



APPLICATION

For more information:

<https://www.salisbury.edu/administration/administration-and-finance-offices/sustainability/green-fund-application-page.aspx>

Submit completed application to: greenfund@salisbury.edu

Project Name	Salisbury University STILL speaks for the birds – and not just sea gulls		Amount Requested	\$6162
Project Contact Name	Jeremy Corfield		Phone #	4106031259
E-mail	jrcorfield@salisbury.edu		SU Affiliation	Professor
Proposed Start Date	November 2023		Proposed Completion Date	November 2024
List all faculty or staff associated with this project: Dr Eric Liebgold			List all students associated with this project: Jenna Luka, Malone Dampier	
We will be working with faculty/staff member, Frank Bowen _____, and have received verbal consent from them that they are willing and able to work with us on this project.				
Applications may take up to 30 days to process. Please explain any time constraints:				
Signature			Date	10/10/2023

(If submitted via email printed name is sufficient for signature)

Project Description (expand as necessary)

OBJECTIVE AND IMPLEMENTATION PLAN Describe project objective (ex: what operations and/or behaviors does this project address?). Include specific project details indicating how objectives will be met. **Please review the grant guidelines before submitting the application.**

In 2019 we started a green fund funded project titled: Salisbury University speaks for the birds – and not just sea gulls” The project has focused on 2 main goals. 1: To make SU a better home for birds, by providing habitat, food, water, cover, and places to raise their young, through the installation of nest boxes. This also includes reducing dangers to birds on campus, like window collisions. 2: To educating our students about the problems faced by birds and what they can do to be proactive in bird conservation.

To achieve these goals, we have focused on showcasing the diversity and uniqueness of birds on SUs campus. We have more than 20 species of birds that can be found on campus, by making these birds more visible to students we have increased interest and curiosity, which has then driven increases in awareness about conservation. We hope that the seeds that we have sown here at SU can grow to help bird conservation across Maryland and also across the US.

This project has grown exponentially over the years and since our original green fund grant, we have received 5 additional grants to support the project. “Lookout seagulls, screech owls are taking over”, “Build it and they will come; a chimney swift tower and bird educational garden at SU”, “Arboretum bird campus collaboration”, “Making SUs windows safe for birds”, and “SU bird cams”

Project Description (continues)

Some of our major accomplishments are summarized below:

- In the spring of 2022, we had a total of 5 solar powered and camera equipped nest boxes around campus. We successfully fledged 1 chickadee, 1 tufted tit mouse and 2 house wren nests.
- In the spring of 2023, we had 8 camera equipped songbird nest boxes around campus and 1 at the Nanticoke River center (NRC). We successfully fledged 2 chickadee nests (14 fledglings) and 6 wren nests (36 fledglings). We were also able to band 12 wren fledglings



Left: A snapshot of a house wren family in our nest box just before fledging. Note the stick nest that wrens build, in some cases the sticks blocked the window (to the right), and reduced light levels. This meant that most footage was using the night mode on the cameras. To improve light levels one option would be to use a LED light.

Right: An example of a nest box on campus, this one is located at Conway Hall. Each nest box is on top of a 10ft pole. The pole inserts into a 2ft PVC sleeve that is in the ground and secured using cement. This means that poles can be removed outside of the nesting season. Each nest box has a tube on top where the camera

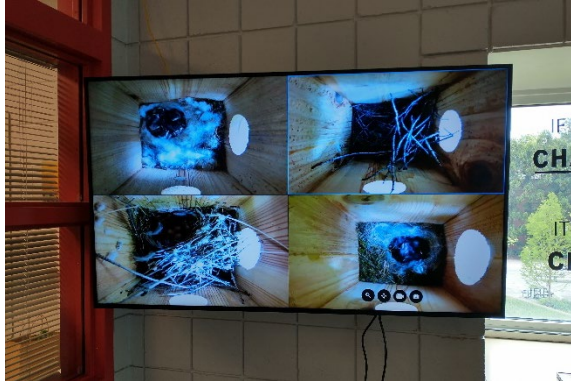


Left: Students banding a fledgling house wren. We banded 12 house wrens this past spring, with plans to continue doing this in the future. We plan to use colored bands in the future, so that different color combinations can be used as identify individual birds. We are interested to see if fledglings come back and nest in our boxes.
Right: 1 fledgling house wren getting its wing measured during the banding process.



