



## Midwest Bat Working Group

### 9<sup>th</sup> Annual Meeting

Meeting Notes (Marne Titchenell)

Madison, WI

07 April 2017

*CONGRATULATIONS to the MWBWG student award winners!!*

- **Best Student Oral Presentation: ZACHARY CRAVENS (SOUTHERN ILLINOIS UNIVERSITY) - \$150**
- **Poster Presentation: LIZZ BEILKE (INDIANA STATE UNIVERSITY) - \$150**
- **Travel Award: BRIANA ANDERSON (MISSOURI STATE UNIVERSITY) - \$200**

### Meeting Summary

*April 5, 2017* Jennifer Norris announced the results of the 2017 Board of Directors election. The Board welcomes back President, Rob Mies (Organization for Bat Conservation), Treasurer, Brianne Walters (ISU Center for Bat Research, Outreach, and Conservation), and Director, Tim Carter (Ball State University), as well as a new Director, Allen Kurta (Eastern Michigan University)! They are joining Vice President, Jennifer Norris (Ohio DNR) and Secretary, Marne Titchenell (The Ohio State University), and Directors, Kari Kirschbaum (US Forest Service), J. Paul White (Wisconsin DNR), and Vanessa Rojas (ISU Center for Bat Research, Outreach, and Conservation), Brian Heeringa (US Forest Service), Joe Kath (Illinois DNR), and our Student Representative, Tim Divoll (ISU Center for Bat Research, Outreach, and Conservation). The MWBWG thanks all outgoing and previous board members for their service!

*April 6-7, 2017.* The 9<sup>th</sup> Annual Midwest Bat Working Group meeting, hosted by the Wisconsin Department of Natural Resources at the Pyle Center, University of Wisconsin in Madison. The group now has 114 members, with 25 students and 89 professionals. Dues were \$25 professional/\$15 student and registration was \$55 professional/ \$35 student. There were 160 people in attendance from various government agencies, universities, non-profit organizations, consulting firms, and others. Thanks go to our sponsors and vendors who truly make each meeting possible! Gold sponsors were Wisconsin Department of Natural Resources, Wisconsin Bat Program; USDA-Forest Service; and Wildlife Acoustics Bioacoustics Monitoring Systems. Silver sponsors were Stantec; We Energies; West Environmental & Statistical Consultants; Organization for Bat Conservation; Fairmount Santrol; Titley Scientific; Environmental Solutions & Innovations, Inc.; and Apogee. Bronze sponsors were GAI Consultants; Allstar Ecology Natural Resource Specialists; Bat Conservation International; Power Engineers; Orbis Environmental Consulting; and Civil & Environmental Consultants, Inc. Vendors were Indiana State University Center for Bat Research, Outreach, and Conservation; Copperhead Environmental Consulting; and Bat Conservation and Management.



The meeting kicked off early with a members-only tour of the USGS National Wildlife Health Center facility in Madison for 18 people on the day before the meeting. Our meeting started with a welcome from President, Rob Mies, followed by keynote speaker, Curt Meine from the Aldo Leopold Foundation Archive, who shared some conservation thoughts with us, looking back at Leopold's life and notable career. Rich Geboy, the Midwest WNS Coordinator, updated the group with the national and regional perspectives on the disease, followed by 15 submitted papers (4 student competitors) on the first day. Presentations covered a range of topics, including habitat and roost use, effects of various timber harvest techniques, detection probabilities, diet and prey selection, acoustics, and the influence of mining on bats. During lunch, 11 student members and 6 professionals enjoyed interacting during our 2<sup>nd</sup> Student and Professional Lunch Mixer. There was also a free Wildlife Acoustics Training open to everyone. The day concluded with packed house for the annual Poster Session with 21 submitted posters (6 student competitors), a Social, and our first annual Silent Auction. A hearty thank you to all who donated – a total of \$1,248 was raised to benefit the Student Travel Award and regional bat festivals and other similar conservation outreach efforts!

Day 2 started with State Updates from the region, Andrew King gave a USFWS update, and the National Wildlife Health Center researchers reported more details on the sudden appearance of WNS in Washington state, followed by the Business Meeting. Lunch was provided to preregistered participants, and Rob Mies followed up with an update and discussion about the results of the North American Bat Conservation Alliance's survey to determine threats to NA bats. The meeting concluded with 4 more submitted papers on bat ecology.

