

MEDDELELSER OM GRØNLAND

UDGIVNE AF

KOMMISSIONEN FOR VIDENSKABELIGE UNDERSØGELSER I GRØNLAND

Bd. 191 · Nr. 7

KAP FARVEL EXPEDITIONEN 1970

THE OCCURRENCE OF
MITOPUS MORIO (FABR.) *PHALANGIIDAE*,
OPILIONES IN GREENLAND AND IN
OTHER NORTHERN REGIONS

BY

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WITH 5 FIGURES AND 1 TABLE IN THE TEXT,
AND 5 PLATES

KØBENHAVN

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BIANCO LUNOS BOGTRYKKERI A/S

1973

ISBN 87 421 0076 3

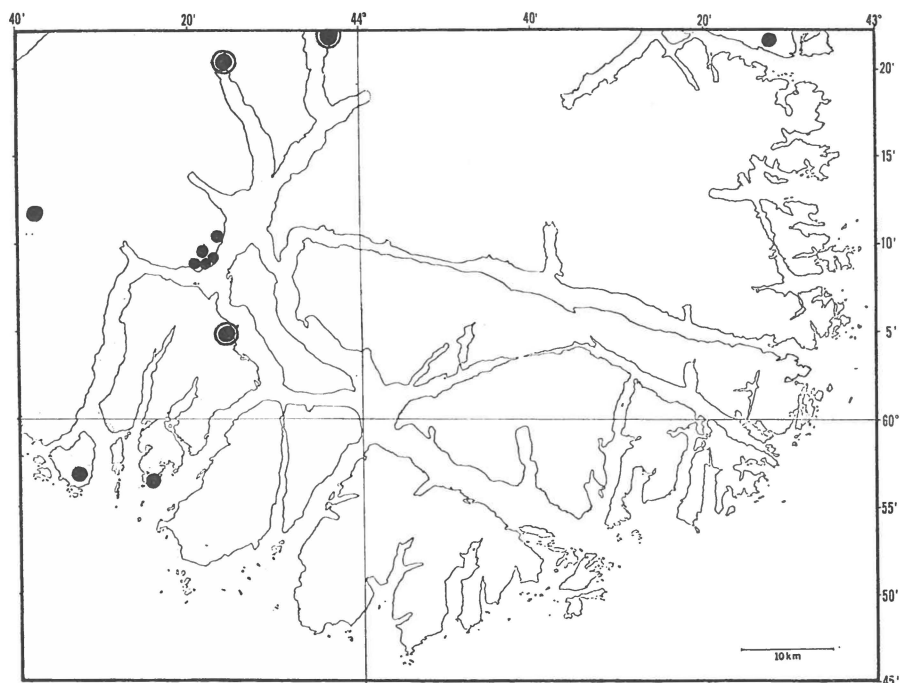


Fig. 1. Kap Farvel region. *Mitopus morio* (FABR.). The encircled areas indicate the regions where collections were made during the 1970 expedition. The remaining areas comprise some localities that derive from the older material housed in the museum.

Introduction

The studies of material concerning *Mitopus morio* (FABR.) mainly derive from the Kap Farvel expedition 1970, but are also based in part on earlier collections made in Greenland. The rest of the information relative to finds of *Mitopus morio* (FABR.) from other northern geographical regions exclusively stems from the available literature.

The material housed at the Zoological Museum: The material dating from 1970 was collected by JENS BÖCHER in the Kap Farvel region at the following localities: Pamiagdruk, Anordliuitsoq, Kangikitsoq-Tupausat and Kangersuneq qingordleq.

The older material housed at the Zoological Museum was collected by the following researchers:

E. BØGVAD collected *Mitopus morio* (FABR.) in Greenland 7 July–12 October, 1932, as well as on 25 August, 1947; all of the specimens, none of which was specified, were found at the Zoological Museum in Copenhagen. All the specimens from 1932 were marked 7th Thule Expedition. The localities are as follows: Auarkat*,

Place names marked * are not spelled in the authorized form.

Narssaq, Lindenov*, between Lindenows Fjord and Graahs Havn, Tiningnertôq, Augpilagtoq, Igdlorssuit (Ilua), Sermelik Syddel*. The material from 1947 was collected in Ivigtut.

P. EBERLIN used the synonym *Oligolophus alpinus* Hist., the specimens were collected in the period 16 to 30 August, 1883 Kangerdlucrak* and Kangerdlugssuatsiaq and from 13 July to 9 August, 1885 (Umanak and Dronning Louise Ø). S. HANSEN uses the same synonym with respect to a sample from Godthåbsfjord, collected in August, 1885. In 1931 F. JOHANSEN obtained the species in Julianehåb and Sukkertoppen.

G. LUNDBECK likewise used the synonym *Olig. alp. Hist.*; his collections were made from 1 July to 31 August, 1899, at the following localities: Fiskenæsset, Nekamiut*, Tasiussaq, Nariak*, Musartut*, Qagssiarssuk, Igaliko. In addition there is one sample from Holsteinsborg, 24 June (year missing) and 1 sample from Sukkertoppen collected 17 July, 1895.

FR. LUNDHOLM collected the species (*Olig. alp. Hist.*) in 1889 in Ilua and Nunarssuaq. TH. NURGAUND (? illegible label) collected the species (*Olig. alp. Hist.*) 20 July, 1882, in Godthåb and on Bjørneøen from 2 September to 25 September, 1883. There is a find from Julianehåb District of *Olig. alp. Hist.* made by K. STEENSTRUP on 7 August, 1888. K. STEPHENSEN found *Mitopus morio* (FABR.) on 28 July, 1912, at Bredefjord, and K. V. SØRENSEN collected the species (*Olig. alp. Hist.*) at Frederikshåb in 1877.

In 1929 C. F. ROEWER reported that *Mitopus morio* (FABR.) was widespread in Europe and Asia from Iceland and Spitzbergen to North Africa, Siberia, Persia, China, and North America.

A. KÄSTNER, 1929, mentions the same regions, as well as numerous parts of Germany. The earlier literature concerning *Mitopus morio* (FABR.) rarely contains adequate diagnoses; for instance, the male genitals are not even mentioned. With respect to Greenland, only the localities are reported, and the synonym *Oligolophus alpinus* HERBST, a classification that also is used for the species collected in other parts of the Northern Hemisphere, is frequently used.

The Localities in Greenland

Niutôk,* *Phalangium opilio* (O. FABRICIUS, 1887). Kokortokfjord* (*Oligolophus alpinus* HERBST., E. SIMON, 1888). The remaining localities are dependable with respect to determination of species; the material collected here is housed at the Zoological Museum in Copenhagen.

