

# THE FEATHER MITE GENERA *ZUMPTIA* GAUD & MOUCHET AND *PARAZUMPTIA* GEN. NOV. (ACARINA, ANALGOIDEA)<sup>1)</sup>

by

WARREN T. ATYEO

*Department of Entomology, University of Georgia, Athens, Georgia 30602*

and

PAUL C. PETERSON

*Department of Biological Sciences, Youngstown State University, Youngstown, Ohio 44555*

With 14 figures

## ABSTRACT

*Parazumptia gallinulae* gen. nov., spec. nov., is described from *Gallinula chloropus* (Rallidae), Luzon, Philippine Islands, and India; the genus *Zumptia* Gaud & Mouchet, 1959, is redefined; *Z. dermoglyphoides* Gaud & Mouchet, 1959, is illustrated, and *Z. macclurei* spec. nov. is described from *G. chloropus*, Luzon.

The feather mite fauna of the avian family Rallidae is varied. Each genus of Analginae (Analgidae) and Pterolichidae associated with these birds contains many species. Conversely, mites assigned to the subfamily Xolalginae (Analgidae) are highly modified and each named species has been the basis of a monobasic genus. Some of these xolalgine species have a wide host range, others are known from single collections or from single localities. Extremes of these associations are exemplified by *Gymnalloptes pallens* (Trouessart & Neumann, 1888), known to occur on eight species of Rallidae from Eurasia, Africa, and the Philippine Islands, and by *Zumptia dermoglyphoides* Gaud & Mouchet, 1959, known only from the type series.

In the present paper three taxa will be described, a new monobasic genus and second species of *Zumptia*, all discovered in collections made by members of the Migratory Animal Pathological Survey in Southeast Asia. Including the new taxa, there are eight species assigned to seven genera of Xolalginae from the Rallidae; the host-parasite associations, either previously recorded (Atyeo, 1974; Gaud, 1968, 1974) or new are:

*Fulica atra* (L., 1758), european coot

*Analloptes megnini* Trouessart, 1885: Morocco

*Gymnalloptes pallens* (Trouessart & Neumann, 1888): Morocco, India

*Gallinula chloropus* (L., 1758), common gallinule, moorhen

<sup>1)</sup> Research supported by the National Science Foundation (BMS75-03394) and the Research Council, Youngstown State University.

*Gymnalloptes pallens* (Trouessart & Neumann, 1888): France, Madagascar  
*Parazumptia gallinulae* gen. nov., spec. nov.: Philippine Islands, India (new records)

*Zumptia macclurei* spec. nov.: Philippine Islands (new record)

*Limnocorax flavirostris* (Swainson, 1837), black crane

*Beaucournuella loculosa* Gaud, 1974: Africa (1 ♀)

*Cryptosikya protalgoides* Gaud, 1971: Cameroons

*Gymnalloptes pallens* (Trouessart & Neumann, 1888): Cameroons

*Zumptia dermoglyphoides* Gaud & Mouchet, 1959: Cameroons

*Podica senegalensis* (Vieillot, 1817)

*Gymnalloptes pallens* (Trouessart & Neumann, 1888): Cameroons

*Porzana parva* (Scopoli, 1769), little crane

*Dogielacarus uncitibia* Dubinin, 1949: France, U.S.S.R.

*Gymnalloptes pallens* (Trouessart & Neumann, 1888): Europe, Morocco, Iran (new record)

*Porzana fusca* (L., 1766), ruddy crane

*Analloptes megnini* Trouessart, 1885: Philippine Islands (new record)

*Gymnalloptes pallens* (Trouessart & Neumann, 1888): Philippine Islands (new record)

*Rallus aquaticus* (L., 1758), water rail

*Analloptes megnini* Trouessart, 1885: Europe

*Beaucournuella loculosa* Gaud, 1974: France

*Gymnalloptes pallens* (Trouessart & Neumann, 1888): France

Five of the above feather mites, *Dogielacarus uncitibia*, *Cryptosikya protalgoides*, the two species of *Zumptia*, and *Parazumptia gallinulae* can be considered having special modifications. Based on collections from over half of the species of Rallidae, these mites have extremely limited host distributions, occur sporadically, have a low rate of infestation, and probably maintain low populations on individual birds. It could be concluded that each of these five mite species have a limited and specific microhabitat and that each must encounter considerable pressure when becoming established on a new host individual.