When qualified candidates are identified, the Midwest Bat Working Group proudly awards the Dave Redell Lifetime Achievement Award to honor those who have demonstrated an exemplary, long-term commitment to promoting and preserving bats in the Midwest through research, conservation, and education. This year, Scott Johnson was honored for his decades of bat conservation work with the Indiana Department of Natural Resources. His achievements covered all aspects of bat conservation: science, management, protection and public education. Scott also served 3 years on our Board of Directors. Congratulations to Scott!

Volunteer judges awarded two MWBWG student presentation awards at \$150 each. The best oral presentation went to Zachary Cravens: The impact of artificial light on prey selection by insectivorous bats. The best poster presentation award went to Elizabeth Beilke: Landscape features affecting bat phonic group activity in Great Smoky Mountains National Park. The first ever Student Travel Award went to Briana Anderson.





2017 MWBWG Student Award winners: Zachary Cravens for best oral presentation, Elizabeth Beilke for best poster presentation, and Briana Anderson for student travel award presented by Rob Mies, President.



2017 Midwest Bat Working Group members, The University of Wisconsin, Madison, WI.

## Mies, President – Welcome and Introduction

- Board meeting went well this morning
- Wildlife Acoustic Training today at 12:30, should have pre-registered
- Poster session and Silent Auction tonight – donate to the registration desk
- Student Professional Mixer today at 12:30 pm
- Group photo at 5pm
- Extra t-shirts – artwork by Jackie W. - \$20
- MWBWG – work to coordinate people working in MW, facilitate communication, facilitate collaboration, and advocate for regional and national priorities
- Please consider becoming an officer or joining a committee – you only have to be a member to join a committee. Find any of the current officers if you are interested.
- Become a member and get a MWBWG travel mug.

## Summary of Invited Speakers – Day 1, April 7

Keynote: Curt Meine – Aldo Leopold: Conservation Thoughts on Bats and Biodiversity

- April 18, 1803 – observed ‘Bats flying’
- Joins University of Wisconsin, 1916 – first person to mark animals was Dr. A. Allen in 1916 to mark bats – so first animal to be marked by bands was a bat



- Animal Ecology – Elton wrote in 1942 – in Britain discussing habitat use by bats that use caves and buildings and the human aspect
- From Leopold’s field journals – observations of their flight, bats in his barn chasing each other
- 1935-1945 – Phenological record for Sauk and Dane counties, Wisconsin – noted bat species

#### Rich Geboy – National WNS Update

- Mortality exceeds 90% in many sites. As of March 22, 30 states (additional 3 with pd), 5 Canadian provinces have WNS. Recently 6 counties in Texas have reported Pd – cave bat and townsend’s big-eared bat have been found with pd on them, both have distributions that occur out into the west.
- Out west – new user groups to educate – rock climbers
- Looking for participation in national plan committee groups
- New publication – Defeating WNS: A Vision for the Future
- Treatment trials – microbial and bio antifungals, VOCs, vaccines, habitat manipulations/cleaning, gene silencing or therapy, and mycoviruses
- Decontamination Protocol – constantly updated with new info – find it at [www.whitenosesyndrome.org](http://www.whitenosesyndrome.org)
- New publications/info on above website – Managing impacts to cave roosting bats, Nuisance Wildlife Control operator guidelines, and rehabilitation guidelines (coming soon)
- Hope – seeing more and more marked adults and young of the year are surviving multiple years and reproducing, LBB mortality rates in NE aren’t at 90% declines anymore, a few hibernating populations seem to be increasing
- Grants available for state programs and research. A new grant called Bats for the Future Fund will be coming soon. Small grants available to help address communications needs on a small level.

#### Brenna Hyzy – Occupancy and Maternity roost selection of northern long-eared bats in lake states region.

- MYSE threatened by WNS (96-98% mortality rates across range, extirpation in some areas), listed as threatened with 4(d) rule in April 2015
- Maternal roost usage – oak species used most frequency at 2 sites, black locust used more than expected.

#### Morgan Swingen – Habitat use by NLE bat in forested region in Minnesota

- Using acoustic surveys, roost tree characterization, and telemetry to answer questions on habitat use in Minnesota. Reported that MYSE used both dead and live trees, used 22 species of trees (aspen, maples, paper birch – common species in MN), largest roost was 79 females, avg DBH – 38.6 cm (11-107 range), height 14.9 m (3-30 m). MYSE acting as generalists, which is consistent with other research findings throughout their range

#### Jesse De La Cruz – Landscape characteristics related to the use of artificial roosts by bats in northcentral West Virginia.

