

# Digitization at the NCSU Insect Museum (and soon, the Frost Entomological Museum)



Andrew R. Deans

*Frost Entomological Museum at Penn State*



NSF Improvements to Biological Research Collections  
Grant DBI-0847924 (Deans & Wiegmann)

NSF Thematic Collections Network  
Grant DBI-1115080 (Schuh *et al.*)





- collection manager
- basic IT support
- well-curated collection
- taxonomic inventory

- static, outdated CF database
- no specimens digitized
- no specimens imaged
- "off the grid"

## Goals of DBI-0847924:

1. Expand the storage capacity
2. Upgrade cabinets and other storage infrastructure
3. Enhance community presence (both professional and non-expert)
4. Digitize dried specimens, especially:
  - a. Coccinellidae
  - b. Anthophila
  - c. other interesting taxa



# Insect Museum

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◀ Insect of the week – number 92  
Insect of the week – number 94 ▶

## Insect of the week – number 93

October 28th, 2011 by Andy Deans



Beautiful image of *Phyllopalpus pulchellus* in action, taken by Anthony Zukoff.

### *Phyllopalpus pulchellus* Uhler, 1864

#### Introduction

This week's North Carolina insect is a stunning little songster commonly called the **red-headed bush cricket** or **handsome trig**, *Phyllopalpus pulchellus* Uhler, 1864 (Orthoptera: Gryllidae).

#### Taxonomic History

This species was described originally by **Philo Uhler** in 1864, as *Phyllopalpus pulchellus*, based on specimens from Maryland and New York. There are currently no synonyms of this species, but some older treatments have classified *pulchellus* in *Phytolopacus*. The **Orthoptera Species File** documents the complete taxonomic history of this species. The type specimen repository remains unknown.

#### Diagnosis

*Phyllopalpus pulchellus* is relatively easy to recognize amongst all the other local crickets, given its beautiful bright red head and pronotum, blackish wings, yellow legs, and gigantic maxillary palps. Male tegmina (fore wings) are relatively color and flat, while the female wings are dark and convex, almost like beetle elytra.

#### Natural History

Like most crickets, the handsome trig courtship involves males singing (by rubbing their fore wings together) to females. The Macaulay Library at Cornell has several great **recordings of this species calls**. One can find *P. pulchellus* in grasses and herbs on field edges and near ditches, and it apparently jumps very rapidly away when discovered. The males call throughout the day and night.

#### Distribution

Records in the **Global Biodiversity Information Facility** reveal and at the **Orthoptera Species File** that *Phyllopalpus pulchellus* is distributed at least as far west as Texas, north to Illinois and Ohio, southeast to Florida, and northeast to New Jersey. In North Carolina they can be found just about everywhere, as **specimens in the NCSU Insect Museum** can attest.

#### Find out more

- [Phyllopalpus pulchellus species page at Orthoptera Species File](#).
- [Phyllopalpus pulchellus species page at BugGuide](#).
- [Original description of Phyllopalpus pulchellus by Uhler](#): Uhler, P. R. 1864. Orthoptero logical contributions. *Proceedings of the Entomological Society of Philadelphia* 2: 543-555.

Map [kml](#) (right-click, save as)



Beautiful image of *Phyllopalpus pulchellus* that shows many of the diagnostic characters, photo taken by Patrick Coon.

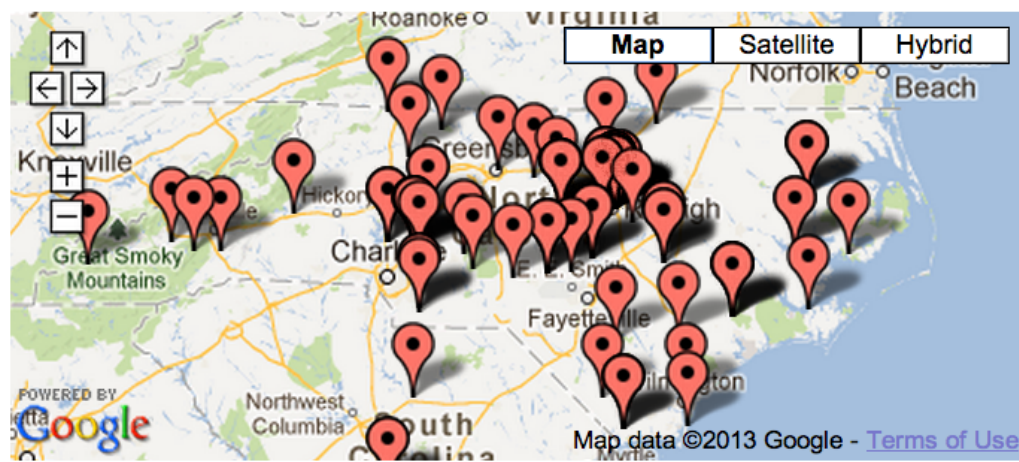
#### Contributors

Moved on ...

