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DEDICATED TO THE EXPLORATION, STUDY, AND CONSERVATION OF CAVES

January 24, 2011

Daniel Ashe, Director
U. S. Fish and Wildlife Service
1849 C Street NW Room 3331
Washington, DC 20240-0001

Re: White Nose Syndrome (WNS) bat deaths estimate

Dear Director Ashe,

I am writing on behalf of the more than 10,000 members of the National Speleological Society (NSS) to request that the U. S. Fish and Wildlife Service (USFWS) publicly release its data and methodology for arriving at its recent estimate that "at least 5.7 to 6.7 million bats have now died from white-nose syndrome." (U.S. Fish and Wildlife News Release, January 17, 2012).

The National Speleological Society (NSS) is a non-profit membership organization dedicated to the scientific study of caves and karst; 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 have been exploring and studying America's caves for more than seventy years, and our members are among the ranks of cave and bat specialists in numerous federal and state agencies, academic institutions, and the private sector.

Our reasons for making this request are several. First, based on published bat population data, recently published scientific papers, and other reports, the USFWS estimate appears to be significantly higher than the best information would support. Our rationale is laid out later in this letter. This is extremely important as this number is likely to drive significant wildlife and land management decisions, both public and private, including decisions regarding the listing of additional bat species as federally or state endangered. Decisions about closing public caves to public access, or what a private landowner or show cave owner can do with their own property, and the impact on local and regional economic activity will derive from this information. It is imperative that it be as accurate and defensible as possible.

Second, regardless of the actual raw number, it would be important to know whether the numbers are increasing, decreasing, or staying level. The way this press release reads may lead some to believe that the number of deaths due to white nose syndrome has just recently exploded, instead of the perhaps more likely situation that the number has been steadily increasing since 2006 when WNS first appeared.

Some have also suggested the disease may be slowing down as it reaches the more temperate climate of the South or the outside reaches of the range of certain affected bat species. Without detail as to how this estimate was developed, it is impossible for land managers, cave owners, or scientists to respond and plan appropriately.

Third, public accountability and good science demand transparency so that the decisions we all make about our responses to WNS are evidence-based, and subject to scientific scrutiny. We have seen much speculation and hyperbole concerning WNS over the past six years, which transparency can only serve to minimize. Without details, it leaves a vacuum that the public is likely to fill with alarmist statements and reactions, rather than reasoned responses.

The NSS has been an active and contributing partner in the WNS investigation since the disease was first discovered in caves that we own in New York State in 2007. Indeed, we were among the first to close some of our caves in response to this new and unknown phenomenon. We have actively assisted in field and laboratory investigations, public outreach efforts, Congressional advocacy for funding, and planning. We have helped to develop and support the USFWS cleaning and disinfection protocols, and to educate not only our own membership but the general caving public on their use.

To date, our membership has raised a significant amount of money and funded sixteen WNS research projects conducted by a range of expert researchers, including federal, state, and academic partners. These projects are all summarized on our WNS web site (www.caves.org/WNS), and well-known throughout the WNS research community. As America's foremost experts on caves and cave resources, we appreciate, probably more than most, the unique role these amazing creatures play in our ecosystem. There is no question that WNS is probably the most significant issue ever to face our cave bats.

As a Society founded in science, the NSS feels compelled to demand the highest scientific standards for cave conservation, including bat conservation. As a publicly-funded and publicly-accountable government agency, we know the U.S. Fish and Wildlife Service's own mission statement calls for scientific excellence. Given what is at stake, there is no better time to demonstrate that excellence than now.

We want to thank the U.S. Fish and Wildlife Service for its effort to update the bat mortality figures. We have been asking for this to be done for more than a year. We have done this within the USFWS, among state agency officials, and the academic research community to no avail. We are particularly grateful to U.S. Senator Patrick Leahy, D-Vermont, for his letter in December requesting the USFWS to finally do this. Sen. Leahy has been a leader in understanding the impact of WNS, as it has severely affected his state, and in obtaining funding to address the issue nationally. Having USFWS respond to his request helps foster the continuing public and scientific dialogue on this important issue.

Having had news reports read “more than a million” since 2009 has been problematic on many levels. It has made it difficult to advocate for research funding, as there was no way to document the continuing level of threat. Sure, news reports of new sites keep the issue in front of the public and policy makers, but two or three bats sent to a laboratory for confirmation don't give any quantifiable idea of the extent of the problem. Further, from an epidemiological perspective, understanding the intensity of the disease, it's speed of spread, and details, such as species-specific impacts, are all vitally necessary to direct scarce research funding and other management activities appropriately.

