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DEDICATED TO THE EXPLORATION, STUDY, AND CONSERVATION OF
CAVES

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Dr. Jeremy Coleman
WNS National Coordinator
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3817 Luker Road
Cortland, New York 13045

Subject: Comments on Draft WNS National Response Plan – “A National Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats”

Dear Dr. Coleman:

On behalf of the National Speleological Society, Inc. (NSS), we are pleased to submit these comments on the Draft WNS National Response Plan – “A National Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats.”

Overview

The NSS, founded in 1941, is a non-profit membership organization dedicated to the scientific study of caves and karsts; protecting caves and their natural contents through conservation, ownership, stewardship, and public education; and promoting responsible cave exploration and fellowship among those interested in caves. We are the nation’s oldest and largest organization devoted to cave science, cave conservation, and cave exploration, with approximately 11,000 current members.

The NSS has a long track record of collaboration with federal and state agencies in the areas of cave protection and management and bat conservation. We were instrumental in the enactment of the Federal Cave Resources Protection Act of 1988. The NSS and its internal organizations, including cave conservancies, own numerous cave nature preserves, several with endangered bats and other endangered species, and manage them appropriately. Some of our own caves in NY and West Virginia include bats affected by White Nose Syndrome.

We have been intimately involved in the investigation of White Nose Syndrome (WNS) since its discovery. Our members have funded WNS research, through a special NSS grants program, and have actively participated in field work, laboratory research, management planning, and public education.

Consistent with our involvement to date, the NSS Cave Conservation and Management Section is submitting under separate cover a list of NSS members who are willing to serve on the various Working



Groups identified in the Draft WNS National Response Plan. These individuals hail from across the country and provide expertise and experience in the Working Group subjects. This is a direct result of your meeting with us at our Convention in Vermont on August 3, 2010, and expressing the need for experts to participate on the Working Groups. We hope you will contact them as soon as possible to discuss the required work.

The NSS reviewed the U.S. Fish and Wildlife Service (USFWS) draft document “A National Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats” (WNS National Response Plan), dated October 21, 2010. We understand the USFWS prepared the draft WNS National Response Plan to provide guidance for investigation and management of White Nose Syndrome (WNS). The draft plan broadly identifies goals and action items, and outlines the roles of various agencies, to curtail the spread of WNS and to conserve species of bats.

The NSS reviewed the draft WNS National Response Plan for accuracy, completeness, and conformance with the following statutes:

- National Environmental Policy Act of 1969 (42 USC §4321 *et seq.*)
- Endangered Species Act of 1973 (7 USC §136, 16 USC §1531 *et seq.*)
- Federal Cave Resources Protection Act of 1988 (16 USC §4301 *et seq.*)

Although these statutes, referenced in the draft WNS National Response Plan, provide protections for wildlife and natural resources, the NSS finds no regulations, guidance documents, policy directives, or conventional standards issued to address the preparation or implementation of a national response plan covering bat mortality and other effects across multiple genera within the order *Chiroptera*. The scale of devastation from WNS appears unprecedented in the United States; therefore, the draft WNS National Response Plan is setting a ground-breaking standard for controlling and mitigating the destructive consequences of WNS.

The NSS has also reviewed the mission statements of all federal agencies which were represented in the plan preparation. These varied and potential competing mission statements are critical to enunciate in any final document in order for the American public to appreciate the competing interests of wildlife protection, scientific investigation in many fields, public understanding of natural resources, forest vitality, commercial activities, and recreational and other public use of our public natural resources.

While the draft WNS National Response Plan lists the various federal and state agencies that assisted in the preparation of the document, the document is of and by the U.S. Fish and Wildlife Service and is clearly a wildlife-centric document. USFWS’s mission and statutory authority is not sufficiently broad to appropriately reflect all the legitimate interests that must be balanced in addressing White Nose Syndrome. We recognize that is not the fault of USFWS, but a limitation of its authority and mission. Were the draft plan jointly issued by the various federal agencies, we suspect a somewhat different draft plan would be before us.



