

## CARPOGLYPHUS NIDICOLUS - A NEW SPECIES OF CARPOGLYPHIDAE (ACARINA: ASTIGMATA) INHABITING THE NESTS OF SWALLOWS

C. Knox Hubbard and Norman J. Fashing

Department of Biology, College of William and Mary, Williamsburg, VA 23187, USA.

**ABSTRACT** - A new species of Carpo glyphidae, *Carpoglyphus nidicolous*, (Acarina : Astigmata) is established based on specimens collected from the nests of cliff swallows (*Petrochelidon pyrrhonota* Vieillot) and barn swallows (*Hirundo rustica* Linnaeus) in Oregon, U.S.A.

Key words - Carpo glyphidae, *Carpoglyphus nidicolous* n.sp., bird nest mites.

### INTRODUCTION

*Acarus lactis* was described by Linnaeus in 1758 and *Carpoglyphus passularum* by Robin in 1869; the latter has since been synonymized with *A. lactis* to form *Carpoglyphus lactis* (Hughes, 1976). In 1952, Hughes described a second species of *Carpoglyphus*, *C. munroi*, based on specimens collected from cobwebs in a disused bell-tower near Ascot, Surrey, England (Hughes, 1952). Fain and Rack (1987) described a third species, *C. sturmi*, collected near Bogota, Columbia, from the flowers of *Espeletopsis corymbosa* as well as several species of *Espeletia* (Asteraceae). The present paper describes a fourth species closely related to *C. munroi* which was collected from swallow nests near Corvallis, Oregon, U.S.A.

Relative position of setae and other structures as in figures. Nomenclature for idiosomal setae follows Griffiths, et. al (1990) and for leg setae Grandjean (1939). All measurements are given in micrometers ( $\mu\text{m}$ ) in the following order: holotype female, mean and range (in parentheses). In some cases a portion of the distal end of a measured seta appeared to be missing, therefore the reported mean as well as the lower range value could be smaller than the true values.

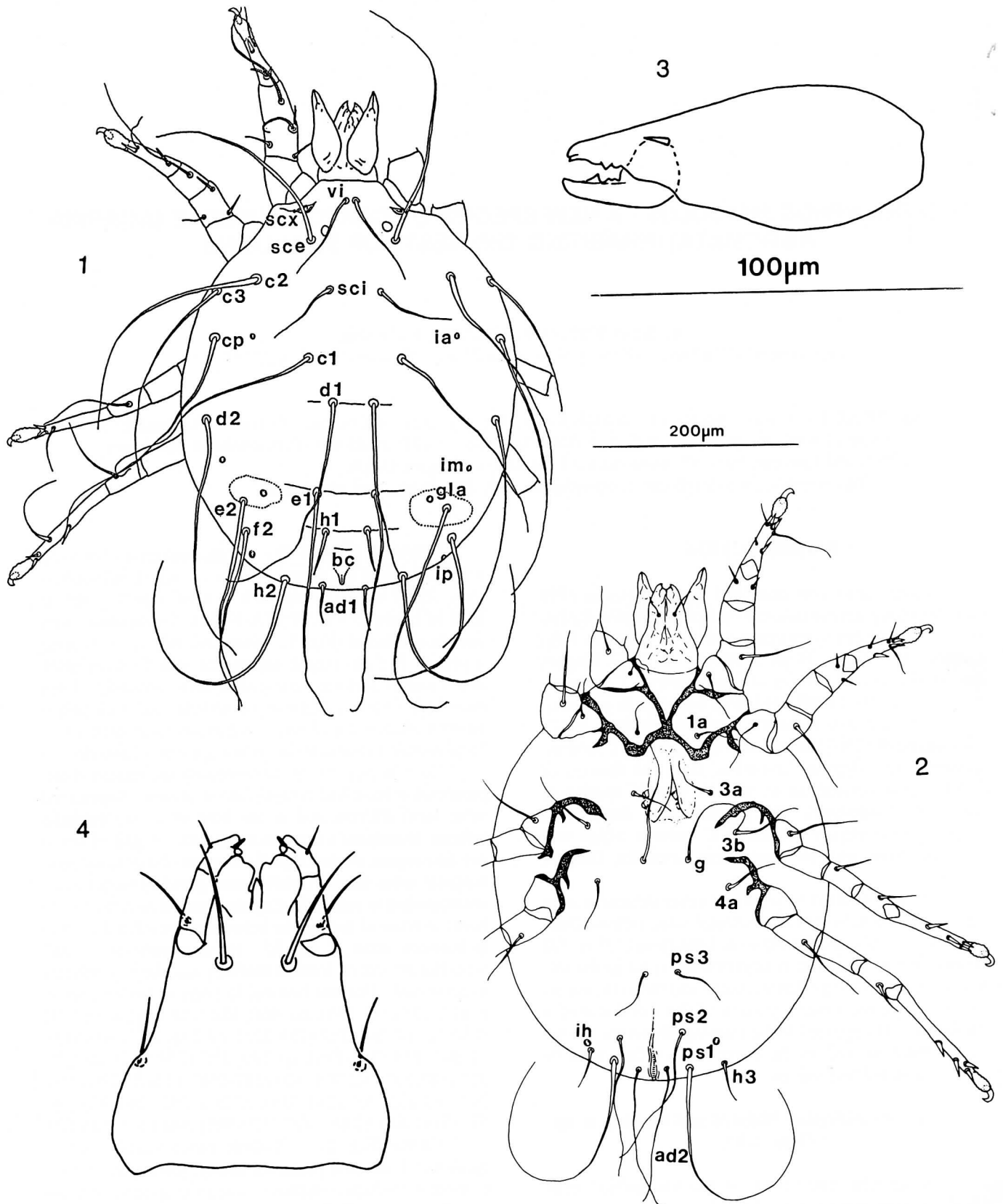
***Carpoglyphus nidicolous* Hubbard and Fashing, n. sp.**  
(Figs. 1-14)

