Online Proceedings

SESSION 2R

ECOLOGY FROM MICROBES TO BIRDS

Session Moderator: Frieda B. Taub, Aquatic & Fishery Science

JHN 111

3:30 PM to 5:15 PM

* Note: Titles in order of presentation.

Vertical Distribution of Understory Avian Population in the Peruvian Rainforest

Wenyi (Luke) Zhou, Junior, Environmental Science & Resource Management
Benjamin David (Benjamin) Haagen, Senior, Biology (Molecular, Cellular & Developmental)
Mentor: Ursula Valdez, IAS, UW Bothell

Cocha Cashu Biological Station in the Amazonian rainforest of Southeastern Peru hosts a myriad of plants and animals, with one study reporting 230 avian species found in 80-100 ha study plots. Such incredible species diversity may be attributed to the adaptation of specialized hunting behavior and morphological traits allowing for habitat partitioning of forest strata. In our study we hypothesized that we would find differences in wing and tarsus morphology in birds living at different forest strata. Over a five-day period, twenty birds were captured by mist nets and used for data collection. From these individuals, wing length to weight and tarsus length to weight ratios were explored to seek a correlation between them and the heights at which different avian species were observed. We predicted birds with lower wing length to weight ratios, and thus more compact morphology, specialized for flight at lower strata. Furthermore, ground-dwelling birds tend to have a longer tarsi for efficient bipedal locomotion on the forest floor, leading us to predict that birds with lower tarsus length to weight ratios would be observed at higher strata. We found that individuals with shorter tarsi and longer wings relative to body mass tended to be found in higher strata. Our results supported our hypothesis, suggesting adaptations in wing and tarsus morphology facilitate partitioning of forest strata. Morphological analysis of avian populations foraging at different heights is critical for developing an understanding of the evolutionary processes underlying these specializations, and for effective conservation management. Although our predictions regarding correlations between morphology and vertical distribution were confirmed in this study, a larger dataset is necessary to better support our findings. Continued research will allow for accurate predictions to be made concerning how avian populations will respond to fluctuating environmental conditions such as altered migration patterns, climate change, and deforestation.

POSTER SESSION 4

Commons East, Easel 72

4:00 PM to 6:00 PM

The Comparison of Terrestrial Mammalian Diversity through Different Levels of Ecological Succession In Cocha Cashu, Peru

Sydney J. (Sydney) Mc Master, Junior, Public Health-Global Health
Ryan William Koning, Junior, Environmental Science & Resource Management, Biology (Ecology, Evolution & Conservation)
Riley James (Riley) Corrie, Senior, Political Science (Political Economy)
Mentor: Ursula Valdez, IAS, UW Bothell

In this paper, we studied the terrestrial mammalian populations through surveying both the northeastern and southwestern sides of Cocha Cashu within Manu National Park, Peru. The northeastern side of Cocha Cashu, which is an oxbow lake formed by the river meandering, is dominated by primary Amazonia rainforest while the southwestern side is mainly an early successional forest. Our study goal was to document the mammalian species diversity in Cocha Cashu by focusing on large-sized mammals. Previous studies have focused on rodents, marsupials, and bats, but the ecology of the larger mammals remains unknown. We conducted our surveying using five camera traps placed on each side of the lake at corresponding locations of projected terrestrial mammalian hotspots. We monitored these sites by checking them once daily and therefore had four nights and three full days of surveying. Through the identification of species from the photos on our camera traps we were able to find the species richness, total number of sightings at each site, and total number of sightings per species as well as comparing the number of sightings and species between night and day. The primary forest side had a total of five species (*Leopardus pardalis*, *Dasyprocta*, *Cuniculus paca*, *Mazama americana*,

and *Tapirus*) and ten sightings, while the early successional side had a total number of four species (*Dasyprocta, Tayassu pecari, Panthera onca*, and *Tapirus*) and six sightings. Ultimately, our results show that primary forests in a tropical climate support a higher diversity of terrestrial mammals, as well as a higher number of individual mammals when compared to early successional forests. These data may assist future researchers in placing camera traps in areas of high mammalian diversity and density. Large mammals are keystone species in ecosystems and their existence affects prey populations and the composition of the surrounding flora. This research also confirmed the existence of many important keystone species such as the *Tayassu pecari, Leopardus pardalis*, and *Panthera onca* and provided records of occurrence in different types of habitat, which may help future conservation of different species and which type of habitat they prefer.

POSTER SESSION 4

Commons East, Easel 73

4:00 PM to 6:00 PM

Insect Diversity and Visitation Interactions Associated with *Zygia coccinea* (Fabaceae) in Amazonian Rainforest of Southeastern Peru

Jessica (Jessie) Hild, Junior, Biology (Ecology, Evolution & Conservation)
Mentor: Ursula Valdez, IAS, UW Bothell

It is widely recognized that there is limited understanding of many animal- plant interactions and the complex networks they form with other species. I conducted an observational study, in the Coshu Cashu field station in the Manu National Park in Peru, to determine the plant-pollinator relationship that *Zygia coccinea*, a flowering tree in the Fabaceae family, has with the insects that visit it. Very few studies have been conducted on *Z. coccinea* and the few that have been conducted focused on classifying the characteristics of the plant and did not look at the plant's ecological role in the environment nor at other species associated to it. It is important to understand the dynamic interaction between vegetation and their insect population to gain a more thorough understanding of the complexity of the ecosystem dynamic and how it may be impacted by alterations in the composition of species present. I used two different observational techniques, scan and focal, in order determine the diversity of the insect network associated with *Z. coccinea.* I observed 101 different individuals, classified 19 distinct morphospecies, and identified individuals in seven different Orders. In particular, we observed an insect of the Order Homoptera, a small cicada-like pink pigmented insect that was found being herded by ants (similar to other ant-aphid interactions) which seems to be a new species for science, and further research needs to be conducted. This study is important because it contributes to the knowledge of specific insect-plant interactions. In addition, it was the first time an insect visitation network was identified for *Z.Coccinea* and upon the establishment of this network, a potential new species to science may have been found.