

## Caddisfly Species New to, or Rarely Recorded from, the State of Virginia (Insecta: Trichoptera)

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### ABSTRACT

Eight species of caddisflies (Trichoptera) are added to the 361 species recorded by 2009 from the state of Virginia. There are now 369 species confirmed from the state. The new records are: *Agapetus baueri* and *A. kirchneri* (Glossosomatidae), *Hydroptila ampoda*, *H. nicoli*, *Neotrichia collata*, *Oxyethira abacatia* (Hydroptilidae), *Oligostomis ocelligera* (Phryganeidae), and *Polycentropus colei* (Polycentropodidae). Significant range extensions are recorded for three species rarely reported from the state: *Adicrophleps hitchcocki* (Brachycentridae), *Hydroptila lonchera* (Hydroptilidae), and *Lepidostoma serratum* (Lepidostomatidae). Two additional species are tentatively recorded based on females that need associated males for confirmation: *Oxyethira dunbartonensis* (Hydroptilidae, this would be another new state record if confirmed), and *Theliopsyche grisea* (Lepidostomatidae, a range extension). *Agapetus rossi* has been shown to be a synonym of *A. walkeri* (Glossosomatidae).

*Key words:* caddisfly, Brachycentridae, Glossosomatidae, Hydroptilidae, Lepidostomatidae, Phryganeidae, Polycentropodidae, new state records, range extensions, Virginia.

### INTRODUCTION

In 2009 we (Flint et al., 2009) completed our inventory of caddisfly species known from Virginia. At that time we had recorded 361 species in the state. In this paper are recorded eight more species recently discovered in Virginia, bringing the state's total to 369. Of these eight new state records, two are the result of a revision of the genus *Agapetus* wherein two of the new species are recorded in the state (Etnier et al., 2010), the remaining six are the result of insect trapping with Malaise traps in the Bull Run Mountains Conservancy (=BRMC) in the years 2011, 2012 and 2013. In addition to these new state records, three species are recorded with significant range expansions, two are tentatively recorded on the basis of females only that need males for confirmation of identification (one of which would be a new state record if confirmed), and one is a recent name change.

### MATERIALS AND METHODS

Since the completion of our survey of VA caddisflies in 2009, I am aware of only one paper

published that adds species to the state list. Etnier et al. (2010) revised the genus *Agapetus* from eastern and central USA. They discovered 12 previously unknown species, primarily by utilizing a different collecting technique that entailed collecting larvae and pupae in their pupal cases primarily from springs and their runs in early spring (April and May) and then rearing them to adulthood. This is a surprisingly successful technique for uncovering previously unknown species, at least in this genus. This technique resulted in all of the VA records for *A. kirchneri*.

All other records were obtained during a survey (2011-2013) of certain insect groups in the BRMC initiated by Dr. David R. Smith of the USDA with help from Dr. Thomas J. Henry (USDA) and myself (SI). We are most grateful to Michael J. Kieffer, Executive Director of the BRMC, for enthusiastic permission and help with this project. Our traps have been placed in two primary areas, one near the Conservancy headquarters (38°49.5'N, 77°42.3'W) (3 or 4 single traps per year placed at various sites called mountain house, Beverly Mill or Broad Run, swamp, fern valley, chestnut ridge, cemetery and cemetery gulch) with a nearby associated grouping of three traps along the east

end trail (38°49.6'N, 77°41.9'W), the second grouping of three or four traps to the north of the headquarters in Jackson Hollow scattered around a former campground (38°52.7'N, 77°41.9'W). In 2013, we went outside the BRMC and set two traps on the western slopes of the mountains: the first adjacent to the property of Dr. Shurberg at 4566 Hopewell Road, in Fauquier Co. (38°52.1'N, 77°42.21'W), the second at a spring run in the Roland Farm woods off Bust Head Road (38°50.6'N, 77°49.6'W; this trap was taken down by Black Bears early in the season). Many of the traps were placed close to a first or second order stream, but the Bull Run near Beverly Mill is probably a third order stream. A few of our traps were vandalized by humans in 2012 and 2013 (two each year), but bears were a bigger problem: they destroyed seven of nine in 2012, but only two of 11 in 2013.

