

Zoological institutions in the Middle East and potential of a regional zoo association



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Zoological institutions in the Middle East and potential of a regional zoo association

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Back in November 2008, when I flew for the first time to the Middle East, at the start of a four-month internship in an animal breeding centre nearby Dubai, I knew quite nothing about this region and what I would find over there. During the following months and by travelling in the Arabian Peninsula, I discovered many zoological institutions and many various new challenges. I had fruitful exchanges and discussions with many local zoo professionals involved on site, and especially about the existing collaborations and a possible regional zoo association, which did not exist yet. The combination of my interests for this region, the zoological institutions and the conservation of biodiversity with this possible wish to start a regional zoo association lead to this thesis project.

I hope I have been able to make my contribution through this project and that this will help to start an organization which could further improve the advancement of zoological institutions in the Middle East and their involvement in global conservation.

I would like to acknowledge particularly all the zoo professionals working in the Middle East. I appreciate very much to have met a lot of them in their institutions and their regular help and support in this project. All their experiences and examples have influenced my own career.

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SUMMARY

Zoos and aquaria are places where animals are maintained in captivity for different purposes. Modern zoos have set up main roles which integrate conservation, education, research and recreation (Hediger, 1969). To help to reach these goals zoological institutions have started to organize themselves among organizations. These zoo associations are found now all around the world and gather zoos, aquaria and similar facilities in strong network communities with clear goals. Nevertheless one specific part of the world, namely the Middle East, never came through the process of the creation of a zoo association. However zoos and aquaria in this region face the same missions, challenges, problems and limitations as anywhere else in the world.

The goal of this research is to give an overview of the current situation of zoos and aquaria in the Middle East and to assess the feasibility of creating a regional zoo association. The interests, the expectations and the possible investments of local zoological institutions were examined and analysed. Three main instruments of research to reach the goal were used: Literature research, Questionnaire and Observations.

A total of 69 confirmed zoological institutions were found in the region. From these, 17 are 'Zoos', 8 'Aquaria', 3 'Dolphinaria', 13 'Private collections', 10 'Breeding centres', 8 'Minizoo's' and 10 'Others'. Each category has its own characteristics and developments, which are briefly mentioned in Chapter 3 and Appendix 2.

The potential of a regional zoo association in the Middle East is assessed through a survey realized via a specific questionnaire (see Appendix 3). This questionnaire was distributed by email, fax and paper. It was possible to reach 49 institutions out of the 69 existing in the region. A total of 16 full filled in questionnaires were obtained.

Conservation and research are two main fields in which zoological institutions from this region are actively involved: 63% of the surveyed institution participates in conservation *in situ* and 88% states that they are doing research. Education is less developed with only 56% of the institutions involved but a large part of the institutions in this region are not opened to the general public.

Nine zoological institutions in the Middle East are already members of international zoo associations, mainly based in other regions. Furthermore seven zoological institutions within the Middle East are members of the International Species Information System (ISIS).

Without a structural framework, a certain number of collaborations happened already among zoological institutions in the region. Most of exchanges are done with institutions situated in The United Arab Emirates.

All the surveyed institutions are interested to join a potential regional zoo association in the Middle East. They expect to gain benefit from it mainly in terms of 'Exchange of information', 'Exchange of animals', 'Conference/workshop' and 'International collection with worldwide association'.

The surveyed institutions are willing to support with a high participation most of the possible fields, as 'Exchange of information', 'Exchange of animals', 'Conference/workshop' and 'Technical assistance'. Active involvement in breeding programs, conservation and research committees appear to be the most intended.

From the brief analysis of zoological collections in the Middle East and the results from the survey realized, a clear potential for a regional zoo association could be drawn. The foundation of such an association requests a process through different steps and a strong basis structure which will allow further development and success for the mutual enrichment and advancement of the members. Whatever the impetus, the decisions made by the founders during the start-up period of the new organization will have a profound impact on its success, effectiveness and longevity (Knowledge Center Staff, 2006). General recommendations about the starting steps of a regional zoo association in the Middle East are given in the last chapter of the report.

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1. INTRODUCTION

Zoos and aquaria are places where animals are maintained in captivity for different purposes. Modern zoos have set up main roles which integrate conservation, education, research and recreation (Hediger, 1969). To help to reach these goals zoological institutions have started to organize themselves among organizations. These zoo associations are found now all around the world and gather zoos, aquaria and similar facilities in strong network communities with clear goals.