In the descriptions below, the terminology for chaetotaxal signatures follows Atyeo & Gaud (1966). Type materials are deposited in the University of Georgia (UGA), the British Museum (Natural History) (BMNH), the National Museum of Natural History (NMNH), and the collection of J. Gaud (GAUD).

#### Family ANALGIDAE

#### Subfamily XOLALGINAE

#### **Zumptia** Gaud & Mouchet

*Zumptia* Gaud & Mouchet, 1959: 526; Gaud, 1968: 25; Atyeo, 1974: 479. Type species: *Zumptia dermoglyphoides* Gaud & Mouchet, 1959.

Diagnosis. Xolalgine mites lacking setae *sR* on trochanters I, II; humeral setae short, basally dilated, apically attenuated; subhumeral setae ventral to humerals, short, setiform; dorsal shields reduced; long, narrow metapodosomal shields lateral to hysterosomal shield; dorsal hysterosomal gland well developed (?); hysterosomal setae *dl* absent, *ll* positioned posterolateral on propodosoma; epimerites I Y-shaped; legs with four functional segments (femora and genua fused); tarsi I, II with whorl of four setae near midlength (*la*, *ra*, *wa*, *aa*). Males with dentate adanal discs; well-defined posterior lobes with at least interlobar membrane well developed; genital organ small, reflexed; genital region surrounded by circular striae; ventral setae with one pair lateral and one pair immediately posterior to genital region; genital discs anterolateral to genital organ; legs III equal to or greater than legs IV. Females with characteristic epigynum, i.e., anterior margin straight, posterior margin concave.

The two species of *Zumptia* are known from limited materials, *Z. dermoglyphoides* from the original series of five specimens and *Z. macclurei* spec. nov. from three collections from the Philippine Islands and India. The poor condition of the two specimens of *Z. dermoglyphoides* available for study precludes a complete redefinition of the genus as certain structures are not visible, e.g., dorsal hysterosomal glands which are not apparent but are probably present.

The interpretation of the tarsal chaetotaxy for *Zumptia* and *Parazumptia* indicates the presence of setae normally found in the Acaridae but not present in the Analgoidea, that is, setae *aa* on tarsi I and II. In the Analgoidea four ventral and ventrolateral setae occur, they are *la*, *ra*, *wa*, and *s*; in these instances, *s* is near the apex on the midventral surface and occurs on legs I-IV. In the taxa under consideration, the fourth seta is not considered to be seta *s* as it occurs only on legs I and II and all setae occur in a whorl. Another explanation for this seta would be that it is *ba*, but *ba* in known Analgoidea occurs on the dorsal surface either in close proximity to  $\omega 1$  or in the interspace between  $\omega 1$  and  $\omega 3$ .

Striation patterns have not been noticeably different in the analgoid taxa, but between the species of *Zumptia* and *Parazumptia*, there are striking differences. On the dorsal propodosoma in the area between the posterior margin of the propodosomal shield and the sejugal suture and including the scapular setae, *Zumptia* species have the striae forming a pattern of inverted V's and U's; in *Parazumptia*, the propodosomal striae are horizontally directed and parallel. On the propodosomal venter, *Zumptia* species have the striation pattern as a series of V's with the posterior terminations of the more lateral striae bent toward the meson; in *Parazumptia*, the striae are parallel and the posterior terminations are bent laterad or are continuous with hysterosomal striae.

The last major difference between the two genera relates to the pretarsal structures (compare Fig. 6 and 11). The divided central plate of *Zumptia* is characteristic of numerous xolalgine genera; the modifications of the *Parazumptia* pretarsus are found in *Cryptosikya* and *Dogielacarus* (Atyeo, 1974).

### ***Zumptia dermoglyphoides* Gaud & Mouchet (Fig. 1—4)**

*Zumptia dermoglyphoides* Gaud & Mouchet, 1959: 526—7, Fig. 12A, B; Gaud, 1968: 26.

