



## NEW RECORDS OF WINTER STONEFLIES (PLECOPTERA: CAPNIIDAE) IN MISSISSIPPI

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### ABSTRACT

New Mississippi distribution records, based on 2007-2008 and 2008-2009 winter collections are presented for seven of the eight species of winter stoneflies (Family Capniidae) known to occur in the state.

**Keywords:** Plecoptera, Capniidae, Mississippi, new records

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### INTRODUCTION

Nations et al. (2007) provided a recent review of Mississippi Capniidae, including a taxonomic key and scanning electron microscopy images for adult genitalia of the eight species known to occur in the state; this review was based on samples collected through the 2006-2007 winter season. Subsequently, we have continued to collect winter stonefly samples from areas of the state where few, or no, specimens of Capniidae have been collected in order to document, as fully as possible, the presence of winter stoneflies in Mississippi streams. Herein, these data are used to provide an update of the current state of knowledge of Mississippi Capniidae.

### METHODS

Adult specimens were collected during the 2007-2008 and 2008-2009 winter seasons from bridge railings, or by using beating sheets. Records of larval capniid specimens, collected by the Mississippi Department of Environmental Quality (MDEQ) and identified to genus, are also plotted on Figure 1 in order to give a more complete view of the distribution of Capniidae within the state. Specimens are archived in 80% ethanol in the Stark collection, Mississippi College, except as noted.

### RESULTS AND DISCUSSION

During the study period, more than 195 streams were sampled in 41 counties and adult capniid specimens were collected at 71 sites in 26 counties. Adult capniids have now been collected from 58 of the 82 Mississippi counties. Most counties without capniid records are clustered in the Mississippi Delta and in the southeastern part of the state (Fig. 1); larval records from MDEQ (Fig. 1) indicate populations of *Allocapnia* should be located and identified in several additional counties, including Alcorn, DeSoto, Panola and Tallahatchie in the North and Forrest and George counties in the Southeast, but the Delta region appears to lack capniids.

We obtained new collection site records for seven of the eight capniid species reported for Mississippi (Nations et al. 2007), and new county records were obtained for five of these species. New records are included in the following species accounts; no new collections for *Allocapnia rickeri* Frison were made.

#### *Allocapnia aurora* Ricker

Nations et al. (2007) reported this species from Amite, Clarke, Franklin, Kemper, Lauderdale, Prentiss and Tishomingo counties. We add the