An asterisk (\*) before the specific name in the section that follows indicates a species herein recorded from Virginia for the first time. Unless indicated otherwise, the material is deposited in the collection of the National Museum of Natural History, Smithsonian Institution (NMNH). The other depositories are: CASC = California Academy of Sciences, CUAC = Clemson University, INHS = Illinois Natural History Survey, ROME = Royal Ontario Museum, UMSP = University of Minnesota, UT = University of Tennessee, and VMNH = Virginia Museum of Natural History.

#### Family Brachycentridae

##### Genus *Adicrophleps*

*Adicrophleps hitchcocki* Flint. This species had been known from six counties along the Blue Ridge from Bedford to Rappahannock (Flint et al., 2008). In the three years of collecting in the BRMC, only one specimen was taken, well to the east of its previously known distribution.

Prince William Co., BRMC, Jackson Hollow, far Malaise trap, 38°52.6'N, 77°41.4'W, 16 Apr-2 May 2013, 1♂.

#### Family Glossosomatidae

##### Genus *Agapetus*

In 2010, Etnier, Parker, Baxter, and Long published "A review of the genus *Agapetus* in eastern and central North America, with description of 12 new species". In this work, two of the new species were recorded from VA, and one other species known from the state had its name changed. These data are presented below.

\**Agapetus baueri* Etnier, Parker & Baxter. This newly described species was recorded from two collections made in Floyd Co., VA in addition to numerous collections from NC and TN.

Floyd Co., Blue Ridge Parkway, outflow of Mabry Mill pond, downstream to approximately 30 m, Milepost 176.2 right, 8 June 2006, 2 ♂ (UT). Blue Ridge Parkway confluence of 2 streams feeding Mabry Mill pond, along paved trail, Milepost 176.2 left, 20 July 2007, 1 ♂ (UT).

\**Agapetus kirchneri* Parker, Etnier & Baxter. The holotype, allotype, and many paratypes of this new species were from Lee Co., VA, with additional records from Smyth and Washington Cos., as well as KY and TN. Lee Co., Cumberland Gap National Historical Park, Station Creek at horse barn, 36.6040°N, 83.6285°W, 5 April 2007, emerged 25 April-7 May, J. L. Robinson, holotype ♂ (NMNH), allotype ♀ (NMNH), paratypes 8♂, 4♀ (CASC, CUAC, INHS, ROME, UMSP, NMNH, UT). Lee Co., northern trib. to Hardy Cr. along US58, 5.2 rd mi ne of Rose Hill, 20 April 2000, 13 larvae/ prepupae, 8♂, 7♀ mature pupae/adults (UT). Smyth Co., Laurel Spring Rd., 0.6 rd mi s of I-81 mile 43 overpass, 27 April 2003, 5 larvae, 2 pupae, 3♀ mature pupae (UT). Washington Co., Rockhouse Run at jct. VA 710 & VA 711, near Alvarado, 4 May 2003, 6 larvae/prepupae, 2 pupae, 17♂, 12♀ mature pupae/adults (UT).

*Agapetus walkeri* Betten & Mosely. This species was previously known as *A. rossi* Denning and reported as such by Flint et al. (2004). The synonymy was established in the aforementioned paper by Etnier et al. (2010).

#### Family Hydroptilidae

##### Genus *Hydroptila*

\**Hydroptila ampoda* Ross. Although described from NS and QC in 1944, it has been recorded a number of times over the years from eastern Canada, New England, PA, and southwest of VA in KY and TN, with a western record from MN. These records from northern VA, therefore, help fill in the gap in known distribution in eastern USA. It is one of four species of the *tineoides* group found in the BRMC, the others being: *H. fiskei* Blicke, *H. hamata* Morton, and an apparently undescribed species. Although females of the group are commonly taken, it is not yet possible to distinguish, nor associate, them with any one species.