That is why the NSS is now making this request. Our own research shows that the “at least 5.7 – 6.7 million” figure appears to be far larger than the available data would support. If, in fact, the Service has data that supports the new figure, it should be released so all interested parties can analyze it.

In doing so, please note we are not calling for all locations to be identified. While many cave locations are publicly known, and many studies and reports show cave names, not all do. The NSS strongly respects the right of property owners to keep their locations private. Further, as cave owners and managers ourselves, and the main advocacy organization behind the Federal Cave Resource Protection Act, we understand that many caves contain significant geologic, archaeologic, palentologic, hydrologic, and biologic resources that need to be protected.

Here is why we question the USFWS estimate. For it to be correct, it would seem that virtually every cave-hibernating bat in the Northeast and Mid-Atlantic region would need to be dead, which they are not.

WNS has affected six species - the Little Brown bat (*Myotis lucifugus*), the Indiana bat (*Myotis sodalis*), the Northern long-eared bat (*Myotis septentrionalis*), the Eastern small-footed bat (*Myotis leibii*), the Tri-colored bat (*Perimyotis subflavus*), and the Big brown bat (*Eptesicus fuscus*). Of these species, the Little Brown bat was, and continues to be the most numerous, by orders of magnitude.

In their study submitted to the U.S. Fish and Wildlife Service in 2010, Drs.Thomas Kunz and Jonathan Reichard cite the known data for the Little Brown bat (Status Review of the Little Brown Myotis (*Myotis lucifugus*) and Determination that Immediate Listing under the Endangered Species Act is Scientifically and Legally Warranted; http://www.bu.edu/cecb/files/2010/12/Final-Status-Review.pdf).

While the historic range of the Little Brown bat covers much of the United States and Canada, it is highly concentrated in the Northeast. On pages seven and eight, they write, “It reaches its greatest abundance in northern United States where it hibernates by the thousands in mines and caves in winter and where large breeding colonies are located in old buildings (Davis and Hitchcock, 1965). Southward the species becomes less common; few of the great caves of West Virginia, Tennessee, and Missouri harbor more than a few hundred in winter, and the species is rare in the caves of Georgia and Alabama (Davis et al 1965).”

Kunz and Reichard continue, “Thus, the evidence suggests “that Kentucky may be at the edge of the summer range of *M. lucifugus* where the species becomes scarce and local.” (Davis et al, 1965) Available literature indicates that the northeastern U.S. Constitutes the core range for the species, and that the population density substantially decreases moving southward and westward from that core range (Davis et al 1965; Humphrey and Cope 1970). Indeed while small populations of little brown myotis are able to persist in caves located intermittently throughout other parts of the species' range, the ideal hibernaculum conditions (temperature, moisture, geologic composition, etc.) predominate in the northeastern region therefore making this core range where **the overwhelming majority** (emphasis added) of the species (including most large wintering populations) reside.”

So, what is (was) the number of pre-WNS Little Brown bats? Kunz and Reichard continue on page eight of their study with a description of the current (as of 2010) status: “Long-term monitoring of 22 prominent hibernacula of the species provided the basis for cave survey data from 1985 to present to predict a population of 6.5 million little brown myotis as of 2006 (Frick et al 2010b), which is presumed to account for the vast majority of the species' overall population.”

Indeed, Dr. Winifred Frick et al, in their noteworthy 2010 study predicting the regional collapse of the Little Brown species over the next 16-100 years, uses this 6.5 million population figure as the basis for their mathematical modeling (An Emerging Disease Causes Regional Population Collapse of a Common North American Bat Species; http://www.sciencemag.org/content/329/5992/679.full).

Thus, if “at least 5.7 – 6.7 million” bats have already died, the Little Brown population would already need to have been virtually wiped out, or the number made up by the other bat species. Neither has occurred.

Looking further at the Little Brown, we refer to a paper published in the Summer 2011 issue of Bat Research News (Vol. 52,No. 2), and authored by Greg Turner, Pennsylvania Game Commission, DeeAnn Reeder, Bucknell University, and Jeremy Coleman, U.S. Fish and Wildlife Service (A Five-year Assessment of Mortality and Geographic Spread of White-nose Syndrome in North American Bats, and A Look to the Future). In this comprehensive look at WNS, data is presented from 42 WNS sites in the affected region.

