



Photo courtesy of Nick Goforth



*Dr. Robin Verble, Assistant Professor in Natural Resource Management, is also the Director of the Texas Tech University Fire Center, and faculty advisor for S.A.F.E., Student Association for Fire Ecology.*

# BAT ECHOLOCATION

AMY CHAPPELLE

JULY 2015

The myths, folklore, and misconceptions that surround bats have instilled a conviction of fear and resentment. To the contrary, bats are beneficial to farmers by devouring noxious insects and propagate nutrient distribution. Poised in the restful dale of the Valles Caldera National Preserve, Dr. Robin Verble monitors the bat activity in burned and unburned forest habitats.

Valles Caldera National Preserve is a 13.7 mile wide volcanic caldera that was formed roughly 1.4 million years ago that is home to various species of forest dwelling animals. Bats are a major part of the ecosystem as they mostly dine on insects and fruit, but also assist in pollination and seed dispersal of fruits, flowers, and trees. Two study areas, Thompson Ridge and Las Conchas, were selected based on wildfire activity within Valles Caldera.

Dr. Verble and her research team measured bat activity in unburned areas surrounding each study site in order to develop a baseline for activity levels. "We measured bat activity levels by setting up ultrasonic recorders to passively record nightly echolocation calls," Dr. Verble explains. In doing so, this allows the research team to determine what bat species is utilizing and responding to the burned areas. The recordings collected of individual bats will be used to help determine species as well as how different species reacts to burned areas. This

information will be invaluable in future forest management practices due to increased wildfire activity in the American Southwest.

Wildfires, based on their intensity, generate varying degrees of burn severity. Dr. Verble and her research team found that “within burned areas bats were more active in areas with higher proportions of less severely burned areas.” This implies that the bats are utilizing burned areas and various roosting sites despite the devastation of the wildfire. Dr. Verble reassures that, “an increase in bat activity in burned areas suggests that bats may benefit in some way from burned areas due to increased insect prey, increased roost site availability, and reduced forest clutter that are observed after fire.” Bats play an intricate role in the health of forest habitats. “Observing bats in this area may give us a clue about the health of the habitat, and preserving bats will help maintain forest health and control insect populations,” stresses Dr. Verble.

Bat populations are endangered due to human encroachment, habitat destruction, and the increased use of pesticides and herbicides. Playing a vital role in the overall ecosystem health, flower pollination, and seed dispersal of fruits and tree, bats are considered “cornerstones” within ecosystems. With the increased risk of impending wildfire, conservation efforts must be made to manage insect populations and forest health, including the overall bat population.

Visit the following websites to learn more about ongoing bat research and fire ecology:

Nick’s Bat Blog: <http://goforthandstudybats.blogspot.com/>

Verble Fire Ecology: <http://fireecologylab.blogspot.com/>