NEW SPECIES OF LOHMANNELLA (HALACARIDAE, ACARI) FROM THE ROSCOFF AREA, BRITTANY (1)

von

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Résumé

Sur les côtes de Bretagne, voisines de Roscoff, vivent six espèces de Lohmannellinae, *Lohmannella falcata falcata* (Hodge), *L. keruillei* (Trouessart), *L. nupides* n. sp., *L. rustica* n. sp., *Scaptognathus hallezi* Trouessart et *S. tridens* Trouessart.

Lohmannella keruillei, L. nudipes et *L. rustica* sont décrites.

Les caractères des espèces de *Lohmannella* sont comparés.

Introduction

On the French coast of the English Channel the sub-family Lohmannellinae is represented by two genera, *Lohmannella* and *Scaptognathus.* In the Roscoff area six species have been found, *Lohmannella falcata falcata* (Hodge), *L. kervillei* (Trouessart), *L. nudipes* n. sp., *L. rustica* n. sp., *Scaptognathus hallezi* Trouessart and *S. tridens* Trouessart.

The following abbreviations are used in place of frequently recurring terms:

AD	antero-dorsal plate	P	palp, P-1 to P-4
AE	anterior epimeral plate	PD	postero-dorsal plate
Ca	capitulum	PE	posterior epimeral plate (or plates)
ds	dorsal setae	pgs	perigenital setae
GA	genito-anal plate	ps	pectinate seta (or setae)
GO	genital opening	no	rostrum
mba	membranous area	sgs	subgenital setae
OC	ocular plate (or plates)		

I - IV leg I to leg IV, with the segments 1 to 6.

The numbers of cases involved by counts and measurements are expressed by means of parentheses. Unless otherwise indicated, each division on the scales in the figures represent 50 µm.

The holotypes of *Lohmannella rustica* and *L. nudipes* will be deposited in the collection of Muséum National d'Histoire Naturelle, Paris.

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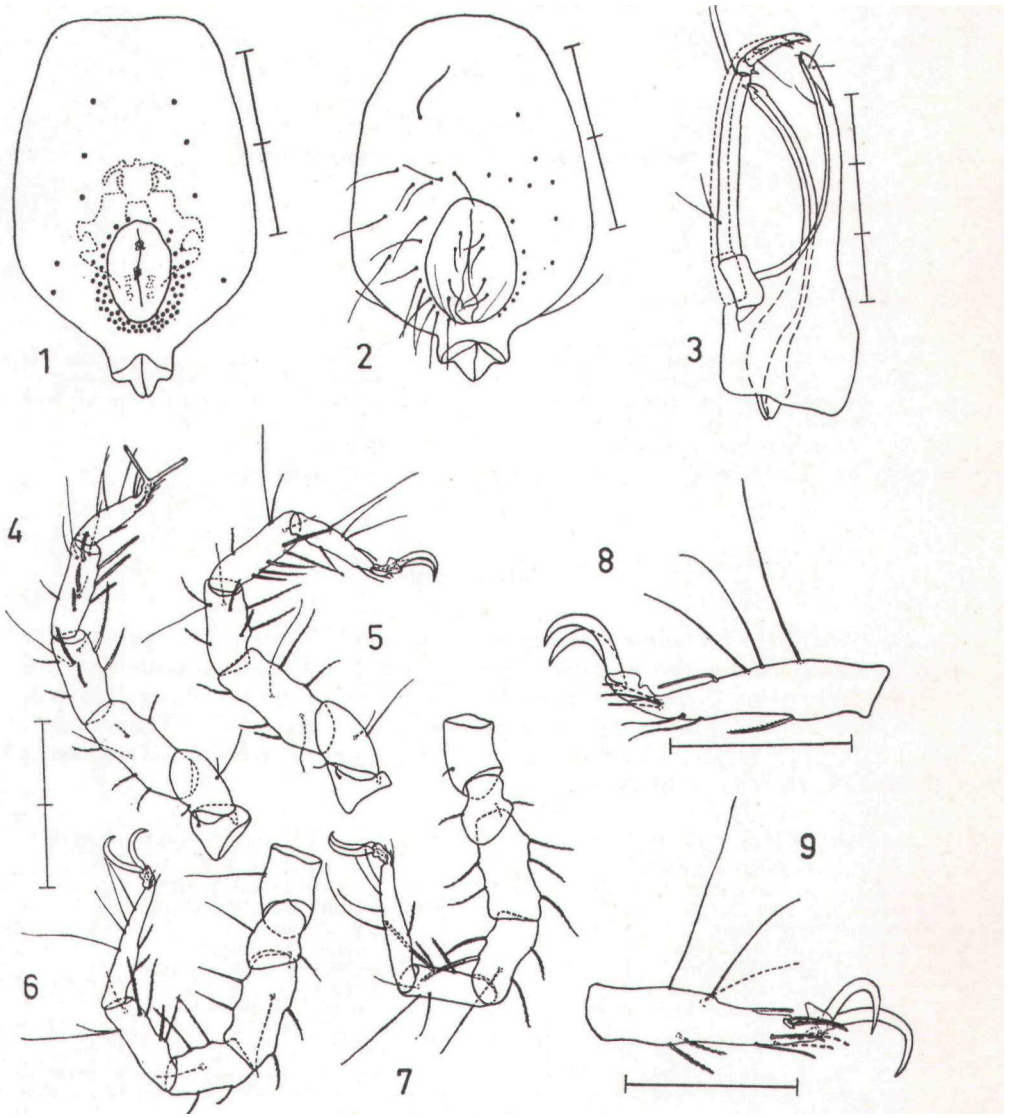
DESCRIPTION OF SPECIES

LOHMANNELLA FALCATA FALCATA (Hodge) (Figs. 1-9)

Collection data.

