

SMINTHURUS SAGITTA, NEW SPECIES
FROM NEW MEXICO
(COLLEMBOLA: SMINTHURIDAE)

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ABSTRACT

A new species, *Sminthurus sagitta* Loring and Snider, is described from New Mexico. The specimens are old and in poor condition, but can be separated from other species on the basis of color pattern, absence of unguis, lack of antennal apical bulb, and distinguishing setal patterns on femur and tibiotarsus. The type locality is Springer, Colfax County, New Mexico. Specimens were taken from grass.

RESUMEN

Se describe una nueva especie, *Sminthurus sagitta* Loring y Snider, para el estado de Nuevo Mexico. Los especimenes son viejos y en mala condicion. Sin embargo, se puede separarlos de otras especies en base al patrón de coloración, los patrones de distribución de las setas del fumur y el tibiotarso, la ausencia de túnica en el unguis y la ausencia del bulbo apical de la antena. La localidad del tipo es Springer, Condado de Colfax, Nuevo Mexico. Los ejemplares fueron coleccionados en pastos.

While examining specimens on loan from the United States National Museum, a new species of the genus *Sminthurus* was discovered. This species was collected many years ago in New Mexico and suffered the effects of long term storage and battering. However, the specimens still possess critical morphological features distinguishing it from other nearctic species of the genus.

We believe it is important to describe this species now for several reasons: to complete a study reviewing the external morphology of North American members of the genus *Sminthurus*; to inform ecologists and systematic biologists of its existence; and provide illustrations with the hope that those working with collections may bring new specimens to our attention.

Setal nomenclature follows Christiansen and Bellinger (1981), except for tibiotarsal setae, which follows Snider and Loring (1982) for the metaleg, and uses unpublished designations for the pro- and mesolegs.

Sminthurus sagitta, Loring and Snider, NEW SPECIES

COLOR PATTERN. The specimens have been stored in alcohol since 1909. The original colors have long since leached out or have turned various shades of gray and purple. All that can be described are general pigment patterns. Pigment pattern: Very dark "V" shaped mark on mid-dorsum of trunk, pointing posterad; very dark mosaics on posterior of lateral surface of trunk; white maculations on dorso-lateral anal papilla and lateral surface of trunk; pair of white spots on anterior medial surface of dorsum; medial white stripe posterad to "V" mark on dorsum. Metaleg with dark maculations on coxa, trochanter, and femur. Head with distinct mosaics of pig-

ments over frons, labrum, and gena; 2 small, dark spots postero-laterad of ocellar area; dark mosaic of pigment on frons below antennae and ocellar areas; distinct rosette of dark mosaics on gena; labrum outlined with dark pigment; antennae with distal dark pigment. (Fig. 1 and 2).

HEAD. Eyes 8+8; ocelli A and B subequal, 2x diameter of ocelli C and D (Fig. 3). Antennal segment ratio 1:2:3:7; ANT IV with 16 subsegments, single apical papilla, low sense rods, apical bulb absent (Fig. 4). Interocular cephalic setae A-G typical of genus, setae D up to 0.4 diameter of nearest ocellus, lanceolate and ciliated (Fig. 5); 2 unpaired frontal setae; 3 posterior oval organs forming a right triangle on lower postgena (Fig. 6).

