Technology Fee Full Proposal Paper Submission Form

Title: Wi-Fi and distance learning in the Natural Area Teaching Lab (UF/NATL), UF's only 60-acre outdoor classroom on campus.

Proposer: Jennifer Gillett-Kaufman, Chair UF/NATL (contact person)
UF/IFAS Entomology & Nematology Department, Rm. 3006 Bldg. 970, Natural Area Drive
PO Box 110620, Gainesville Florida 32611-0620
Phone: (352)273-3950, Fax: (352)392-0190, Email: gillett@ufl.edu
Twitter: @JGillettKaufman @UFEntomology and @UFNATL

Matt Grover, University of Florida
Sr. Network Engineer, http://net-services.ufl.edu
Phone: (352)273-1061, Email: matt@ufl.edu

Sponsoring Organization: UF NATL Faculty Advisory Committee, members from the following: Environmental Engineering Science Department, Soil and Water Science, McGuire Center, Florida Museum of Natural History (FLMNH), Entomology & Nematology Department, Department of Tourism, Recreation and Sport Management, COE School of Teaching and Learning, Department of Biology, Facilities Planning and Construction, Department of Biology, Wildlife Ecology & Conservation Department and the School of Forestry. Unit director Dr. Joseph Glover, Provost & Sr. Vice President.

Purpose and Specific Objectives: This project intends to institute remote access and real-time online interaction with the UF Natural Area Teaching Lab (NATL), a 60-acre outdoor classroom dedicated to educating both UF students and the public about ecology and biological diversity. As far as we know NATL is the only classroom on campus without WiFi. Specifically, this project seeks to 1) institute a Wi-Fi signal in the 20+ open acreage NATL-west portion of the lab and as far into the wooded area as possible; 2) implement a webcam in both the public and private areas of NATL to be used by teachers and researchers; 3) employ a "Bring Your Own Device" program to facilitate interactive, live tours of NATL; 4) update the NATL Website to include information about the three resources provided by the Technology Fee.

NATL is broken into two ecologically distinct tracts, and further subdivided into a public-accessible area and a restricted area reserved for student projects. Within the public area there are four ecosystems with a system of nature-trails utilizing QR code linked photosigns and kiosks. Our goal is to cover the old field, SEEP wetlands and the upland pine trails in NATL-west with a Wi-Fi signal. With this signal we could perform live tours using iPads and other electronic devices that are owned by students and faculty to transmit a live video stream. With this technology, NATL and Florida Museum of Natural History* teaching assistants and

volunteers could interact with teachers and students in real time, zooming in on subjects of interest and answering questions as they arise. The addition of WiFi would increase the accessibility of the area for users that are interested in exploring our already established trail signs that are marked with QR codes. Webcams can be used for 24-hour live, streaming wildlife observations, providing an invaluable asset to research subjects ranging from owl nest-box studies to wildlife surveys.

A letter of support for this project is available from the Florida Museum of Natural History, Dr. Jaret Daniels. From the Museum perspective, WiFi in NATL would facilitate effective docent led tours, connect teachers and kids with additional key environmental content, enable virtual tours from the Museum on poor weather days, and enhance opportunities for UF undergraduate interns and teachers in NATL (we have numerous teachers with tours that are themselves apprehensive of going out in nature).

Impact/Benefit: Each year, NATL hosts hundreds of UF field trips, class projects, individual research projects and material collection for at least 36 courses representing eight departments in four different colleges (Agricultural and Life Sciences, Liberal Arts and Sciences, Education, and Engineering). A study on academic use in NATL estimated 1160 undergraduate and graduate students used NATL as part of their courses in 2008. In 2012 we had over 15,800 visitors. Augmenting what NATL currently offers with Wi-Fi, tours and web-cam access would greatly increase both the number of students able to utilize the lab, as well as the quality of the experience for those already using the lab to enhance their classroom experience and lives.

Faculty will have the added benefit of easily using NATL as part of their distance education courses. Streaming video from the webcams can be used for course assignments in the wildlife department regardless of where the students reside. TAs can take students who would visit the area for a class assignment on a distance guided tour improving the students learning experience and the quality of our distance courses.

Online resources such as GIS maps, plant and animal databases and photo logs already available on the NATL Website are made infinitely more useful when accessible in the field. In addition, the large, covered NATL teaching pavilion could function as an outdoor study room, where students could bring their computers and work while enjoying the scenery, instead of taking photos or collecting samples and transporting them back to the classroom.

