Long-Term Research and Capacity Building at SIPI, NMSU

Erin Riley, SIPI and Dr. Amy Ganguli, NMSU

FALCON
November 7-11, 2014
Minneapolis, MN
Natural Resources Management Program

The Natural Resources Management Program will prepare students to enter the natural resources field at the technical level with the knowledge and skills required to meet current employment standards.

GOALS

• Students will be able to work as technicians in the field of Natural Resources
• Students will be able to serve as leaders in the field of Natural Resources

SIPI Natural Resource Management students, Dustin Toledo, learn wildlife management practices at Valles Caldera National Preserve

Students from NATR 221 collecting plants for the herbarium
1994 Land Grant Research Leadership Development Initiative

Partners

1. New Mexico State University
2. United State Forest Service
3. Agriculture Research Service
4. First Americans Land-Grant Consortium (FALCON)
1994 Land Grant Research Leadership Development Initiative

Goals

1. Increase the 1994’s Land Grant Institutional Research Capabilities
2. Collaborate with mentors to assist in publishing peer reviewed journals
3. Build a culturally appropriate herbarium

Inside SIPT's greenhouse

S IPT's Hogan
1. Increase the 1994’s Land-Grant Institutional Research Capabilities

- **Short Term Research Capabilities**
  - 3 Day Workshop in Las Cruces, NM
  - Webinars

- **Long-Term Research Capabilities**
  - Long Term Plots on SIPI campus
  - Storage of Data and Metadata
1. Increase the 1994’s Land-Grant Institutional Research Capabilities

- Workshop in Las Cruces, NM
  - Day 1: The Jornada Long-Term Ecological Research Center

- Day 2: NMSU Research Facilities and the Chijuajuan Desert Rangeland Research Center, Dr. Danielle Lansing and Dr. Leola Tsinnajinnie

- Day 3: Dr. Richard Ford, Dr. Mary O’Connell, Dr. Lois Stanford
Long-Term Research Workshop Attendees Comments

• Please Describe how your institution is building its research capabilities:
  • Identify culturally accepted research in tribal communities
  • MOU’s and programs with FS, and Land Grant institutions
  • Establishing consistent funding
  • Having a long term mission

• What can be improved upon?
  • Not so much time in the classroom
  • Hear more about the local ecology, plants, animals
  • Incorporate more handouts to assist presenters
  • Keeping an indigenous perspective for TCU’s

• What methods will you incorporate into your program?
  • Hands on lab work
  • Culturally relevant curriculum
  • Small scale long-term research
  • Smartphone apps
Long-Term Research Workshop
Long-Term Plots at the SIPI campus
Long-Term Plots at the SIPI campus

Image Name: quad 1-2014-Oct-27 point
GPS co-ordinates: 35.175292,-106.669951
Date: Oct 27, 2014, 2:59:29 PM MDT
Direction: 184 N
2. Collaborate with mentors to assist in publishing peer reviewed journals

- Peer review journal and a platform for continued research and scholarly activity

The American Naturalist, Vol. 20, No. 9 (Sept., 1886), pp 767-777
3. Build a culturally appropriate herbarium

Zéé’ilwo’ii
Hordeum jubatum
Foxtail barley

Muhlenbergia arenicola
Sand muhly

Ts’ah
Artemesia tridentata
Big Sagebrush

Navajo
Exciting Things to Come

• Workshop with the Forest Service (February, 2015)
• Four webinars that will be disseminated towards all TCU’s (Dr. Greg Cajete and Dr. Richard Ford)
• Long-Term Research Workshop next year......
• Publication from the experience
Questions?
Project Team

• **Project Directors**
  – Erin Riley (Lead PD, SIPI)
  – Amy Ganguli (Co-PD, NMSU)

• **Tribal Mentors**
  – Leola Tsinnajinnie (SIPI)
  – Justin McHorse (NMSU)
Project Team (continued)

• **Federal Agency Participants**
  – Dr. Kris Havstead (ARS)
  – Dr. Debora Finch (USFS/RMRS)

• **NIFA Oversight**
  – Tim Grosser, Jill Lee, & Staff
New Mexico State University (NMSU)

- New Mexico’s Land Grant Institution

- **Mission:** serve the educational needs of New Mexico’s population through *education, research, extension education,* and *service* to the public
New Mexico State University (NMSU)

- Hispanic Serving Institution
- NASA Space Grant College
- 5 campuses with 28,262 active students in 2013 (16,765 in Las Cruces)
New Mexico State University (NMSU, Las Cruces)

- **Student Demographic**
  - full time 77.6%, part time 22.4%
  - ♂ 45.9%, ♀ 54.1%

- **Ethnicity**
  - American Indian & Alaskan Native 2.3%
  - Hispanic 48.5%
  - African American & Black 2.9%
Research Facilities
(NMSU, Animal & Range Science Department)

• 4 on-campus animal handling facilities, numerous clean and “dirty” laboratories

• Range Science Herbarium (~30,000 species)

• Chihuahuan Desert Rangeland Research Center (~64,000 acres)

• Corona Ranch/Livestock Research Center
Expectations of ARS, USFS, & NIFA

• Training to help us achieve the goals associated with this project (USFS & ARS)

• Insight and direction on how we can build on this project to contribute to USDA’s diversity initiatives (NIFA, USFS, & ARS)
Advanced Technical Education Department

Program Areas:

- Computer Aided Drafting and Design
- Culinary Arts
- Geospatial Information Technology
- Natural Resources Management
- Network Management
- Pre-Engineering
- Vision Care Technology
SIPI Campus
Natural Resources Management Program

The Natural Resources Management Program will provide students with current knowledge and skills to be proficient in the technical aspects of resource management and graduate individuals with scientific base knowledge to perform successfully in tribal, private, non-government organizations (NGO’s), state, and federal organizations as well as transfer successfully into bachelor degree programs.
3. Build a culturally appropriate herbarium

Fremont Cottonwood
Populus fremontii

Annual Sunflower
Helianthus annuus

Narrowleaf Yucca
Yucca angustissima

Santa Domingo
1. Increase the 1994’s Land-Grant Institutional Research Capabilities

- Day 1:
  - Long-term quadrat study
  - LTER Above Ground Net Primary Production Study
  - JORNEX
  - Phenology
  - NEON
  - Restore New Mexico
  - STATISTICS and EXPERIMENTAL DESIGN
1. Increase the 1994’s Land-Grant Institutional Research Capabilities

- Day 2:
  - Use of Repeat Photography as part of a long-term monitoring project.
    - Grasssnap
    - SoilWeb
  - Establishment and maintenance of long-term research and Monitoring sites
  - Dr. Danielle Lansing and Leola Tsinnajinne, SIPI creating an Indigenous Research Framework Across Disciplines in the TCU Movement
1. Increase the 1994's Land-Grant Institutional Research Capabilities

- **Day 3:**
  - Dr. Richard Ford, Arthur F. Thurnau Emeritus Professor of Anthropology and Botany, University of Michigan
    Traditional Ecological Knowledge
  - Dr. Mary O’Connell, Professor of Plant and Environmental Sciences, the abundance and composition of bioactive chemicals in medicinal plants
  - Dr. Lois Stanford, Associate Professor of Anthropology, NMSU
    Anthropological Methods in Documenting Traditional Plants and Cultural Knowledge