ARGIA

THE NEWS JOURNAL OF D. S. A.

Season Summary Supplement - 1989

PUBLISHED BY THE DRAGONFLY SOCIETY OF AMERICA

AN AFFILIATE OF THE
SOCIETAS INTERNATIONALIS ODONATOLOGICA

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BRAZIL

(data contributed by S.W. Dunkle, R.W. Garrison, and J. Pasko)

RONDONIA STATE by S.W. Dunkle

List of Odonata collected in Brazil, Rondonia State, 60 km S of Ariquemes, 10.50 S 63.7 W, Fazenda Rancho Grande, during the period 16-24 March 1989. Species for which less than 5 specimens were collected are indicated by quantity in parenthesis.

ZYGOPTERA

CALOPTERYGIDAE
- Hetaerina auripennis (Burmeister)
- " laesa Hagen in Selys
- " moribunda Hagen in Selys
- Mnesarete cupreea (Selys)

DICTERIASTIDAE
- Heliocharis sp.

LESTIDAE
- Lestes forficula Rambur

MEGAPODGRIONIDAE
- Heteragrion inca Calvert
- " sp. A
- Oxystigma petiolatum Selys

PERILESTIDAE
- Perilestes solutus Wlmsn. & Wlmsn.

PROTONEURIDAE
- Epipleoneura venezuelensis Racenis
- Neoneura sylvatica Hag. in Sel.) (3)
- Protoneura tenuis Selys
- Psaironeura tenuissima (Selys) (4)

PSEUDOSTIGMATIDAE
- Mecistogaster linearis (Fabricius)
- " ornata Rambur (1)
- Microstigma anomalum calcipennis Fras.

COENAGRIONIDAE
- Acanthagrion apicale Selys
- " longispinosum Leonard
- " peruvianum Schmidt
- " phallicornis Leonard (1)
- Argia eliptica Selys
- " huanacina Foerster
- " indicatrix Calvert
- " thespis Hagen in Selys
- Ischnura capreola (Hagen)
- " sp. nov. (nr. sobrina) (4)
- Metaleptobasis sp. nov. (4)
- Tigriagrion aurantinigrum Calv. (1)

ANISOPTERA

AESHNIDAE
- Gynacantha interoris Wmsn. (1)
- " laticeps Wmsm. (1)
- Triacanthagyna septima Selys (1)

GOMPHIDAE
- Aphylla theodorina Navas (2)
- Archaeogomphus furcatus Wmsn. (1)
- Epigomphus hylaeus Ris

LIBELLULIDAE
- Dasythemis esmeralda Ris
- Diastatops emilia Montgomery (2)
- Dythemis multipunctata Kirby
- Erythemis haematogastra (Burm.)
- " peruviana Rambur (1)
- " vesiculosa (Fabricius) (1)
- Erythrodiplax basalis (Kirby)
- " fusca (Rambur)
- " juliana Ris
- " kimminsi Borror (1)
- " latimaculata Ris
- " parvimaculata Borror
- " umbrata (Linnaeus)
- " unimaculata (De Geer)
- Fylgir amazonica Kirby
- Idiataphe amazonica Kirby
- Libellula herculea Karsch (1 o seen)
- Macrothemis declivata Calvert
- " hemichlora (Burm.) (3)
- " musiva Calvert (1)
- " pumila Karsch
- Micrathyria atra (Martin)
- " artemis Ris
- " catenata Calvert
- " hippolyte Ris (1)
- " laevigata Calvert
- " ocellata Martin
- " ?sp. nov. (nr. eximia)
- " ?sp. nov. (nr. surinamensis)
- Misagria calverti Geijskes (1)
- Nephepeltia flavifrons (Karsch) (1)
- " leonardina Racenis (2)
- " phryne (Perty)
- Oligoclada ?crocogaster Borror (1)

" ?heliophila Borror (1)
Orthemis biolleyi Calvert (4)
" cultriformis Calvert
" ferruginea (Fabricius)
Pantala flavescens (Fabricius)
Perithemis cornelia Ris (1)
" electra Ris
" lais (Perty) (3)
" mooma Kirby
" thais Kirby
Tholymis citrina Hagen (1)
Tramea calverti Muttkowski (1)
Uracis fastigiata (Burm.) (1)
" imbuta (Burmeister)

RONDONIA STATE by R.W. Garrison

The list below summarizes Odonata collections made within an approximate 15 km area surrounding Fazenda Rancho Grande, 62 km SW of Ariquemes (10.50' S, 63.7' W), Rondonia State, Brazil, covering two separate periods of about a week each, one in March and the other in November, 1989. The list includes 1) all species collected by R.W. Garrison in November 1989, 2) species collected by S.W. Dunkle in March 1989, but not seen by RWG in November, and 3) a species collected in March 1989 by John Pasko, but not seen by either RWG or SWD.

The total number of species from the Fazenda Rancho Grande area stands at 135, of which at least 11 are new.

Following the species list, some short ecological notes are added about some of the species observed by RWG. I thank Sid Dunkle for allowing me to use his data for this summary.

SPECIES COLLECTED BY R.W. GARRISON

Collecting sites were the environs of Fazenda Rancho Grande, and two additional nearby sites: A = Rio Pardo and tributaries, about 13 km NW of Rancho Grande, 5, 10 Nov. 1989, and B = stream about 7 km SE of Cacaulandia, about 70 km SW of Ariquemes, 7 Nov. 1989.

ZYGOPTERA

CALOPTERYGIDAE
Hetaerina auripennis (Burm.) (A & B)
" laesa Hagen in Selys (A & B)
" moribunda Hagen in Selys (B)
" rosea (Selys) (A & B)
Mnesarete cupraea (Selys) (A & B)

DICTERIASTIDAE
Heliocharis amazonica (Selys) (A & B)

POLYTHORIDAE
Chalcopteryx rutilans (Ramb.) (B only)

LESTIDAE
Lestes forficula Rambur
" sp. nov. (nr. henshawi in sup. app. only)

MEGAPODAGRIONIDAE
Heteragrion inca Calvert
" sp. A (= bariai De Marmels 1989, or near)
" sp. B (nr. flavidorsum) (B only)
Oxystigma petiolatum Selys

PSEUDOSTIGMATIDAE
Mecistogaster linearis (Fabricius)
" ornata Rambur
Microstigma anomalum Rambur (B)

