curaçao females 4.3 car. l. (Figs. 18 and 20.)

In Aruba the average length of the 5th caudal segment in larger males is about 1.3 car. l., whereas in Curaçao it is 1.5 car. l. The average length of the 5th segment in Aruba females is 1.1 car. l., in Curaçao females 1.2 car. l. (Figs. 18 and 20.)

In Aruba the males of *Rhopalurus hasethi* commonly (*i.e.* about 90%) possess 23–25 pectinal teeth, in Curaçao commonly 27–29. The Aruba females commonly have 21–23 teeth, whereas in Curaçao they possess 25–27 teeth. (Figs. 21–22.)

In the author's opinion, and also in WAGENAAR HUMMELINCK's, all these differences justify a segregation of the Aruba *Rhopalurus hasethi* population from those on the islands of Curaçao, Bonaire and Las Aves on at least subspecies level.

Statistical comparison of the carapace length (by Mr. J. J. BEZEM), revealed that:

- (1) the animals examined from one and the same island may be regarded as originating from one homogeneous population, so that each island can be characterized by one single average figure for each sex;

- (2) there is a significant difference in carapace length between the populations of Aruba and Curaçao. (The car.l. in Curaçao is considerably greater than in Aruba, as regards both male and female individuals.)

As far as the number of pectine teeth is concerned, the difference between the populations of Aruba and Curaçao is so obvious that no statistical comparison is necessary.

**Rhopalurus hasethi arubensis** subsp. nov.

*Rhopalurus hasethi* (Pocock 1902) Meise 1933, WAGENAAR HUMMELINCK 1940, Stud. fauna Cur. 2, p. 140-142, fig. 17, *p.p.* [specimens from Aruba only].

Diagnosis (based on about 55 ♂♂ 65 ♀♀ from Aruba)

*Rhopalurus hasethi* from Aruba, differing from those specimens from the type locality Curaçao in having a distinctly smaller body, length *commonly* (90%) 33-55 mm [Curaçao 40-75], with a carapace length of ♂ 3.3-4.7 (-5.5) ♀ 3.3-5.3 (-5.95) mm [Cur. ♂ 4.0-6.0 ♀ 4.0-6.5]; a shorter cauda, length (incl. pedicles) ♂ 5.8-7.3 ♀ 5.8-6.3 times its carapace length [Cur. ♂ 6.2-8.0 ♀ 6.2-6.7], and slightly shorter palps, length ♂ 4.1-4.5 ♀ 4.1-4.2 times its carapace length [Cur. ♂ 4.2-4.8 ♀ 4.2-4.3].

Sexual dimorphism may be observed after reaching a body length of about 33 mm [Cur. 40 mm]; very large specimens acquire a caudal length of about ♂ 7.4 ♀ 6.3 its carapace length [Cur. ♂ 8.2 ♀ 6.7].

The number of pectinal teeth, as a rule, amounts ♂ 23-25 ♀ 21-23 [Cur. ♂ 27-29 ♀ 25-27].

Holotype (♂) and allotype (♀) — collected by P. Wagenaar Hummelinck, 2.V. 1955 (station number 254a) — in the Rijksmuseum van Natuurlijke Historie, Leiden.

The Paratypes are deposited in the Zoologisch Museum, Amsterdam, the Rijksmuseum van Natuurlijke Historie, Leiden, and the Zoologisch Laboratorium of the State University, Utrecht; furthermore the British Museum and the United States National Museum have been presented with 2 ♂♂ and 4 ♀♀ each.

Type Locality: Seroe Colorado (= Seroe Corrá), ARUBA, Neth. Antilles.

Dimensions of holotype and allotype, in mm, ♂ / ♀: Body length, incl. chelicera 57 / 58; carapace length, medially, 6.5 / 5.5; caudal length, incl. pedicles, 38½ / 35½; length of 5th caudal segment, max., 7.1 / 6.5; length of 6th segment, max., 6.2 / 6.3; palpus length, incl. trochanter, 24 / 24. Number of pectinal teeth, left-right, ♂ 26-25, ♀ 23-22.

TABLE 11

Measurements in *Rhopalurus hasethi* from CURAÇAO.

Values in mm; averages in italics. H = from Hato, C = from West Curaçao.

