



# Cultural ecosystem services and landscape values in Los Dinamos, Mexico City, Mexico

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## Introduction

Smart decision making needs to understand the values visitors ascribe to a natural area. The evaluation of social values can help to understand the cultural ecosystem services (CES) of a landscape.

## Objective

Explore and discuss visitor perception and social values visitors attribute to places due to the case of Los Dinamos, a natural park in the suburban area of Mexico City.

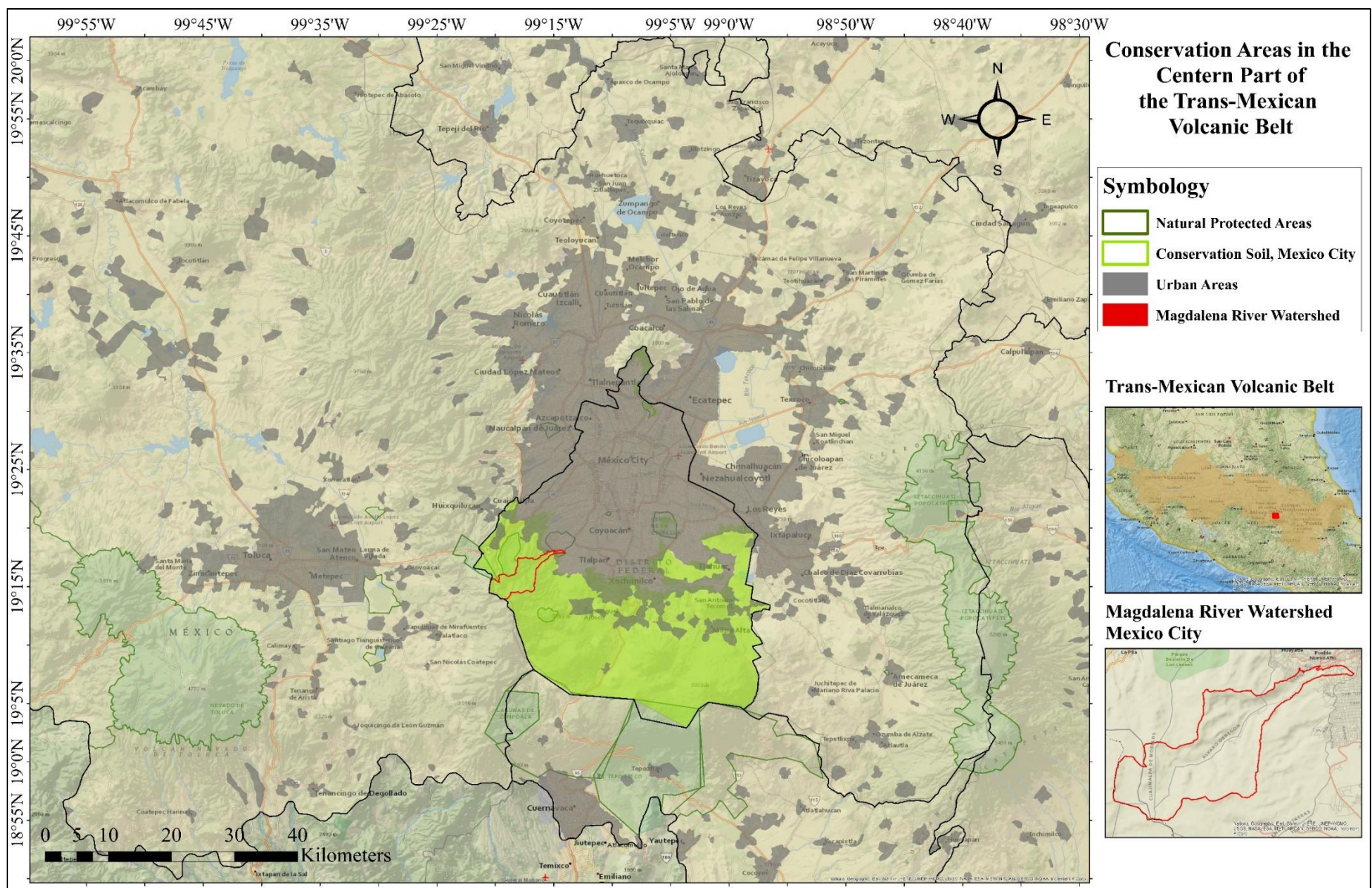
## Overview of approach

- on-field observations
- design of the questionnaire
- semi-creative photo evaluation
- analysis of quantitative data with SPSS
- GIS-tool to create maps ArcGIS 10.5, ESRI