# North Carolina Insect of the Week

<http://blog.insectmuseum.org/?tag=nc-insect-of-the-week>

Map [kml](#) (right-click, save as)



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  - a. Coccinellidae
  - b. Anthophila
  - c. other interesting taxa
5. Provide online database, updated in real time
6. Share data with GBIF
7. "Digitize" *all* pinned specimens *via* whole-drawer images







10/10/10  
10/10/10

Stelis  
Piss  
10/10/10

  
NCSU 0005800





Material OTUs Content Measurements Refs Taxon names Images Tags

Specimens Lots Lot groups Collecting Events Distribution Repositories Geographical Names new | list  show edit  
more options ...

Find by identifier(s):  show enter 1 or more identifiers or partial identifiers seperated by spaces

Listing specimens

Ordered by Identifier, then mx ID.

VIEW PAGE: previous | next | 1 2 3 4 5 6 ... 3128 | refresh current

1 to 20 of 62550

identifiers	most recent det	collecting event	sex	dna ok	rep.	maps?	mx id	mod by	mod age					
mx_id: 26585	<i>Pteroceraphron mirabilipennis</i> Dessart, 1981 by: István Mikó	Ontario, St. Lawrence national Park		no		yes	26585	bblinn	about 1 year	Image	Tag	Show	Edit	Destroy
mx_id: 35318	<i>Ectoedemia platanella</i> (Clemens, 1861) by: Patricia Mullins			no		no	35318	pmullins	over 2 years	Image	Tag	Show	Edit	Destroy
mx_id: 47931	<i>Lygocoris betulae</i> by: Bob Blinn	USA NC Wake Co. NCSU Campus 5-V-1994 R.L. Blinn Taken on Betula nigra		no	NCSU	yes	47931	bblinn	almost 2 years	Image	Tag	Show	Edit	Destroy
mx_id: 53629	<i>Corythucha ciliata</i> by: Bob Blinn	USA: NC Wake Co. NCSU Campus 12-V-1995 L.L. Deitz on Quercus alba		no	NCSU	yes	53629	bblinn	over 1 year	Image	Tag	Show	Edit	Destroy
mx_id: 61418	<i>Miridae</i> by: Andy Deans	USA: NC: Durham Co.: Hill Demonstration Forest. 36.201, - 78.887 (+/-500m), 23-25.ix.2011 R. Edman ENT502 Field Trip		no		yes	61418	adeans	about 1 year	Image	Tag	Show	Edit	Destroy
mx_id: 67904	<i>Ceratina</i> by: Tanner Stanfield	USA: N.Carolina, Moore Co. Walthour-Moss Foundation 35.2198, -79.3092 (10-5) 30 June 2012, bee bowls H.M. Campbell	female	no	NCSU	yes	67904	tstanfield	6 months	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125958	<i>Coquillettia mimetica</i> by: Bob Blinn	Jackson Co. Wis Millston Cranberry Bog 7-7-70 C.F. Koval	male	no	NCSU	yes	75326	bblinn	29 days	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125959	<i>Coquillettia mimetica</i> by: Bob Blinn	Jackson Co. Wis Millston Cranberry Bog 7-7-70 C.F. Koval	male	no	NCSU	yes	75327	bblinn	29 days	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125960	<i>Coquillettia mimetica</i> by: Bob Blinn	July 10, 1897 Mass.Lexington C.Bullard	male	no	NCSU	yes	75328	bblinn	29 days	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125961	<i>Coquillettia mimetica</i> by: Bob Blinn	USA: NC; Moore Co. Southern Pines; Moss Foundation Property 18-V-1994 R.L. Blinn Ex. Wiregrass	male	no	NCSU	yes	75329	bblinn	29 days	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125967	<i>Coquillettia mimetica</i> by: Bob Blinn	USA: NC; Moore Co. Southern Pines; Moss Foundation Property 18-V-1994 R.L. Blinn Ex. Wiregrass	male	no	NCSU	yes	75330	bblinn	29 days	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125968	<i>Coquillettia mimetica</i> by: Bob Blinn	USA: NC; Moore Co. Southern Pines; Moss Foundation Property 18-V-1994 R.L. Blinn Ex. Wiregrass	female	no	NCSU	yes	75332	bblinn	29 days	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125969	<i>Coquillettia mimetica</i> by: Bob Blinn	USA: NC; Moore Co. Southern Pines; Moss Foundation Property 18-V-1994 R.L. Blinn Ex. Wiregrass	male	no	NCSU	yes	75331	bblinn	29 days	Image	Tag	Show	Edit	Destroy
AMNH_PBI 125970	<i>Coquillettia nigrothorax</i> by: Bob Blinn	UTAH: Washington Co. Red Cliffs Campgr 8.X 1983 David McClain	male	no	NCSU	yes	75325	bblinn	29 days	Image	Tag	Show	Edit	Destroy
NCSU 0002376	<i>Braconidae</i> by: Andy Deans	USA: N. Carolina: Avery Co.: Crossnore, Linville Falls Hwy., 36.00908°N 81.93193°W 12.viii.2010, P.L. Mullins sweeping field		no		yes	45247	adeans	about 2 years	Image	Tag	Show	Edit	Destroy
NCSU 0002377	<i>Calopterygidae</i> by: Andy Deans	USA: N. Carolina: Avery Co.: Pisgah National Forest, Linville Falls Hwy., 36.00908°N 81.93193°W 17.vii.2010, P.L. Mullins Sweeping		no		yes	45697	adeans	about 2 years	Image	Tag	Show	Edit	Destroy
NCSU 0002378	<i>Hesperiidae</i> by: Andy Deans	USA: NC: Wake Co.: NCSU, Gardner Hall 35.7875°N 78.6720°W 5.iv.2010, P.L.Mullins		no		yes	45681	adeans	about 2 years	Image	Tag	Show	Edit	Destroy
NCSU 0002789	<i>Merope tuber</i> by: Patricia Mullins	USA: NC. Swain Co. GSMNP, Big Cove Rd. Site #1, N 35° 31.145', W 83° 17.770 30-vi-7-vii-2001 Col. B.M. Weigmann and B.K. Cassel Ravensford Site Project	male	no	NCSU	yes	773	pmullins	about 3 years	Image	Tag	Show	Edit	Destroy
NCSU 0002790	<i>Merope tuber</i> by: Patricia Mullins	USA: NC. Swain Co. GSMNP, Big Cove Rd. Site #1, N 35° 31.145', W 83° 17.770 30-vi-7-vii-2001 Col. B.M. Weigmann and B.K. Cassel Ravensford Site Project	female	no	NCSU	yes	772	pmullins	about 3 years	Image	Tag	Show	Edit	Destroy
NCSU 0002791	<i>Merope tuber</i> by: Patricia Mullins	USA: N. Carolina Swain Co., Bryson City 1.5 mi. NW Jct. HWY 19+HWY 74 4-v-1998 B. Cassel	male	no	NCSU	yes	771	pmullins	about 3 years	Image	Tag	Show	Edit	Destroy