Project Description (continues)

- All of the action from our bird cameras on campus is streaming through a display that we have in Henson Hall. The feedback from students has been all positive and students loved watching all of the nesting activities over the spring.
- SUs bird feeder cam is operational and as of October the 3rd is streaming footage on the display in Henson Hall.

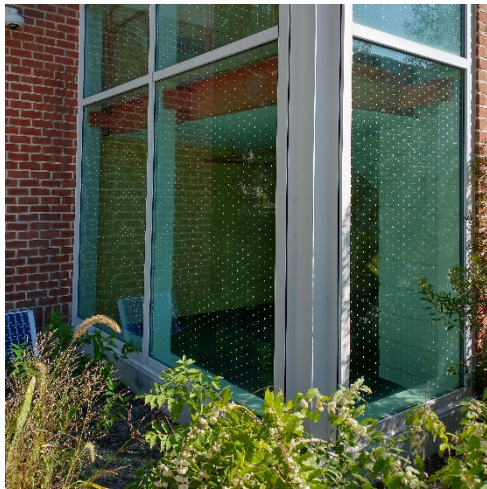


The display that we have in Henson Hall. Multiple cameras can be viewed at the same time and this can be customized each day.



Snapshot of the stream from SUs bird feeder cam. This stream can be viewed on the display in Henson Hall, and in the future through our website.

- In July this past summer, windows on both Conway and Henson Halls that had high rates of bird collisions were treated with a film to completely stop bird collisions.
- Over this past summer the first stage of SUs bird focused garden was completed. We have plants in the garden and now working towards designing educational material.



Treated windows on Henson Hall. If you look closely, you will see the dot pattern on the windows. This gives birds something to see, and thus they will avoid colliding with the window.



SUs bird garden, which is located off of west campus drive

Project Description (continues)

- SU is the second college/university in the State to be designated as a “Bird Campus” by the Maryland Bird Conservation Partnership. <https://birdcity.org/maryland/salisburyuniversity>
- The construction of 1 wood duck boxes is complete and this box will be installed at the NRC within the next month.



Our Bird Campus sign located behind Devilbiss Hall



Custom made wood duck boxes

- The development of a fully functional website for the project: <https://www.salisburybirds.org/>
- The installation of 8 screech owl boxes around SUs campus and 2 at the NRC, each monitored by WIFI cameras.



Left: Solar powered screech owl box at the Nanticoke River center (NRC). Each screech owl box is equipped with a camera and connected to WIFI. Camera streams can be viewed with an app on a smart phone. Streams can also be broadcasted on the display in Henson Hall.
Above: An Eastern screech owl in one of our boxes.

Project Description (continues)

- Since the start of the SU bird friendly campus project 10 students have been involved. Students have been the driving force for the project and involved in every aspect.



Project Description (continues)

With the success of this project, we have ambitions to grow and improve. The main focus will be on nest boxes, which have the greatest potential to help with the overall aims of the project.

We are proposing the following:

- Install an additional 7 camera equipped nest boxes on campus, mostly at the satellite campus
 - Purchase equipment and supplies to help with the ongoing growth and maintenance of the nest boxes, cameras, bird garden, bird feeders, chimney swift tower and educational signage.
 - Trial adding 12v LED lights to the nest boxes.
 - Install bluebird, songbird and wood duck boxes at NRC and also an osprey nesting platform
 - Conduct a student focused research project investigating nest box designs to deter wrens.
 - Our Bird Campus designation needs to be renewed, we are working on this renewal and requesting the \$200 renewal fee.
1. We currently have 8 camera equipped nest boxes on the main campus. We would like to extend this to 10 and add an additional 5 nest boxes to locations at the satellite campus. The campus map below shows the locations of the current songbird and owl boxes on campus, as well as potential sites for the additional nest boxes. 5 potential sites for the main campus nest boxes are shown, 2 will be chosen from these, but the sites at Chesapeake Hall of Blackwell Hall are most likely. Sites are selected based on the availability of an outdoor 120v power outlet and the strength of the WIFI signal. Nest boxes will be setup similar to Spring 2023, with 2ft PVC pipes buried below the ground and secured with cemented, which is the sleeve that the 10ft pole slides into. This allows for the pole to be removed outside of the breeding season. The nest box design will be slightly different, as described in the research proposal below.
 2. Building and maintaining nest boxes, cameras, feeders, signage, a bird garden and a chimney swift tower requires some tools and equipment. This is especially true for the nest boxes, after being outside for a few months nest boxes need to be cleaned up, repaired, sanded and treated with a stain to protect them against the weather. Also, all of the solar equipment needs to be maintained and repaired on a regular basis. We have been lucky enough to have obtained a space to use for the project, we have converted part of the green house behind Devilbiss Hall into a workshop. Through the green fund and other funding sources we have some limited tools, but would like to grow this into a fully equipped workshop.
 3. Getting enough light in the nest boxes for the cameras was a problem in the Spring, especially when wrens built large stick nests that blocked the window. In low light levels the cameras switch to night time mode, and use IR lights (see image of house wren family above). This means that the footage lacks color and is simply black and white. We would like to trial adding 12v LED lights to the nest boxes. These lights would be on timers and light levels adjustable. We expect that this would provide enough light for the cameras, without disturbing the nesting activities.

Project Description (continues)

4. SUs Nanticoke River Center is a beautiful spot right by the Nanticoke River, and includes a field laboratory, and boat ramp. The area has a high diversity of birds, that are very different to that found on campus. A few years back we installed 2 screech owl boxes at the NRC, each equipped with a camera that is powered by a solar system. We then installed a barred owl box and a bluebird nest box. So far, we have not had much success with owls at NRC, but had an interesting situation with the bluebird box. The day after installing the nest box a chickadee started building a nest and laid a few eggs. Shortly after this a bluebird pair moved in and started also laying eggs. After some disagreements the nest ended up with 6 chickadee and 5 bluebird eggs and the bluebirds were doing all of the incubating. We were all anxiously watching the display in Henson Hall, waiting to see how this was going to play out. Then a house wren came along and very quickly removed all of the eggs from the nest. We were all crushed. The bluebird tried for a second clutch, but again the house wren removed all of the eggs. The bluebirds started making a nest for the third time, but the house wren then built its own stick nest on top of it before the bluebirds could lay any eggs.



Snapshot of the chickadee/bluebird nest. The larger are the bluebird eggs and the smaller the chickadees



Snapshot of the house wren as it was removing eggs from the chickadee/bluebird nest

We have plans to install 3 additional bluebird nest boxes at NRC, as well as 3 smaller songbird nest boxes. This should reduce the competition for nest boxes and give us lots of opportunities for nests in the breeding season.