PROTONEURIDAE
Epipleoneuria lamina Wmsn. (A only)
" ?venezuelensis Racenis
Neoneura denticulata Wmsn. (A only)
" gaida Racenis (A only)
" rubiventris Selys
" sylvatica Hag.in Sel. (A & B)
Protoneura tenuis Selys
Psaironeura tennuissima (Selys)

COENAGRIONIDAE
Acanthagrion apicale Selys
" chararum Calvert
" longispinosum Lnrd. (B)
" peruvianum Schmidt (B)
" phallicornis Leonard
" sp. (1 +) (A only)
Aeolagrion flammeum (Selys) (A)
Argia eliptica Selys (A)
" euphorbia Fraser (A only)
" fumigata Hagen in Selys
" huanacina Foerster
" nigrior Calvert
" thespis Hagen in Selys (B)

" sp. nov. A (oculata group)
" sp. nov. B (nr.cupraea) (A only)
" sp. (2 ++)
Ischnura capreola (Hagen)
Metaleptobasis sp. nov.
Leptobasis sp. nov. (A only)
Tigriagrion aurantinigerum Calvert

ANISOPTERA

AESHNIDAE
Gynacantha membranalis Karsch (B)
Neuraaeschna harpya Martin (B)
Staurophlebia r. reticulata (Burm.)
Triacanthagyna caribbea Williamson

GOMPHIDAE
Aphylla dentata Selys
Phyllocycla sp. nov. (nr.armata Belle, currently being described by J. Belle)
Phyllogomphoides cepheus Belle (++ only) (A only)
" major Belle (A only)
Progomphus sp. nov. (currently being described by J. Belle (A only)
Zonophora calippus klugi Schmidt

LIBELLULIDAE
Anatya guttata (Erichson) (A)
Brachymesia furcata (Hagen)
Dasythemis esmeralda Ris (A)
Diastatops pullata (Burm.) (A)
Dythemis m. multipuncta Kirby (B)
Elasmothemis williamsoni (Ris) (B only)
Erythemis ?attala (Selys)
" haematogaster (Burm.) (A)
Erythrodiplax anatoidea Borror
" basalis (Kirby) (A)
" castanea Burm. (B)
" fusca (Rambur)
" juliana Ris
" kimminsi Borror (A & B)
" latimaculata Ris
" longitudinalis Ris
" umbrata (Linnaeus)
" unimaculata (De Gr.) (B)
" sp. (1 o)
" sp. (1 +)
Fylgia a. amazonica Kirby
Macrothemis declivata Calvert (B)
" extensa Ris (B only)
" flavescens (Kirby)(A Only)
" hemichlora (Burm.) (B)
" idalia Ris
" musiva Calvert
" pumila Karsch
Micrathyria artemis Ris
" atra (Martin)
" catanata Calvert (B)
" dictynna Ris (B only)
" hippolyte Ris
" laevigata Calvert
" ocellata Martin (B)
" ?pirassununga Santos (B)
" spinifera Calvert
" sp. nov. (eximia group)
" sp. #1 (+) (A only)
" sp. #2 (+)
Misagria calverti Geijaskes (B)
Nephepeltia p. phryne (Perty)
Oligoclada abbreviata (Rambur)(A)
" walkeri Geijskes
Orthemis attenuata (Erichson) (A & B)
" biolleyi Calvert
" cultriformis Calvert (B)
" ferruginea (Fabr.) (B)
Perithemis electra Ris
" lais (Perty)
" thais Kirby (B)
Tauriphila australis (Hagen)
Tramea abdominalis (Ramb.)(B only)
" calverti Muttkowski
Uracis fastigiata (Burm.) (A & B)
" imbuta (Burm.) (B)
" ovipositrix Calv. (A only)
Zenithoptera americana (Linnaeus)

111 species (possibly 113) were collected. 11 (minimum) were undescribed.

SPECIES COLLECTED BY S.W. DUNKLE

Species collected by Sid Dunkle in March 1989 not seen or collected by RWG.

ZYGOPTERA

PERILESTIDAE
Perilestes solutus Wmsn. & Wmsn.

COENAGRIONIDAE
Argia indicatrix Calvert

ANISOPTERA

GOMPHIDAE
Aphylla theodorina Navas

Archaeogomphus furcatus Williamson
Epigomphus hylaeus Ris

LIBELLULIDAE
Diastatops emilia Montgomery
Erythemis peruviana (Rambur)
" vesiculosa (Fabricius)
Erythrodiplax parvimaculata Borror
Idiataphe amazonica (Kirby)
Micrathyria sp. (nr. eximia B)
Nephepeltia flavifrons Karsch
" leonardina Racenis
Oligoclada ?crocogaster Borror
" ?heliophila Borror
Pantala flavescens (Fabricius)
Perithemis cornelia Ris
" mooma Kirby
Tholymis citrina Hagen
(Libellula herculea Karsch, 1 o seen)

Total 21 species.

SPECIES COLLECTED BY JOHN PASKO

Species collected by JP in March 1989 and not collected by SWD or RWG:

ZYGOPTERA

COENAGRIONIDAE
Leptobasis inversa (Selys)

Total 1 species.

Total species recorded by SWD, RWG, and JP: 135

ECOLOGICAL NOTES by RWG

1. Heliocharis amazonica. A wary species, along wooded streams, sat with wings spread, suggestive of a Libellulid. Also present along small, partially shaded stream which emptied into Rio Pardo. Heliocharis along this tributary were wary and would rest in shade, a difficult species to see in such circumstances.

2. Chalcopteryx rutilans. Seen only at Cacaulandia locale. Females oviposit in damp logs overhanging shaded shallow creek; male guards one or two females. He hovers about motionless in front of ovipositing female, his hind wings outspread and motionless, showing brilliant colors. I photographed this behavior.

3. Hetaerina species. Hetaerina auripennis in sunny areas, H. laesa and H. moribunda primarily in shade.

4. Oxystigma petiolatum. Were collected during a rain shower. One male was hovering motionles over dirt trail. Others similarly found, but only during rain. I collected a pair ovipositing in vegetation next to trail and away from water. This species was not seen when it stopped raining. A similar behavior pattern was reported for O. williamsoni by Wasscher (1990, Notul. Odonat. 3(5): 79-80.

5. Megapodagrion megalopus. A rare species at Rio Pardo, found along shaded trail in woods. A strange species, gray with with long, spidery legs and only a white tip on end of abdomen. A most difficult species to detect and capture. One day I saw four but got only two, despite an intensive search. Sits on ground or on leaves of low-growing ferns.