Thus it falls to us, the NSS to raise these points. Bat conservation must be considered in the broader context of cave conservation, and even conservation in general. This includes protecting cave as well as bat resources, including groundwater, precious and beautiful formations, archeological and paleontological relics, and the diversity of cave biology beyond bats. It includes allowing other cave science and exploration to continue while WNS is being addressed. It includes educating the public about bat and cave conservation, and it includes inspiring the next generation of Americans about the beauty, wonder, and value of caves and bats through appropriate exposure to them in the natural environment.

Any WNS National Response Plan needs to reflect this balance and be informed by it. Some real life examples underscore this necessity: Should a seismologist conducting vital underground geological research in a Missouri cave – a critical seismic area - be prevented from doing so because the cave may contain bats? Should fantastic cave formations that have stood for centuries of enjoyment be destroyed by vandals because conservation-minded cavers who normally monitor the site were kept away by management strategies? Should a commercial cave business be threatened with financial ruin, affecting not only the owners, but the community around them, as well as the lost opportunity to engage and educate thousands of members of the public?

All of these issues deserve to be reflected and balanced in the WNS National Plan. They must inform how action items are determined, and how scarce financial resources are prioritized. Addressing WNS does not and cannot take place in a vacuum. The draft WNS National Response Plan sections need to enunciate how these competing concerns are considered, weighed, and addressed.

The NSS offers the following general and specific comments to clarify the proposed plan.

General Comments

1. The WNS National Response Plan provides a broad program-level overview of the WNS problem, data needs, investigation methods, and response actions. At the program level, the plan divides the WNS issue into manageable components to be addressed through seven Working Groups. The plan provides Goals and Action Items for each Working Group without specifying the methods or implementation expectations to achieve the individual goals within the Working Groups.

Evaluating the progress on each Goal and Action Item may provide an assessment of the Working Groups and the status of each component in its relationship to the overall WNS issue. However, at the program level, the plan does not list any goals or objectives, and the only action specified in the document is the creation of the Working Groups. The overall goal (or mission statement) of the WNS National Response Plan is unclear and not stated. Without a clear definition of goals and expectations, how will performance of the national response be monitored and evaluated? What are the performance measures, and how will success of the national response be gauged? What is the exit strategy? Is there a time-table, or is this an open-ended initiative?



The WNS National Response Plan should be modified to clearly state the overall purpose and mission of the plan and to list goals and objectives for the program implementation of the plan. Explain how the goals and objectives will be implemented and how the overall purpose and mission will be achieved. Document and describe what efforts are needed at the national level, and outline the anticipated needs and actions at the regional, state, and local levels. Explain how these efforts will be coordinated; identify coordinating tasks; outline expected results; and, explain how the results will be monitored and measured. Define how the success of the National Response will be measured and assessed.

The WNS National Response Plan should include provisions to re-assess the planned responses on a periodic basis through evaluation and assessment of initial goals and other identified measures of success. How will we evaluate whether or not a specific research path is being productive? How do we measure whether a management strategy is working, or not, and whether to abandon, alter, or continue it?

2. The WNS National Response Plan focuses on relationships of Federal agencies with each other and with State agencies. The plan does not recognize the efforts or roles that private corporations, organizations, educational institutions, and even individuals are providing to the national response. For instance, individual NSS cavers first noted and reported the WNS issue to wildlife biologists. These same individuals and organizations already study, monitor, and provide forums for public presentation and discussion. The WNS National Response Plan should be modified to include a goal to establish partnerships with individuals and organizations that support bat conservation including, but not limited to, government agencies, conservancies, caving organizations, groups and individuals who are involved with bat conservation. Upon establishing these partnerships, the plan should call for coordinated efforts, possibly through the Steering Committee and the Working Groups, with the various groups and individuals involved with the national response. The Communication Working Group may be used to develop an organization chart and formalize lines of communication between Working Groups and between agencies and the various individuals and groups involved.

