Service Learning Course

NASA Langley Research Center

GeoTEd
geoted.org

Chris Carter
Deputy Director, VSGC

Chérie Aukland,
Program Head for GIS, TNCC

David Webb,
Program Head MET and GIS, VWCC

NSF ATE
DUE-
0903270;
1205110

VIRGINIA SPACE GRANT CONSORTIUM

VIRGINIA WESTERN
The Community's College

THOMAS NELSON
The Peninsula's Community College

SWCC

VirginiaGeospatial ExtensionProgram
http://www.gep.frec.vt.edu

J. Sargeant Reynolds Community College

GeoTECH
GEOTECHCENTER.ORG

VSGC and Geospatial Technology

- Geographic Information Systems (GIS), Global Positioning Systems (GPS), Remote Sensing
- Since 2000, very active
- Established Virginia Geospatial Extension Agent at Virginia Tech (NASA WFD Grant)
- Precollege teacher professional development (GEOTREK-12)
- State GIS Summit (2005)
- Supported student research through scholarships and fellowships

VSGC and Geospatial Technology

- 3 NSF-Advanced Technological Education (ATE) awards
- Virginia Community College System (VCCS) and several colleges
- Increase number of trained GIS technicians

1. Planning Grant (2007)(1.5 yrs)
   - needs survey; DACUM
2. Statewide Project Grant (2009-12)
   - Pathways; curriculum; faculty and teacher professional development; webportal
3. GeoTEd (2012-15) – Regional Project
   - NC, TN, KY, WV, MD

- Align Courses and Pathways with National Geospatial Technology Competency Model
- Distance Learning Courses in GIS Offered Through Shared Services
- Faculty Professional Development
- Faculty Mentoring
- Mobile App
- High School Teacher Professional Development

Affiliate Partners

Virginia Community College System (VCCS)
John Tyler Community College
Tidewater Community College
Northern Virginia Community College
Virginia Assoc. for Mapping & Land Information Systems (VAMLIS)
NASA Langley Research Center
Virginia Department of Education
ESRI
International Technology Education Assoc.
Virginia Geographic Information Network (VGIN)
James Madison University
Michael Baker Jr., Inc.
Virginia Information Technology Agency (VITA)

Affiliate Partners

City of Williamsburg
Dominion Virginia Power
Bluefield State College
Northeast State Technical Community College
Kinder GIS Services
Tazewell County
Russell County
City of Newport News
R&K Solutions
WorldView Solutions
Timmons Group
National GeoTech Center
Botetourt Technical Education Center