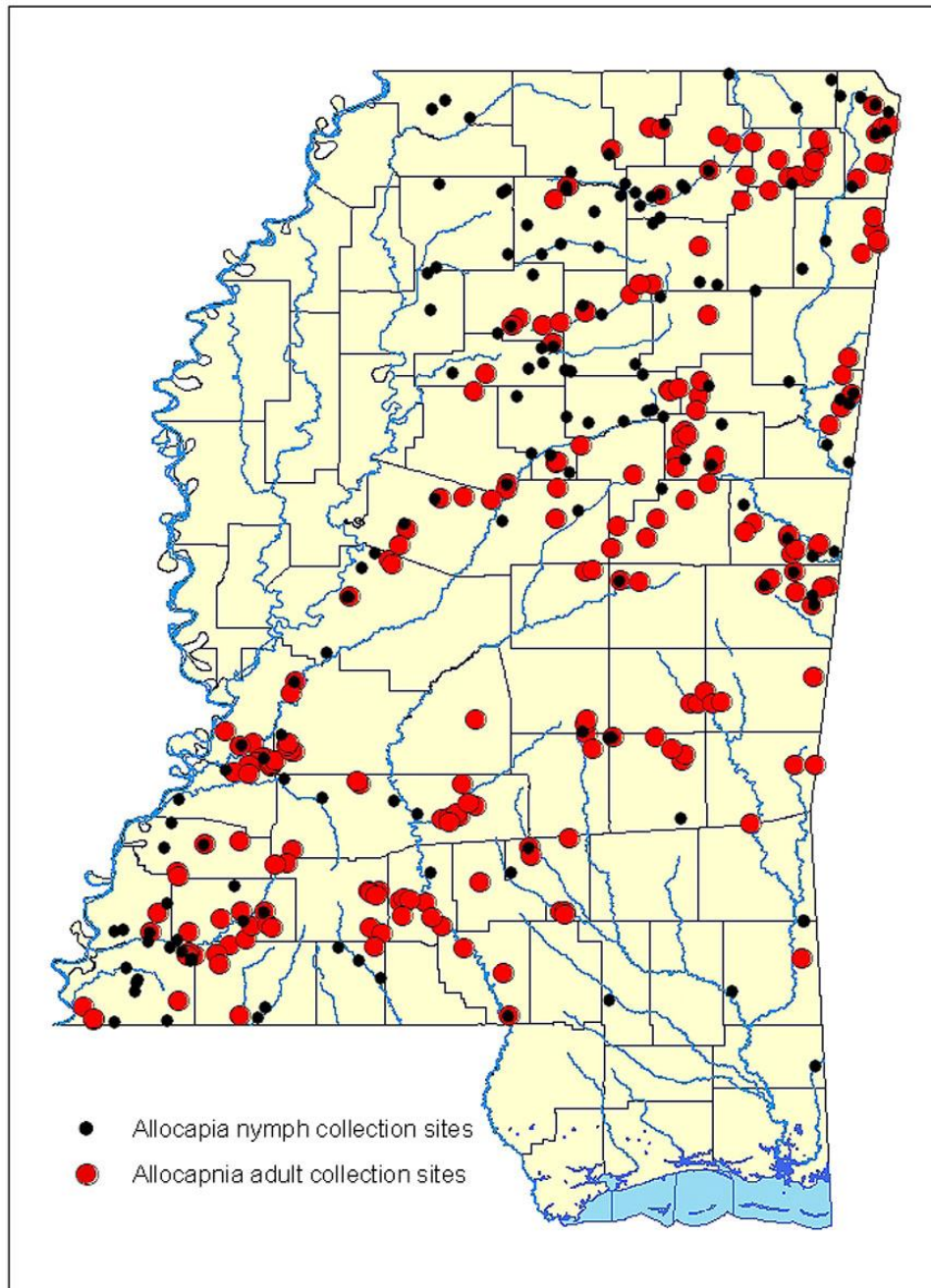


Fig. 1. Known distribution of Capniidae in Mississippi.

following collections from Lawrence and Lincoln Counties.

**Lawrence Co.**, Kings Creek, Lower Brookhaven Rd, 31.30874° N, 90.11982° W, 17 December 2008, B.

Stark, 2 ♂. **Lincoln Co.**, tributary Fair River, Harmony Drive SE, 31.32131° N, 90.19136° W, 17 December 2008, B. Stark, 1 ♂.

*Allocapnia granulata* (Claassen)

This species was previously reported from six sites in Kemper, Marshall and Noxubee counties by Nations et al. (2007). The recent collections include no new county records but two new sites (one each in Kemper and Noxubee counties) are included.

**Kemper Co.**, Wahalak Creek, Old 45 Rd, 32.49739° N, 88.25260° W, 26 December 2008, B. Stark, 1 ♂, 1 ♀. Pushacoona Creek, Hwy 16, 32.49748° N, 88.25252° W, 26 December 2008, B. Stark, 2 ♂, 2 ♀ (Illinois Natural History Survey). **Noxubee Co.**, tributary Shuqualak Creek, Manhorner Rd, 32.54678° N, 88.27929° W, 27 December 2008, B. Stark, 2 ♂.

#### *Allocapnia mystica* Frison

This species was previously known from Alcorn, Attala, Calhoun, Chickasaw, Choctaw, Clarke, Clay, Kemper, Lauderdale, Leake, Lowndes, Montgomery, Neshoba, Noxubee, Oktibbeha, Panola, Pontotoc, Prentiss, Tishomingo, Union, Webster and Winston counties. Our recent samples include 22 new collections from 21 new sites in 10 counties; new county records are included for Itawamba and Lee counties.