## Visitor Profile

	Recreation -ists (n <sub>1</sub> = 66)	Rock climbers (n <sub>2</sub> = 34)
Origen of visitors in %:		
Mexico City	71	79
Other states of Mexico	21	9
Non-Mexican visitors	0	12
Percentage of women	39	38
Most frequent age group (years)	21-30	31-40
Percentage of married people	29	9
Percentage of people with children	35	18
Average years of education	14	16
Most frequent income group (Pesos MX)	< 8000	12,000-20,000

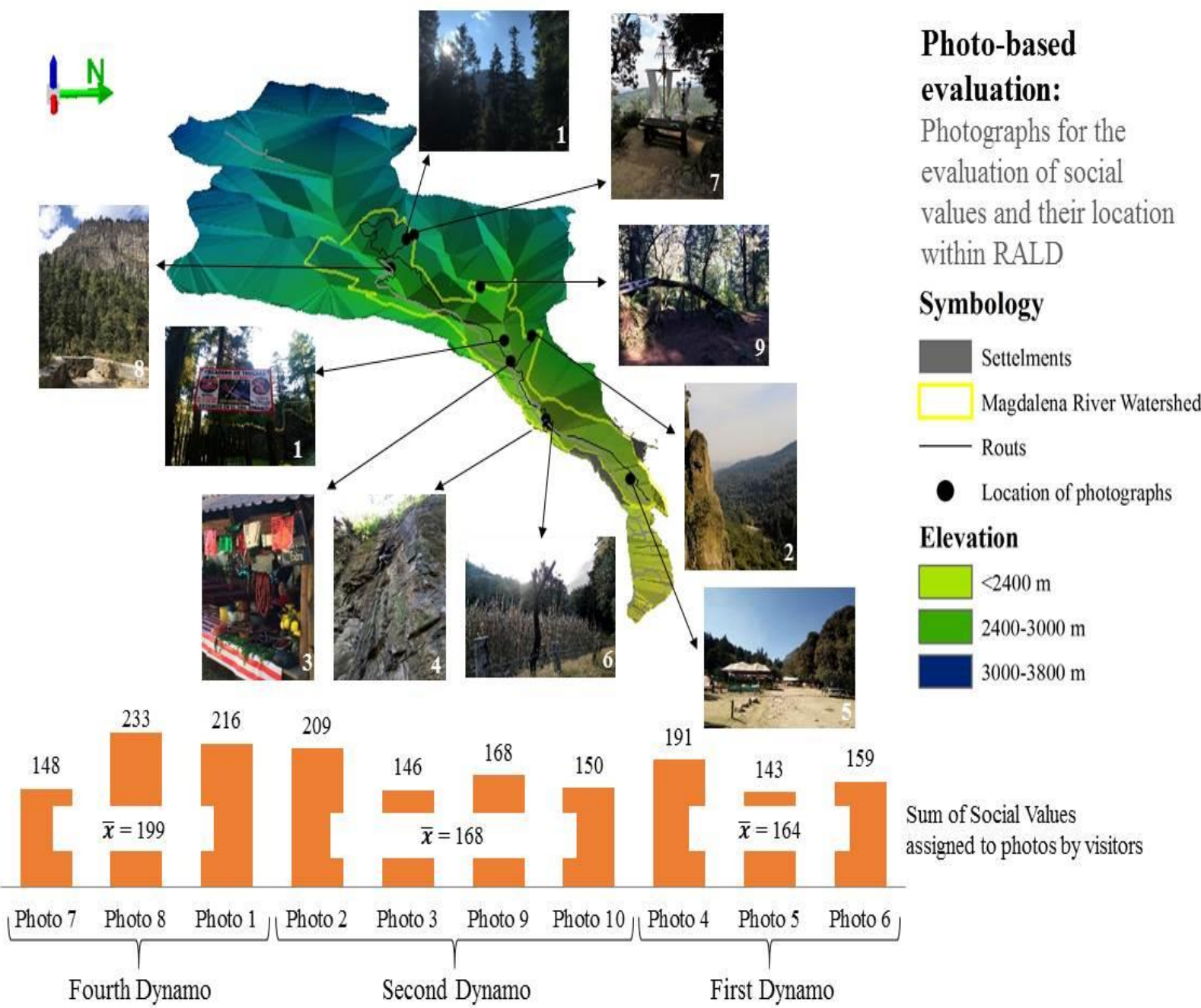
## Study area



The Magdalena River watershed (30 km<sup>2</sup>):