The species is known only from the type series consisting of two males, two females, and one nymph. The type host, *Limnecorax flavirostris*, has been repeatedly examined by Gaud and others, but to date, there has never been any reported success in recollecting *Z. dermoglyphoides*. Gaud (1968) discusses the possibility that the *L. flavirostris* specimens might have been misidentified, but he

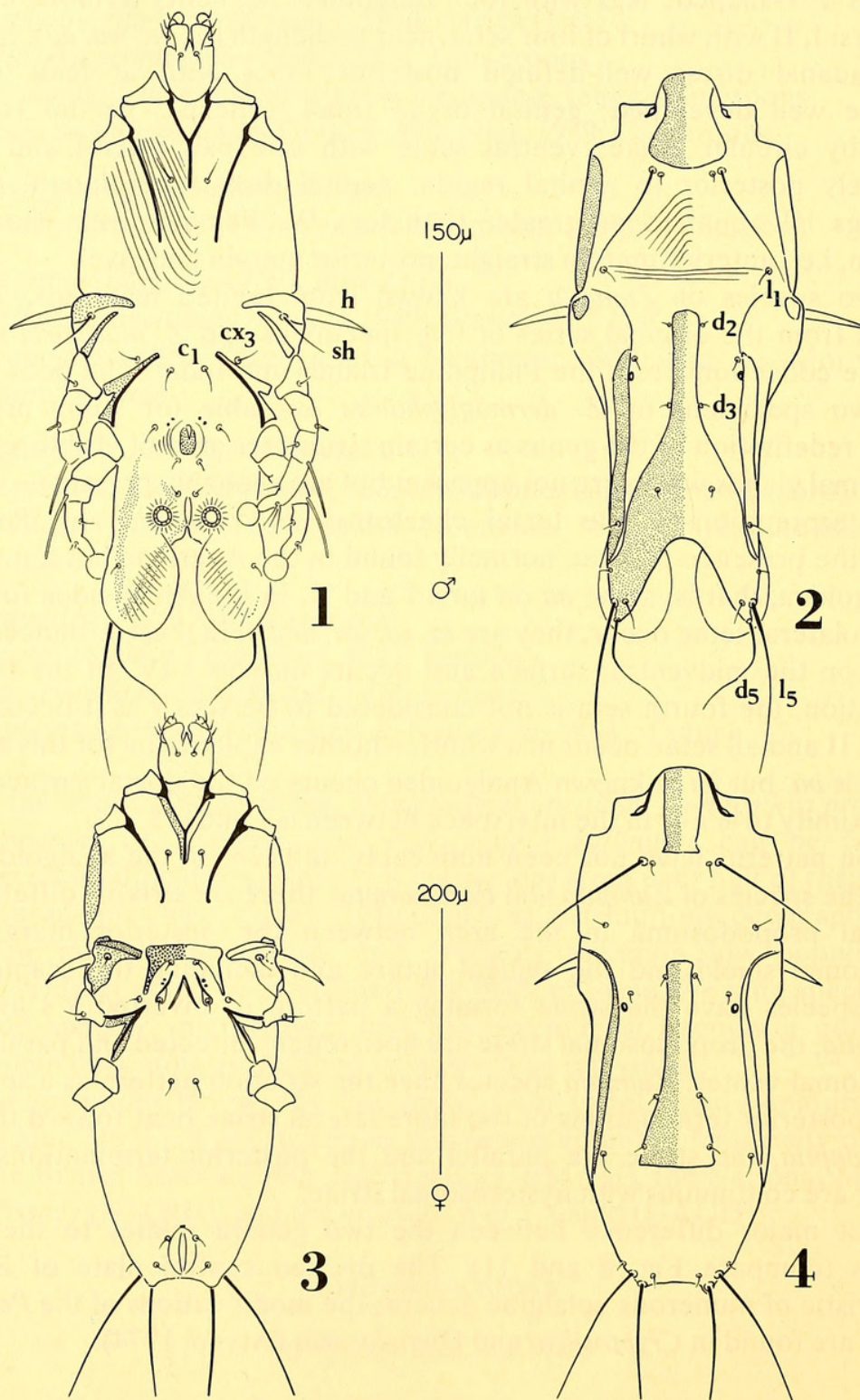


Fig. 1-4. *Zumptia dermoglyphoides* Gaud & Mouchet: ventral (1) and dorsal (2) aspects of male; ventral (3) and dorsal (4) aspects of female. Setae: *c1*, central; *cx3*, coxal; *d 2-5*, *l 1-5*, dorsal and lateral hysterosomals; *h*, humeral; *sh*, subhumeral

suggests that this is probably not the case as the other mites in the collection are known ectoparasites of this bird species.