The Little Brown bat, as expected, is the most numerous species, with pre-WNS numbers at 348,277 bats. A distant second is the Indiana bat at 55,028. None of the other species number more than 3200. After 5 years of WNS, we predictably see the largest decline in the Little Brown population, both numerically and as expressed by percentage. The Eastern small-footed bat shows only a 12% decline (from 1303 to 1142 animals). The Big Brown declined 41%, from 2919 to 1713.

As an aside, many feel other factors are at play with the Big Brown. It does not hibernate in close-packed colonies, and is commonly known to hibernate in man-made structures. The hibernacula population declines may not reflect mortality, but rather a choice by this species to seek alternative roosts.

Further, and importantly, this paper also goes on to say, “prior to WNS, little brown bats comprised 84.5% of all hibernating bats at the 42 sites used in this analysis.” After WNS, “little brown bats now represent only 61% of all bats.” While declines have been large among the little brown bats, they have not disappeared.

Indeed, recent news reports from Vermont and New York report that bat colonies are surviving, and even reproducing (White-Nose Syndrome: Lessons Learned at Fort Drum Military Installation, Chris Dobony, et al; Presentation at January, 2012 Northeast Bat Working Group meeting, Carlisle, PA).

In terms of the other affected species, by far the best data exists for the federally-listed Indiana bat (*Myotis sodalis*). As a long-time listed species, it has had the advantage of dedicated funding and research over a period of time. The U.S Fish and Wildlife Service just posted the most current data in December of 2011, which includes the compiled information from the biannual bat surveys done during the winter of 2011.

In this study, the Indiana bat population overall increased by 2.2%. The only regional decline is in the very Northeast region, primarily in the NY hibernacula. About 32,500 animals have been lost in four years (http://www.fws.gov/midwest/Endangered/mammals/inba/pdf/2011inbaPopEstimate04Jan12.pdf).

This number is important, as the Indiana bat makes up the second most populous hibernating bat species in the WNS-affected area. As referenced in the Bat Research News article (Turner, et al), the other bat species are so small as to not significantly affect the estimate of overall WNS bat mortalities.

This status is confirmed in “Monitoring Trends in Bat Populations of the United States and Territories: Problems and Prospects,” (O’Shea, T.J. and Bogan, M.A., eds., 2003, Monitoring trends in bat populations of the United States and territories: problems and prospects: U.S. Geological Survey, Biological Resources Discipline, Information and Technology Report, USGS/BRD/ITR--2003–0003, 274 p.) (http://www.fort.usgs.gov/Products/Publications/21329/21329.pdf).

This is a huge publication that is the most recent and comprehensive report on the status of the nation's bats. I would refer you to the appendices, where you will see the site-specific data for all species counted and reported. These data provide a context for the overall potential populations of bats in the Northeast, the Little Brown being the most common and the most heavily impacted by WNS. As you can see, the numbers of the other WNS-affected species (Indiana, Eastern Small-footed, Northern Long-eared,Tri-colored, and Big brown) pale in comparison, confirming the other reports and studies cited above.

For all of the reasons stated above, we believe the USFWS estimate is overstated. Again, we do not question that WNS has significantly impacted our bats, nor that the previously stated estimate of bat deaths needed to be updated.

However, good science and good public policy dictate that we are using the best, scientifically-based evidence to guide our collective responses. Bat and cave conservation management needs to have the

best information to make informed and accurate decisions, and not to over-react. We would greatly welcome seeing the evidence used by the USFWS to arrive at its estimate.

We also want to reiterate what we believe is one of the most important points, whatever the gross number is, it's probably more important to understand if the disease spread is accelerating or declining, and how it is affecting individual species. We would repeat our request that a time element be included in the information. This is critical in determining the rate of disease spread and if it is potentially reaching the limits of it spread as it leaves the core population range of the Little Brown bat. A raw number is only a snapshot at a point in time, not an indicator as to whether the situation is getting better or worse.

Finally, we would most assuredly concur with the statements in the USFWS press release about the difficulties of arriving at an estimate. Differences in survey methodologies, lack of uniformity in data collection and reporting, funding focused on federally-listed species, and an overall lack of resources, both human and financial, have led to a situation where the numbers can only be estimates. One of the silver linings to the WNS has been not just to expose these shortcomings, but also to re-focus efforts to make significant improvements.

We hope this request is a step along the way toward such an improvement. We eagerly await your response.

Sincerely,

Peter Youngbaer
White Nose Syndrome Liaison
National Speleological Society

cc: William Shrewsbury, NSS President
NSS Board of Governors
Jeremy Coleman, USFWS National WNS Coordinator
U.S. Senator Patrick Leahy