Bring The Bats Back: Restoring The New England Bat Population One Bat House At A Time

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ABSTRACT

Bats are often overlooked by the general public and even seen as pests. This is unfortunate as these organisms are beneficial to ecosystems and humans due to their roles as seed dispersers, pollinators, and insect pest control. We set out to make a positive impact on New England bat populations and on how they are perceived by the public.

For this project, we built bat houses and identified ideal locations to place them within urban/suburban areas of Bridgeport and Fairfield, CT. We also created an educational video on the importance of bats, threats they face, and how we can help them. This video was shown to two high school classes, and we surveyed the students to evaluate the effectiveness of the video and to see how bats were perceived before and after the video. Through this project we found out two key things that could benefit bat conservation:

- **The general public is not widely aware of the threat to bats.**
- **Once they learn more about bats, they are willing to help them.**

This is great news because people need only more exposure to information on bats before they are willing to contribute towards their conservation. If the public helps establish more of these much needed bastions, this will help relieve much of the pressure bats in New England are facing today.

INTRODUCTION

Bats are indispensable to ecosystems throughout the world.[1] By consuming large quantities of insects (including many crop pests), bats regulate the damage of these organisms to the environment. In Connecticut (CT), the nine species of bat are all aerial insectivores from the family Vespertilionidae (Fig. 1), and even an average-sized colony (~150 bats) consumes a significant amount of crop pests (e.g. 600,000 cucumber beetles, 194,000 June beetles, 158,000 leafhoppers, and 335,000 stinkbugs per year).[1] As pest control, bats are valued at billions of dollars in North America.

Unfortunately, North American bat populations have declined significantly, especially on the East Coast, due to habitat loss and an invasive exotic fungal species that has caused White-nose Syndrome (WNS). WNS has reduced many colonies of cave-roosting hibernating bats in New England (Fig. 1) to 1% of their pre-WNS sizes.[2]

Given severe declines of bats, we are helping bring bats back by providing a home to maternity/nursery colonies in urban and suburban areas of southwestern CT. Furthermore, we produced a video to educate the public on the importance of bats, the threats they face, and how each of us can help them one bat house at a time.

Fig 3. A clearing with lots of space away from trees makes for a good location for a bat house.

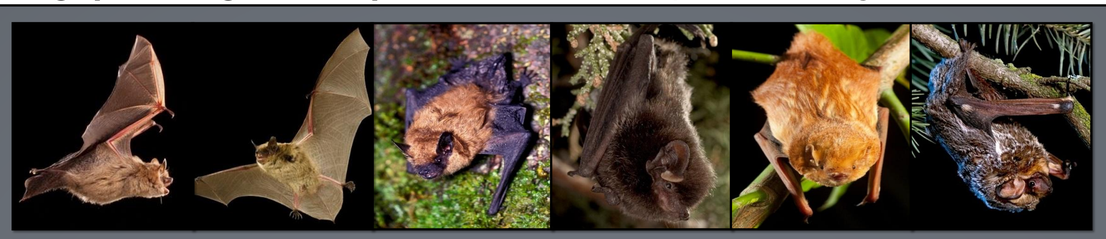


Fig 1. Six of the nine species of CT bats. From left to right, tri-colored bat (*Perimyotis subflavus*), little brown (*Myotis lucifugus*), big brown (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), red bat (*Lasiurus borealis*) and hoary bat (*L. cinereus*). The three species on the left are cave-roosting hibernating bats, and the three on the right are tree-roosting migratory bats. At least four of the nine bat species are known to use bat houses, all of which are cave-roosting hibernating bats that are greatly affected by White-nose Syndrome.

METHODS

The Build

- **Researched different types of bat house designs and design augmentations for different climates.**
- **Selected BCI four-chambered nursery house[3] because their organization has done extensive research on which house designs work. The nursery house was chosen out of all other models because it positively impacts bat populations by providing housing for mother bats and their pups (Fig. 2).**
- **Built two four-chambered nursery houses.**

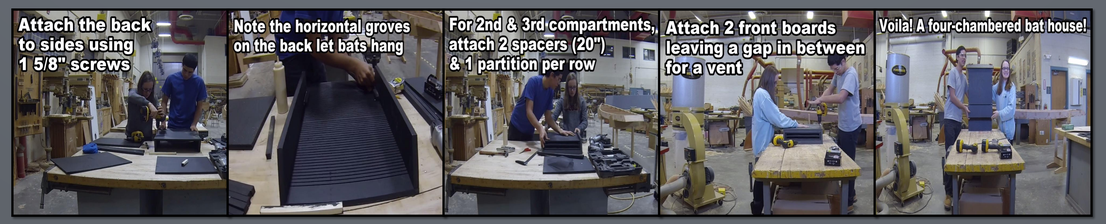
Bat House Installation

- **Location is key to a bat house's success; successful bat houses require a nearby water source, a 30 ft. clearing free of trees, and need to be situated on tall poles or buildings (15-20 ft. above ground) (Fig. 3).**
- **Scouted/identified ideal locations in Bridgeport and Fairfield, CT.**
- **The two locations are: (1) near Beardsley Zoo and Bunnells Pond (Bridgeport) & (2) Mill Pond (Fairfield).**
- **Contacted property owners and government entities to gain permission to install bat houses.**

Educational Video

- **Created video (Fig. 2) with the following information on bats: Misconceptions, CT Species, Threats, & How to Build a Bat House.**
- **Presented video to two classes at the Aquaculture School in Bridgeport.**
- **Distributed questionnaire after video to assess effectiveness.**

Fig 2. (Left & Below) Video on making a bat house. (Above) Example of bat house.

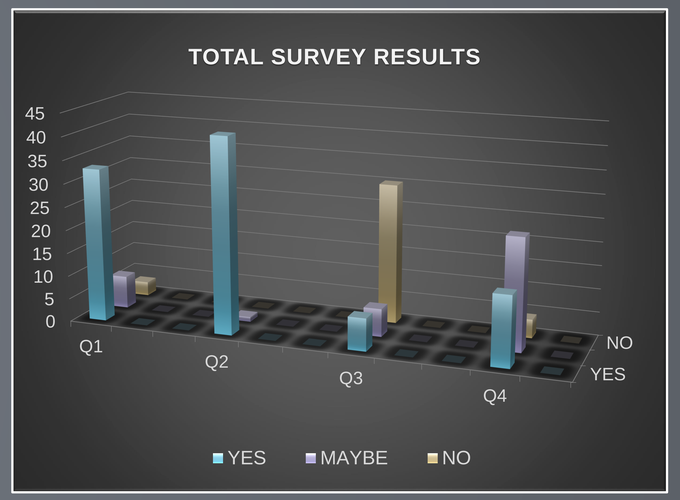


RESULTS

The educational video can be viewed at: http://youtu.be/WX_5H-qoHGE. We conducted a survey after showing our educational video to two separate classes with a total of 43 students from grades 10-12.

Survey questions that correspond with graph (below):

1) **Prior to this, did you think bats were useful to the ecosystem?**
2) **Now do you think they are?**
3) **Were you aware of the various threats to bats?**
4) **Would you consider building a bat house or actively helping the bat populations in some way?**



CONCLUSIONS

The bat populations here in Connecticut likely will continue to decline due to several factors if no attention is given to the problems. Through our research we have uncovered what is causing their demise and learned how we can aid these lovely creatures. Through our surveys and video we also learned that people were mostly unaware of the threats bats were facing but many would be willing to pitch in and help bring bats back to healthy population levels in our cities.

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