

Ecosystem ecology research at AL also concentrates on landscape ecology, which reaches outside of watershed boundaries to include all aspects of scale and connectivity in the study of terrestrial ecosystems. Recent research at AL has focused on the expansion of native and invasive species across landscapes, how climate change and other ecological disturbances influence the assembly and stability of plant communities, and the role of urban heat islands in accelerating plant phenology. This type of work uses a large array of tools and techniques, including remote sensing and spatial statistics, isotopic analysis of plant and animal tissues, and phylogenetics.

Aquatic Ecology

Aquatic ecology, which includes the study of the interrelationships between living freshwater organisms and their environment, is yet another scale at which ecosystem ecology research is conducted at AL. Faculty members have focused on the biological and ecological status of wetlands, streams, rivers, and impoundments in Maryland, including long-term participation in large, state-wide ecological monitoring programs.

Molecular Ecology

Molecular ecology is a synthetic area of study that integrates ecosystem ecology with molecular genetics and genomics. The basis of molecular ecology is to relate naturally occurring genetic variation within and among individuals, populations, and species to the processes regulating the distribution and abundance of organisms, how they respond to changes in their environment, and how these responses affect the structure of communities and the flow of energy and nutrients through ecosystems.

1.2 Education & Service

The Appalachian Laboratory has a strong history of involvement with K-12 and public science education as well as with graduate education. Through the Appalachian Laboratory Environmental Science Education (ALESE) program, AL faculty and staff are involved with teacher professional development, education and outreach product development, as well as providing environmental science outreach to schools and other groups. Because the programs are built directly from scientific research activities at AL, ALESE participants learn science by experiencing research.



1. Current computing facilities for Landscape Ecology and Remote Sensing.



2. Molecular Ecology Laboratory.



3. Interactive Video Network (IVN) classroom



Illustration 1.2
Appalachian Laboratory Aerial Photograph
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North
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