



WHITE-NOSE SYNDROME SYMPOSIUM

May 17-19, 2011, Little Rock, Arkansas

Location: **Hilton Little Rock**
925 South University Ave.
Little Rock, Arkansas 72204-1601
Tel: 1-501-664-5020

Those new to the WNS investigation should visit the USFWS WNS website (<http://www.fws.gov/WhiteNoseSyndrome/>) to view archived web conference materials prior to attending the meeting to acquire background information and overview of WNS work to date. This meeting will provide extensive research updates to funded projects over the past two years.

Goal of the symposium: To advance WNS research and management through communication, facilitated discussion, and collaboration.

Schedule of events:

Monday, May 16

5:30 – 7:00 PM Registration, outside Ballroom

6:30 – 8:30 PM Welcome Social, Ballroom A-D

Tuesday, May 17, 8:00 AM – 9:00 PM, BALLROOM

6:00 AM 8:00 AM Continental Breakfast

7:00 AM 8:00 AM Registration

SESSION 1: OVERVIEW - WNS STATUS and RESPONSE

8:00 AM	8:15 AM	Welcome and opening remarks	David Goad, AR Game & Fish Paul Phifer, USFWS Karen Waldrop, KY Dept. of Fish & Wildlife Rsrcs.
8:15 AM	8:25 AM	Meeting overview	Jeremy Coleman & Jon Marshall
8:25 AM	8:45 AM	White-nose syndrome: An overview of the disease status and the National WNS Plan oversight committees	Jeremy Coleman & Paul Phifer



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8:45 AM	9:15 AM	Working Groups - Brief updates - Communications and Outreach - Data Management - Diagnostics - Disease Management - Epidemiological and Ecological Research - Disease Surveillance - Conservation and Recovery	Ann Froschauer Paul Cryan Anne Ballmann Brooke Slack Sybill Amelon Eric Britzke Becky Ewing
9:15 AM	9:30 AM	Status of bat populations in the northeastern US	Greg Turner
9:30 AM	9:45 AM	Surveillance for white-nose Syndrome in Canada	Ian Barker
9:45 AM	10:00 AM	Distribution and dynamics of <i>Geomyces destructans</i> across Europe	Sébastien Puechmaille
10:00 AM	10:15 AM	Q&A / Discussion	

10:15 – 10:30 PM BREAK

SESSION 2: WNS RESEARCH

2.A. ECOLOGY OF GEOMYCES DESTRUCTANS

10:30 AM	10:45 AM	Understanding the fungal biology of <i>Geomyces destructans</i> through comparative analysis of near relatives	Dan Lindner
10:45 AM	11:00 AM	The pre-white nose syndrome mycological flora associated with cave hibernating bats in New Brunswick, Canada	Karen Vanderwolf
11:00 AM	11:15 AM	A systematic study of <i>Geomyces destructans</i> within WNS infected hibernacula in New York	Vishnu Chaturvedi
11:15 AM	11:30 AM	Genomic approaches to understanding the origin and spread of <i>Geomyces destructans</i>	Jeff Foster
11:30 AM	11:45 AM	WNS: Progress, problems and potential	Hazel Barton
11:45 AM	12:10 PM	Q&A / Discussion	

12:10 – 1:15 PM LUNCH – provided



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2.B. EPIDEMIOLOGY AND DISEASE

1:15 PM	1:30 PM	Over one million bats have died from white-nose syndrome: Why should we care?	Tom Kunz
1:30 PM	1:45 PM	An update on bat WNS fungal infectivity and environmental diversity studies	David Blehert
1:45 PM	2:00 PM	University of Winnipeg update: Thermal refugia, landscape-scale movements of bats and preliminary results of inoculation trials	Craig Willis
2:00 PM	2:15 PM	Cryptic effects of geomycosis on bats in the Czech Republic	Natalia Martinkova
2:15 AM	2:30 PM	Can inter-species differences in immunological responses to <i>Geomyces destructans</i> predict who will survive WNS?	Marriane Moore
2:30 PM	2:45 PM	WNS insights from the Reeder Lab: Identifying who will survive and how to help them.	DeeAnn Reeder
2:45 PM	3:10 PM	Q&A / Discussion	