The history of formal international cooperation among zoos is a young one, dating back to the earliest efforts in the first part of the 20th century. Traditionally, zoos tended to operate as isolated islands filled with exotic animals, and competition was keen to keep the rarest, most unusual animals alive – when another zoo could not. This stance undermined attempts at collaboration and cooperation. However there were informal associations among zoos and, from the middle of the 19th century, European zoo directors met regularly, especially at the time of wild animal sales, which took place at Zoo Antwerpen (Belgium). After the World War I, it was recognized that a dialogue among zoos in different countries might help improve the health and longevity of the captive animal collections. (Fisher, 2001)

That was the basis of the foundation of the first international organization: the International Union of Directors of Zoological Gardens (IUDZG) was created in 1935 and became later on the World Association of Zoos and Aquariums (WAZA)¹. Its modern mission is to provide leadership and support for zoos, aquaria, and partner organisations, of the world in animal care and welfare, conservation of biodiversity, environmental education and global sustainability (WAZA, 2003).

In North America, the early goal of the Association of Zoos and Aquariums (AZA)², created in 1924 as the American Association of Zoological Parks and Aquariums (AAZPA), was to provide a professional forum for information exchange among zoo and aquarium professionals (Butler, 2001). Nowadays the AZA is a nonprofit organization dedicated to the advancement of accredited zoos and aquaria in the areas of animal care, wildlife conservation, education and science (AZA, no year).

In Europe, the need for a global zoo association appeared in the mid-1980s. At that time the necessity for a closer cooperation between zoos became obvious after the Convention on International Trade in Endangered Species (CITES)³ came into force in 1975. Suddenly zoos saw themselves cut off from the import of wild-caught animals, the trade of which now was strictly regulated. Zoos had to breed animals they wanted to exhibit and to build up self-sustaining populations of animals in order to become independent from import of wild animals. Moreover the political wish to create a legislative European zoo directive pushed the European zoos to organize themselves and formed a joined body to face this situation. (Nogge, 2003)

The European Community Association of Zoos and Aquaria (ECAZA) was born in 1988. Later changed in 1992 to the European Association of Zoos and Aquaria (EAZA)⁴, this organization has now for mission to facilitate cooperation within the European zoo and aquarium community towards the goals of education, research and conservation (EAZA, 2009).

At the same time dozens of similar associations, both at national and international level, were created all around the world.

¹ <http://www.waza.org/>

² <http://www.aza.org/>

³ <http://www.cites.org/>

⁴ <http://www.eaza.net/>

The Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA)⁵ was established in 1990 to link zoos and aquaria in Australia, New Zealand and the South Pacific in a cooperative regional network for wildlife conservation (ARAZPA, no year).

The African Association of Zoos and Aquaria (PAAZAB)⁶ was formed in 1989 as an organization aimed at representing the interests of *bona fide* zoos and aquaria on the African continent (PAAZAB, no year).

The South Asian Zoo Association for Regional Cooperation (SAZARC), created in 2000, has a purpose to improve communication and cooperation between zoos within the country, between zoos of the region and internationally as well as to set up standards for animal care, organize training in zoo management, etc. (Zoo Outreach Organisation, no year).

Examples of zoological associations are numerous and fully spread over the world. Nevertheless one specific part of the world, namely the Middle East, never came through the process of the creation of a zoo association. However zoos and aquaria in this region face the same missions, challenges, problems and limitations as anywhere else in the world.

As in other regions, breeding programs are currently on the edge to be more and more fully developed in the Middle East, especially for indigenous species and subspecies. One of the first efforts was made for the Arabian leopard (*Panthera pardus nimr*), classified Critically Endangered by the International Union for Conservation of Nature (IUCN, 2008a). Back in 1985 a first breeding group was established in the Oman Mammal Breeding Centre (Oman) (Spalton, 2006) but it is only since a few years that international collaboration has started to be successful and that breeding is more effective. Another Endangered local species (IUCN, 2008b), the Arabian tahr (*Arabitragus jayakari*) is maintained in different collections in the Middle East and close cooperation for captive breeding could rise the chance to save this animal from extinction.

The Conservation Breeding Specialist Group⁷ (CBSG, called in the past the Captive Breeding Specialist Group) considers that the management of species populations requires cooperation and collaboration between institutions (Jong, no year).

One of the main reasons of the creation of a European zoo association at the beginning of the 1990s was the pressure due to animal welfare groups and the political wish to create formal zoo legislation (Nogge, 2003). Such a situation is slowly appearing in the Middle East as well. Setting up a zoo legislation and starting formal inspection by a governmental body was already under discussion in The United Arab Emirates.