6. Phyllogomphoides cepheus. A series of females was taken along a sand bar. They hovered almost motionless along sunlit areas, where I photographed them in flight.

7. Fylgia amazonica amazonica. Found at wooded pond near Fazenda Rancho Grande. This attractive little species preferred tips of leaves overhanging water in sunlit areas. It was wary, but I managed to photograph some males. When two males met, they flew facing each other over the murky pond; at such times, they were easy to take with a net.

PERU by Sideny W. Dunkle

Odonata of the Explorama Facilities near Iquitos, Loreto Department, Peru.

I = Explorama Inn, 25 mi NE Iquitos on the Amazon River. Habitats include a small dammed-up stream in the open and small, slow forest streams. SWD collected here 18-22 Aug and 1 sept 1989.

L = Explorama Lodge, 50 mi NE Iquitos at junction of the Amazon River and the small Yanamono River. Other habitats included a partly shaded pasture pond and a grass-filled lake edged with swamp (but lake/swamp nearly inaccessible). SWD collected hear 13-17, 23-24, and 27-31 Aug 1989.

C = Explornapo Camp, further NE of Iquitos on the medium-sized Sucusari River near its junction with the large Napo River. Better drained than "I" or "L" with the small forest streams flowing a little faster. SWD collected here 25-27 Aug 1989.

Although this is the driest time of year in these areas, with the Amazon River 10 m below its rainier season level, considerable rain and overcast were experienced.

ZYGOPTERA

CALOPTERYGIDAE
- Hetaerina caja- I rare
- " sanguinea- I,L,C common

LESTIDAE
- Lestes helix- L rare

POLYTHORIDAE
- Polythore beata- C rare
- " derivata- C rare

MEGAPODAGRIONIDAE
- Heteragrion inca- C scarce
- " n. sp."B"- I,L,C common
- " sp."F"- C rare
- Philogenia berenice- C rare
- " n. sp.- I,L,C fairly common

PERILESTIDAE
- Perissolestes pollux- C rare
- " romulus- L rare

PSEUDOSTIGMATIDAE
- Anomisma abnorme- L rare
- Mecistogaster lucretia- L rare
- " ornata- L rare
- Microstigma rotundatum- L,C scarce

PROTONEURIDAE
- Epipleoneura Sp."D"- I,L,C scarce
- Neoneura bilinearis- L rare
- " rubriventris- L,C fairly com.
- Phasmoneura ephippigera- C rare
- Protoneura klugi- C rare
- " scintilla- L scarce
- " woytkowskii- L rare
- Psaironeura tenuissima- L,C scarce

COENAGRIONIDAE
- Acanthagrion apicale- I,L,C scarce
- " ascendens- I,L,C common
- " lancea- L,C scarce
- Aeolagrion dorsale- L,C common
- " flammeum- L common
- "
- " foliaceum- L,C common
- Argia ?forficula- I,L,C scarce
- " indicatrix- C rare
- Chrysobasis n. sp.- I,L common
- Helveciagrion chirihuanum- L common
- Ischnura capreola- L uncommon
- Leptobasis ?tuberculata- L rare
- " sp."B"- L rare
- " sp."C"- L rare
- Leptagrion sp.- L rare
- Mesoleptobasis ?acuminata- L,C scarce
- Metaleptobasis sp."A"- C rare
- " sp."D"- I,L,C scarce
- " sp."E"- L rare
- Telebasis griffinii- L rare
- " sp. nr filiola- L common
- " sp. (blue)- L common
- Genus ?- C rare
- Genus ?- L rare
- Genus ?- L scarce

ANISOPTERA

AESHNIDAE
- Coryphaeschna adnexa- I,L scarce
- Ganacantha auricularis- C rare
- " latoralis- I,L scarce
- " membranalis- L rare
- Neuraeaschna calverti- L rare

Neuraeschna harpya- I,L fairly com.
Staurophlebia wayana- I,L,C scarce
Tricanthagyna ditzleri- L,C scarce
" septima- L rare

GOMPHIDAE
Aphylla n. sp. nr robusta- L rare
Archaeogomphus hamatus- I,L rare
Epigomphus occipitalis- L rare
Phyllogomphoides selysi- I rare (but commonly seen over river)
Progomphus sp. nr superbus- L rare
Genus ?- I rare

LIBELLULIDAE
Anatya guttata- I,L uncommon
Erythemis attala- I,L,C uncommon
" carmelita- L uncommon
" mithroides- L scarce
" peruviana- I,L,C abundant
Erythrodiplax attenuata- I,L,C abund.
" umbrata- L rare
" unimaculata- L,C abund.
Libellula herculea- ! rare
Macrothemis extensa- I,L uncommon
" lauriana- L uncommon
Miathyria simplex- L,C abundant
Micrathyria atra- I rare
" laevigata- I,L rare
" mengeri- L rare
" sp.- I,L uncommon
" romani- L scarce
" spinifera- L,C rare
" tibialis- I,L common
Nephepeltia flavifrons- L Rare
" phryne- L,C scarce
Oligoclada monosticha- I,L,C rare
" pachystigma- L rare
" stenoptera- I rare
" xanthopleura- L rare
" walkeri- C rare
Orthemis cultriformis- I,L,C uncom.
" ferruginea- I,L uncommon
" n. sp. nr levis- L rare
Pantala flavescens- I rare
Perithemis bella- L,C rare
" cornelia- I,L,C common
" lais- I scarce
" rubita- I,L uncommon
" sp.- I,C scarce
Tauriphila australis- L common
Uracis fastigiata- I,L,C common
" imbuta- L rare
Erythemis haematogastra (seen)
Tholymis citrina (seen)

SINGAPORE by Dennis R. Paulson

SINGAPORE (data file 89-5):

