

The Effects of Vegetation on the Temperature of Salt Lake City



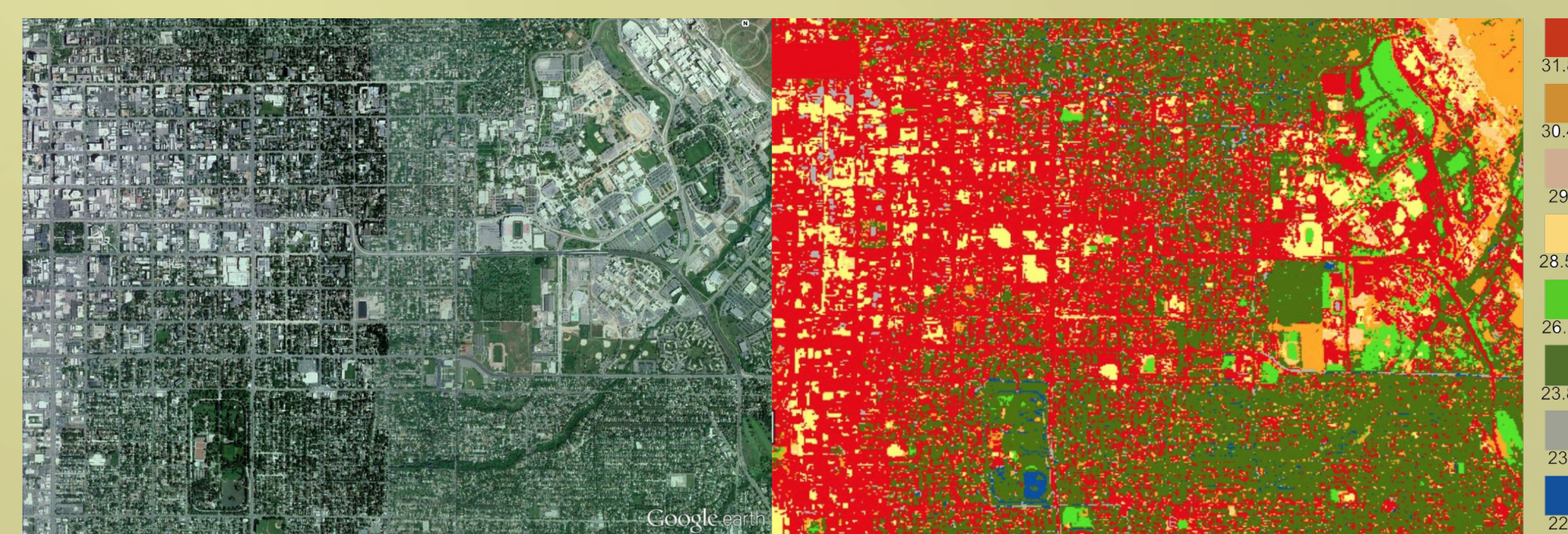
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 GRADUATE RESEARCH FELLOWSHIP PROGRAM



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Introduction

Urban forest transpiration has great potential to mitigate the heat island effect in Salt Lake City¹.



¹Mean temperatures (in Celsius) for each type land cover in downtown Salt Lake City. *Gluch et al. 2006; Remote Sens Environ 104.*

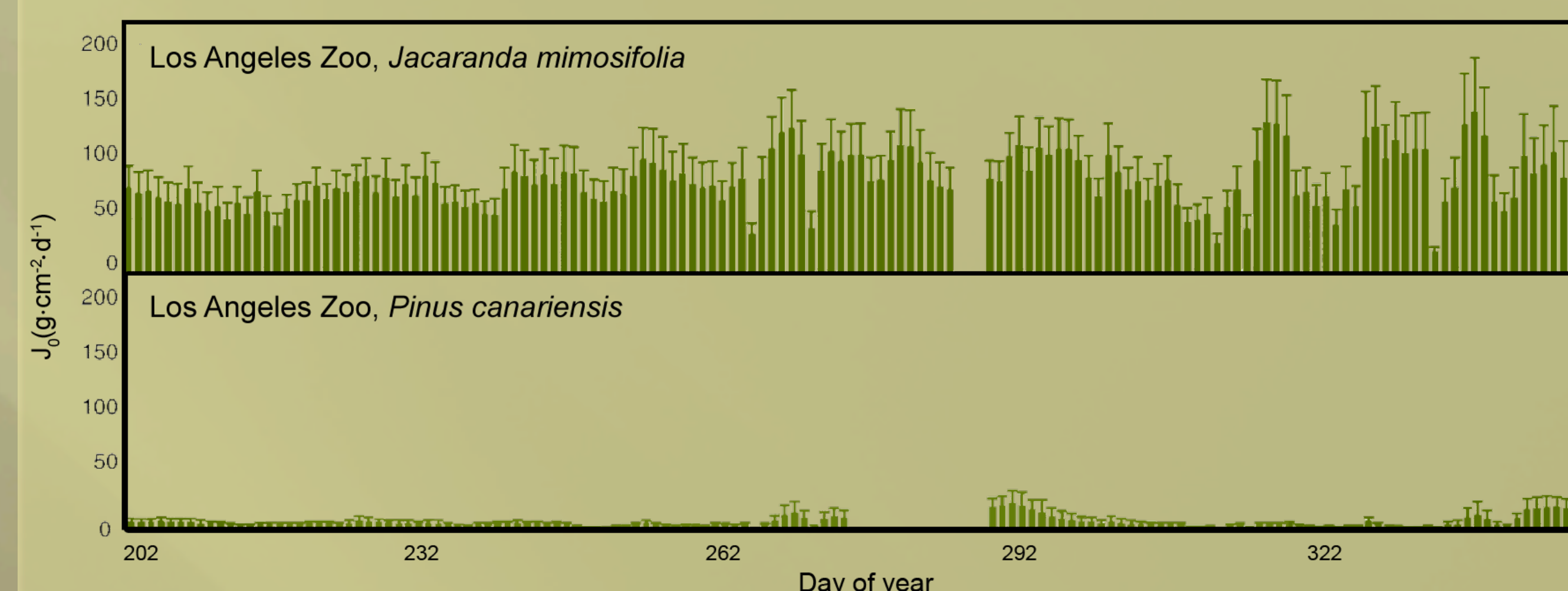
As a semi-arid city, increasing green infrastructure might entail significant irrigation costs unless species efficient in water use are chosen.