Lohmannella falcata falcata is **a very** eurytopic species; it is found in interstitial environments and on algae and is known both



FIGS. 1 - 9.
Lohmannella falcata falcata (Hodge)
1 : genito-anal plate, ; 2 : genito-anal plate, ; 3 : capitulum, l ateral view, (left palp dotted) ; 4 : leg I, medial view, 9 ; 5 : leg **II, medial view,** ; **6** : leg III, medial view, ; 7 : leg IV, medial view, 9 ; 8 : **II-6,** medial view, ; 9 : I-6, lateral view, (left setae dotted).

from tidal and subtidal areas. *L. falcata falcata* is widely distributed, it is recorded from European coasts, off Africa, North America, South America and the Antarctic.

Adults.

In the Roscoff area, it is the largest of all *Lohmannella* species, females are 298 - 465 (7) µm, males 359 - 453 (6) µm long. In material collected in the North Sea off Helgoland, females are 353 - 409 (3) µm, males 335 - 397 (6) µm long, in specimens from the Baltic, females are 458 - 515 (10) µm, males 434 - 490 (9) urn long.

For comparison with other *Lohmannella* species capitulum (Fig. 3), genito-anal plates (Figs. 1, 2) and legs (Figs. 4-7) are illustrated. In *L. falcata,* rostrum and palpi are very long. In a female with a body length of 397 µm, the following measurements were obtained: capitulum 254 µm long; base of capitulum 87 µm long, 97 µm high; P-2 43 µm long; P-2 140 µm long, 20 µm high; P-3 9 µm long; P-4 50 µm long.

In males, the genital opening is surrounded by a dense corona of more than 60 pgs and flanked by four to five pairs of isolated setae (Fig. 1).

On I-4 ventrally often two pairs, less frequently one pair, of pectinate setae, on I-5 three pairs of ps, on I-6 in some specimens only one, in others two ps developed. In some specimens claws with a minute accessory tooth.

*LOHMANNELLA KERVILLEI (*Trouessart) (Figs. **10-30)**

Collection data.

This small species is often found in minute crevices in *Lithophyllum* but is also present in sand and gravel among rocks at the low water fringe.

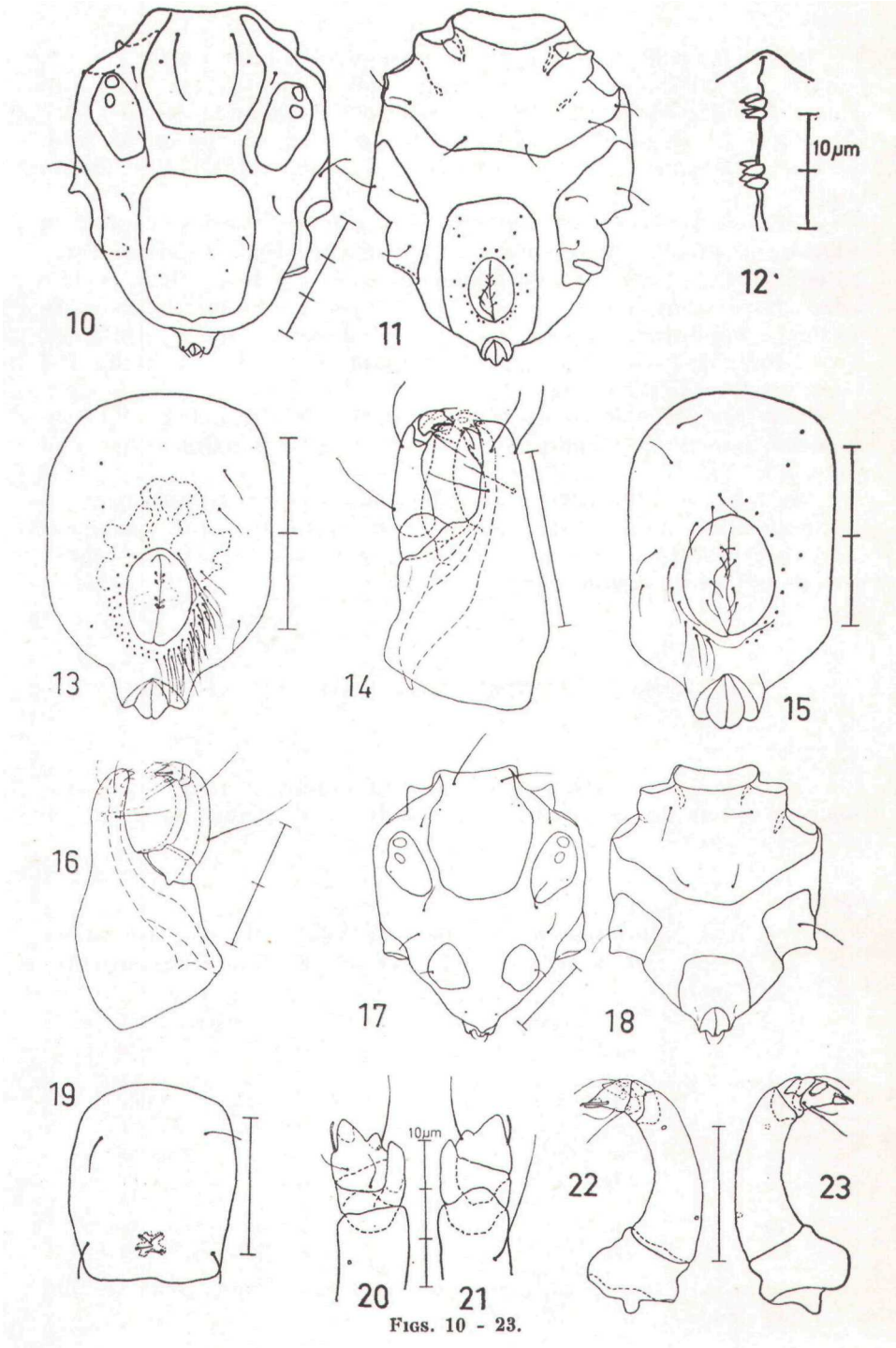
Adults.