Nowadays, the critical role of zoos and aquaria within conservation is fully recognized by the IUCN. Zoos and aquaria are in a unique position: that of providing conservation in a genuinely integrated way. The major goal of these institutions should be to integrate all aspects of their work with conservation activities. The fundamental elements of each organization's culture should be the values of sustainability and conservation, and social and environmental responsibility. (WAZA, 2005) The same applies for all zoological institutions in the Middle East. The situation in this part of the world is even more especially critical as a unique fauna and flora biodiversity still exists in this region and that concrete actions have to be taken now before it is too late. One of the facilities in The United Arab Emirates, namely the Breeding Centre for Endangered Arabian Wildlife (BCEAW)⁸ and its board the Environment and Protected Areas Authority (EPAA)⁹, organize each year a Conservation

⁵ <http://www.arazpa.org.au/>

⁶ <http://www.paazab.com/>

⁷ <http://www.cbsg.org/>

⁸ <http://www.breedingcentresharjah.com/>

⁹ <http://www.epaa-shj.gov.ae/>

Workshop for the Fauna of Arabia¹⁰, at which many field researchers, scientists and zoo experts take part. Other exemplary examples exist in the region but mainly managed, funded and followed by one zoological institution at the time. Further exchanges and collaboration on this matter would probably be beneficial for all parties and for conservation *ex* and *in situ*.

The educational role of zoos and aquaria is to interpret living collections to attract, inspire and enable people from all walks of life to act positively for conservation (WAZA, 2005). Zoological institutions in the Middle East, at least the ones opened to the public, have to deal with this important goal of modern zoos as well.

The World Zoo and Aquarium Conservation Strategy (WZACS)¹¹ strongly recommends that zoo and aquarium partnerships and networks have to be established or strengthened at local, national, regional and international levels (WAZA, 2005). Creating a zoological association may be time and effort consuming but would rise to a better organized local network which would be much beneficial for all the institutions involved. Collaboration in various matters, as exchanges of information, experiences, animals, would be simplified and more accessible to the majority of zoological institutions part of the network. Furthermore an organized body is always stronger to face any global challenge as e.g. the creation of legislation and its implementation or a disease outbreak.

Research goal

Considering the framework of the development of zoo associations around the world and the few examples and challenges in the Middle East presented above, the goal of the current research is to give an overview of the current situation of zoos and aquaria in the Middle East and to assess the feasibility of creating a regional zoo association. The interests, the expectations and the possible investments of local zoological institutions will be examined and analysed.

Research questions

1. What is the current situation of zoos and aquaria in the Middle East?

- How many zoological institutions exist in the Middle East and which are they?
- What type of institutions are they, what are their characteristics and how are they organized?
- What kind of activities do the regional zoological institutions realize?

2. What is the potential of a regional zoo association in the Middle East?

- What are the existing national and international collaborations within the zoos in the Middle East?
- What would be the expectations and the intentions of the local zoological institutions about a regional zoo association?
- What are these institutions willing to invest in such an association?

¹⁰ <http://www.biodiversityconference.com/>

¹¹ Available online at <http://www.waza.org/conservation/wzacs.php>

2. STUDY DESIGN AND INSTRUMENTS OF RESEARCH

All the zoological institutions of the Middle East represent the research population of this project. This includes all types of facilities, opened for the public or not, e.g. zoos, aquaria, dolphinarium, private collections, breeding centres and minizoo.

The Middle East itself has no clear boundaries or geographical limits (Andover, 2000). For the scope of this study twelve countries were considered: Bahrain, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, The United Arab Emirates and Yemen (see Figure 1). The Gaza Strip, Israel and The West Bank were not included.



Figure 2.1: Map of the Middle East (Source <http://middleeastfacts.com/middle-east-maps.php>)

Three main instruments of research to reach the goal set for this study (see Chapter 1 Introduction) were used:

- Literature research
- Questionnaire
- Observations

Literature research

No full list of zoological institutions in the Middle East was available. The first task to answer the research questions was therefore to establish a list as exhaustive as possible, mainly through literature research. The World Association of Zoos and Aquariums (WAZA) maintained an inventory of its members around the world extended to some other zoological collections as well. This list was

available online at <http://www.waza.org/network/index.php?main=zoos> until the end of 2009. The International Zoo Yearbook is an annual international publication for the exchange of information on the role of zoos in the conservation of biodiversity, species and habitats (ZSL, no year). A list of Zoos and Aquariums of the World is regularly included in this publication. The last edition of this list dated back from 2009 in the Volume 43 (ZSL, no year). A combination of the information from these two recognized lists forms the basis of the exhaustive wanted list. Diverse private websites (e.g. <http://www.goodzoos.com/>, <http://www.leszoosdanslemonde.com/>, <http://www.wzd.cz/>, <http://www.zoos-worldwide.de/>, <http://www.zooarchives.50megs.com/>, etc.) introduce as well lists of zoos around the world. Nevertheless data from such sources has to be checked and crossed between different lists to assure a good level of reliability. Local press and newspapers (e.g. The National¹² in The United Arab Emirates) publish often articles about zoos and local institutions which may lead to the inclusion of new institutions into the working list.

Finally the most powerful tool to list the zoological institutions in the Middle East was to ask directly zoos and aquaria from the region. By working in the region they know the best about potential colleagues in the neighbourhood. Combining all the information obtained from these different sources led to an almost exhaustive list of the zoological institutions in the Middle East.