VIEW PAGE: previous | next | 1 2 3 4 5 6 ... 3128 | refresh current

# NCSU Insect Museum Specimen Database Portal

*A note on the NCSU Insect Collection holdings.* The search by Taxon Name presently includes the names of the vast majority of the specimens present in the collection. When a search result returns no matching specimens this indicates only that those specimens have not yet been digitized. Please contact Bob Blinn if you have questions.

This project contains 62550 specimens (1524 type specimens), 39779 OTUs, and a taxonomic catalog of 41301 names.

## Find specimens

### By Taxon Name

The search will begin as soon as you enter text. You must select (click) on a result prior to clicking the search button.

### By Specimen Identifier

For example "12312, 321". Namespaces are ignored at present (e.g. the NCSU in "NCSU 1231").

### By Type list

A list of primary types in the collection.

[Show type list.](#)

[\[Site Credits\]](#) [\[Support Us\]](#) Questions about the museum? Contact Bob Blinn: [bblinn@ncsu.edu](mailto:bblinn@ncsu.edu)  
Department of Entomology, Box 7613, North Carolina State University, Raleigh, NC 27695-7613 USA  
+1 919 515 3595 (ph), +1 919 515 7746 (fax) [Privacy Statement and Policy Disclaimer](#)

POWERED BY 

<http://specimens.insectmuseum.org/>

# NCSU Insect Museum Specimen Database Portal

Search result

Listing specimens of *Anatis labiculata*. 106 specimens (106 mappable) found. [Search again](#)Map data ©2013 Google, INEGI - [Terms of Use](#)