**Choctaw Co.**, tributary Yockanookanay River, Hwy 12, Ackerman, 31.18795° N, 89.55435° W, 5 January 2008, B. Stark, 1 ♀. **Clay Co.**, Sun Creek, Hwy 389, 33.27699° N, 88.58344° W, 5 January 2008, B. Stark, 5 ♂, 1 ♀. Johnson Creek, Beasley Rd, 33.34191° N, 88.56985° W, 5 January 2008, B. Stark, 1 ♀. Standing Reed Creek, Hwy 46, 33.37905° N, 88.56467° W, 5 January 2008, B. Stark, 1 ♂. Line Creek, Erwin White Rd, 33.39709° N, 89.01562° W, 2 January 2009, B. Stark, 1 ♂. **Itawamba Co.**, tributary Bull Mountain Creek, between Hwy 78 and 178, 3 February 2008, M.B. Hicks, D.E. Burt, 1 ♂. **Leake Co.**, Bibalucta Creek, Mars Hill Rd, 32.54214° N, 89.23435° W, 7 January 2008, B. Stark, 2 ♀. **Lee Co.**, Little Dry Creek, Hwy 348, 4 January 2008, M.B. Hicks, 3 ♂. **Noxubee Co.**, tributary Shuqualak Creek, Manhorner Rd, 32.54678° N, 88.27929° W, 26 December 2008, B. Stark, 6 ♂, 3 ♀. Jordan Creek, Paulette Rd, 33.00240° N, 88.26420° W, 26 December 2008, B. Stark, 4 ♂, 1 ♀. Jordan Creek, Fairfield Rd, 33.00959° N, 88.26162° W, 26 December 2008, B. Stark, 2 ♂. **Oktibbeha Co.**, Trim Cane Creek, Old West Point Rd, 31.18795° N,

89.55435° W, 5 January 2008, B. Stark, 35 ♂, 1 ♀. Self Creek, Brown Rd, 33.27031° N, 89.00871° W, 5 January 2008, B. Stark, 35 ♂. **Prentiss Co.**, Donivan Creek, Hwy 366, 4 January 2008, M.B. Hicks, 2 ♂, 1 ♀. Hurricane Creek, Hwy 371, 4 January 2008, M.B. Hicks, 2 ♂, 3 ♀. Young Creek, Hwy 3371, 4 January 2008, M.B. Hicks, 11 ♂, 3 ♀. Martin Creek, Hwy 3371, 4 January 2008, M.B. Hicks, 5 ♂, 2 ♀. Same site, 12 February 2008, 1 ♂, 1 ♀. Casey Creek, Hwy 366, 4 January 2008, M.B. Hicks, 2 ♂, 7 ♀. Same site, 3 February 2009, M.B. Hicks, D.E. Burt, 48 ♂, 31 ♀. Osborne Creek, Hwy 45, 12 February 2008, M.B. Hicks, 3 ♀. **Webster Co.**, Line Creek, Hwy 15, 33.39317° N, 89.03678° W, 5 January 2008, B. Stark, 8 ♂. Same site, 2 January 2009, B. Stark, 18 ♂, 3 ♀. **Winston Co.**, Little Creek, Hinze-Roy Leach Rd, 32.54224° N, 89.23438° W, 7 January 2008, B. Stark, 16 ♂, 5 ♀.

#### *Allocapnia polemistis* Ross & Ricker

Nations et al. (2007) reported 33 specimens were known from Mississippi collections, all from Tishomingo County in the area of Tishomingo State Park. The species is an apparent endemic to this region of Mississippi and adjacent areas of Alabama (Ross & Ricker 1971). Herein, we report the first collection from Itawamba County.

**Itawamba Co.**, Briar Creek, Hartsell Rd, 3 February 2009, M.B. Hicks, D.E. Burt, 3 ♂, 1 ♀.

#### *Allocapnia starki* Kondratieff & Kirchner

This species, currently known only from Mississippi and adjacent areas of the Florida Parishes of Louisiana, was reported from Adams, Amite, Benton, Calhoun, Carroll, Chickasaw, Claiborne, Copiah, Covington, Franklin, Grenada, Hinds, Holmes, Jasper, Jefferson, Kemper, Lincoln, Lowndes, Marshall, Newton, Noxubee, Panola, Pontotoc, Prentiss, Scott, Simpson, Smith, Tallahatchie, Tippah, Tishomingo, Union, Warren, Wayne, Wilkinson, Yalobusha and Yazoo counties (Nations et al. 2007). Recent collections include 21 new sites from 11 counties; new county records are reported from Clay, Lafayette, Monroe and Rankin counties.

