

Ecological Restoration & Conservation of Natural Resources

Universidad Nacional Autónoma de México

Project



The City of Mexico is directly dependent on the various environmental goods and services provided by the natural ecosystems surrounding it. To achieve sustainable development and preserve forests, there is a need to reinforce social, environmental and economic accountability in managing natural resources.

With support from Planet Action, the Faculty of Sciences of the Universidad Nacional Autónoma de México (UNAM) developed a project in Sierra de las Cruces with the aim of improving strategies in using and caring for forests in the area.

Planet Action Support

Sierra de las Cruces forms a morphological boundary between the metropolitan areas of Mexico and Toluca, and provides environmental services to more than 22 million people. Some of the goods and services provided by this site include: availability of drinking water, erosion control, soil conservation and recovery, carbon capture and storage, reduced air pollutants and climate regulation.

The objective of this project is to work together with local stakeholders to provide a better understanding of the value of the goods and services provided by the forest and develop a joint plan to protect it and put it to better use. It is also important to increase the rehabilitation and reforestation of degraded areas.



Project Leader

The UNAM is the largest and most important university in Mexico and Latin America. Its primary purpose is to serve the country and humanity, train socially useful professionals, organize and carry out research primarily into national conditions and problems, and extend the benefits of culture to the greatest possible extent.





Project Challenges

Deforestation, the pressure of urban growth, frequent forest fires, etc., are factors that fragment the habitat and have a severe impact on biodiversity. Furthermore, air pollution causes "acid rain", which is precipitation with high levels of nitric acid or sulphuric acid, and increases the deterioration of forests.

It is essential to work together with key stakeholders to develop and promote programs and intensive environmental education campaigns, and demonstrate the value of biodiversity and the benefits of conservation.



Use of Satellite Imagery

The use of Spot 5 2010 images with a pixel size of 2.5 m will allow vegetation types and land use to be classified with great detail. This classification will be spectral (ArcInfo) and object-oriented (eCognition), allowing the patterns of coverage in the landscape to be analysed and understood so as to link them with the information gathered in the field.



Methods and Actions

The first stage of the field work, designed to obtain information on the structure and biodiversity (plants, fungi, reptiles and mammals) of the forests in the area, has been completed. Samples were taken of the soil and water in the main rivers and streams to determine their quality. Reference points for the spatial classification of vegetation types were also taken. Outreach work was also undertaken, through informal discussions and questionnaires, to try to understand perceptions and involve authorities, land-owners and local stakeholders in general in developing and implementing the project scope.



To achieve successful conservation, it is essential to involve stakeholders in the use and care of nature, taking into account both the goods and services it provides, and its intrinsic value.

Planet Action

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