

PARTNERING WITH SCHOOLS AND UNIVERSITIES



PROSPECT Session #1
Philadelphia, PA
May 1 - 4, 2023



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**US Army Corps
of Engineers®**



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Why Partner with Educational Institutes?



- Involvement with local universities and schools is a natural fit with the Corps' increasing emphasis on environmental stewardship and STEM.
- A good program can foster ownership of the project, which is beneficial when seeking community support.
- The easiest way to reach an adult is through the experiences of their children. Don't forget these programs have the ability to drive visitation from these contacts.
- Think beyond the obvious... graphic design, environmental studies, event planning, recreation, biological sciences, engineering, architecture
- Give them the opportunity to say yes.



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Job/Intern Fairs

These are an easy way to begin interaction with your local university.

- Recruit volunteers
- Educate
- Establish an agency presence
- Establish relationships





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Where Preparation Meets Opportunity!

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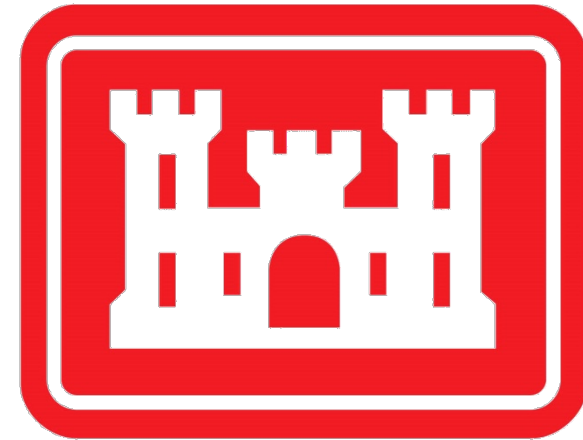
Guest Speaker for Intro to Rec Classes

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The Athletic Department is a great way to promote water safety but the Recreation Department is your best way to get direct student interaction at your lake project.

- Educate
- Establish an agency presence
- Recruit
- Develop relationships

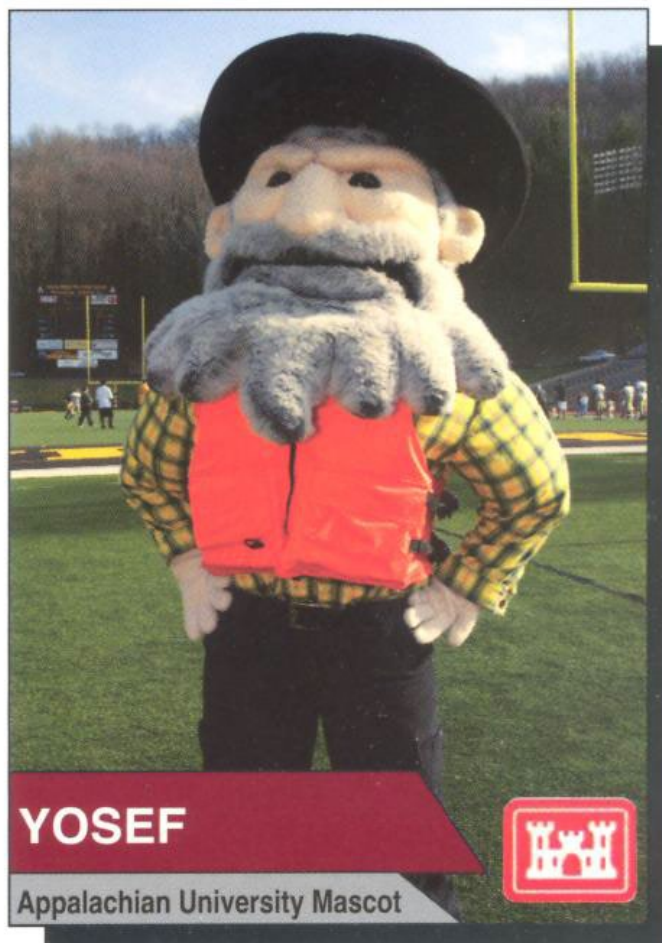


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Case Study: W. Kerr Scott Lake & ASU



