



Opportunities
for Talents



Technische Universität München

The **Chair of Forest Growth and Yield Science** and the **Chair for Strategic Landscape Planning and Management** announce for a master thesis on the following topic:

„Comparing the shading benefits of two urban street tree species“

With ever increasing urbanization we are continuously changing our landscapes and altering the ecological processes to make our cities warmer and also polluted since temperature is one of the precursor of air pollution. Modified terrain such as concrete, asphalt and bricks, found in urban areas, absorb more heat during the day than the former vegetated surface and re-radiate it at night. These problems will be exacerbated with the additional effects of climate change. Planting trees – greening cities – therefore seems to be one of the most feasible options to mitigate those problems. The shade produced by trees due to their elevated and extensive canopies can reduce the heat stored in engineered surfaces and lowers the heat load on people, increasing their comfort. However, empirical data regarding the shading benefits of different tree species in urban settings are scarce and the existing knowledge base is extensively dependent on modelling studies. Our previous experiments have shown that tree shading can cool hard surfaces by 15-20°C and reduce radiant temperatures by 5-7°C thus improving human comfort. To investigate the full interplay of urban trees in terms of shading benefit; surface and air temperature under the canopy of two contrasting tree species namely lime (*Tilia cordata*) and black locust (*Robinia pseudoacacia*) of approximately the same age in three different plazas and in park setting close to the city centre of Munich, Germany will be monitored over the summer of 2015 along with growth measurements. The results of this experiment will help us to answer some of the uncertainties regarding ecosystem services provided by the urban trees and to know the relationship between shading effect and tree growth. Moreover, the results can be used in ecophysiological models with different future scenarios simulations for better appreciation of urban trees.

Required skills:

- Basic understanding of tree growth, tree physiology.
- Dedicated to fieldwork especially during the summer.
- Ability to do basic statistical data analysis.
- Tree climbing experience could be an added advantage

Start: a.s.a.p

Further information:

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April, 24th 2015