	10 ♂♂ H	20 ♀♀ H + C	( 10 ♀♀ H	10 ♀♀ C )
Body length	60½ - 73-80	60 - 69-79	( 64½ - 72-79	60 - 65½ - 72½ )
Carapace length	5.4- 5.9- 6.2	5.2- 6.5- 7.4	( 6.3- 6.8- 7.4	5.2- 6.2- 7.0 )
basal width	6.0- 6.7- 7.4	6.2- 7.6- 8.7	( 7.3- 7.9- 8.7	6.2- 7.3- 8.2 )
Eye distance	2.0- 2.2- 2.4	2.0- 2.5- 2.9	( 2.4- 2.6- 2.9	2.0- 2.4- 2.8 )
Abdomen length	13½ - 18½ - 20½	13½ - 17½ - 22	( 13½ - 18-22	13½ - 17-20 )
3rd sternite width	6.3- 6.9- 7.5	6.4- 8.3- 9.6	( 8.0- 8.7- 9.6	6.4- 7.9- 9.0 )
4th sternite width	6.3- 7.0- 7.5	6.4- 8.3- 9.5	( 7.9- 8.6- 9.5	6.4- 7.9- 9.0 )
Cauda length excl. pedicle	39 - 45½ - 50	31½ - 41½ - 49	( 40 - 43½ - 49	31½ - 39-45½ )
incl. pedicle	40½ - 47-52	33 - 43-51	( 41½ - 45½ - 51	33 - 40½ - 47 )
1st segment length	4.7- 5.6- 6.1	3.8- 5.1- 6.1	( 4.8- 5.4- 6.1	3.8- 4.9- 5.8 )
width	3.2- 3.6- 4.0	3.4- 4.1- 4.7	( 3.8- 4.2- 4.7	3.4- 4.0- 4.5 )
2nd segment length	5.9- 6.9- 7.6	4.7- 6.3- 7.4	( 5.9- 6.6- 7.4	4.7- 6.0- 7.0 )
width	3.0- 3.4- 3.7	3.1- 3.8- 4.4	( 3.6- 4.0- 4.4	3.1- 3.7- 4.3 )
3rd segment length	6.4- 7.6- 8.4	5.0- 6.7- 7.8	( 6.2- 7.0- 7.8	5.0- 6.3- 7.4 )
width	2.9- 3.3- 3.5	3.0- 3.7- 4.2	( 3.5- 3.8- 4.2	3.0- 3.6- 4.2 )
4th segment length	6.9- 8.1- 9.0	5.4- 7.1- 8.3	( 6.6- 7.4- 8.3	5.4- 6.8- 7.9 )
width	2.7- 3.1- 3.5	2.9- 3.6- 4.1	( 3.3- 3.7- 4.1	2.9- 3.5- 4.0 )
5th segment length	7.6- 9.0- 10.0	6.2- 7.9- 9.1	( 7.5- 8.3- 9.1	6.2- 7.5- 8.9 )
width	2.6- 3.0- 3.3	2.7- 3.4- 3.9	( 3.2- 3.6- 3.9	2.7- 3.2- 3.7 )
proximal width	2.5- 2.8- 3.0	2.5- 3.1- 3.7	( 2.9- 3.2- 3.7	2.5- 3.0- 3.5 )
distal width	2.0- 2.2- 2.3	2.0- 2.4- 2.8	( 2.3- 2.5- 2.8	2.0- 2.3- 2.6 )
6th segment length	6.7- 7.5- 8.2	5.9- 7.9- 9.3	( 7.6- 8.4- 9.3	5.9- 7.4- 8.7 )
width	2.2- 2.5- 2.8	2.0- 2.6- 3.1	( 2.5- 2.8- 3.1	2.0- 2.5- 3.0 )
Spine length	2.8- 3.1- 3.4	2.6- 3.7- 4.5	( 3.4- 3.9- 4.5	2.6- 3.5- 4.2 )
Vesicle length	4.4- 4.9- 5.3	3.5- 4.6- 5.3	( 4.6- 4.9- 5.3	3.5- 4.3- 5.0 )
depth	2.1- 2.2- 2.4	1.9- 2.5- 2.8	( 2.4- 2.6- 2.8	1.9- 2.3- 2.7 )
Palpus length	25½ - 28-30	21½ - 28-32	( 27 - 29½ - 32	21½ - 26½ - 30½ )
Femur length	5.7- 6.4- 6.9	4.8- 6.2- 7.2	( 6.0- 6.5- 7.2	4.8- 5.9- 6.9 )
Tibia length	6.5- 7.2- 7.8	5.5- 6.9- 8.1	( 6.8- 7.3- 8.1	5.5- 6.6- 7.5 )
width	2.3- 2.4- 2.6	2.2- 2.8- 3.2	( 2.7- 2.9- 3.2	2.2- 2.7- 3.0 )
Chela length	11.2-12.3-13.1	9.6-12.6-14.5	( 12.2-13.3-14.5	9.6-11.9-13.7 )
Movable finger length	6.7- 7.4- 7.9	6.2- 7.9- 9.3	( 7.7- 8.4- 9.3	6.2- 7.5- 8.7 )
Hand length	4.3- 4.7- 5.1	3.4- 4.5- 5.4	( 4.4- 4.8- 5.4	3.4- 4.3- 4.9 )
width	2.8- 2.9- 3.1	2.1- 3.0- 3.7	( 2.9- 3.2- 3.7	2.1- 2.9- 3.5 )
depth	2.5- 2.6- 2.8	2.0- 2.7- 3.3	( 2.6- 2.9- 3.3	2.0- 2.5- 3.0 )

TABLE 12

Measurements in *Rhopalurus hasethi* from BONAIRE.

Values in mm; averages in italics. K = from Kralendijk, B = from northwest Bonaire.