The specific name refers to the nest habitat from which the specimens were collected.

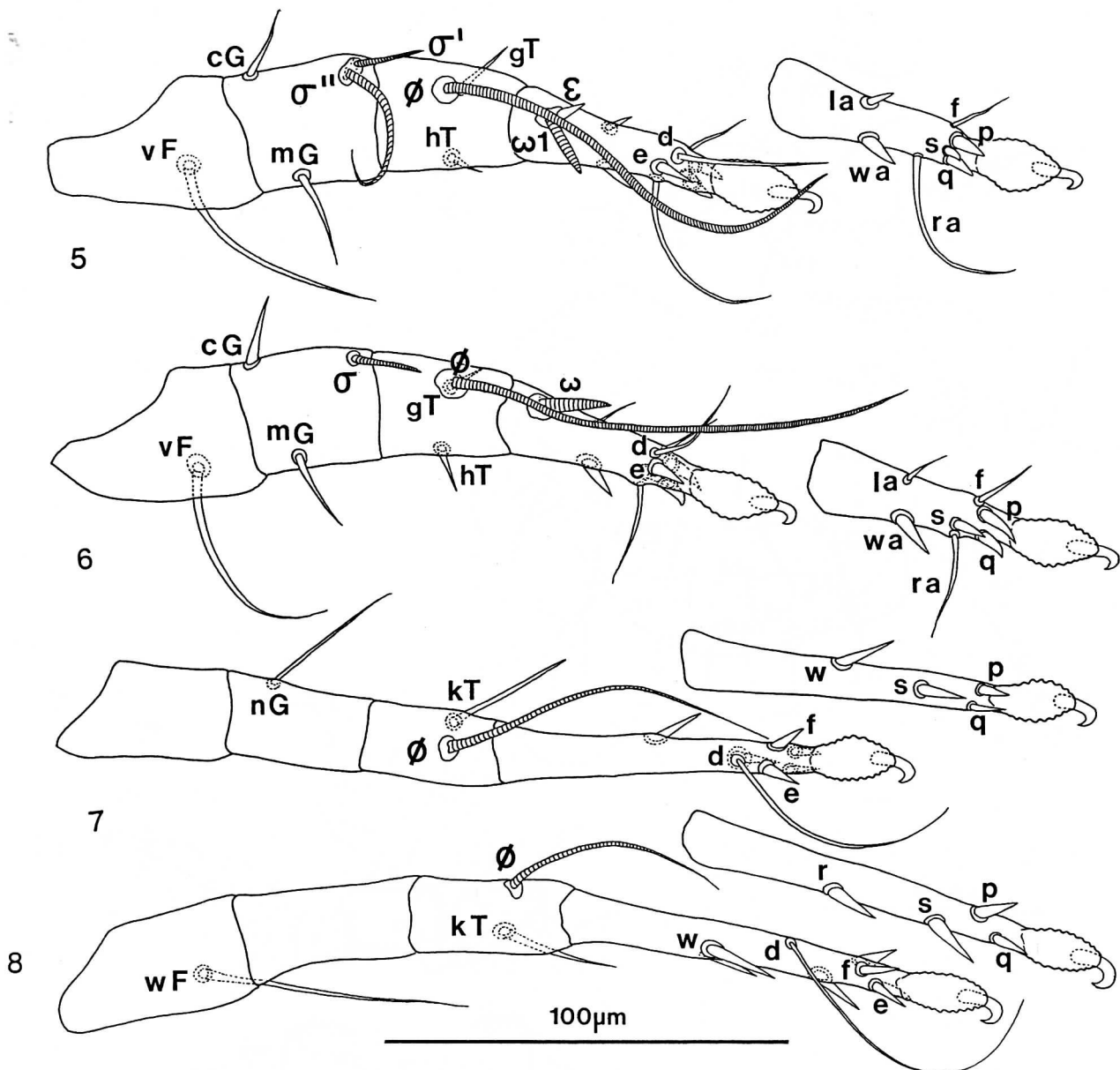
**FEMALE** (Figs. 1-8) - All measurements based on a sample size of six except for seta *sce* which is based on four. Body ovoid, length 527, 514 (473-563), width at level of coxae III 439, 408 (363-444). Gnathosoma with chelate chelicerae (Fig. 3); subcapitulum (Fig. 4) bearing a pair of filiform palpal supracoxal seta dorso-laterally and a pair of filiform subcapitular setae ventrally. Each palpal tibia bears a filiform dorsal seta, and each palpal tarsus a filiform dorsal seta, a subapical solenidium, and a basal rounded eupathidium on the apex of a tubercle.

