

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE PROPOSAL FORM

Part I- General Information:

Name of Student Organization	UAP 3354- Introduction to EPP
Contact/Responsible Person	Caitlin Storment, Carolyn Sheehy, Joy Flowers, Davis Little
Contact Office Held/Title	Joy Flowers
Contact Email Address	cstorment@vt.edu, carolyns27@vt.edu , joyf@vt.edu , dlittle1996@vt.edu
Contact Telephone Number	(615) 497-8266, (804)627-1066(804)370-8584

Part II- Project Cost Information

Estimated Cost of this Proposal See III.C. below

Estimated Savings - See III.D. below

Net Cost of this Proposal =

Part III- Supporting Information

A. Please describe your sustainability initiative and attach supporting documentation.

Bats are well known for their beneficial role as pollinators and agents of natural pest control. Virginia is home to sixteen of these keystone species. Of those sixteen, the little brown bat, the big brown bat, and the evening bat are all species known to roost in homes in Blacksburg area. As opposed to posing a larger risk to people by roosting in their homes, these species could find quieter and safer refuge within bat boxes. An epidemic among bat species known as white-nose syndrome, caused by *Pseudogymnoascus destructans*, is spreading like wildfire. This fungal disease is causing many bat species to rapidly decline within the United States. The little brown bat and the big brown bat are among the species that are being affected, especially the little brown bat in particular. Having alternative roosting sites that act as additional sites for reproduction and protection for juveniles may help maintain higher population numbers. These reasons are the main reasons why our proposal is to put bat boxes up in the duck pond area. These bat boxes, in addition to being functional to the bats using them, could potentially be used for research and education on campus.

B. How does this initiative help to achieve the goals of the Virginia Tech Climate Action Commitment Resolution and Sustainability Plan?

On page 11 of the C. A. C. R. S. P., in the 2013 update and presidential policy memorandum no. 262, item number 1.4 states the university's objective to "Provide environmental stewardship of campus, balancing physical development, recreational, and agricultural needs with protection of ecological, vegetative, air quality, water, and other natural resources." Our role in practicing environmental stewardship on campus should include the protection of wildlife and wildlife habitats. Installing bat houses on campus will encourage local populations of bats to stay in, or return to, an outdoor habitat. Fostering a relationship between bats and their natural habitats will ideally reduce pest populations on campus and reduce human-bat conflicts off campus where bats are habitually nesting in houses. This balance between physical development and the protection of natural resources is a key objective of the C. A. C. R. S. P. that our initiative will meet.

C. What is the cost of your proposal? Please describe in adequate detail the basis for your cost estimate.

The bat box that we see as the best fit for cost, reliability and efficiency is Looker products "Triple Chamber Bat House" or any other highly rated 3 or 4-chamber bat house approved by Bat Conservation International. The Looker Products brand one is \$72.25. The guide cited in the sourced materials includes instructions on installation of the bat box onto the mount and the pole into the ground. The wooden pole needs to be mounted about 15 feet high or higher in a well shaded area so that the bats do not overheat. Lowe's sells weather and pressure resistant wood poles that are 16 ft tall described as "Severe Weather (Common: 4-in X 4-in x 16-ft; Actual: 5.5-in x 5.5-in x 16-ft) #2 Treated Lumber" which would be suitable as a post for the bat boxes. The post is \$20.48, but a similar product that meets the guide's description may be found for cheaper by contacting local fencing companies. Based on the dimensions of the bat box one of Home Depot's "Weather Shield 2 in. x 4 in. x 8 ft. #2 Prime Ground Contact Pressure-Treated Lumber" cut into 3 pieces as described by the guide will be enough to use as a mount. This product costs \$4.67. The screws and bolts needed to build the wooden post mount will be approximately \$36 dollars in cost. Even less if the associated screws and bolts are already available for use on campus. Lastly, anchorage for the pole will be needed. Although the guide suggests differently, backfilling and compacting the native soils will be sufficient for anchorage. Maintenance can be paid their usual wages to assemble the poles and mounts based on the guide. It could also be assembled by students working on woodwork projects instead. It is important for the boxes to be placed in a sunny area, but direct sunlight should be avoided for more than half of the day. About 6-8 hours a day should be sufficient. One of the greatest declines in bat populations is human interference, therefore the boxes should be placed in a discrete area away from trails and artificial lighting. Bats thrive near a water source so mounting the boxes near the Duck Pond would be the best choice on campus. Further consultation regarding specific placement and other details should be discussed with someone who has experience with artificial roosts. Jesse De La Cruz (delacruz@vt.edu) ideally should be contacted to review the placement before implementing the houses. The total cost for the unit with all necessary components and installation would equal about \$200 .