The inventory of the zoos, aquaria and other zoological institutions in the Middle East was completed by contact details, basic information and the type of each institution as well as the organisation structure. Type of institution includes 'Zoo', 'Aquarium', 'Dolphinarium', 'Private collection', 'Breeding centre', 'Minizoo' and 'Other'.

Primary information as the type of institution and the organization structure were found through literature research. The data available in the International Zoo Yearbook were especially of major interest in this matter. If released the website of each institution often includes basic information which is necessary to answer this research question.

Questionnaire

Literature research is an important first step. Nonetheless basic information about the majority of institutions in the Middle East was not available in published material. Therefore direct contact with each institution concerned remains the only way to collect these data. Correspondence by postal mails or emails is the most efficient possibility to request this information if not found in preliminary desk research. To assure the data were collected in a proper, effective and objective way, the request was organized through a questionnaire. As much as possible closed questions with multiple choices were used in order to assure a consistency in the information gathered. An overview of the questionnaire used is included in Appendix 3.

The questionnaire was distributed to 49 zoological institutions within the Middle East. This was realized by email, with the help of the online tool SurveyMonkey¹³, by fax or directly on paper. SurveyMonkey is an online survey tool that enables people of all experience levels to create their own surveys quickly and easily.

The activities and roles of modern zoos may be divided into four main fields: conservation, education, research and recreation (Hediger, 1969). How and at which level zoos and similar facilities in the Middle East participate in these fields was asked through the questionnaire prepared. Short questions about actions realized were included.

¹² <http://www.thenational.ae/>

¹³ <http://www.surveymonkey.com/>

The answers to the questionnaire helped to assess the current levels of collaboration within the zoos of the region and the potential of a future zoo association.

Observations

Observations by visiting 34 zoological institutions in the Middle East completed the two methods mentioned above.

The missions and vision of each zoological institution are of much importance to understand the situation and the possible further developments of zoos (Griede, 2008) and potential collaborations within the frame of zoo associations. For a certain number of European and American zoos their missions are available and highlighted directly on their website. As most of the institutions of the Middle East do not have such a communication tool, it was necessary to ask them directly for this information. This was done through the questionnaire already mentioned above.

Nevertheless to have a clear and better overview of the situation, the missions and the values of the main zoological institutions in the region, physical visits on site represented the best option. These visits led to a better understanding of each institution, their particular challenges and possibilities.

3. RESULTS: CURRENT SITUATION OF ZOOS AND AQUARIA IN THE MIDDLE EAST

Before linking existing zoological institutions within the framework of a regional zoo association, it is important to know which zoological institutions are found in the region. The first goal of this research was to give an overview of the current situation of zoos and aquaria in the Middle East.

Inventory of zoological institutions in the Middle East

An inventory of zoological institutions in the Middle East was compiled following the process described in the second chapter of this report (see Chapter 2 Study design and instruments of research). This led to a total of 69 confirmed zoological institutions in the region. These were classified in seven categories: 'Zoo', 'Aquarium', 'Dolphinarium', 'Private collection', 'Breeding centre', 'Minizoo' and 'Other'. An eighth category, named 'Lack of data', was created for the facilities for which not enough current data was found. The institutions from this last category were not considered in the final total.

A short definition of each category used follows:

'Zoo': institution opened to the public which exhibits a certain number of wild species of animals. Display of these animals is the primary mission of the institution.

'Aquarium': institution opened to the public which exhibits a certain number of wild species of animals from marine habitats, with a focus on fish. Display of these animals is the primary mission of the institution.

'Dolphinarium': institution opened to the public which exhibits marine mammals. Display of these animals is the primary mission of the institution.

'Private collection': collection of wild animals maintained in private hands for personal interest without being visible for the general public.

'Breeding centre': collection of wild animals maintained for breeding purposes without being visible for the general public. The breeding may be managed for commercial or conservation goals.

'Minizoo': institution opened to the public which exhibits a small number of wild species of animals (basically less than 10 species). This includes as well small aquarium with less than 10 major tanks. Such institutions are often part of wider facilities, as shopping mall, theme park, museum, etc.

'Other': this category includes other possible zoological institutions which do not fit in any of the above categories. This may be butterflies' park, birds of prey show, specialized reptiles park, consultant with captive animals, etc.

'Lack of data': this category includes institutions for which data was missing. Current existence or special focus of the institution was not confirmed or found.

It is clear that some institutions may be included in several categories. For example, some zoos do include facilities for fishes, which mean that they are at the same time a ‘Zoo’ and an ‘Aquarium’. Alike, some aquariums are combined with major facilities for dolphins or other marine mammals and should therefore be considered as ‘Aquarium’ and ‘Dolphinarium’. To simplify and clarify the classification, only the main category was specified for each zoological institution. Therefore, a zoo with an aquarium will be defined as a ‘Zoo’ and a major aquarium with some marine mammals as an ‘Aquarium’. If the mammals’ facilities were predominant in this last case, the chosen category would have been ‘Dolphinarium’.