Length of idiosoma in females 353 - 447 (6) µm, in males 340 - 353 (3) µm. In a female and a male, the following measurements were obtained (in am).

	FEMALE		MALE	
	length	width	length	width
idiosoma	397	291	340	267
AD	125	160	117	140
OC	93	48	87	57
PD	167	132	167	140
AE	125	233	122	242
GA	179	117	160	120
GO	62	51	52	33
Ca	179	102	167	90

The broad, very compact shape, the short legs, rostrum and palpi are characteristic.

Dorsal and ventral plates as illustrated (Figs. 10, 11). Ds-1 very long, they arise on the AD; ds-2, large ds-3, and ds-4 insert in the heavily striated membranous areas, minute ds-4 on the PD, adanal setae on the anal cone.



FIGS. 10 - 23.

AE with four pairs of setae, PE ventrally with three, dorsally with one seta. In females genital opening surrounded by a single row of 19-26 (8) pgs close to the GO and 7-8 peripheral setae. On genital sclerites four pairs of sgs (Fig. 15). In males there is a dense corona of about 60 pgs round the genital opening; near the margins of the genital plate six peripheral setae are found. Genital sclerites with four pairs of minute spines (Figs. 12, 13).

In *L. kervillei,* the capitulum is very short (Figs. 14, 16). No seta on P-1; P-2 with two large setae, P-3 with a broad spine, P-4 with a spine and three setae basally and a broad seta on the spinelike tip (Figs. 20-23).

The legs are very compact. Chaetotaxy of leg I and II of a male, and leg III and IV of a female is illustrated in figures 24 to 27; but there is a considerable variation in number of setae on each leg. The typical number of pectinate setae in *L. kervillei* is: I-5 ventrally with three pairs of ps; II-5 ventromedially with three ps, ventrolaterally with two faintly pectinate setae; III-5 ventromedially with one, ventrally with two ps; IV-5 ventromedially with one faintly pectinate, ventrally with two ps (Figs. 28-30). In general I-6, II-6 and IV-6 only with one ps, III-6 with two pectinate setae (Figs. 28-30). On I-6 and II-6 three dorsal setae, in some specimens four. I-6 with a long bacillum dorsolaterally, II-6 with a bacillum dorsomedially (Figs. 28, 29). All claws have a heavy accessory tooth.

Juveniles.

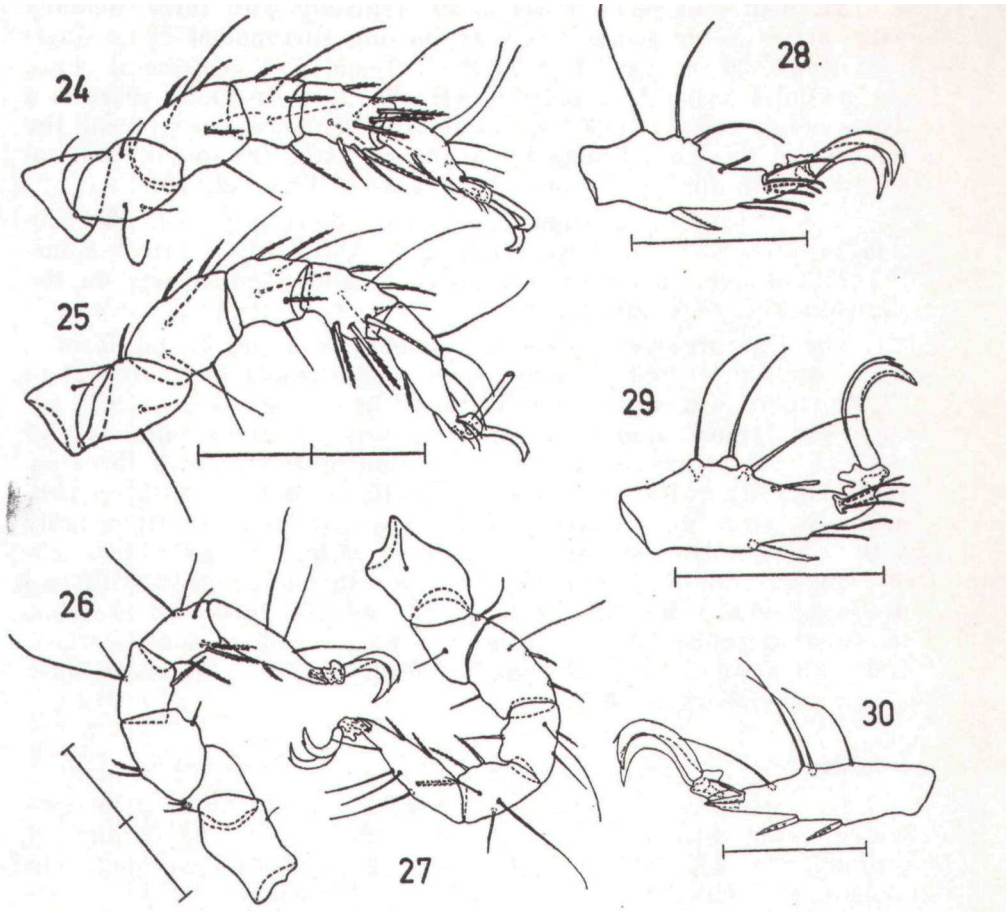
The juveniles are readily recognizable by the short palpi and rostrum (Fig. 14). Idiosoma of deutonymphs 303-328 (2) µm, of protonymphs 252 - 253 (2) µm, and of a larva 188 µm long. In nymphs the dorsal plates are similar to those in adults, the membranous areas are markedly coarse striated. In the larva the PD is divided (Fig. 17). In deutonymphs genital plate with two pairs of pgs, sgs and genital suckers (Fig. 19), in protonymphs genital plate only with one pair of sgs and one pair of genital suckers. Compared with the adults, in the juveniles stages the chaetotaxy of the legs is reduced. In deutonymphs I-5 ventrally with two pairs of ps, in protonymphs and larvae I-5 only with one pair of pectinate setae. As in the adults all claws with an accessory tooth.