Outcomes

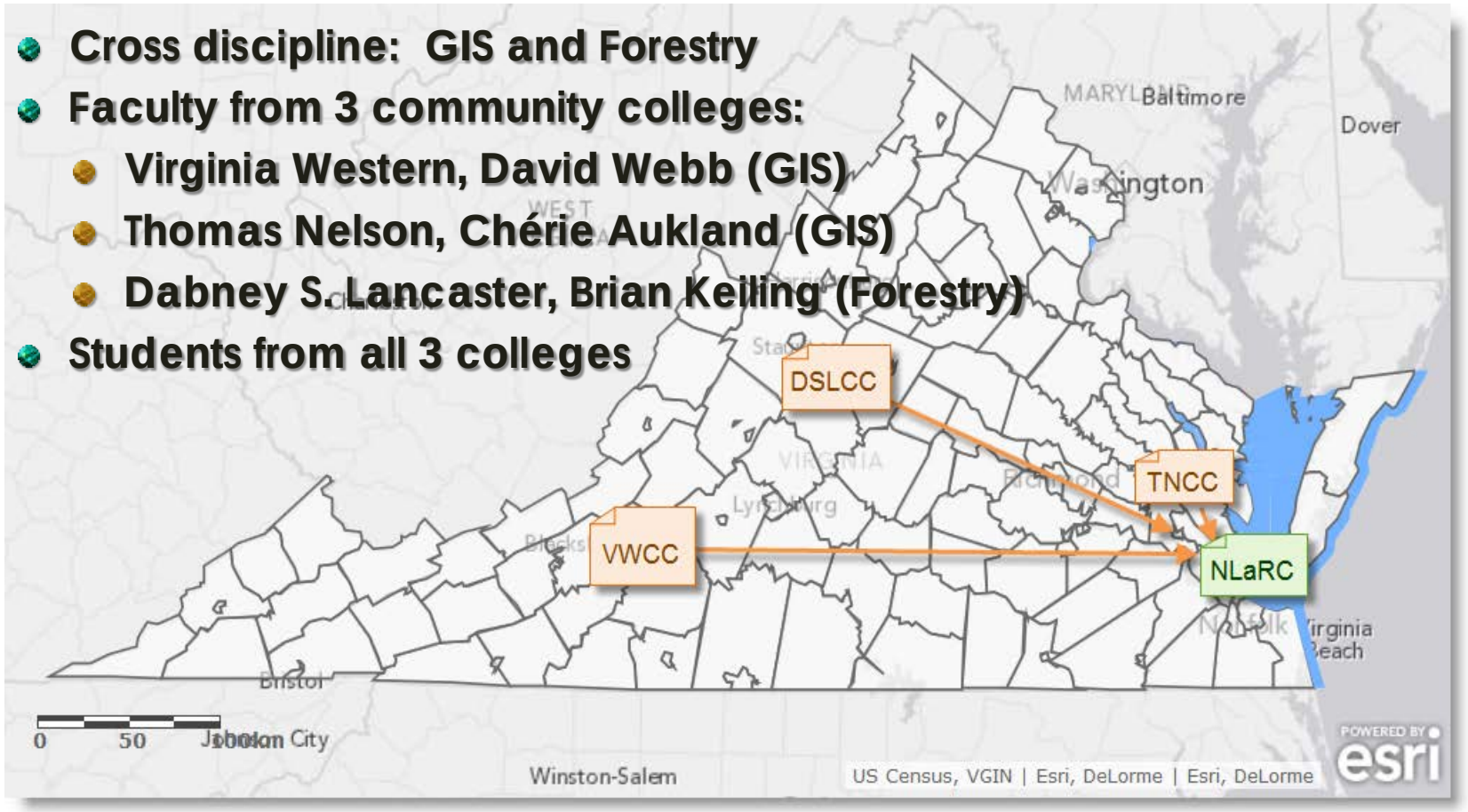
- More than 20 new GIS-prefix courses offered
- 6 new certificate programs; 2 new specializations
- Integration into many existing courses
- Mobile App available—CampusNav
- 40 faculty completed 2 weeks of training and receiving mentoring
- Online courses offered
- 90 high school teachers trained
- Piloted two service learning courses at NASA Langley
- Partnership with NASA Wallops for a sea-level rise service learning project (community college grant)

A Partnership begins

- **Mary Gainer**, historic preservation officer at NASA Langley
- Goals:
  - Capture tree inventory data for NASA, create maps and databases to serve the Center
  - Provide valuable real-world field experience and training for students

GeoTEd Service Learning Course: Piloted Spring 2014

- Cross discipline: GIS and Forestry
- Faculty from 3 community colleges:
  - Virginia Western, David Webb (GIS)
  - Thomas Nelson, Chérie Aukland (GIS)
  - Dabney S. Lancaster, Brian Keiling (Forestry)
- Students from all 3 colleges

