

Stenogomphurus rogersi exuvia

Bob Perkins collected an unknown species of clubtail larva in February 2017 from a stream located in either Carroll- or Grayson County, Virginia USA. The larva emerged from one of Bob's holding tanks on 13 March 2017 and metamorphosed into an adult female Sable Clubtail dragonfly (*Stenogomphurus rogersi*).

A two-step process was used to verify the genus and species of the exuvia.

1. Determine the family.
2. Determine the genus and species.

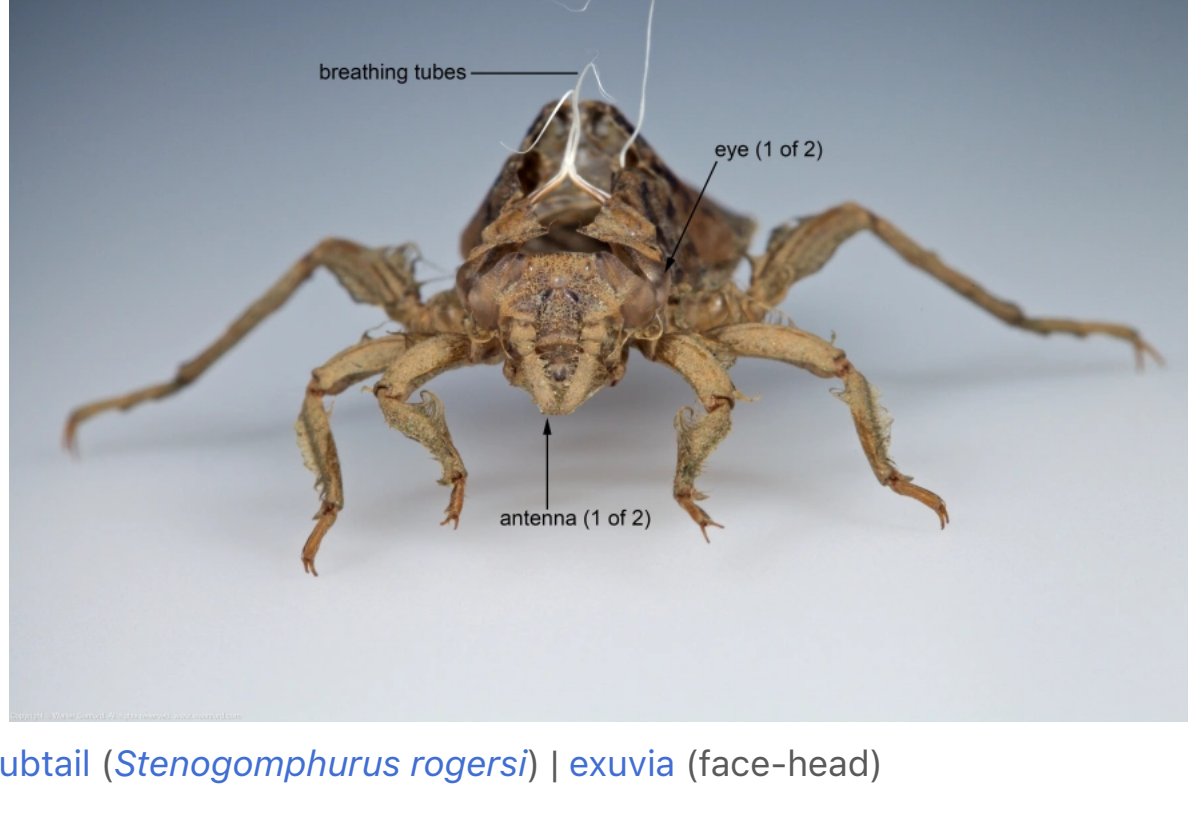
Step 1. Family

First, determine the family of the specimen. For reference, watch the excellent Vimeo video, [Identifying dragonfly larva to family](#) (8:06). Here's the decision tree used to identify the exuvia as a member of the **Family Gomphidae** (Clubtails).

The specimen has a flat **labium** that doesn't cover the face (not mask-like). [See **Photo No. 2.**]

Antennae are club-like (not thin and thread-like, as in **Aeshnidae**). [See **Photo No. 1.**]

Eyes not exceptionally large compared to the size of the head (not large, as in **Aeshnidae**). [See **Photo No. 1.**]



No. 1 | Sable Clubtail (*Stenogomphurus rogersi*) | exuvia (face-head)

(See a full-size version of the original photo, without annotation.)

The white filaments that extend from the split in the thorax (as shown above) are breathing tubes, artifacts of the **unique respiratory system of dragonfly nymphs**.

Step 2. Genus and species

Gomphidae is the second largest family of dragonflies, so it can be challenging to identify some specimens to the genus and species level.

