

## **Native Expeditions “Project EcoSage” Upward Bound Summer Program**

**Provided by: Robin Gregory and Dr. Byron Winston**

**Morning or Afternoon** – 2 hour interactive investigations that will incorporate lab and field work through local trips to include (Mt. Sequoyah, Lake Wilson, Clear Creek and Greathouse Spring, Mall area limestone cut).

Structure = Monday/Tuesdays – Environmental Instruction, Field Protocol, Labs

Wednesdays – Field Trips

Thursday/Fridays – Hands on Labs, Data Compilation

### **June 17 – 21 Lithosphere**

Geology, Boone/St. Joe Formations, Soil Classification and Sampling

Mapping Washington County soils by hand and with GIS data

Field Trip – Soils (Washington Garden and Clabber Wetland) Geology(Mall Area Stone Cut)

### **June 24 – 28 Biosphere**

Plant Identification, Native Species, Pathology, Native Habitat Conservation/Construction

Forestry – Tree ID, Forest Health, Tree Rings,

Wildlife – Birding for Climate Data

Field Trip – Mt. Sequoyah

### **July 1 – 5 Atmosphere**

Climate Study/Lab Assignment – Wind speed, direction, solar radiation

GIS Data Mapping – Climate data (Temp, pH, Precipitation)

CO<sup>2</sup> and Energy – NOAA correlations

### **July 8 - 12 Hydrosphere**

Water Quality, Physical and Chemical Analysis

Stream Processes and Ecology, Macro-invertebrate catchment

Ground Water and Wells

Field Trip – Clear Creek/Greathouse Spring near Tontitown

### **July 15 – 19 Data Analysis, Maps, and Presentation**

Technology Integration – GIS/EAST Lab or other for mapping and presentations

## **Final Report and Correlations –**

### **Lithos**

How does the geology and soils of NWA affect the populations of plants and animals?

What areas sampled produced a particular soil type?

What is the predominant limestone formation and how does it affect water quality in NWA?

### **Bios**

What is our Native Forest habitat in Fayetteville?

What are the predominant beneficial native plants to birds and wildlife?

What are the invasive species that you found in any sampling area?

What species of plants or animals that are threatened at any location?

### **Atmos**

Average Temp, Precip, Wind, radiation?

Would Fayetteville or other places in NWA be a good candidate for solar, wind, or other types of alternative energy production?

### **Hydros**

What is the groundwater laws relevant to NWA?

What are some of the major indicators of polluted water from a biological/physical perspective?

How is water chemistry a indicator of good water quality?

What locations displayed good or bad water quality in your sampling areas from a chemical and physical analysis?

### **Overall**

How does the land and climate play a role in the habitat for plants, birds, and wildlife? How does the abundance and quality of water in NWA affect human and wildlife populations? What areas in Fayetteville would you want to live if you were homesteading without municipal facilities to provide you with water?