NOTES AND A KEY TO SEPARATE NORMAL AND HETEROMORPHIC MALES OF *PYEMOTES GIGANTICUS* CROSS, MOSER, AND RACK AND *P. DIMORPHUS* CROSS AND MOSER (ACARI: PYEMOTIDAE)

Robert L. Smiley[1] and John C. Moser[2]

[1]*Systematic Entomology Laboratory, IIBIII, Agricultural Research Service, USDA, Beltsville, Maryland 20705.* [2]*U.S. Forest Service, USDA, Southern Forest Experiment Station, Pineville, Louisiana 71360.*

ABSTRACT—Photomicrographs of normal and heteromorphic males of *Pyemotes giganticus* Cross, Moser, and Rack (1981) and *P. dimorphus* Cross and Moser (1975) illustrate differences and similarities between the species. The key to species by Cross et al. (1981) is emended to accommodate the separation of males of these two species.

INTRODUCTION

According to Cross et al. (1981) males of *Pyemotes giganticus* Cross, Moser, and Rack and *P. dimorphus* Cross and Moser are indistinguishable morphologically. In both species the phoretomorphic females and "normal" females cannot be separated. There are two distinct heteromorphic female forms of *P. giganticus* (Figs. (2-3), whereas there is only one heteromorphic female form of *P. dimorphus* (Fig. 5). The only known host of *P. dimorphus* is the cedar bark beetle *Phloesinus canadensis* Swaine (Scolytidae), and *P. dimorphus* is not known to occur west of Louisiana. In contrast, *P. giganticus* is known from 15 bark beetle species of diverse genera taken from 10 species of conifers in California, Oregon, and Washington (Moser 1981) and it is thus not known to occur east of Utah. *Pyemotes giganticus* has been collected from the tenebrionid *Corticeus subopacus* (Wallis). Moser (1981) mentioned the existence of the normal female of *P. giganticus* but did not illustrate the species. This physogastric female mentioned by Moser (1981) is shown here (see Fig. 1). There are no significant morphological differences for separating the "normal" and heteromorphic females of *P. giganticus* and *P. dimorphus*. Seta pe_2 appears to be shorter and more slender on both female forms of *P. dimorphus* than it is on *P. giganticus*.

Cross et al. (1981) stated in their key to the species of *Pyemotes* that the two male forms of *P. dimorphus* and *P. giganticus* are not separable except for the presence of intermediates between "normal" and "heteromorph" males which are presently known only from *giganticus*. We have examined types and approximately 75 specimens of each species, including 13 dimorphic sexual forms. Couplet 2 of the key by Cross et al. (1981) is emended to accommodate the separation of the "normal" and "heteromorphic" males of *giganticus* and *dimorphus* to read as follows:

2. With all 4 pairs of prodorsal setae nearly in a transverse line; polymorphic species.
   A. Normal males
      Prodorsal seta 1 about 1/3 length of seta 2 (Fig. 7A) . . . . . *dimorphus* Cross & Moser
      Prodorsal seta 1 more than 1/2 length of seta 2 (Fig. 8A) . . *giganticus* Cross, Moser, & Rack
   B. Heteromorphic males
      Lateral seta (L) on dorsal hysterosoma thick and long (133 μ), seta 3 about 1/3 length of seta 4 (Fig. 7B); body length 279 μ, width 213 μ . . . . . *dimorphus* Cross & Moser
      Lateral seta (L) on dorsal hysterosoma slender and short (66 μ); seta 3 about 1/2 length of seta 4 (Fig. 8B); body length 226 μ, width 199 μ . . . . . *giganticus* Cross, Moser, & Rack