BODY. Proleg coxa without oval organ; trochanter without oval organ, 5 setae (Fig. 7); femur with 16 setae and 1 posterior oval organ (9 anterior and 7 posterior setae) (Fig. 8); tibiotarsus with 1 anterior oval organ between AE_0 and AE_1 setae, 7 E file setae, 9 AE file setae, 8 AL and AI file setae, accessory seta between AL_0 and AI_0 setae, 4 posterior oval organs between PE file setae, 7 PE and PI file setae, 8 PL file setae (PL_7 located between PL and PI files), accessory seta between PL_0 and PI_0 setae, L setae heavy with L_5 short, L_3 and L_4 missing (Fig. 9, 10); pretarsus with anterior and posterior setulae; unguis with inner tooth, outer basal tooth, single lateral tooth, without tunica; unguiculus without corner tooth, approximately 2x length of its filament (Fig. 11). Mesoleg coxa with 3 setae and no oval organ (Fig. 12); trochanter with 1 oval organ, 5 anterior setae, 1 posterior setula (Fig. 13); femur with 11 anterior and 4 posterior setae, 2 posterior setulae, 1 oval organ (Fig. 14); tibiotarsus with oval organs located as with proleg, 7 E file setae, 9 AE file setae, 8 AL and AI file setae, 7 PE and PL file setae, 8 PI file setae, L setae heavy with L_5 short, L_4 missing, accessory setae located as with proleg (Fig. 15, 16); pretarsus with anterior and posterior setulae; unguis with inner tooth, outer basal tooth, single lateral tooth, without tunica; unguiculus with strong corner tooth, approximately 1.4x length of its filament (Fig. 17). Metaleg coxa with oval organ and 3 setae (Fig. 18); trochanter with 2 oval organs, 4 anterior setae, 1 posterior setula (Fig. 19); femur with 1 posterior oval organ, 14 anterior and 3 posterior setae, 2 posterior setulae (Fig. 20); tibiotarsus with oval organs and accessory setae located as with other legs, 7 E file setae, 9 AE, AL, AI file setae, 7 PE file setae, 9 PI file setae, PL file setae missing PL_6 seta, L setae heavy with L_6 short,



Fig. 1,2. *Sminthurus sagitta* Loring and Snider. 1) Habitus, lateral view (holotype). 2) Habitus, dorsal view (holotype).