3:10 – 3:30 PM BREAK

2.C. TRANSMISSION-TREATMENT-CONTROL

3:30 PM	3:45 PM	Risk factors associated with white-nose syndrome among hibernating bat colonies	Aryn Wilder
3:45 PM	4:00 PM	Structure and dynamics of spread of the fungus <i>Geomyces destructans</i>	Thomas Hallam
4:00 PM	4:15 PM	Identification of bats to species: Lessons from bats and rabies	Gary McCracken
4:15 PM	4:30 PM	The role of bat epidermal microbes in resistance to and potential biological control of WNS	Guy Knudsen
4:30 PM	4:45 PM	Terbinafine dosage and safety in WNS infected <i>Myotis lucifugus</i> : Correlation of survival, drug tissue levels, and toxic effects.	Alison Robbins
4:45 PM	4:55 PM	Kentucky WNS response	Sunni Carr
4:55 PM	5:20 PM	Q&A / Discussion	



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- 5:20 – 7:00 PM** **DINNER - on your own**
- 5:30 – 7:30 PM** **WNS Steering Committee Meeting - closed**
- 7:00 - 9:00 PM** **Poster Session and Social (cocktails and hors d'oeuvres - Pantry Area)**

Wednesday, May 18 , 8:00 AM – 7:00 PM, BALLROOM

- 6:00 – 8:00 AM** **Continental Breakfast**
- 7:00 – 8:00 AM** **Registration**

SESSION 2: WNS RESEARCH - Continued

2.D. POPULATION MONITORING and WNS SURVEILLANCE

8:00 AM	8:15 AM	Understanding white-nose syndrome- A diagnostic update	Anne Ballmann
8:15 AM	8:30 AM	A transcriptome approach to study the host-pathogen interactions in WNS	Alison Robbins
8:30 AM	8:45 AM	Monitoring spatial and temporal patterns of wing damage from WNS and other factors in free-ranging bat populations: uses and misuses of the wing damage index	Jonathan Reichard
8:45 AM	9:05 AM	<i>Geomyces destructans</i> spore retention on bats following hibernation from a confirmed WNS positive site: Preliminary findings and insights on the potential; AND Use of long wave ultra violet light as a potential screening tool to identify WNS	Greg Turner
9:05 AM	9:25 AM	Observations and initial results from 2 years of sampling bats along acoustic transects; AND An update on results from Fort Drum	Eric Britzke & Chris Dobony
9:25 AM	9:40 AM	Update on video surveillance of hibernating bats, detection of possible electrolyte imbalance with fungal infection, and development of an online interactive database for tracking WNS	Paul Cryan
9:40 AM	9:55 AM	Inference from surveillance data	Tom Ingersoll
9:55 AM	10:10 AM	Q&A / Discussion	



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10:10 – 10:25 AM BREAK

2.E. POPULATION EFFECTS and GENETICS; NATIONAL RESPONSE

10:25 AM	10:40 AM	Analysis of alternative captive bat management strategies in response to WNS	Mary Parkin & Rob Tawes
10:40 AM	11:00 AM	Conservation implications of WNS to an endangered species: Indiana bat (<i>Myotis sodalis</i>)	Sybill Amelon & Wayne Thogmartin
11:00 AM	11:10 AM	Important factors in determining differences in WNS expression and population monitoring	Eric Britzke
11:10 AM	11:25 AM	A tool to assess WNS risk, prioritize surveillance, population monitoring, and management options across western landscapes	Pat Ormsbee
11:25 AM	11:40 AM	The value of long-term banding for white-nose syndrome surveillance and research	Scott Reynolds
11:40 AM	11:55 AM	The U.S. National Park Service response to white-nose syndrome in bats	Kevin Castle
11:55 AM	12:15 PM	Q&A/discussion	

12:15 – 1:30 PM LUNCH - on your own

SESSION 3: WORKING GROUP and STATE BREAKOUTS

1:30 – 5:30 PM Open Concurrent Sessions (see individual agendas), Rooms TBD

- Disease Management Working Group
- Epidemiological Research Working Group
- Conservation and Recovery Working Group
- State Planning Sessions

5:30 – 7:00 PM DINNER - on your own

5:30 – 9:30 PM Rooms available for working sessions (please sign-up), Rooms TBD

- Northeast States Listing Discussion
- Little Brown Bat Listing Discussion
- Captive Management Group – closed
- National Database Demonstration
- State Planning Sessions (see State agenda)
 - Surveillance and euthanasia
 - Rehabilitation



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Thursday, May 19 – 8:00 AM – 12:00 PM, BALLROOM