	10 ♂♂ K	20 ♀♀ K + B	( 10 ♀♀ K	10 ♀♀ B )
Body length	42½ - 57 - 68½	43 - 54 - 62½	(44 - 55 - 62	43 - 53 - 62½)
Carapace length	4.2 - 5.1 - 5.9	4.2 - 5.2 - 6.0	( 4.2 - 5.2 - 5.8	4.5 - 5.2 - 6.0)
basal width	4.7 - 5.8 - 6.8	5.0 - 6.2 - 7.0	( 5.0 - 6.2 - 6.9	5.2 - 6.1 - 7.0)
Eye distance	1.5 - 2.0 - 2.2	1.6 - 2.0 - 2.3	( 1.6 - 2.0 - 2.2	1.7 - 2.0 - 2.3)
Abdomen length	8½ - 11½ - 16½	10 - 14 - 18	( 11½ - 15 - 18	10 - 13½ - 17½)
3rd sternite width	4.9 - 6.0 - 7.0	4.8 - 6.5 - 7.7	( 4.8 - 6.5 - 7.3	5.3 - 6.5 - 7.7)
4th sternite width	5.0 - 6.0 - 6.9	4.9 - 6.5 - 7.6	( 4.9 - 6.5 - 7.4	5.3 - 6.5 - 7.6)
Cauda length excl. pedicle	28 - 37 - 46½	24½ - 32 - 37	( 24½ - 32½ - 36	26½ - 31½ - 37 )
incl. pedicle	29 - 38½ - 48	25½ - 33½ - 38½	( 25½ - 33½ - 37½	27½ - 33 - 38½)
1st segment length	3.4 - 4.6 - 5.8	2.8 - 4.0 - 4.7	( 2.8 - 4.0 - 4.6	3.2 - 4.0 - 4.7)
width	2.6 - 3.2 - 3.5	2.7 - 3.4 - 4.0	( 2.7 - 3.4 - 4.0	2.8 - 3.3 - 3.8)
2nd segment length	4.2 - 5.7 - 7.3	3.7 - 4.9 - 5.7	( 3.7 - 5.0 - 5.6	4.0 - 4.9 - 5.7)
width	2.4 - 3.0 - 3.4	2.5 - 3.1 - 3.6	( 2.5 - 3.1 - 3.6	2.5 - 3.1 - 3.5)
3rd segment length	4.5 - 6.3 - 8.1	3.9 - 5.3 - 6.2	( 3.9 - 5.3 - 6.0	4.3 - 5.2 - 6.2)
width	2.3 - 2.9 - 3.4	2.4 - 3.0 - 3.5	( 2.4 - 3.0 - 3.5	2.5 - 3.0 - 3.5)
4th segment length	4.9 - 6.7 - 8.6	4.3 - 5.6 - 6.6	( 4.3 - 5.7 - 6.4	4.6 - 5.5 - 6.6)
width	2.1 - 2.6 - 3.0	2.2 - 2.8 - 3.4	( 2.2 - 2.9 - 3.3	2.4 - 2.8 - 3.4)
5th segment length	5.4 - 7.5 - 9.2	4.7 - 6.2 - 7.2	( 4.7 - 6.2 - 6.8	5.2 - 6.1 - 7.2)
width	2.0 - 2.6 - 3.0	2.0 - 2.7 - 3.2	( 2.0 - 2.7 - 3.1	2.2 - 2.7 - 3.2)
proximal width	1.8 - 2.4 - 2.9	2.0 - 2.5 - 2.9	( 2.0 - 2.5 - 2.9	2.0 - 2.4 - 2.9)
distal width	1.5 - 1.9 - 2.2	1.6 - 2.0 - 2.3	( 1.6 - 2.0 - 2.3	1.7 - 2.0 - 2.3)
6th segment length	4.7 - 5.9 - 7.2	4.5 - 5.8 - 6.7	( 4.5 - 5.8 - 6.5	4.9 - 5.7 - 6.7)
width	1.6 - 2.1 - 2.5	1.5 - 2.1 - 2.5	( 1.5 - 2.1 - 2.5	1.7 - 2.1 - 2.5)
Spine length	1.9 - 2.3 - 2.8	2.0 - 2.6 - 3.1	( 2.0 - 2.6 - 3.0	2.1 - 2.6 - 3.1)
Vesicle length	3.1 - 4.0 - 4.8	2.7 - 3.5 - 4.2	( 2.7 - 3.6 - 4.0	3.0 - 3.5 - 4.2)
depth	1.6 - 1.9 - 2.2	1.5 - 2.0 - 2.3	( 1.5 - 2.0 - 2.2	1.6 - 1.9 - 2.3)
Palpus length	19½ - 23½ - 28	17½ - 22½ - 26	( 17½ - 22½ - 25	19 - 22½ - 26 )
Femur length	4.3 - 5.3 - 6.4	3.8 - 5.1 - 5.8	( 3.8 - 5.3 - 5.6	4.1 - 4.9 - 5.8)
Tibia length	4.9 - 6.0 - 7.2	4.4 - 5.6 - 6.5	( 4.4 - 5.6 - 6.3	4.6 - 5.6 - 6.5)
width	1.8 - 2.1 - 2.5	1.7 - 2.2 - 2.7	( 1.7 - 2.2 - 2.6	1.8 - 2.2 - 2.7)
Chela length	8.6 - 10.5 - 12.2	7.8 - 10.1 - 11.6	( 7.8 - 10.2 - 11.1	8.3 - 10.0 - 11.6)
Movable finger length	5.3 - 6.4 - 7.5	5.0 - 6.4 - 7.4	( 5.0 - 6.4 - 7.0	5.4 - 6.4 - 7.4)
Hand length	3.2 - 3.9 - 4.5	2.6 - 3.6 - 4.2	( 2.6 - 3.6 - 4.0	2.8 - 3.5 - 4.2)
width	1.8 - 2.3 - 2.8	1.5 - 2.2 - 2.6	( 1.5 - 2.2 - 2.5	1.6 - 2.2 - 2.6)
depth	1.7 - 2.0 - 2.4	1.4 - 1.9 - 2.3	( 1.4 - 2.0 - 2.3	1.5 - 1.9 - 2.3)



