Widespread Bat White-Nose Syndrome Fungus, Northeastern China

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DOI: http://dx.doi.org/10.3201/eid2201.151314

To the Editor: Emerging infectious diseases have caused catastrophic declines in wildlife populations, and the introductions of many pathogen have been linked to increases in global trade and travel (1). Mapping the distribution of pathogens is necessary to identify species and populations at risk and identify sources of pathogen spillover and introduction. Once pathogen distributions are known, management actions can be taken to reduce the risk for future global spread (2).

Bats with symptoms of white-nose syndrome (WNS) were first detected in the United States in 2006, and the disease has subsequently caused precipitous declines in temperate bat populations across eastern North America (3,4). Pseudogymnoascus destructans, the causative agent of WNS, is a cold-growing fungus that infects bats’ skin during hibernation, leading to more frequent arousals from torpor and death (3). P. destructans is widespread throughout Europe (5), but, to our knowledge, its presence in Asia has not been documented.

We sampled bats and hibernacula surfaces (cave walls and ceilings) across northeastern China during 2 visits (June–July 2014 and March 2015) using a previously described swab-sampling technique (6). Bats were captured inside caves and at their entrances. DNA was extracted from samples by using a modified QIAGEN DNeasy blood and tissue kit (QIAGEN, Valencia, CA, USA) and tested in duplicate for the presence of P. destructans with a quantitative real-time PCR (qPCR) (6,7).

In the summer of 2014 and winter of 2015, we collected 385 samples from hibernacula surfaces at 12 sites in 3 provinces and 1 municipality (Figure, panel A) and 215 samples from 9 species of bats at 10 sites (summer: Rhinolophus ferrumequinum, Rhinolophus pusillus, Myotis adversus, Myotis macrodactylus, Myotis pilosus, Myotis chinensis, Murina ussuriensis; winter: R. ferrumequinum, Murina leucogaster, Myotis petax). During the summer, P. destructans was widely distributed across the study region with positive samples (determined on the basis of qPCR results) obtained from cave surfaces at 9 of 12 sites and from bats at 2 of the 9 sites where bats were sampled (Figure, panel A).

Prevalence of P. destructans was low during summer in the environment (mean prevalence across sites 0.06 ± 0.03) and in bats. Bats of 3 species tested positive for P. destructans in the summer: M. macrodactylus (1/10), M. chinensis (1/1), and M. ussuriensis (1/1). P. destructans was not detected in bats of 4 other species, of which >20 individual animals of each species were sampled (R. ferrumequinum [11/19 bats] and M. leucogaster [11/16 bats]).

In winter, prevalence at the 2 sites we revisited was much higher; 75% of 85 samples from 3 species tested positive, including samples from 16/17 M. petax bats. We also detected P. destructans in bats from 2 additional species (R. ferrumequinum [11/19 bats] and M. leucogaster [11/16 bats]).

In addition, during March 2015, we observed visual evidence of P. destructans in bats (M. petax; Figure, panel C) and obtained 2 fungal cultures from swab specimens taken from these bats. To isolate P. destructans from these samples, we plated swab specimens from visibly infected bats on Sabouraud dextrose agar at 10°C. We identified potential P. destructans isolates on the basis of morphologic characteristics. DNA was then extracted from 2 suspected fungal cultures and tested for P. destructans by qPCR, as previously described.

To further confirm the presence of P. destructans, we prepared the fungal isolates for Sanger sequencing (online Technical Appendix, http://wwwnc.cdc.gov/EID/article/22/1/15-1314-Techapp1.pdf). The 600-nt amplification products from these 2 isolates were sequenced and found to be 100% identical to the P. destructans rRNA gene region targeted for amplification. In addition, using BLAST (http://www.ncbi.nlm.nih.gov/blast.cgi), we found that sequences were a 100% match with isolates from Europe (GenBank accession no. GQ489024) and North America (GenBank accession no. EU884924). This result confirms that the same species of fungus occurs on all 3 continents. We also obtained wing biopsy punches from these bats and found lesions characteristic of WNS by histopathologic examination (Figure, panel B; online Technical Appendix).

The occurrence of P. destructans at most sites sampled indicates that this pathogen is widespread in eastern
The presence of *P. destructans* in bats from 6 species in China and on bats in 13 species in Europe (8) confirms the generalist nature of this fungus and suggests that it may occur throughout Eurasia (Figure, panel D).

Decontamination and restrictions on the use of equipment that has been used in caves in Asia would help reduce the probability of introducing *P. destructans* to uninfected bat populations (e.g., western North America, New Zealand, southern Australia, and temperate areas of South
America). These measures would also reduce the risk of introducing new strains of *P. destructans* to regions where bats are already infected (e.g., eastern North America and Europe). These measures are necessary to prevent the devastating effects this pathogen has had on bats in North America and would help maintain the ecosystem services that bats provide \(9,10\).

### Acknowledgments
We thank the members of J.F.’s laboratory at Northeast Normal University for their help and support.

Financial support was provided by the National Science Foundation (NSF) East Asian Pacific Summer Institute program IIA-1415092, NSF grant DEB-1115895 and DEB-1336290, National Speleological Society Rapid Response Fund, US Fish and Wildlife Service, National Science and Technology Foundation grant no. 2013FY113600, The Robert and Patricia Switzer Foundation, and the crowd-funding platform of Experiment.com.

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### New Clinical Strain of *Neisseria gonorrhoeae* with Decreased Susceptibility to Ceftriaxone, Japan

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DOI: http://dx.doi.org/10.3201/eid2201.150868

To the Editor: In 2009, 2010, and 2013, *Neisseria gonorrhoeae* strains H041 (ceftriaxone MIC of 2 mg/L), F89 (ceftriaxone MIC of 1 mg/L), and A8806 (ceftriaxone MIC of 0.5 mg/L) were isolated from samples from patients in Japan (1), France (2) and Australia (3), respectively. In Japan, no other clinical *N. gonorrhoeae* strains with decreased susceptibility to ceftriaxone were reported until 2014, when clinical strain GU140106 (ceftriaxone MIC of 0.5 mg/L) was isolated from a man in in Nagoya, Japan. We report details of this case and sequencing results of the *penA* gene for the strain. The study was approved by the Institutional Review Board of the Graduate School of Medicine, Gifu University, Japan.

*N. gonorrhoeae* strain GU140106 was isolated from a urethral swab sample from a man with acute urethritis. The man had received fellatio, without condom use, from a female sex worker in Nagoya in December 2013. He visited our clinic in January 2014 for urethral discharge. Culture of a urethral swab sample was positive for *N. gonorrhoeae*. We used the Cobas 4800 CT/NG Test (Roche Molecular Systems Inc., Pleasanton, CA, USA) to test a first-voided urine sample; results were positive for *N. gonorrhoeae* but negative for *Chlamydia trachomatis*. The infection was treated with a single-dose regimen of ceftriaxone (1 g) administered by intravenous drip infusion. Two weeks later,

1These authors contributed equally to this article.