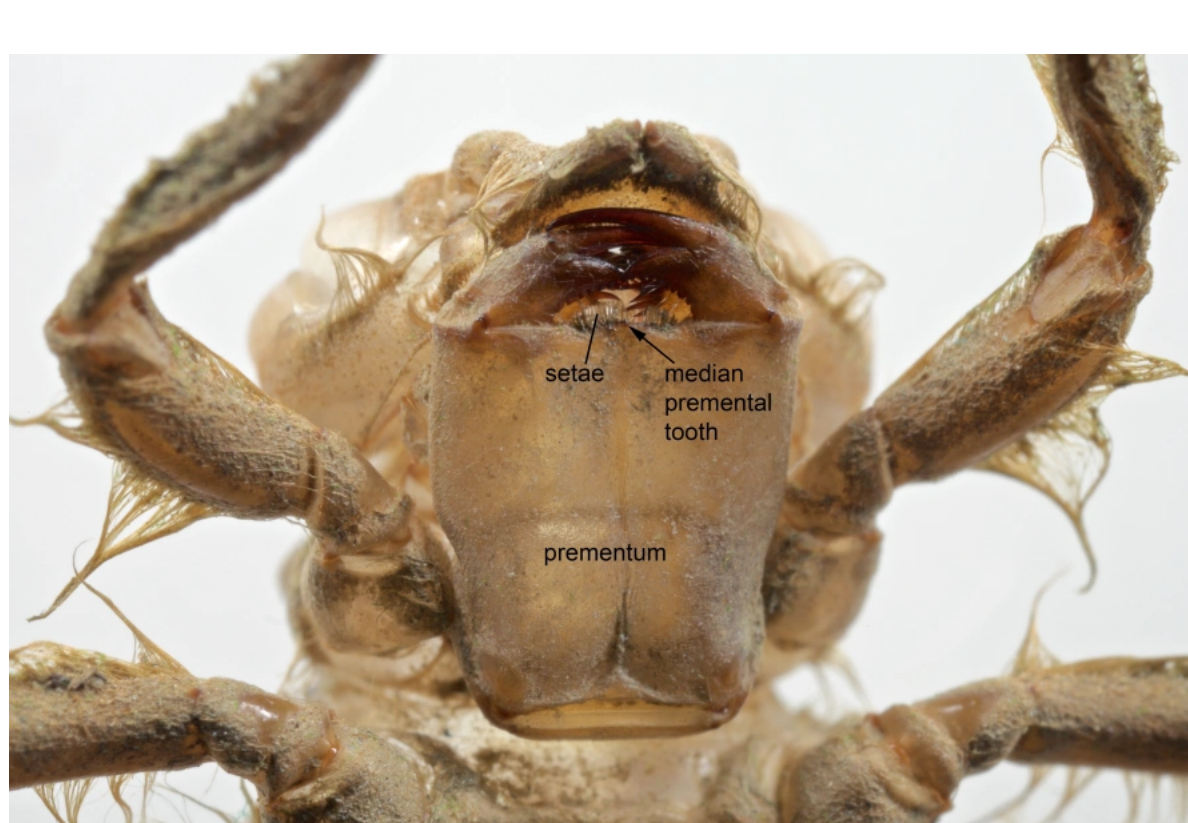
The dichotomous key for Gomphidae larvae that appears on p. 233 in *Dragonflies of North America*, Third Edition by Needham et al. was used to verify the genus and species of the exuvia.

dichotomous key: a key for the identification of organisms based on a series of choices between alternative characters. *Source Credit: Merriam-Webster Dictionary.*

The first couplet [1, 1'] is as follows.

1. Median premental tooth lower than surrounding setae (Fig. 271b); small dorsal hooks present on abdominal segments 8 and 9; lateral spines present on segment 6 (Fig. 272) [rogersi]
- 1'. Median premental tooth as high as surrounding setae (Fig. 271a); dorsal hooks absent or vestigial on abdominal segments 8 and 9; lateral spines usually absent on segment 6 (Fig. 272) [consanguis]

