Quantifying The Cooling Effect Of Urban Trees In Different Settings

Caption 2: DNR Research Scientist installing sensor in a tree. Photo Credit: Wisconsin DNR.

Principal Investigators & Partners

- Wisconsin DNR
- City of Milwaukee Forestry Department

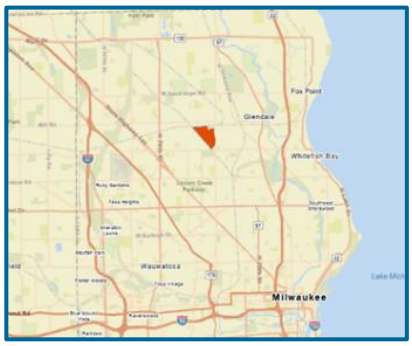
Timeline

- Launch – August 2024
- Expected Completion Date – TBD
- Status – Ongoing

Contact Information

Bob Smail
Research Scientist
Robert.Smail@Wisconsin.gov

Project Overview



Caption 1: Map of Havenwoods State Forest. Photo Credit: Wisconsin DNR.

It is well known that urban forests offset the impact of urban heat islands and that individual trees cool the area around them through shading and evapotranspiration induced cooling. However, it is not particularly well understood how microclimatic setting, hydrologic conditions, and landscape composition impede or augment the capacity of trees to cool the environment around them.

In 2024, WDNR Applied Forestry staff installed three dozen sensors in and around Havenwoods State Forest in Milwaukee to quantify the impact of tree cover and landscape setting temperature and humidity. Sensors were installed in a variety of settings including closed forests, prairie, and parking lots. With the help of City of Milwaukee Forestry Department, sensors were also installed in city managed street trees in neighborhoods adjacent to Havenwoods. Data collection and analysis are ongoing.

Key Point

- Research staff are monitoring heat and humidity in a variety of urban forest settings.
- Weather data will be analyzed relative to landcover characteristics to quantify the relationship between them.

Management Implications

- Results will help urban forests plant trees in settings that optimize their benefits.