

NATURE TOURISM IN PROTECTED AREAS OF MEXICO; A PROPOSAL FOR CONSERVATION, USE AND LOCAL DEVELOPMENT IN THE NEVADO DE TOLUCA

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Nature tourism is an opportunity for local development for the communities living within the protected areas of Mexico, characterized by its rich natural heritage and a unique and complex sociocultural context. But its implementation requires special and careful treatment. It is necessary to adhere to the principles of conservation and sustainable use, and prevent it from becoming one more segment of the tourism market, based in most cases by schemes and purely economic interests (Bringas and Ojeda, 2000). The Nevado de Toluca, was declared a Natural Protected Area under the category of National Park on January 25th, 1936 (DOF, 1936) but in October the 1st 2013, was re-categorized to Flora and Fauna Protected Area (CONANP, 2013, DOF, 2013). The proposed tourism development in the Ejido of Cacalomacán Ecological Park (ECEP), reflected in this document was conducted under the rules of the National Park. Changing the category to Flora and Fauna Protected Area do not affected the actions and activities for the ECEP, since in both decrees tourism development is considerate with low environmental impact as a permissible activity, and consistent with the conservation and use of natural resources (DOF, 1936, DOF, 2013).

This study, proposes a model of tourism development for the Ejidal Cacalomacán Ecological Park (ECEP), located within NT. It is organized into several parts, in addition to the introduction and the final considerations: the first dedicated to establishing the framework for nature tourism in Mexico, the second one, to present the specific characteristics of the territory object of attention and a third, of purposive nature, where action strategies are established for a particular location the Ejido of Cacalomacán Ecological Park (ECEP). The assumptions accompanying the study are based on the importance of promoting among the communities located within protected areas of the country, local sustainable development projects based on the preservation of scenic, environmental and cultural resources and activities consistent with low environmental impact. Also in the

fact that NT is slowly becoming a tourism destination which opens possibilities to local development based of these regulated activities. Our objectives were focused on making a purposeful speech, aimed at promoting the harmonious development of tourism with social and environmental values of this area. The used methodology integrates information from the physical, biological and social environment; an inventory and evaluation of tourism resources; identification of the type of supply and demand; and the management and planning of possible activities in the area.

The ECEP is part of the common lands of the Ejido of Cacalomacán, with an area of 240 hectares. It is located on a volcanic cone, product of the last eruption of the Nevado de Toluca volcano. It has an altitudinal gradient ranging between 2900-3246 meters above sea level, with slopes in some areas reaching 45°. The predominant soil type is andosol and the hydrology is represented by intermittent water flows. The type of vegetation is a secondary forest of conifers (*Pinus-Cupressus*, *Cupressus-Pinus*, secondary scrub vegetation, riparian and grasslands) (Sánchez-Jasso 2012), due to the total or partial destruction of the original vegetation by the change in land use from forest to agriculture in 1920, and a subsequent reforestation in the eighties.

The ECEP began its history in 2003, when the Ejido of Cacalomacán in coordination with the Municipal Government of Toluca County, spearheaded the creation of the Park (no regulatory standards have been established for use, with the resulting environmental degradation). In 2009, as a result of an Operating Partnership Agreement with the Autonomous University of the State of Mexico and the Toluca Municipality government, the first study on the diversity of vertebrates was conducted in the Nevado de Toluca volcano, which has laid the foundation for developing the strategy for conservation and park management. The results show that the ECEP, with only 0.42% of the total area of NT accumulates 11.1% of the wealth of the State of Mexico vertebrates. A record of 85 species of vertebrates, of which 24 are endemic to Mexico, 14 are in a risk category according to NOM-059-SEMARNAT, 2010 and 3 are on the IUCN Red List (Sánchez-Jasso et Alt., 2013). These facts highlight the importance of this location as an area for the conservation of biodiversity and the urgent need for a management strategy, development and local development consistent with land conservation and sustainable tourism.

According to the evaluation of tourism resources, the ECEP provides visitors with basic and real resources linked to landscape and biological diversity; also has potential for sports practices, excellent location, easy accessibility and a local community willing to receive tourists, with an own culture that is used as attractive. Along with the basic and real resources, some others seem to have been given the consideration of complementary and potential, that are associated with seasonal sightings of flora and fauna to stargazing, mycology, organic agriculture, the establishment of a biological station for monitoring wildlife and scientific research; the creation of a Management Unit for the Conservation of Wildlife (UMA for its Spanish acronym), education and environmental interpretation (especially thought the use of flagship species) as well as the possible development of other outdoor activities (yoga, landscaping and nature photography). In addition to all, the location has an area which several services and space set for camping, hiking and biking.