Table 3.1: Numbers of zoological institutions in the Middle East classified by category and country

	Zoo	Aquarium	Dolphinarium	Private collection	Breeding centre	Minizoo	Other	Total	<i>Lack of data</i>
Bahrain	1		1				1	3	1
Iran	2		1					3	12
Iraq	1							1	1
Jordan		1			1	1		3	2
Kuwait	1	1			1		1	4	
Lebanon								0	4
Oman		1		1	1		1	4	
Qatar	1				1	1	1	4	
Saudi Arabia	4				2			6	2
Syria	1							1	
The UAE	4	5	1	12	4	6	6	38	
Yemen	2							2	
Total	17	8	3	13	10	8	10	69	22

Some observations can be drawn from Table 3.1. First of all, 38 institutions out of the 69 found in the region are situated in The United Arab Emirates. This represents more than half (55%) of the facilities within the region. The eleven other countries have from 0 to a maximum of only 6 zoological institutions (9% of the total). Furthermore, ten countries out of the twelve considered have less than 4 institutions (6% of the total). Only one country in the Middle East, namely Lebanon, does not count any zoological institution. These results show an important bias towards The United Arab Emirates.

As seen in Figure 3.1, of the 69 zoological institutions in the Middle East, 17 are 'Zoos', 8 'Aquaria', 3 'Dolphinaria', 13 'Private collections', 10 'Breeding centres', 8 'Minizooos' and 10 'Others'.

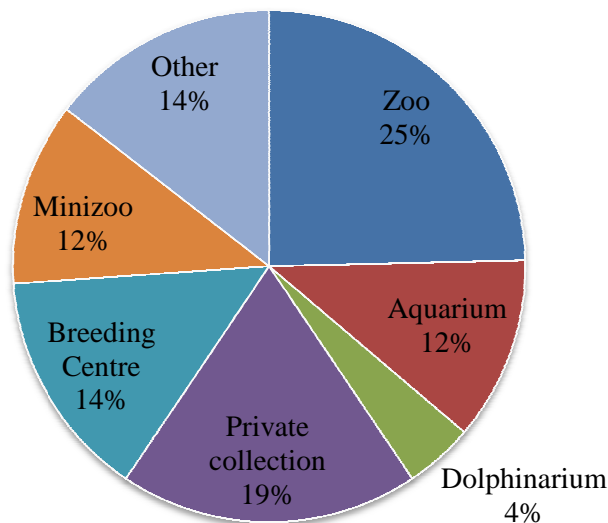


Figure 3.1: Total numbers of zoological institutions within each category

'Zoos' are relatively equally represented in nine countries out of twelve, with 1 to 4 institutions in these countries. For the six remaining categories, there is a strong bias towards The United Arab Emirates which explains the statement above. 63% of the 'Aquaria' found in the region, 33% of the 'Dolphinaria', 40% of the 'Breeding centres', 75% of the 'Minizooos', 60% of the 'Other' facilities and more especially 92% of the 'Private collections' are found in The United Arab Emirates.

This bias is surely not based on a geographical reason as The United Arab Emirates covers only 1.5% of the total land surface of the twelve considered countries (83 600 km² out of 5 452 953 km²) (United Nations Statistics Division, 2007). The same is true in terms of population as The United Arab Emirates only has 2.3% of the total population from this region (4.4 million out of 191.4 million) (United Nations Development Programme, 2009).

Tourism may be part of the explanations as The United Arab Emirates and especially Dubai is an important touristic hub. 5.9 million international tourists arrived in The United Arab Emirates in 2003 (World Tourism Organization, 2006). This number is relatively high compared to the ones for the other countries in this region but the origin and the purpose of these tourists have an important part to play as well.

Zoological institutions in the Middle East and their characteristics

A complete inventory of the zoological institutions in the Middle East is included in Appendix 2. When available, this listing contains as well primary information for each institution. Full name of the institution is given as well as its category, completed by possible secondary category or details about the category used when necessary. Full address is followed by basic information as type of the organization, year of opening/creation, size, total number of species, total number of animals, species in each group (mammals, birds, reptiles, amphibians, fishes and invertebrates) and the percentage of species endangered within the collection. Finally the file for each institution is completed by the number of visitors per year (if the institution is opened to the public), the total number of staff, the number of staff working in the zoological department, details about the veterinary care and possible membership to existing international zoo associations.

The World Zoo and Aquarium Conservation Strategy (WZACS) recognizes that integrated conservation activities will vary in different parts of the world because of cultural and social factors and the everyday reality of life. Furthermore cultural, economic and political factors will influence the emphasis placed upon the variety of environmental and conservation issues in zoos and aquaria in different parts of the world. (WAZA, 2005)

Therefore a primary background of each of the twelve countries considered for this research is also included in Appendix 2. This is done through five parameters: population, surface area, Human Development Index (HDI), HDI rank and international tourist arrival.