3. The plan states that a Steering Committee was formed to ensure coordination between Federal and State agencies. It is unclear who formed the Steering Committee, and the make-up of the committee is not identified. Clarification regarding formation of the Steering Committee is requested within the "Specific Comments" section of this letter. However, if the Steering Committee serves to oversee and coordinate the Working Groups as part of implementation of the national response, the NSS believes that stakeholder involvement with agency representatives at the Steering Committee level is desirable and necessary for success. Stakeholder groups, such as the NSS, carry enormous resource potential and knowledge base concerning all aspects of the WNS issue. We recommend including credible stakeholder groups on the Steering Committee to assist with coordination and implementation of the national response. The NSS stands ready to serve in such capacity with an established WNS liaison and working committee operating in all regions of the U.S.



4. The document does not provide a Reference Section. The facts presented within the document should be referenced to a source of the information. Please provide references within the document and list those references in a Reference Section.

Specific Comments

1. I. Introduction, Page 1, Paragraph 1. The introduction identifies WNS as a disease responsible for unprecedented mortality in hibernating bats. However, it is unclear who prepared the plan, under what authority, and to what standard. The introduction should be expanded to identify responsible agencies and parties and to explain the basis and organization of the document.
2. I. Introduction, Background, Page 1, Paragraphs 2ff. The plan provides a basic descriptive orientation to the WNS issue. However, the description is sparse with regard to information and specific details of the fungus *Geomyces destructans* and the disease White Nose Syndrome. The Background information section should be expanded to identify effects of the fungus and of the disease and to clarify the relationship of cause and effects. Include the historical development and current status of the disease.
3. I. Introduction, Background, Page 2, Paragraph 1. In describing *Geomyces destructans*, the plan characterizes the preferred environment for the fungus as “conditions characteristic of bat hibernacula.” The conditions identified are common for the northeastern U.S.; however, bat habitats and hibernacula in southern and western areas of the U.S. may be warmer and drier than the preferred environment described. This fact may become a critical factor in controlling and mitigating the WNS issue. The text should be modified to clarify that conditions favorable for *Geomyces destructans* are most common in northern humid regions (such as the northeast).
4. I. Introduction, Ecological Significance, Page 2, Paragraph 3. This section summarizes the ecological significance of bats and the impacts of WNS to public health and the environment. However, the information does not explain the role of bats in the ecosystem. The discussion does not document the potential impacts of the disease to bats and only briefly states some of the resulting impacts to public health and the environment. Bats are an integral part of cave and karst ecosystems. Although the bats are directly affected by WNS, the resulting impacts put entire cave and karst ecosystems at risk or even into crisis. The discussion should be expanded to better identify the role of bats in the ecosystem and to provide additional information regarding potential impacts resulting from the demise of bats.
5. I. Introduction, The Planning Process, Page 2, Paragraph 4. This section justifies the need for a national response plan. The text lists the following factors as critical factors requiring a national response: (1) The mobility of bats, (2) The rapid spread of WNS, (3) The potential for human-assisted transmission, and (4) The severity of its (WNS) consequences. It is unclear whether the human-assisted vector of the disease is as much of a critical factor as bat-to-bat transmission or other environmental factors and vectors. If justification for a national response plan requires identification



of disease vectors, the most important vectors should be identified with a clear plan to address those vectors. The text should be modified to justify the need for a national plan based on the severity and consequences of WNS. Any critical factors or vectors that require management under a national plan should be explicitly identified with an outline of required actions and mitigation.

