

SOUNDSCAPES TO LANDSCAPES

Monitoring Animal
Biodiversity from Space
Using Citizen Scientists



Project Overview

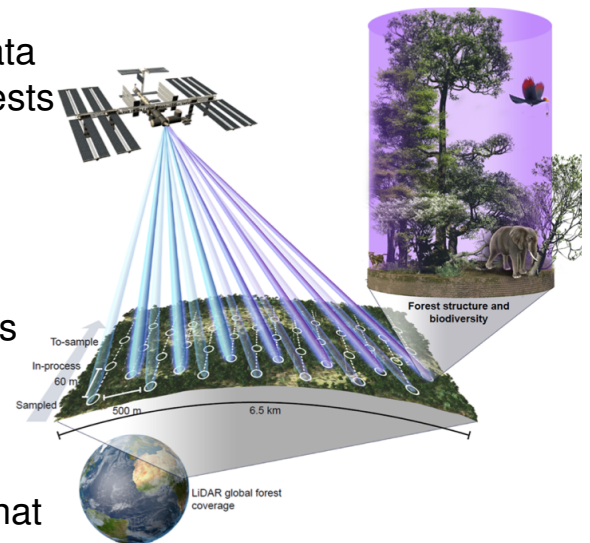
Soundscapes to Landscapes is a science-based project that seeks to advance animal biodiversity monitoring from the next generation of Earth-observing satellites. The project is currently focused on mapping bird diversity across Sonoma County, but could expand to other animal groups and landscapes in the future.

Collecting Data

Teams of volunteer citizen scientists place portable sound recorders out in natural woodlands, grasslands, agricultural areas and urban areas. After 3-4 days, teams retrieve the recorders and upload the “soundscape” recordings to a cloud-based computer system. Expert birders who recognize calls then select recordings with distinct bird calls to train a computer to identify the presence of bird species in all recordings from field sites.

Data Analysis

Using the bird species data obtained from each site, the science team will use statistical modeling and satellite data to make countywide maps of bird diversity. The project tests the accuracy of models that include several cutting-edge remote sensors. One sensor, called Light Detection and Ranging (LIDAR) uses pulses of light to measure the physical structure of vegetation, such as heights of trees and understory plants. Another technology being tested is an “imaging spectrometer” that provides images from hundreds of light measurements, including wavelengths that our eyes cannot observe. These images can detect canopy chemistry, such as water and nitrogen content, that can be linked to ecosystem productivity and habitat quality.



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Ways to Participate



We are looking for more volunteers, and there are many ways to get involved. While any knowledge of local bird species is great, bird expertise isn't necessary to join our project.

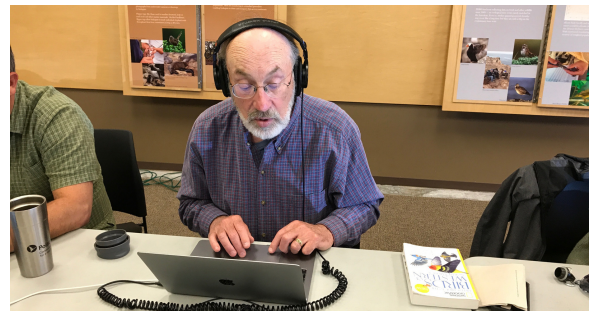
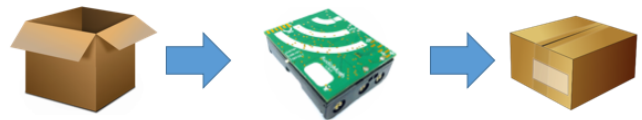
Field Work: Join a team to place sound recorders in the field on public and private lands. (Spring/Summer)

Host a Neighborhood Deployment:

Invite fellow landowners to place sound recorders on their properties. We'll come to your neighborhood and train a group of you on how to deploy the recorders on your property.

Computer Training: We'll teach you how to help create models to train the computer to identify whether bird species are present or absent at any given site.

Offer Your Property: We can bring a team to your site to place and retrieve sound recorders, or we can mail you the recorders with instructions.



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