

2018 Grants: NAU

Title: Northern Arizona University Summer Bug Camp



Concept Statement: Insects fascinate children, so hands-on experiences with insects can serve as a “gateway” to science literacy and potentially a future STEM career for girls, including Hispanic and Native American girls, who are greatly underrepresented in the sciences.

Concept Description: Poverty is a fact of life for many northern Arizona residents and their children. Education is one of the key areas that influences a family’s income. In 2016, more than half the employers surveyed said they planned to hire graduates with bachelor’s degrees in STEM fields, making them the most sought-after job candidates. Graduates in these fields are expected to average \$55,087, according to the same survey. However, only 16 percent of American high school seniors are proficient in math and interested in a STEM career. Adventures in Arthropod Biodiversity seeks to engage children in science through experiential learning activities that are

fun, but also rooted in sound science. The project will focus on engaging underserved populations, including Native Americans, and who are under-represented in STEM jobs. Insects fascinate children, engaging their imagination and serving as a “gateway” to science literacy and potentially a future STEM career. Project partners will provide experiential science learning activities, including Summer Bug Camp, a Junior Counselor program, and free science-based programming. The project team will design and host activities, provide program staff and facilities, develop curriculum, train and manage mentees, and conduct assessment activities.

Project Goals and Objectives: The Adventures in Arthropod Biodiversity program, which launched in 2017, helped to integrate existing partner projects (e.g., NAU’s Summer Bug Camp and Willow Bend’s Family Science and Science Saturdays) and share resources. However, these efforts are largely fee based, meaning summer camp fees and lack of financial resources create barriers to participation for underserved children. The goal of this request is to create camp scholarships for girls 6 to 10 years old and mentorships for two high school girls, particularly Hispanic and Native American girls.

Research documents that by the time students reach fourth grade, a third of girls have lost an interest in science. Hands-on experience can engage a child and set her on their path to a science career. Take the example of Davaya Smith, who received financial support from an NAU staff member to attend camp. Davaya told her mom: “I WILL run bug camp one day! I want to go to college and become a staff so I can help others learn about this.” Success in learning requires the learner to be at the center of the experience, making connections across disciplines and also across contextual settings. We see to spark a life-long passion in children through hands-on activities that

highlight key science concepts drawn from biology, ecology, physiology, natural history, biodiversity, and more. The specific goals of the Adventures in Arthropod Biodiversity program are as follows:

- Host two week-long Summer Bug Camps for children 6 to 10, serving 45 Flagstaff children, including full scholarships for 10 underserved children (family income below 125% of mean Flagstaff income).
- Provide a Biodiversity Passport, which offers free access to Family Science events and other activities for the whole family for 1 year, to 25 underserved families on a first-come, first-served basis.
- Create opportunities for two female high-school students to have female mentors, so that they can interact with undergraduate and graduate students in a professional setting.
- Present the Traveling Arthropod Show at five classrooms and youth programs in northern Arizona at no charge, serving approximately 300 students grades K–6th. Preference will be given to Title 1 schools, schools with diverse and underserved populations, or at risk youth.

Project Budget: The larger Adventures in Arthropod Biodiversity program had a total budget of \$27,132 in FY 2018, which was primarily derived from registration fees, small grants, donations from individuals and businesses, and the donation of professional services by partners. We have not been successful in raising sufficient funds to support all of the scholarship requests we receive or funding the mentorship component of the program. For this reason, we request support from the Young Women in Science Fund to help us increase girls' and women's participation in the science through these activities:

- Provide three Summer Bug Camp scholarships (\$190/camper) to underserved girls aged 6 to 10 years old (children whose families earn less than 125% of the median family income)

- Provide mentorships to two female high school students throughout the school year. These two students will be mentored by female graduate assistants and assist with field research and lab activities related to bees and other arthropods. Each female graduate student will receive a \$500 stipend to support their research.

2018 Funding: Requested \$1,570. Fully funded at \$1,570, including \$676 from the Young Women in Science Fund.