The statistical processing of the Opilionide material collected in Denmark up to 1962 shows that a total of 2, 174 specimens of *Mitopus morio* was collected; 922 were ♂♂, 621 ♀♀ and 631 juveniles, i. e., the percentage of ♂♂ was 59.8. The corresponding figures in the Greenlandic material (Table 1) are 144 ♂♂, 505 ♀♀, and 1,234 juveniles out of a total of 1,883 specimens, i. e., only 22.2 % ♂♂ were found there.

Fig. 2. Map of Greenland. All the localities where *Mitopus morio* (FABR.) were found in Greenland are shown on this map. This material is housed in the Zoological Museum in Copenhagen.

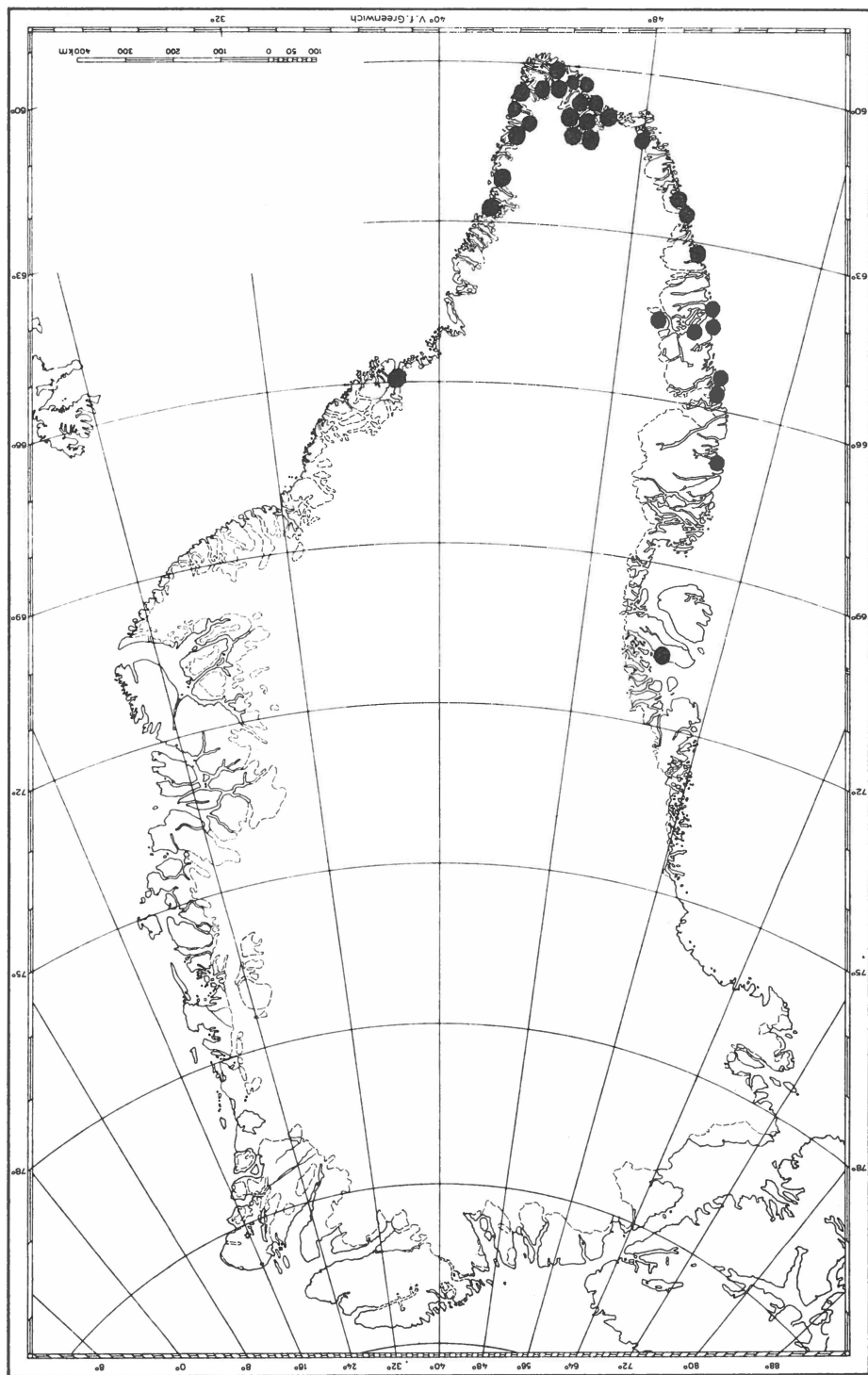


Fig. 2.

This discrepancy between the Danish and the Greenlandic material, must, especially in consideration of the number of juveniles and the percentage of ♂♂, be attributable at least in part to the following conditions.

1) the Danish material was collected through a period of several years, and throughout the year. The Greenlandic material dating from 1970 was collected during no more than 1½ months in July and August, i.e. in the period when the young predominate. To be sure, the older material now housed in the Zoological Museum was collected during 5 months over a period of many years, but this only comprises 168 specimens and therefore is of minor significance as far as the statistical calculation is concerned.

2) The Danish specimens were primarily captured with forceps, and since 2 or more ♂♂ often gather round a single ♀, this method of collection can readily result in a surplus of ♂♂. In other words, the percentage of ♂♂ in the Danish material could be slightly excessive. The Greenlandic material was caught in traps; conceivably, for one reason or another it was easier for the ♂♂ to avoid falling into the traps than for the ♀♀ and the young. Consequently, this may have resulted in too low a percentage of ♂♂.

3) The pronouncedly divergent percentage of ♂♂ at the 3 Greenlandic localities at Kap Farvel undoubtedly is attributable to the time of the year when the collections took place, as well as to the small number of specimens obtained at 2 of the localities.

Even taking the above-mentioned comments into consideration, a possible rational study in future may reveal that the percentage of Greenlandic ♂♂ actually is lower than that of Danish ♂♂, but it would be most unreliable to draw a conclusion on the basis of the material available at present.

The *Mitopus morio* young collected in Greenland have essentially the same saddle marking as the Danish specimens. The smaller young almost always lack pigmentation outside the saddle. As for the larger or large young, the Greenlandic specimens are more palely pigmented outside the saddle than the Danish specimens, and almost always a sharp white stripe borders on the saddle (Plate 1). This does not occur as frequently in the Danish population.