6. I. Introduction, The Planning Process, Page 3, Paragraph 1. The plan describes authorities under the statutes referenced in this letter. It is unclear whether any guidance or regulations exist addressing national response plans. If such documents exist, the plan should provide references and describe applicable sections and requirements.
7. I. Introduction, The Planning Process, Page 3, Paragraph 2.
 - A. The plan outlines the historical development of collaboration between agencies responding to WNS. The text refers to early collaborations and formal requests. In order to understand development of the response to the WNS issue, these early work efforts and requests for assistance should be documented in the text with reference citation.
 - B. The text indicates that the USFWS and U.S. Geological Survey (USGS) response to the requests for assistance includes advice to organizations and the scientific community “with appropriate expertise and authorities.” It is unclear exactly what activities and expertise the USFW and USGS are providing under this plan. The discussion should elaborate what expertise, authorities, or other actions the agencies are providing as part of the national response.
 - C. The text should be amended to read that it is “incumbent upon wildlife management agencies to **advise and consult** (emphasis added) non-government organizations and those in the scientific community with appropriate expertise and authorities to assist in mitigating this threat.” The plan should recognize this is a two-way street, taking expertise where it is found.
8. I. Introduction, Origin of the Plan, Page 3, Paragraph 3. This section describes the formation of the Steering Committee. However, the text does not provide details regarding the make-up, functions, or activities of the committee. The section should be expanded to identify the Steering Committee and describe in more detail the committee’s function and activities, including its authorities.
9. I. Introduction, Implementing the Plan, Page 3, Paragraph 4.
 - A. The plan calls for State agencies to implement surveillance, monitoring, and management programs. It is not clear how implementation of these programs will be funded. The text states that federal agencies will provide tools and financial assistance when available. For States to successfully implement the plan, the expectations, methods, and funding must be provided to the states. Please explain these items within the plan and provide references for additional information.
 - B. The Plan focuses on the States to implement the surveillance, monitoring, and management programs. However, it is not clear whether all States are technically and fiscally capable of establishing these programs. Will this approach result in 50 different programs? The Plan should



consider development of the State plans and how the WNS National Response functions in relation to the States.

10. I. Introduction, Implementing the Plan, Page 3, Paragraph 5. This section of the Plan calls for general principals of epidemiology, ecology, and conservation biology to inform national response actions. The text mentions gains in knowledge about WNS and its etiology with large gaps still apparent. The plan should provide details regarding the understanding of WNS and the associated knowledge base. Who conducted the principal research, how did this occur, what do the results determine? Identify what gaps exist in our knowledge base and explain how these gaps are being addressed.
11. I. Introduction, Implementing the Plan, Page 4, Paragraph 1. A. The text refers to basic components of a standard outline for response plan, including objectives, management tools, management of contaminated environments, results monitoring, restoration plans, and budget. However, it is unclear where these components are in the WNS National Response Plan, including results and performance measures. The Plan should be modified to clearly address these components.

B. The text suggests that funding is tied to the State Response Plans; however, it is not clear what funding is available. The text should specify the expectations for the State Response Plans and identify the funding available.
12. II. WNS Response Strategy, Page 4, ff. A. The plan outlines Human Health Implications, General Practices, and Elements of the National Plan. The Plan does not identify directives or mandates that the Plan is required to address. Furthermore, the goals and performance measures of the National Response Plan are unclear. The Response Strategy should explain how the directions from the Steering Committee are implemented. The WNS Response Strategy should be an extension of the overall goals and objectives derived from the steering committee. This section should describe in detail the gaps in information, the necessity of collecting this data, what is hoped to be achieved, and how progress will be measured.
13. II. WNS Response Strategy, Human Health Implications, Page 4, Paragraph 3. A. This section discusses WNS human health risks. The text calls for “safe work practices and personal protective equipment” for bat researchers. The Plan does not outline or provide reference to applicable guidance on these matters. The discussion should identify safe work practices and reference appropriate personal protective equipment. Further, this section is silent on the dangers to humans from exposure to chemicals cleaning and disinfecting clothing, gear, and equipment. Perhaps the protocols themselves should be revised to include such information