The species will not be formally redescribed as the study specimens are in poor condition — our illustrations are in reality probable reconstructions as relates to the hysterosomal shields.

Type data. From *Limnecorax flavirostris* (Swainson, 1837) (Rallidae): ♂ holotype, 1 ♂, 2 ♀ paratypes, Yaoundé, Cameroons, April, 1958, J. Mouchet. The type series is in the collection of J. Gaud.

### ***Zumptia macclurei* spec. nov. (Fig. 5-9)**

The males of *Zumptia dermogliphoides* and *Z. macclurei* are easily separated; in the former species, legs III and IV are subequal and in *Z. macclurei*, legs III are much larger than legs IV.

Male (holotype). Length, including gnathosoma and terminal lobes 270  $\mu$ , width 108  $\mu$ . Idiosoma broad, gently tapering posterior to humeral setae to deeply cleft terminus. Dorsal propodosoma with shield small, not extending to scapular; area between posterior margin of shield and sejugal suture with inverted V and U striations. Dorsal hysterosoma with setae *d2-d4* internal to shield margins; terminus with deep U-shaped cleft 37  $\mu$  in height; membrane extending posterior to setae *l5*. Ventral idiosoma with epimerites I Y-shaped, with surface fields; striae obliquely directed and meeting at meson in V-configurations posterior to epimerites I; humeral setae dagger-shaped, 46  $\mu$  in length; subhumeral ventral to humerals and setiform; setae *c3* each on small plate posterior to genital organ; adanal discs dentate with striae radiating from corolla. Legs 4-segmented (genua and femora fused); setae absent on trochanters I, II; tarsi I, II with whorl of 4 setae near midlength; setae *s* absent; tarsus IV with setae *d*, *e* as short spines inserted on apicodorsal protuberance.

Female (paratype). Length, including gnathosoma 393  $\mu$ , width 139  $\mu$ . Idiosoma elongate, parallel-sided, posteriorly truncated. Propodosoma with striae directed dorsally and ventrally as in male. Hysterosoma with narrow, posteriorly truncated shield bearing setae *d2 - d4* at margins, ventral hysterosoma and legs as figured.

Type data. From *Gallinula chloropus* (L., 1758) (Rallidae): ♂ holotype, 12 ♂, 19 ♀ paratypes, Dalton Pass, North Vizeaya, Luzon, Philippine Islands, February 18, 1967, U.S. Migratory Animal Pathological Survey team (NU 13,442). Holotype and paratypes: UGA; paratypes: AMNH, BMNH, NMNH, GAUD.

Remarks. The new species is named for Dr. H. Elliott McClure, recently retired from the Migratory Animal Pathological Survey, who over the course of many years has sent us thousands of feather mite collections from Southeast Asia.

### ***Parazumptia* gen. nov.**

Diagnosis. Xolalgine mites lacking setae *sR* on trochanters I, II; humeral setae long, setiform; subhumeral setae anteroventral to humerals, setiform; propodosomal shield reduced; hysterosomal shield rather large; long, narrow metapodosomal shields lateral to hysterosomal shield; dorsal hysterosomal gland well