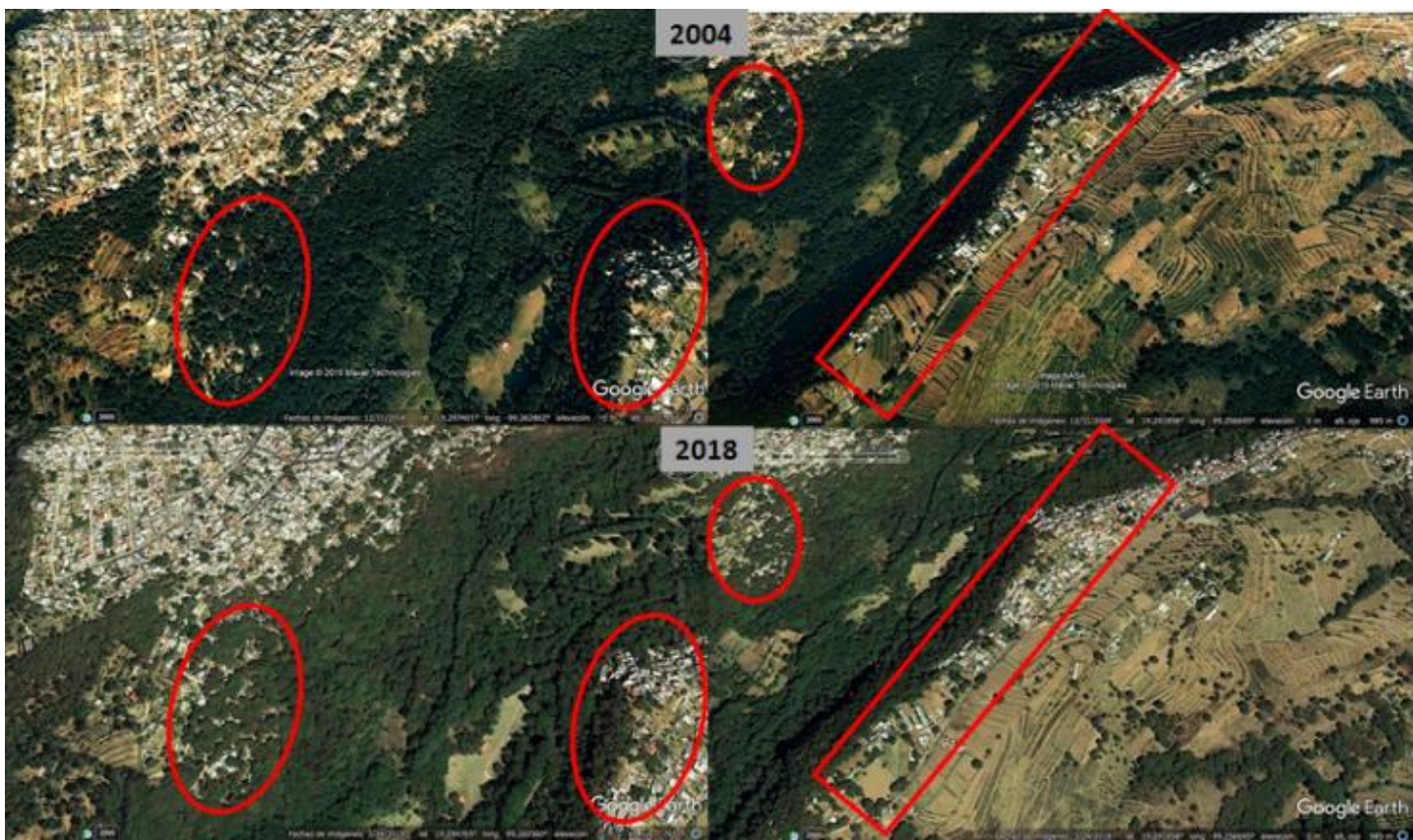
- one of the most important rivers in Mexico City is one of the last not completely piped rivers in the city
- the forest areas contribute to carbon storage groundwater recharge and biodiversity
- famous eco-touristic and recreational center because of its scenic beauty and natural values.