Ponds in Singapore Botanic Gardens 12 September 1989: DRP; 10:30 - 11:30; partly cloudy, hot, ornamental ponds with diverse aquatic plants.
Argiocnemis rubescens- 1f
Ceriagrion cerinorubellum- 1m
Pseudagrion microcephalum- 1m (males fairly common, always low over water)
Anax guttatus (few males over largest pond)
Ictinogomphus decoratus- 2m (at all ponds, even quite tiny ones; usually perch on twigs over water)
Brachydiplax chalybea- 1m (few; golden-brown tho., pruinose blue ab., discolored in preservation by acetone)
Brachythemis contaminata- 1f (few males over ponds, perched and in very rapid flight, superficially Perithemis-like)
Crocothemis servilia (few males over large ponds)
Hydrothemis croceus (few over ponds)
Neurothemis fluctuans- 2m (commonest sp., males associated with vegetation more than other libellulids, few immature)
Orthetrum chrysis- 2m (common on small ponds, much male chasing; tho. conspiuously darker than ab.)
Rhodothemis rufa- 2m (few males at small pond at forest edge)
Rhyothemis phyllis (one seen at small ponds, males over larger ponds)
Urothemis signata (few males)

SINGAPORE (data file 89-6):

Mandai Orchid Gardens; 13 September 1989; DRP; one-half hour in mid-afternoon; sunny, open/shrubby gardens at edge of forest, near Seletar Reservoir).
Pseudagrion microcephalum (few on ditch)
Ictinogomphus decoratus 1m (few perched on dead twigs from shrubs to high in trees)
Neurothemis fluctuans (few on ditch)
Orthetrum chrysis (few on ditch)
O. sabina (few on ground)
Rhyothemis phyllis (many hovering over

clearings).

SINGAPORE (data file 89-7):

Forest, 1 mi S Nee Soon; 14 September 1289; DRP; 10:00-13:00; partly cloudy; marshy pipeline clearing, 2 ft.-wide ditch with tall grasses, small muddy stream at forest edge, and small muddy/sandy stream with much aquatic vegetation (incl. Cryptocoryne) coming out of forest.

CLEARING
- Ceriagrion cerinorubellum- 1m 1pr (common, usually in denser grass than Pseudagrion)
- Pseudagrion microcephalum- 2m 1pr (common over marshy puddles)
- Ictinogomphus decoratus- 5 m (amazingly common, constantly in sight flying in front of us and perched on low twigs with elevated abdomen; not associated with water; no definite females (why not?)
- Epophthalmia vittigera- 2m (many flying up and down clearing, usually 5-10m up; eyes brown!)
- Crocothemis servilla- 1f (immature)
- Nannophya pygmaea- 3m (males common in marshy areas)
- Neurothemis fluctuans- 2m
- Orthetrum chrysis- 2m 1 pr (males common over tiny marshes; female ovipos. among grasses, flicking eggs forward 1-2cm onto mud)
- Rhyothemis phyllis- 1f
- Trithemis aurora- 1m 2f (young individuals in open part of clearing)

DITCH
- Agriocnemis rubescens- 1m
- Ceriagrion cerinorubellum- 1m
- Pseudagrion microcephalum- 1m
- Nannophya pygmaea- 2m 1f
- Neurothemis fluctuans- 1f (common)
- Orchithemis pulcherrima- 3m
- Rhyothemis pygmaea- 5m (common in dense grassy areas)
- Trithemis aurora- 1m 1f (male over open water)

MUDDY STREAM
- Vestalis sp.- 2m (resting on vegetation 1 m above stream)
- Drepanosticta quadrata- 1m (hovering over water and under branches of shrubs)

MUDDY/SANDY STREAM
- Euphaea impar- 1m (in sun over stream next to forest)
- Libellago aurantiaca- 1m (2 males, perched on grass in sun)
- Prodasineura interrupta- 1m (low over stream near forest)
- P. notostigma- 1m (hovering 1m above stream in open area)
- Pseudaagrion microcephalum- 1m (few males in open area

SINGAPORE (data file 89-8):

MacRitchie Reservoir, E end; 14 September 1989; DRP; 14:00-15:00; partly cloudy; edge of large reservoir in forest with scattered grasses in water.
- Lestes cf. praemorsa- 1m 1pr (few other males & pairs seen; tho. light blue in life, discolored by acetone)
- Pseudagrion microcephalum- 2 pr (fairly common)
- Epophthalmia ?vittigera (probably this species zooming along out from shore & just over water)
- Crocothemis servilia- 1m (few in muddy inlet, interacting with O. chrysis)
- Neurothemis fluctuans- 1m (few others seen in grass)
- Orthetrum chrysis- 1m (few in muddy inlet, including pair with ovipositing female)
- O. glaucum- 1f (in shrubs away from water)
- O. sabina- 2m (small ## resting on sand near water)
- Rhyothemis triangularis (male well out over water)
- Trithemis aurora- 2m (on vegetation over water)
- T. pallidinervis (female seen on top of grass over water, perched in open like male)

SINGAPORE (data file 89-9):

Upper Pierce Reservoir, SE corner; 17 September 1989; DRP; 09:00-09:15; sunny; grassy edge of large reservoir.
- Pseudagrion ?microcephalum (few males

seen)
Ictinogomphus decoratus- 1m
Indothemis limbata- 1m (few flying strongly over water and settling in grass)
Neurothemis fluctuans (few)
Orthetrum sabina (few)
Trithemis aurora- 1m (few males)
T. pallidinervis- 1f (on top of grass over water, perched in open like male)

SINGAPORE:

brackish ponds at Sungai Buloh, 17 September 1989: DRP; one houe on sunny morning.
Anax guttatus (few)
Macrodiplax cora (fairly common)
Pantala flavescens (common in swarms)

UNITED STATES

(data contributed by C. Cook, R.D. Cuyler, T.W. Donnelly, D.R. Paulson and K.J. Tennessen)

ALABAMA by K.J. Tennessen

Species list for collections from 7 AL counties made in 1989:

Bibb Co.:
Calopteryx maculata; Gomphus sp. (nymphs); Progomphus obscurus (nymphs); Stylurus ivae and Pantala flavescens.

Colbert Co.:
Caloptera maculata; Lestes disjunctus australis; Argia bipunctulata & fumipennis violacea; Anomalagrion hastatum; Enallagma civile; Ischnura posita; Anax junius; Erythemis simplicicollis; Libellula cyanea, flavida, incesta, luctuosa, lydia & semifasciata; Pachydiplax longipennis; Pantala flavescens; Sympetrum ambiguum & vicinum and Tramea lacerata.

Coosa Co.:
Hetaerina americana; Basiaeschna janata (nymphs); Neurocordulia ?yamaskanensis (nymphs)- southern extension of range if validated by collection of adults.

Dale Co.:
Enallagma signatum & traviatum; Ischnura ramburi; Celithemis elisa; Erythemis simplicicollis; Pachydiplax longipennis; Perithemis tenera; Tramea carolina and lacerata.

