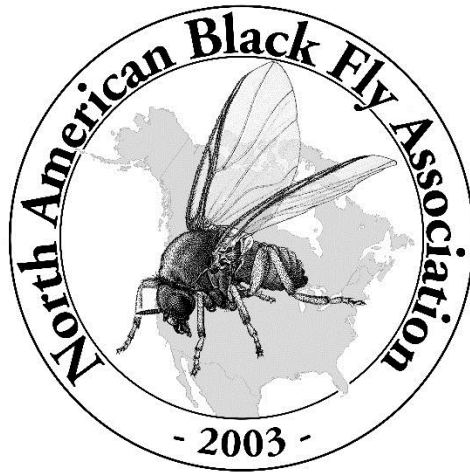


NORTH AMERICAN  
BLACK FLY ASSOCIATION  
(NABFA)



17<sup>TH</sup> ANNUAL MEETING

FEBRUARY 7-8, 2019

THE HERRETT CENTER FOR ARTS AND SCIENCE,  
THE COLLEGE OF SOUTHERN IDAHO  
TWIN FALLS, ID

## THURSDAY, FEBRUARY 7<sup>TH</sup>

- 8:30 AM – 8:45 AM      Welcome and Introductions!  
**John Walz and Kirk Tubbs**
- 8:45 AM – 9:05 AM      Hanging on by a thread  
**Doug Craig**, Department of Biological Sciences, University of Alberta, Edmonton, Alberta, CANADA
- 9:05 AM – 9:25 AM      Pennsylvania Black Fly Suppression Program update  
**Doug Orr**, PA Department of Environmental Protection, Harrisburg, PA
- 9:25 AM – 9:45 AM      TFCPAD Winter Treatments: Cost Effective Control  
**Brock Palen**, Twin Falls County Pest Abatement District, Twin Falls, ID
- 9:45 AM – 9:55 AM      Mosquito Underground  
**Mariah Butori**, CSI student, TFCPAD seasonal
- 10:00 AM – 10:30 AM      **BREAK**
- 10:30 AM – 10:50 AM      Investigations on the Mycetophilidae of North Central Nevada During 2017-2018  
**Robin Gray**, Seven Valleys LLC, Winnemucca, NV
- 10:50 AM – 11:10 AM      Trap trials for blackflies  
**Spencer Cowen**, CSI student, TFCPAD intern
- 11:10 AM – 11:30 AM      MMCD Black Fly Control Program update  
**Carey LaMere**, Metropolitan Mosquito Control District (MMCD), St. Paul, MN
- 11:30 AM – 11:50 AM      History of black fly control in Twin Falls  
**Laird Noh**, Sheep Rancher, Twin Falls, ID
- 12:00 PM – 1:00 PM      **LUNCH (PROVIDED)**
- 1:00 PM – 1:20 PM      Speciation in the *Simulium arcticum* complex (Diptera: Simuliidae)  
**Gerald F. Shields** and D. Grant Hokit, Department of Life and Environmental Sciences, Carroll College, Helena, MT
- 1:20 PM – 1:40 PM      Bullhead City Pest Abatement Update  
**Joe Iburg**, Pest Abatement Manager, Bullhead City, AZ

## THURSDAY, FEBRUARY 7<sup>TH</sup> (CONTINUED)

- 1:40 PM – 2:00 PM Vesicular Stomatitis in Twin Falls County  
**Charles Lenkner**, Retired Veterinarian, Twin Falls, ID
- 2:00 PM – 2:10 PM Twin Falls County Pest Abatement District program update  
**Kirk Tubbs**, Twin Falls County Pest Abatement District, Twin Falls, ID
- 2:10 PM – 2:20 PM Water levels and Black Fly Production in Twin Falls  
**Christina Contreras**, CSI intern and TFCPAD seasonal employee
- 2:20 PM – 2:40 PM The University of Georgia Black Fly Rearing and Bioassay Laboratory Update  
**Elmer W. Gray**, University of Georgia, Athens, GA
- 3:00 PM – 3:30 PM **BREAK**
- 3:30 PM – 3:50 PM What Makes Web GIS So Compelling?  
**Chad Minter**, Frontier Precision, Inc.
- 3:50 PM – 4:10 PM High speed Super 8mm film of simuliid larvae feeding  
**Doug Craig**, Department of Biological Sciences, University of Alberta, Edmonton, Alberta, CANADA
- 4:10 PM – 4:30 PM NABFA Business, website, 2020 planning
- 6:00 PM **DINNER (PROVIDED)**