- **Make initial school commitment easy**, i.e. “Could we have 10 minutes of your time to take a picture of the mascot in a life jacket? Anytime would work for us.”
- At W. Kerr Scott Reservoir in SAW, Appalachian State University allowed a ranger to come to a practice to get photos and video of players, coach and mascot wearing life jackets and promoting water safety.
- *Note: Always take photos of the mascot and coach separately in addition to together in case of coaching staff changes.*

W. Kerr Scott Lake- SAW- North Carolina

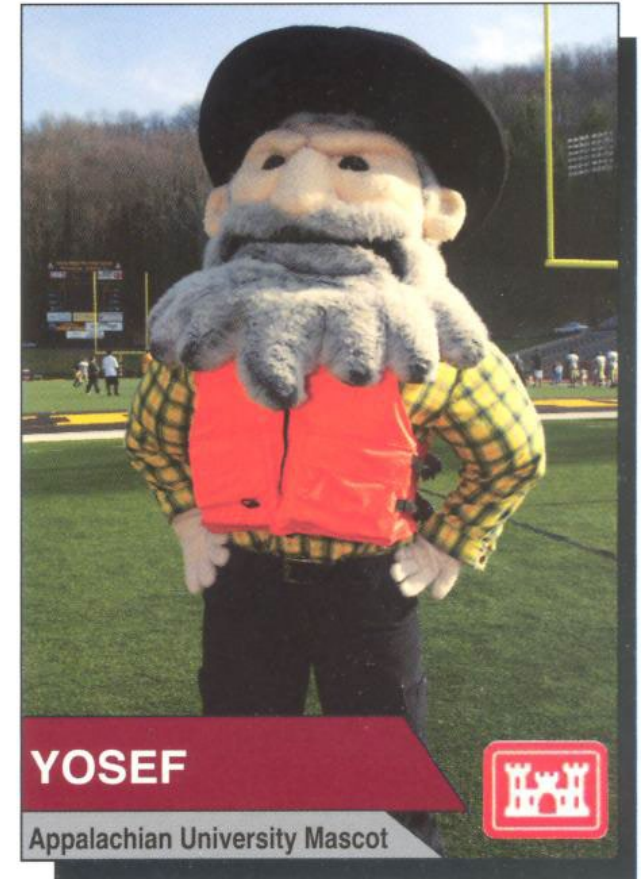
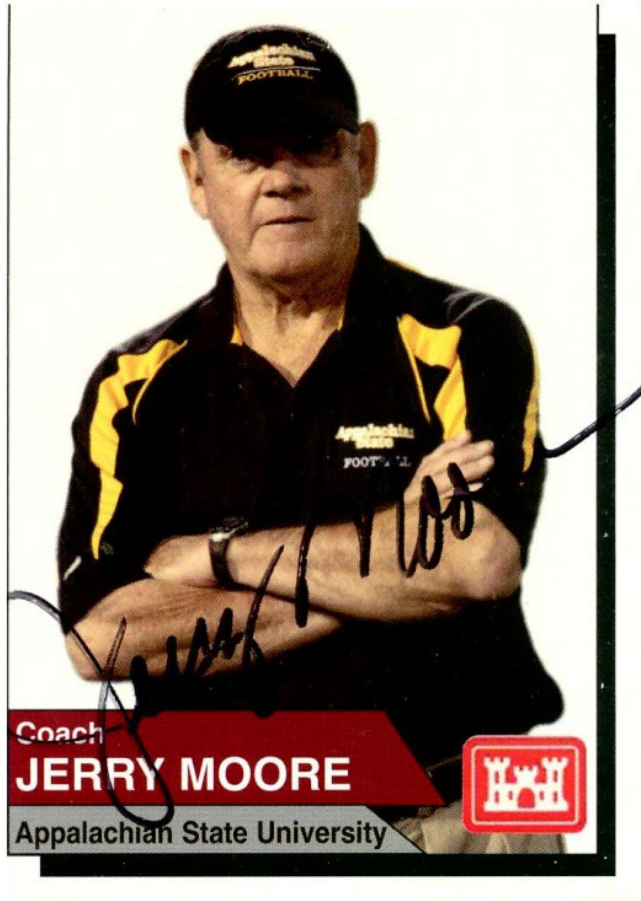
Origin- Ranger Eller got the idea to work with ASU after the football team made headlines for defeating Michigan, reached out to Rec and Athletic Departments to find opportunities to work together, partnership snowballed from there.