6:00 – 8:00 AM **Breakfast**

8:00 – 8:10 AM **Outline of Schedule for the Day**

SESSION 4: WRAP-UP AND ADJOURNMENT

8:10 – 10:40 AM **Open Concurrent Sessions, continued**
- Disease Management Working Group
- Epidemiological Research Working Group
- Conservation and Recovery Working Group
- State Planning Sessions

10:40 – 11:00 AM **BREAK**

11:00–12:00 AM **Wrap-up Session - plenary**

12:00 – 1:30 PM **LUNCH - on your own** (CHECKOUT by 1pm for most participants)

SESSION 5: CLOSED-DOOR WORKING GROUP SESSIONS

1:30 – 5:00 PM **WORKING GROUPS**
- Communications and Outreach
- Data Management
- Diagnostics
- Disease Management
- Epidemiological and Ecological Research
- Disease Surveillance
- Conservation and Recovery



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Poster Presentations

<u>Lead Author</u>	<u>Title</u>
Amelon, Sybill	Towards a Systems Approach to WNS Epidemiological and Environmental Research Needs
Baker, Michael	Continuous Remote Monitoring of Bat Activity at WNS-Affected and Unaffected Sites
Brownlee, Sarah	Behavior of WNS Bats
Darling, Scott	Assessing Impacts of White-Nose Syndrome on Vermont Bat Populations
Drees, Kevin	Quantitative PCR for Detection of <i>Geomyces destructans</i>
Elliott, Bill	Winter Bats & WNS Surveillance in Missouri: Results over Four Years
Feller, Dan	Spread of White-Nose Syndrome across Bat Hibernacula in Maryland
Grieneisen, Laura	Microclimate and WNS Susceptibility
Janicki, Amanda	Modeling a Theoretical Hibernacula "Cleaning" Agent
Kitchell, Marilyn	Community Ecology of Bats on the Maternity Range: A Comparison Pre- and Post-White Nose Syndrome
Kurta, Allan	Surge Tunnels in Quarries as Potential Hibernacula for Bats
Menzies, Allyson	Examination of Survival and Long-distance Movements of Bats using Recapture Data and PIT-tag Monitoring Systems
Musante, Chelsey	Heritability of Traits that could Allow Survival Against WNS
O'Connor, Katherine	Quantifying White Noses: Patterns of Visible Fungus on Photographed Bats in New York
Pannkuk, Evan	Matrix Assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometric Analysis of Bat Integument Biomolecules and <i>Geomyces</i> Enzymes
Reynolds, Rick	Biometric and Population Changes Associated with WNS Progression in Virginia: Preliminary Results, Take II
Schirmacher, Michael	Bat Activity Patterns from Two Winters at White-nose Syndrome Infected Hibernacula across Eastern Pennsylvania

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Poster Presentations, continued

<u>Lead Author</u>	<u>Title</u>
Thogmartin, Wayne	Now-casting the Emergent Spread of White-nose Syndrome
Thomas, Steve	WNS Response at Mammoth Cave National Park
von Oettingen, Susi	Military Bunkers - A Golden Opportunity
Warnecke, Lisa	Testing the Dehydration Hypothesis: Preliminary Results from Bats Inoculated with <i>Geomyces Destructans</i>

Sponsors of the Symposium:





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Disease Management Working Group (DMWG) Agenda

Working Group Leader:

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Facilitator:

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Recorder: TBD (DanW will record (double-up) as opportunity presents)

Symposium Goal: To advance WNS research and management through communication, facilitated discussion, and collaboration.

Tuesday evening, May 17, 2011 (time TBD): Disease Management Working Group (small group) pre-meeting.

Wednesday, May 18, 2011

Time	Topic	Process/Outcome
1:30 – 1:40 pm	Welcome, Introductions, & Objectives: (1) Extraordinary opportunity to network, and (2) “Begin with the end in mind”— Implementation Plan	Brooke Slack Dan Witter
1:40 – 2:10 pm	Gap Analysis of Disease Management <u>Actions</u> for Goal 1 (“Critically review current knowledge of WNS disease management to identify knowledge gaps and research needs”) and Goal 6 (“Identify and limit adverse ecological impacts of management actions, including decontamination techniques, to accomplish limits”).	Project actions for Goals 1 & 6, and solicit group input & discussion in round- robin, “What are the gaps that you see in the current actions to achieve this goal?”
	Gap Analysis of Disease Management <u>Actions</u> for Goal 3 (“Reduce inter-/intra-specific	Project actions for Goals 3 & 5, and