TABLE 13

Measurements in *Rhopalurus hasethi* from ARUBA.

Values in mm; averages in italics. D = from Dakota Airport, A = from East Aruba.

	10 ♂♂ D	20 ♀♀ D + A	( 10 ♀♀ D	10 ♀♀ A )
Body length	44 - 48-50½	44½-54½-65½	( 47½- 54-59	44½- 55-65½)
Carapace length	4.0- 4.2- 4.4	4.6- 5.2- 6.0	( 4.7- 5.1- 5.5	4.6- 5.3- 6.0)
basal width	4.3- 4.6- 4.9	5.3- 6.0- 7.0	( 5.3- 5.9- 6.4	5.3- 6.2- 7.0)
Eye distance	1.5- 1.6- 1.7	1.7- 2.0- 2.2	( 1.8- 2.0- 2.1	1.7- 2.0- 2.2)
Abdomen length	11½- 12½- 13½	10½- 15½- 19	( 13½- 15-17	10½- 15½- 19 )
3rd sternite width	4.5- 4.9- 5.3	5.7- 6.6- 7.5	( 5.8- 6.5- 7.2	5.7- 6.7- 7.5)
4th sternite width	4.5- 5.0- 5.4	5.7- 6.6- 7.5	( 5.8- 6.6- 7.2	5.7- 6.7- 7.5)
Cauda length excl. pedicle	25½- 28½- 30	26 - 31½- 36½	( 27½- 31½- 33½	26 - 31½- 36½)
incl. pedicle	27 - 29½- 31	27 - 32½- 38	( 29 - 32½- 34½	27 - 32½- 38 )
1st segment length	3.2- 3.6- 3.8	3.3- 3.9- 4.7	( 3.5- 3.9- 4.3	3.3- 3.9- 4.7)
width	2.5- 2.6- 2.8	2.9- 3.3- 3.8	( 3.0- 3.3- 3.5	2.9- 3.3- 3.8)
2nd segment length	3.9- 4.4- 4.7	4.0- 4.8- 5.7	( 4.2- 4.8- 5.1	4.0- 4.8- 5.7)
width	2.4- 2.5- 2.6	2.7- 3.1- 3.5	( 2.8- 3.1- 3.3	2.7- 3.1- 3.5)
3rd segment length	4.2- 4.7- 5.0	4.2- 5.1- 6.0	( 4.5- 5.1- 5.4	4.2- 5.1- 6.0)
width	2.3- 2.4- 2.6	2.7- 3.0- 3.5	( 2.8- 3.0- 3.2	2.7- 3.0- 3.5)
4th segment length	4.5- 5.1- 5.4	4.5- 5.4- 6.3	( 4.7- 5.4- 5.7	4.5- 5.4- 6.3)
width	2.1- 2.3- 2.4	2.5- 2.9- 3.3	( 2.6- 2.8- 3.0	2.5- 2.9- 3.3)
5th segment length	5.1- 5.6- 5.9	5.0- 6.0- 7.0	( 5.4- 6.0- 6.3	5.0- 6.0- 7.0)
width	2.0- 2.1- 2.3	2.3- 2.6- 3.0	( 2.4- 2.6- 2.8	2.3- 2.7- 3.0)
proximal width	1.8- 1.9- 2.0	2.0- 2.4- 2.8	( 2.1- 2.3- 2.5	2.0- 2.4- 2.8)
distal width	1.5- 1.6- 1.6	1.7- 1.9- 2.3	( 1.7- 1.9- 2.0	1.7- 2.0- 2.3)
6th segment length	4.5- 4.8- 5.1	4.7- 5.9- 6.8	( 5.4- 5.9- 6.3	4.7- 5.9- 6.8)
width	1.7- 1.8- 1.9	1.8- 2.2- 2.6	( 1.9- 2.2- 2.4	1.8- 2.2- 2.6)
Spine length	1.7- 1.9- 1.9	1.9- 2.5- 3.0	( 2.3- 2.6- 2.7	1.9- 2.5- 3.0)
Vesicle length	3.0- 3.3- 3.6	3.0- 3.7- 4.4	( 3.3- 3.7- 4.1	3.0- 3.7- 4.4)
depth	1.5- 1.6- 1.8	1.6- 2.0- 2.4	( 1.7- 2.0- 2.3	1.6- 2.0- 2.4)
Palpus length	18 - 19-20	18½- 22-25	( 19½- 22-23	18½- 22- 2.5)
Femur length	4.0- 4.3- 4.5	4.1- 4.9- 5.7	( 4.3- 5.0- 5.4	4.1- 4.8- 5.7)
Tibia length	4.5- 4.8- 5.0	4.5- 5.5- 6.2	( 4.9- 5.5- 5.7	4.5- 5.5- 6.2)
width	1.7- 1.8- 1.9	1.9- 2.2- 2.5	( 2.0- 2.2- 2.4	1.9- 2.2- 2.5)
Chela length	8.1- 8.6- 9.1	8.3- 9.9- 11.4	( 8.7- 9.9- 10.5	8.3- 9.9- 11.4)
Movable finger length	4.9- 5.2- 5.5	5.3- 6.2- 7.1	( 5.4- 6.2- 6.6	5.3- 6.3- 7.1)
Hand length	3.1- 3.2- 3.4	2.9- 3.5- 4.2	( 3.1- 3.5- 3.7	2.9- 3.5- 4.2)
width	1.9- 2.0- 2.1	1.8- 2.3- 2.7	( 2.1- 2.3- 2.5	1.8- 2.3- 2.7)
depth	1.7- 1.8- 2.0	1.5- 2.0- 2.4	( 1.9- 2.0- 2.2	1.5- 2.1- 2.4)