The geographical situation of the 69 zoological institutions in the region is illustrated in Figure 3.2 on an aerial view of the Arabian Peninsula.

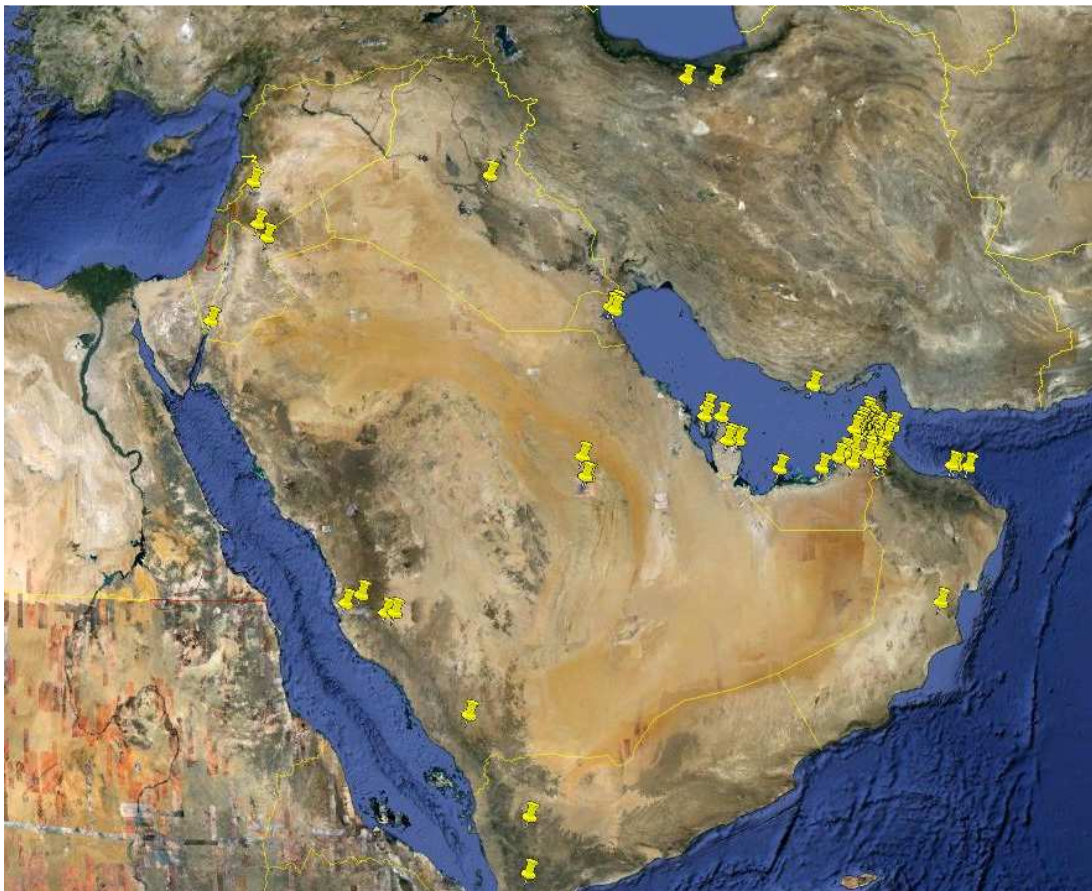


Figure 3.2: Zoological institutions in the Middle East situated on an aerial view of the region

‘Zoos’ in the Middle East have a relatively similar pattern as in other regions of the world. A large amount of them were built in the 1960s and 1970s. Among them, Dubai Zoo was opened in 1967, Kuwait Zoo in 1968, Al Ain Zoo in 1969 (renamed Al Ain Wildlife Park and Resort in 2009), Baghdad Zoo in 1971, Al Areen Wildlife Park and Reserve in Bahrain in 1975, etc. The two ‘Zoos’ in Yemen are particular as they were both opened in the 1990s, respectively in 1998 for Taiz Zoo and in 1999 for Sana'a Zoo. Most of these institutions have a governmental or municipal background. They have evolved throughout the decades and are still main facilities in the region.

Private owners created as well ‘Zoos’ but this appears to be on a limited scale. Two examples could be the Al Taraf Model Zoo in Saudi Arabia opened in 1996 and Kids Park Abu Dhabi in The United Arab Emirates opened in 2008.

The animals maintained in all these institutions are traditional with a large amount of species appreciated by visitors, as monkeys, big cats, giraffes, snakes, large birds, etc. Species originated from local regions are often exhibited as well, including a wide range of small mammals and birds from the desert. The Arabia's Wildlife Centre in Sharjah, linked with the Breeding Centre for Endangered Arabian Wildlife (BCEAW), exhibited a full set of the biodiversity from this part of the world, including mammals, birds, reptiles, amphibians, fishes and invertebrates.