At least 1 pair of prodorsals well anterior to the others; polymorphic or not. 3

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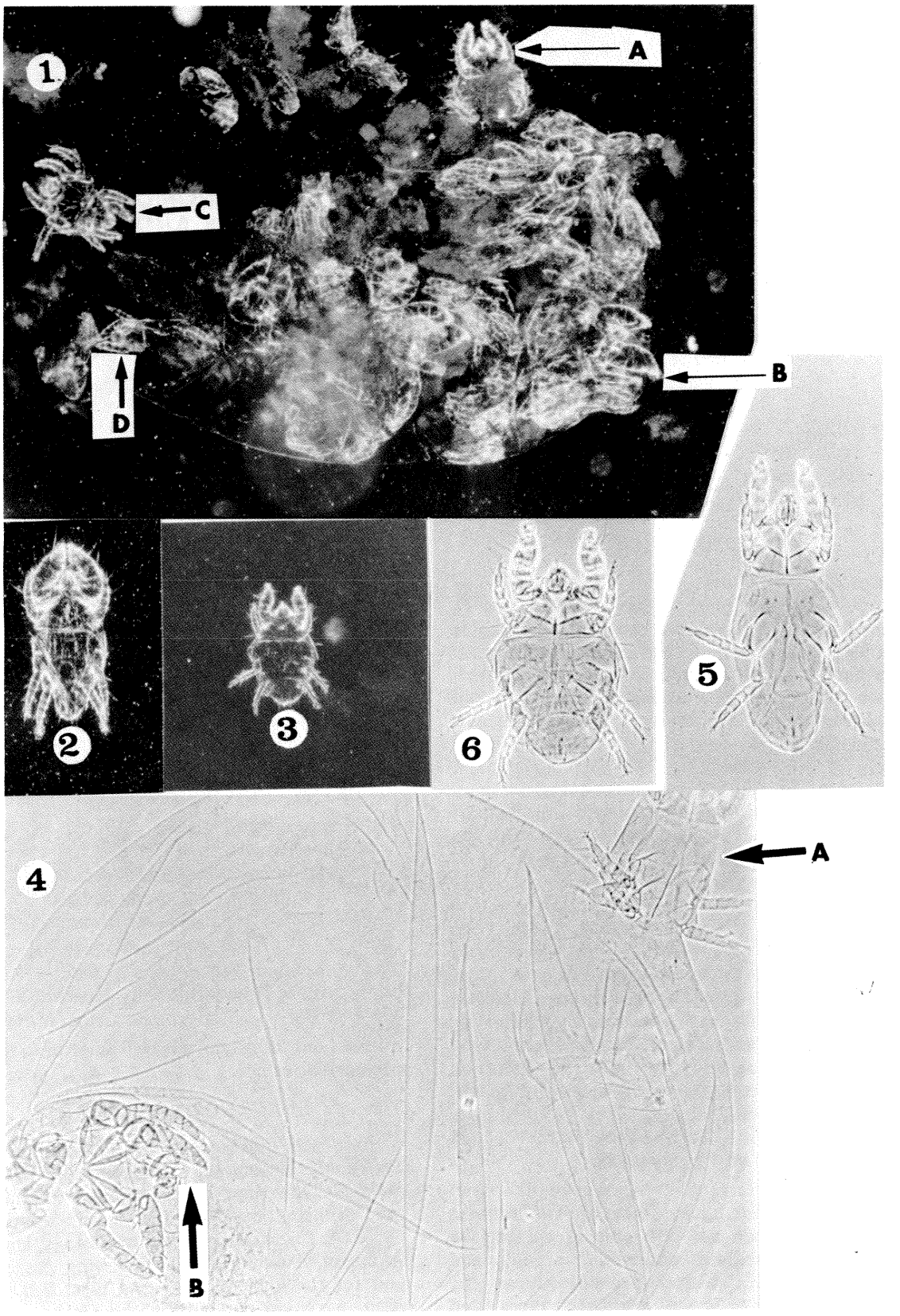
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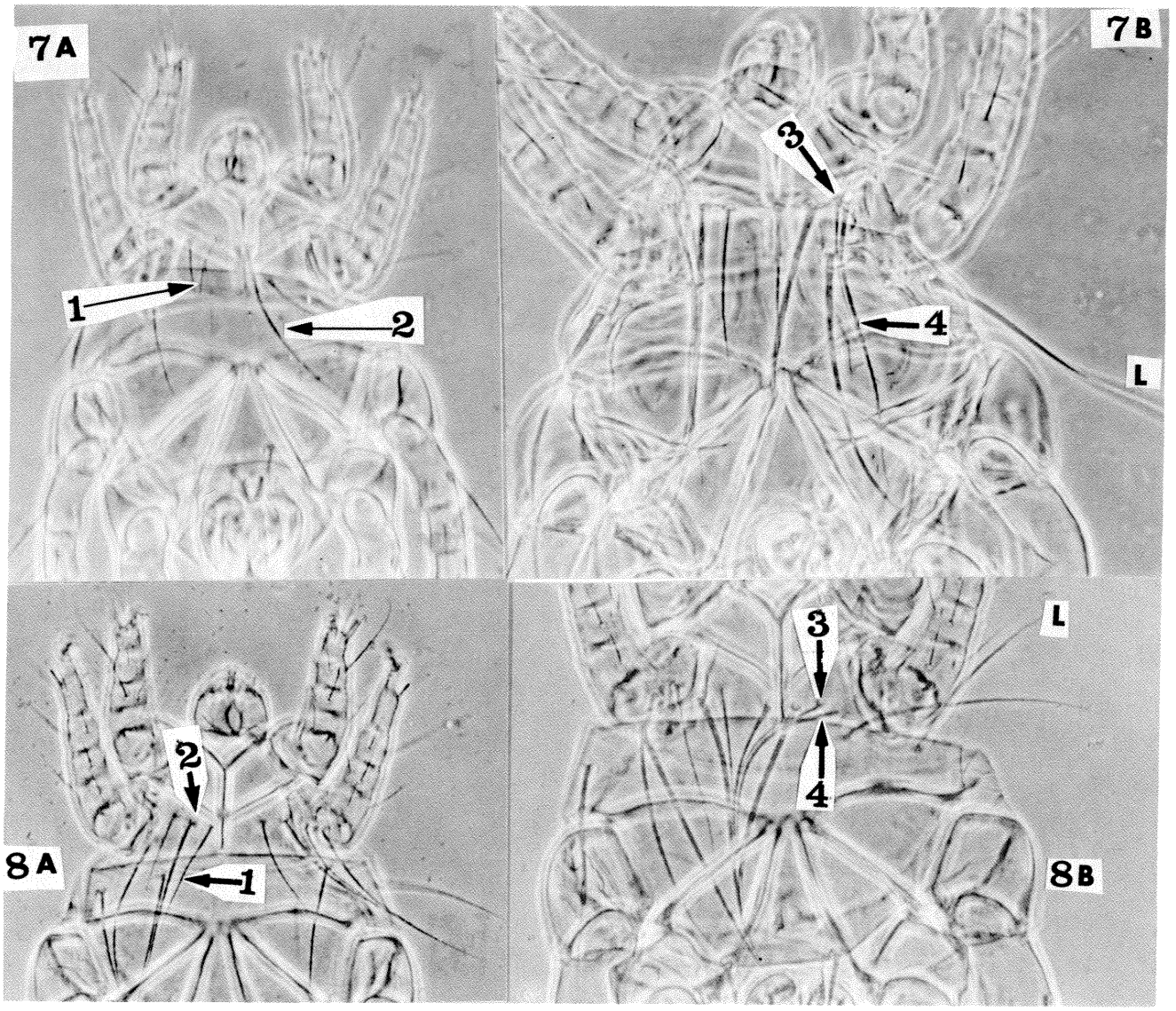