- B. The Plan states that additional research is necessary to investigate potential WNS human health risks. The Plan should identify what areas of research are needed and how that aspect is addressed in the National Response Plan.
14. II. WNS Response Strategy, General Practices, Page 5, Paragraph 1. A. The Plan focuses on the human vector for disease transmission. However, it is unclear whether the human vector is as critical of a vector as bat-to-bat or other environmental vectors. The Plan should address other, and possibly more critical, vectors in an effort to curtail the spread of the disease.
- B. The Plan provides recommendations for field activities to prevent the spread of WNS. It is unclear whether either the USFW or the USGS is able to offer assistance for meeting and maintaining the recommended actions. The Plan should identify any assistance that the federal agencies can offer to States and Stakeholders affected by the WNS issue.
15. II. WNS Response Strategy, Elements of the National Plan, F. Disease Surveillance Working Group, Page 7, Paragraph 1. The stated purpose of this group is to develop standards for WNS surveillance. It is not clear who is responsible for coordinating data collection across the nation. The Plan should be modified to identify who will coordinate national data collection and by what means this data will be obtained, reviewed, and disseminated.
16. III. Action Plans, Page 7, Paragraph 3. The plan establishes Working Groups to address elements of the national response. However, certain specifics regarding the groups are missing from the description. What is the make-up of the Working Groups; how are they established; how will the efforts be coordinated; what are the expected activities and anticipated results? The National Plan should provide more detail concerning the Working Groups and whether Regional Subcommittees may be formed to address region-specific needs, goals, and issues.
17. III. Action Plans, A. Communication and Outreach, A.1. Overview, Page 7, Bullet 1. The National Response Plan acknowledges the investigative focus of Federal and State agencies researching the WNS issue. However, it appears that many private individuals, corporations, and organizations are also investigating the WNS issue. The WNS National Response Plan should recognize that non-government organizations are part of the investigative community. In order to make a broader appeal and a larger chance of success, the national plan should be modified to recognize the role of non-government organizations as part of a coordinated effort and capable of making substantial contributions.
18. III. Action Plans, A. Communications and Outreach, A.2. Goals, Page 8. A. The plan lists 4 goals for the Communications and Outreach Working Group. It appears that this group could provide a conduit of information between the Working Groups and outside audiences. The group may disseminate information gathered through the Working Group efforts into the WNS research database. In order to assist in this effort, it is suggested that the group create a single website where



partner agencies and organization can post and access peer-reviewed publications and data. Information from all the Working Groups should be provided on this website.

B. In addition to dissemination of information, an important part of communication is feedback into the national response. Currently, the WNS National Response Plan does not provide for external comments or observations back to the national response. It is suggested that the Communications and Outreach Working Group may provide for this 2-way communication through a website-based email contact and through other formalized lines of communication.

19. III. Action Plans, B. Data and Technical Information Management, Goal 2, Page 10. This goal appears to call on the Data and Technical Information Management Working Group to establish and maintain an information website. While data collection and management is clearly the focus of this group, the NSS suggests that information dissemination, including website construction and maintenance may be better coordinated through the Communications and Outreach Working Group. Any databases maintained by the Data and Technical Information Management Working Group should be linked into the website.
20. III. Action Plans, C. Diagnostics, C.1. Overview, Page 10. The WNS National Response Plan focuses virtually exclusively on the relationship of *Geomyces destructans* (*G. destructans*) as the causative agent and White Nose Syndrome as the effect, as evidenced in the first statement of this section. There is strong circumstantial evidence for this cause and effect relationship. For instance, studies show that fungal growth on body parts is *G. destructans*; *G. destructans* is found in affected cave sediments but not in unaffected cave sediments. Also, bats placed in an affected mine acquired WNS. However, standard disease research practices require the Koch's Postulates be satisfied before establishing the cause-effect relationship. There remains a possibility that a bacterial or viral or some other agent may be the primary pathogen and that the *G. destructans* infection is secondary. The NSS is unaware of any research which infected bats from a pure culture of *G. destructans*. In fact, recent analyses show bats infected with *G. destructans* fungus but not the disease White Nose Syndrome. Unless Koch's Postulates are satisfied, research should continue into other potential primary pathogens and not a total focus of the national response to *G. destructans*, lest our total efforts are thrown toward the wrong causative agent. Until *G. destructans* can be shown to be etiologic in WNS, searches should continue for other agents. The goals under the Diagnostics Working Group should be revised to conduct or support research to satisfy Koch's Postulates to show the cause and effect relationship between *G. destructans* and WNS.
21. III. Action Plans, C. Diagnostics, C.2. Goals and Action Items, Goal 4, Page 11. The Action Item for this goal as stated is to work with the "Scientific and Technical Information Group." However, the Plan does not list a Scientific and Technical Information Group. If the intended reference is the Data and Technical Information Management Working Group, the text should be so modified.
22. III. Action Plans, D. Disease Management, D.1. Overview, Page 11. Some of the possible response actions include chemical or biological treatments. However, it is not clear whether there is a clear



