ABSTRACT

TITLE:	Mexican Free-Tailed Bats: A Possible Transmission Vector for White-Nose Syndrome?
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ABSTRACT: Pseudogymnoascus destructans (Pd) is the fungus responsible for causing white-nose syndrome (WNS), a newly emerging disease that has killed more than six million hibernating bats since 2006. Despite its dramatic impact on global bat populations, little is known about the mechanism of transport or transmission of this fungal pathogen. The Mexican free-tailed bat, Tadarida brasiliensis, is a non-hibernating, long-distance migrant that congregates in roosting sites shared by hibernating bats susceptible to Pd. Given their large migratory range and frequent contact with other bat species, Tadarida may serve as an important vector in the transmission of Pd. However, because fungal spore dispersal via Tadarida has not been studied, this possibility is difficult to evaluate. The purpose of our study was to determine whether Tadarida is a transmission vector for cold-tolerant fungi including Pd. We sampled Tadarida from the Orient Mine in south-central Colorado in June and August of 2014. In this process, body surfaces of Tadarida were swabbed for fungal spores, and spores were cultured at 20 C and 6 C to determine whether Tadarida are capable of transmitting viable spores, including cold-tolerant spores including Pd. Our preliminary results indicate that at least 10 unique fungal genera are transported on Tadarida capable of growing at 20 C. We have also identified 7 fungal species cultured at 6 oC, which is considered to be the optimal temperature for Pd growth. These results demonstrate that Tadarida are capable of harboring viable psychrophilic fungal spores and provide a basis for potential transmission of WNS.