Prince William Co., BRMC, Jackson Hollow, Malaise trap #1, 38°52.6'N, 77°41.4'W, 22 July-

9 August 2011, 1♂ (NMNH); same, but Malaise traps #2, #3, #4, 21 April-20 September 2012, 6 collections, 15♂; same, but all 3 traps, 3 May-5 August 2013, 5 collections, 5♂. Fauquier Co., Shurberg home, 4566 Hopewell Rd., 38.8678°N, 77.7035°W, 3-22 May 2013, 1♂.

*Hydroptila lonchera* Blicke & Morse. This species was previously known in VA only from one specimen taken in Louisa Co. on 25 August 1977 (Flint et al., 2004). It was fairly commonly taken in the Malaise traps located in Jackson Hollow in all three years, but, oddly, no females obviously belonging to this species were seen.

Prince William Co., BRMC, Jackson Hollow, stream above dam, 27/28 May 2010, A.V. Evans, 1♂ (NMNH). Prince William Co., BRMC, Jackson Hollow, stream, field & far Malaise traps, 38°52.6'N, 77°41.4'W, 28 April-31 August 2011, 10 collections, 18♂ (NMNH, VMNH); same, but 21 April-20 September 2012, 12 collections, 34♂; same, but 23 May-5 August 2013, 3 collections, 4♂.

\**Hydroptila nicoli* Ross. This species was described in 1941 from a few specimens taken in Nova Scotia, and was not recorded again until early in 2011 when three specimens were collected in Clinton Co. in upstate New York (Myers et al., 2011), about 450 miles (ca. 725 km) NNE of the BRMC. It is common in Jackson Hollow and has been taken in every Malaise trap operated there.

Prince William Co., BRMC, Jackson Hollow, stream, field & far Malaise traps, 38°52.6'N, 77°41.4'W, 13 May-31 August 2011, 16 collections, 47♂, 28♀ (NMNH, VMNH); same, but 21 April-20 September 2012, 12 collections, 52♂, 110♀; same, but 23 May -23 September 2013, 12 collections, 23♂, 27♀.

#### Genus *Neotrichia*

\**Neotrichia collata* Auths. (= *doppelganger* Keth MS). Andrew Keth in his doctoral dissertation (Keth, 2002) discovered that the species long considered (Ross 1944, etc.) to be *N. collata* was different from the type of *collata*. He proposed the MS name of *doppelganger* for the incorrect concept; unfortunately the description has not been published, but I understand that the paper is in preparation. It has been recorded from AL north to ME and west to IL with an outlier from UT, but not previously from VA. We took it at Jackson Hollow, Beverly Mill, and Schurberg home in most Malaise traps in all years.

Prince William Co., BRMC, Jackson Hollow, Malaise traps, 38°52.6'N, 77°41.4'W, 25 June-21 July

2011, 3 collections, 1♂, 2♀ (NMNH); same, but 28 June-13 July 2012, 2 collections, 2♂, 1♀; same, but 26 June-16 July 2013, 2 collections, 4♂; same, but Broad Run at Beverly Mill, 38°49.5'N, 77°42.6'W, 21 September-18 October 2012, 1♂. Fauquier Co., Shurberg home, 4566 Hopewell Rd., 38.8678°N, 77.7035°W, 26 June-28 August 2013, 3 collections, 26♂, 42♀ (NMNH).

#### Genus *Oxyethira*

\**Oxyethira abacatia* Denning. This species has previously been reported from TX to FL and north to Macon Co., NC. These VA records are approximately 430 miles (almost 700 km) NE of the NC record. It was not collected in 2011 and rather uncommonly taken in 2013, but was taken in all traps in Jackson Hollow in 2012.

Prince William Co., BRMC, Jackson Hollow, Malaise traps, 38°52.6'N, 77°41.4'W, 26 May-20 September 2012, 9 collections, 20♂, 6♀ (NMNH); same, but 26 June-16 July 2013, 1♀. Fauquier Co., Shurberg home, 4566 Hopewell Rd., 38.8678°N, 77.7035°W, 3 May-5 August 2013, 3 collections, 1♂, 4♀ (NMNH).