**Clay Co.**, Standing Reed Creek, Hwy 46, 33.37905° N, 88.56467° W, 5 January 2008, B. Stark, 9 ♂, 1 ♀. **Holmes Co.**, Harland Creek, Hebron Rd, 21 January 2009, M.B. Hicks, D.E. Burt, 3 ♂. Harland Creek, Ebenezer Coxburg Rd, 21 January 2009, M.B. Hicks, D.E. Burt, 4 ♂. Black Creek, Hopewell Rd, 21 January 2009, M.B. Hicks, D.E. Burt, 11 ♂, 3 ♀. Bohumpa Creek, Sweetwater Rd, 21 January 2009, M.B. Hicks, D.E. Burt, 3 ♂, 1 ♀. Kyle Creek, Emory Rd, 21 January 2009, M.B. Hicks, D.E. Burt, 2 ♂. **Jasper Co.**, tributary Souinlovey Creek, CR 2414, 22 January 2009, M.B. Hicks, D.E. Burt, 11 ♂, 1 ♀. tributary Twistwood Creek, below Lake Claude Bennett, 22 January 2009, M.B. Hicks, D.E. Burt, 16 ♂, 2 ♀. tributary Twistwood Creek, CR 31, 22 January 2009, M.B. Hicks, D.E. Burt, 1 ♀. Penalty Creek, Hwy 503, 22 January 2009, M.B. Hicks, D.E. Burt, 13 ♂, 2 ♀. **Lafayette Co.**, Lee Creek, CR 296, 1 January 2008, M.B. Hicks, 1 ♂. **Lincoln Co.**, Little Fair River, Fair River Dr NE, 31.33432° N, 90.17850° W, 17 December 2008, B. Stark, 3 ♂. **Monroe Co.**, Buttahatchie River, Caledonia Rd, 2 February 2009, M.B. Hicks, D.E. Burt, 2 ♂. **Noxubee Co.**, tributary Shuqualak Creek, Manhorner Rd, 32.54678° N, 88.27929° W, 26 December 2008, B. Stark, 3 ♂, 3 ♀. **Rankin Co.**, Eutaetachee Creek, Rankin Rd, 28 January 2009, M.B. Hicks, D.E. Burt, 1 ♂, 1 ♀. **Simpson Co.**, Rials Creek, Main Street, 31.54766° N, 89.52692° W, 1 January 2008, B. Stark, 1 ♂. **Union Co.**, Little Mud Creek, Hwy 30, 4 January 2008, M.B. Hicks, 1 ♂. Okeelala Creek, Hwy 145, 4 January 2008, M.B. Hicks, 1 ♂, 2 ♀. **Wilkinson Co.**, Buffalo River, Hiram McGraw Rd, 32.09668° N, 88.34714° W, 31 December 2007, B. Stark, 1 ♂. tributary Bayou Sara, CR 122, 31.05705° N, 91.20517° W, 31 December 2007, B. Stark, 7 ♂. Pinckneyville Creek, CR 122, 31.05712° N, 91.20525° W, 31 December 2007, B. Stark, 1 ♂. **Yalobusha Co.**, Okachikima Creek, Hwy 7, 31 December 2007, M.B. Hicks, 5 ♂, 1 ♀.

#### *Allocapnia virginiana* Frison

Nations et al. (2007) reported this species from Benton, Copiah, Covington, Franklin, Jefferson Davis, Lauderdale, Lincoln, Lowndes, Marion, Newton, Noxubee, Prentiss, Simpson, Tippah, Tishomingo, Union, Wilkinson and Yalobusha counties. Our recent collections include records from

35 sites; 29 of these represent new sites and new county records are presented for Greene, Itawamba, Lafayette, Lawrence, Monroe and Pike counties.