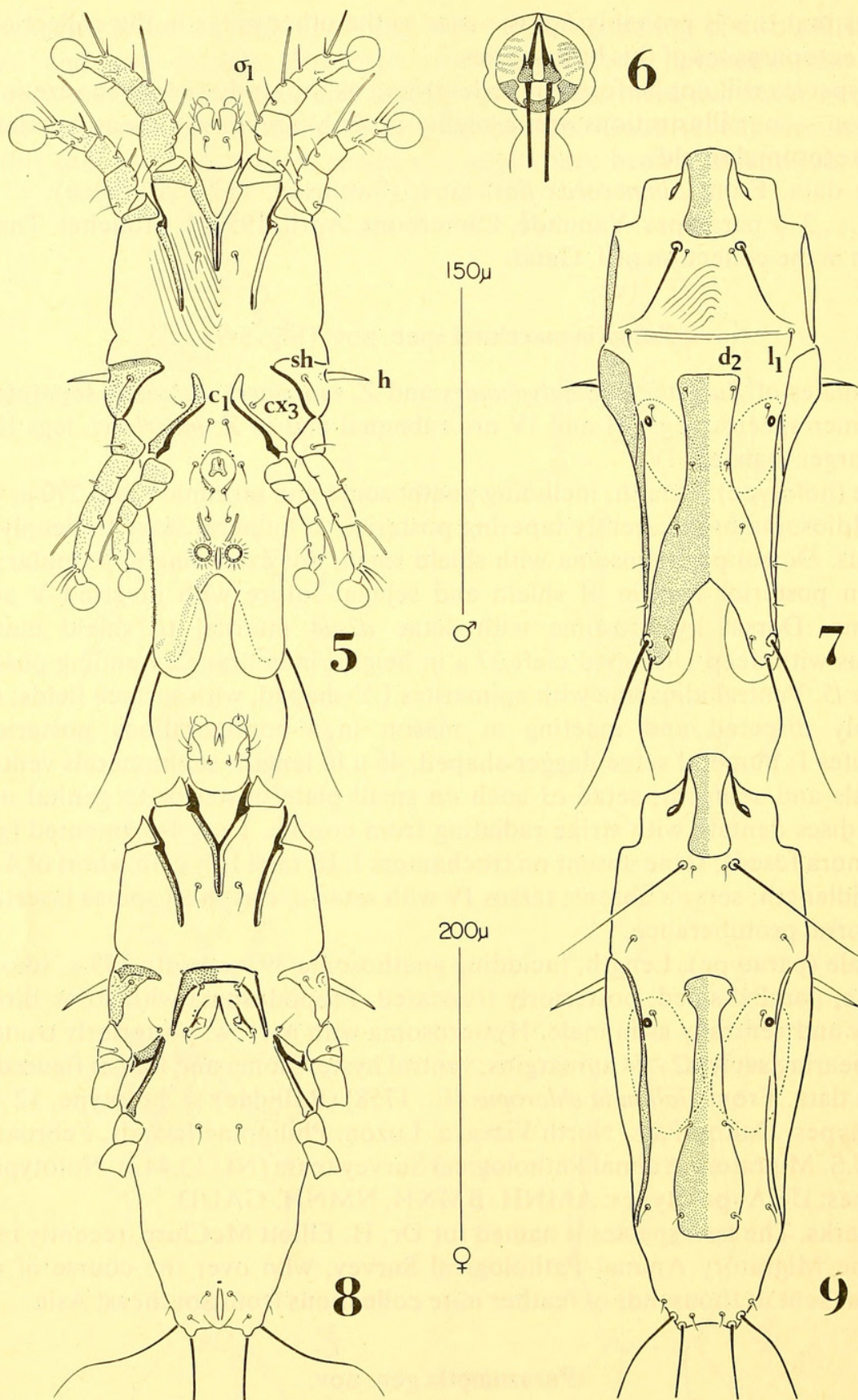


Fig. 5-9. *Zumptia macclurei* spec. nov.: ventral (5) and dorsal (7) aspects of male; enlarged pretarsus (6); ventral (8) and dorsal (9) aspects of female. Setae:  $c_1$ , central;  $cx_3$ , coxal;  $h$ , humeral;  $d_2$ ,  $l_1$ , dorsal and lateral hysterosomals;  $sh$ , subhumeral

developed; two pairs of hysterosomal setae absent (*d1*, *d2*), *11* positioned posterolateral on propodosoma; epimerites I Y-shaped; legs with four functional segments (femora and genua fused); tarsi I, II with whorl of four setae near midlength. Males with dentate adanal discs; well-defined posterior lobes with extra- and interlobar membranes, latter incised at midlength; genital organ small, reflexed; genital region partially surrounded by well-defined pregenital apodeme in which genital discs are incorporated; ventral setae as figured, with one pair obviously associated with coxae IV (*cx4*); legs III, IV subequal in length, legs IV slightly larger than III in diameter. Female similar to male in basic characteristics; epigynium small, transverse, and not extending to level of genital discs.

Type species: *Parazumptia gallinulae* spec. nov.

***Parazumptia gallinulae* spec. nov. (Fig. 10-14)**

This taxon is superficially similar to species of *Zumptia* in that the dorsal shields are weakly developed, the legs are four-segmented, and the males have deeply cleft idiosomata with each lobe bearing at least one large interlobar membrane. *Parazumptia gallinulae* is easily distinguishable from the known species of *Zumptia* by the long, setiform humeral setae; the same setae in *Zumptia* are short and dagger-shaped.