Jackson Co.:
Calopteryx maculata; Basiaeschna janata; Epiaeschna heros; Cordulegaster obliqua; Somatochlora sp. (all nymphs).

Lauderdale Co.:
Hetaerina americana & titia; Argia moesta, sedula & translata; Anax junius; Boyera vinosa; Dromogomphus spinosus and Stylurus plagiatus.

Marion Co.:
Enallagma basidens; Anax longipes; Celithemis elisa & fasciata; Dythemis velox; erythemis simplicicollis; Libellula incesta, luctuosa & lydia; Pachydiplax longipennis and Tramea carolina. A sighting was made of a possible Libellula auripennis.

FLORIDA by R. Duncan Cuyler

Collecting data and observations for several localities in FL visited April 1-2, 1989.

1 = Lake nr. Hawthorne, Alachua Co.
2 = Lake at Route #20, Putnam Co., 3 mi E of Alachua County line.
3 = Lake at Route #20, Interlachen, Putnam Co.

Lestes vigilax, several seen emerging at 1.
Argia fumipennis atra, common at 1 & 3.
Ischnura ramburi, common at 1, 2 & 3.
Epiaeschna heros, Grove Park area, and woods nr. 2.
Coryphaeschna ingens, common, 3 taken in woods nr. 2.
Gomphus australis, emerging at 2; emerging and mature at 3.
Gomphus cavillaris, fairly common at 2 & 3.
Gomphus minutus, creek at Grove Park, Alachua Co., and other locations in Alachua and Nassau counties.
Didymops floridensis, o taken and others

seen along road nr. 2; fairly common at 3.
Epitheca regina, 1 seen at 3.
" stella, common at 1.
Celithemis ornata, fairly common in Grove Park area, and 2 & 3.
Erythrodiplax minuscula, 2 & 3.
Libellula deplaneta, fairly common at all locations.
Miathyria marcella, tenerals swarming over grassy areas at 1.
Tramea carolina, common at all locations.

The following species were observed but not collected: Anax junius; Erythemis simplicicollis; Libellula axilena & semifasciata; Pachydiplax longipennis; Perithemis tenera and Ischnura posita.

GEORGIA by R. Duncan Cuyler

Few collections were made in GA:
Gomphus minutus, Satilla River, Brantley Co.
Libellula deplaneta, fairly common in various areas.
Tramea carolina, common at locations in eastern GA.
Ischnura ramburi, common at lakes along Route #301, from Carlton Co., north to Screven Co.

KENTUCKY by Carl Cook

The writer has collected in Kentucky more or less intensively for about a half-century. 1989 added no new species to the state list, and probably no new locality records, but a summary of data from a few selected sites will have cumulative value as they are added to past and future records. A kind of continuing "state of health" report on the odonate population of this region.

The first selected locality is the lower Little Barren River, located in GREEN CO., this roughly includes that section of the river below the junction of its East and South Forks to its mouth at Green River. This is a fine medium sized river, 60'-80' wide, with gravel bottom and usually wooded bank-sides, it flows in a succession of slow pools and rocky rapids,and usually has gravel bars along the inside of the numerous "oxbow" bends. It was formerly a pristine stream but is now beginning to be impacted from its proximity to intensive agricultural production. Some odonates, other insects and especially some species of freshwater clams are declining significantly.

Sites on the Little Barren that I visit most frequently are: The bridge across the river on Highway #218 15 mi E of Horse Cave=(B); the oxbow bend around the former Cook Farm (now Thompson Farm) reached by turning off Hwy 218 at the little villige of Crailhope onto road #1040, at about 1.0 mi, turn onto the farm lane at Ceder Spring Farm, the site is an additional 1.0 mi., =(CF); The Luther Froggett Farm, road #1040 5.0 mi from Crailhope=(FF); the mouth of Little Barren, near Defries, road #677 3.5 mi N from junction with Hwy #88 at Monroe=(D).
Calopteryx maculata (B,CF,FF,D) V-X
Hetaerina americana (B,CF,FF,D) VI-X
" tricolor (B,CF,FF,D) VIII-X
Argia apicalis (B,CF,FF,D) VI-X
" moesta (B,CF,FF,D) V-X
" sedula (B,CF,FF,D) V-X
" tibalis (B,CF,FF,D) VI-X
" translata (B,CF,FF,D) VI-X
" f. violacea (CF,FF) VI-IX
Enallagma exsulans (B,CF,FF,D) VI-X
Basiaeschna janata (B,CF,FF,D) IV-V
Boyeria vinosa (B,CF,FF,D) VIII-X
Epiaeschna heros (CF,FF) VI
Dromogomphus spinosus (B,CF,FF,D) VI-X
" spoliatus (D) VII-X
Erpetogomphus designatus (D) VI
Gomphurus crassus (B,CF,FF,D) V-VII
" fraternus (B,CF,D) V-VI
" lineatifrons (B,CF,FF) V-VI
" vastus (B,FF) VI
Gomphus viridifrons (B) VI
Hagenius brevistylus (CF,FF,D) VI-X
Lanthus albistylus (CF,FF) V-VI
Ophiogomphus rupinsulensis (B,CF) VI-VII
Phanogomphus qudricolor (CF) VI
Didymops transversa (B,CF,FF,D) IV-V
Macromia illinoiensis (B,CF,FF,D) VI-IX
" taeniolata (B,CF,D) VII-VIII
Epitheca princeps (CF,D) VI-IX
Neurocordulia yamaskanensis (CF) VI-IX

Not present in 1989:

Calopteryx angustipennis
Phanogomphus exilis
" lividus
Progomphus obscurus
Stylurus notatus
" plagiatus
" spiniceps

METCALFE CO.- County Park Lake. This site is located just off US Highway #68 5 mi N Edmonton. It is a constructed reservoir of ca. 8 acres across Sulphur Creek

The most noteworthy species occurrence here is Dromogomphus spoliatus, usually found on larger sized streams. I have never found it on any stream in Metcalfe Co. Since the lake is periodically stocked with game fish, it is postulated larvae may have been accidently introduced. First seen in 1988, it was very abundant VII-X, 1989.