- Presented information about artificial roosts as a conservation tool in NC WV. Installed 306 boxes (500+ in 2017) across study area, most are rocket box, but will be putting out 4-



chambered boxes. 41% rocket boxes used, 60% nursery boxes, 32% bark (43% total of artificial roosts). Structures closer to edge and medium core (100-200 ha) were used more. Core less than 100 ha may lack needed roosting conditions. 40.9% (18% of all structures) used by NLE but 83.3% were no-reproductive bats. Rocker boxes accounted for 7 of 9 maternity colonies (colony sizes around 60 bats). Canopy closure – nothing lower than 50%, and none in open sun. Relatively fast occupancy. Pole 16', box 4', so 12' from base to ground.

Keifer Titus – Addressing Variation in timber harvest techniques and effect on bat occupancy and detection.

- Study took place on the HEE in Indiana, within a variety of harvesting practices (clearcut, selection, and shelterwood) of ~ 80 ha each. Goal of identifying bat habitat use and occupancy across harvest types.
- Monitoring above canopy using acoustics, used BCID to analyze calls and used species grouping. Myotis and mid frequency bats using denser forests, while low frequency bats using clearcuts. Next year plans to use basal area within harvest types to determine use and habitat recommendations.

Tara Hohoff – Influence of survey method on detection probability of common bat species in northern Illinois.

- Goal to quantify difference between probability between mistnetting and full spectrum recorders. Top models supported that detection probability is influenced by species and detection method used. Acoustics better to detect EPFU and MYLU (assuming at least 5 nights of detection). Future work might include research on number of detection nights needed for sensitive species.

Michelle Jusino – An Improved dietary analysis method to predict ecosystem services provided by bats.

- Next generation sequencing – used a different primer than what is usually used for analyzing bat guano. Found that diets between EPFU and MYLU are different and there are different drivers – surrounding landscape influences MYLU. With EPFU – site nor time are an influence, but forest cover does have an influence.

Amy Wray – Alternative snacks: Influences of landscape & insect communities on bat diets in southern Wisconsin.

- How will WNS related declines affect insect communities? So early in the research, they have established a baseline but will have to continue to see what emerges – not much seen right now.
- What do bats eat and how general are their foraging strategies?
  - Forest ag pests – 42% of little browns ate them, big brown 35%
  - Mosquitos consumed - MYLU 64%, EPFU 30%
  - Forest cover and species richness influenced MYLU

Zachary Cravens – Impact of artificial light on prey selection by insectivorous bats.

- Falchi et al. 2016 – great figure on light pollution over US



- It's thought that the reason bats are nocturnal is to avoid light areas and to avoid diurnal prey. There is a peak on insect abundance, right before sunset, but bats do not emerge until after sunset to (as thought) avoid light and predators. But it's been noted that bats feed around lights. So do they really avoid lights?
- Minnaar et al. 2015 – increase in light led to decrease in main prey consumption by one bat species (Cape serotine bat). This bat ate less beetles and more moths around lights.
- Grays and MYLU – increase in moths in lit sites and decrease in beetles at unlit sites – this was not significant. Light appears not to have a significant impact.

Tim Divoll – Is dietary overlap between Indiana bats and northern long-eared bats habitat dependent?

- MYSE and MYLU diverged from one another 8 million years ago. They practice resource partitioning with roost sites – do they do the same for food?
  - In HEE – found MYSE roosting on upland sites and would forage around its roost trees. MYLU – would start foraging around roost, then would take off and go to a very specific site – some of which were small ag fields, some will travel across areas up to 2 km away (roost was near airport)
  - Forest pests consumed - Red oak leafroller, oak leafroller, eastern tent caterpillar, acorn moth, long-horned wood-borer, hickory plant bug
  - Ag pests consumed - True army worm, light brown apple moth garden leafhopper, inland floodwater mosquito (dog heartworm)
  - They are eating 14 orders in insects, 676 prey species, 44% were Lepidoptera, very similar between species. There was 80% overlap between the species at both sites (85% in forested site). So diets are still pretty similar, and even more so within the same habitat. More data needed.

Laura Kloepper – Using Passive acoustics to estimate bat roost populations.