Dorsum (Fig. 1) - Cuticle smooth and unsclerotized; prodorsal sclerite and sejugal furrow absent. Supracoxal setae (*scx*) filiform and at the base of a podocephalic sclerite; Grandjean's organ not apparent. A pair of round eye-like organs located slightly anteromedially to external scapular setae (*sce*). Opisthonotal gland openings (*gla*) anteromedial to setae *e2*. Cupules located as follows: *ia* between setae *c1* and *cp*, *im* between setae *d2* and *e2*, and *ip* between setae *f2* and *h2*. Bursa copulatrix a small tube-like projection located medially and slightly anterior to setae *ad1*. Dorsum bearing 15 pairs of filiform setae: *vi* 117, 127 (115-139), *sce* 466, 378 (314-466), *sci* 97, 93 (84-97), *c1* 287, 297 (283-323), *c2* 333, 347 (309-415), *c3* 261, 249 (211-276), *cp* 320, 316 (299-325), *d1* 277, 252 (182-307), *d2* 305, 320 (287-356), *e1* 271, 276 (254-291), *e2* 292, 307 (263-336), *f2* 265, 295 (265-335), *h1* 53, 55 (51-61), *h2* 489, 427 (399-489), *ad1* 50, 52 (45-57).

Venter (Fig. 2) - Cuticle unsclerotized. Coxal apodemes I directed posteromedially, joining at midline to form a V-shaped sternum. Anterior apodemes II directed posteromedially. Epigynum an anteriorly arched



Figs. 1-4. *Carpoglyphus nidicolous* n. sp. (female) - 1. dorsum, 2. venter, 3. chelicera, 4. venter of subcapitulum.



Figs. 5-8. *Carpolyphus nidicolous* n. sp. (female) - 5. leg I, 6. leg II, 7. leg III, 8. leg IV.