NEW YORK by T.W.Donnelly

My quest for New York records continues. A visit to the New York State museum at Albany has clarified some old records. Most notably, the two old records of "Gomphus adelphus" (Kenwood and Bethlehem) are both G. vastus. The incorrect name was applied by Hagen himself in 1877; how he could have made this mistake is a mystery. The Bethlehem record of G. plagiatus is spiniceps. A specimen without locality (but presumable from near Albany) is close to G. abbreviatus but might be new.

A population of Nannothemis bella was found at Marsh Pond, N.Y. Lothar Hornuff had found a teneral specimen here during the Odonata gathering field trip of 1982, but no subsequent specimens were located until this year. The tiny colony evidently exists in a patch of floating bog perhaps not much larger than ten square meters in size!

On 26 June I joined Frank Carle for collecting at Little Cedar Pond, in the Sherwood Forest of Orange County. We took Gomphus rogersi (a state record) in numbers, but this represents only a short range extension from New Jersey occurrences. The pond has a rich odonate fauna, including Cordulegaster obliqua, Nasiaeschna pentacantha, Enallagma traviatum and divigans and Ladona exusta.

In early July I took Enallagma basidens at a bog pond (1200' elevation) near Gracie, Courtland Co., NY. This is certainly the most boreal occurrence of this species.

At Harpur Pond, at my University, Coenagrion resolutum has reappeared and is probably now resident. Aeshna constricta was taken again this year, and verticalis and tuberculifera were especially abundant. The appearance of beaver a few years ago has changed the pond significantly, and the odonate fauna will probably change very much in the future. The Zygoptera are becoming much less conspicuous as the water level rises in almost all sub-ponds.

NORTH CAROLINA by Carl Cook

At the conculusion of the SIO Meeting in Johnson City, Tennessee, Jerrell Daigle and myself hit the trails toward eastern North Carolina headed for the Nantahala National Forest. With visions of Macromia margarita and Somatochlora elongata dancing before our eyes, we arrived amid unexpectedly sunny and pleasent mid July weather for several days of collecting.

Our operations base was the Cliffside Lake Campgrounds off Hwy. #64 in Macon Co. The collecting sites are Clffside Lake, an artificial reservoir of approximately 8-10 acres, formed by damming two small streams; and within walking distance just across the highway, the Cullasja River. At the lake, collecting was done generally around border; at the mouth of the two inlet streams, and upstream 0.1 or 0.2 mi. The river was collected on about 0.5 of its course, opposite the lake, where there is a succession of shallow pools separated by rocky rapids. Further down-

river, the gradient of the stream falls dramatically, and it rushes away to the bottom of a deep canyon.

Species occuring around the lake included: Lestes vigilax (rare), Argia violacea (uncom.), Enallagma hageni (the most abundant coenagrionid, one sweep of the net would catch a dozen), Anax junius (seen), Epitheca cynosura (one male, I need to check if this is a record late date), Somatochlora elongata (Oh Boy! This is one I came for!) This species seemed restricted to one spot on the lake's upper end where there was an area of Sphagnum. Males would drop in suddenly, "mark time" over the water 2' or 3' out from the water's edge, move ahead a few feet and repeat. When they reached the end of the mossy area they would fly away out over the lake and back into the forest. Beavers had felled a tree on the mossy spot, so I could climb over the brushy top to get within netting distance of the dragonflies, a duck had her nest beneath the brush, and would hiss loudly as I crossed overhead.

On the little streams inletting in the lake, the only adult odonates seen were Calopteryx maculata & Basiaeshna janata. At their mouth into the lake, larvae of Lanthus ablistylus and Cordulegaster maculatus were very common. One day I ran upon Frank Carle and his son, who had also came on over to this location to collect, Frank had just dipped a large Stylurus nymph which he thought might be scudderi. I had gotten two half-grown ones, but when I examined them under the microscope, mine turned out to be laurae.

On the Cullasja River, our objective, of course, was Macromia margarita. Within a few minutes after arriving at the site where Jerrell had found them before, we were rewarded by seeing a fine big male come zooming along. I made a gallant effort to net him, but only succeeded in tripping over a boulder and dunking both myself and my brand new Seiko watch (neither of which was water-resistant!) into the river.

As it turned out, both Jerrell and myself would be able to add only sight records for margarita on this trip. There were several on wing, perhaps a dozen were seen, but our batting average seemed to be in something of a slump!

Several Boyeria grafiana patrolling the banks at water's edge kept us busy between sightings of margarita. Both species of Boyera were present, but it is usually easy to distinguish grafiana by its more yellowish abdomen.

NORTH CAROLINA by R. Duncan Cuyler

Following a succession of several dry seasons, 1989 was wetter than normal in North Carolina. This apparently resulted in a number of species being more common than in recent years.

A large feeding swarm of Epiaeschna heros was encountered in the Durham (Orange Co.) area for the first time in many years. There were numerous sightings of Pantala flavescens and P. hymenaea in May and early June. Brachymesia gravida was exceedingly abundant at Lake Mattamuskeet (Hyde Co.) It was swarming in the shrubbery along Route #94, which bisects the lake from north to south. Erythrodiplax berenice was quite abundant in July along the edge of Roanoke Sound.

Several rare gomphids, including Ophiogomphus incurvatus, Gomphus abbreviatus, and G. apomyius were taken in larger numbers than usual, and additional localities were found for these species, and also for Gomphurus septima. Arigomphus villosipes was taken commonly near the western end of Albemarle Sound (Bertie & Washington Co.) Aeshna umbrosa was quite common in early October at Jonas Ridge (Burke Co.), in the northern mountains, and also in the area around Durham.

Gomphaeschna antilope was common in April in the vicinity of Cape Fear River at Fayetteville (Cumberland Co.) The uncommon Somatochlora georgiana was sight-

ed more frequently than in recent past. Sometimes three or more were seen at once, but only two specimems were taken, one of them at Durham. Common species more abundant than usual included Anax junius, Neurocordulia obsoleta, Somatochlora filosa, Celithemis fasciata, and Tramea carolina.

Most of the normally common or frequently observed species maintaining their status quo would include: Calopteryx dimidiata & maculata; Hetaerina americana; Lestes rectangularis & vigilax; Argia apicalis, fumipennis violacea, moesta, sedula & tibialis; Enallagma basidens, civile, concisum, daeckii, divagans, doubledayi, durum, exsulans, geminatum, signatum & weewa; Ischnura posita & ramburi; Anax longipes; Basiaeschna janata; Gomphaeschna furcillata; Dromogomphus spinosus; Gomphus exilis & lividus; Progomphus obscurus; Cordulegaster maculata; Didymops transversa, Macromia alleghaniensis, georgina & taeniolata; Epitheca cynosura & princeps; Helocordulia selysi, Somatochlora linearis; Celithemis amanda, bertha, elesa, eponina & ornata; Erythemis simplicicollis; Erythrodiplax minuscula; Libellula auripennis, cyanea, deplaneta, flavida, incesta, luctuosa, lydia, needhami, semifasciata & vibrans; Pachydiplax longipennis; Sympetrum ambiguum (more abundant around Durham) & vicinum and Tramea lacerata.

