THE ZOOS AND THEIR ROLE IN THE FORMAL AND INFORMAL ENVIRONMENTAL EDUCATION

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ABSTRACT

Due to their unique settings, zoos have indubitable role in teaching vast amount of people each year about the secrets and miracles of life. According to the World’s Zoo Strategy, zoos have four main purposes and goals: 1). Recreation, providing a “green touch”; 2). Education about the diversity of life; 3). Research on wildlife using the captive facilities for studies not possible in nature and 4). Conservation of endangered species for which only captivity can provide shelter.

Sofia zoo has an Environmental Education and Research Centre established 10 years ago which is responsible for fulfilling three of the four aims of zoos in a blend of activities. We had developed education packages for formal and informal education for general public with special focus on children, provide bases for research conducted by university students and their preliminary education and also take part in several conservation projects, the results of which are used as teaching approach. Examples of all these activities are discussed further in this paper.

Keywords: environmental education, Sofia zoo

Introduction

Due to their unique settings, zoos have indubitable role in teaching vast amount of people each year about the secrets and miracles of life. According to the World’s Zoo Strategy (6), zoos have four main purposes and goals: 1) Recreation, providing a “green touch”; 2) Education about the diversity of life; 3) Research on wildlife using the captive facilities for studies not possible in nature and 4) Conservation of endangered species for which only captivity can provide shelter.

More and more the education is accepted as the most important role of zoos to exist and develop (3). Even more, the broad spectrum of educational activities provided by zoos not only concern animals, biodiversity and environment but may have cross-academic roots, like arts, geography, theatre, engineering and technology, physical and mental health, even math. Thus the zoo world introduce a special kind of term called zoo education to account for all the possibilities.

The modern and most popular zoos of Western Europe and North America had elaborated an unique approach of converting the recreational needs of their visitors into a “walk through the biodiversity” memorable experience for all age groups, submitting them to a discrete set of conservation messages (1). Gradually, the concept stage of building every new zoo or re-development of the old ones is getting strongly influenced by the need of environmental messages. Apart the functionality and animal needs, the design of new enclosures is also a subject of preliminary research about its educational role and how much it will contribute to the need of information and the aesthetic needs of the visitor.

In attempt to respond to the demand of fulfilling a role of a modern zoo, Sofia Zoological Gardens had established a Environmental and Research Centre (EERC) in 1998. This Centre is a part of the zoo’s regular activities and has the main aim to create and conduct environmental education programs, to supervise or fulfill research activities within the zoo and in-situ and to participate through its staff in conservation projects. Through this Centre, Sofia zoo is trying to provide for the three of the four main goals stated by the World’s Zoo Strategy. This is done through a blend of activities as stated below, as some are developed by and also conducted in other European zoos and some originally developed by our staff for exclusive Sofia zoo events.

Materials and methods

EERC applies two main approaches towards education of visitors – formal towards organized school groups and university students and informal, including series of activities towards all target groups.
The main target groups which we aim and work with are:

- Children 7 to 14 years old divided into two age groups – junior (aged 7 to 10), where the basic programs are based on activity games, sense and perceptions, and senior (aged 11 to 14), where the teaching process introduce more abstract terminology, logical games and role play point of view. These are the two target groups where we try to create basic environmental thinking or try to influence the misconceptions at an early stage.

- Senior students (aged 15 to 18) and university students, exhibiting profound interest towards nature and environment. This target group we generally divide into two subgroups – 1. nature and zoology oriented, where basic training covers special education tasks related to the animals and 2. other fields like art, science and technology, etc.

- General public - this is the most diverse and difficult to work with as it comes from a different background and interests. The approach to this group is indirect through the use of information panels or participation in special events. The success of this approaches highly depends on the willingness of the visitors to be included in the process. It could be facilitated when the visit to the zoo is child-based. The children are the most opened to receive information and through them it could be delivered to the parents too.

- Children and adults with special needs. These are the most neglected target groups for education. These we also divided in our approach into two subgroups – children and adults with physical and mental disabilities and (mainly) children without basic sustenance (orphans). We try to reach them through specially developed approaches mainly based on close contacts with animal (handling, feeding, etc).

The target groups and the specific approach to them is a subject of Sofia Zoo’s Education Strategy.

**Results and Discussion**

Our zoo education program includes the following informal activities:

Zoo Summer School - being very popular for the last 11 years this is one of the most attractive and desired educational program for children aged 7-14 year old with intensive interest in animals (Fig.1). We conduct it during June and July each year as weekly (Monday to Friday) full day activity which also benefits the working parents. The Zoo Summer School is structured in “special days” each of them with special challenges to the children, mainly in form of games: “Be a zoo keeper for a day” – introducing the zoo work, combined with close contact (handling, feeding and cleaning) with tame exotic and domestic animals in the building of the Centre; “Zoo Olympics Day” – specially designed environmental outdoor and indoor games, which apart from the physical activities are also introducing concepts and terminology like biodiversity, food web, competition, etc.; “Animals and Arts Day” where through the art (drawing, crafts, theatre and dancing, etc) we teach animal anatomy and proportions, perception of color balance, the role of sounds in nature, etc. complemented with development basic craft and art skills. The “Zoo Detective’s Day”, through a zoo detective’s puzzle tour in the zoo is aiming a check of the children’s level of knowledge and predisposal to teamwork which is a basis for the afternoon activities of team building competitions, observation of zoo animals behaviour, zoogeography games, etc. The last but not least day is called “Biodiversity in Danger” where role play discussions and environmental games are directed towards building a logical and consistent environmental awareness with a special accent in the afternoon on garbage problem and ways of recycling (including games). With these special days we try fill the gaps of the environmental and overall education provided by the National School Curricula, which are due to the insufficient school hours and sometimes inflexible tutors. Additionally we try to pass on the knowledge from older children coming to help us as volunteers during the Summer School to the younger ones thus allowing for sharing and closer contacts between different age groups.