The pigmentation of the Danish *Mitopus morio* ♀♀ is quite different from that of the Greenlandic females, particularly when observed from a statistical point of view. The dorsal marking of the Greenlandic ♀♀ is almost always sharply demarcated by a white stripe, in the same way as most frequently is true of the young. The dorsal area outside the saddle has pigment spots of varying density. The photographed specimens shown on Plate 3 are typical of ♀♀ in the Greenlandic population. Yet

it should be mentioned here that on the photographs the area outside the saddle is darker than the visual impression one receives through a direct observation of the animal under a binocular lens; presumably, this is because among the black pigment spots outside the saddle there very frequently is a considerable number of yellow-brown-reddish spots which seen with the naked eye appear to be paler than the black spots.

One rarely finds a dorsal marking among the Danish ♀♀ which approximately resembles that mentioned as existing on the Greenlandic females (Plate 2, fig. 3). The sharp white stripe along the contour of the saddle most often disappears, as the pigmentation from the side areas spreads inward toward, or all the way into the edge of the saddle (Plate 2, fig. 2); thus, the saddle's marking can scarcely be discerned (Plate 2, fig. 1.).

The typical coloration of the Greenlandic ♂♂ also diverges from the corresponding coloration of the Danish ♂♂. In all of the available finds made in 1970 the Greenlandic ♂♂ have a sharp white stripe along the saddle, but the side areas on the back outside the saddle are pigmented to an extremely different extent (Plate 4). Numbers 1 and 2 on Plate 4 are the most frequently occurring colorations, i. e., very pale outside the saddle and with only a few pigment spots or having a completely lateral area with dense pigment spots; a coloration such as the one on no. 4 is rare.

The Danish ♂♂ are typically much darker (Plate 5). The lateral area outside the saddle is so densely pigmented that the spots often converge completely. One can find specimens in which the sharp white stripe along the saddle is very clear (Plate 5, fig. 1), approximately like no. 3 and no. 4 on Plate 4; accordingly, in common with the most rarely occurring types. As far as the majority of the specimens are concerned, however, the pigment spots on the lateral areas converge into one large black spot which spreads out and finally merges with the saddle, as shown on Plate 5. It should also be emphasized that figs 3 and 4 represent the by far most frequently occurring colorations.

As a result of the brief period, the latter half of July and the whole of August, during which the collections in the Kap Farvel region took place, the curve in Fig. 3 on the finds of *Mitopus morio* in Greenland is inadequate. It would be impossible to determine the species' annual cycle on the basis of this material; when, however, the older museum material, which was collected from 1877 to 1947, is included there is an increased possibility of arriving at a correct determination of this cycle.

Very small young were found in the first half of June; I believe that young like these could also be found in the latter part of May in localities having a suitably high microclimate.

Table 1

Mitopus morio (FABR.) from Greenland. The Roman numerals indicate the first, second, third, and fourth collections made in 1970 in the Kap Farvel region. The fifth column refers to the

	I/6	II/6	IV/6	I/7			II/7		III/7				
	Very small young	Very small young	Newly-hatched young	Number of ♂♂	Newly-hatched young	Large young	Number of ♀♀	Medium-sized young	Number of ♂♂	Number of ♀♀	Newly-hatched young	Young a few days old	Very small young
<i>Mitopus morio</i> (FABR.) from Greenland.													
Pamiagdlok, Anordliuitsoq									2	11	1	10	28
Kangikitsoq-Tupaussat													
Kangersuneq qíngordleq													
Number of individuals from the Kap Farvel Region									2	11	1	10	28
Material housed in the Zoological Museum in Copenhagen	1	1	2	1	1	3	2	3	8	6			
Total number of individuals	1	1	2	1	1	3	2	3	10	17	1	10	28

Table 1

	I/8				II/8						III/8		
	Medium-sized young	Large young	Number of ♂♂ & ♀♀	Number of young	Number of ♂♂	Number of ♀♀	Very small young	Small young	Medium-sized young	Number of ♂♂ & ♀♀	Number of young	Number of ♀♀	Number of ♂♂
<i>Mitopus morio</i> (FABR.) from Greenland.													
Pamiagdlok, Anordliuitsoq	141	75	40	459	27	81	12	26	22	108	60		30
Kangikitsoq-Tupaussat													
Kangersuneq qíngordleq					16	18			1	34	1		
Number of individuals from the Kap Farvel Region	141	75	40	459	43	99	12	26	23	142	61		30
Material housed in the Zoological Museum in Copenhagen			38		7	8				15		1	19
Total number of individuals	141	75	78	459	50	107	12	26	23	157	61	1	49

fourth quarters of the month. The first four horizontal columns of figures refer to the material available older material housed in the Zoological Museum in Copenhagen.

					IV/7										I/8				
Small young	Medium-sized young	Large young	Number of ♂♂ & ♀♀	Number of young	Number of ♂♂	Number of ♀♀	Newly-hatched young	Young a few days old	Very small young	Small young	Medium-sized young	Large young	Number of ♂♂ & ♀♀	Number of young	Number of ♂♂	Number of ♀♀	Young a few days old	Very small young	Small young
2	43	52	13	176	10	53	24	82	72	62	67	28	63	335	3	37	28	116	99
					1	14		8	23	23	35	40	15	129					
2	43	52	13	176	11	67	24	90	95	85	102	68	78	464	3	37	28	116	99
5		1	14	6	4	19				2	2		23	4	5	33			
17	43	53	27	182	15	86	24	90	95	87	104	68	101	468	8	70	28	116	99

ont.)

IV/8						I/9		II/9		IV/9		II/10	Total of investigated material						
Number of ♀♀	Very small young	Small young	Medium-sized young	Large young	Number of ♂♂ & ♀♀	Number of young	Number of ♂♂	Number of ♀♀	Number of ♂♂	Number of ♀♀	Number of ♂♂	Number of ♀♀	Number of ♀♀	Number of ♂♂	Number of ♀♀	Number of ♂♂ & ♀♀	Number of young	Number of individuals	Percentage of ♂♂
99	15	14	21	3	229	53								72	381	453	1083	1536	15,9
														1	14	15	129	144	6,66
														16	18	34	1	35	44,1
99	15	14	21	3	229	53								89	413	502	1213	1715	17,7
1					30		3	2	1	2	7	7	1	55	92	147	21	168	37,4
10	15	14	21	3	259	53	3	2	1	2	7	7	1	144	505	649	1234	1883	22,2