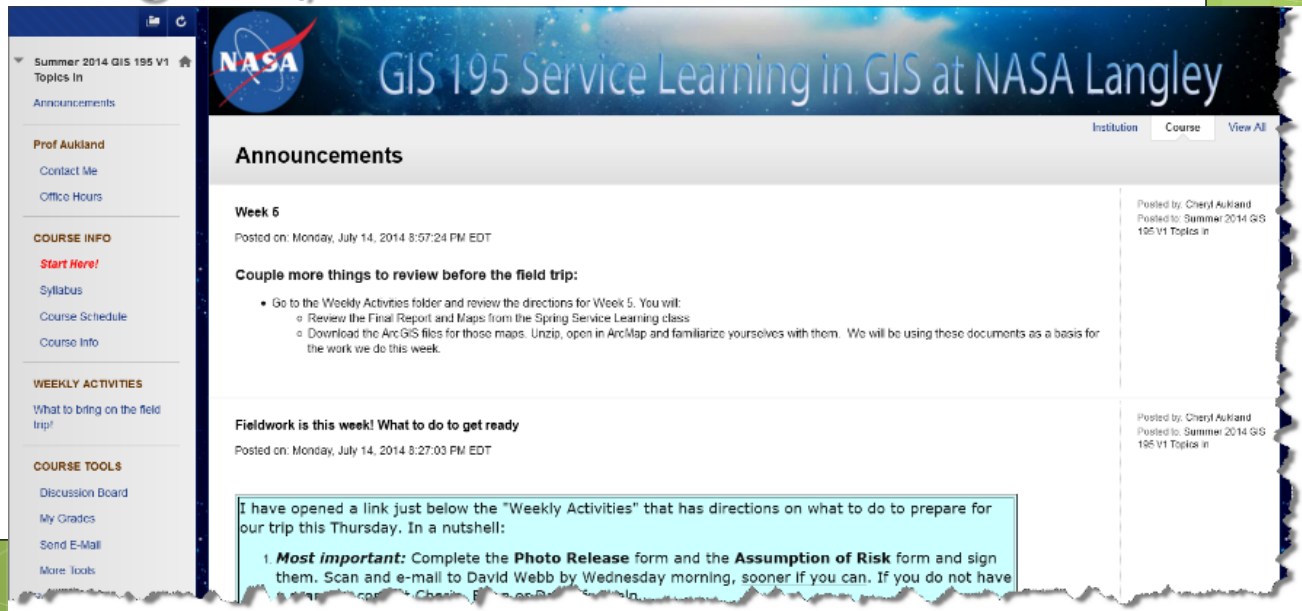


GeoTEd Service Learning Course

- Funded by GeoTEd grant
  - student tuition (1 credit)
  - travel expenses
- Offered twice
  - March 2014
    - 9 students, 3 faculty
  - June 2014
    - 6 students, 3 faculty

GeoTEd Service Learning Course: GIS 195

- Administered by David Webb, VWCC, 6 weeks
- Two components:
  - Distance learning through Blackboard
  - Fieldwork, hosted by Mary Gainer at NASA Langley on site, 3 days
- Designed and taught by Chérie Aukland, TNCC, with all three faculty providing content for their areas.



GeoTEd Service Learning Course: Fieldwork

- Students learned history of NASA Langley from an enthusiastic Mary!

GeoTEd Service Learning Course: Fieldwork

- GIS students learn about tools of Forestry with Brian Keiling

- Students collaborated as teams to inventory trees
- GIS students paired with Forestry students
  - Height
  - Diameter at Breast Height
  - Species – 55
  - Condition
  - Problem codes- 31
  - Maintenance recommendations - 8

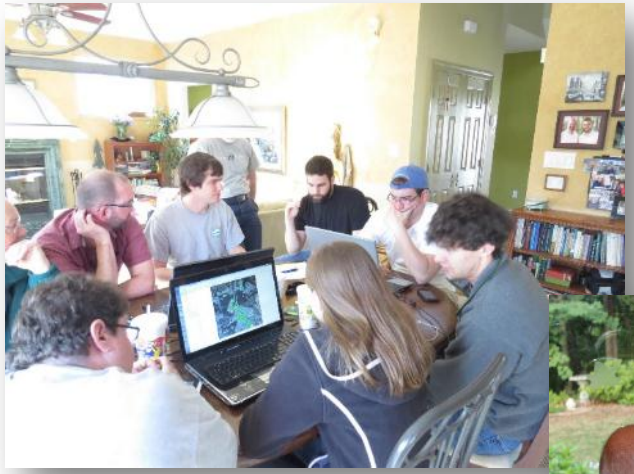
GeoTEd Service Learning Course: Fieldwork

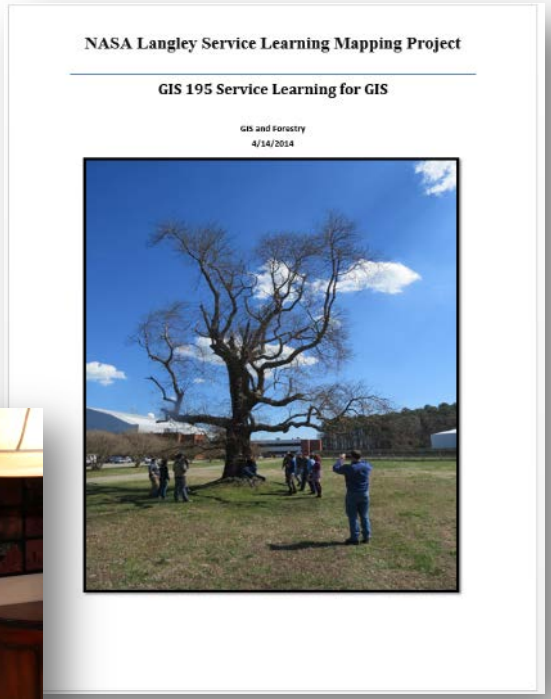
- Mary points out a very large tree for identification
- Students measure and submit as potential champion tree
- The 3rd largest **Sassafras** tree in Virginia