mechanism to evaluate these methods. Even after appropriate laboratory and field-scale pilot tests, the approach may not work or show unintended consequences. Is there a mechanism within the plan to determine this approach or treatment methods should be abandoned? The Plan should include an evaluation process for any selected treatment remedy.

23. III. Action Plans, D. Disease Management, D.2. Goals and Action Items, Goal 2, Page 12. A. This goal is to reduce the risk of WNS transmission to bats by humans. Implicitly, this goal supports research into WNS transmission by human-to-environment-to-bats. However, this aspect of data acquisition is not explicitly stated in the plan. As indicated by other goals for this working group, other vectors for disease transmission will likely be found to be more critical for control than the human vector. The plan should establish a mechanism or system to evaluate the various vectors with regard to their importance, feasibility for control, and cost or implications of control.
- B. The Action Items under this Goal focus on human interaction with the bat and cave environment. However, commercial trafficking in bat guano for fertilizer could spread the disease if guano can be a source of WNS etiologic agents (such as *G. destructans*). If bat guano proves to be a vector for disease transmission, then regulation is called for imports, exports, and interstate trafficking of bat guano. The Action Items under this goal should be modified to study or support research of the potential for bat guano to contain WNS infective agents and its role as a disease vector.
24. III. Action Plans, E. Etiology and Epidemiological Research, E.2. Goals and Action Items, Goal 1, Page 13. The stated goal is to review current knowledge to identify data gaps, and the listed Action Items cover expert review and research questions. A very critical aspect that should be a priority for the national response is to determine whether otherwise healthy individuals show evidence of exposure to *G. destructans*, and if so, do these individuals produce antibodies and are these antibodies protective? This determination will require development of an enzyme-linked immunosorbent assay (ELISA) technique to detect the presence of the antibody in a blood sample. Recent studies show that apparently there are bats exposed to and carrying *G. destructans* that do not develop WNS. Developing an ELISA test for antibodies in bat serum against *G. destructans* will help answer several important questions, including whether bats can mount an immune response to antigens from *G. destructans*. Also, this test is important to determine if there are asymptomatic carriers who could be a reservoir for infection. All this information is critical in any attempt to manage the WNS disease. The goals under the Etiology and Epidemiological Research Working Group should be revised to conduct or support research to develop an ELISA test for *G. destructans* antibodies.
25. III. Action Plans, F. Disease Surveillance, F.2. Goals and Action Items, Page 15, Goal. A. The goal is to create a nation-wide disease surveillance program. As previously mentioned herein, the National Response Plan should identify funding this effort and explain how that funding is provided to the States. If there are elements or action items that necessary for implementation and funding of the surveillance program, these components should be list in this section.



B. Action Item 3 is confusing as written. Perhaps this Action Item should be reworded “Integrate surveillance efforts and research with other subcommittees.”

26. III, Action Plans, G. Conservation and Recovery, G.2. Goals and Action Items, Page 16, Goal 4, Action Item 1. The Action Item call for the group to work closely with the “Research Working Group.” However, the Plan does not list a Research Working Group. The text should be modified to reference the intended Working Group.

The NSS appreciates this opportunity to comment on the draft WNS National Response Plan. The NSS welcomes any further discussion for planning or implementation of the national response. Please contact me for further discussion or to clarify any of these comments. My telephone number is (802) 272-3802, and my email address is wsliaison@caves.org.

Sincerely,

Peter Youngbaer
NSS WNS Liaison

Copied to:

Gordon L. Birkheimer, NSS President
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