Pyemotes giganticus Cross, Moser, and Rack. Fig. 1, normal adult physogastric female mother with unborn forms (arrow A), (arrow B) unborn heteromorphic female (arrow C) unborn male; (arrow D) unborn normal female.

Figs. 2-3, heteromorphic female forms.

Fig. 4, (arrow A) normal adult physogastric female mother with unborn heteromorphic male arrow B.

Pyemotes dimorphus Cross and Moser. Fig. 5, normal female; Fig. 6, heteromorphic female. Fig. 7A, normal male; 7B, heteromorphic male.

Pyemotes giganticus Cross, Moser, and Rack. Fig. 8A, normal male; 8B, heteromorphic male.

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LITERATURE CITED

Cross, E. A. and J. C. Moser (1975). A new dimorphic species of *Pyemotes* and a key to previously-described forms (Acarina: Tarsonemoidea). Ann. Entomol. Soc. Amer. 68(4):723-732.

Cross, E. A., J. C. Moser, and G. Rack (1981). Some new forms of Pyemotes (Acarina: Pyemotidae) from forest insects, with remarks on polymorphism. Internat. J. Acarol. 7:179-196.

Moser, J. C. (1981). Transfer of a *Pyemotes* egg parasite phoretic on western pine bark beetle to the southern pine beetle. Internat. J. Acarol. 7:197-202.