2:10 – 2:40 pm Time	Topic transmission and disease spread”) and Goal 5 (“Eliminate <i>G. destructans</i> from infected individuals”).	Process/Outcome solicit group input & discussion in round-robin, “What are the gaps that you see in the current actions to achieve this goal?”
2:40 – 3:10 pm	Gap Analysis of Disease Management <u>Actions</u> for Goal 2 (“Reduce the risk of WNS transmission by humans”).	Project actions for Goal 2, and solicit group input & discussion in round-robin, “What are the gaps that you see in the current actions to achieve this goal?”
3:10 – 3:30 pm	BREAK	
3:30 – 5:30 pm	Interaction with Epidemiology & Etiology Group (Includes Gap Analysis of Disease Management <u>Actions</u> for Goal 4 (“Reduce environmental transmission to and from bats”), and general question & answer session.	Project actions for Goal 4, and solicit group input & discussion in round-robin, “What are the gaps that you see in the current actions to achieve this goal?” Address general questions.

Thursday, May 19

Time	Topic	Product/Outcome
8:10 – 9:40 am	Recap of Wednesday afternoon Vet (examine or appraise) each proposed new action identified in Wednesday afternoon session	Open discussion: For each action, ask: “Do we have or can we get the means to fill this gap?” (existing literature, reanalysis of existing data, expert

<u>Time</u>	<u>Topic</u>	<u>Product/Outcome</u>
9:40 – 10:40 am	Sub-group status, members, and communication between subgroups and other Working Groups	counsel, new research (if “yes” keep action; if “no” do not include) Group discussion
10:40 – 11:00 am	Break: AVAILABILITY FOR AFTERNOON WRITING SESSION?	
1:30 – 5:00	Implementation Plan	Draft Outline Implementation Plan for Disease Management Group



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Epidemiology and Ecological Research Sessions Agenda

Working Group Leader:

Sybill Amelon, PhD

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Facilitator:

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Recorder: To Be Determined

Symposium Goal: To advance WNS research and management through communication, facilitated discussion, and collaboration.

EEER Working Group Purpose: The purpose of this group is to identify critical ongoing research needs relating to the origin, transmission, pathogenesis, epidemiology and impact of WNS on bats and the environment.

Wednesday, May 18, 2011

Time	Topic	Product/Outcome
1:30 – 3:15 pm	<ul style="list-style-type: none"> -Overview of Working Group Tasks -Summarize/review completed/on-going research -Review prioritized research table -Open discussion on research needs, toolkits, etc. -Validate Priorities (Goals and Actions) 	
3:10 – 3:30 pm	Break	
3:30 – 5:30 pm	Interaction with Disease Management WG Discussion of overlap between goals/actions (Depending on time remaining:) <ul style="list-style-type: none"> -Validate approach -Outline EEER WG Charter and/or Implementation Plan 	
5:30 – 7 pm	Dinner	

Thursday, May 19

Time	Topic	Product/Outcome
8:10 – 9:30 am	-Summarize Key Points from Interaction Session -Review Priorities/ need to adjust priorities -Determine sub-groups needed and membership Discuss communication between subgroups and other working groups	
9:30 – 10:40a	Subgroup Sessions -Identify priorities & additional members needed -Outline priorities and actions	
10:40 – 11:00 am	Break	
11:00 – Noon	Full Group	
Noon	Adjourn	



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Conservation & Recovery Working Group Agenda

Working Group Leader:**Becky Ewing**

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Facilitator:**Michele Baumer**

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Recorder: To Be Determined

Symposium Goal: To advance WNS research and management through communication facilitated discussion, and collaboration.

Conservation & Recovery Working Group Goals:**Wednesday Afternoon:**

- Achieve a common understanding of the working group's roles and responsibilities, as well as the Conservation & Recovery goals and action items outlined in the National WNS Plan.
- Establish subgroups that will focus on specific goals and action items.
- Provide participants the opportunity to identify and discuss research needs and activities that will help achieve the Conservation & Recovery goals and action items outlined in the National WNS Plan.

Thursday Morning:

- Compile and prioritize actions and research needs, by subgroup.
- Develop an interim working group charter.

Thursday Afternoon:

- Produce a draft Conservation & Recovery implementation plan that will be distributed (post-symposium) for comments to all people interested in participating on the Conservation & Recovery Working Group.