Research Methodology

Measure tree transpiration of common tree species in Salt Lake City to link plant processes with local climate.

Design and model alternative scenarios of tree species compositions in collaboration with the Environmental Fluid Dynamics group.

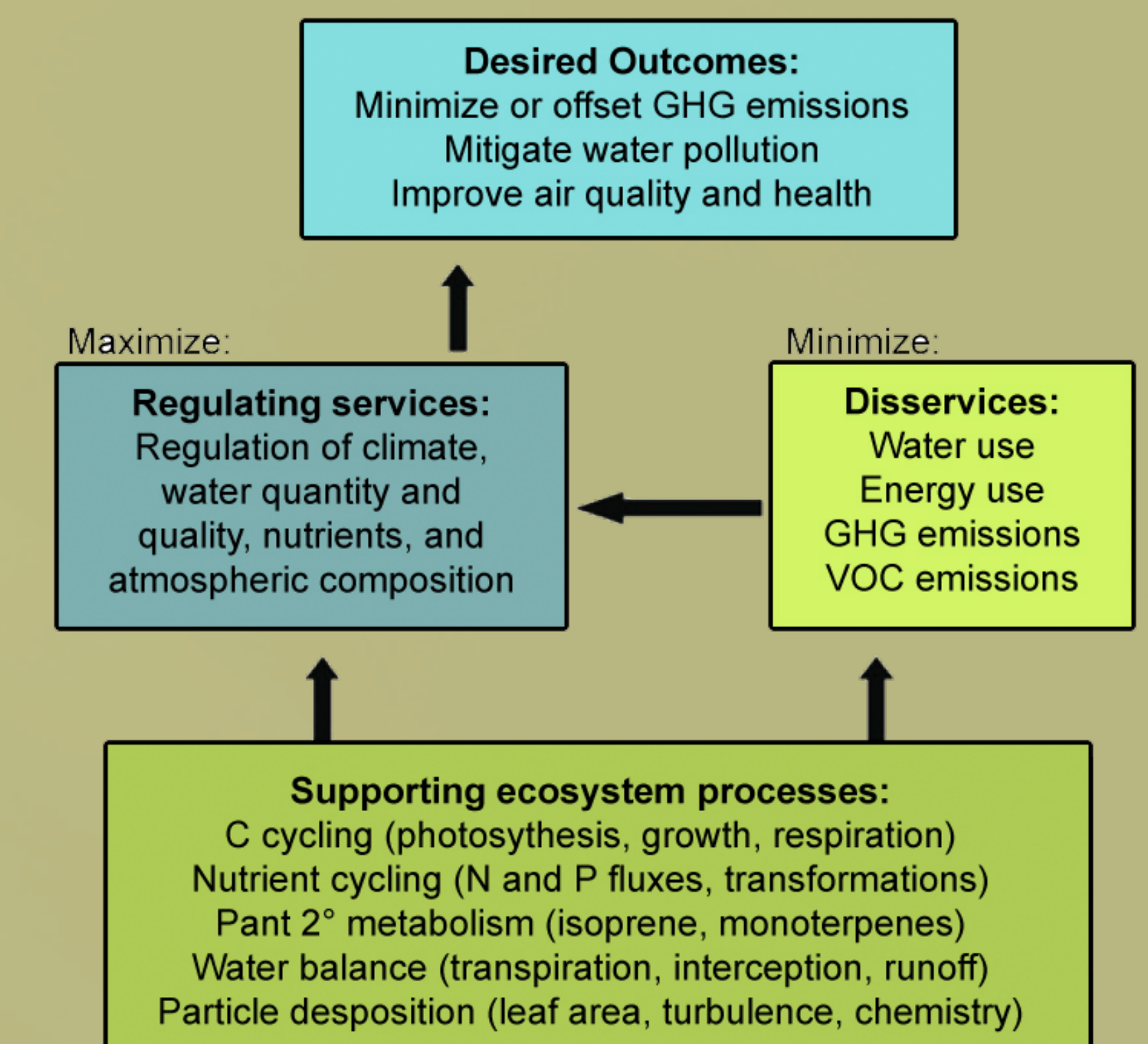
Predict whole tree water use of city tree species employing aspects of plant form or function associated with transpiration. Measuring it for every species would be impractical due to great variability between species².



²Differences in plant transpiration between species. *Pataki et al. 2011; Ecol Appl 21(3).*

Impact

Provide information to city planners about the potential ecosystem services versus maintenance costs³ of expanding the urban forest.



³Benefits and costs of green space in cities. *Pataki et al. 2011. Front Ecol Environ 2011; 9(1).*

Contribute to the understanding of the main biological controls of the water cycle for Salt Lake City and other semi-arid cities.