**Covington Co.**, Tick Creek, Lott Town Rd, 31.28496° N, 89.30276° W, 9 January 2008, B. Stark, 3 ♂. Bowie Creek, 26 December 2007, M.B. Hicks, W. Hicks, 21 ♂, 6 ♀. **Greene Co.**, Byrd Creek, 27 December 2007, M.B. Hicks, 1 ♀. **Itawamba Co.**, Briar Creek, Hartsell Creek, 3 February 2009, M.B. Hicks, D.E. Burt, 2 ♂, 1 ♀. Gum Creek, Hwy 23, 3 February 2009, M.B. Hicks, D.E. Burt, 1 ♂, 1 ♀. Bull Mountain Creek, Cotton Gin Rd, 3 February 2009, M.B. Hicks, D.E. Burt, 10 ♂, 2 ♀. tributary Bull Mountain Creek, Hwy 23, Tremont, 31.18865° N, 89.55481° W, 21 January 2008, B.P. Stark, 1 ♀. Hurricane Creek, Cotton Gin Rd, 3 February 2009, M.B. Hicks, D.E. Burt, 2 ♀. **Lafayette Co.**, Lee Creek, CR 296, 1 January 2008, M.B. Hicks, 10 ♂, 4 ♀. tributary Lee Creek, CR 215, 1 January 2008, M.B. Hicks, 8 ♂, 2 ♀. Hurricane Creek, CR 129, 1 January 2008, M.B. Hicks, 1 ♂. **Lawrence Co.**, Coopers Creek, Hwy 587, 31.01511° N, 91.28848° W, 1 January 2008, B. Stark, 1 ♂. Tilton Creek, Hwy 587, 31.24542° N, 90.01084° W, 1 January 2008, B. Stark, 1 ♀. Kings Creek, Lower Brookhaven Rd, 31.30874° N, 90.11982° W, 17 December 2008, B. Stark, 10 ♂, 4 ♀. Marshall Creek, Lower Brookhaven Rd, 31.30875° N, 90.11984° W, 17 December 2008, B. Stark, 7 ♂, 5 ♀. Hall Creek, Oliver Wilson Rd, 31.31547° N, 90.10674° W, 17 December 2008, B. Stark, 2 ♂, 1 ♀. Hall Creek, Tim Lambert Rd, 31.26846° N, 90.03923° W, 17 December 2008, B. Stark, 6 ♂. Mill Creek, Hwy 587, 31.31180° N, 90.09494° W, 17 December 2008, B. Stark, 5 ♂, 9 ♀. **Lincoln Co.**, Fair River, Hwy 84, 31.33270° N, 90.19679° W, 17 December 2008, B. Stark, 19 ♂, 3 ♀. Fair River, Harmony Drive SE, 31.33270° N, 90.19677° W, 17 December 2008, B. Stark, 18 ♂, 2 ♀. Richey Creek, Harmony Drive SE, 31.32131° N, 90.17850° W, 17 December 2008, B. Stark, 21 ♂, 2 ♀. Little Fair River, Fair River Drive NE, 31.33432° N, 90.16977° W, 17 December 2008, B. Stark, 24 ♂. West Topisaw Creek, Topisaw Drive SE, 31.24184° N, 90.19114° W, 18 December 2008, B. Stark, 10 ♂, 1 ♀. Topisaw Creek, Monument Rd, 31.22762° N, 90.16252° W, 18 December 2008, B. Stark, 1 ♂. **Marion Co.**, tributary Pearl River, Morgantown, 31.24534° N, 90.01080° W, 1 January 2008, B. Stark, 1 ♂. Same site, 9 January 2008, B. Stark, 1 ♀. **Monroe Co.**, Buttahatchie River,

Buttahatchie Rd, 2 February 2009, M.B. Hicks, D.E. Burt, 2 ♂, 4 ♀. Buttahatchie River, Caledonia Rd, 2 February 2009, M.B. Hicks, D.E. Burt, 5 ♂, 5 ♀. **Newton Co.**, Tallahatta Creek, Dean Rd, 32.23621° N, 88.54970° W, 18 December 2007, B. Stark, 2 ♂, 1 ♀. Same site, 20 December 2008, B. Stark, 4 ♂, 2 ♀. **Pike Co.**, Topisaw Creek, Turnpike Rd, 31.22763° N, 90.16243° W, 18 December 2008, B. Stark, 5 ♂, 2 ♀. **Simpson Co.**, Mill Creek, Hwy 472, 31.51816° N, 89.59515° W, 19 December 2007, B. Stark, 5 ♂, 10 ♀. Rials Creek, Main Street, 31.54766° N, 89.52692° W, 17 January 2009, B. Stark, 6 ♂. **Wilkinson Co.**, Buffalo River, Hiram McGraw Rd, 32.09668° N, 88.34714° W, 31 December 2007, B. Stark, 32 ♂, 7 ♀.

### *Nemocapnia carolina* Banks

This species has been reported from Amite, Simpson and Wilkinson counties (Nations et al. 2007) with the great majority of specimens collected in Rials Creek, Mill Creek and Westville Creek in Simpson County. No new county records are available and only three specimens were collected in our recent surveys.

**Simpson Co.**, Westville Creek, Hwy 43, 31.52800° N, 89.57473° W, 24 January 2009, E. Ciarloni, 1 ♀. Mill Creek, Hwy 472, 31.51816° N, 89.59515° W, 19 December 2007, B. Stark, 1 ♂. Rials Creek, Main Street, 31.54766° N, 89.52692° W, 22 January 2009, B. Stark, 1 ♂.

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