http://bigtree.cnre.vt.edu/bigtree_detail.cfm?AutofieldforPrimaryKey=2211

GeoTEd Service Learning Course: Fieldwork

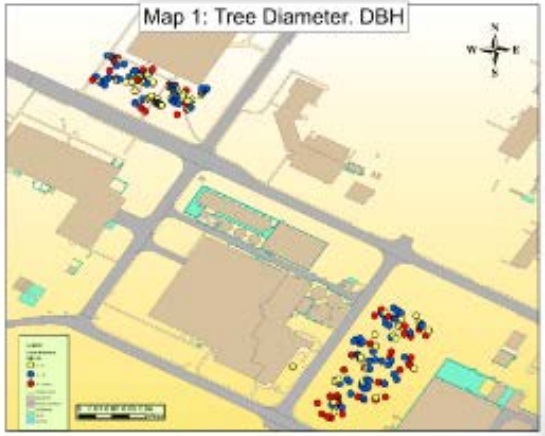
- Last day: Student teams download data, create maps and final report as Cherie Aukland hosts and leads.

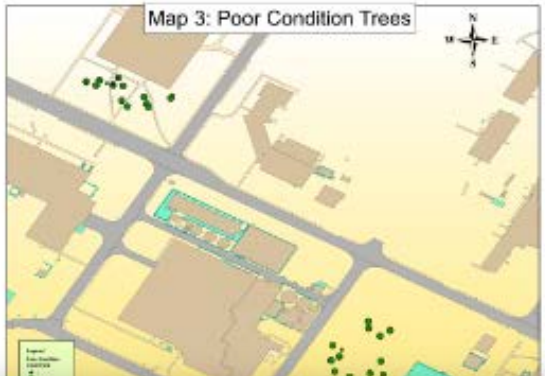


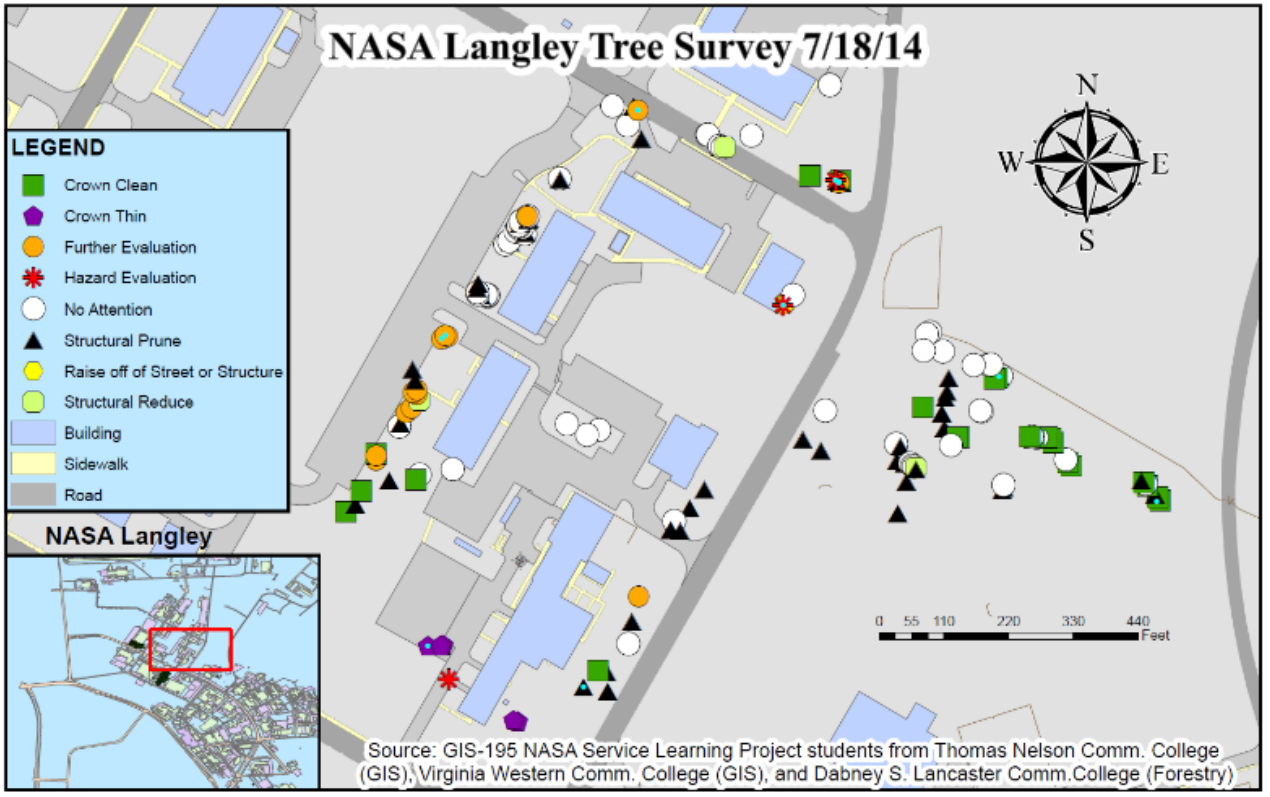


NASA/Langley Service Learning Project

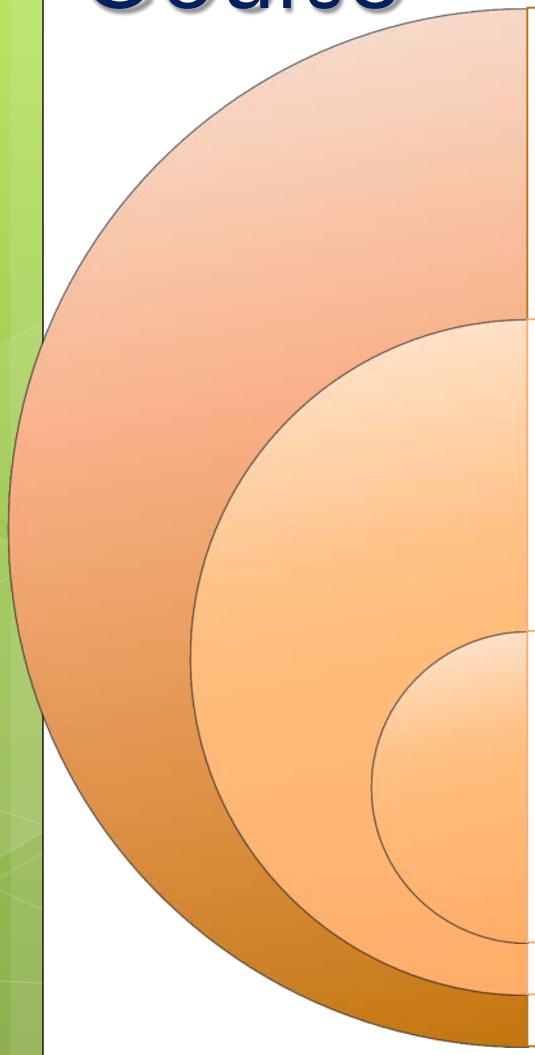
Source: GIS-195 NASA Service Learning Project students from VWCC(GIS),TNCC (GIS), and DSLCC (Forestry) 4/21/14







GeoTEd Service Learning Course



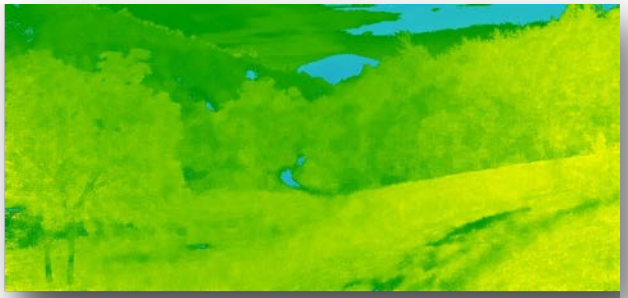
"I really enjoyed being able to work with the forestry students. I learned from them, and I hope they learned from me. Our sponsor Mary Gainer was awesome. To see how passionate she was about her work inspired me to fight for my dream job."
Brittany, Student

"I would have to say that it was an amazing learning experience. It was wonderful to get hands on experience using tools that collect the data that goes in the databases, and then creating the databases. I liked that I now know several more possible opportunities for employment in the GIS realm! It seems endless!"
Heidi, Student

"I love having students come to NASA. They bring such an enthusiasm that helps renew our outlook on work, and the benefit to NASA is having additional data captured that we would not normally have time to do ourselves. Everybody wins!"
Mary Gainer, NASA Langley

The Future

- Remote Sensing – Quadcopter with GoPro and Near Infra Red
- Virtual Internships
- UAV/UAS Courses



Questions?