

Hixon Center for Urban Ecology

Student Research Fellows

Urban Habitat and Health

Understanding Children's Exposure to their Outdoor Physical Environment in Urban Areas

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Problem Investigated:

Northern spotted owls require old-growth forest and salmon require freshwater habitat with cool, clean water, woody debris, and appropriate water depth. But what kind of habitat do children need? Or does the structure of their habitat matter? Ali Senauer is developing and testing a novel method, based on global positioning system technology, which will provide new insight into this critical question and inform her dissertation research.

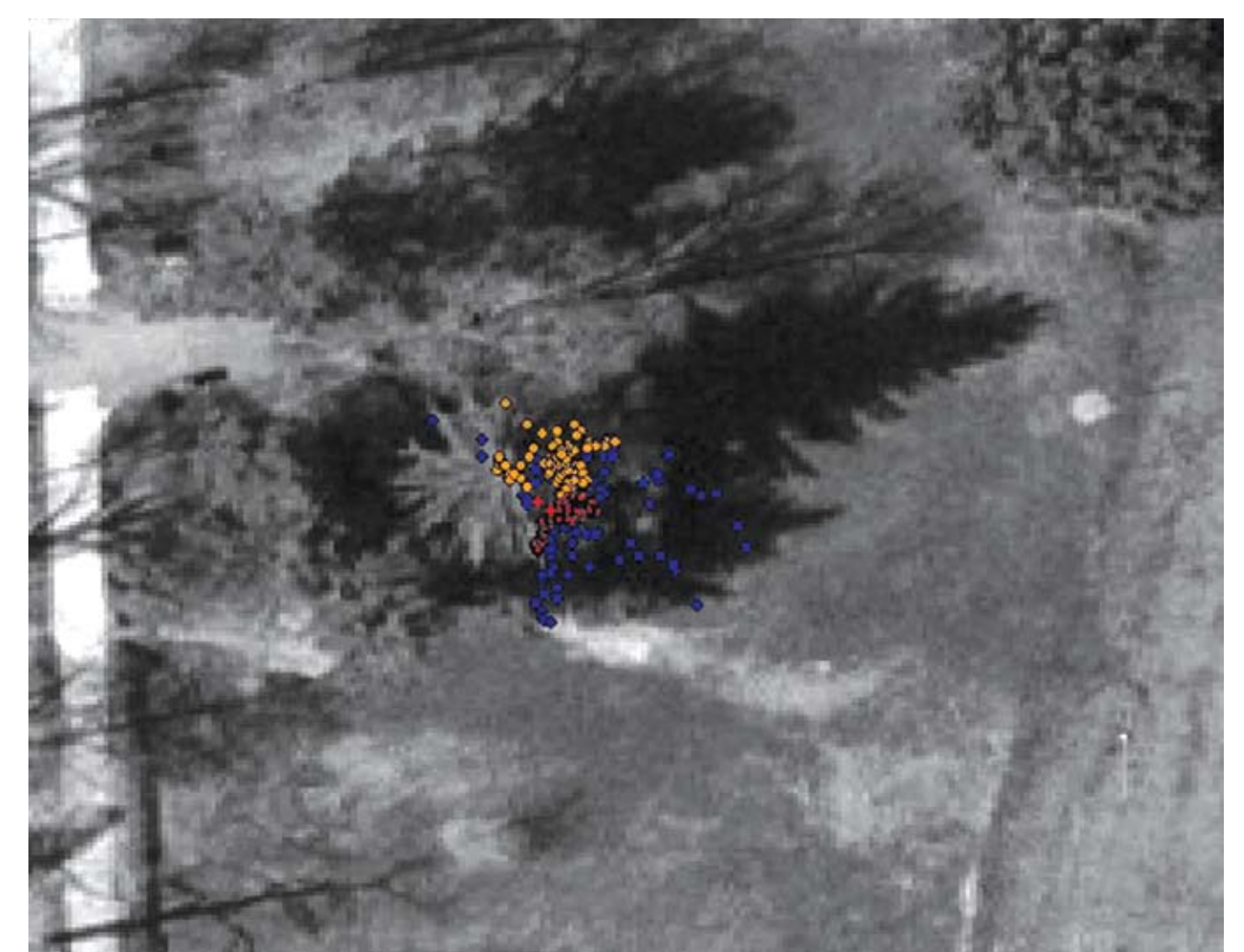
Background:

- While emphasis on understanding the habitat needs of non-human organisms is increasing, little focus is placed on understanding human habitat needs.
- Urban habitat broadly consists of physical, biological, chemical, and social components.
- Individuals experience various habitats that impact their health and well-being in both positive and negative ways over the short and long-term.
- Even though the majority of the U.S. population lives in urban areas and developing countries are becoming increasingly urbanized, we know very little about the structure of the physical environment in these areas and what impact a child's physical environment has on his or her experiences and health.
- Most field studies of children and their physical environment rely on self-report mechanisms of activities or broad measures of environmental access, such as views from windows. This information, while useful, does not necessarily inform us about an individual's actual exposure, including exposure to specific habitat components, and how it might link in rigorous ways to health outcomes of interest.
- Despite the widespread use of Global Positioning Systems (GPS) to study non-human organisms, only one pilot study has used GPS to better understand children's exposure to their outdoor physical environment.



Objectives:

- Obtain/Develop a GPS unit that records the geographic position of children in their physical environment.
- Assess the feasibility and validity of using GPS for understanding children's interactions with their outdoor physical environment.
- Characterize the benefits and drawbacks of using GPS as compared to other, more traditional methods.



Results from one of Ali's static tests of three different GPS units in an urban, forested environment.

Status:

- Generated a list of specific GPS unit features needed to successfully conduct research including the instrument's weight, size, accuracy, sensitivity, memory, battery life, data storage and access, durability, processing speed, interface, and ease of use.
- Currently developing a custom GPS unit to meet needed specifications including testing various antenna and receiver combinations in static and dynamic situations.
- Next stage will be to conduct a small pilot study with several children to assess the feasibility and validity of using GPS for understanding children's interactions with their outdoor physical environment.