Male (holotype). Length, including gnathosoma and terminal lobes 340  $\mu$ , width 154  $\mu$ . Idiosoma broad, gently tapering behind humeral setae to deeply cleft terminus. Dorsal propodosoma with shield small, granulated, not extending to scapular setae; area posterior to shield, including insertions of scapular setae with transverse striae with superimposed sclerotization. Dorsal hysterosoma with weakly developed shield; two pairs of setae absent [*d1* and *d2* (?)]; narrow sclerotized band lateral to dorsal gland opening; hysterosomal glands large; terminus with deep V-shaped cleft 93  $\mu$  in height; each lobe bearing membranes on inner and outer margins. Ventral idiosoma with epimerites I Y-shaped, with stem extending almost to sejugal region; striae vertically directed between epimerites I, II and between epimerites II and ventral margin of scapular shield; subhumeral setae fine, anteroventral to humeral setae; setae *c1* and *cx3* in transverse line; setae *c2* and *a* within apodemes connecting pregenital apodeme and terminus; setae *c3* (*cx4*) near trochanter IV; genital discs incorporated in pregenital apodeme; adanal discs dentate with prominent rays radiating from corolla. Legs four-segmented (genua and femora fused); setae *sR* on trochanters I, II absent; tarsi I, II with whorl of 4 setae near midlength (*ra*, *la*, *wa*, *aa*); setae *s* absent; tarsus IV with setae *d*, *e* as short spines inserted on apicodorsal protuberance.

Female (paratype). Length, including gnathosoma 385  $\mu$ , width 150  $\mu$ . Idiosoma with small, weakly developed shields, terminus truncated. Dorsal propodosoma with shield as in male, but area posterior to shield with striae as in other regions, i.e., without superimposed sclerotization; other aspects except setal positions similar to male. Ventral idiosoma with epimerites I, II similar to male; epigynium small, not extending to genital discs; other features as figured.

Type data. From *Gallinula chloropus* (L., 1758) (Rallidae): ♂ holotype, 9 ♂, 7 ♀, Dalton Pass, North Vizeaya, Luzon, Philippine Islands, February 18, 1967, U.S.