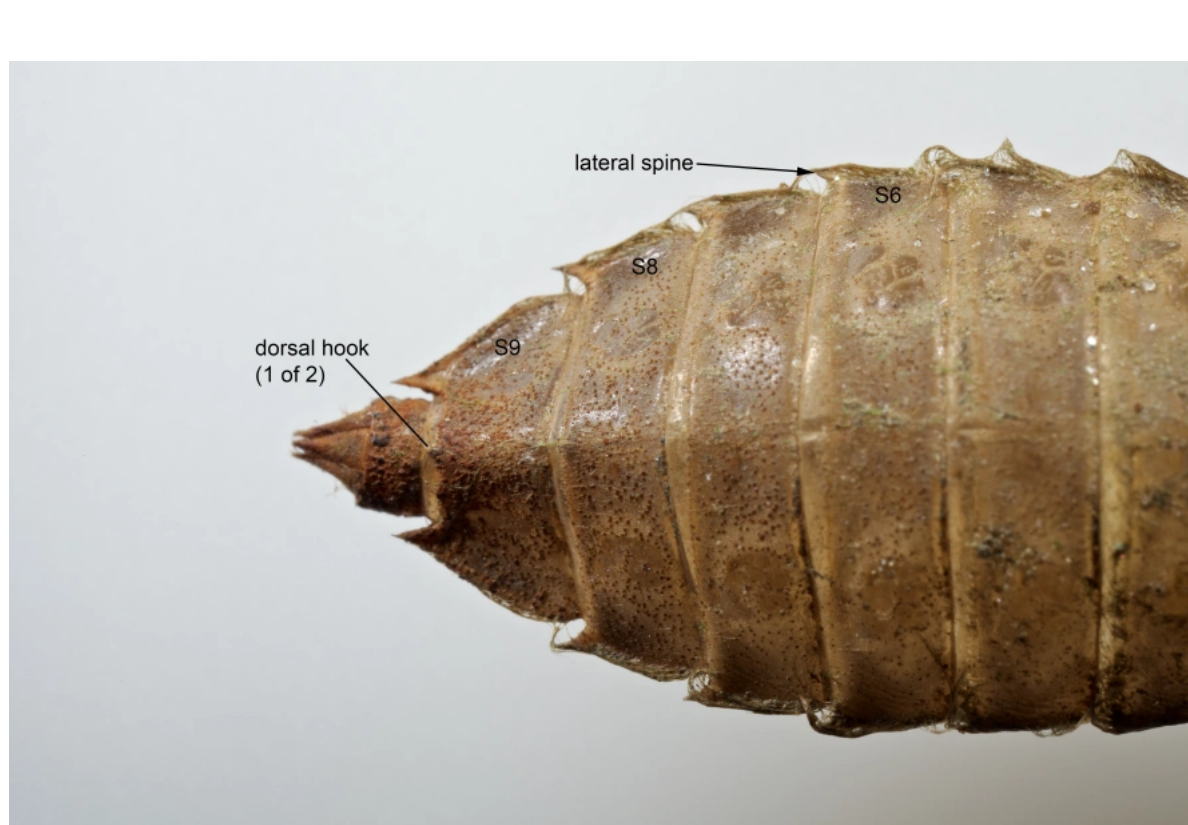
The following annotated image shows a ventral view of the **prementum**. Notice the median premental tooth is lower than the surrounding setae.



No. 2 | Sable Clubtail (*Stenogomphurus rogersi*) | exuvia (prementum)

(See a full-size version of the original photo, without annotation.)

The next annotated image shows a dorsal view of the distal abdomen. A leap of faith is required to see the small dorsal hooks present on abdominal segments eight and nine (S8, S9), but they are there. Also notice the lateral spines present on segment six (S6).



No. 3 | Sable Clubtail (*Stenogomphurus rogersi*) | exuvia (dorsal)

(See a full-size version of the original photo, without annotation.)

Therefore this specimen is confirmed as an exuvia from *Stenogomphurus rogersi*. Further, the rudimentary ovipositor shown in **Photo No. 4** indicates this individual is a female.



No. 4 | Sable Clubtail (*Stenogomphurus rogersi*) | exuvia (ventral)

(See a full-size version of the original photo, without annotation.)

Bonus Gallery



No. 5 | Sable Clubtail (*Stenogomphurus rogersi*) | exuvia (head-dorsal)

The *Stenogomphurus rogersi* exuvia is ~3.0 cm (~1.2 in) long.



No. 6 | Sable Clubtail (*Stenogomphurus rogersi*) | exuvia (dorsal-lateral)

(See a full-size version of the original photo, without annotation.)

Adult Sable Clubtail dragonflies are slightly larger, on average 4.7 – 5.0 cm (~1.9 – ~2.0 in) long.