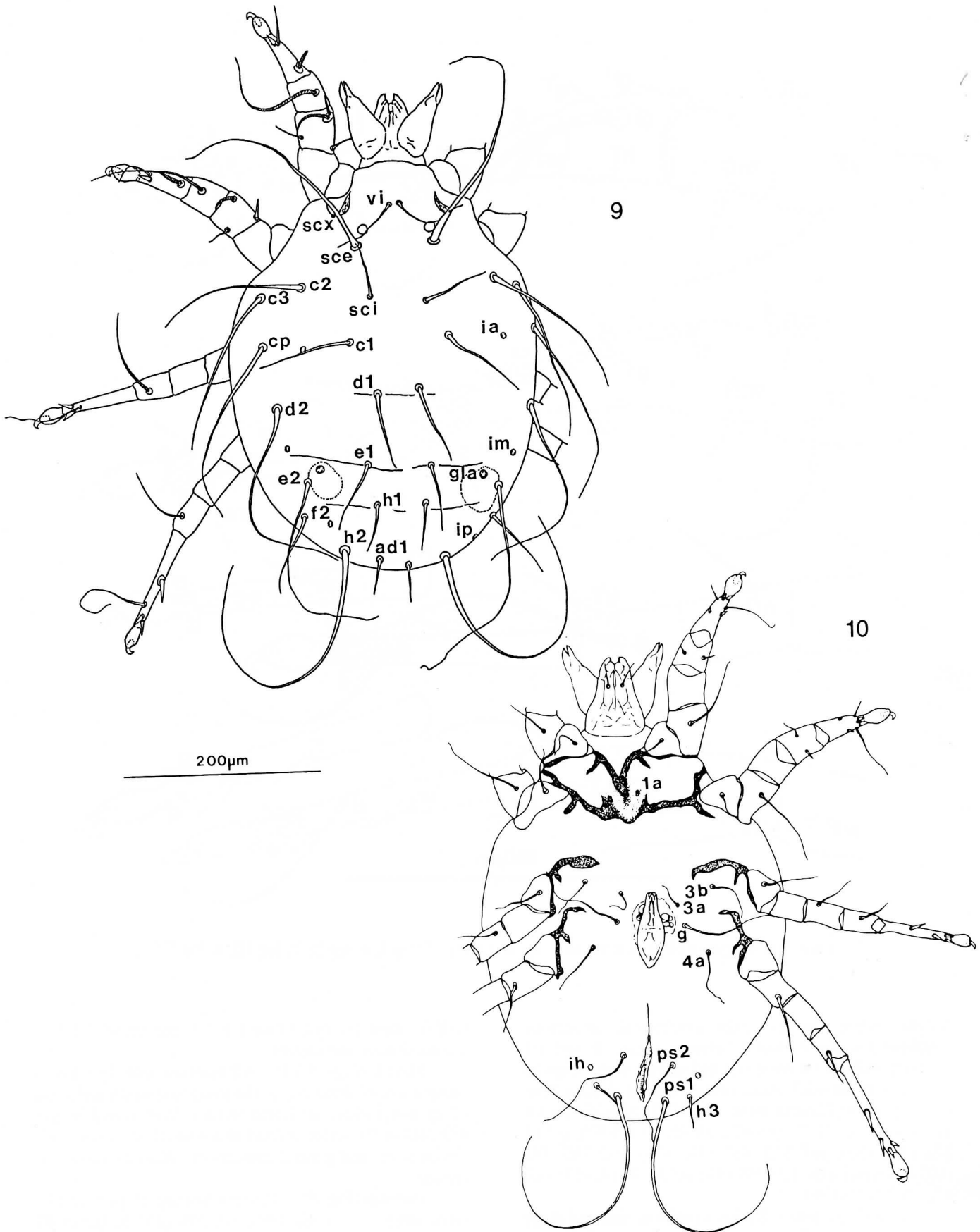
sclerite which unites with coxisternal apodemes. Oviporus located centrally between coxae II and III. Genital papillae of normal size and morphology. Cupules *ih* anterior to setae *h3*. Anus ventroterminal. Venter bearing 10 pairs of filiform setae: *1a* 65, 57 (50-65), *3a* 64, 46 (39-64), *4a* 74, 77 (65-87), *3b* 82, 80 (75-87), *g* 117, 152 (117-183), *ps1* 575, 432 (375-575), *ps2* 189, 164 (103-189), *ps3* 118, 129 (98-159), *h3* 54, 48 (42-53), *ad2* 175, 162 (117-175).