## FRIDAY, FEBRUARY 8<sup>TH</sup>

- 9:00 AM **FIELD TRIP OF SNAKE RIVER AND SURROUNDING CANAL SYSTEMS**  
(TRANSPORTATION PROVIDED, MEET AT ELEVATION 486 PARKING LOT  
195 RIVER VISTA PLACE)
- 12:30 PM **LUNCH (PROVIDED)**

We thank ADAPCO and Valent BioSciences for sponsoring portions of this meeting.

PRESIDENT: JOHN WALZ  
HOST SITE COORDINATOR: KIRK TUBBS  
PROGRAM EDITOR: CAREY LAMERE

[www.nabfa-blackfly.org](http://www.nabfa-blackfly.org)

# NABFA ABSTRACTS

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**Doug Craig**, Department of Biological Sciences, University of Alberta, Edmonton, Alberta, CANADA

"Hanging on by a thread."

Larvae of two species of Australian *Ectemnoidea*, manufacture and attach to the end of a thread that includes fecal pellets, salivary silk and other material. A quick survey will be made of what is known about this unusual method of attachment.

"High speed Super 8mm film of simuliid larvae feeding."

Work on feeding of larval simuliids in the late 1970's and early 1980's used Super 8mm film at 300 frames a second. The film has been recently transferred to video and a short sequence will be shown.

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The University of Georgia Black Fly Rearing and Bioassay Laboratory Update

**Elmer W. Gray**, Sophie Racey, Darold Batzer, and Ray Noblet,

University of Georgia, Entomology Department, Athens, GA

The University of Georgia Black Fly Rearing and Bioassay Laboratory is entering its twentieth year of operation. The *Simulium vittatum* cytospecies IS-7 colony serves as the center of operations with a wide variety of research conducted with the large numbers of specimens that are produced. The *Simulium vittatum* colony has been in operation since its inception at Cornell University in 1981. The colony continues to thrive, producing weekly rearings of ~300,000 thousand larvae. After years of focusing on larval feeding and *Bti*-based larvicide efficacy, we are now diversifying and studying a wide range of topics. Current projects involve adult feeding and pathogen transmission evaluations, measuring growth rates and adult parameters at varying environmental temperatures, developing an insecticide repellency protocol, and conducting limited larvicide evaluations. Recent experiments have demonstrated that the female black flies can ingest the microfilaria of the dog heartworm, *Dirofilaria immitis*. Every fly that was evaluated for the presence of the microfilaria (n=20) was found positive for intact, microfilaria demonstrating that viable microfilariae were in the gut. Upcoming experiments will evaluate the survival of the infected flies and the development of the heartworm larvae. Work evaluating growth rates and adult parameters at varying environmental temperatures has begun. Eggs were removed from the colony oviposition chamber that were <24 hours old and hatched in a miniaturized rearing unit at 25°C. Larvae are currently being reared as protocols for flow and feeding rates are being developed. Repellent work has also begun using glass, membrane feeders covered with various membrane materials (parafilm, natural sausage casings, latex glove material) with 10% sucrose as the feeding attractant. Preliminary work has demonstrated the efficacy of a 7% DEET-based product in this system. Limited larvicide evaluations have been conducted on four commercially available lots of the Vectobac® 12AS product. Potency determinations calculated against a known standard continue to demonstrate the effectiveness of this product as an outstanding larvicide formulation for use in black fly suppression programs.