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Water Safety Trading Cards



These are popular with kids and are cost effective way to promote water safety (4 cents per card)



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<https://www.youtube.com/watch?v=hICV-U9fsEo>





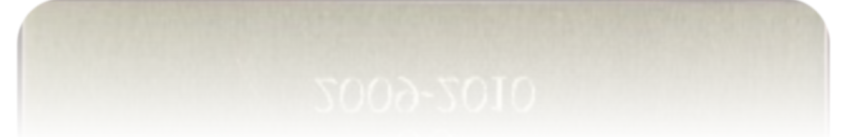
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Volunteer Interns



If you have a good working RELATIONSHIP with a university in proximity to your project, you can recruit volunteer interns.

Students are often required to do internships to fulfill their graduation requirements.





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Capstone Projects: National NRM Innovations Team and SW Oklahoma State University

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- Established MOU in 2017.
- Innovations Team members present different innovations they need help with.
- IT students choose which Innovations they want to work on for the semester.
- Each University team works with a (4) person Innovations sub team for 16 weeks and presents/demos their project to USACE Innovations Team Members at end of semester.



First IT (Spring) Class in 2016



Augmented Reality Life Jackets



Tulsa District, SWOSU, & Team Leadership (2019)



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Innovations Team and SW Oklahoma State University



- The partnership continues to grow with SWOSU adding a Fall Design Practicum Class in 2019 to continue USACE software and mobile app development.
- The University hosts the Innovations Team Workshop every January at no cost to the Corps, where students and the Innovations Team can interface. The workshops are attended by leadership from both SWOSU and the Tulsa District.



Origin: The Innovations Team used resources and lessons from this class to make connections with local universities and their Service-Learning Centers. They were more successful building partnerships with smaller schools looking to build up their programs.



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Senior Design Classes: National Innovations Team and University of Texas Arlington

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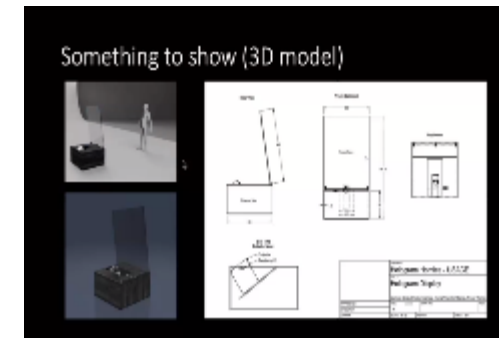
- Establishing MOU for 2022-2023
- Senior Design Classes are (2) Semester program: 1st Semester is planning, design, resourcing. 2nd Semester is building out the Innovation into a physical prototype/product.
- Small teams of Senior Design IT Students pair up with Innovations Sub teams and work together on challenging Innovations Prototypes and Products.
- Each group works together for an entire year. University funds first \$800 of R&D for the students.
- Currently working on: Augmented Reality Floor Projections, USACE Corps Catch, Park Ranger Holograms, VR/360 App, & Sign Translator Tool.



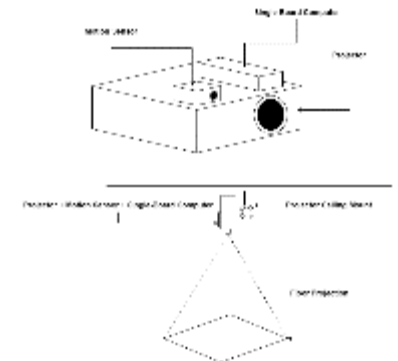
Innovations Team presenting to UTA Class



One of the Fabrication Labs at UTA



Preliminary UTA Designs for AR Floor Projections
and Park Ranger Holograms.