Remarks.

Lohmannella kervillei is very similar to *L. norvegica* Viets. In both species, capitulum and palpi very compact; membranous areas

FIGS. 10 - 23.
Lohmannella kervillei (Trouessart)

10 : idiosoma, dorsal view, ♀; 11 : idiosoma, ventral view, ♀; 12 : genital sclerites, ♂; 13 : genito-anal plate, ♂; 14 : capitulum, ventrolateral view, larva (left palp dotted); 15 : genito-anal plate, ♀; 16 : capitulum, lateral view, ♀ (right palp dotted); 17 : idiosoma, dorsal view, larva; 18 : idiosoma, ventral view, larva; 19 : genital plate, deutonymph; 20 : tip of palp, ventral view, ♂; 21 : tip of palp, dorsal view, ♂ 22 : palp, lateral view, ♂; 23 : palp, medial view, ♂.



FIGS. 24 - 30.
Lohmannella kervillei (Trouessart)
24 : leg I, ventromedial view, ♂; 25 : leg II, medial view, ♂; 26 : leg IV, lateral view, ♀; 27 : leg III, lateral view, ♀; 28 : I-6, lateral view, ♂; 29 : II-6, lateral view, ♂; 30 : III-6, medial view, ♂.

between plates extended; I-5 with three pairs of pectinate setae; I-6 with one ps; all claws with an accessory tooth. But, in *L. norvegica,* the palpi are distinctly more slender than in *L. kervillei.* From female specimens of the two species the following measurements were obtained (in μm) :

		L. kervillei	*L. norvegica*
idiosoma	length	397	434
Ca	length	179	204
Ca, base	length	115	111
Ca	hight	105	87
P-1	length	27	31
P-2	length	69	87
P-2	hight	25	22
P-3	length	10	10
P-4	length	22	22

LOHMANNELLA NUDIPES n. sp. (Figs. 31-40).

Collection data.

A single female was found in the intertidal sediment from the estuary of the Penzé river near Roscoff.

Female.

In this female, the following measurements were obtained (in

	length	width
idiosoma	**390**	**279**
AD	**132**	**137**
OC	**107**	**67**
PD	**192**	**149**
AE	**154**	**279**
GA	**184**	**140**
GO	**72**	**50**
Ca	**182**	**95**