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Investigations on the Mycetophilidae of North Central Nevada During 2017-2018

**Robin Gray**, Seven Valleys LLC, Winnemucca, NV

During 2017 and 18 an attempt was made to investigate the Mycetophilids of North Central Nevada. Twelve genera were found in various habitats. All attempts to find and rear the immatures were unsuccessful. Clues to the biology of some species were discovered however. This study will be continued in 2019.

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Bullhead City Pest Abatement Update

**Joe Iburg**, Bullhead City, AZ

Update on the black fly and caddisfly program in Bullhead City, AZ and Clark County, NV.

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Vesicular Stomatitis in Twin Falls County

**Charles Lenkner**, Retired DMV, Twin Falls, ID

Worked as a vet during the last outbreak of Vesicular Stomatitis in the Magic Valley. General overview of VS, what it looks like during the outbreak and how it led to the formation of The Twin Falls County Pest Abatement District.

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## What Makes Web GIS So Compelling?

**Chad Minter**, Frontier Precision, Inc.

Web GIS, which is a cloud-based system hosted on vendor servers, offers cost savings by freeing up agency resources to focus on mosquito control operations activities instead of supporting legacy server systems. Web GIS is more reliable with automatic updates and resource scaling and requires less maintenance than in-house systems. Also, Web GIS is less expensive than on-site installations – it is easy to forget hidden costs with servers and IT management. The Web GIS pattern makes maps and apps more accessible and available to more users inside and outside your organization, enabling collaboration, communication, and problem solving and eliminating bottlenecks.

We'll demonstrate how the new Frontier FieldSeeker software, which is based on Esri ArcGIS Online, leverages these benefits. As an all-in-one app, the new FieldSeeker Core (Larviciding w/Storm Drain Treatment, Surveillance and Service Request) consist of a cross-platform (iOS, Android, Windows 10) mobile app and JavaScript web app office suite with dashboard and map functionality. We'll also show how we integrate other information from our Windows ULV Adulticiding software, drone surveillance, and our new Public Notification App. We're excited for you to take advantage of our latest innovations!

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## **Laird Noh**, Twin Falls, ID

Sheep Rancher who experienced some of the early Black Fly problems and was involved with early research and treatments for black flies will share some of the early control history prior to the formation of the Twin Falls County Pest Abatement District.

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## TFCPAD Winter Treatments: Cost Effective Control

**Brock Palen**, Abatement technician, Twin Falls County Pest Abatement District

Twin Falls County Pest Abatement District uses winter treatments as a cost-effective way to significantly reduce early spring hatch numbers and gain much needed time during spring high flow periods. This is done by closely monitoring flows and temperature so that when treatments are applied larvae are naturally forced into pockets of good habitat therefore maximizing exposure to treatments.

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## Speciation in the *Simulium arcticum* complex (Diptera: Simuliidae)

**Gerald F. Shields** and D. Grant Hokit. Department of Life and Environmental Sciences, Carroll College, Helena, Montana, 59625-0002.

Rothfels (1989) suggested that speciation in some groups of black flies was perhaps more likely explained through a sympatric (from within) mode rather than an allopatric (after geographic separation) mode. With future research he suggested that: 1) complexes would be encountered that possessed sex-chromosome polymorphisms, 2) these would display linkage disequilibria, 3) they would share extensive autosomal polymorphisms, and 4) they would differ in their biology and perhaps present-day distributions. Rothfels' suggestions were based on the then available data on: *Twinnia* and *Gymnopais* (Wood, 1978), Alaskan *Simulium arcticum* (Shields and Procnier, (1982), insular populations in Tahiti (Craig, 1983), and on *Helodon onychodactylus* (Newman, 1983). We tested Rothfels' criteria for sympatric speciation on an expanded data set for *S. arcticum* which included about 20,000 chromosomally analyzed larvae from 307 collections from throughout the geographic range of the complex. All criteria of the Rothfels model were positively verified through analysis of this much larger data set. Possibly most importantly, we also compared the sex-chromosome identities of all 31 taxa of the complex with their geographic distributions. All cytotypes had geographic distributions within those of sibling species suggesting the possibility that members of the *S. arcticum* complex become reproductively isolated through a sympatric process.

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