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University Partnerships with the National NRM Innovations Team to date



Capstone Classes to date: 9

Number of Students: 136

Volunteer Hours: 23,424

Volunteer Value: \$701,548.80

Innovations worked on: 27

Total Value: \$703,948.80

*** Site hosting values not included

Capstone Classes to date: 1

Number of Students: 30

Volunteer Hours: 0

Volunteer Value: \$0

Innovations worked on: 5

Total Value: \$0

*** Values will be added on May 1, 2023



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Iowa State Capstone Project at Saylorville



- Partnership with Department of Natural Resource and Ecology Management at ISU
- Seniors/Juniors enrolled in Animal Ecology/Forestry capstone course
- USACE provides large sites with unique land features or vegetation to students to manage and provides objectives such as forest inventory, timber management, habitat improvement, etc.
- Students spend semester doing site visits, collecting/analyzing data, and give final presentation to students, professors and USACE rangers
- Final product provided to USACE = booklet with site history, current conditions, site recommendations that can be implemented by USACE

Saylorville Lake- MVR- Iowa

Origin: Longstanding partnership with the university that started through recruiting students for staff positions and grew into a partnership in developing natural resource management plans.



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NC State Eagle Cam

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- A team of volunteer engineers, NCSU graduate students, faculty, and staff worked to make the project happen.
- Video cameras installed at an active nest in October and began monitoring the breeding pair just before female laid two eggs in early December.

B.E. Jordan Lake- SAW- North Carolina

Origin: Ranger Ferrell led an ornithology class to visit an active bald eagle nest, idea for the eagle cam came up in conversation with the professor.

NC STATE UNIVERSITY

Live Video - Bald Eagle Nest at Jordan Lake, NC

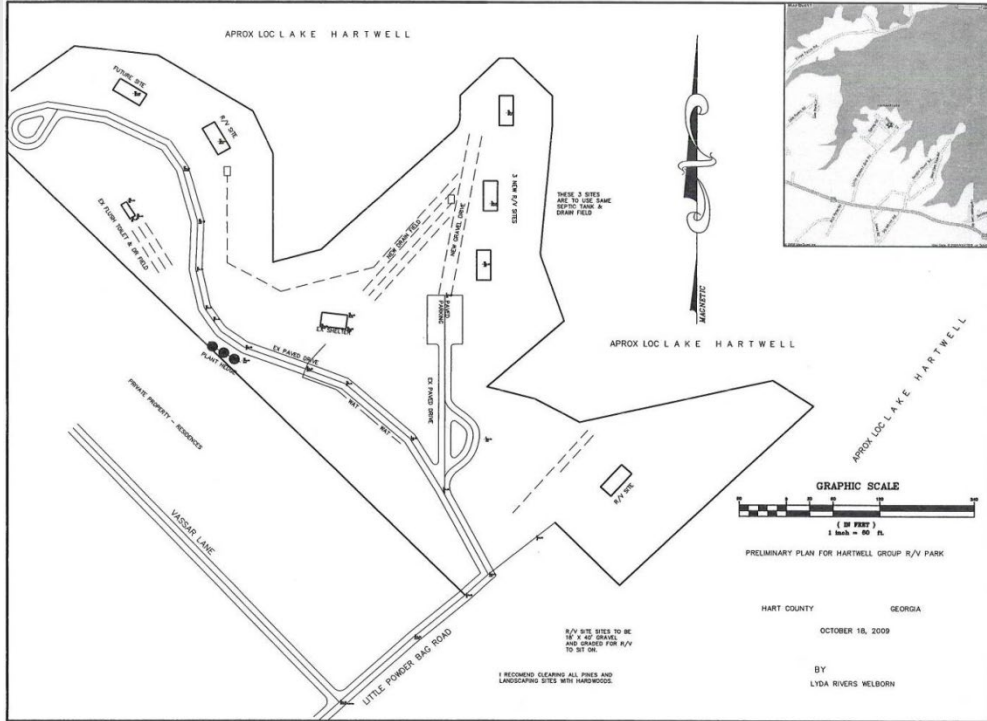


Nest is visible dawn to dusk Eastern Standard Time.