identifier(s)	tied geography	locality	date	collector	method	latitude	longitude	images	type
NCSU 12209						43.074	-89.401	0	No
NCSU 12210						40.459	-90.672	0	No
NCSU 12211						40.459	-90.672	0	No
NCSU 12212						40.459	-90.672	0	No
NCSU 12213						40.459	-90.672	0	No
NCSU 12214						40.459	-90.672	0	No
NCSU 12215	USA: North Carolina: Wake Co.					35.775	-78.647	0	No
NCSU 12216	USA: North Carolina: Wake Co.					35.775	-78.647	0	No
NCSU 12217	USA: North Carolina: Wake Co.					35.775	-78.647	0	No
NCSU 12218	USA: North Carolina: Wake Co.					35.775	-78.647	0	No
NCSU 12219						35.174	-79.392	0	No
NCSU 12220						42.186	-86.308	0	No
NCSU 12221						42.186	-86.308	0	No
NCSU 12222						42.186	-86.308	0	No
NCSU 12223						42.186	-86.308	0	No
NCSU 12224						42.186	-86.308	0	No
NCSU 12225						42.186	-86.308	0	No
NCSU 12226						42.186	-86.308	0	No
NCSU 12227						42.186	-86.308	0	No
NCSU 12228						42.186	-86.308	0	No
NCSU 12229						42.186	-86.308	0	No
NCSU 12230						42.186	-86.308	0	No
NCSU 12231						42.186	-86.308	0	No
NCSU 12232						42.186	-86.308	0	No
NCSU 12233						42.186	-86.308	0	No
NCSU 12234						40.203	-77.195	0	No
NCSU 12235						40.203	-77.195	0	No
NCSU 12236						35.775	-78.647	0	No
NCSU 12237						43.134	-70.926	0	No
NCSU 12238						40.203	-77.195	0	No
NCSU 12239						35.426	-82.757	0	No
NCSU 12240						34.696	-76.557	0	No
NCSU 12241						35.323	-83.807	0	No
NCSU 12242						35.913	-79.056	0	No
NCSU 12243						40.459	-90.672	0	No
NCSU 12244						40.459	-90.672	0	No
NCSU 12245	USA: North Carolina: Burke Co.	Linville Falls	25.6.1920	F. Sherman		35.959294	-81.94289	0	No

[link](#)

# NCSU Insect Museum Specimen Database Portal

## Specimen record

### Determinations

Click on an OTU to show all material for that OTU

- *Anatis labiculata* (Say, 1824) by: Bob Blinn  
[Arthropoda](#) → [Insecta](#) → [Coleoptera](#) → [Coccinellidae](#) → [Coccinellinae](#) → [Anatis](#)

### Identifiers

- NCSU 26705

### Repository/location

Disposition (location etc.):

Repository: USA, Raleigh, North Carolina, North Carolina State University Insect Museum

### Attributes

Sex:

Stage: adult

DNA usable: false

Preparations:

Parent (e.g. part of whole specimen):

### Notes

Daggy #64165

### Record details

Last updatore: Bob Blinn

Creator: Bob Blinn

Created on: over 2 years ago

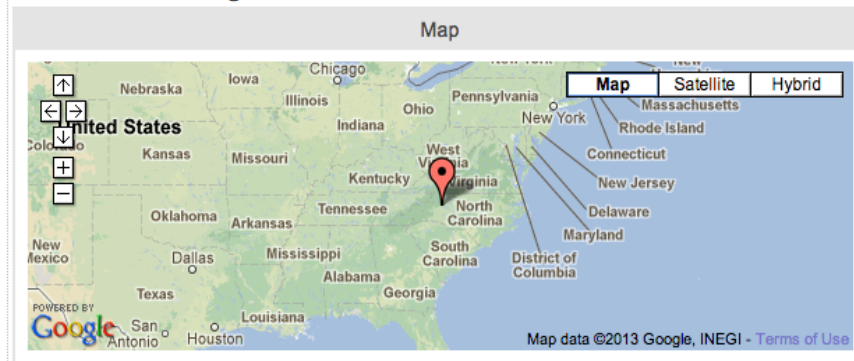
Last updated: over 2 years ago

Is public?: Yes

### Images



## Associated collecting event



### Verbatim label

Rocky Face,  
 Alexander Co.,  
 N.C. IV-1, 1973  
 Tom Daggy

Verbatim label md5: 69ad5c89bbd39bd804de49e07ffb9577

### Locality

Geography:

Tied Geography: none

Locality:

Elevation: ()

### Date/time

Date range:

Time start:

Time end:

### Collection Method

Determined:

Verbatim:

[link](#)

### Georeferencing

Verbatim latitude:

Verbatim longitude:

Determined lat/long: 35.972N, -81.109W

Determined uncertainty (m): 5000

Lat/long undeterminable:

Locality accuracy confidence

Georeference sources:



What about images of individual specimens?





# Insect Museum

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◀ Insect of the week - number 92  
Insect of the week - number 94 ▶

## Insect of the week - number 93

October 28th, 2011 by Andy Deans



Beautiful image of *Phyllopalpus pulchellus* in action, taken by Anthony Zukoff.

### *Phyllopalpus pulchellus* Uhler, 1864

#### Introduction

This week's North Carolina insect is a stunning little songster commonly called the red-headed bush cricket or handsome trig, *Phyllopalpus pulchellus* Uhler, 1864 (Orthoptera: Gryllidae).

#### Taxonomic History

This species was described originally by Philo Uhler in 1864, as *Phyllopalpus pulchellus*, based on specimens from Maryland and New York. There are currently no synonyms of this species, but some older treatments have classified *pulchellus* in *Phyllotrochus*. The Orthoptera Species File documents the complete taxonomic history of this species. The type specimen repository remains unknown.

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*Phyllopalpus pulchellus* is relatively easy to recognize amongst all the other local crickets, given its beautiful bright red head and pronotum, blackish wings, yellow legs, and gigantic maxillary palps. Male tegmina (fore wings) are relatively color and flat, while the female wings are dark and convex, almost like beetle elytra.