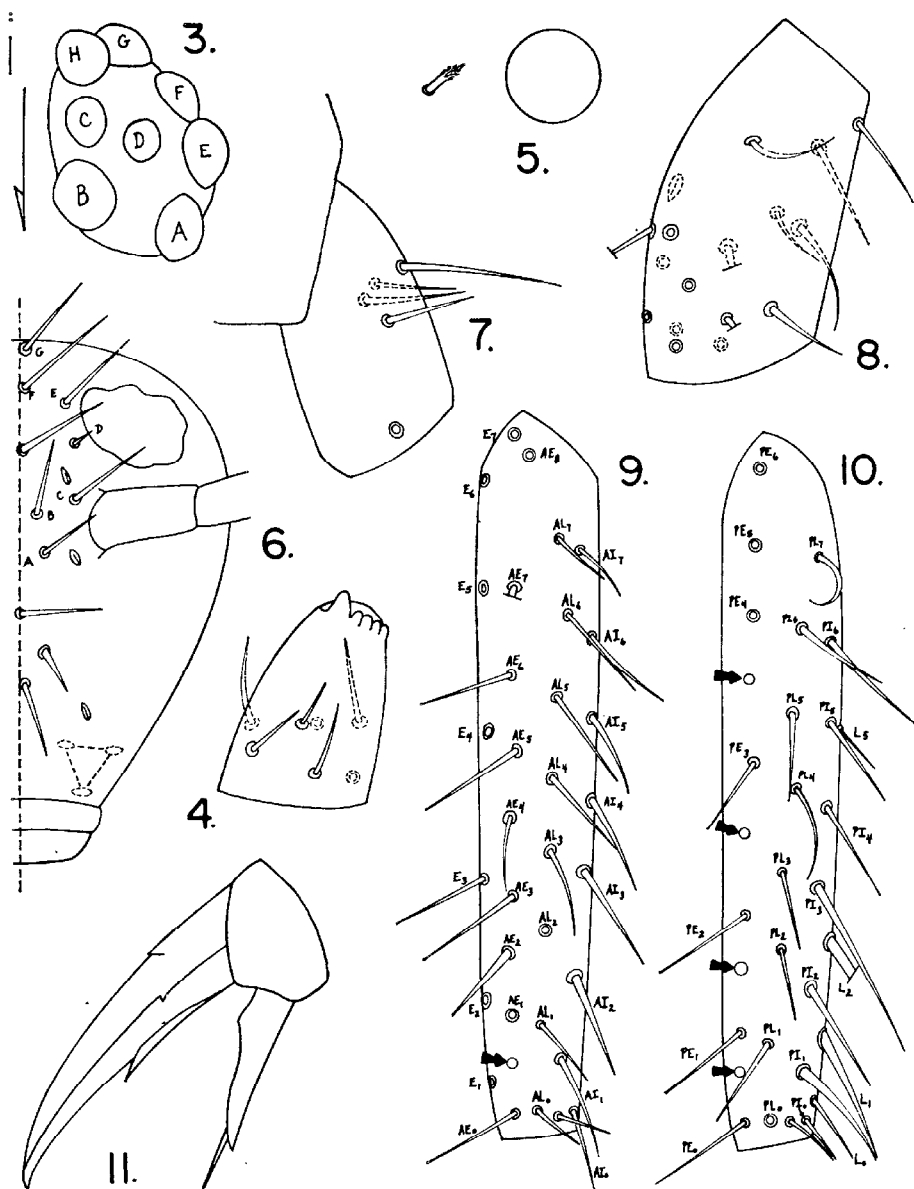


Fig. 3-11. *Sminthurus sagitta* Loring and Snider. 3) Eye patch, left side, 4) ANT IV, apical view, 5) postantennal seta D and ocellus B, 6) schematic diagram of head, showing location of anterior and posterior oval organs, 7) procoxa and, protrochanter), 8) profemur, 9) protibiotarsus, anterior view, 10) protibiotarsus posterior view, 11) proleg, claw.

L_5 missing (Fig. 21, 22); pretarsus with anterior and posterior setulae; unguis with long inner tooth, outer tooth, single lateral tooth, without tunica; unguiculus with strong corner tooth, approximately 1.86x length of its filament (Fig. 23, 24). Collophore with 1+1 subapical and lateral setae (Fig. 25, 26). Corpus of tenaculum with 4 setulae, ramus with 3 teeth (Fig. 27). Manubrium with 8+8 dorsal and 1+1 ventral setae (Fig. 28). Dens with 12 ID setae, with D_4 seta, 8 E file setae, 7 L file setae, Ve setae normal for genus (Fig. 29, 30). Mucro with inner teeth, basal seta. Female