TABLE 14

Comparison between *Rhopalurus hasethi* from Curaçao, Bonaire and Aruba.

Averaged values. Compare Tables 11-13.

	Curaçao		Bonaire		Aruba		
	10 ♂♂ car.l.	20 ♀♀ car.l.	10 ♂♂ car.l.	20 ♀♀ car.l.	10 ♂♂ car.l.	20 ♀♀ car.l.	
	5.9 mm	6.5 mm	5.1 mm	5.2 mm	4.2 mm	5.2 mm	
Body length	12½	11	11	10½	11½	10½	carapace length
Carapace in shape	0.88	0.86	0.88	0.84	0.91	0.87	as long as broad
Eye distance	0.38	0.38	0.39	0.38	0.37	0.38	carapace length
Abdomen length	3.1	2.7	2.5	2.7	3.0	2.9	carapace length
3rd sternite width	1.18	1.28	1.17	1.24	1.16	1.27	carapace length
4th sternite width	1.19	1.27	1.18	1.24	1.17	1.28	carapace length
Cauda length excl. pedicle	7.7	6.3	7.3	6.1	6.7	6.0	carapace length
incl. pedicle	8.0	6.6	7.6	6.4	7.0	6.3	carapace length
1st segment length	0.95	0.79	0.91	0.75	0.85	0.76	carapace length
in shape	1.55	1.25	1.45	1.2	1.4	1.2	as long as broad
2nd segment length	1.18	0.96	1.14	0.94	1.04	0.92	carapace length
in shape	2.0	1.65	1.9	1.6	1.75	1.55	as long as broad
3rd segment length	1.29	1.02	1.24	1.01	1.12	0.98	carapace length
in shape	2.3	1.8	2.15	1.75	1.95	1.7	as long as broad
4th segment length	1.38	1.09	1.33	1.08	1.20	1.03	carapace length
in shape	2.6	1.95	2.6	2.0	2.2	1.85	as long as broad
5th segment length	1.54	1.21	1.49	1.18	1.33	1.15	carapace length
in shape	3.0	2.3	2.9	2.3	2.65	2.3	as long as broad
6th segment length	1.27	1.21	1.17	1.10	1.14	1.13	carapace length
in shape	3.0	3.05	2.8	2.75	2.65	2.7	as long as broad
Spine length	0.53	0.57	0.45	0.50	0.45	0.48	carapace length
	0.63	0.80	0.58	0.74	0.58	0.68	vesicle length
Vesicle length	0.83	0.71	0.78	0.67	0.79	0.71	carapace length
in shape	1.15	1.05	1.10	1.05	1.12	1.10	as broad as deep
Palpus length	4.8	4.3	4.7	4.3	4.5	4.2	carapace length
Femur length	1.09	0.96	1.05	0.98	1.02	0.94	carapace length
Tibia length	1.23	1.07	1.19	1.07	1.14	1.05	carapace length
in shape	3.0	2.5	2.9	2.5	2.7	2.5	as long as broad
Chela length	2.09	1.93	2.06	1.93	2.03	1.91	carapace length
in shape	4.3	4.2	4.6	4.6	4.3	4.3	as long as broad
Movable finger length	1.26	1.22	1.26	1.22	1.23	1.20	carapace length
	1.57	1.76	1.64	1.78	1.60	1.80	hand length
Hand length	0.80	0.70	0.76	0.70	0.76	0.67	carapace length
in shape	1.1	1.1	1.15	1.15	1.1	1.15	as broad as deep
Pectinal teeth	28.3	25.6	27.0	25.1	23.7	22.2	in number