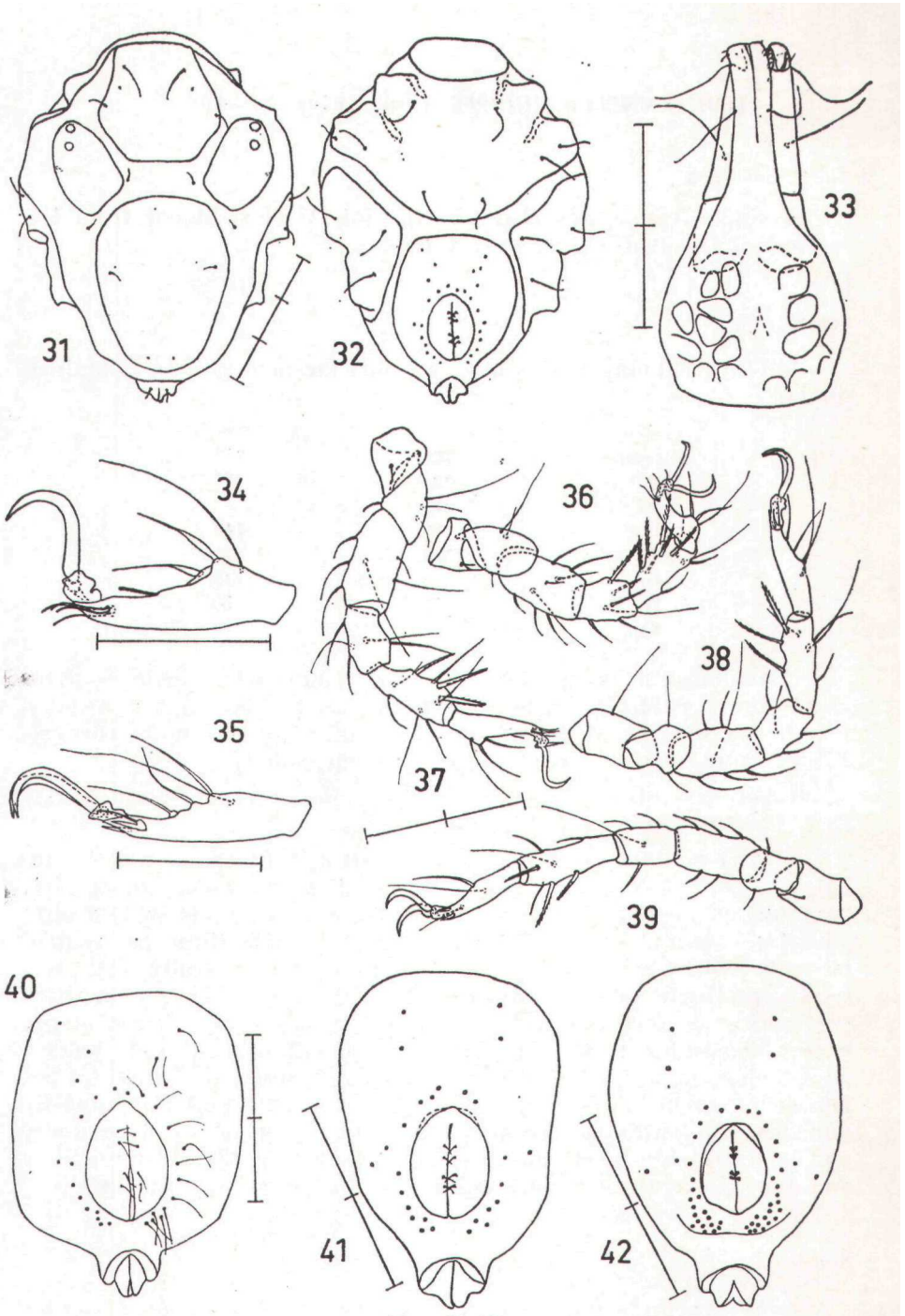
AD almost as long as broad; with long ds-1, a pair of pores and minute ds-2 (Fig. 31). Ds-3 and ds-4 arise in the striated membranous areas, ds-5 on the PD. OG with two large corneae. PD extending beyond distal parts of ocular plates.

Capitulum almost half as long as idiosoma. Rostrum longer than base of capitulum (Fig. 33).

The chaetotaxy of the legs is illustrated in figures 36 to 39; but probably in *L. nudipes* too, as in other *Lohmannella* species, the number of setae will be variable. In this specimen, I-5 only with five pectinate setae, II-5 ventromedially with three ps, ventrolaterally with two faintly pectinate setae, III-5 ventrally with two faintly pectinate setae, ventromedially with one ps, IV-5 with three pectinate setae. Distodorsal setae of I-6 sword-shaped, broad at the base and slender at the tip (Fig. 34). Bacillum long and slender, on I-6 dorsolaterally, on II-6 dorsomedially situated. Tarsi of all legs lack a ventral pectinate setae. I-6 (Fig. 34) and II-6 laterally and medially with divaricate parambulacral setae, III-6 medially and laterally with a seta and a slender spine (Fig. 35), IV-6 medially and laterally with a slender spine. Claws on all legs smooth.

Remarks.

Lohmannella nudipes is readily distinguished from all other *Lohmannella* species by the tarsi, where the ventral setae are absent and the distodorsal setae are sword-shaped. As only a single female has been found, it is impossible to say if the position of ds-2 on AD is constant in this species.



FIGS. 31-42

Lohmannella nudipes n. sp. female

31 : idiosoma, dorsal view; 32 : idiosoma, ventral view; 33 : capitulum, ventral view; 34 : I-6, medial view (one claw omitted); 35 : III-6, medial view; 36 : leg I, ventromedial view; 37 : leg II, medial view; 38 : leg III, medial view; 39 : leg IV, ventral view; 40 : genito-anal plate.