Legs (Figs. 5-8) - Relative position, size and shape of setae and solenidia as indicated in figures. Chaetotaxy (I to IV): tarsus 10-9-7-8, tibiae 2-2-1-1, genera 2-2-1-0, femora 1-1-0-1, and trochanters 1-1-1-0. Solenidiotaxy (I

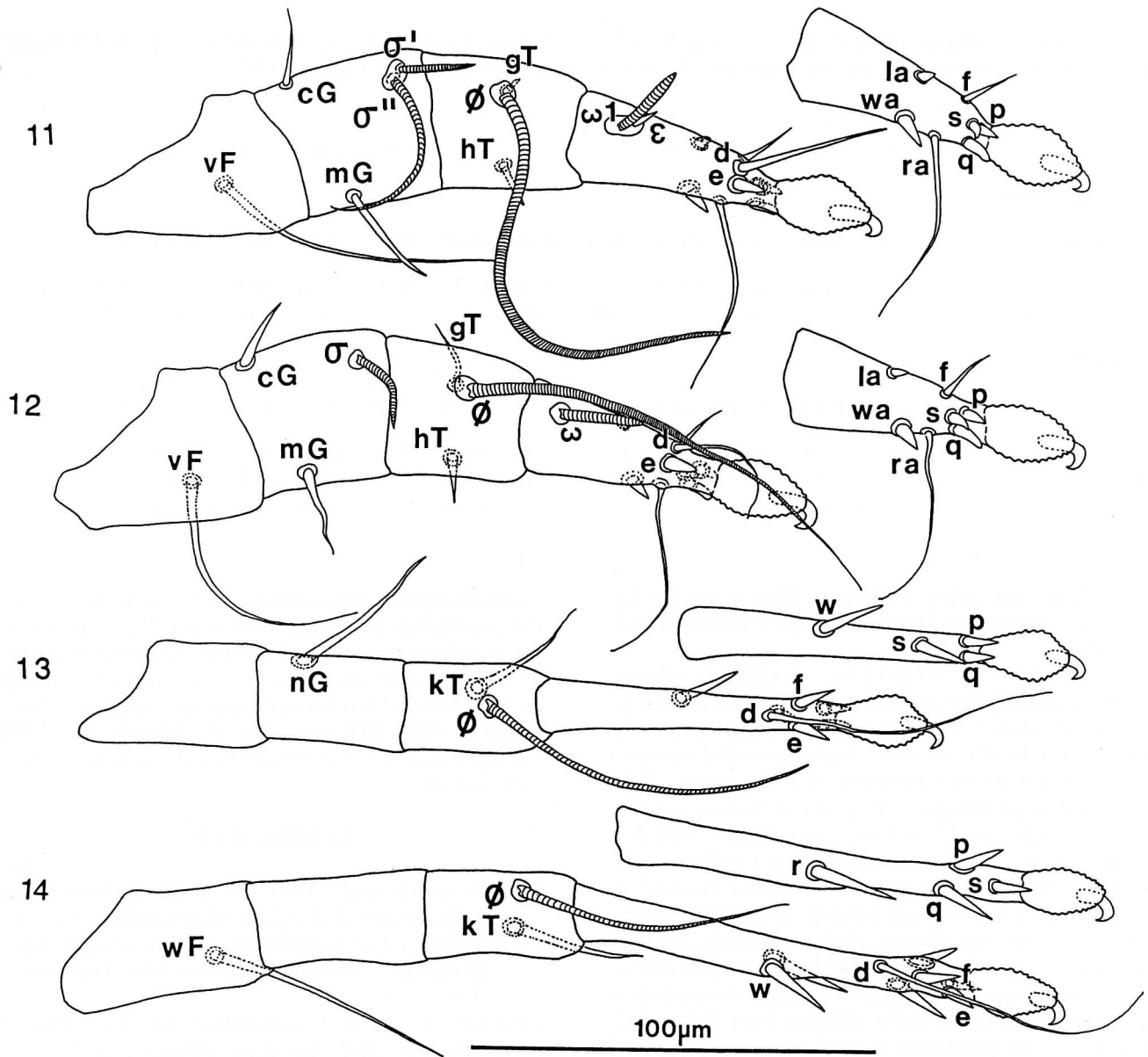
to IV): tarsi 1-1-0-0, tibiae 1-1-1-1, and genera 2-1-0-0. Claws slender and curved.

MALE (Figs. 9-14) - All measurements based on a sample size of three except the idiosomal width and setae *c3*, *cp* and *g* which are based on two. Body ovoid, length 453 (413-493), width at level of coxae III 329 (313-344). Gnathosoma and general features of idiosoma similar to female.

Dorsum (Fig. 9) - Dorsum bearing 15 pairs of filiform setae: *vi* 93 (82-103), *sce* 296 (247-326), *sci* 67 (62-77), *c1* 110 (103-121), *c2* 142 (101-198), *c3* 218 (214-223), *cp* 258 (256-259), *d1* 86 (78-98), *d2* 242 (215-270), *e1* 81 (77-85), *e2* 235 (203-274), *f2* 80 (68-94), *h1*



Figs. 9-10. *Carpolyphus nidicolous* n. sp. (male) - 9. dorsum, 10. venter.