Common or frequently observed species which were less common in 1989 than in previous years included: Hetaerina titia tricolor; Lestes australis & inaequalis; Argia bipunctulata, f. fumipennis & translata; Chromagrion conditum; Enallagma aspersum, pallidum and traviatum; Ischnura hastata & verticalis; Boyeria vinosa; Nasiaeschna pentacantha; Aphylla williamsoni; Hagenius bervistylus; Stylurus amnicola, laurae & plagiatus; Macromia illinoiensis; Epitheca semiaquaea; Helocordulia uhleri; Somatochlora tenebrosa; Libellula axilena & pulchella and Dythemis velox.

Epitheca spinosa, probably as a result of suburban growth in the Durham area, has become increasingly uncommon in that area in recent years,although it was quite common in April, 1989 in Robeson Co., in southeastern NC. Neurocordulia alabamensis has become progressively rarer from year to year at Vass (Moore Co.), whereas it was quite common there in the 1960's and 1970's. At Chock Fork Creek, near Gibson Lake (Richmond Co.), it has been fairly common in recent years, but that locality was not visited at dusk in 1989. Two othe Neurocordulias, molesta and virginiensis were not sought in 1989 at localities where they were previously observed, but they were not found there the two previous years when the localities were last visited. One N. molesta was taken in 1987 at a different locality. Locations where Erpetogomphus designatus is normally found also were not visited in 1989, but one individual was taken at another locality. Archilestes grandis has not been observed in the Durham area in 1989 or the two prior years, one was taken elsewhere in 1989.

Rare or locally occurring species in NC taken in 1989 were: Calopteryx amata (Swain Co., on SIO's Post-Symposium collecting trip); Lestes eurinus; Ischnura kellicotti (Lake Mattamuskeet, first record from Hyde Co.); Telebasis byersi; Boyeria grafiana (o at Lewis Fork Creek, Wilkes Co.); Arigomphus pallidus (+ at Holly Shelter Game Preserve in SE NC, the first one taken since 1962); Dromogomphus armatus (1 in Scotland Co.); Gomphus parvidens (1 in Davie Co.) & quadricolor (3 at Rocky River, Chatham Co.); Gomphurus fraternus (1) & vastus; Stylogomphus albistylus; Stylurus scudderi (o at Lewis Fork Creek); Cordulegaster bilineata & erronea (Duke Forest, Orange Co.); Somatochlora provocans and Sympetrum rubicundulum.

Species sighted but not taken were: Tachopteryx thoreyi (although collected in eastern Tennessee); Gomphurus dilatatus; Stylurus spiniceps (French Broad River, Madison Co.) and Macro-

diplax balteata (at Nags Head-Manteo area, Dare Co.).

Species previously collected in NC, which were neither collected nor sighted in 1989 were: Lestes forcipatus & vidua; Amphiagrion saucium; Enallagma vesperum; Ischnura prognatha (seldom seen in NC); Nehalennia gracilis & integricollis; Stylurus ivae & townesi (locality visited in 1989 and the two preceding years); Cordulegaster obliqua (consistently rare in NC); Macromia margarita; Epitheca costalis-?williamsoni; Celithemis verna; Sympetrum semicinctum and Tramea calverti & onusta.

For a few other species, the proper NC localities were not visited, or not visited at the appropriate season in 1989 for collecting: Calopteryx angustipennis; Enallagma davisi, hageni & minusculum; Gomphus adelphus, brimleyi and diminutus; Gomphurus hybridus & ventricosus; Lanthus vernalis; Somatochlora elongata and Nannothemis bella.

NORTH CAROLINA by T.W. Donnelly

During the Johnson City SIO Meeting (Tennessee) I saw many of you, and look forward to the next gathering. My collecting at Bays Mountain was unremarkable, but I had more luck on a side trip with Clark Shiffer to our 1984 locality in western North Carolina (Collettsville, Caldwell Co.). We found Macromia allegheniensis (previously we took margarita here), and Clark found Stylurus laurae.

PENNSYLVANIA by T.W. Donnelly

The early part of the season was dominated by very high water in the Susquehanna and smaller rivers. Consequently, river collecting was essentially wiped out. A teneral of Gomphus quadricolor was taken at Hallsted, PA on 3 June.

TENNESSEE by Carl Cook

The state of Tennessee is an odonatological paradise, with widely varied topography from the Great Smoky Mts. with elevations of nearly 6000', to only 300' along the Gulf Coastal Plain of the Mississippi River. Some of the finest and least impacted waters in eastern North America are to be found within its borders. Many widely distributed odonates occur generally throughtout most areas of the state, while others are unique species known only from specialized habitats.

Some noteworthy areas visited in 1989, and interesting records from them are noted below:

The Cumberland Plateau.- This is an area with a general elevation of about 2000' above sea level. Centering around Cumberland County, and extending NE into Kentucky and SW into Alabama. I made several collecting trips in late May and the first half of June to locations in this area: CUMBERLAND CO.- Caney Fork River at bridge on US S70, 8 mi W Crossville. This is a beautiful sandy bottom stream, ca 30' wide with a succession of ripples and long pools. One of the most productive spots was the ripple just below the bridge, and the pool under and just above the bridge, here I collected (A = abundant, C = common, U = uncommon, R = rare) the following--

Calopteryx dimidiata (A)
" maculata (C)
Enallagma exsulans (C)
" signatum (many pairs flying close to pool surface, C)
Basiaeschna janata (C)
Boyeria vinosa (larvae only, U)
Dromogomphus spinosus (larvae only, U)
Gomphus brevis (on overhanging brush, R)
Gomphurus lineatifrons (on dead stick,R)
Phanogomphus exilis ("hovering" & on overhanging brush, A)
" lividus (at ripple, others on ground along roads C)
Hagenius brevistylus (larvae only, U)
Lanthus albistylus (adults on wet rocks U, larvae C)
Ophiogomphus ?incurvatus (larvae only,R)

