Using spectral properties of forest foliage chemistry as an ecological indicator: case study of giant sequoias and the recent California drought.

The underlying chemistry concept is that the foliage chemistry affects the wavelengths of light reflected by the forest canopy and this effect can be used to measure canopy properties over large landscapes. The work involves using this approach to look at the effect of drought on Sierra Nevada forests, and for the NPS, specifically focusing on giant sequoias. Some of the chemical measurements are not very complex - such as how much water is in the foliage - but are hugely important indicators of ecological condition. Other chemical signatures are more complex, such as the structural carbohydrate work. Spectral imagery can capture differences in foliage chemistry that can be used to differentiate among tree species...so you can study forest diversity from an airplane.