- Goal is to create an equation to predict population from acoustic measurements alone – but bats need to leave cave in a linear fashion. Good potential as a future monitoring tool. Contact Laura if you have a site to try this method on.

Julia Hoeh – Why are rocket boxes favored by an Indiana bat maternity colony in the core of its range?

- Examined use of 3 chambered, rocket box, and sheet of Braden bark (wrapped around a wooden post). Surface area and volume significantly larger in the rocket box than other two types of boxes. Rocket boxes used more, possibly due to microhabitat differences. Bats won't use at temps less than 45 degrees and rocket box was statistically more temperature stable with less cold spots. Materials, volume, and other structural parameters also influenced temperatures.

Karly Rushmore – Examining the effects and importance of local and landscape level variables before and after WNS.

- Jachowski et al. 2014 – suggests niche partitioning has occurred since WNS - this study also found this.



### Kristi Confrontin – Roosting habits of the eastern small-footed bat in the Shawnee NF in Illinois

- Since WNS, populations have declined by 12%. Habitat use by this species is poorly understood, so 12% may not be representative of total declines. They use rock/limestone outcroppings as roost sites. 70 out of 96 roost were found under loose rock (consistent with past research); would go deeper into crevices on hot days. Bat occupancy increased with larger and drier rocks. Occupancy decreased with amount of debris under the rocks.
- Future research will examine can/should we manipulate rocks (put them in drier sites) or reduce ground cover in these rock outcroppings?

### Jennifer Summers – The influence of mining activity on a hibernating bat population in Wisconsin

- Wisconsin mine is blasting to remove sediment but is a hibernacula for 25,000 bats (EPFU, MYLU, MYSE, tri-colored); majority of bats are MYLU. Is the blasting disrupting bats? Yes, but environmental variables were not significant. During hibernation they found bats were still more active in the evening than other parts of the day.

### Julie Remp – the burden of data in acoustic monitoring smart detectors: salvation for our sanity

- Smart detector Beta – process and filters calls as they come in – seems to come close to other detector classifications and takes less time.

## Other Events

Prior to the meeting, there was a tour of the USGS National Wildlife Health Center in Madison, WI. 18 people attended. During the first day of the meeting, a Wildlife Acoustics Training was offered during lunch (19 in attendance). This was the second year for the Student and Professional Lunch Mixer, with 11 students and 6 professionals in attendance. The day concluded with a Poster Session, Social, and Silent Auction.

## Summary of Invited Speakers – Day 2, April 8

### STATE REPORTS and CONTACTS:

- Illinois – Joe Kath
- Indiana – Taylor Rasmussen (new non-game mammologist (took over for Scott Johnson))
- Michigan – John DePue
- Minnesota – Gerda Nordquist
- Iowa – Rus Benedict and Kelly Poole
- Missouri – Tony Elliott until June 1, then someone new – TBD
- Ohio – Bridget Brown and Kate Parson
- Wisconsin – Paul White



#### Andy King – USFWS Update on Bat Related Issues.

- June 2016 – received petition for tricolored bat with WNS as predominant threat
- 2017 MYSO surveys – info posted on Indiana Bat Web page this spring
- Will be doing service-sponsored acoustic trainings for professionals
- Also look for panel of experts to help vet calls –let him know if you are interested in participating

#### Kyle George - WNS in Washington: Leap or Creep?

- MYLU infected by WNS was found alive by hikers, but died soon after. There have been 2 additional pd positive detections (guano from night roosts and rabies lab submissions) since then. The MYLU was not associated with a hibernaculum but was found in the King Co. reservoir. Based on fungal analysis, Pd was found to be from NE US and not Eurasia.
  - 2100 km leap or creep across reservoirs? Took surveys across the country (9800 samples); no additional detections yet though not all have been analyzed. Not sure if its leap or creep, but it appears right now that it is not widespread through the western states.

#### Rob Mies – North American Bat Conservation Alliance (NABCA)

- Determined 21 threats to bats of NA by surveying bat professionals across NA. Find top threats and addition info on a newly created Wiki:[www.batconservationalliance.wikidot.com](http://www.batconservationalliance.wikidot.com). This wiki is open for posting of info related to threats.

#### Jeffery Huebchman – Bat communities in southwest Wisconsin during the era of WNS.

- Presented on long-term data set of bat communities and how WNS is becoming more apparent in the data.

