



# iTREE - Tools for assessing and managing forests and community trees

Created by: USDA Forest Service  
<https://www.itreetools.org/>  
Language: English  
Medium level of expertise required

i-Tree is a set of free, science-based tools that quantify the benefits and values of trees around the world, aid in tree and forest management and advocacy, and show potential risks to tree and forest health. The tools include i-Tree Canopy, i-Tree Landscape, i-Tree Eco, i-Tree Design, and i-Tree Hydro.

## Challenges addressed

- Heat stress and heat island effect
- Ecological connectivity
- Green space management

## Outcomes

- Report with summary
- An open-source map equivalent to Google Maps

## Examples of application

### **Contribution of Ecosystem Services to Air Quality and Climate Change Mitigation Policies: The Case of Urban Forests in Barcelona, Spain**

iTree was used to assess the contribution of ecosystem services provided by urban forests to quality of life in the city (i.e., air purification, global climate regulation, and air pollution). The research concluded that green infrastructure-based efforts to offset urban pollution at the municipal level have to be coordinated with territorial policies at broader spatial scales.

### **Simulating the Hydrological Impact of Green Roof Use and an Increase in Green Areas in an Urban Catchment with i-Tree: A Case Study with the Town of Fontibón in Bogotá, Colombia**

Using iTree Hydro model, the study simulated the different scenarios to the hydrological benefits of trees, green areas, and permeable zones in an area of Bogotá D.C. As a result, the implementation of green roofs as a way to increasing permeable zones corresponding to plants was proposed.

## Advantages

- Provides easily understood, science-based metrics.
- The tool can quantify the ecosystem services of a single tree, which is very useful for high-resolution city assessments.

## Type of tool

- Decision-support tool
- Map visualization

## Uses

- Assess forest conditions, ecosystem services, and values.
- Determine risks to the forest and human health.
- Calculate how changes in forest structure will lead to changes in ecosystem services and values.
- Develop best local management strategies to sustain and enhance desired ecosystem services, forest and human health.
- Determine the best tree species, locations and planting rates to optimize ecosystem services and values through time.

## Scale

- Global
- National
- Local

## Location

Global.

## Scope

Urban and rural.

## Constrains

Local data may not be available or complete for all locations and may not represent current condition.