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Like most crickets, the handsome trig courtship involves males singing (by rubbing their fore wings together) to females. The Macaulay Library at Cornell has several great recordings of this species' calls. One can find *P. pulchellus* in grasses and herbs on field edges and near ditches, and it apparently jumps very rapidly away when discovered. The males call throughout the day and night.

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#### Find out more

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- [Phyllopalpus pulchellus](#) species page at BugGuide.
- [Online description of Phyllopalpus pulchellus](#) by Uhler, P. R. 1864. Orthopterological contributions. Proceedings of the Entomological Society of Philadelphia 2: 543-555.

Map [kml](#) (right-click, save as)



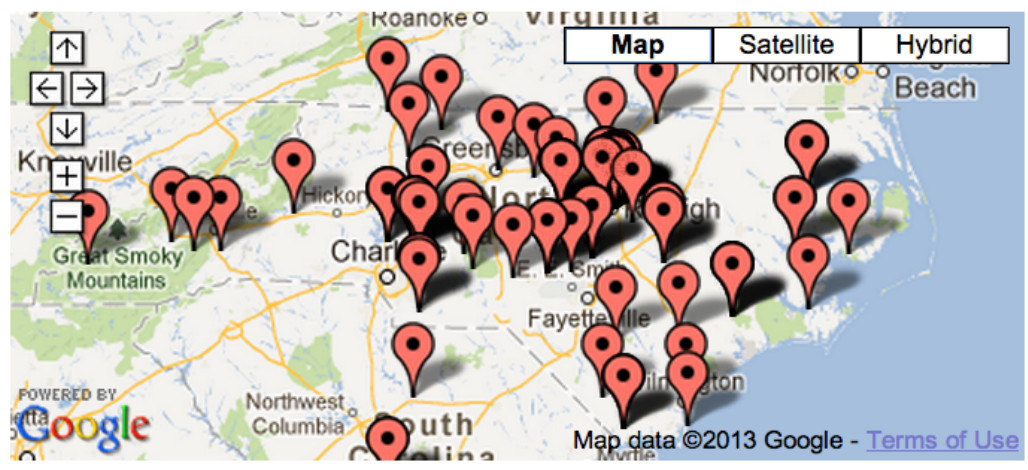
Beautiful image of *Phyllopalpus pulchellus* that shows many of the diagnostic characters, photo taken by Patrick Coon.

Like 3 people like this. Be the first of your friends.