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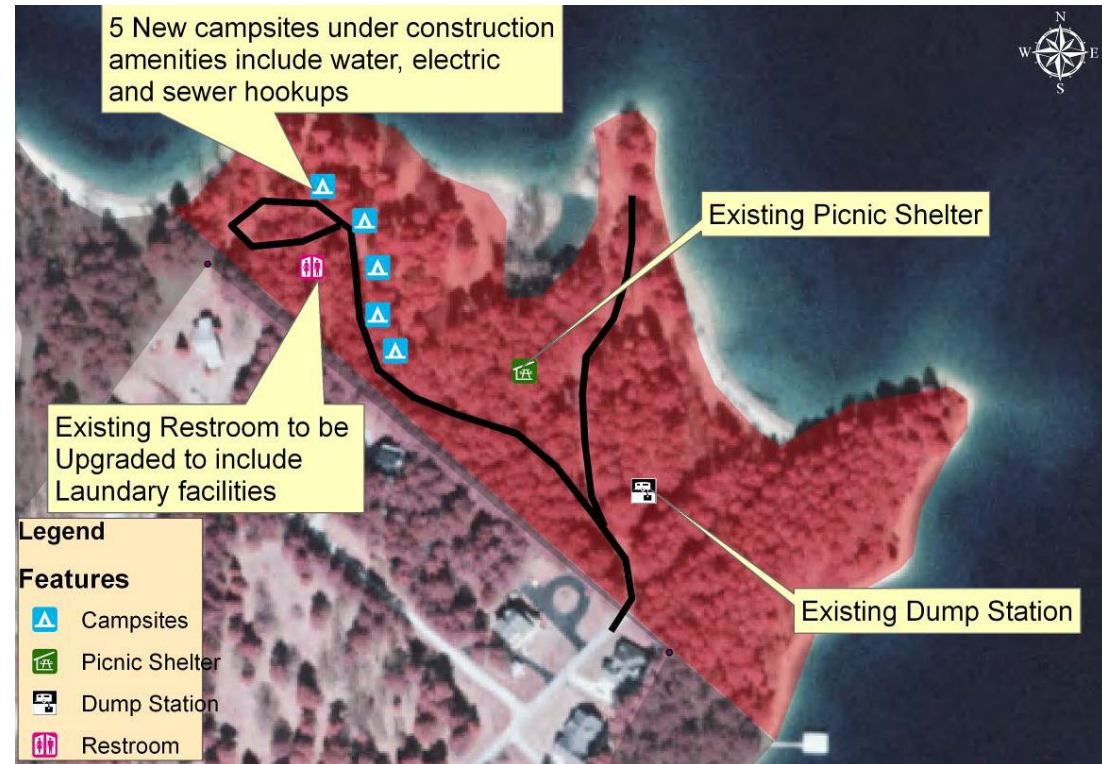
Clemson University Department Of Parks, Recreation, Tourism



- 2009 MOU with Clemson for facility planning, outreach, data collection, program development

Hartwell Lake-SAS- Georgia

- Student assignment to design a volunteer village
- Winning design implemented at Hartwell



0.00501 0.02 Miles



1 inch = 0.03 miles



Hartwell Lake Volunteer Village
Feb 5 2010



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Savannah District



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Finished product!





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Juniata College Raystown Field Station

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Raystown Lake-NAB- Pennsylvania

Origin: The field station was part of the original development of Raystown Lake.

- Lease since 1974 to Juniata to provide opportunities for environmental research and education at Raystown.
- Developed Raystown Conservation Education Partnership
- Led to 2007 Handshake funded challenge partnership agreement for environmental education programming.



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DeGray Lake Visitor Center Renovation

Estimate-\$350,000

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- Partnership with Henderson State
- Serves as research and resource center
- Maintains archeological records, collections
- Teach anthropology courses and outreach
- Artifacts on loan from the University (free)
- Caddo Village mural- cost of materials only
- Identification labels and labor for display (free)
- Loan historical photographs



DeGray Lake- MVK- Arkansas
Origin: Artifacts already on display were loaned from the university and the estimate from a contractor to renovate was over \$500k so the project discussed more opportunities to partner with HSU.