Figs. 11-14. *Carpglyphus nidicolous* n. sp. (male) - 11. leg I, 12. leg II, 13. leg III, 14. leg IV.

58 (55-60), *h2* 367 (321-405), and *adl* 39 (35-44).

Venter (Fig. 10) - Coxal apodemes I directed posteromedially, joining at midline to form a V-shaped sternum. Anterior apodemes II directed posteromedially, with their proximal ends as well as the base of the sternum united by a sclerotized patch of cuticle. Aedeagus strongly sclerotized, occupying a central area between coxal fields IV as well as between the posterior portion of coxal fields III. Genital papillae as in female. Anus ventroterminal. Venter bearing eight pairs of setae: *1a* short peg-like structures, *3a* 34 (27-38), *4a* 55 (36-70), *3b* 63 (55-68), *g* 124 (113-135), *ps1* 358 (356-359), *ps2* 112 (93-126), and *h3* 36 (32-40).

Legs (Figs. 11-14) - Similar in chaetotaxy and solenidotaxy to female. It should be noted, however, that

tarsal seta *1a* is much shorter than in female. The asymmetry of the ambulacra and condylophores of pretarsi I-II noted in males of Carpglyphidae by O'Connor (1982) is not apparent in the three *C. nidicolus* males examined in this study.

MATERIAL EXAMINED - Holotype female, two paratype females and two paratype males extracted from the nests of barn swallows (*Hirundo rustica* Linnaeus), and three paratype females and one paratype male extracted from the nests of cliff swallows (*Petrochelidon pyrrhonota* Vieillot). Nests of both species were gathered from inside a barn three miles west of Corvallis, Oregon, on 18 March 1980 by Don Gettinger.

TYPE DEPOSITION - Holotype and four paratypes deposited in the University of Michigan Museum

Table 1. Comparison of dorsal setal lengths between *C. munroi* (range) and *C. nidicolous* (range and average) expressed as a percentage of the idiosomal length. Data for *C. munroi* taken from Hughes (1952).

	<i>vi</i>	<i>sce</i>	<i>sci</i>	<i>c1</i>	<i>c2</i>	<i>c3</i>	<i>cp</i>	<i>d1</i>	<i>d2</i>	<i>e1</i>	<i>e2</i>	<i>f2</i>	<i>h1</i>
<b>Female Dorsum</b>													
<i>C. munroi</i>	11-13	50-90	11-13	28-36	18-25	25-28	32-40	20-25	38-45	20-25	38-45	20-25	7-15
<i>C. nidicolous</i>	22-27 25	64-88 74	16-19 18	50-68 58	62-82 68	43-55 49	53-68 62	38-54 49	51-71 63	50-62 54	53-67 60	50-67 58	10-13 11
<b>Male Dorsum</b>													
<i>C. munroi</i>	10-12	35-55	9-10	12-14	13-14	20-23	13-18	12-14	13-16	12-14	11-13	9-12	10-12
<i>C. nidicolous</i>	20-21 21	55-79 66	14-16 15	21-29 24	24-40 31	43-49 46	53-57 55	17-20 19	52-55 53	17-19 18	50-56 52	16-19 18	12-13 13

of Zoology, Ann Arbor, Michigan. Three paratypes deposited in The Natural History Museum, Cromwell Road, London.

**SYSTEMATIC POSITION** - Although slightly larger, *Carpoglyphus nidicolous* resembles *C. munroi* in overall appearance, including setal shape and location. In her description of *C. munroi*, Hughes provided measurements of dorsal setae expressed as a percentage of the idiosomal length (Hughes, 1952). As can be seen in Table 1, setal lengths for *C. nidicolous* are strikingly different from those of *C. munroi*. Although the locations of the holotype and most paratypes of *C. munroi* remain unknown, a male and a female paratype were located in and borrowed from The Natural History Museum, London. These paratypes displayed setal and body lengths consistent with the ranges published in Hughes' description of *C. munroi*, and considerably different from those of *C. nidicolous*. Measurements on the *C. munroi* paratypes of idiosomal setae not reported on by Hughes also indicate a difference in size between the two species in most cases. It is on the bases on this mensural data that we consider *Carpoglyphus nidicolous* to be a new species.

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