*Oxyethira* species, probably *dumbartonensis* Kelley. This is another rarely reported species known from the southeastern United States. It is known for certain only from GA and SC, the closest locality being in Aiken Co., SC about 450 miles (ca. 725 km) to the south. Unfortunately, it is known in the BRMC only from one female collected in 2012. A male is needed to fully verify the identification although the identity of the female seems pretty secure. If the identity is confirmed, it would be a new species to the state of VA.

Prince William Co., BRMC, Jackson Hollow, Malaise trap #2, 38°52.6'N, 77°41.4'W, 14 July-3 August 2012, 1♀ (NMNH).

#### Family Lepidostomatidae

##### Genus *Lepidostoma*

*Lepidostoma serratum* Flint & Wiggins. There were two records published (Flint et al., 2008) of this species in Virginia, both from the eastern margin of the Blue Ridge in southwestern VA about 275 miles SW. It is known from CT to LA. This record from Prince William Co. thus expands its known range in the state from the SW corner to the northern Piedmont.

Prince William Co., BRMC, Jackson Hollow, field Malaise trap, 38°52.8'N, 77°41.4'W, 24 Sept-4 Nov 2013, 2♀ (NMNH).

Genus *Theliopsyche*

*Theliopsyche* species, probably *grisea* (Hagen). We recorded three collections of single males of this species in our study (Flint et al., 2008), all from the Blue Ridge and Alleghenian mountains. I have been unable to find a verified female of this species, the few females described in other species of the genus are clearly different from the one recorded below. The most logical and virtually only choice left in the genus is *T. grisea*, but until either a male is taken or a confirmed female that can be compared is found, I feel it best to leave its identity questioned. A record from the eastern lowlands will mark a considerable expansion of its distribution in VA.

Prince William Co., BRMC, Jackson Hollow, Malaise trap #1, 38°52.6'N, 77°41.4'W, 11-24 June 2011, 1♀ (NMNH).

## Family Phryganeidae

Genus *Oligostomis*

\**Oligostomis ocelligera* (Walker). Of the two species of *Oligostomis* known from eastern North America, *O. pardalis* was recorded from a few specimens taken in Giles Co. and *O. ocelligera* mentioned as possibly to be found in the western part of the state (Flint et al., 2008). Specimens have now been taken in VA, but not in the west! It is a species limited to northeastern North America from near the James Bay in Quebec south to TN and along the coastal provinces and states from Newfoundland south to NJ and west to WI, IN, and TN. It has not been recorded from south of PA among the mid-Atlantic states. This record is about 150 miles (ca. 240 km) southeast of the closest record in Fayette Co., PA. It was only taken in 2013 from the two traps closest to Broad Run near Beverly Mill.

Prince William Co., Broad Run at Beverly Mill, 38°49.5'N, 77°42.6'W, 16 Apr-2 May 2013, 1♂ (NMNH). Prince William Co., Mountain House, 38°49.5'N, 77°42.3'W, 3-22 May 2013, 1♀ (NMNH).

## Family Polycentropodidae

Genus *Polycentropus*

\**Polycentropus colei* Ross. This rather infrequently collected species was described from Great Smoky Mountains National Park in TN, and since recorded from PA, WV, and QC. The female has not been described. The two females I here associate with this

species have had their abdomens cleared and their genitalia are identical and resemble those of the closely related *P. rickeri* Yamamoto, but offer some clear, but minor distinctions. Everything considered, it seems most likely that these examples are females of *P. colei*. All examples were taken in 2013, two from Jackson Hollow, the third from just north of the Beverly Mill.

Prince William Co., BRMC, Jackson Hollow, stream Malaise trap, 38°52.7'N, 77°41.3'W, 23 May-6 June 2013, 1♂; same, but far malaise trap, 38°52.6'N, 77°41.4'W, 7-25 June 2013, 1♀ (NMNH). Prince William Co., cemetery gulch, 38.827°N, 77.709°W, 7-25 June 2013, 1♀ (NMNH).

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