

## Mapping Cultural Ecosystem Services in Vilnius using Hot-Spot Analysis.

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Cultural services in urban areas are very important to promote tourism activities and develop the economy. These activities are fundamental for the sustainability of the urban areas since can represent an important monetary source. However, one of the major threats to the sustainability of cultural services is the high amount of visitants that can lead to a degradation of the services provided (Depellegrin et al., 2016). Mapping the potential of cultural ecosystems services is fundamental to assess the capacity that the territory have to provide it. Previous works used land use classification to identify the ecosystem services potential, and revealed to be a good methodology to attribute to each type of land use a specific capacity (Burkhard et al., 2008). The objective of this work is to map the cultural services in Vilnius area using a hot-spot analysis. Ecosystem services potential was assessed using the matrix developed by Burkhard et al. (2009), which ranks ES capacity from 0=no capacity to 5=very high relevant capacity to a different land use type. The results showed that with the exception of Cultural Heritage ecosystem services that had a random pattern ( $Z$ -score=0.62,  $p<0.530$ ), all the others had clustered pattern: Recreation and Tourism ( $Z$ -score=4.02,  $p<0.001$ ), Landscape Aesthetics ( $Z$ -score=4.44,  $p<0.001$ ), Knowledge Systems ( $Z$ -score=4.15,  $p<0.001$ ), Religious and Spiritual ( $Z$ -score=3.80,  $p<0.001$ ) and Natural Heritage ( $Z$ -score=5.64,  $p<0.001$ ). The incremental Moran's I result showed that Recreation and Tourism ecosystem services had the maximum spatial correlation at the distance of 5125.12 m, Landscape Aesthetics at 3495.70 m, Knowledge Systems at 5218.66 m, Religious and Spiritual at 3495.70 m, Cultural Heritage at 6746.17 m and Natural Heritage at 6205.82 m. This showed that the cultural services studied have a different spatial correlation.

### References

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