Application of NDVI for identify potentiality of the urban forest for the design of a green corridors system in intermediary cities of Latin America: Case study, Temuco, Chile

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Abstract
Modern cities are constantly growing; this fact provokes strong environmental pressure as pollution, health problems, stress, and other troubles which as a whole reduces the citizens' life quality. Some decades ago, the concept sustainable urban planning was created; the concept intends to generate friendly cities with a planned development. This research contributes to this task evaluating the potential that urban forests could have in the design of green corridors for Latin American intermediate cities (case study, Temuco, Chile). For the analysis and the generation of data, the Geographic Information System was applied. Also, the multispectral images were used with data derived from the Normalized Difference Vegetation Index (NDVI). The satellite used was the Sentinel-2, which gives red and infrared spectral information with a resolution of 10 × 10 m pixels providing vital information to analyze the quality of the vegetation. Methodologies applied were based on forestry ecosystem samples as well as on satellite technology. This helped to define the quality of the urban green areas allowing the connection to future green corridors. From these tools it was found that the green areas possess good quality vegetation, establishing the sanity, the form, the plant vigor, the stress, the chlorophyll activity and the vegetal cover. The results demonstrate that these combined methodologies of forestry ecology and geospatial tools, such as NDVI, are a good possibility to generate a continuous monitoring and follow up system of public areas, which in turn will allow a planning of those cities that contribute to a sustainable urban planning and with a better life quality for their population. © 2020

Author keywords
Green corridors
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