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Southern Illinois University at Lake Shelbyville- MVS



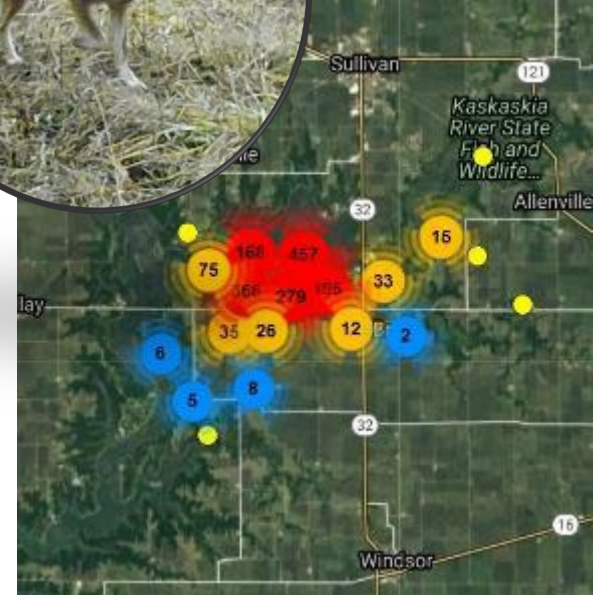
Study aimed at determining the effects of coyotes and bobcats on survival and behavior of white-tailed deer and determine how it varies between contiguous and fragmented landscapes.

- Young female bobcat GPS collared. Travelled approx. 65 miles from site of capture within first month.
- Buck tagged at 2.5 years old. Summered on east side of the lake and crossed the lake.
- Coyote shown to have a home range of approx. 20% of Lake Shelbyville.

Origin: This study spun off from a deer research project originally started in 2006.



Lake Shelbyville 11K AC





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Restoring Native Species at Allatoona

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- Lake Allatoona has a 10-year plus relationship with Berry College.