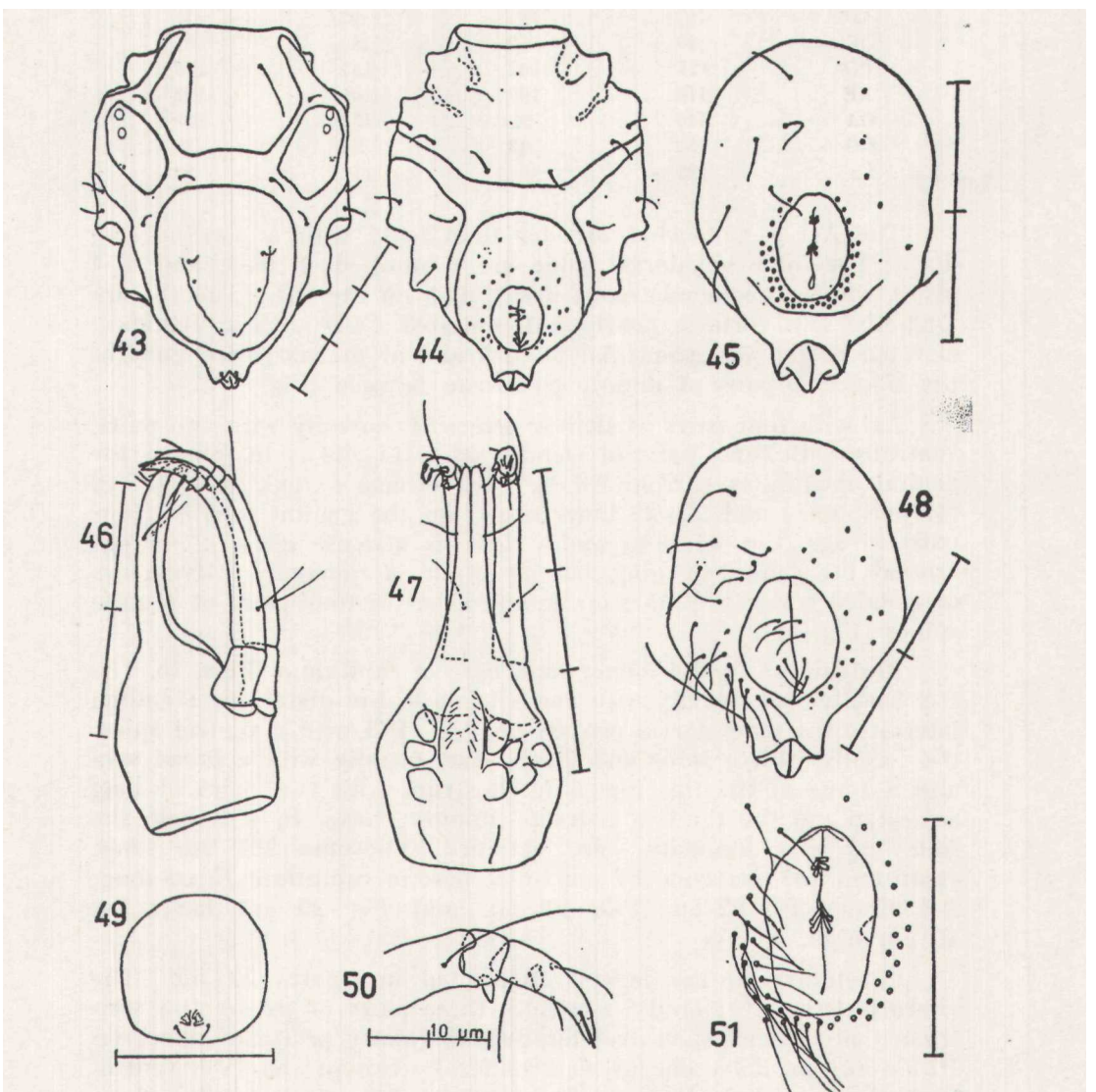
Lohmannella steueri Viets

41 : genito-anal plate, ♀; 42 : genito-anal plate, ♂.

LOHMANNELLA RUSTICA n. sp. (Figs. 43-58).

Collection data.

This species was found together with *L. kervillei* in crevices in *Lithophyllum.*



FIGS. 43 - 51.
Lohmannella rustica n. sp.

43 : idiosoma, dorsal view, ♀; 44 : idiosoma, ventral view, ♀; 45 : genito-anal plate, ♂; 46 : capitulum, lateral view, deutonymph; 47 : capitulum, ventral view, ♀; 48 : genito-anal plate, ♀; 49 : genital plate, protonymph; 50 : tip of palp, lateral view, deutonymph; 51 : genital region, ♂.

Adults.

L. rustica is somewhat smaller than *L. kervillei.* The females are 297 - 335 (3) µm long. In a female and a male the following measurements were obtained (in pan) :

	FEMALE		MALE	
	length	width	length	width
idiosoma	**397**	223	**273**	205
AD	102	**111**	92	110
OC	80	52	80	57
PD	**127**	107	**137**	**118**
AE	**110**	**199**	105	192
GA	**140**	95	**137**	100
GO	52	43	43	30
Ca	**182**		172	**82**

The AD is somewhat broader than long, with a pair of long ds-1. The following dorsal setae are minute, ds-2, ds-3, and ds-4 insert within the membranous areas, ds-5 on the PD. The OC are long, the two corneae poorly differentiated. PD with a V-shaped, elevated ridge; postero-medial to ds-5 and at the narrowed ends of the ridge two pairs of minute pores can be seen (Fig. 43).

AE with four pairs of slender setae, PE dorsally with two pairs, ventrally with three pairs of slender setae (Fig. 44). In females the genital opening is surrounded by two coronae of pgs, with 10-12 (4) peripheral and 22-29 inner setae; on the genital sclerites four pairs of sgs (Fig. 48). In males there is a dense circle of 45 pgs around the genital opening, the pgs-circle is flanked by five pairs of isolated setae (Fig. 45); on genital sclerites four pairs of minute spines (Fig. 51).