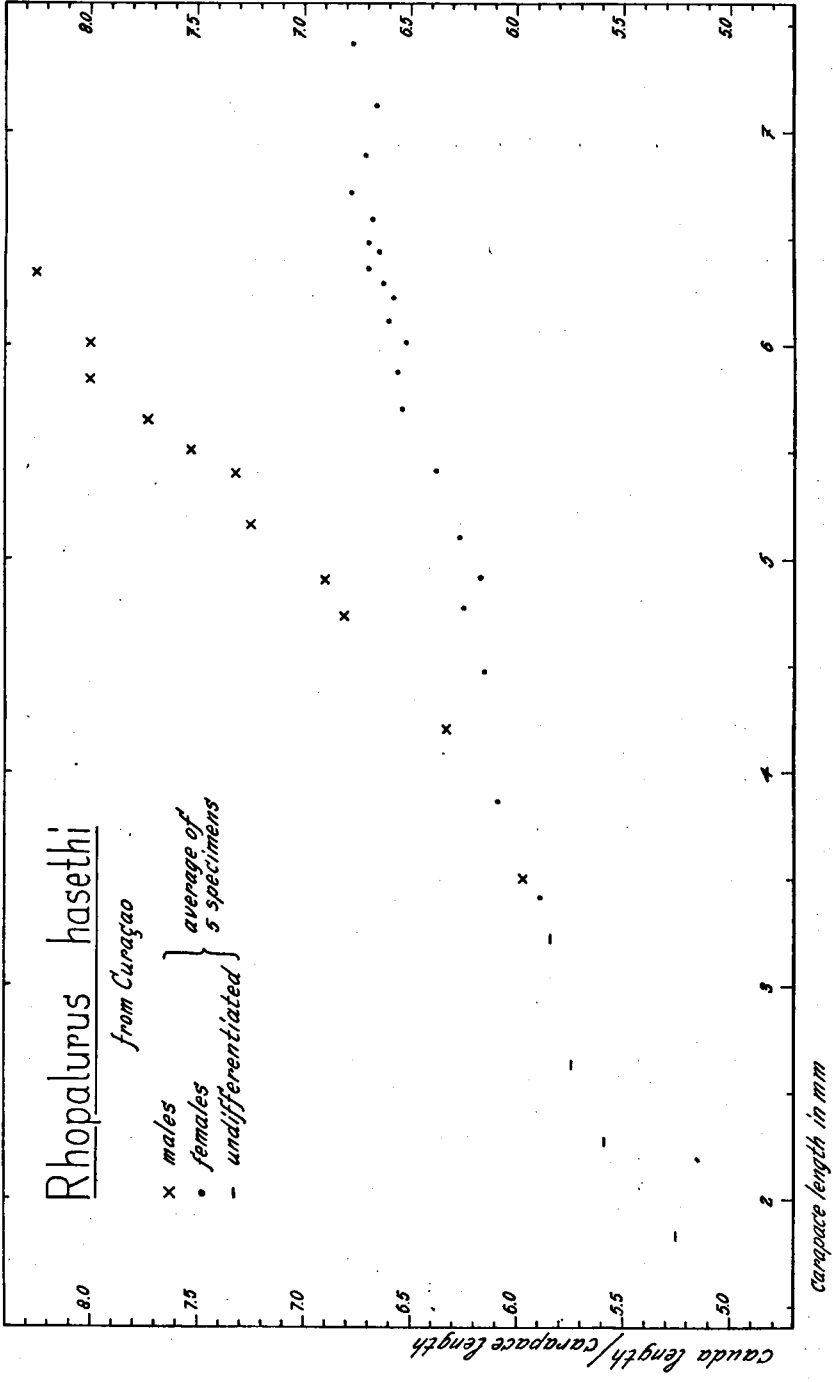


Fig. 17. Measurements in 55 ♂, 105 ♀ and 20 undifferentiated specimens of *Rhopalurus hasethi* from Curaçao.