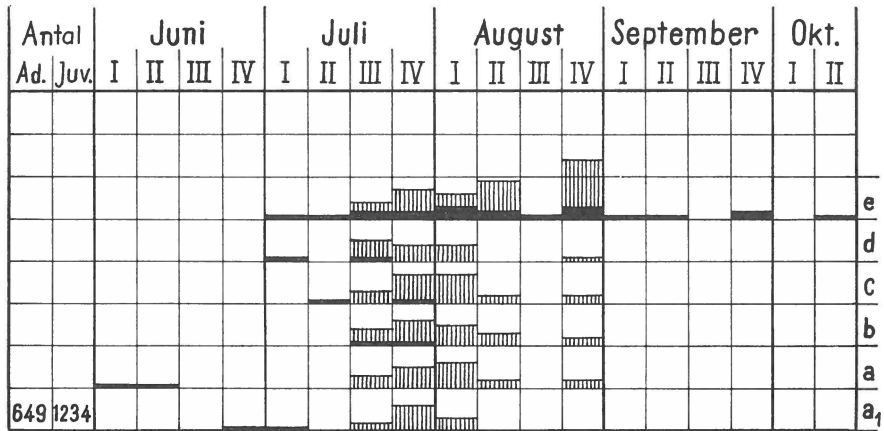


Fig. 3. *Mitopus morio* (FABR.) from Greenland. The hatched areas comprise the collections made in the Kap Farvel region in 1970. The completely black areas refer to the collections made in the period from 1877 to 1947. I, II, III, and IV indicate the first, second, third, and fourth quarters of the month. a: Newly-hatched young, or young who are only a few days old. a: very small young. b: small young. c: medium-sized young. d: large young. e: adult ♂♂+♀♀.

A few specimens of newly-hatched young, medium-sized and large young, as well as adults, were found during the first half of July. Numerous samples of the same dimensions were found in the latter half of July and throughout August. A total of 1,715 individuals was found during this entire period in the Kap Farvel region. The older material that is housed in the museum indicates that adult individuals were found in September and in the first half of October.

Taking all the available material into consideration, it seems reasonable to assume that the young collected in July and August could have developed into adults and large juveniles in September, probably in October, as well.

In comparing the curve on the Greenlandic material (Fig. 3) with the material of *Mitopus morio* collected in Denmark (see Fig. 4), there evidently is a surprising similarity. The curve on the Danish material culminates from mid-July to the beginning of October, and presumably the case is precisely the same with respect to the curve on the Greenlandic material. This similarity between the annual cycle of *Mitopus morio* in two such differing geographical regions as Greenland and Denmark can seem strange. As mentioned above, the curves culminate in the same period. Nevertheless, there is one divergence: namely, the curves show that the active period of the Danish species' life commences in May, whereas in Greenland it apparently does not begin before June. On the whole, therefore, the active period of the species in Greenland is briefer by a month than in Denmark. Since the Kap Farvel

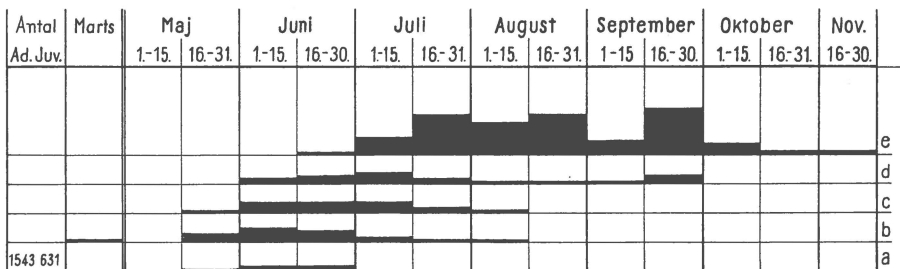


Fig. 4. *Mitopus morio* (FABR.) collected in Denmark from 1929 to 1962 in more than 950 localities. Here the months are divided into first and second halves. a: very small young. b: small young. c: medium-sized young. d: large young. e: adult ♂♂+♀♀. The curve was drawn on the basis of Table 1 in MEINERTZ, 1964 b.

region is located as far south as Oslo in Norway, the explanation of this circumstance may be a later coming of spring in the region in question.

Table 1 gives at the right a survey of all the specimens of *Mitopus morio* from Greenland, a total of 1,883, as well as the number collected in each of the regions investigated in Kap Farvel, and the number of specimens contained in the older material housed in the Zoological Museum.

Thus, there were 1,536 individuals from Pamiagdruk, 144 from Kangikitsog-Tupaussat, and 35 from Kangersuneq qingordleq; in addition 168 specimens were found in the above-mentioned material that was housed in the museum. In the rest of the table the number of ♂♂ and ♀♀, as well as the number of young, classified in 4 or 5 dimensions (classified according to age) is recorded for the older material in the museum as well as for the investigated regions at Kap Farvel. Fig. 3 was drawn up on the basis of data on the finds, the number of adult individuals, and the dimensions of young individuals.

In regard to the distribution of *Mitopus morio* (FABR.) in other northern regions there are some, often summary, reports dating from both before and after the turn of the century.

The Localities in Iceland

With respect to Iceland, the following localities are mentioned: Faksrudsfjord, Seydisfjord, Eskifjord, and Rødefjord on the east coast; Akureyri, Olafsfjord, Lagardfgøt on the north coast; Reykjavik, Tingvalla (SIMON, 1891). Forsfjördr, Lambadalr, Hjärdardalr, Tindarfjell (SIMON, 1898). K. L. HENRIKSEN (1917, 1931) has mentioned numerous localities where *Mitopus morio* (FABR.) were found during C. H. LINDROTH's two journeys in Iceland. The localities mentioned from the first journey are:

Southwestern Iceland 1 locality, Western Iceland 2 localities, Northwestern Iceland 10, and Eastern Iceland 2 localities (1931). From the second journey: Southern Iceland 14, Southwestern Iceland 1, Northern Iceland 4, Northeastern Iceland 3, Eastern Iceland 2, and Southeastern Iceland 3 localities (1932). This is to say that the species occurs, so to speak, everywhere in Iceland.

The Location on the Faroe Islands

E. STRAND quotes E. SIMON (1898, pp. 261–63) incorrectly, as Klaksvig and Thorshavn are included in the Icelandic localities; thus, the reliability of the finds of *Mitopus morio* (FABR.) (*Olig. alp.* HERBST) is dubious. At present I do not have at my disposal any reports concerning the species' occurrence on the Faroe Islands; considering its European distribution it is most likely that it also occurs on the Faroes. K. L. HENRIKSEN (1931–32) also mentions that *Mitopus morio* exists on the Faroes, but this is probably a quotation from E. STRAND (*Fauna arctica*).