Wednesday, May 18, 2011

Time	Topic	Product/Outcome
1:30 – 2:45 pm	Welcome and Introductions (Michele Baumer, DJ Case & Associates)	
	Session Purpose and Logistics (Michele Baumer, DJ Case & Associates)	
	Conservation & Recovery (C&R) Working Group Roles and Responsibilities -Working Group Overview (Paul Cryan, USGS) -Goals & Action Items (Becky Ewing, USFS)	Discussion and Q&A opportunity to ensure all participants have a common understanding of the C&R section of the National WNS Plan
	Validation of subgroups and teams (Becky Ewing, USFS)	Participants will approve the working group structure and select subgroup leads
3:10 – 3:30 pm	Break	
3:30 – 4:30 pm	Captive Rearing Presentation -Team Accomplishments (Rob Tawes, FWS and Mary Parkin, FWS)	
4:30-5:25 pm	Building the C&R Implementation Plan , Part 1 (C&R Working Group Exercise)	Identify and list activities to help achieve the goals and action items outline in the National WNS Plan, including research needs.
5:25 – 5:30 pm	Dinner and Evening Logistics (Michele Baumer, DJ Case & Associates)	

Thursday, May 19

Time	Topic	Product/Outcome
8:10 – 8:20 am	Welcome and Introductions (Michele Baumer, DJ Case & Associates)	
	Session Purpose and Logistics (Michele Baumer, DJ Case & Associates)	
	Wednesday Recap and Status Check (Becky Ewing, USFS)	Recap Wednesday PM session; Q&A opportunities; clarify the tasks for the morning; break into subgroups
8:20 – 10:00 am	Building the Conservation & Recovery Plan, Part 2 (C&R Subgroup Exercise)	Subgroups will compile and prioritize the ideas generated during Wednesday's session
10:00 – 10:20 am	Subgroup Reports (C&R Working Group Exercise)	Report on progress made and work left to be done
10:20 – 10:40 am	Conservation & Recovery Working Group Charter (C&R Working Group Exercise)	Agreement on post-symposium communication and product timelines
10:40 – 11:00 am	Break	
11:00 am – 12:00 pm	Wrap-up Session with all Symposium Attendees	
12:00 – 1:30 pm	Lunch	
1:30 pm -?	Building the C&R Implementation Plan, Part 3 (Remaining C&R Working Group Members)	Continue drafting the implementation plan



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State Planning Sessions Agenda

Working Group Leader:

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Recorder: To Be Determined

Symposium Goal: To advance WNS research and management through communication, facilitated discussion, and collaboration.

Wednesday, May 18, 2011

Time	Topic	Product/Outcome
1:30 – 2:20 pm	Discussion: Summer Maternity Colony Monitoring Data Needs Participating expert: Scott Reynolds	List of data needs List of what monitoring states should undertake this summer
2:20 – 3:10 pm	Funding and Resources for States Participating experts: Alison Whitlock, FWS Others from AFWA, Federal Aid, NRCS if possible	List of funding opportunities, eligibility requirements, and contacts
3:10 – 3:30 pm	Break	
3:30 - 5:30 pm	Response Planning/Lessons Learned	List of processes and practices that have worked and those to be avoided
5:30 – 7 pm	Dinner	
7 – 8 pm	Surveillance and Euthanasia Participating Expert: Eric Britzke	Information sharing
8 – 8:15 pm	Break	
8:15 – 9:30 pm	Carryover from breakout topics. Discussion of rehabilitation, working with landowners, and other relevant topics.	

Thursday, May 19

Time	Topic	Product/Outcome
8:10 – 9:00 am	Communication and Outreach Emily Brunkhurst will provide an update on communication and outreach plan. Jon Marshall will preview WhiteNoseSyndrome.gov and WNS collaborative workspace.	Information sharing List of resources available
9:00 – 9:50 am	Role of States in WNS Research	List of problems/issues states are dealing with Determine potential next steps to address problems/issues
9:50 – 10:40 am	Cave Coordination and Relationships Participating experts: Joe Okoniewski, NYDEC Peter Youngbaer, NSS [TBD] Marikay Ramsey, BLM Kevin Castle, NPS [TBD] Jeremy Coleman, FWS Mike Armstrong, FWS [TBD]	Decision tree on processes for closing caves. List of potential key messages
10:40 am	Adjourn	
11 am	Join large group	