During the research period (2011-2012) it was observed that the number of visitors was no more than 15 people per week. Considering the above, and to identify the profile

of the visitor, a survey of 15 questions was applied to 70 users in a 5-week period from Thursday to Sunday, as Monday to Wednesday no entries were recorded. The results of the survey were as follows: 40% are young people (21-30 years); 56% are men and 19% children (under 10 years). 70% of visitors do it with their family; 22% with friends, 6% with co-workers and 2% alone. 84% is largely driven recreation and relaxation, 10% sports training and 6% contact with nature. 94% comes from the State of Mexico and the rest of Mexico City; monthly income of 42% of respondents was between 5 and 10 thousand pesos (280-560 Euros); 68% reach the park by car; 62% remains for 5-8 hours and only 18% overnight on the park facilities. The main activities involve cycling (48%); field days (18%); camping (16%); photography (8%), hiking (6%) and research (4%). 58% of visitors rated the facilities as efficient and accessible. These data are relevant for assessing the conditions of space, as well as preferences and potential supply and tourism demand and current services.

Since the nature tourism destinations are not ready for mass tourism from the point of view of the advertising image in Protected Areas is frequent use of flagship species in promotion strategies, preservation or disclosure of the characteristics of space and their values. To identify the species of the ECEP flag was applied to the 70 respondents to a survey to know the feelings and emotions (joy, tenderness, awe, admiration, fear, disgust or indifference) that caused them the 85 species recorded. According to the results, a total of 25 flagship species (2 amphibians, 3 reptiles, 16 birds and 4 mammals) were identified. Through its use can generate a current of respect and understanding of their role in the ecosystem balance, while guaranteeing its conservation. As shown in the results birds and mammals are the most representative elements, and the species who generates more attractive to the people visiting the park. However, it is necessary to reassess strategies for the perception of the amphibians and reptiles, most of them in a risk category and / or endemic, according to national and international standards of the Trans-Mexican Volcanic Belt. To the management and planning of tourism activities, reference was made to the zoning proposal developed by Sánchez-Jasso (2012), based on the identification and assessment of landscape units. Preservation (P), Recovery (R), Public Use (UP, for its Spanish acronym) and Traditional Use (UT, for its Spanish acronym): the following management subzones according to General Ecological Balance and Environmental Protection Law (LEGEPA, 2004- for its Spanish acronym) were established. According to the guidelines established for each zone, tourism activities are proposed only in areas of UP and UT Also, a DAFO (Strengths, Weaknesses, Threats, and Opportunities, for its Spanish acronym) analysis was developed to identify the structure of supply and the current and potential demand of the ECEP and scope of the proposed tourism development were established.

In order to articulate an organized action on the Park frame, we have designed a plan of action that provides strategic, operational and support processes. They have a transversal nature, an interagency field and have been raised for an active participation of the local community (San Martín Gutiérrez, 2005; Campdesuñer Pérez, 2006). The action plan has been designed by a structure of staggered performances that integrate three processes: strategic, operational and support, which are crosscutting interagency field and with the active participation of the local community. Strategic processes aim to articulate a practi-

cal, functional and efficient administrative system, which ensure the implementation of the action plan. Among the main addressed activities, we have the management of funds to equip tourism infrastructure; also the development and monitoring of strategies and management programs; some of its goals are the implementation of marketing services and corporate image design; business plan; services marketing, distribution and sales, or operation of administrative structures to ensure the management and acquisition of financial resources; in this section the actions of training and retraining of professionals are included; finally there is the promotion of responsible participation by society to safeguard the compliance by monitoring and protect the natural resources. *Operational processes* are intended to strengthen social capital in order to generate infrastructure. The commissioning of a unique administrative structure for the park is to ensure the presence of low environmental impact practices; adapt, enable and build infrastructure to meet the needs of users, in accordance with the regulations; minimize the environmental impact of recreational activities; spread environmental awareness in park users through outreach and education; develop and implement a program of environmental performance; training guides and nature interpreters; establish an identity in the park, using flagship species. Supporting processes are aimed at strategic and operational tasks of the development plan. Commissioning of an external information center, development of corrective and preventive plans; mechanisms for measuring and analyzing the experience and customer satisfaction; establishment of agreements with institutions and universities, operation and maintenance of biodiversity and facilities; generation of research; implementation of a biological station, with a capacity for researchers, students and volunteers; Posted promotion of studies and research according to the characteristics of scientific knowledge and the reach they may have; or sharing and release the results of studies and research in the park at the local, regional and national levels.

Since the creation of the park, cycling and picnics were the predominant activities. However, the space has great potential to introduce or promote activities related to nature tourism and outdoor activities. It should be noted that in parallel with this research, and because the importance of the sports activities for the park, the interpretive trails and cycling route management program was made, considering among other variables, zoning, land slope and carrying capacity (Sánchez-Jasso 2011). In summary, the diversification of products and services, rehabilitation and provision of infrastructure and equipment; strengthen, support and training of social capital in the short, medium and long term; and the ongoing and systematic generation of knowledge about territorial system are key to strengthening the ECEP, as a model for sustainable tourism development in the Toluca Volcano.

The success of community projects with a view towards sustainability, within and outside natural protected areas, depends on the availability and willingness of those involved. The Ejido de Cacalomacán, has made a commitment to the preservation of its heritage and has driven strategic alliances with academic institutions, governmental and nongovernmental organizations that have contributed knowledge, human and economic resources, and thus has opened a process of change within the Toluca Volcano de Toluca, where the planning and management of natural resources including tourism- must have at its core the preservation of natural heritage, the main objective of Protected Areas worldwide.