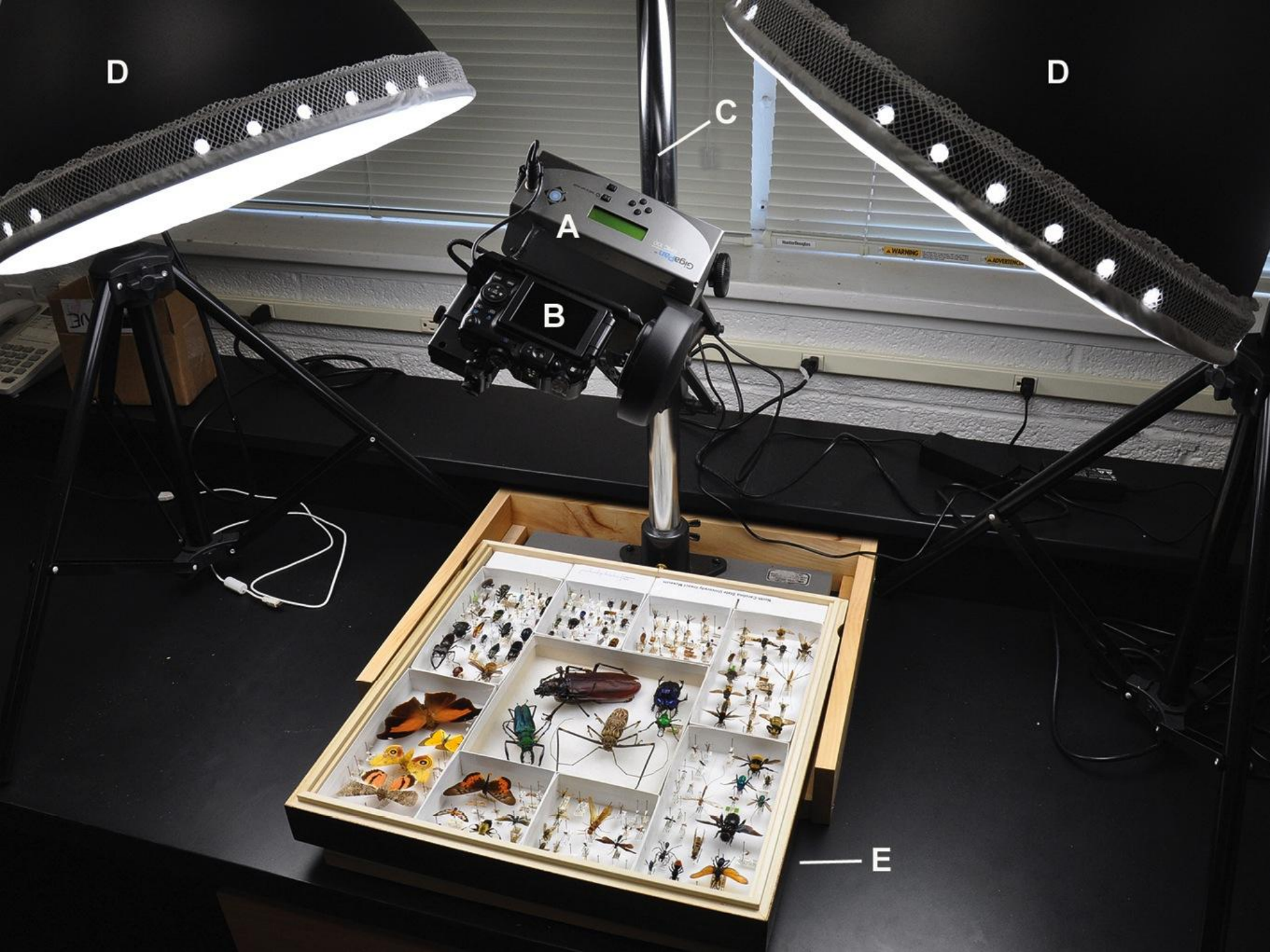
# North Carolina Insect of the Week

<http://blog.insectmuseum.org/?tag=nc-insect-of-the-week>

Map [kml](#) (right-click, save as)



species pages shared with EOL  
([example](#))



D

D

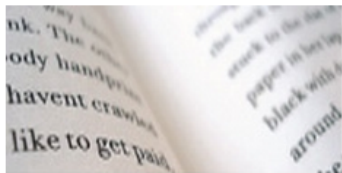
C

A

B

E





ZooKeys > ZooKeys 209 (2012) : Special issue

No specimen left behind: mass digitization of natural history collections



### ZooKeys 209 (2012) Special Issue

#### No specimen left behind: mass digitization of natural history collections

Vladimir Blagoderov & Vincent Smith

Papers published: 19 | Total pages: 267 | Color pages: 63

**Taxa:** Insecta (3) Porifera (1) Arthropoda (1)

**Subjects:** Biodiversity: Species, Ecosystems & Conservation (8) Theory & Methodology (12) Bioinformatics (5) Species Inventories (1) Handbooks, Catalogues and Checklists (1) Alpha Taxonomy & New Taxa (1) Agriculture (1)

**Regions:** World (6) Australasia (1) USA and Canada (1) North America (1) Western USA and Western Canada (1) Rockies (1) Nevada and Utah and Colorado (1) Netherlands (1)

Printed Version: Paperback | € 60.00 | **Order reprint(s)**

#### Authors

Vincent Smith, Vladimir Blagoderov

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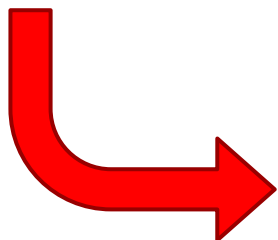
■ **Bringing collections out of the dark**

Published: 20.07.2012

Editorial

Pages: 1-6 | Viewed by: 561

Abstract | HTML | XML | PDF



Matthew Bertone, Robert Blinn, Tanner Stanfield, Kelly Dew, Katja Seltmann, Andrew Deans

■ **Results and insights from the NCSU Insect Museum GigaPan project**

Research Article

<http://bit.ly/ZooKeys>



2,661 GigaPans  
>800,000 specimens  
>350,000 views  
~100 views per drawer  
<\$2,000 equipment  
\$7000 labor





Help



View All



Take a  
snapshot



Intersecti...







Help



View All



Intersecti...  
0

Help



View All



## Add a Snapshot ✕

Snapshot Name:

Corduliidae naiad

Description:

What is the preferred way to preserve exuvia?

NOTE: Although HTML is not allowed in your description, any URLs you enter beginning with "http://" will be automatically hyperlinked.

Save

Cancel



Take a  
snapshot



Intersecti...



What's different at the Frost Entomological Museum?

What would we do differently, given our experiences at NCSU?