The size of ‘Zoos’ in the Middle East is relatively small, often ranging from one to five hectares with some exceptions. One of them is Al Ain Wildlife Park and Resort which is spreading on a total land of 900 hectares. This last one is undergoing major changes and a new master plan was decided with a reconversion in different phases planned to be inaugurated between 2011 and 2013.

Some ‘Zoos’ in the Middle East face problem with rescue animals even if they are not facilities planned to receive such. These animals often came from confiscation, especially at the borders. In this matter Dubai Zoo is particularly involved and a large majority of the almost one thousand animals maintained within the 1.7 ha of this zoo is rescued from various sources.

‘Aquaria’ represent another main category of zoological institutions opened to the public. This kind of institutions was mainly developed since the end of the 1990s, a trend which may be seen as well in other developing regions in the world. There are nevertheless some exceptions, especially based on scientific purposes, as the Marine Research Centre and Aquarium in Umm Al Quwain (The United Arab Emirates) opened in 1984 and the Aquatic Exhibition of Marine Living Species at Marine Science & Fisheries Center in Sidab (Oman) opened in 1986. The more recent ‘Aquaria’ are often linked with other facilities, as a hotel or a shopping mall. It is the case for the Burj Al Arab (luxury hotel opened in Dubai in 1999), the Dubai Aquarium & Underwater Zoo (opened in Dubai Mall in 2008 and initially named Dubai Aquarium & Discovery Centre) or Atlantis The Palm which is a combination of hotel, leisure park and zoological facilities opened in 2008. Three main ‘Aquaria’ were opened almost simultaneously in The United Arab Emirates in 2008: the Dubai Aquarium & Underwater Zoo, Atlantis The Palm and Sharjah Aquarium. Apart from this last one in Sharjah, most of the ‘Aquaria’ in the Middle East, especially the new ones, were created by private initiatives. They try to attract as many as possible visitors, especially with large and impressive tanks or iconic species. For example Dubai Aquarium & Underwater Zoo sets Guinness Record for the ‘World’s Largest Acrylic Panel’ with 32.88 metres wide by 8.3 metres high and 750 mm thick. The main tank in Atlantis The Palm, named The Ambassador Lagoon, contains more than 11 million litres of water and a whale shark (*Rhincodon typus*) is exhibited there since 2008.

There are currently three known ‘Dolphinaria’ in the Middle East and a fourth one included in Atlantis The Palm. As the ‘Aquaria’, these institutions are relatively young with the two most recent ones opened in The United Arab Emirates in 2008. Their importance varied from two humpbacked dolphins (*Sousa plumbea*) and one South-American sea lion (*Otaria flavescens*) at The Dolphin Resort in Bahrain up to thirty bottlenose dolphins (*Tursiops sp.*) in Atlantis The Palm. Breeding of dolphins is achieved in two institutions, Kish Dolphin Park in Iran and Atlantis The Palm.

Keeping wild animals in captivity for personal interest and prestige has a long history throughout time. 'Private collections' of wild animals from aristocracy or wealthy owners are known still to exist all around the world. Nevertheless the situation is even more developed in the Middle East, and especially in The United Arab Emirates. A few dozens of such collections probably exist in the region, from a few animals in a backyard up to a full collection as in traditional zoos or even several thousand specimens. Some of these 'Private collections' are well known, exchange animals between each other, are members of international zoo associations, participate actively in breeding programs, even welcome some school groups for educational tour, while some others are completely closed for any kind of cooperation and their existence is even kept confidential. Local owners often hired foreigners to manage their animal collections, professionals from Europe or Africa with a background experience about management of animals in captivity.

'Breeding centres' are found in many different countries in the Middle East. Their purposes and objectives are also various. Some are conservation oriented and concentrated especially on fauna from this region, from which some iconic species are the Arabian oryx (*Oryx leucoryx*), the Arabian leopard (*Panthera pardus nimr*) or the Arabian tahr (*Arabitragus jayakari*). One of these institutions, the Breeding Centre for Endangered Arabian Wildlife (BCEAW) in Sharjah, is combined with a 'Zoo' but all the others are closed for visitors. The Al Wabra Wildlife Preservation in Qatar, originally a private collection of the Sheikh Saoud Bin Mohammed Bin Ali Al Thani, has now extended its activities and breed successfully various species of African ungulates and endangered birds as the Spix's macaw (*Cyanopsitta spixii*), a unique and special species which is considered extinct in the wild. Some 'Breeding centres' were founded more with commercial objectives. This is especially the case for falcons and birds of prey which represent a huge market within the Middle East. The Dubai Falcon Centre, Nad Al Shiba Avian Reproduction Research Centre, also situated in Dubai, and Pro Falcon in Al Ain are some institutions from this type. Nevertheless it is important to know that staffs from these facilities are deeply involved in research and/or education as in the Dubai Falcon Centre with the Birds of Prey Show.