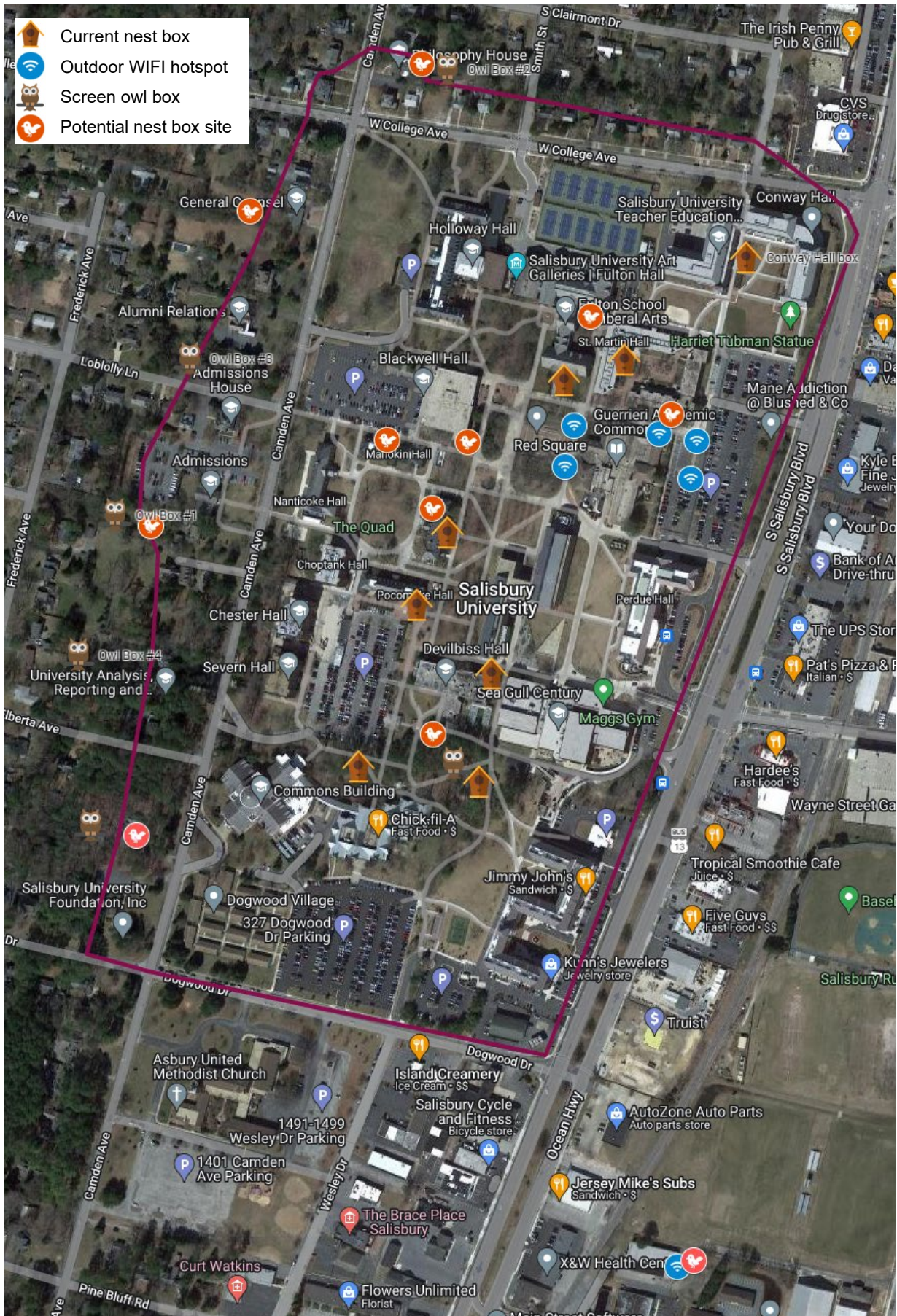
Since installing the nest boxes at NRC, major improvements were done to extend power and internet into the backyard (image to right). What this means is that we have a reliable power source for the cameras, solar is very problematic, and secondly, we can hardwire the cameras to the internet, rather than relying on WIFI. This has opened up many new opportunities to improve and expand our bird cameras at NRC.



Project Description (continues)

- One of the biggest improvements that we can make at NRC is to use PoE (power over ethernet) cameras. This will greatly improve the reliability and quality of our video streams. So, we have intentions of switching some of the cameras at NRC to PoE
 - Thanks to a previous Green Fund grant, we were able to purchase material for 1 wood duck box, which will be installed in the coming weeks. We would like material for a second wood duck box, which will be installed in the creek that runs along side the house.
 - Being close to the Nanticoke River, the NRC is the ideal place for an osprey nesting platform. Funding for the platform materials has already been obtained and the platform construction is completed. We hope to install this platform in the coming months. We would like to install a camera to this platform to stream the footage. Therefore, we are requesting some additional materials to be able to do this.
5. This coming Spring, we have plans to start a research project focused around wrens. See complete research proposal below. This past Spring wrens destroyed 2 chickadee nests on campus and also a chickadee and bluebird nest at NRC. Wrens entered the nest boxes and very quickly tossed all of the eggs out of the box. They also eventually took over all of our nest boxes, filling them with sticks, even if they did not use them as a nesting site. These nest destroying behaviors in wrens are actually very common, with wrens even known to kill baby birds. Unfortunately, wrens are having a significant negative effect on bluebird and chickadee populations, which have been shown to be declining at an alarming rate. As per the research proposal below, we are planning to test out some nest box designs in the hopes of finding a way of discouraging wrens from using nest boxes. We have already obtained some funding for this project from a USARA grant (\$400), and have applied to the Henson undergraduate research award.

