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To cite this version:

Bruno Locatelli, Merelyn Valdivia, Améline Vallet. Analyzing and mapping cultural ecosystem services with multiple integrated approaches: comparing methods and information sources in Peru. 2016 Latin American and Caribbean Ecosystem Services Partnership Conference, CIAT, IAvH, ESP, Oct 2016, Cali, Colombia. hal-01674149

HAL Id: hal-01674149

https://hal.science/hal-01674149

Submitted on 1 Jan 2018

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Type of submission: Abstract (voluntary contribution)

T4 Mapping and modeling ecosystem services: Comparing methods

Analyzing and mapping cultural ecosystem services with multiple integrated approaches: comparing methods and information sources in Peru

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Assessment of ecosystem services (ES) can improve decision-making and policy development on land use and the environment. As the determinants of supply and demand for ES are spatially variable, ES assessments often need to be spatially explicit. ES mapping has gained increasing attention in research and has been used to identify priority areas for ES provision or with most pressing threats on ES. Mapping can be combined with scenarios of environmental, political, social or economic to investigate future ES changes, define sensitive areas to change and estimate the impact of changes on society. ES mapping is more often applied to provisioning and regulation services rather than cultural services. Among cultural ES (e.g., scenic beauty, recreation, spiritual, heritage, etc.), the recreation-related ES are the most often mapped because they are relatively simple to quantify (e.g., based on site visits), compared to other cultural services whose assessment require to understand personal preferences, beliefs or spiritual values (e.g., aesthetics or sense of place). We assessed several cultural ES related to recreation, scenic beauty and spiritual values in the Mariño watershed (Apurímac region) in Peru using several methods with a focus on spatial variations. We used participatory mapping methods during workshops and interviews to understand the spatial distribution of the supply and use of ES. We also used surveys to analyze what landscape or ecosystem attributes explain cultural ES, for example aesthetic preferences for certain landscape elements. We then used those attributes to map ES supply and we compared the maps produced by the two approaches (direct participatory mapping vs. mapping with attributes). We also compared differences in ES maps resulting from different information sources and stakeholders. Results allow to discuss the pros and cons of different approaches applied to ES related to recreation, scenic beauty and spiritual values.

Keywords: cultural services, scenic beauty, spiritual, mapping, landscape