# What's different at the Frost Entomological Museum?

## What would we do differently, given our experiences at NCSU?

### The situation:

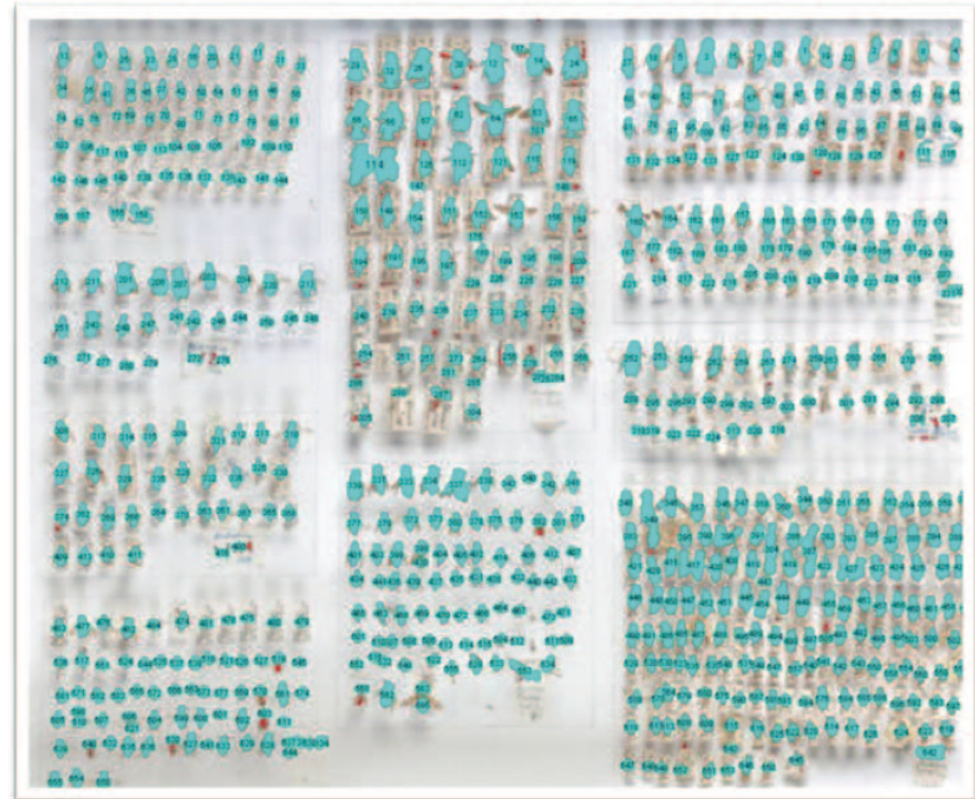
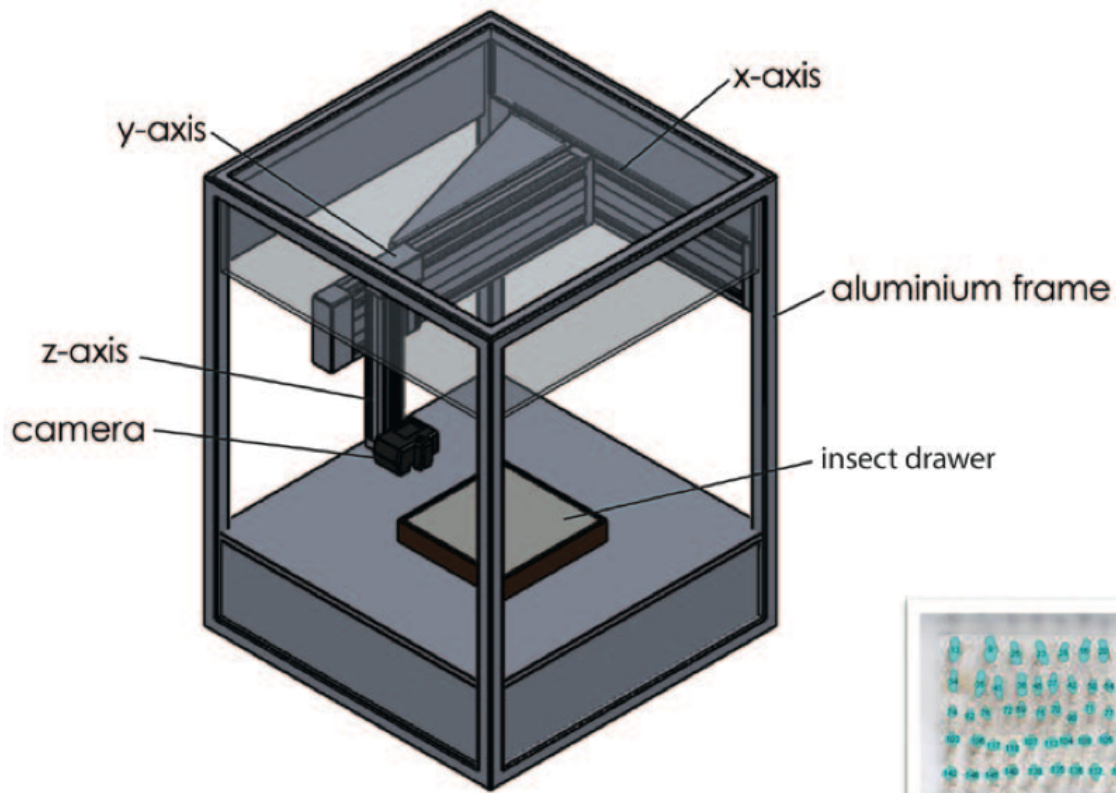
- basic IT support
- well-curated collection
- Friends of the Frost!
- no collection manager ... yet
- no database (old Specify)
- no taxonomic inventory (at least to sp. level)
- no specimens digitized
- no specimens imaged
- "off the radar"
- must address infrastructure issues



- Outsource! (no server, so work with Species File, no label printer)
- Digitize Odonata!
- Whole drawer scanning? Not yet.