This program is also offered to foreign children and fulfilled in English language for the last three years, where we work in collaboration with the Ango-American School.

![Fig. 1. Graduates from the Zoo Summer School](image)
The zooclub members (now aged 6 to 62 years old) are offered a broad scope of events (Fig. 2) – handling and care of the animals in the education centre, multimedia presentations on specific topics organized in teaching cycles (animals systematic, behaviour, zoogeography, even genetics), excursions, handcraft activities, theatre, etc. For some of the presentation topics we invite specialists working in the field which could provide first hand information and immediate experience to the club members. The children are encouraged to make their own presentations on topics of their concern which provide a perfect opportunity to train presentations skills in friendly environment. Additionally, once per month there is a practical session – team building and survival exercises, making bird feeders and observation of wild birds, building from waste items “recycled animals” in anatomic details, theatre events prepared and delivered by the club members in front of their parents, many games like Zoo Monopoly or Ecosystem game, etc. Once or twice per school year we complement the zoo activities of the zooclub with field work – riding horses in the wild, observation of vultures in Madjarovo, radio telemetry of chamois in Vitosha Mountain, observation of birds on Dragoman lake, etc., which benefits the children with unique firsthand experience from the running conservation projects in Bulgaria. Many times, the parents of the children are also joining the zoo club events. This diverse approach is not offered anywhere and apart from building a positive attitude and understanding towards conservation efforts in the mass part of the club members (children and university students), it also creates future conservationists and decision maker (2).

In case of organized school groups, visiting the zoos we also offer a guided tour, media presentations, environmental games and handling of animals as addition to the National school curricula.

The biggest challenge is the planning and conduct of special events (Fig. 3), when the success of the event and the education merit depends mainly on the participation of the general public, which visit the zoo. The last events we had organized like the European Bat Night, the Bear Day (St. Andrew’s Day) and the World’s Birds’ Days show that these events had a high awareness value and could reach a lot of people concerned with nature (at minimum 150 people participated in each event). In these cases the close collaboration with conservation organizations and the strong participation of the medias are the crucial components of turning a small education activity into a big outreach event with response and importance for the conservation of the species in mind. Thus, the zoos as unique places with a concentration of species that could use the attractiveness of their own species bringing people in, to accent on the broader conservation issues through educating the visitors and raising their environmental awareness (4). This could be also facilitated by knowledge transfer from in-situ to ex-situ (5) and vice versa by the use of species available both in the zoo and in the wild for the conservation through education of the endangered or vulnerable species from the Bulgarian and Balkan fauna.

The approach towards the general visitors also includes presentation of exhibits, like the one for CITES convention, for which the zoo is one of the most appropriate place that concentrates animal lovers and thus potential buyers of protected illegally imported or captured from the wild animals. These people are of need to be educated and there are not many places which could reach them successfully.

The zoo is also an important place for photographing animals or making original Bulgarian documentary natural history movies about animals. We do cooperate actively in film-making, moreover we provide expertise being scriptwriters for these films which later can reach a lot of people with their messages.

Sofia zoo provides an important aid to university students – both as a place for studying for the animals and studying the animals themselves. We have a long practice of training students in zoology and veterinary medicine (Fig. 4), provide consultations for senior students in gymnasiums for writing specialized papers or provide ground for artwork for students in art schools. More over there are already developed or are in a process of development of several Masters of Science and Masters of Art diploma theses. They are of direct benefit to the management and running of the zoo with enclosures redesign or corrections of animals care according to the behaviour registered during the research. This ground was not only provided for Bulgarian students but we also trained 5 Dutch students which were doing different education related projects in the zoo. This unique opportunity is offered also to the Bulgarian students but there is still a lack of interest.
The formal approach includes the development of thematic presentations based on the National School Curricula which are presented on demand to school groups coming in the zoo for their classes in biology. Additionally we provide training to the zoo staff on the basic zoo management techniques, with special accent on zoo enrichment, feeding and reproduction, etc.

There are numerous opportunities for the use of the zoo in the National School Curricula and in the programs of the different university. There is a need of close collaboration with teachers and university tutors to elaborate a manual about service the zoo could provide for enhancing and illustrating the school lessons, which could help a lot the teachers in their teaching process. Moreover, the zoo offers many possibilities for a quality research, practical classes and Masters of Science/Art theses’ topics, including on environmental education, which currently is underestimated by the graduating students.

For the future we plan building a Contact area, where general visitors could have closer contacts with tame wild or domestic animals, which will help reaching more of the general public in the zoo. There are also need of development of a program for children pre-school age (3-6 years old), which currently are not in our target group list. There is also available (with the help of a Dutch student) an adapted program for Zoo Summer School for children with disabilities, but it is not functional yet due to our limited contacts with this target group. The zoo could offer successfully a ground for this kind of “zoo therapy”.

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