The Localities in Norway

There are reports of finds of *Mitopus morio* from Hatfjelddalen, Sandskarfjeldet, Sandnessjøen, Dønna, Løtka, Aal, Maasø, Trondhjem, Frederiksstad, Gausdal (STRAND, 1900); Nordfuglø (STRAND, 1900); Bodø, Porsanger (Ellingsen, 1900); Aurlandsdalen, Vassbygda, Flåm, Vatnahalsen, Reinungavatn (KAURI, 1966). K. L. HENRIKSEN cites from older literature that *Mitopus morio* (FABR.) occurs on Spitzbergen (1917, 1931).

The Localities in Sweden

The following localities are mentioned: Northern Sweden (SIMON, 1879); Svensk Skarmodal (STRAND, 1900). HANS LOHMANDER (1949–50, 1953–56) reports on finds of *M. morio* (FABR.) in the following regions: Skåne, Småland, northwards as far as the northern border of Östergötland, westwards up in Värmland. These collections were made in the period 1949–1956. In consideration of the species' distribution in Norway and Finland it can be presumed that it will also occur quite commonly in the entire middle and northernmost parts of Sweden.

The Localities in Finland

Mitopus morio (FABR.) occurs in the following regions: Northern Lapland (HASSELT, 1884); N. Ranen; Vefsen: Vefsenmo, Pasvig, Elvenaess (SIMON, 1887). With respect to the northern districts P. T. LEHTINEN (1964) reports on the following number of localities for *Mitopus morio*

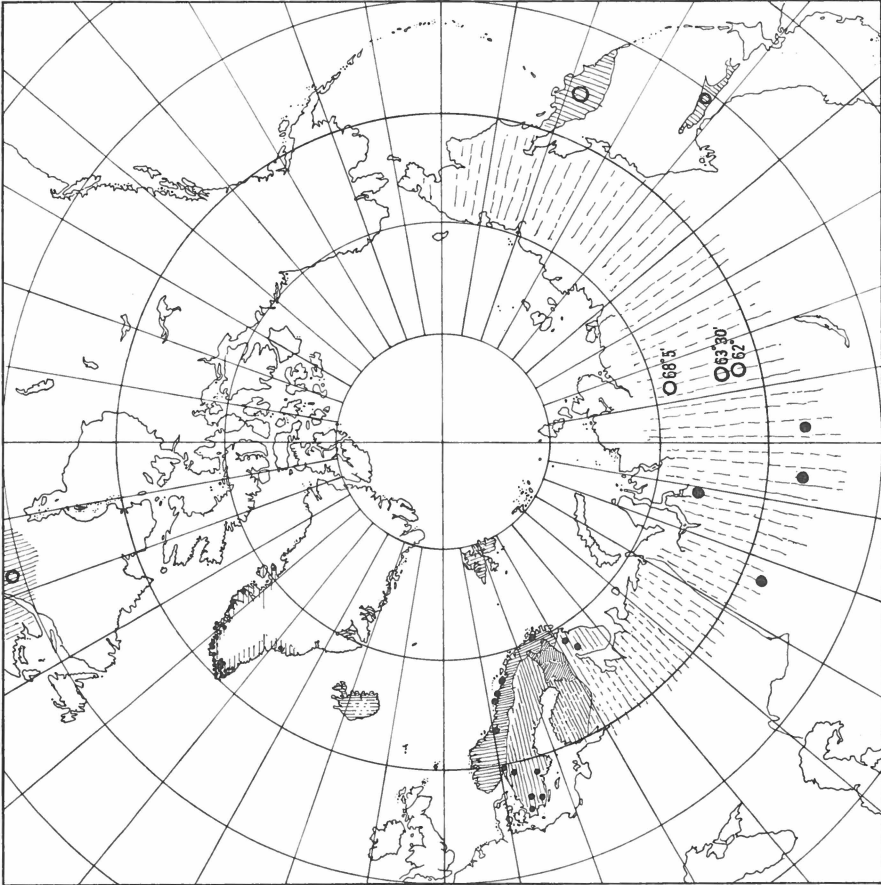


Fig. 5. The map indicates northern localities where *Mitopus morio* (FABR.) are known to have been found, as well as hatched areas where the species is presumed to occur. The circles in the vertically hatched areas indicate finds, but do not indicate the localities. The circles where the latitudes are given (Siberia) refer to localities whose geographical placement could not be determined on the basis of the cartographical material on hand. Furthermore, *Mitopus morio* occurs in the entire Northern Hemisphere.

(FABR.): Enontekiö, 3 loc., Utsjoki, ca. 20 loc., Inari, 4, and Sodankylä 12 localities. Towards the south this entire region reaches the Gulf of Bothnia, and borders on Norway, Russia, and Sweden. Thus there is every probability that the species occurs, at least, in the regions bordering on Finland. LEHTINEN also reports that the species is common all over Finland.

The Localities in Russia

Known occurrence: R. Imandra; near the Kola Peninsula: Sashjejska (Tuloma) (SIMON, 1887).

The Localities in Siberia

Mitopus morio (FABR.) has been collected in the following places: Krasnojarsk-Tomsk; Cantajskoj (68° 5'); Selivaninskoj (65° 55'); Troitzkoj (65° 45'); Aninskoj (63° 30') and Intsarewo (62°), (L. KOCH, 1878). Liapine (Siberia; SIMON, 1891). Siberia (ROEWER, 1923). Kamchatka, Sakhalin (LEHTINEN, 1964).

The Localities in North America

Eastern Canada (LEHTINEN, 1964); North America (ROEWER, 1923).

Summary

The *Mitopus morio* (FABR.) material from Greenland that has been studied derives in part from collections made in the Kap Farvel region in 1970, in part from older material housed in the Zoological Museum in Copenhagen. The entire Opilionide material from Greenland exclusively consisted of the above-mentioned species. All of the localities in Greenland are mentioned in the text. An estimate has been made of the difference between the Greenlandic material and the corresponding Danish material with respect to the number of young, ♂♂ and ♀♀, as well as to the pigmentation. Mention is furthermore made of the length of the species' period of activity. These conditions are expressed in the curves shown in Figs 3 and 4. Table 1 gives a numerical survey of the distribution of the material collected in Greenland. Finally, there is a survey of the distribution of *Mitopus morio* (FABR.) in the other northern regions, quoted from the available literature. Accordingly, finds are mentioned for the following localities: Iceland, the Faroe Islands, Norway, Sweden, Finland, Russia, Siberia, and North America, including Canada.

The manuscript has been translated from the Danish by Mrs. KARIN FENNOW.

