

# Exploring the Connection Between Arousal Patterns in Hibernating Bats and White Nose Syndrome: Immediate Funding Needs for the Northeast Region

- funded 2008; study continued for three years

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# Problem Addressed

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Bats in the Northeastern North America are dying in large numbers due to 'White-nose Syndrome'.

**Need:** to determine why bats are dying.

**Objective:** to determine if the hibernating patterns of bats affected by WNS are disrupted, leading to starvation

**Hypothesis:** WNS bats arouse from torpor significantly more frequently than unaffected bats.



# Methods for temperature tracking



Greg Turner, PA Game Commission



- Temperature-sensitive dataloggers
- RF transmitters
- $T_{\text{skin}} \approx T_b$  (Willis & Brigham, 2003)

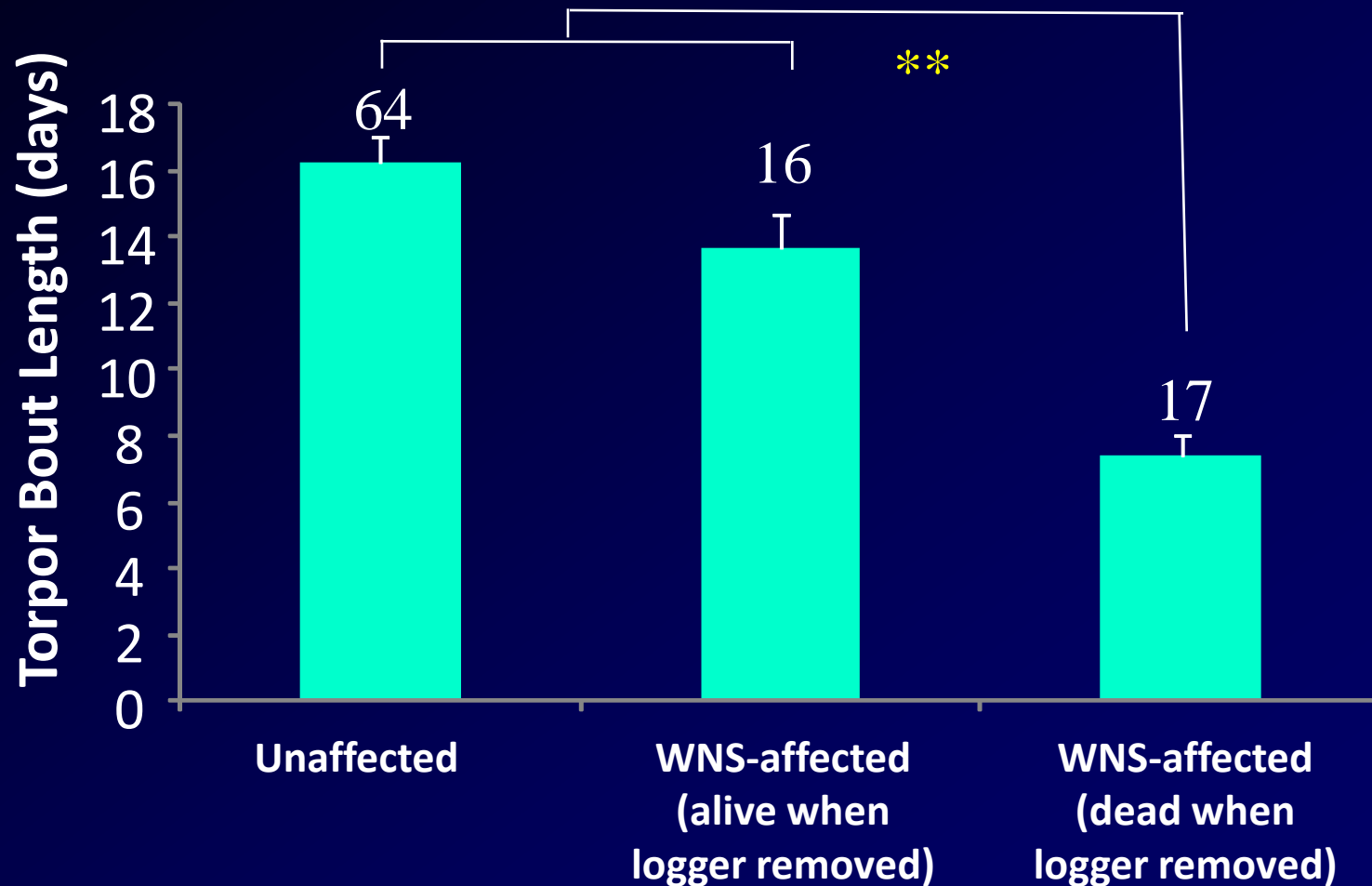




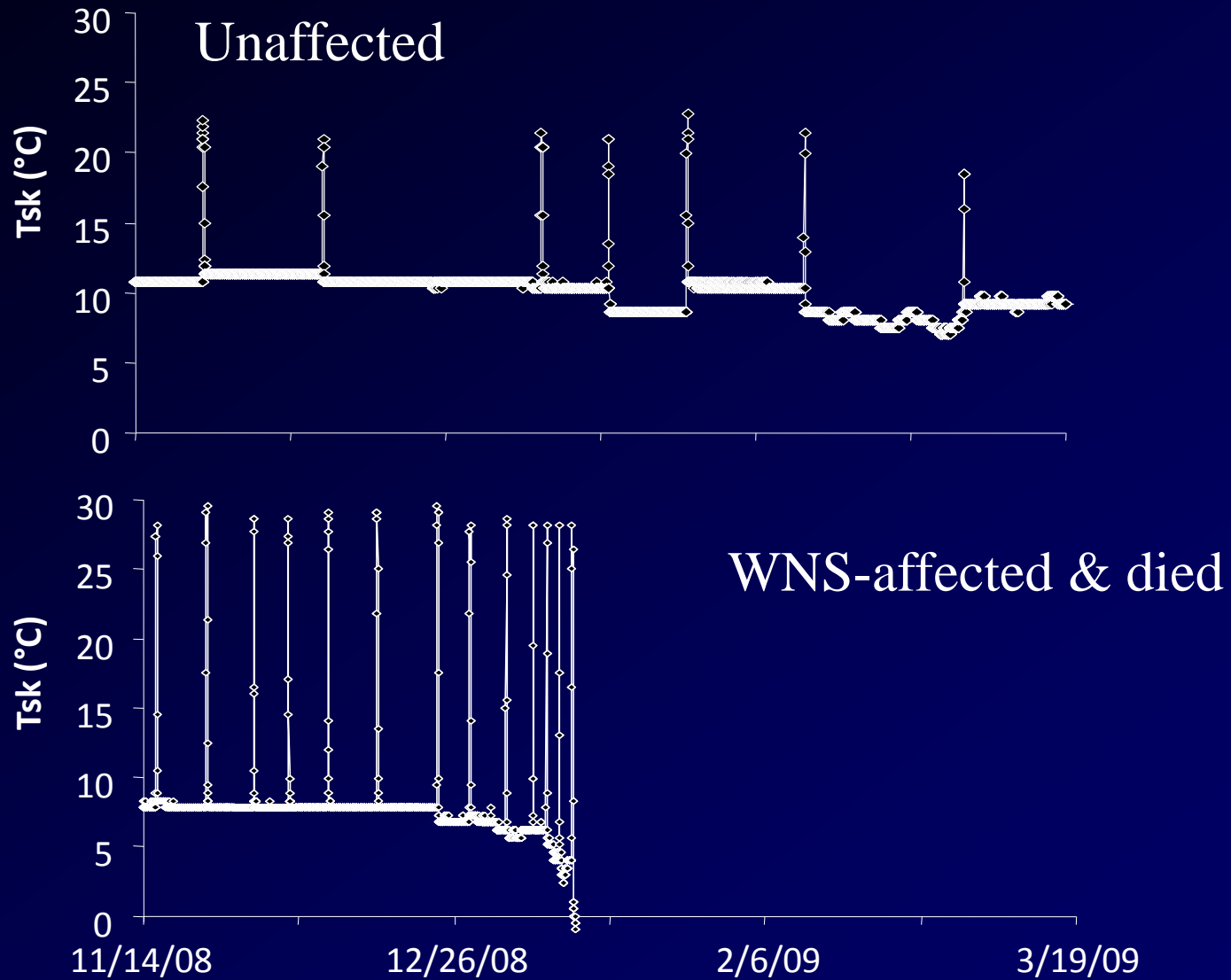
# Status/Utility

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Determined that WNS bats arouse from torpor significantly more frequently (have shorter torpor bouts) than unaffected bats.



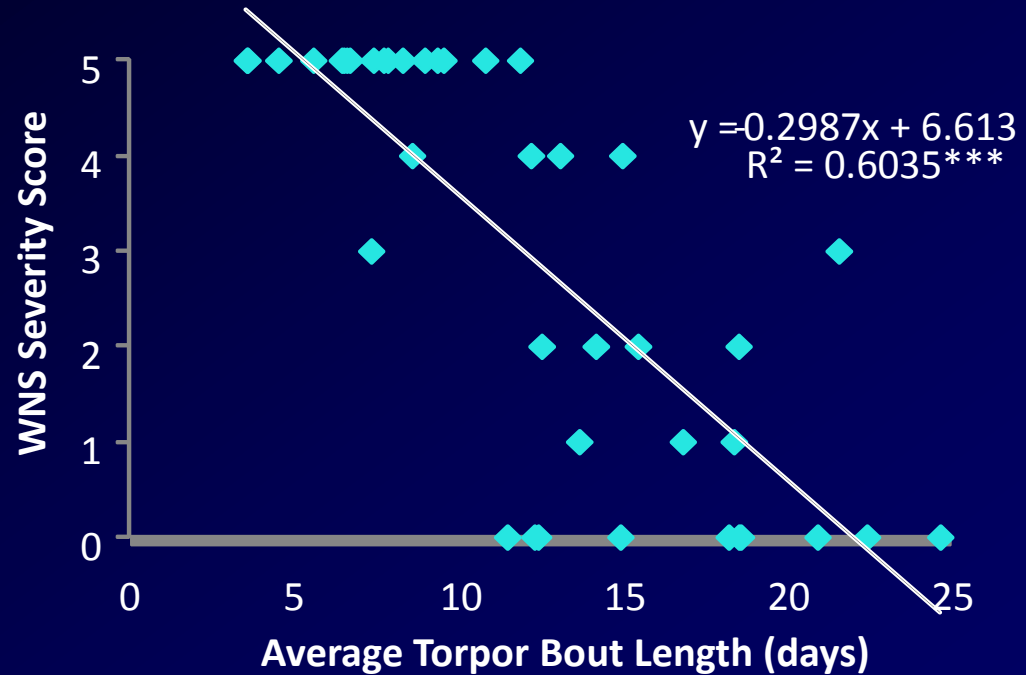
# Sample hibernation profiles



# Status/Utility

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Working with National Wildlife Health Center, determined that this shift in torpor bout length is significantly correlated with the degree of fungal invasion (of *Geomyces destructans*, the putative pathogen) in the wings ('WNS severity score').



This shift in hibernation patterns is now considered a prominent sign of WNS and this knowledge has significantly informed further studies of the epizootiology of WNS.