



**National Wildlife Health Center
Wildlife Health Bulletin 2020-01**

**Winter 2019/2020 Bat Submission Guidelines and
Highlights of the 2018/2019 White-Nose Syndrome Surveillance Season**

To: Natural Resource/Conservation Managers

From: Dr. Jonathan Sleeman, Center Director, USGS National Wildlife Health Center

Date: January 17, 2020

Updated guidance from the USGS National Wildlife Health Center (NWHC) is now available for bat diagnostic submissions for the [2019/2020 white-nose syndrome \(WNS\) surveillance season](#). These guidelines are posted on the [NWHC WNS web page](#) and replace all previous NWHC bat submission criteria. New this season is the incorporation of a designed surveillance approach based on a dynamic diffusion model that identifies high risk areas where *Pseudogymnoascus destructans* (*Pd*) is predicted to spread this year in western and southern states. This approach provides managers data-driven guidance on where to focus their surveillance efforts and resources to assist with early detection in new geographic areas. An [overview of the benefits of designed surveillance](#) is available on our website. As in previous years, reference charts and a WNS Management Area map are included to assist submitters in identifying priority species by region and collecting appropriate samples for submission to a diagnostic laboratory. These guidelines support surveillance objectives of the [WNS National Plan](#) designed to identify new geographic locations and bat species impacted by *Pd* and WNS.

Videos demonstrating proper techniques for the various sampling methods described in the submission guidelines for WNS/*Pd* surveillance including [skin swab collection](#), [wing biopsy](#), [UV screening](#), [bat euthanasia](#), and [environmental sampling](#) are available for viewing on our website.

The NWHC epidemiologists can answer questions about WNS surveillance and response plans relevant to your state, territory, or region. The NWHC diagnostic laboratories can also test samples collected as part of general or targeted surveillance efforts in accordance with the national *Pd* surveillance strategy. Representatives from Tribal, State, and Federal agencies who wish to participate in ongoing surveillance efforts or who have questions should contact Anne Ballmann (608-270-2445, aballmann@usgs.gov).

Highlights from national surveillance for white-nose syndrome and *Pseudogymnoascus destructans* during 2018/2019

The NWHC evaluated samples from 2,698 bats and 982 environmental samples in support of nationwide surveillance for WNS/*Pd* in 2019. These samples represented 24 species of North American bats from more than 175 locations and were received from 28 states conducting surveillance during winter hibernation and spring emergence periods. Overall, WNS or *Pd* was identified at 18 sites in 11 states, mostly from samples obtained from bats as compared to the environment. This included the first confirmation of WNS in a colony of unidentified *Myotis* sp. bats on the eastern side of the Cascade

Mountains ([Kittitas County](#)) in Washington state. The *Pd* fungus also was detected for the first time in [North Dakota \(Mercer County\)](#) on a single little brown bat (*Myotis lucifugus*) trapped on the landscape in early May. In addition, multiple counties across [central Texas](#), [California \(Plumas County\)](#), and [Arizona \(Grand Canyon National Park\)](#) also reported the possible presence of the fungus within their states last year, although no bats appeared clinically affected. The [Western long-eared bat](#) (*Myotis evotis*) joined the growing list of species confirmed with WNS in North America which now includes 13 bat species.

A current map of the distribution of confirmed and suspected cases of WNS is [available online](#).

WNS vaccine research update

A field study to test the efficacy of [several potential vaccine candidates](#) to prevent WNS in little brown bats is underway in Wisconsin. The vaccine candidates included in the study were authorized for field testing by the USDA Center for Veterinary Biologics after an environmental risk assessment issued a “finding of no significance” in September 2019. More than 300 bats received one of two vaccine candidates or a placebo via oral administration in late fall and early winter at two hibernacula. To identify individuals, bats were fitted with wing bands and passively integrated transponder (PIT) tags. Survival of bats will be assessed visually during late winter surveys and during spring emergence using antenna systems at hibernacula exits. A small group of bats from each treatment group was also placed in rodent-proof cages for more careful and systematic monitoring throughout the winter. Vaccine efficacy will be assessed by comparing survival among groups next spring. For more details, contact Dr. Tonie Rocke (trocke@usgs.gov).

Bat species identification from nuclear DNA

Western species of bats in the genus *Myotis* can be challenging to accurately identify by morphologic characteristics. As *Pd* and WNS spread in western North America, the ability to correctly assign species is critical to understanding disease ecology. While most genetic analyses for species identification have relied on variable regions in mitochondrial DNA, this sometimes is insufficient to distinguish among closely related species. On-going work at NWHC has identified multiple regions in nuclear DNA that can reliably differentiate among western species of *Myotis*, and this method was recently used to confirm the fringed bat (*M. thysanodes*) as the [newest North American bat species to be susceptible to WNS](#). For more details, contact Dr. Jeff Lorch (jlorch@usgs.gov).

Recent WNS related publications from NWHC

Rocke T.E., Kingstad-Bakke, B., Wuthrich, M., et al., 2019, Virally-vectored vaccine candidates against white-nose syndrome induce anti-fungal immune response in little brown bats (*Myotis lucifugus*), Scientific Reports 9, 6788. <https://doi.org/10.1038/s41598-019-43210-w>

Campbell, L.J., Walsh, D.P., Blehert, D.S., and Lorch, J.M., 2020, Long-term survival of *Pseudogymnoascus destructans* at elevated temperatures, Journal of Wildlife Diseases. <https://doi.org/10.7589/2019-04-106>

Disease Investigation Services

To request diagnostic services or report wildlife mortality, please contact the NWHC at **608-270-2480** or by email at NWHC-epi@usgs.gov, and a field epidemiologist will be available to discuss the case. To report wildlife mortality events in Hawaii or Pacific Island territories, please contact the Honolulu Field Station at 808-792-9520 or email Thierry Work at thierry_work@usgs.gov.

Further information about our services can be found at www.usgs.gov/nwhc/services. To learn more about submitting samples and reporting events, go to www.usgs.gov/nwhc/submit. Summary information on wildlife morbidity/mortality events reported to NWHC can be viewed and searched on [WHISPers website](#).

If you have any questions or concerns regarding the scientific and technical services we provide, please do not hesitate to contact NWHC Director Jonathan Sleeman at 608-270-2401, jsleeman@usgs.gov.

Past Wildlife Health Bulletins are [available on our website](#).

WILDLIFE HEALTH BULLETINS are distributed to natural resource/conservation agencies to provide and promote information exchange about significant wildlife health threats. If you would like to be added to or removed from the mailing list for these Bulletins, please email: nwhcoutreachdb@usgs.gov.