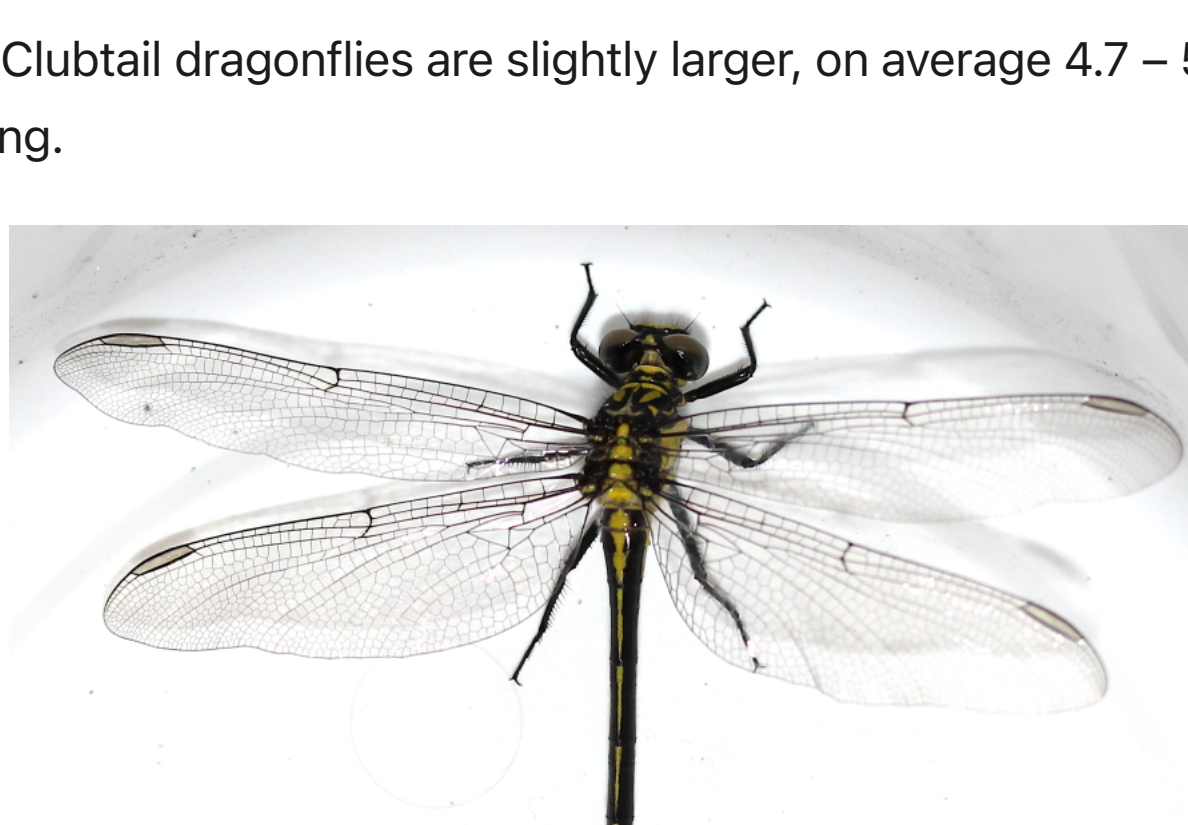


Image used with permission from Bob Perkins.

This individual is a **female**, as indicated by her **rounded hind wings** and **terminal appendages**.



Image used with permission from Bob Perkins.

Tech Tips

The following equipment was used to shoot **Photo No. 1, 4, 5 and 6**: Canon EOS 5D Mark II digital camera, in manual mode; **Kenko 20mm macro automatic extension tube**; **Canon EF100mm f/2.8L Macro lens**(set for manual focus); and **Canon MT-26EX-RT Macro Twin Lite**. A **Sunpak LED-160 Video Light** (with a white translucent plastic filter) was used for some photos. **Photo No. 2 and 3**: Canon EOS 5D Mark II digital camera, in manual mode; **Canon MP-E 65mm Macro lens** (manual focus only, set for 2x magnification); and **Canon MT-26EX-RT Macro Twin Lite**.

Adobe Photoshop CC 2017 was used to annotate selected images.

Bob Perkins' photos, taken soon after emergence, were shot using a Canon EOS Rebel T3i camera body and Canon EF-S 60mm macro lens.

Related Resource: *Miraculous metamorphosis*, a blog post featuring a head-to-head juxtaposition of the same exuvia and dragonfly that are the subjects in this post.

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Tags: **dorsal hooks**, **exuvia**, **Family Gomphidae** (Clubtails), **female**, **gear talk**, **labium**, **lateral spines**, **ovipositor**, **prementum**, **Sable Clubtail dragonfly**, **Stenogomphurus rogersi**, **terminal appendages**

This entry was posted on February 24, 2018 at 4:00 am and is filed under **Aperture**, **Canon EF 100mm Macro lens**, **Canon EOS 5D Mark II**, **Canon MP-E 65mm Macro lens**, **Canon MT-26EX-RT Macro Twin Lite**, **digital photography**, **dragonflies**, **education**, **extension tubes**, **How To**, **macro photography**, **natural science**, **Photoshop**, **wildlife photography**. You can follow any responses to this entry through the **RSS 2.0 feed**. You can leave a response, or **trackback** from your own site.