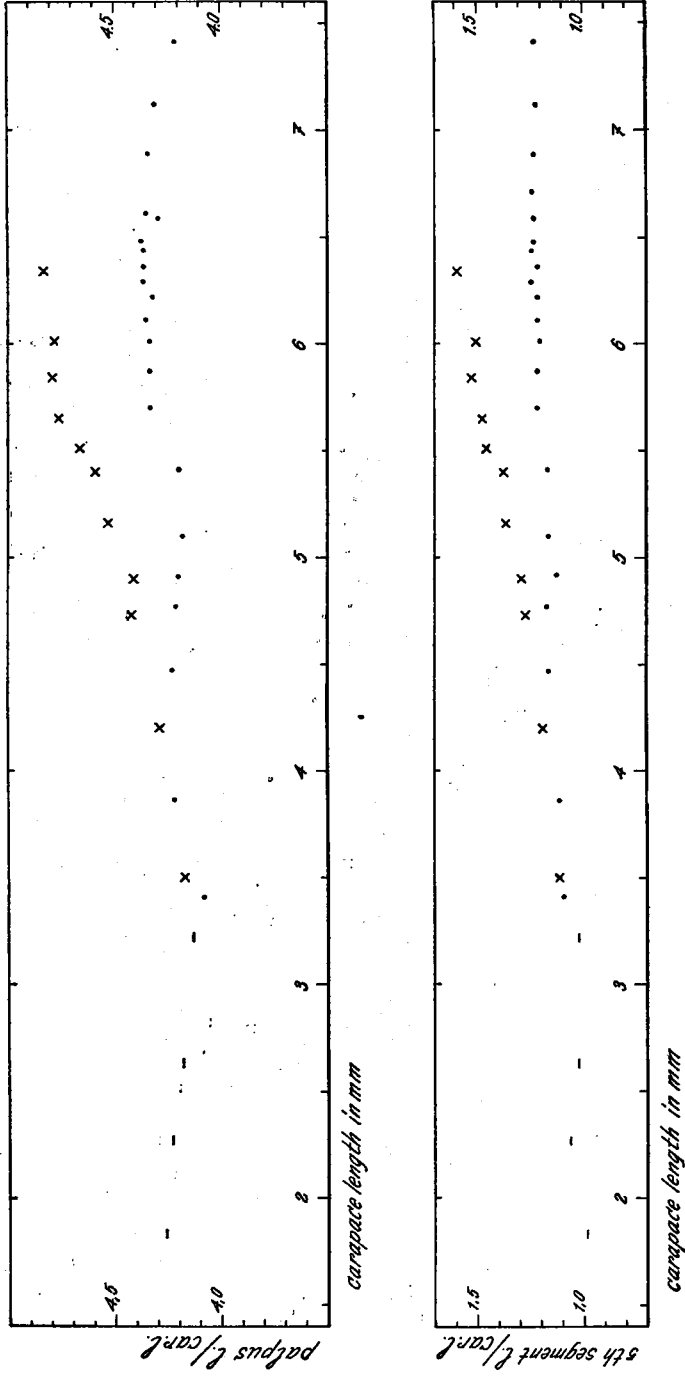


Fig. 18. Measurements in 55 ♂, 105 ♀ and 20 undifferentiated specimens of *Rhopalturus hasethi hasethi* from Curaçao.



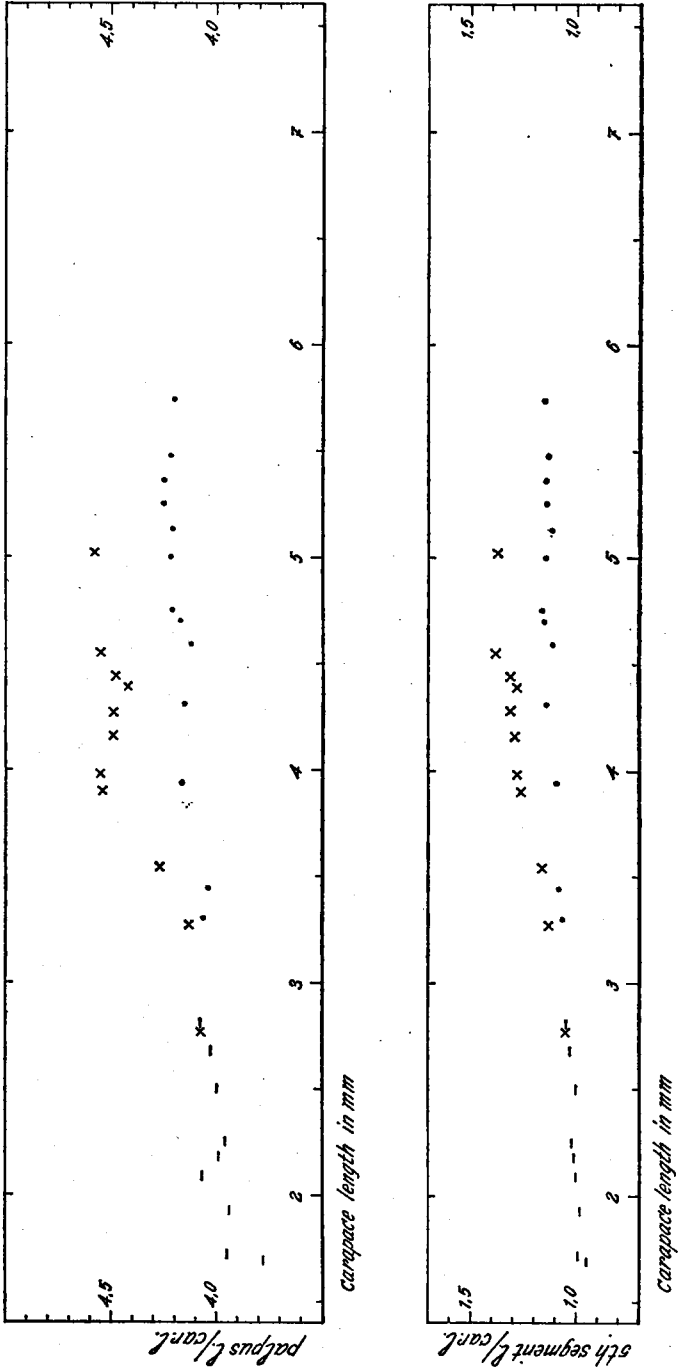


Fig. 20. Measurements in 55 ♂, 65 ♀ and 45 undifferentiated specimens of *Rhopalurus hasethi arubensis* from Aruba.