Map of SU showing current and proposed nest box locations



Project Description (continues)

The Deception of House Wrens: How Cuteness Hides Destruction

Jenna Luka, Malone Dampier, Dr Jeremy Corfield

Introduction

House Wrens (*Troglodytes aedon*) are small, adorable cavity-nesting songbirds whose habitat ranges throughout almost all of the Western Hemisphere. They typically nest from early May to late August, finding hollows in trees and old woodpecker cavities, or using birdboxes put up by bird enthusiasts. Although native, they are incredibly hostile birds, often destroying nearby nests and even killing the fledglings in them. A study by Kattan, (2016) showed that House Wrens in Colombia attacked other species' nests to either take them for their own use or to squash competition that was too close, suggesting a territorial element to their nesting behaviors. Wrens also have the unique behavior of building "dummy nests" where they fill birdboxes with nesting material but do not actually use them for nesting. Though these dummy nests seem to be mostly for decreasing predation on their eggs by spreading out predation events across many empty nests, they are still intensely defended by House Wrens. A study from Finch, (1990) observed that swallows nesting in a House Wren's dummy nest were driven out, causing the swallow to abandon its clutch. These behaviors are heightened even more for birdboxes; during the 2023 nesting season, multiple birdboxes on the Salisbury University campus were taken over by House Wrens. House Wrens may display such aggression because birdboxes are extremely favorable for them in particular – a study done by Purcell, et al., (1997) found that while other cavity-nesting species experienced negative side effects such as higher predation rates, House Wrens experienced only positive side effects including larger clutches, more egg hatches, and earlier fledging while maintaining similar predation rates. Though birdboxes are meant to mimic natural cavities birds would normally nest in, they are typically put up in the most favorable location possible and can be equipped with accessories like predator guards that make them a much more advantageous place to nest.

For birds like the Eastern Bluebird or Tree Swallow, urbanization and harmful agriculture practices are driving them out of their natural rural landscapes and this fierce competition with House Wrens limits their populations' ability to inhabit suburban areas. A recent study from 2014 by Paquette, et al. collected and weighed tree swallows near agricultural activity over the course of seven years (2005-2011) and found disturbing results – not only did the swallow population decline by 19%, but female body mass also decreased by 8%, which would likely lead to a lowered capability to have and care for averaged-sized clutches.

Project Description (continues)

This dramatic decline in bird populations is seen not only in Tree Swallows but with many North American species, especially cavity nesters. Stanton et al. (2018) specifies that 74% of farmland-associated species declined from 1966 to 2013, The U.S. Fish & Wildlife Service notes that 73% of aerial insectivore populations are currently declining, and Rosenberg, et al. (2019) cites a 29% decrease in species abundance since 1970 for a total loss of almost 3 billion birds and counting. The consensus is clear – extreme biodiversity loss is occurring in bird populations across North America, and immediate action needs to be taken to begin to restore their populations. Complex issues like rapid urbanization are unlikely to be stopped or even slowed, but backyard conservationists can contribute by setting up their own birdboxes in suburban areas suitable for nesting. While the conservation of all native cavity-nesting species is important, House Wren population stability is of the least concern so providing birdbox variations that are easy for the average person to implement will allow unstable species to gain new habitats in suburban areas. Having one of the biggest ranges of songbirds according to The National Wildlife Federation, House Wrens are not picky in their nest sites – thus, it is important to find what factors they do care about to create birdboxes that will stop House Wrens from nesting, allowing other species to take up residence. There are currently some deterrents in common practice for aggressive species like wren guards, which attach to the top of a birdbox and hide the entrance. In theory, this is a great idea, but in practice is a much different story – the wren guard must be added right after another species has laid eggs but cannot be attached prematurely or the species will become discouraged from using the box, and more delays than deters since the House Wren may find the entrance anyway. Other attachments like sparrow spookers made from sheets of reflective mylar may be considered an eyesore and not even allowed by certain neighborhoods. Studies by Belles-Isles and Picman, (1986) and Finch, (1989) showed that House Wrens prefer sparsely dense foliage and have a higher level of fledgling success when nesting in those areas. The Salisbury University campus is the perfect environment for House Wrens and has a very large population, with most of the birdboxes being inhabited by them in the 2023 nesting season.

