



CASE STUDY

# The Urban Understory

## Green City

### Climate Issue: Healthy Urban Forests

- Natural areas within cities, such as parks and reserves, provide vital ecosystem services to both wildlife and humans
- They also help relieve some of the effects of climate change by drawing down CO<sub>2</sub> and providing cooling
- The plant species that occur in the understory of a natural area can profoundly impact the health and diversity of the overstory
- Understanding what plant species are in the understory, and how these species affect other plants, helps land managers keep the forest healthy and usable.

### The Understory: What is it?

The understory of a forest is made up of **resident species** and **transient species**:

- Resident Species: plant species that always occupy the understory, like herbs, grasses and shrubs
- Transient Species: species that eventually grow out of the understory, like young trees.

Resident species of the understory can interact with transient species. These interactions can change the species composition of the overstory, and ultimately the height of the forest. For example:

- Ferns can slow the growth of tree seedlings by creating shade
- Vines can pull young trees down before they are able to grow large.

In urban forests, we can manage the residents species of the understory to allow for other tree species to grow. However, to do so we must know what species make up the existing understory.

### Case Study: New Haven's Understory

In New Haven, scientists catalogued the plant species in the understory of the city's public forests. They found that:

- The understory was incredibly diverse, with 145 plant species, including trees, shrubs, herbs and vines
- The understory had many vines, including some introduced species
- Introduced species were common even in areas with minimal human disturbance
- Some species were very common in some patches, but not present in other patches.

### A Lot of Vines...Now What?

- Vines can slow the growth of forests, as some vines strangle young saplings before they can mature, and others form thick ground cover that produces heavy shade
- To address this problem, forest managers can start "de-vining" stewardship activities, which involves removing vines from the understory.

Knowing that there are a lot of vines in the understory helps inform the management of New Haven's urban forests

To successfully manage  
urban forests, we must  
know what plant species  
are in the understory.

### WHAT CAN YOUR CITY DO?

**EVALUATE** what plant species exist in the understory of your city's natural areas

**INCORPORATE** the understory into forest management plans

**DEVELOP** clear management goals for urban forests

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