



In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy
Ignacio Fernández

Will defend his dissertation

**Planning for Urban Ecosystem Services:
Generating Actionable Knowledge for Reducing Environmental
Inequities in Santiago de Chile**

Abstract

Cities are hubs for economic and social development, but they are increasingly becoming hotspots of environmental problems and socio-economic inequalities. Because cities result from complex interactions among ecological, social and economic factors, environmental problems and socio-economic inequalities are often spatially interconnected, generating emergent environmental inequity issues due to the unfair distribution of environmental quality among socioeconomic groups. Since urban environmental quality is tightly related to the capacity of urban landscapes to provide ecosystem services, optimizing the allocation of ecosystem services within cities is a main goal for moving toward more equitable and sustainable cities. Nevertheless, we often lack the empirical data and specific methods for planning urban landscapes to optimize the provision of ecosystem services. Therefore, the development of knowledge and methods to optimize the provision of ecosystem services is essential for tackling urban environmental problems, reducing environmental inequities, and promoting sustainable cities. The main goal of this dissertation was to generate actionable knowledge for helping decision-makers to optimize the allocation of urban vegetation for reducing environmental inequities through the provision of ecosystem services. The research uses the city of Santiago de Chile as a case study from a Latin-American city. To achieve this goal, I framed my dissertation in four linked research chapters, each of them providing methodological approaches to help link environmental inequity problems with the development of urban planning interventions promoting an equitable provision of urban ecosystem services. My dissertation was specifically aimed to generate actionable knowledge for: (1) Identifying the level, distribution, and spatial scales at which environmental inequities become more relevant; (2)

Identifying the areas and administrative units where environmental inequities interventions should be prioritized; (3) Identifying optimal areas to allocate vegetation for increasing the provision of urban ecosystem services; (4) Evaluating the role that planned urban vegetation may have in the long-term provision of ecosystem services by natural remnants within the urban landscape. Thus, this dissertation contributes to urban sustainability science by proposing methods and frameworks to address urban environmental inequities through the provision of ecosystem services, and provides place-based information that can be readily used for planning environmental solutions in Santiago de Chile.

Friday, November 3, 2017
12:00 p.m.
Wrigley Hall, Room 323

Faculty, students, and the public are invited.

Supervisory Committee:
Jingle Wu, Chair
Charles Perrings, Member
Osvaldo Sala, Member
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