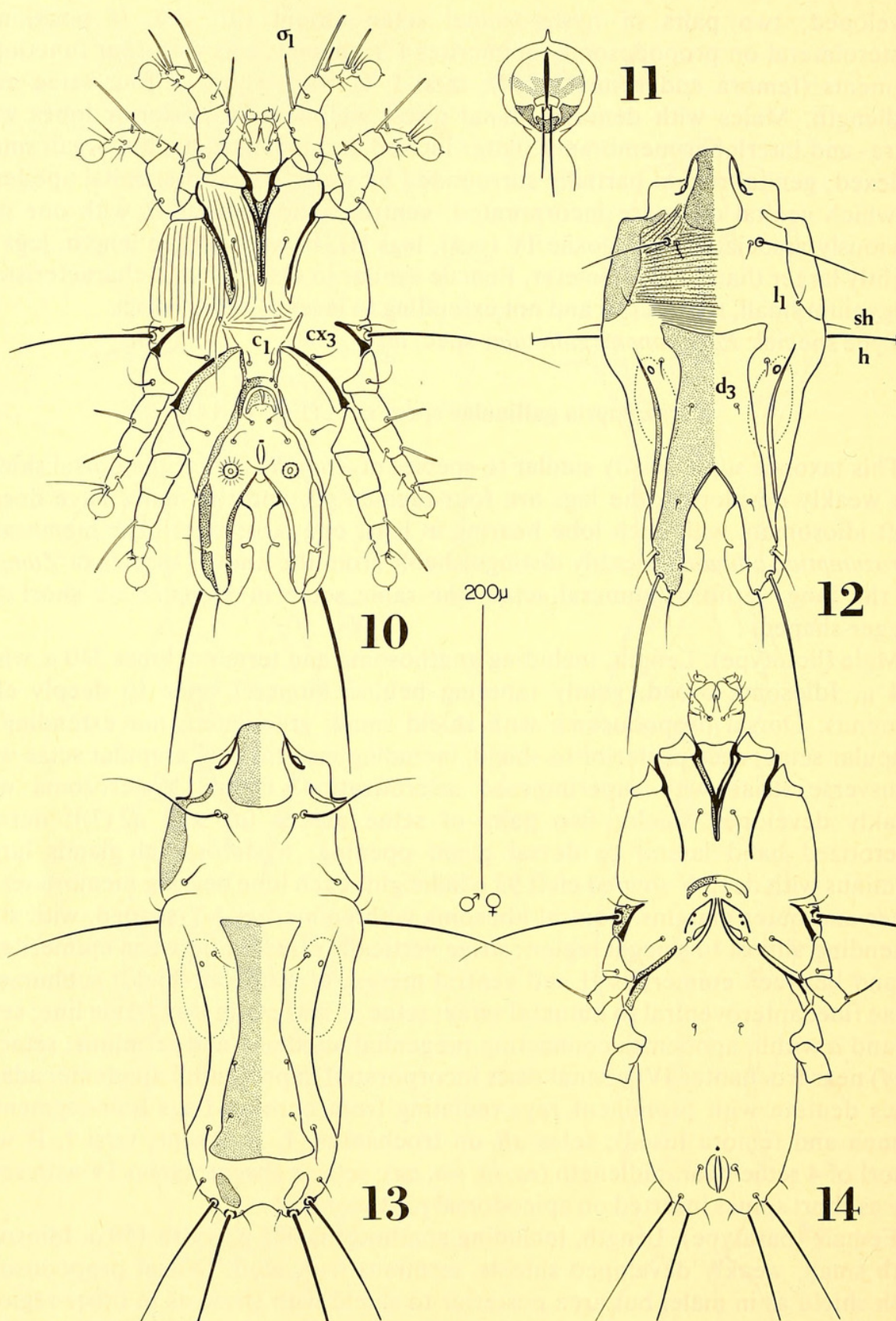


Fig. 10-14. *Parazumptia gallinulae* gen. nov., spec. nov.: ventral (10) and dorsal (12) aspects of male; enlarged pretarsus (11); ventral (13) and dorsal (14) aspects of female. Setae:  $c_1$ , central;  $cx_3$ , coxal;  $d_3$ ,  $l_1$ , dorsal and lateral hysterosomals;  $h$ , humeral;  $sh$ , subhumeral

Migratory Animal Pathological Survey team (MAPS) (NU 13,442); 2 ♂, same data as holotype except January 19, 1967 (NU 13,432); 5 ♂, 6 ♀, Bharatpur, Rajasthan, India, December 12, 1969, MAPS (UGA 6256). Holotype, paratypes: UGA; paratypes: AMNH, NMNH.

Remarks. The same specimen of *Gallinula chloropus* harboured *Zumptia macclurei* and *Parazumtia gallinulae*. The former mite species was not found on other specimens of the moorhen infested with *P. gallinulae*.

#### LITERATURE CITED

- Atyeo, W. T., 1974. *Dogielacarus uncitibia* Dubinin, 1949, redescribed and reassigned (Acarina: Analgoidea). — J. Kansas ent. Soc. 47: 478—482.
- Atyeo, W. T., & J. Gaud, 1966. The chaetotaxy of sarcoptiform feather mites (Acarina: Analgoidea). — J. Kansas ent. Soc. 39: 337—346.
- Gaud, J., 1968. Acariens Sarcoptiformes plumicoles (Analgoidea) parasites sur les oiseaux Ralliformes et Gruiformes d'Afrique. — Annls. Mus. r. Afr. cent. Ser. in8°, Zool. (164): 1—101.
- , 1974. Quelques espèces nouvelles de Sarcoptiformes plumicoles (Analidae & Dermoglyphidae) parasites d'oiseaux d'Europe. — Acarologia 15: 727—758.
- Gaud, J., & J. Mouchet, 1959. Acariens plumicoles des oiseaux du Cameroun. — Annls. Parasit. hum. comp. 34(4): 493—545.



Atyeo, Warren T. and Peterson, P C. 1976. "The feather mite genera Zumptia Gaud & Mouchet and Parazumptia gen. nov. (Acarina, Analgoidea)." *Tijdschrift voor entomologie* 119, 327–335.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/89772>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/66815>

**Holding Institution**

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

**Sponsored by**

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

**Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.