Figs. 1 and 4 from Schmidt *et al.* 2012, doi: [10.3897/zookeys.209.3115](https://doi.org/10.3897/zookeys.209.3115)

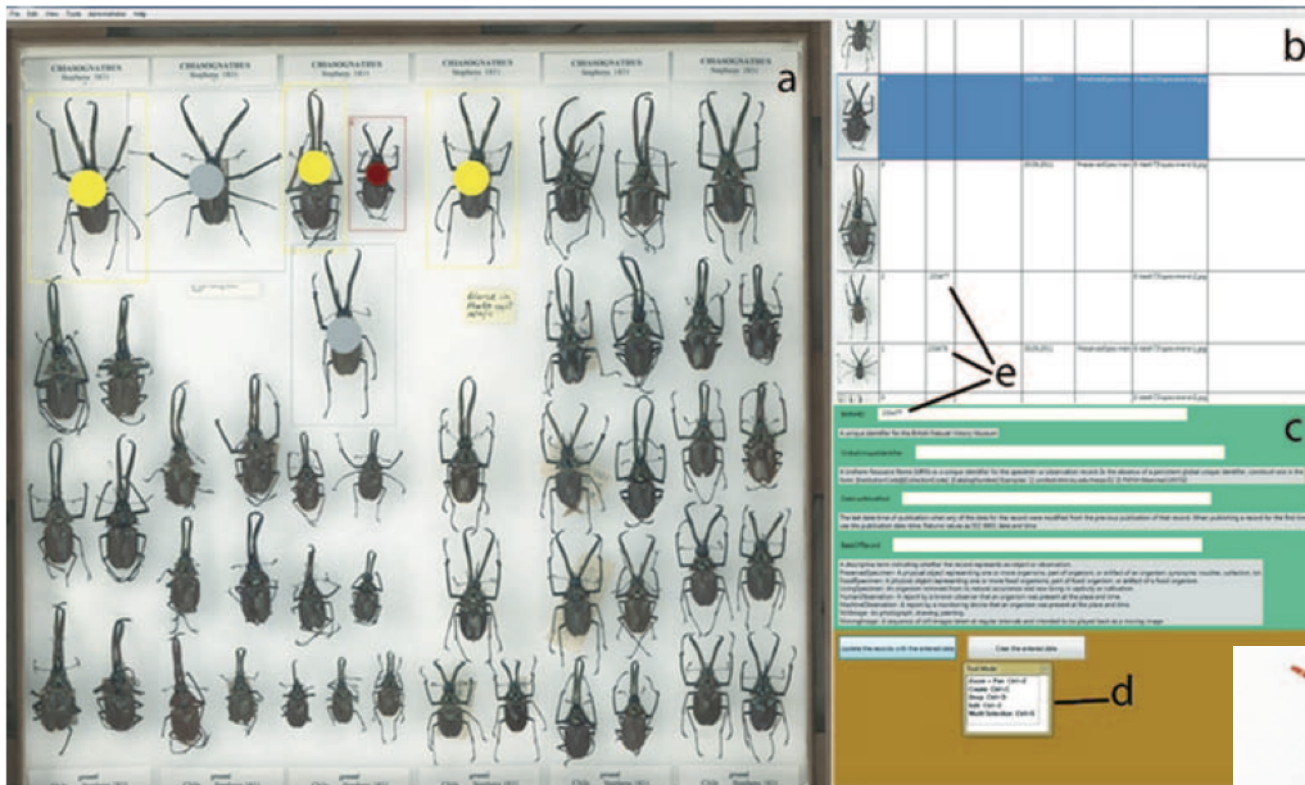


Fig. 3 from Blagoderov *et al.* 2012, doi: [10.3897/zookeys.209.3178](https://doi.org/10.3897/zookeys.209.3178)



Fig. 6 from Mantle *et al.* 2012, doi: [10.3897/zookeys.209.3169](https://doi.org/10.3897/zookeys.209.3169)

# Acknowledgments



Funding from the U.S. NSF, grants DBI-0847924, DBI-1115080

Matt Bertone, for getting us off the ground - unit and workflow testing.

Kelly Dew-Budd, Tanner Stanfield, Melissa Blinn, et al. for helping us digitize!

visit this talk from ICE 2012 in Daegu:

<http://bit.ly/CampbellDeansICE2012>