**Assessing the effects of urban air pollution on lichens**

Lichens are the result of a unique symbiotic relationship between a fungus and photosynthesizing partner. Due to their symbiotic nature, both the photobiont and mycobiont are able to provide its other species with essential needs. Lichens are commonly used as bioindicators of air quality as they obtain all their nutrients from the air due to the lack of roots. For this project, lichens were collected from a non-polluted site (Daniel Boone National Forest) and transplanted to four sites around Louisville. After five months at these sites, the samples were collected and sent to the University of Minnesota Research Analytical Laboratory to be analyzed for heavy metals. Our analysis of these results focused on eight heavy metals; Arsenic, Boron, Cadmium, Chromium, Copper, Mercury, Lead, and Zinc. We looked at each of these elements individually and combined per site and observed that Farnsley Middle School and Moore High School has the worst air quality, with 48.306 ppm and 47.314 ppm of combined heavy metals respectively. These sites are close to two major industrialized areas: Appliance Park and Rubber Town. In some cases, we observed that the control sample had a concentration higher than that of the transplanted sites. This led us to believe some elemental concentrations were observed to be lower due to the collection site having a higher amount of that element in the air than at the transplant site. The results of this study highlight the need to study lichen responses to air pollution throughout Kentucky.