#### Elizabeth Lehrer – Bat species diversity and distribution within a highly urban ecosystem.

- Lincoln Park zoo studying bats in Cook Co. – 22 sites (9 exurban, 13 urban) in forest preserves, city parks, golf course, and rooftops. Seeing more bat activity in exurban areas, but in certain sites in urban areas it was just as high as exurban. Forest site had the highest overall calls, as impervious surface and canopy cover increased, bat occupancy decreased.

#### Joel Flory – Bat Activity surrounding the silver mountain hibernaculum during spring emergence and fall swarm.

- Peak activity times – early April and Mid-September

#### Lisa Powers – Bat Response to Prescribed Fire Frequency in oak-dominated forests.

- Almost 90% of calls were EPFU (4000) and LABO (1173). LABO – less activity in burned areas. LACI – couldn't determine but seems to be influenced by the number of times an area was burned. LANO – the more it's been burned, the more activity there was. PESU – not enough info. MYSE – burned had more activity than unburned and number of times burned influenced. Myotis – burned areas had lower activity. EPFU – more activity in burned areas.





- Influences of burning on bats is species specific, no linear relationship between burn frequency and bat habitat use.

## **Other Events**

The second day began with state reports from IA, IL, IN, MI, MN, MO, OH, and WI. The morning continued with invited speakers Andy King, USFWS, and Kyle George, USGS. The MWBWG Business meeting was conducted before lunch. Following a buffet lunch for all attendees, Rob Mies led a discussion about the North American at Conservation Alliance. The afternoon continued with a slate of speakers, and concluded with the presentation of the student awards and Redell Lifetime Achievement Award.

## **Awards and Announcements**

### **Dave Redell Lifetime Achievement Award**

Purpose: To honor those who have demonstrated an exemplary, long-term commitment to promoting and preserving bats in the Midwest through research, conservation, education, or other creative projects. It was created in 2012 in honor of our then Vice President, Dave Redell, who showed amazing commitment to bats and bat conservation prior to succumbing to cancer.

**SCOTT JOHNSON IS THE 2017 RECIPIENT OF THE  
DAVE REDELL LIFETIME ACHIEVEMENT AWARD**

### **Upcoming Annual Meetings**

2018 Host: Joint Meeting in Roanoke, Virginia hosted by Virginia DNR (Rick Reynolds as lead)  
2019 Host: Illinois, Location TBD, hosted by Illinois DNR (Joe Kath as lead)

### **MWBWG Student Awards**

Each student winner is presented a certificate and cash award. The travel award winner also received free registration and year's paid membership to the MWBWG.

**Best Student Poster Presentation:** Lizz Bleike, University , “Landscape features affect bat phonic group activity in Great Smoky Mountains National Park.”

**Best Student Oral Presentation:** Zachary Cravens, Southern Illinois University, “Impact of artificial light on prey selection by insectivorous bats.”

**Travel Award:** Briana Anderson, University of Missouri



**Midwest Bat Working Group**  
**9<sup>th</sup> Annual Business Meeting Minutes**  
Madison, WI  
07 April 2017

**Called to order at 11:25 AM by Rob Mies, President.**

**Various Topics & Committee Updates**

160 attendees, 126 professionals, 34 students attended the meeting this year.

Join our board and committees – come to the board meeting next year!

You do not have to be a board member to serve on the committees! Visit the website to see committee duties and to join!

**Board of Directors Updates**

2017 Board elections: Rob Mies was re-elected as president, Brianne Walters as treasurer, and Al Kurta and Tim Carter were elected as directors.

**Treasurer Report**

- We are financially housed at Indiana State University, and as such, the Treasurer must be housed there as well.
- General funds (from dues) are \$9062. The meeting account for future meetings is \$3081.
  - We would like have the cost of a year's conference in the bank as a buffer – goal of \$15,000.

**Membership**

We currently have 114 members (89 professional and 25 Student members).

Meeting participation is 160 number.

**Silent Auction**

\$1248 raised – 60% will be kept in an account for bat festivals, and other educational events and 40% kept for student travel awards

**Upcoming Annual Meetings**

March 26-30, 2018 Host: Rick Reynolds, Virginia DNR, Roanoke, VI @ Hotel Roanoke

2019 Host: Joe Kath, Illinois

**Meeting concluded at 12:38 PM by Rob Mies.**