Methods

Through this study, we intend to discern birdbox characteristics considered by House Wrens when choosing a nest site and discover the most disliked characteristics that can be easily added to a birdbox to discourage House Wren nesting. We have chosen to focus on three birdbox characteristics – the dimensions of the birdbox (width and depth), color of the inside and outside, and presence of a perch outside the opening. We will be making fifteen three-chambered birdboxes with each section randomly treated with one of the color, perch, and dimension variations.

Project Description (continues)

This will allow the House Wrens to choose their favorite of the three while limiting environmental and predation factors for each set of variation combinations. The birdboxes will be scattered around the Salisbury University campus and its satellite houses where the environment is best suited for nesting. House Wren interest and nesting will be monitored using cameras placed inside the boxes or manually when cameras cannot be used, and fledgling success will be totaled at the end of the nesting season. Environmental factors of foliage density (shrubbery within a 15m radius of the box), tree coverage, and building density (15m radius) will be examined to ensure there is no significant difference between the boxes that would affect the choices made by the House Wrens. The three factors being studied for the birdboxes- dimensions, color, and perch- have all been shown to be taken into consideration when a House Wren chooses a nesting site, so our variations will be based on past research in accordance with our own experimental goals. The following sections describe the variations in greater detail:

Dimensions:

The main material used in House Wren nests are small, dead twigs piled into the cavity to create a large base for their eggs to incubate, so choosing a birdbox that is large enough to contain a nest for up to eight fledglings is likely one of the most important factors in a nesting site. The typical birdbox layout is 4" x 4" x 8" or 12", giving them adequate space to nest without being big enough for large predators to get inside. A study by McCabe, (1965) measured two aspects of House Wren nests – the height from the bottom to the top of the nest mound, and the depth from the ceiling to the bottom of the nest cavity, where the eggs are laid. He found that the average height was 12.9cm (~5") and the average depth was 11.5cm (~4.5"), and only two of 39 nests had their nest mound go above the nest entrance. We will be using the standard 4" x 4" x 8" dimensions to build the birdboxes but are incorporating a false bottom to make the chambers progressively more shallow. Five of the boxes will have 4" x 4" x 6" chambers, five will have 4" x 4" x 5" chambers, and the last five will have 4" x 4" x 4" chambers. This progression will allow us to see how shallow a cavity the House Wren is willing to nest in – while this will likely exclude bluebirds and swallows which are slightly bigger than wrens, smaller birds like chickadees may still be able to nest in the more shallow boxes.

Color:

Birds, being tetrachromats, rely on color for survival much more than the average human does. Tetrachromats see red, blue, green, and UV, and birds like House Wrens use their UV detection in part to spot predators like Screech Owls which have UV coloring on their feathers.

Project Description (continues)

To see if the presence of UV is a deterrent to House Wrens, seven of our birdboxes will be painted with a UV pattern similar to the wing of a screech owl and eight will not have UV patterns. Besides UV, they use other colors to find the best food and attract mates, two of the most important aspects of survival and fitness. Another study by McCabe, (1961) done over eleven years found that House Wrens preferred white-painted birdboxes the least (2 of 98 nests) and yellow-painted birdboxes the second-least (8 of 98 nests), accounting for a total of only 10.2% of birdboxes nested in. Thus, for all fifteen birdboxes we will have the inside and outside of one chamber painted white, one yellow, and will keep the last unpainted.