Progomphus obscurus (adults R, larvae C)
Cordulegaster diastatops (♀ ovipositing in tiny tributary R)
" maculatus (adults C, larvae A)
Didymops transversa (C May, R by June)
Epitheca cynosura (May, C)
Helocordulia selysi (over pool, May, C)
Plathemis lydia (trails near river, U)

PICKETT CO.- Pickett State Park, Road #154, 15 mi NE Jamestown, collecting locations are Rock Creek and a small lake formed by damming the creek. The creek is ca. 8-10' wide, in places partly overhung by shelving outcrops of sandstone, everywhere heavily shaded with overhanging rhododendron. The more interesting species on the stream are:
Progomphus obscurus (larvae only, U)
Stenogomphurus rogersi (adults C, larvae A)
Lanthus ?vernalis (larvae only, R)
Cordulegaster maculatus (C)
Helocordulia selysi (U)

On the lake:
Lestes rectangularis (U)
Chromagrion conditum (A)
Enallagma divagans (A)
Tachopteryx thoreyi (on trees, lakeside & trails, U)
Erpetogomphus designatus (trails, R)
Progomphus obscurus (sandy beach, R)
Somatochlora tenebrosa (trails, R)
Libellula deplanata (one worn male)
" semifasciata (R)

The Central Basin.- At the approximate geographical center of the state, west of Cumberland Plateau and north of Highland Rim, this is an area with an average elevation of 600'. The southern portion is drained by the Duck River and its tributaries. Land use is extensively agricultural, and more severally impacted than surrounding areas.

BEDFORD CO.- The interesting site here is Fall Creek where it is crossed by Ben Williams Road (now a ford, the old iron bridge having been removed). The location is NW of Shelbyville and just off US 41A. Fall Creek is shallow and flows over a bedrock bottom, it is becoming choked with algae and is probably already into the process of eutrophication. The mid June afternoon of our visit was sunny and hot. In a two-hour search up and down the stream bed the only gomphids seen were a few Dromogomphus spinosus. Searching adjacent weedy fields yielded two females of Gomphus (Phanogomphus) sandrius, the object of our visit.

The Highland Rim.- Which essentially borders the Central Basin,with higher elevations of around 1000'. It is more forested and less impacted by agriculture, with its clear streams, it ranks high on my list of desirable odonate collecting regions.

LEWIS CO.- Big Swan Creek, just W of Gordonsburg on road #99, there is parking space and good access to the stream at the Gordonsburg Church of Christ. This is an easily wadeable clear stream, flowing over gravel with numerous ripples, and fantastic odonates. Our visit here was in the second week of June. Sunny, with afternoon high of 85:
Calopteryx angustipennis (the dominant species of the genus, this may be the only location known to me where I feel justified in calling the population "abundant")
" dimidiata (C)
" maculata (C)
Argia fumipennis violacea (U)
" sedula (C)
Enallagma exsulans (C)
Basiaeschna janata (C)
Gomphurus lineatifrons (on rocks or sticks at head of ripples, U)
Gomphus (Gomphus) viridifrons (on over hanging brush, U)
Gomphus (Phanogomphus) lividus (at borders of adjacent plowed fields U)
Hagenius brevistylus (one perched on nearly every dead tree top in the stream C)
Lanthus albistylus (they prefer to sit on wet sand or pebbles at head of ripples, most numerous in late afternoon to dusk C)

Ophiogomphus acuminatus (rarely seen on the Big Swan. A male dropped down from the tree tops and perched on a sandbar as the sun was setting, R)
Didymops transversa (undoubtedly more common earlier, R)
Macromia alleghaniensis (males patrolling over water, mated pairs 10'-20' high in trees, C)

Little Swan Creek.- This seems to be the preferred habitat for O. acuminatus. After parking at the Natchez Trace bridge across the Little Swan, we descended to the bottom of the deep ravine and collected downstream for a mile or more. Several males were taken while perched on overhanging brush, or pebbles in the stream bed. A mated pair was taken from low brush 20' back from the stream's edge. The only other odonates noticed on Little Swan were Lanthus albistylus and Calopteryx maculata.

WASHINGTON by Dennis R. Paulson

Noteworthy Odonata records from the Pacific Northwest in 1989.

Pierce Co.:

Seepage stream above Boundary Creek on forest road 72, 6 mi (air) SE of Greenwater; 22 July 1989; DRP; sunny afternoon; Argia vivida 1 o; several of each sex seen; first record W of Cascades in Washington.

King Co.:

Ponds at Green River at Newaukum; 2 October 1989; DRP; sunny morning; Aeshna palmata, several flying over fields; Libellula lydia, o at small pond; late flight date for state (previous extreme 29 August. Sympetrum corruptum, ovipositing pair at small pond; late flight date for state (previous extreme 10 September)

WEST VIRGINIA by T.W. Donnelly

In early July Ailsa and I went to West Virginia. At Dolly Sods we found Enallagma cyathigerum, which interests me in reference to the cyathigerum-vernale problem in New York. I conclude that the West Virginia cyathigerum are part of the same variable population as those of New York. Here we also found Cordulegaster intermediate between diastatops and bilineata. Nearby we found "normal" brown and an odd black Gomphus lividus, which somewhat resembles specimens taken in Michigan.

VENEZUELA by T.W. Donnelly

Ailsa and I went to Venezuela briefly in July. We visited the Andes (Merida and San Cristobal) for a week, and then spent a few days near Maracay, in the costal cordillera. In the Andes we found relatively fe odonates, but we did locate the first Argia talamanca for the country. We also took highly variable Elasmothemis cannacrioides. Species new to me included Anisagrion inornatum, Megapodagrion nebulosum, and Cyanallagma laterale. At a tiny pond at 2100 m elevation we found Enallagma civile and a very darkly marked Lestes tenuatus. I took a few more specimens of the Argia that has been called cuprauea, but which seems very different to me.

Near Maracay we collected briefly with Jurg De Marmels and took Sciotropis cyclanthorum and Palaemnema melanostigma at Rancho Grande. I also relocated the Sciotropis at Recenis' original locality and took Philogenia ferox at the same place. A capture of Progomphus abbreviatus now makes me wonder if this might not be the same as polygonus. I continue to believe that the variations in Hetaerina capitalis are a response to differing microhabitats at different elevations, and should not be recognized as separately named taxa.

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