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PLATES

Plate 1

Mitopus morio (FABR.) from South Greenland (the Kap Farvel region). 3 medium-sized juveniles, showing the variations of the dorsal markings; small young completely white outside the saddle. The grey tone outside the saddle results from the light conditions.

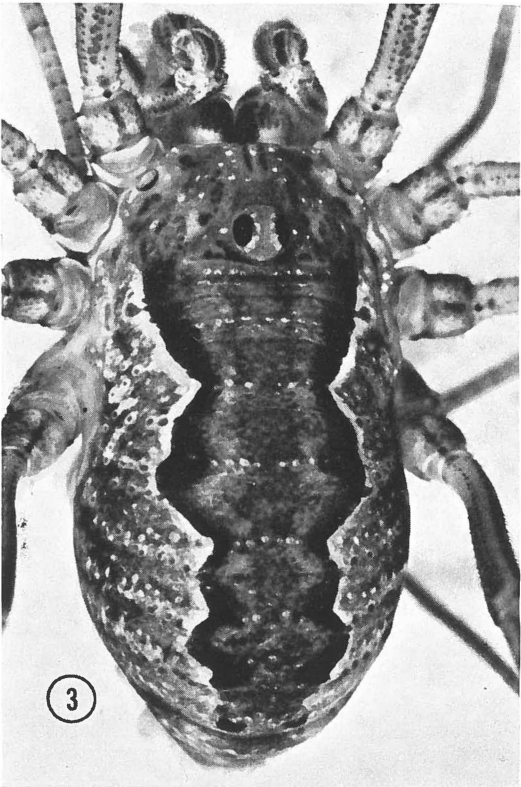
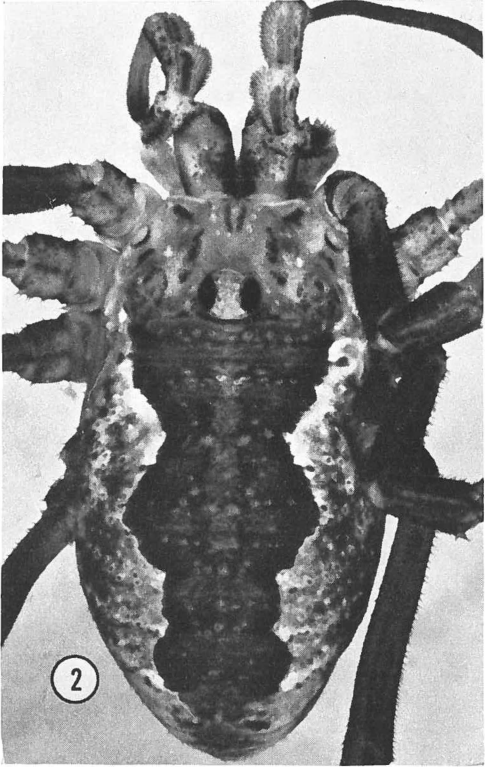
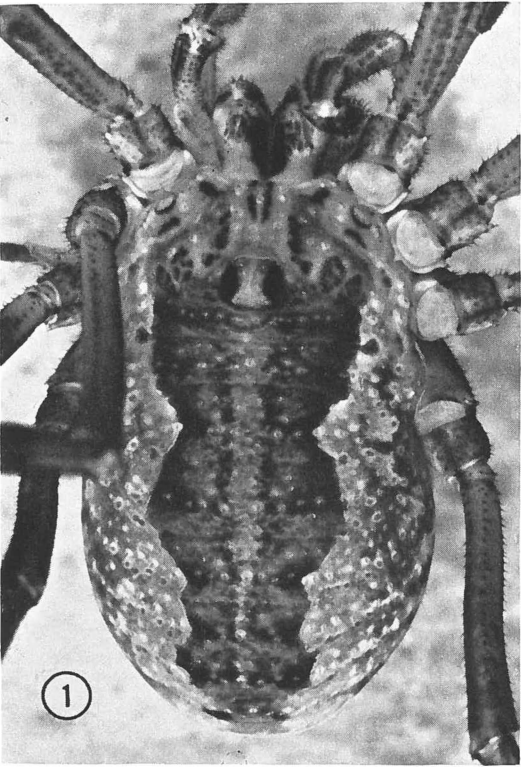


Plate 2

Mitopus morio (FABR.) from Denmark. 3 ♀♀ with varying dorsal markings. Fig. 1 shows the most commonly occurring pigmentation, Fig. 3 the rarest pigmentation. The arrow indicates the shaded side. The sharp white stripe toward the saddle rarely occurs.

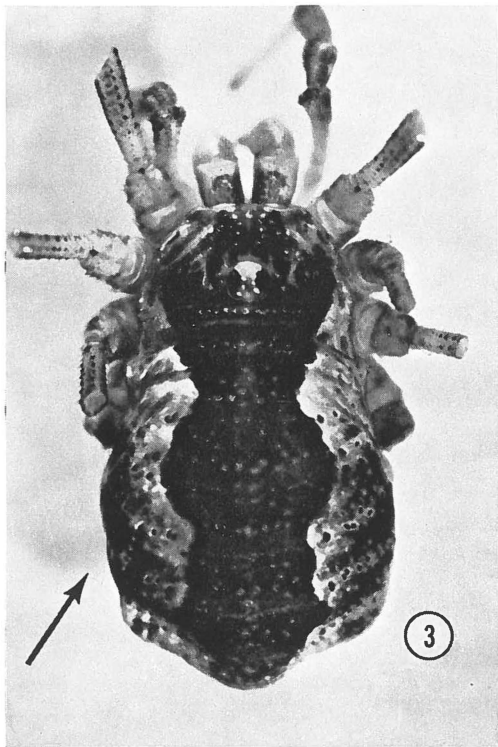
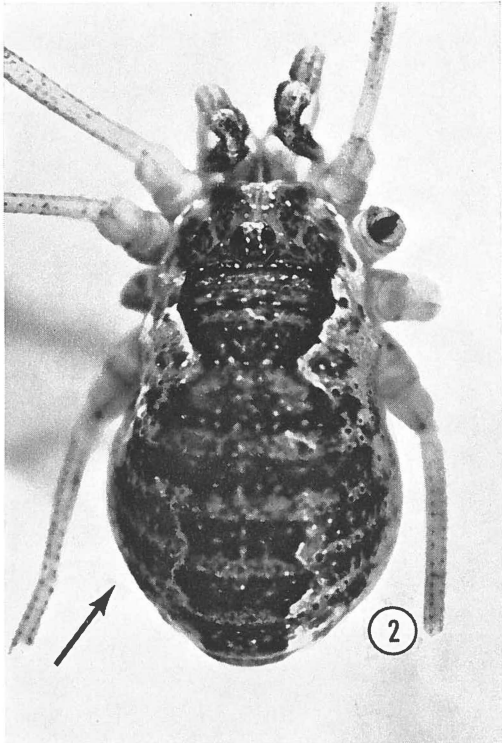
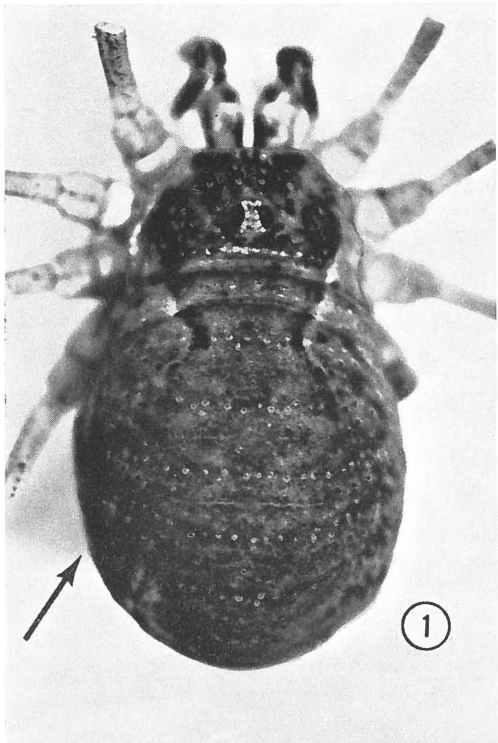