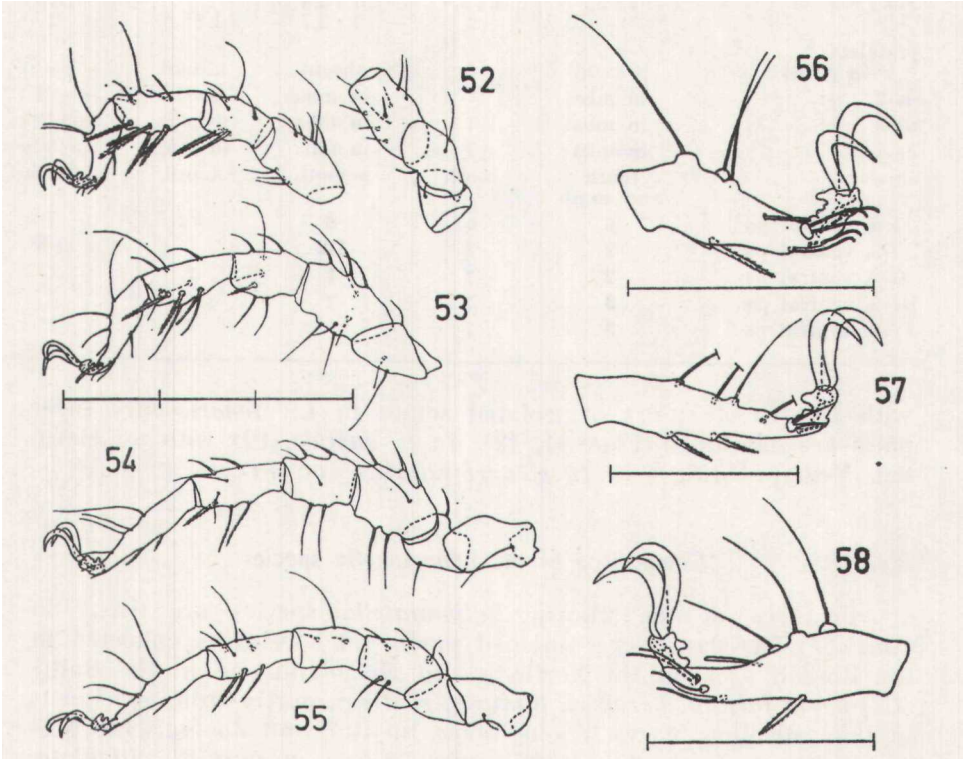
Rostrum and palpi longer than base of capitulum (Figs. 46, 47). P-2 basally and distally with one seta each, the distal one standing lateral to the long, dorsal process on P-2. P-3 with a ventral spine. P-4 basally with a spine and three setae, distally with a broad seta and a spine at the tip (Fig. 50). Rostrum with two pairs of long setae, and at the tip two pairs of minute ones. In a female the following measurements were obtained: idiosoma 297 µm long; capitulum 187 µm long, 87 µm high; base of capitulum 75 µm long; P-1 32 µm, P-2 92 µm, P-3, 10 µm, and P-4 29 µm long; P-2 15 µm high.

Chaetotaxy of the legs is illustrated in figures 52 - 55. The characteristics are: on I-5 ventrally three pairs of ps; on II-5 ventromedially three ps, ventrolaterally two faintly pectinate setae; on III-5 ventromedially one ps, ventrolaterally two ps; on IV-5 ventromedially one, ventrolaterally two ps. On I-3 and II-3 often three ventral setae are found, two of them standing ventromedially, one ventrolaterally. III-3 and IV-3 with two ventral setae. I-6 with one ps; II-6 in four specimens with one, in one with two pectinate setae; III-6 with two and IV-6 with one pectinate seta. Bacillum

long and slender, on I-6 inserted dorsolaterally, on II-6 dorsomedially (Figs. 56, 58). Claws on all legs smooth. Median claw with a minute dent.

Juveniles.

Length of idiosoma in a deutonymph 260 µm, in a protonymph 257 µm, in a larva 177 µm. Also in nymphs PD with a V-shaped ridge. In the larva the PD is divided. In juveniles the shape of capitulum almost the same as in adults. All claws smooth. In deutonymphs genital plate with two pairs of pgs and two pairs of sgs, in protonymph s there is only one pair of sgs (Fig. 49).



FIGS. 52 - 58.
Lohmannella rustica n. sp.
52 : leg I, medial view, 9 ; 53 : leg II, medial view, 9 ; **54** : leg **HI, lateral** view, 9 ; 55 : leg IV, lateral view, 9 ; 56 : I-6, lateral view, 9 ; 57 : **III-6,** medial view, **9 ; 58 : II6,** medial view, **9.**

Remarks.