Perch:

While perches add to the aesthetic of birdboxes to humans, most ornithological organizations including the National Wildlife Foundation, the British Trust for Ornithology, and the Southern Maryland Audubon Society recommend against using perches as it makes it easier for predators and unwanted birds to attack a nest and can sometimes lead to fledglings prematurely stepping out of the nest and falling. For House Wrens in particular, having a perch may allow them to maneuver sticks into the birdbox more easily. All fifteen boxes will have one chamber with a perch, one chamber with an average opening size without a perch, and one with a slightly larger opening again without a perch. Slightly widening one of the chamber openings will potentially make it easier for the larger bluebirds and swallows to sit in the opening instead of on a perch, allowing them to effectively defend their nest and completely block any form of entry.

Expected Outcomes and Significance

Because of the addition of wren-detering variations added to all of our birdboxes, we hope to see a lower number of House Wrens nesting in our boxes and a higher number and wider variety of other species compared with previous nesting seasons. Depending on a preference for or against any of the three factors, or a lack of preference, we intend to make suggestions to ornithological organizations to implement new designs for birdboxes to deter House Wren nesting. Creating simple, effective changes will allow ornithologists and backyard bird enthusiasts alike to contribute to desperately needed conservation efforts.

Is this project related to the current priorities of the Campus Sustainability Committee? If so, please explain briefly. Current priorities include: Energy & Water, Transportation, Materials Management (waste, recycling, purchasing, supply chain), Sustainability Education, Sustainability Communications, and Carbon Offsets. *Note: These topic areas are high priority, but this is not a prerequisite for funding.*

SU is dedicated to creating and promoting Eco-friendly habitats on campus, which act as a home for animals and also a learning tool for our students. This is demonstrated by things like certification through the Bee Campus USA and Monarch Watch butterfly waystation programs, and also through its recognition as an arboretum from the American Public Gardens Association. The aims of our project will add to SUs impressive list of environmental sustainability and awareness programs, and further illustrate that we lead the way in conservation and education efforts.

This project coincides with SUs Strategic Plan 2020-2025 (Strategy 5.3.2. Increase local environmental sustainability and conservation efforts and training).

This project will work towards doing our part to conserve our birds through habitat management and education.

We are designated as a “Bird Campus” with a “High Flyer” ranking which is the highest ranking possible. We are working to become one of the top bird friendly campuses in the nation, and lead the way in bird education and conservation.

Does this project have a financial payback? If so please explain. *Note: Financial payback is not a prerequisite for funding.*

We are hoping to generate revenue to help fund the ongoing costs associated with the day to day running of the project. This will come from donations and the sale of student made nest boxes and feeders.

This project will also improve SUs stance on conservation and show that we are a campus that cares about our environment. Students are becoming more and more aware of conservation and sustainability issues, and are considering these aspects when decided on where to go to for their secondary education.

SUs bird friendly campus will ultimately help attract students.

DELIVERABLES Describe the project outputs.

A campus that is focused on providing a safe home for our feathered friends

Elements on campus that provide birds with food, water, shelter and a place to raise their young

Students that are educated about bird conservation issues

Students that are actively involved in bird conservation on campus and across Maryland

Resources that can be used for teaching

At the end of the grant term a report will be produced for the green fund committee that outlines our accomplishments.

BUDGET List expenses or attach budget. *Note: Itemized budget total must be the same as the amount requested.*

See below

Approvals

Green Fund Chairperson

Department Approval – where applicable

Signature

Date

Signature

Date

BUDGET List expenses or attach budget. *Note: Itemized budget total must be the same as the amount requested.*