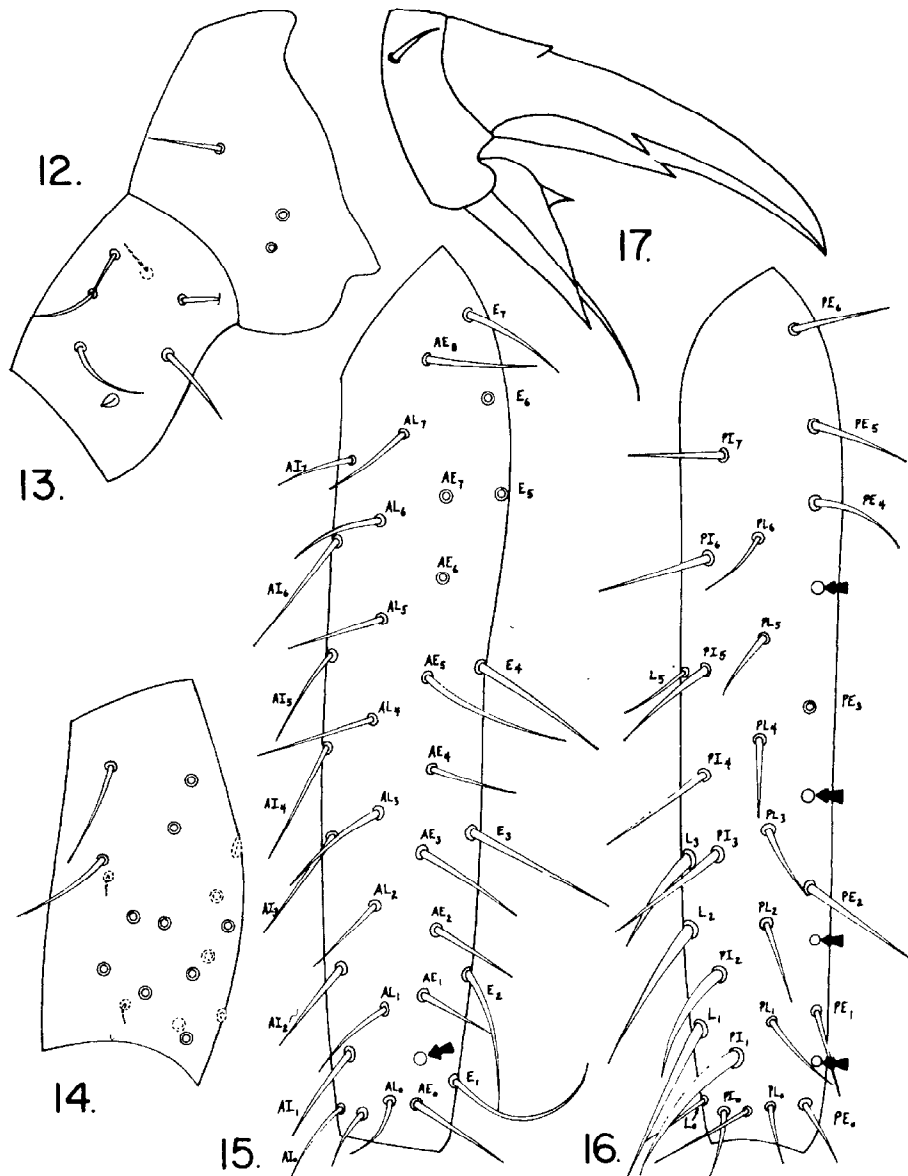


Fig. 12-17. *Sminthurus sagitta* Loring and Snider. 12) Mesocana, 13) mesotrochanter, 14) mesofemur, 15) mesotibiotarsus, anterior view, 16) mesotibiotarsus, posterior view, 17) mesoleg, claw.

circumanal setae typical for genus; single oval organ on lower valve; sub-anal appendages acuminate, curved in lateral view, gladiform in ventral view (Fig. 31). Length 1.4 mm.

DIAGNOSIS. *Sminthurus sagitta* most nearly resembles *Sminthurus butcheri* Snider, *Sminthurus fitchi* Folsom, and *Sminthurus packardi* Folsom. The following morphological features will separate these species:

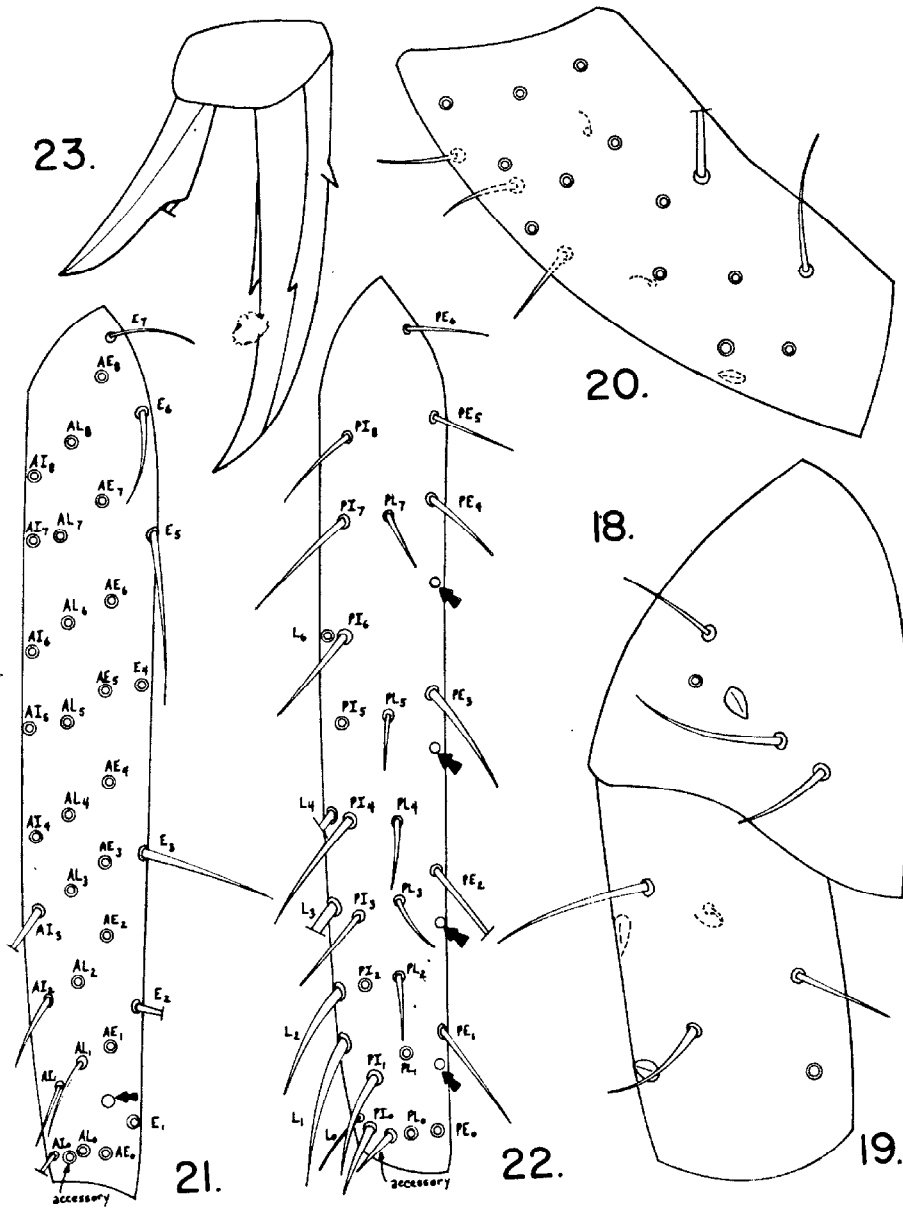


Fig. 18-23. *Sminthurus sagitta* Loring and Snider. 18) Metacoxa, 19) metatrochanter, 20) metafemur, 21) metatibiotarsus, anterior view), 22) metatibiotarsus, posterior view, 23) metaleg, claw of individual 1.

<i>sagitta</i>	<i>butcheri</i>	<i>fitchi</i>	<i>packardi</i>
ANT IV apical bulb absent	present	present	absent
3 frontal oval organs	4	3	4
16 setae on profemur	17	17	17
15 setae on mesofemur	16	16	17
meta PL ₆ seta absent	present	present	absent
ungual tunica absent	present	present	present/absent
ID accessory seta absent	present	present	present/absent
single lateral ungual tooth	several	several	several