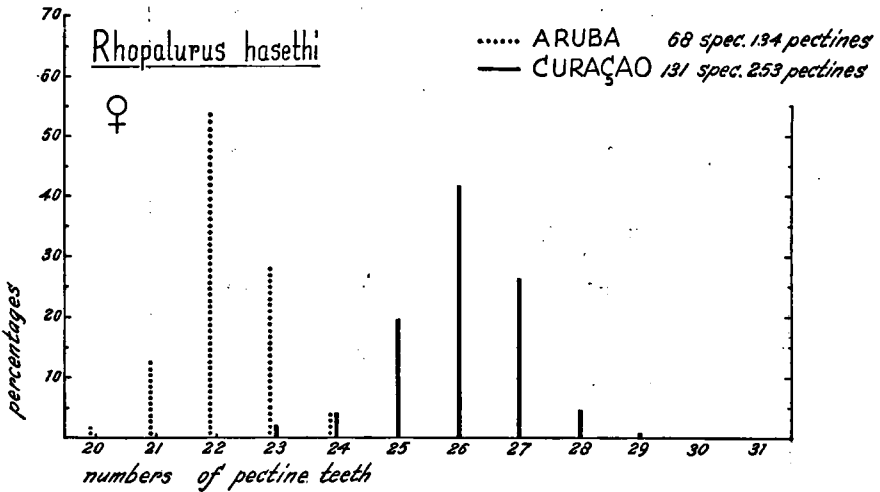
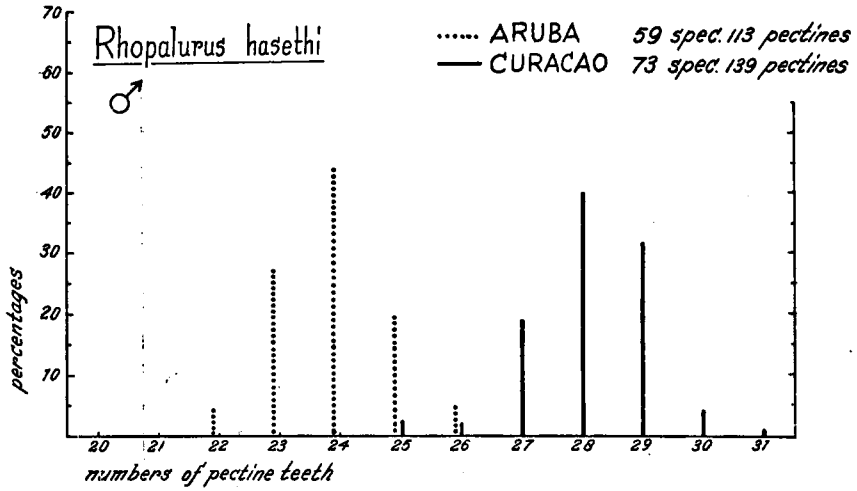


Fig. 21-22. Numbers of pectine teeth in ♂ and ♀ *Rhopalurus hasethi*: specimens from Curaçao (typical subspecies) and from Aruba (subsp. *arubensis*) were compared.

TABLE 15

Numbers of Pectinal Teeth in *Rhopalurus hasethi*.

Averages in italics.

<i>left</i> pectine	<i>right</i> pectine
Curaçao	
10 ♂ + 10 ♀ from Hato (= H), 10 ♀ from W. Curaçao (= C)	
♂ 27-28.3-31	♂ 27-28.4-30
♀ 24-25.8-27 (H 24-25.8-27, C 25-25.7-27)	♀ 23-25.5-28 (H 23-25.7-28, C 23-25.2-26)
Bonaire	
10 ♂ + 10 ♀ from Kralendijk (= K), 10 ♀ from NW. Bonaire (= B)	
♂ 26-27.0-28	♂ 26-27.1-28
♀ 24-25.2-27 (K 24-25.2-27, B 24-25.1-26)	♀ 23-25.1-26 (K 23-25.0-26, B 24-25.1-26)
Aruba	
10 ♂ + 10 ♀ from Dakota Airport (= D), 10 ♀ from E. Aruba (= A)	
♂ 23-23.9-25	♂ 22-23.6-25
♀ 21-22.2-24 (D 21-22.2-23, A 21-22.3-24)	♀ 20-22.3-24 (D 22-22.5-23, A 20-22.0-24)