

“Learning Chests” ALFIN Strategies to Promote the Sustainability of the Coastal Line from La Paz, Baja California Sur, Mexico

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Abstract

The intention of the project is to raise awareness among the children and youth of the city of La Paz about the environment. This was possible through the implementation of exploratory and simulated practices with respect to the habitat and the biological information on aquatic and coastal species of ecological importance that are distributed along the Gulf of California and the adjacent coastal zone. The target population was children and youth from the city of La Paz, Baja California Sur that attend municipality organized pro-science events. The selection of species with any status of protection was made according to existing wildlife, belonging to the vertebrate groups from the NOM 059-ECOL-2010. Information collected related to the bibliography of each and every one of the selected species and the elaboration of the registries, and the visual and tactile components can be found in special containers called “Learning Chests.” A total of 162 species and subspecies were selected: 24 fishes; 4 amphibians; 32 reptiles; 56 birds, and 46 mammals. At the moment, the first “Learning Chests” have been equipped for the Californian Least Tern (*Sternula antillarum browni*), a subspecies of the non-endemic coastal bird which is subject to special protection. The actions taken during the various stages of the project provided an opportunity for librarians to present skills for communication and information management within the educational context, and to promote knowledge of the participating groups through these important interactive activities.

Keywords: Environmental education, resource conservation, species diversity, vertebrates, California Least Tern, Gulf of California.

Introduction

Although it is said that today's society is connected to information through the Internet and Information and Communication Technology (ICT), this is however not true worldwide and especially not true in nations with emerging economies. Mexico, an emerging economy, has a population of more than 119 million (INEGI, 2015). There are sectors of society that are highly vulnerable and unable to participate in technological, economic, and social advances due to their living in extreme poverty. Additionally, associated with extreme poverty are the educational, social, and employment opportunity lags, which affect the vulnerable population who are at risk of exclusion from social subsidies (housing, social security, education, and general services). Children and young people are one of the most affected sectors because they grow up in these precarious conditions.

The State of Baja California Sur has a registered population of 712,029, of which 28% are children and youth from 0 to 14 years old. Most of the inhabitants are concentrated in urban areas (78%) and the rest are in rural areas (INEGI, 2015). In urban areas, population growth occurs towards the coastline which causes the destruction of mangroves and rocky bottom reefs. Population expansion in these coastal zones also generates pollution.

Moreover, there is immigration of 11.6% of the total state population. The municipalities with the highest incidence of immigration are Los Cabos with 63% and La Paz with 22% (INEGI, 2011). This immigration is the result of the hiring of unskilled labor and in poor working conditions, such as construction workers for infrastructure works associated with tourism for the municipalities of Los Cabos and La Paz, as well as agricultural day laborers for fruit and vegetable picking for the municipalities of Comondu and La Paz (SEDESOL, 2016). Additionally, once workers complete their contracts, most of them become unemployed, because they lack school, technical or professional preparation to help place themselves in the few jobs that are offered with moderately paid salaries and which would allow them to permanently cover their minimum needs for food, housing, education, and health. As a result of these conditions, poverty increases and concentrates in certain sections of the cities of Los Cabos and La Paz.

Of the children and youth population of the city of La Paz, there are 7,900 (2.8%) who live in extreme poverty. They are vulnerable because of income and social deprivation (CONEVAL, 2012). Presently, in the municipality of La Paz, pro-science events are organized for the general public to attend. Children and young people who live in the area's poverty belt have attended these events. One such area is called Marqués de León, where inhabitants of the Lagunitas, Villas de Guadalupe, and Laguna Azul ghettos coincide; it is one of the most vulnerable because it only has one primary school and one public library.

Vulnerable areas such as Marqués de León allow libraries to resume their social commitment to society, that is to say that they adopt the new education paradigm where formal education offers ample and flexible learning opportunities. Lifelong learning needs to be provided through non-formal means, with adequate resources and mechanisms and through stimulating informal learning, with the use among other things of the ICT (Tamgodon, 2006). Furthermore, the

library must be one not based on the physicality of buildings or books but on the function of supporting and helping in the complex process of using information and transforming it into knowledge (Anglada, 2014).

It is essential that librarians play their role in order to effectively and sustainably provide services and be resilient in its own evolution, thus implementing projects which include literacy, education inclusiveness, and citizen participation (Sánchez-García and Yubero, 2016). For this reason, the "Reuben Lasker" library staff has been given the task of raising awareness among children and young people who attend the pro-science events organized by the La Paz municipality. The library strives to especially work with those who live in the belt of poverty and educate them about the importance of caring for the city's environment, in such a way that this population will interact in public spaces outside of the library's physical space.