D. Will your proposal produce cost savings for the University? If so, how much? Please describe in adequate detail the basis for your savings estimate.

This project will not produce monetary savings for the university but will hopefully provide environmental benefits instead. Most bat species are considered keystone species that benefit the environment by feeding on nuisance insects such as mosquitos. During the night, a single bat can consume up to 1,200 small insects per hour, and we hope to provide housing for large enough colonies of bats which could greatly decrease the numbers of nuisance small insects on campus. Local bat species also transfer seeds and pollinate plants by feeding on insects inside of pollen-filled flowers and then transferring the pollen to new flowers. Bats are shy of humans and are completely nocturnal which means they will be hard at work while the campus is quiet and vacated at night.

E. Is this funding request for a One-Time need or an Ongoing need (please check one)?

One-time

Ongoing

F. Is funding available for this request from another source? If yes, describe the funding (source, amount, etc.)

Since the costs of this proposal are small and only one initial payment, it is believed that VT would be able to meet the costs; especially since this proposal could more than likely bring about new opportunities for VT research. The study of bat colonies in urban and park habitats would be one of these opportune moments to capture and study the effect of the urban and semi-urban world of bats. If this study were to be done as an official project of study, outside grants to fund the research would then be a possibility of alternative funding. Obtaining a grant to research bat colonies residing in urban areas would in theory pay for the entire project considering the relative cost of the project is quite small.

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE PROPOSAL FORM (Continued)

Part IV- Requestors/Reviewers

Joy Flowers
Caitlin Storment
Carolyn Sheehy
Davis Little

Date 10/25/2018

Prepared By (Name of Contact for Student Organization)

Jesse De La Cruz (delacruz@vt.edu)

Reviewed By (Name of Appropriate University Official)

Date

Reviewed By (Name of Office of Energy and Sustainability Representative)

Date

Sources of Reference:

(A)(B)

<https://www.humanwildlife.cmi.vt.edu/Species/bats.htm>

<https://www.dgif.virginia.gov/wildlife/nuisance/bats/>

<http://www.virginiaplaces.org/natural/bat.html>

<http://yourbatpros.com/bat-biology.html>

(C)

https://www.amazon.com/Looker-Products-Approved-Organization-Conservation/dp/B000FLTO6A/ref=as_li_ss_tl?s=lawn-garden&ie=UTF8&qid=1462374891&sr=1-3&keywords=bat+house&linkCode=ll1&tag=batbunker-20&linkId=38fdbdecc65caca2b610201e646c6164

<https://batmanagement.com/blogs/bat-roosts/how-to-choose-a-bat-house-location>

http://www.batcon.org/images/InstallingYourBatHouse_WoodenPost_SteelPole.pdf

(D)

<https://www.motherearthnews.com/nature-and-environment/control-insects-bolstering-bat-habitat-zmaz01aszsel>
<https://www.fs.fed.us/wildflowers/pollinators/animals/bats.shtml>

GUIDE FOR BAT BOX MOUNT AND POLE ASSEMBLY:

http://www.batcon.org/images/InstallingYourBatHouse_WoodenPost_SteelPole.pdf

In the preparation of your Green RFP form, we encourage student organizations to seek input and guidance from the following list of university employees. These individuals are familiar with the form and the process. They can address the feasibility of your proposal, can provide a technical review, and can evaluate the cost & potential savings.

Area of Expertise	Name	Title	Email Address
Energy Management	Ruben Avagyan	Campus Energy Manager	rubena@vt.edu
Facilities: Housing & Residence Life	Todd Pignataro	Associate Director of Facilities	ptodd@vt.edu
Facilities: Buildings & Grounds Water Bottle Refill Stations	Jim McDaniel	Project Coordinator	jmcdani@vt.edu
Exterior Lighting	Bob Dellinger	Assoc. Director, Utilities	rdelling@vt.edu
Student Engagement & Campus Life	Eric Margiotta	Association Director	margiotta@vt.edu
Dining Services	Anthony Purcell	Assistant Director	purcella@vt.edu
Alternative Transport (Bike, Bus, Walk, etc.)	Jeri Baker	Director, Parking & Transportation	jab518@vt.edu
Landscape Architect	Bob Massengale	Site Planner	rnmassen@vt.edu
Hahn Horticulture Garden	Scott Douglas	Director/Instructor	dsd1@vt.edu
Recycling	Denny Cochrane	Sustainability Program Manager	denniscc@vt.edu
Miscellaneous	Karlee Siepierski	Campus Sustainability Planner	Skarlee3@vt.edu