Plate 3

Mitopus morio (FABR.) from South Greenland (Kap Farvel region. 4 ♀♀ in which the intensity of the pigmentation outside the saddle varies. Fig. 1 almost without pigmentation, Fig. 4 intensely pigmented, but all specimens having a sharp white stripe along the saddle. The arrows indicate the shaded side.

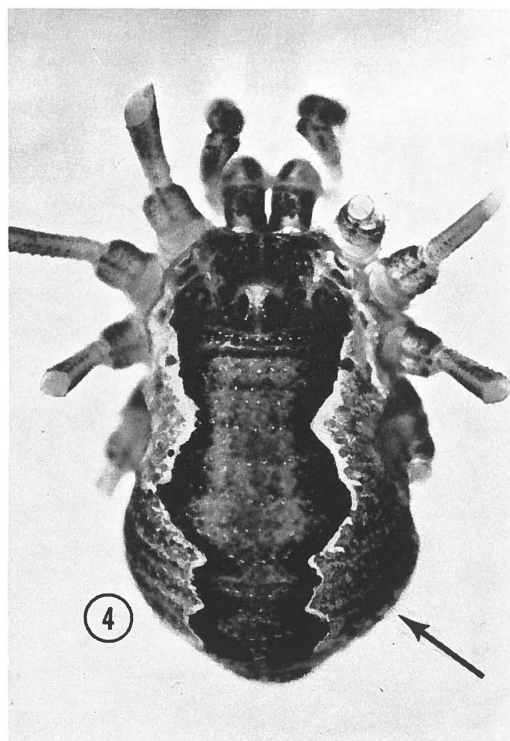
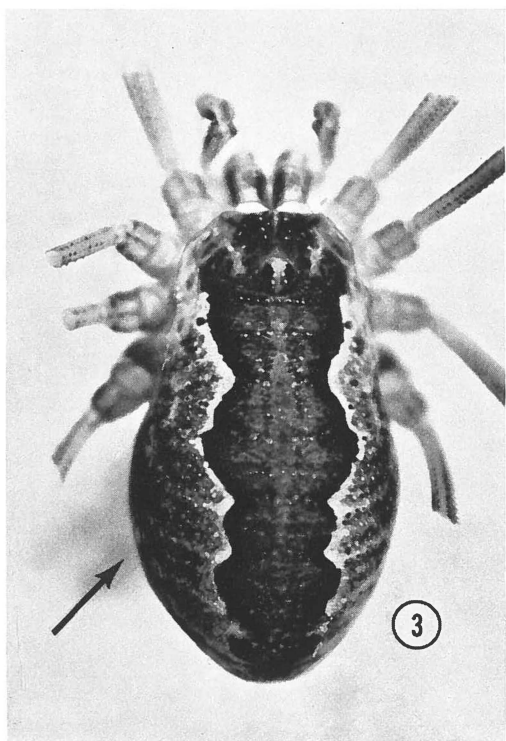
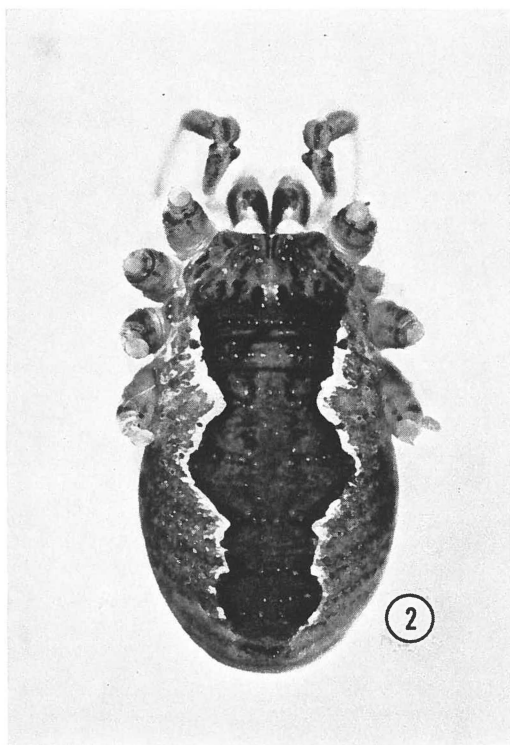
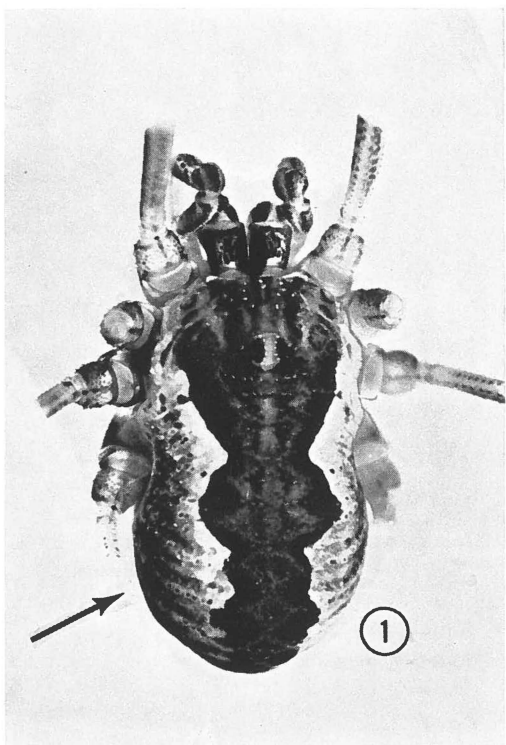