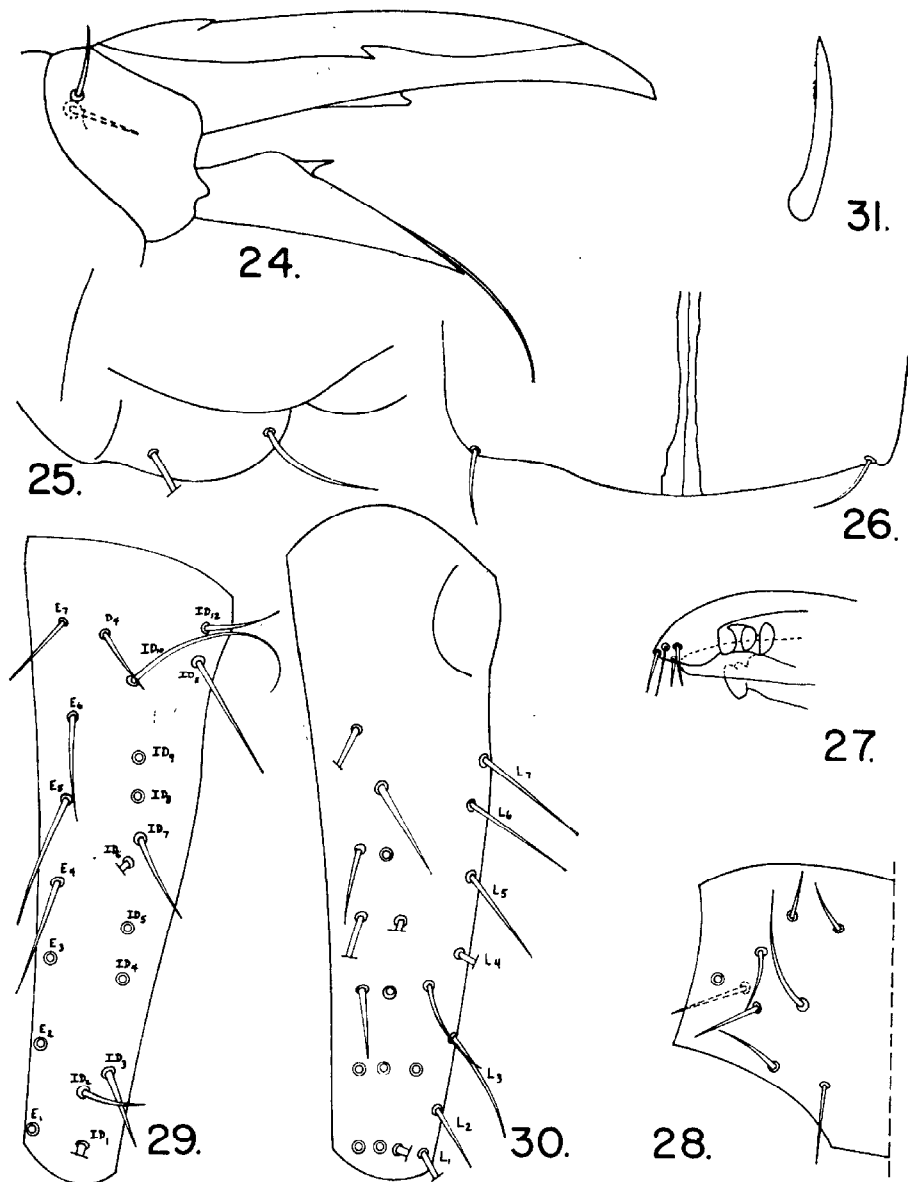


Fig. 24-31. *Sminthurus sagitta* Loring and Snider. 24) Metaleg, claw of individual 2, 25) collophore, showing subapical setae, 26) collophore, showing lateral setae, 27) tenaculum, lateral view, 28) manubrium, dorsal view, 29) dens, dorsal view, 30) dens, ventral view, 31) female subanal appendage, lateral view.

Many structures, such as the first 3 antennal segments, were very difficult or impossible to examine because the specimens were poor. Examination and illustration of these features must await specimens in better condition. Only one specimen had a whole mucro, and while an apparent basal setal socket was observed, even this is not completely certain. One individual had 3 Ve_4 setae instead of the usual number of 2 Ve_4 setae.

In previous publications, Snider (1981, 1982) and Snider and Loring (1982), the term pseudopore was used to designate tibiotarsal oval organs.

TYPES. Holotype and 19 paratypes in alcohol, 8 paratypes on slides. Holotype and 10 paratypes in alcohol deposited in United States National Museum, Washington, D.C.; 8 paratypes in alcohol and 8 paratypes on slides deposited in Entomology Museum, Michigan State University. Collection data: New Mexico, Colfax County, Springer, grass sweep at noon, 27-VIII-1909, C.N. Ainslie, collector, USNM #5568.

ETYMOLOGY. From *sagitta*, Latin for "arrow", named for the "V" mark on the dorsum of the abdomen.

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THE CICINDELIDAE (COLEOPTERA) OF THE VIRGIN ISLANDS

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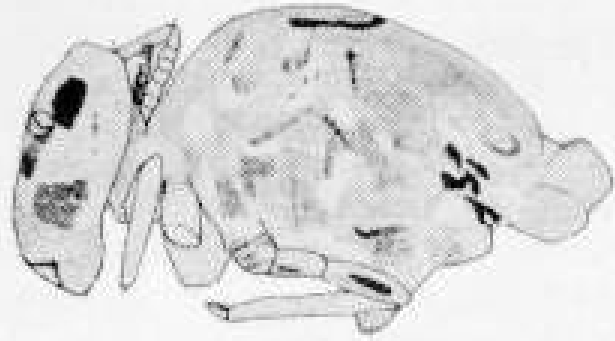
ABSTRACT

Keys, figures, biology and notes are given for the adult Cicindelidae of the Virgin Islands: *Megacephala sobrina* Dejean, *Cicindela boops* Dejean, *C. suturalis* Fabricius, and *C. trifasciata* Fabricius. A larval key is given for the 2 genera.

RESUMEN

Se presentan claves, figuras y notas biológicas para los adultos de Cicindelidae de las Islas Virgines: *Megacephala sobrina* Dejean, *Cicindela boops* Dejean, *C. suturalis* Fabricius, *C. trifasciata* Fabricius. Se presenta una clave para las larvas de los 2 generos.

The tiger beetles are taxonomically among the best known insects, yet no up to date key deals with all 4 species which occur in the Virgin Islands. A confusing number of generic, specific, and subspecific synonyms have been used, making correct identification difficult. This paper is an attempt to alleviate this problem, and provide field biologists with a taxonomic base. It is hoped that the notes on biology will spur investigation of these species' interesting ecology and behavior.



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