Description	Price	#	Total
Outdoor Direct Burial power cable- 12-Gauge 250 Feet	124.99	2	249.98
SanDisk 256GB Ultra microSDXC UHS-I Memory Card	25.4	15	381
Sunnyside Corporation 873G1 Pure Raw Linseed Oil, Gallon	38.85	2	77.7
Sakrete 60-lb Concrete Mix	4.98	16	79.68
Stainless Steel Black Vinyl Coated Wire Rope 100ft	23.99	1	23.99
1/16" Aluminum Crimping Loop Sleeve 200PCS	9.99	1	9.99
Wire Rope Crimper	13.59	1	13.59
14AWG DC Power Extension Cable,with Fuse Holder	7.99	15	119.85
DEWALT 20V MAX* Belt Sander	246.34	1	246.34
Boshcraft 21 Pack 3 x 21 Inch Sanding Belts	18.99	1	18.99
1/4 Sheet Sandpaper Sheets	16.99	1	16.99
DEWALT 20V MAX* XR Palm Sander	99	1	99
VULCAN Security Chain and Lock Kit	189.99	1	189.99
KOWOOD Router Bits Set of 40 Pieces, 1/2 Inch Shank	67.99	1	67.99
DEWALT Router Edge Guide	53.99	1	53.99
Titebond III Ultimate Wood Glue, 16-Ounces	9.98	4	39.92
1-in x 4-in x 8-ft Unfinished Cedar Board	18.98	10	189.8
Cedar Dog Ear planks	3.1	20	62
PONY 50 Clamp Fixture for 3/4 Inch Black Pipe	21.1	2	42.2
3/4-in x 36-in Black Pipe	24.26	2	48.52
WiFi Antenna Extension Cable (2-Pack)	8.99	10	89.9
DEWALT 20V MAX* XR Battery, 4.0-Ah, 2-Pack	107.88	1	107.88
Cordless Reciprocating Saw Kit, 5 Amp-Hour Battery	149.99	1	149.99
Reciprocating Saw Blades, 10 Piece	24.99	1	24.99
IRWIN VISE-GRIP GrooveLock Pliers Set	91.23	1	91.23
Socket Set, 262-Piece Mechanic Tool Set	169	1	169
Screwdriver Set	37.98	1	37.98
CRAFTSMAN Tape Measure, 25 ft, Retraction	13.99	3	41.97
ProCase Noise Reduction Safety Ear Muffs	22.99	3	68.97
90 Degree Corner Clamps 4 pac	49.98	2	99.96
Countersink Tapered Drill Bit Set 6 Pc	28.9	1	28.9
SU bird campus designation renewal	200	1	200
Perky-Pet 325SCOMBO-1SR Large 2-Tier Outdoor Panorama Wild Bird Feeder with Hanging Hook	35.99	1	35.99
Yellow Screen SeedFeed	17.2	1	17.2
Meleave Bird Feeders for Outdoors, 6.5lb Large Capacity	27.99	1	27.99
Twinkle Star Wild Bird Feeder Hanging	17.99	1	17.99
REOLINK RLC-830A - 4K PTZ PoE Camera System	139.99	4	559.96
REOLINK RLC-523WA - PTZ Cameras Outdoor	259.99	1	259.99
Reolink Gigabit PoE Injector	29.99	5	149.95
10 PCS Cross-Connector Vertical Pipe Clip Crossover Clamps	29.99	1	29.99
10 Set Greenhouse Cross Grid Pipe Connector Clamps	28.99	1	28.99
Network Cable CAT6 Crimping Tool Kit	27.99	1	27.99

trueCABLE Cat6 Direct Burial, Shielded FTP, 1000ft	256.99	1	256.99
TP-Link EAP610-Outdoor Access Point	129.99	2	259.98
1-in x 10-ft Metallic Emt Conduit Item #72715	20.38	10	203.8
Sigma ProConnex 1-in Die Cast Zinc Set Screw Connector Conduit Fittings Item #72272	1.6	10	16
RELIABILT 1-in Galvanized Floor Flange	16.71	10	167.1
1-in x 10-ft 450 Psi Schedule 40 PVC Pipe	8.48	6	50.88
Charlotte Pipe 1-in Schedule 40 PVC Cap	1.17	20	23.4
Vacmaster 7 ft Hose w/ Adaptors	17.79	1	17.79
Digital Display Soldering Iron Station Kit	60	1	60
Rosin Paste Flux	12.99	1	12.99
12V Timer Switch	16	15	240
Dimmable LED Lights	20.99	15	314.85
REOLINK RLC-811A PoE IP Security Camera	119.99	2	239.98
Total			\$6162