- Ranger Terrell Stoves approached a professor at the college about a possible partnership to reintroduce the Mountain Longleaf Pine to Pine Mountain at the project.
- This success led to the expansion of the program 7 years later to include the project as a test site for the introduction of potentially blight resistant American Chestnuts.



- The Professor on the Longleaf Pine project also happened to be the state coordinator for the American Chestnut Foundation with whom the Corps has a National MOU.

Allatoona Lake- SAM- Georgia



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Trail Design at Mark Twain Lake

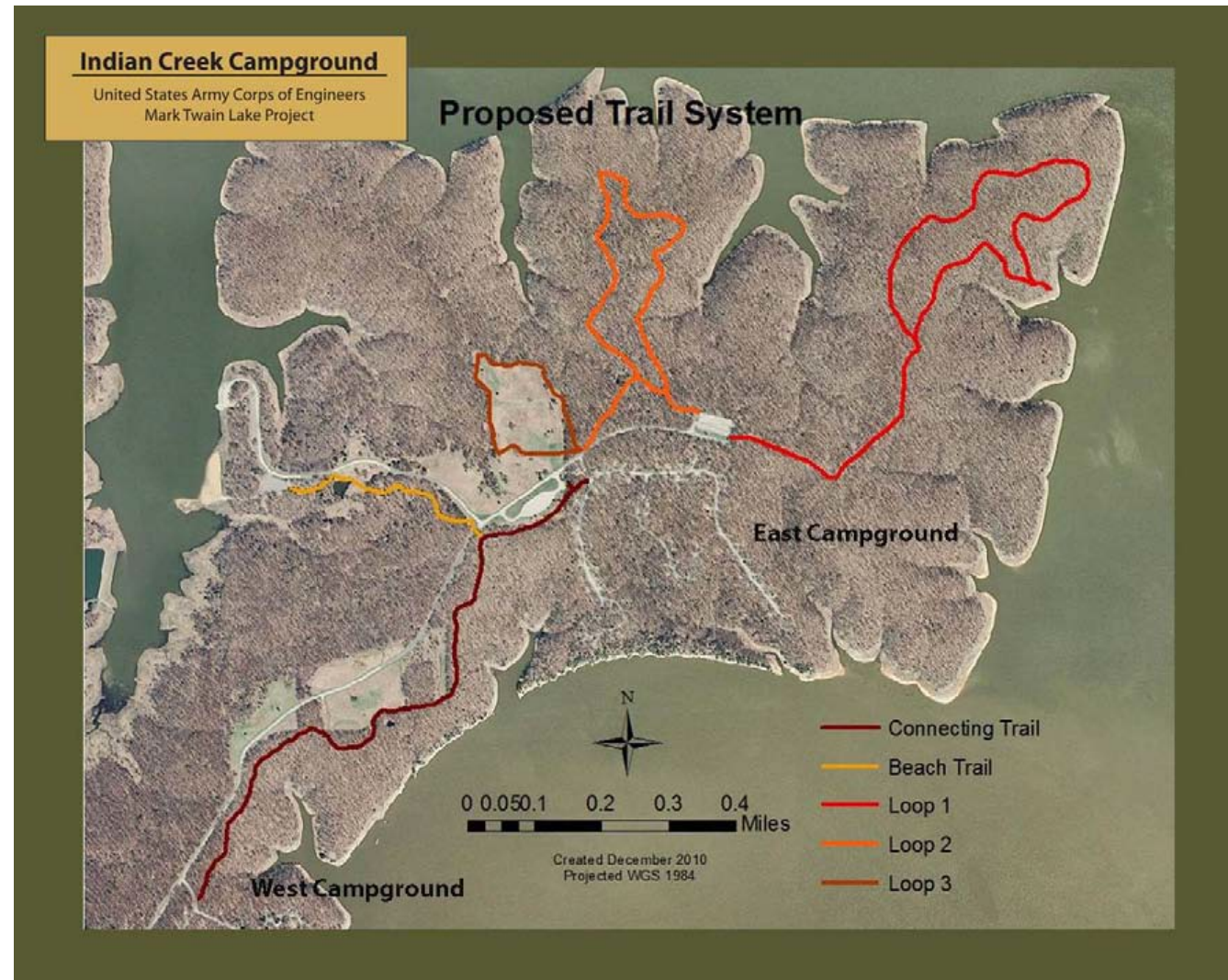
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- MOU with Western Illinois University and the FOREST Council
- Worked with Open Space Park Planning/ Landscape Construction class on needs assessment and design of multi-use trail project
- FOREST Council applied for grant \$