Benefits to IT: This will provide remote access to a natural area outdoor lab, bringing UF a step closer to fully-widespread campus Internet access. The tours and increased usability will connect the UF community and the public with resources that were previously unavailable.

Benefits to the College and University: Enhancing NATL with technological assets will create a truly unique learning environment for UF students and visitors as well as for anyone with computer access and an interest in natural science. It will also bolster courses focused on plant and animal observations and ecotourism with true-to-life, interactive material. Additionally, virtual tours will make every inch of NATL accessible to those with conditions that prevent them from exploring the lab in person.

Sustainability: Matt Grover of the UF IT-CNS NS CORE believes that we can get the open areas of this site covered with WiFi adding to the coverage available on campus. There may be some difficulties supplying power to some of the sites, but the bid we have for power should provide a solid WiFi foundation in the open areas. The first year of this program will initiate WiFi and tours, funding will come from the Technology Fee award. Continued costs of maintenance and repair of the WiFi towers will be handled by UF's central IT funds. Improvements to tours and webcams will be supported by NATL and by seeking additional funds from outside sources with the Florida Museum of Natural History

Timeline:

August 2013	Funding awarded.
August 2013	Run electricity. Order equipment for Wi-Fi stations and webcams.
November 2013	Complete installation.
November 2013	Practice delivering virtual tours, begin streaming webcam video. Update website.
January 2014	Begin to offer guided interactive tours and virtual tours of NATL.

Technology Fee Full Proposal Budget

Title: Wi-Fi and distance learning in the Natural Area Teaching Lab (NATL), UF's only 60-acre outdoor classroom on campus.

Proposer: Jennifer Gillett-Kaufman

BUDGET

Objective	**Cost**
1) run electricity for cameras and WiFi (bid attached)	$44,000
2) institute a Wi-Fi signal	$28,950
3) outdoor WiFi webcams (2) and mounting equipment	$3,650
4) start a Bring Your Own Device program	$0
5) update the NATL Website	$0
Total	**$76,600**

PRESTON LINK
ELECTRIC, INC.
EC 138001848

JOB NAME: **UF NATURAL TEACHING LAB**
ELECTRICAL ENGINEER:
PLANS:
SPECIFICATIONS: **PER GENNIFER & MATT**
ACKNOWLEDGED ADDENDA:
DATE OF THIS PROPOSAL: **2/03/13**

Base Bid as clarified below: $44,000.00

Price is valid for 30 days from the date of the proposal, unless extended in writing by Preston Link Electric, Inc. (PLE)

Inclusions:

1. Permits
2. 25KVA TRANSFORMER MOUNTING AND 12KV TERMINATIONS AT POLE 120/240 VOLT SECONDARY
3. 100 AMP SD PANELBRD. WITH 2P-60 AMP MAIN BREAKER WITHN FEED FROM TRANSFORMER.
4. POWER TO EXISTING LIGHT FIXTURES IN SHED
5. TWO 120 VOLT GFI RECEPTACLE CIRCUITS .
6. POWER FOR TWO GFI CIRCUITS FOR THE PAVILION LOAD OF 15 AMPS FOR EACH.
7. TRENCHING AND CONDUIT WIRE FOR INSTALLED FOR MAX. OF 3 AMPS AT THE FAR END OF RUNS FOR THE CAMERA AND WI-FI REPEATERS TOTAL OF 4 LOCATIONS ON TH MAP
8. INCLUDES 4 GFI OUTLETS WITH WEATHER PROOF BOXES WITH COVERS OR HARDWIRE AT THE LOCATIONS ON THE MAP.
9. Trenching and compacting for our conduits across the driveway
10. Leveling of all the trenching
11. All work per the current version of the National Electrical code, and the Florida Building Code.
12. All junction boxes and wiring devices to be installed out of the burn zone

Exclusions:

1. No posts to mount cameras or wi-fi equipment
2. Does not include mounting the cameras or wi=fi equipment
3. Any grass seeding or resod over trenching
4. Primary conduit, wiring, transformer and equipment.
5. Utility fees.
6. Allowance for conduit wiring and equipment not shown on the electrical plans.
7. No work to be done in the burn zone

Warranty for material and labor is for a period of 1 year from the certificate of occupancy unless extended in writing by Preston Link Electric, Inc. Equipment and materials supplied by PLE are warranted only to the extent that the same are warranted by the manufacturer.

4000 SW 35th Terrace- Gainesville, Fl 32608 Voice:352.373.3517 - Fax: 352.335.3836