## Semi-creative photo evaluation



## Challenges of CES in suburban areas

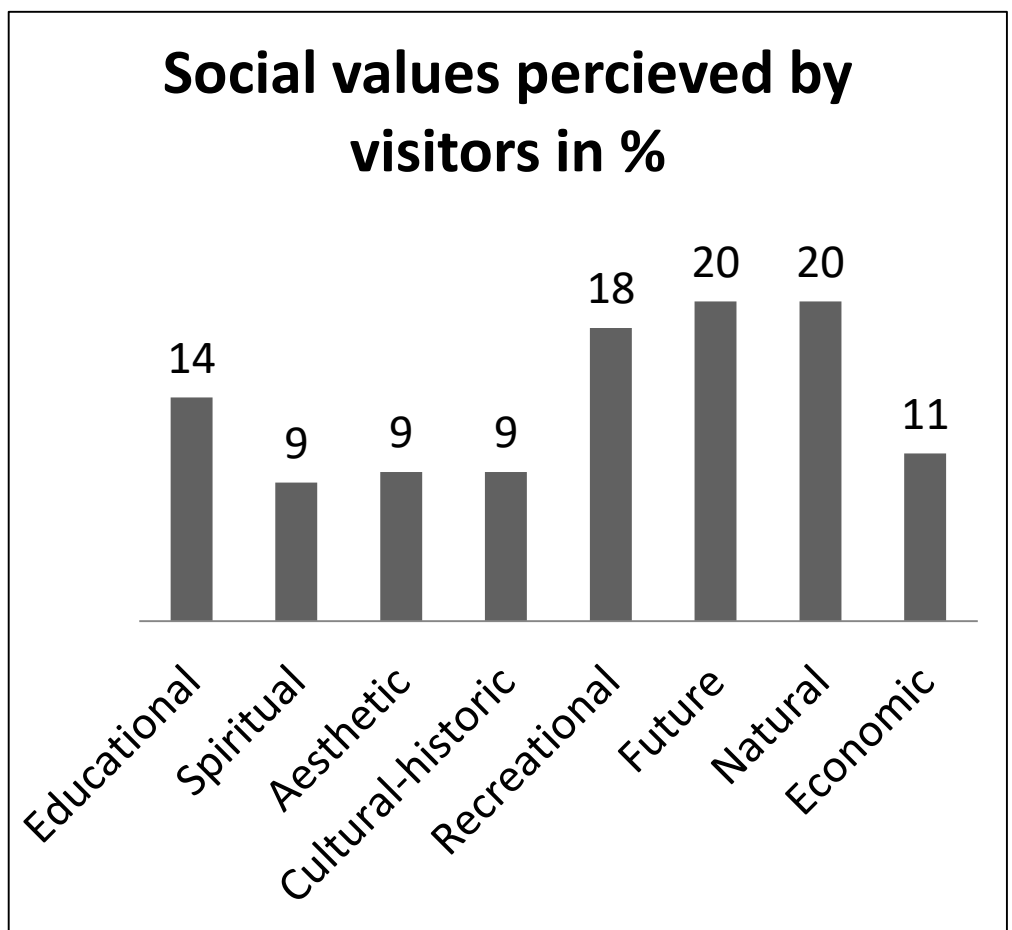
- Perception of safety in parks  
58% of all Mexican citizens feel insecure in parks
- Illegal settlements



## Results

Most important CES:

- Ecotourism



## Management implications

- Consideration of pull factors like natural and recreational values
- Improve and maintain infrastructure for frequent visitor groups
- Contain illegal settlements



## References:

Almeida-Leñero, L., Nava, M., Ramos, A., Espinosa, M., Ordoñez, M. de J., and Jujnovsky, J. (2007). Servicios ecosistémicos en la cuenca del río Magdalena, Distrito Federal, México. *Gaceta Ecológica* (84-85), 53-64.

Brown, G., and Reed, P. (2000). Validation of a Forest Values Typology for Use in National Forest Planning. *Forest Science*, 46(2), 240-247.

Jujnovsky, J., Almeida-Leñero, L., Bojorge-García, M., Monges, Y. L., Cantoral-Uriza, E., and Mazari-Hiriart, M. (2010). Hydrologic ecosystem services: water quality and quantity in the Magdalena River, Mexico City. *Hidrobiológica*, 20(2), 113-126.

Jujnovsky, J., Galván, L., and Mazari-Hiriart, M. (2013). Zonas Protectoras Forestales: El caso de los bosques de la Cañada de Contreras, Distrito Federal. *Investigación Ambiental* 5(2), 65-75.

MA, Millennium Ecosystem Assessment. (2005). *Ecosystems and Human Well-Being: Synthesis*. Washington, DC: Island Press.

Pleasant, M. M., Gray, S. A., Lepczyk, C., Fernandes, A., Hunter, N., and Ford, D. (2014). Managing cultural ecosystem services. *Ecosystem Services*, (8), 141-147.

Van Riper, C. J., Kyle, G. T., Sutton, S. G., Barnes, M., and Sherrouse, B. C. (2012). Mapping outdoor recreationists' perceived social values for ecosystem services at Hinchinbrook Island Park, Australia. *Applied Geography*, 35(1-2), 164-173.

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