

# *Research Project Ideas for Harvard Forest REUs*

## **1 Effects of Urbanization on Tree Growth and Climate Sensitivity**

**1.1 Question:** How does urbanization affect tree growth rates and growth sensitivity to temperature and other climatic factors?

**1.2 Approach:**

**Focal species:** Choose 5-10 tree species that occur at both Harvard Forest and Bussey Brook Meadows and other unmanaged urban forests around Arnold Arboretum. These species could include: *Betula allegheniensis*, *Betula papyrfera*, *Fagus grandifolia*, *Quercus alba*, *Quercus rubra*, *Pinus strobus*, *Populus deltoides*, *Tsuga canadensis*. Add nonnative tree species, too?

**Field work at Harvard Forest:** Core trees. Could collect additional data, such as soil nitrogen and other soil characteristics.

**Lab work (could be at Harvard Forest or Arnold Arboretum):** Mount, sand, and analyze cores. Gather climate data from Harvard Forest. Correlate growth to climate data (temperature precipitation) and compare growth rates and climate sensitivity to those of trees at/near Arnold Arboretum (many have already been collected, but some additional cores may need to be collected in Boston, depending on the focal species selected).

**References:** Need to add a few relevant ones!

## **2**

### **2.1**