Mark Twain Lake- MVS- Missouri

Origin: Several USACE NRM staff were WIU graduates and knew a professor that taught recreational trail design.



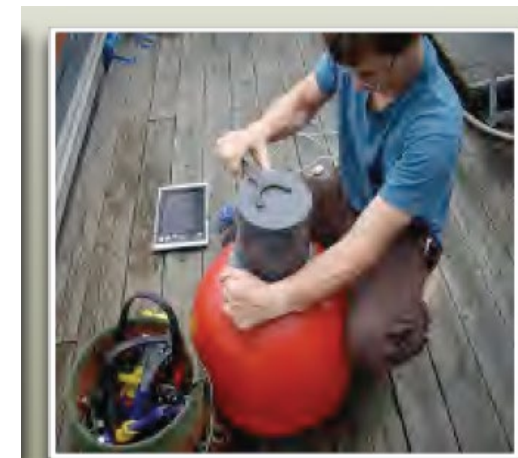
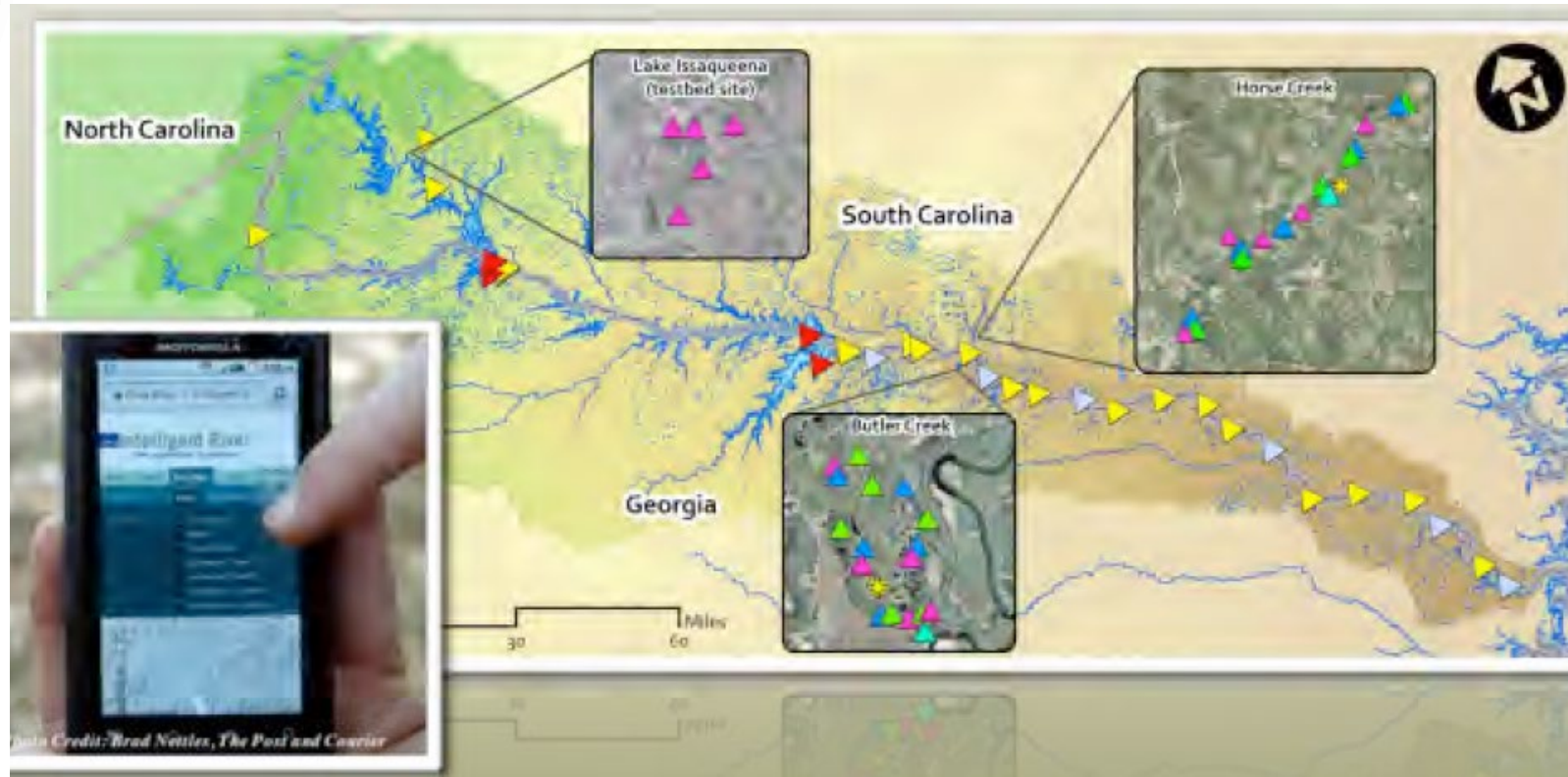


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Clemson Water Quality Monitoring

- Clemson University awarded \$3M by the National Science Foundation to design, develop and deploy a basin-wide network of computerized sensors that provide real-time remote data acquisition to monitor water quality along the entire length of the Savannah River.
- Partnered with the Corps to place sensors and share data.





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Boise State Kestrel Box Program

- Students at BSU build and install kestrel nest boxes, develop management plan, monitor populations, and band birds.



Lucky Peak Lake- NWK- Idaho

Origin: Project wanted to expand the ENS program, connected with experts at the World Center for Birds of Prey who advised that Lucky Peak would be great Kestrel habitat except there aren't any trees for cavity nesting birds. Connected with BSU who already had a Kestrel nest box program, and the partnership grew from there, including a partnership with New Roots organization that connects refugee and immigrant children to their new natural environment.



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Franklin Pierce Bat Studies at Edward MacDowell

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- Students conduct studies to determine bat species presence to establish a baseline data set
- Mist netting surveys in 2019
- Acoustic surveys in 2020-2021
- Seven of eight known bat species in NH documented
- Three of four state endangered bat species present
- Future studies hope to incorporate telemetry to document forest-ed areas used as roosting habitat by target species such as the northern long-eared bat.

Edward MacDowell Reservoir- NAE- New Hampshire

Origin: Univ. biologist approached USACE to form partnership because this project had the most diversity of bat species in NH.