Lohmannella rustica is very similar to *L. steueri* Viets. However, in *L. rustica,* claws smooth, while in *L. steueri,* claws with an accessory tooth; in *L. rustica* I-5 with six pectinate setae; in *L. steueri* there are only five ps; in *L. rustica,* genito-anal plate

TABLE

Comparison of morphological

	bihamata	*falcata beringi*	*falcata falcata*	*fukishimai*	*gaussi gaussi*	*gaussi kerguelensis*
idiosoma (in µm) ♀	403	?	298-465	?	ca. 521	ca. 390
♂	500	?	359-453	ca. 555	?	?
Ca (in µm) ♀	231	?	180-288	?	447	310
♂	286	?	230-285	504	?	?
Ca : idiosoma ♀	1 : 1,7	?	1 : 1,5-1,7	?	1 : 1,2	1 : 1,3
♂	1 : 1,7	?	1 : 1,5-1,7	1 : 1,1	?	?
base of Ca : Ca ♀	1 : 2,5	?	1 : 2,9	?	1 : 3,0	?
♂		?	1 : 2,6	1 : 2,5	?	?
P-1 : P-4 ♀	1 : 1,0	?	1 : 1,2	?	?	?
♂		?	1 : 1,3	1 : 2,5	?	?
P-4 : P-2 ♀	1 : 3,0	1 : 3,4	1 : 2,8	?	?	?
♂		?	1 : 2,7	1 : 3,0	?	?
platelets with pores	present	?	absent	absent	absent	?
ds-2	in mba	?	in mba	on OC	on OC?	?
ds-3	in mba	?	in mba	in mba	on PD	?
ds-4	in mba	?	in mba	in mba	in mba	?
claws	tooth and comb	tooth	smooth	tooth	tooth	tooth
I-5, ventral ps	6	6	6	8?	7	?
I-6, ventral ps	2	?	1-2	1	2-3	?
II-6, ventral ps	2	?	1	?	2	?
III-6, ventral ps	8	?	2	?	3	?
IV-6, ventral ps	3	?	1	?	2	?

with five to six pairs of isolated setae; in *L. steueri,* only three pairs are developed (Figs. 41, 42); in *L. rustica,* PD with an elevated, V-shaped ridge; in *L. steueri* no ridge on PD.

Comparison of the *Lohmannella* species

Features of the known *Lohmannella* species are listed in table 1. The data were obtained partly on specimens collected in the Roscoff area, in the North Sea off Helgoland and in the Baltic (L. *falcata falcata, kervillei, nudipes, rustica),* partly from specimens in the collection of the Zoologisches Institut und Zoologisches Museum, Hamburg (L. *bihamata, gaussi gaussi, norvegica, reticulata, stammeri, steueri)* and partly from the original descriptions (L. *bihamata, falcata beringi, fukushimai, gaussi gaussi, gaussi kerguelensis, heptapegoni, norvegica, reticulata, stammeri)* (Imamura 1968 ; Lohmann 1907; Newell 1951; Petrova 1966; Viets 1927, 1939, 1950).

Summary

From **the** Roscoof area **(coast of** Brittany) **four *Lohmannella* species, *L. falcata falcata*** (Hodge), ***L. kervillei*** (Trouessart), ***L. nudipes*** n. **sp., *L. rustica*** n. **sp.,** and **two *Scaptognathus*** species, ***S. hallezi*** **Trouessart, S. *tridens*** Trouessart are recorded.

Lohmannella kervillei, L. nudipes and ***L. rustica*** are described.

Features of *Lohmannella* species are listed in **a** table.

1
features of *Lohmannela* species

heptapegoni	*kervillei*	*norvegica*	*reticulata*	*stammeri*	*steveri*	*nudipes*	*rustica*
?	353-447	425-434	390-428	297-310	328-345	390	297-335
318	340-353	?	378-390	297	335	?	273
?	179-187	204-205	215-233	204-207	165-178	182	182-199
144	167-177	?	194-207	194	159	?	172
?	1 : 2,0-2,2	1 : 2,1	1 : 1,8	1 : 1,5-1,6	1 : 1,9-2,0	1 : 2,1	1 : 1,6
1 : 2,2	1 : 2,0	?	1 : 1,8	1 : 1,5	1 : 2,1		1 : 1,6
?	1 : 1,6	1 : 1,7-1,8	1 : 2,3	1 : 2,2	1 : 2,3	1 : 2,1	1 : 2,4
?	1 : 1,6	?	1 : 2,2	1 : 2,2	?	?	?
?	1 : 0,9	1 : 0,7	1 : 0,8	1 : 0,7	1 : 0,8	?	1 : 0,9
1 : 0,9	1 : 0,8	?	1 : 0,8	1 : 0,7	?	?	?
?	1 : 3,1	1 : 4,0	1 : 3,4	1 : 5,1	1 : 4,3	?	1 : 3,2
1 : 4,2	1 : 3,3	?	1 : 3,3	1 : 5,5	?	?	?
absent	absent	absent	present	absent	absent	absent	absent
on OC	in mba	in mba	in mba	on OC	in mba	on AD	in mba
in mba	in mba	in mba	in mba	in mba	in mba	in mba	in mba
on PD	in mba	in mba	in mba	on PD	in mba	in mba	in mba
smooth	tooth	tooth	smooth	smooth	tooth	smooth	smooth
4	6	6	B	4	5	6	6
2	1	1	1	2	1	0	1
2	1	1	1	2	1	0	1-2
?	2	2	2	1-2	2	0	2
?	1	1	2	1	1	0	1

Zusammenfassung

In der Umgebung von Roscoff (Bretagne-Küste) treten vier *Lohmannella*-Arten, *L. falcata falcata* (Hodge), *L. kervillei* (Trouessart), *L. nudipes* n. sp., *L. rustica* n. sp. und zwei *Scaptognathus-Arten, S. hallezi* Trouessart, *S. tridens* Trouessart, auf.

Lohmannella falcata wird kurz dargestellt, *L. kervillei, nudipes* und *rustica* werden beschrieben.

Merkmale der bekannten *Lohmannella-Arten* werden in einer Tabelle zusammengefasst.

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