Plate 4

Mitopus morio (FABR.) from South Greenland (Kap Farvel region). 4 ♂♂ with varying pigmentation, especially on the part of the back that is lateral from the saddle. Fig. 1 almost without lateral pigmentation; Fig. 2 with lateral spots of pigment; Fig. 3 with more extensive pigmentation, and with the sharp white demarcation inward towards the saddle still present; Fig. 4 shows that the lateral areas of pigmentation sporadically break the white demarcation of the saddle and merge with the latter's pigment; the arrows indicate the shaded side.

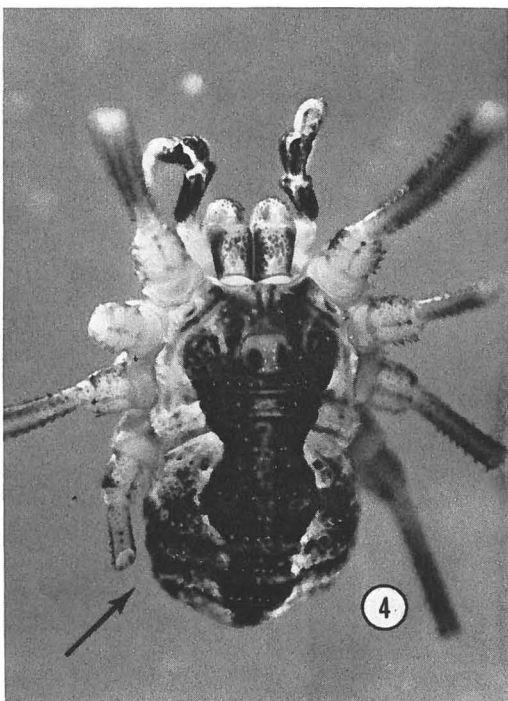
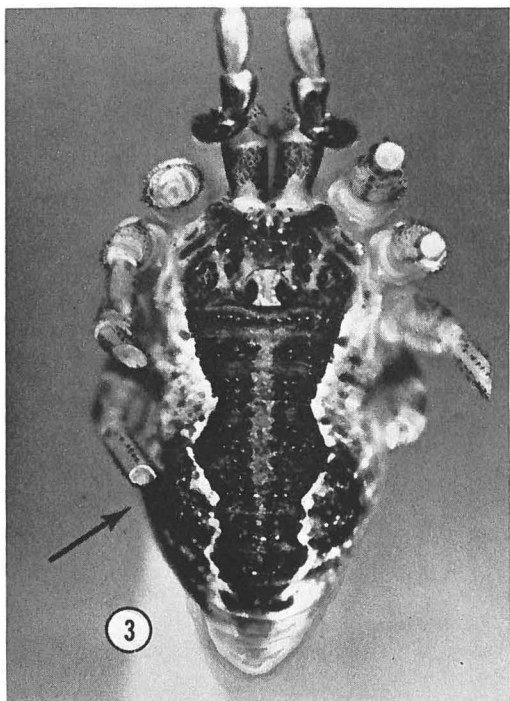
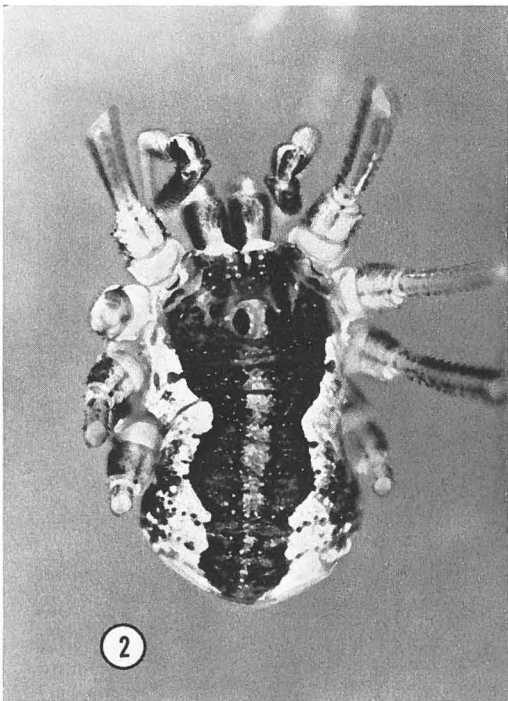
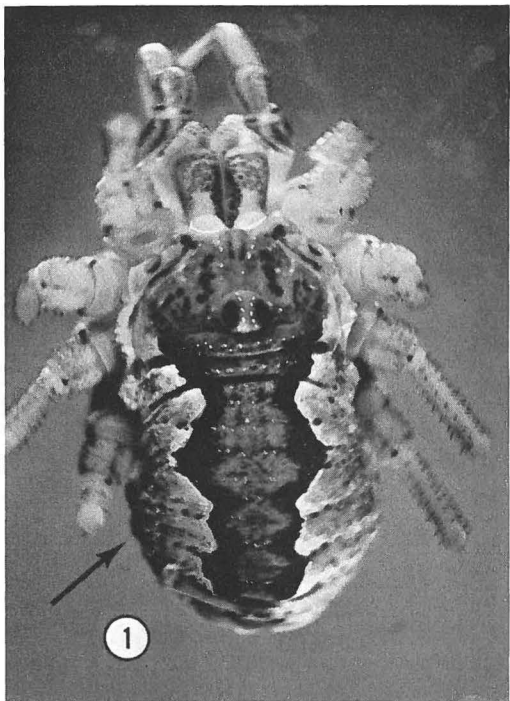


Plate 5

Mitropus morio (FABR.) from Denmark. 4 ♂♂ with varying dorsal markings. Figs 3 and 4 indicate the by far most frequent dorsal marking, and Fig. 1 the rarest one. Fig. 1 shows the white stripe along the saddle; on Fig. 2 this is partially severed posteriorly; on Fig. 3 the white stripe can only be discerned in the form of three pairs of white spots; Fig. 4 shows how the lateral pigmented areas merge completely with the saddle.