Objective

The objective of the project is to sensitize the children and youth community of the city of La Paz, B.C.S. who attend the pro-science events to the protection of the environment by carrying out simulated exploratory practices of the habitat and biological information of some aquatic and coastal species that are in any protection status and that are distributed in the Gulf of California and adjacent coastal zone.

Materials and Methods

The target population is the children and youth of the city of La Paz who attend the pro-science events organized by the La Paz municipality, but especially those who live in the ghettos. The selection of the species was carried out taking into account the fauna reservoir of the group of vertebrates from the NOM 059 –ECOL-2010 (SEMARNAT, 2010) as well as the endemic and non-endemic species that are special, rare, threatened or in risk of extinction. The bibliography was compiled addressing each one of the selected species and the elaboration of the visual and tactile materials that will be embedded in the named "Learning Chests." A sample of these will be made with the objective of having a pilot study in order to evaluate the level of acceptance of its content.

The learning technique to be used would portray a pedagogical perspective of "learning by doing" that is, it is expected that curiosity for learning will be motivated through interaction with practical information targeting. The selected population it is hoped will awaken its curiosity for learning and changes in individual behaviors.

Results

A total of 162 species and subspecies of vertebrates of which 24 fish, 4 amphibians, 32 reptiles, 56 birds and 46 mammals were selected. In order to compile the required information for each of the selected species to be included in the "Learning Chests," specialized books and theses from graduates from CICIMAR-IPN were consulted. These documents provided images, photographs and information about the species and subspecies behavior including the species' geographical area, reproductive behavior, feeding habits, and possible disturbances in the nesting areas. Also consulted were the fauna guides from associations of specialists and

international and national organizations such as “Naturalista,” which is a collaboration from National Commission for the Knowledge and Use of Biodiversity (CONABIO), Avibase, and Red List, amongst others.

The didactic materials included in the “Learning Chests” were designed for children between 6 to 14 years-old and include the following four elements:

1. A descriptive and illustrated guide with the elements: common name; scientific name.
2. Protection status; description; distribution; habitat, reproductive behavior; and feed habits.
3. A draft of La Paz Bay, in which two types of environments are made relevant and where species and subspecies may be found, such as sandy beaches, mangroves, and rocky bottom reefs.
4. Sand trials, substrates with shells and rocks, roots, algae, and small invertebrates.
5. Two practical exercises from rocky backgrounds to reaffirm learning and the exploration experience.

Each “Learning Chest” is identified by a QR code which contains a link to the faunistic list where the species or subspecies are described. Presently, the first “Learning Chest” has been equipped with information (Mendoza-Salgado, 1994) on the Californian Least Tern (*Sternula antillarum browni*), a coastal non-endemic species has been compromised and that is under protection (Figure 1).

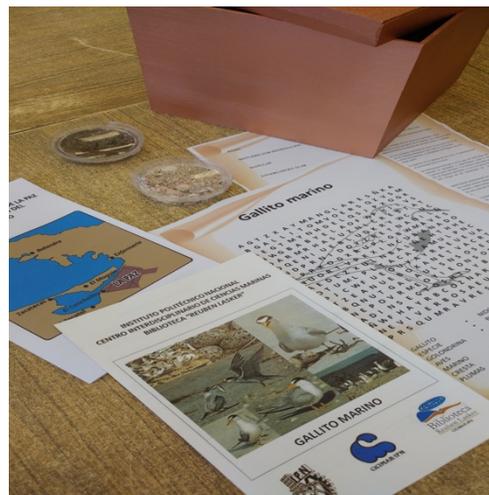


Figure 1. Didactic material for the “Learning Chest” about the Californian Least Tern (*Sternula antillarum browni*).

Conclusion

The “Learning Chests” information prepared by the librarians represent a value added that has brought about a new general public service, in particular for children and young people, into a public space with the objective of addressing a social need and of contributing to a favorable societal transformation.

The initiative's outreach is possible thanks to the conjunction of these three components:

- Thematic - species in any status of protection;
- Vulnerable population - children and youth;
- Librarians and libraries - raising visibility in a practical and natural manner to achieve the necessary feedback, thus ensuring sustainability.

The project in general contributes to an open-minded approach promoting initiatives - which may seem uncomplicated but most definitely are not - and by teaching vulnerable populations who are in need of information in all its possible and available formats, librarians become resilient and then dare to assume new roles.

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