The 'Minizoo's' are a less homogeneous category. It includes a full range of small private zoos opened to the public, as the Al Dosary Zoo in Qatar or the Zoo from Nasir Khalifa Al Shamsy in Bidaa Bit Saud in Al Ain, limited collection of animals in municipal parks, education centres with lived animals or aquaria in shopping malls or museums.

'Other' institutions are relatively limited in the Middle East with some ten facilities from reptiles' exhibition to tigers' enclosure within the site of a theme park project. Two institutions are nevertheless of a special interest. The Dubai Desert Conservation Reserve (DDCR) is a 225 km² conservation protected area in which large herds of oryx and gazelles roam freely. The Arabian Wildlife Park on Sir Bani Yas Island offshore from The United Arab Emirates, previously a private collection, was reorganized since 2006. Attempts to release cheetahs with ungulates are currently underway there.

Zoological institutions in the Middle East and existing international associations

Nine zoological institutions in the Middle East (13% out of 69) are already members of international zoo associations, mainly based in other regions. The World Association of Zoos and Aquariums (WAZA) has two members in the region while the European Association of Zoos and Aquaria (EAZA) has four, including one full member and three associate members. One zoological institution is member of the South East Asian Zoos Association (SEAZA)¹⁴ and another one sent its application to become member of this organisation end of 2009. Finally one zoological institution is member of the International Zoo Educators Association (IZE)¹⁵.

Seven zoological institutions within the Middle East are already members of the International Species Information System (ISIS)¹⁶.

The International Species Information System is an international non-profit organization serving zoos and aquariums worldwide. It delivers and supports the world's most current, comprehensive and reliable source of knowledge on animals and their environments for zoos, aquariums and related organizations to serve institutional, regional and global animal management and conservation goals (ISIS, 2009). It is not a standard zoo association but it is much related with international zoo collaboration. Furthermore some international association as the EAZA request that all their members take use of this global system (EAZA, no year).

¹⁴ <http://www.seaza.org/>

¹⁵ <http://www.izea.net/>

¹⁶ <http://www.isis.org/>

4. RESULTS: POTENTIAL OF A REGIONAL ZOO ASSOCIATION IN THE MIDDLE EAST

The potential of a regional zoo association in the Middle East was assessed through a survey realized via a specific questionnaire (see Appendix 3). This questionnaire was distributed by email, fax and paper. It was possible to reach 49 institutions out of the 69 existing in the region (71%). A total of 23 replies were obtained from which 16 (70%) were full filled in questionnaires. The 7 replies which were not filled questionnaires were either clear statement about no interest or no possibility to take part in the survey or questionnaires which were not fully filled in (often only the first few questions). See Appendix 1 for a full list of zoological institutions in the Middle East and details about the ones which were contacted. Number of results sorted by category of the institutions and by countries can be seen in tables 4.1 and 4.2.

Table 4.1: Numbers of zoological institutions, questionnaires sent out and replies obtained classified by category of institution

	Number of institutions	Questionnaires sent out	Total replies	Questionnaires filled in
Zoo	17	12	3	2
Aquarium	8	8	4	1
Dolphinarium	3	3	0	0
Private collection	13	10	6	5
Breeding Centre	10	10	5	5
Minizoo	8	1	1	1
Other	10	5	4	2
Total	69	49	23	16

Table 4.2: Numbers of zoological institutions, questionnaires sent out and replies obtained classified by country

	Number of institutions	Questionnaires sent out	Total replies	Questionnaires filled in
Bahrain	3	3	1	0
Iran	3	2	0	0
Iraq	1	0	0	0
Jordan	3	3	2	2
Kuwait	4	3	1	0
Lebanon	0	0	0	0
Oman	4	3	2	1
Qatar	4	2	1	1
Saudi Arabia	6	4	0	0
Syria	1	0	0	0
The UAE	38	27	16	12
Yemen	2	2	0	0
Total	69	49	23	16

There are no major differences between the number of questionnaires sent out per category and the number of institutions per category apart for the categories 'Minizoo' and 'Other'. For both these categories, a relatively low number of the existing institutions was approached: 13% for 'Minizoo' and 50% for 'Other'. For the five remaining categories, at least 71% and up to 100% for three of them were contacted.

The trend of the received questionnaires filled in is different with a relatively high number of answers obtained from 'Private collections' and 'Breeding centres'. On the contrary, only two questionnaires filled in were obtained from 'Zoos' which represent 13% on the total of questionnaires obtained. This is a different picture from the 17 existing 'Zoos', which represent 25% of the total institutions in the region.

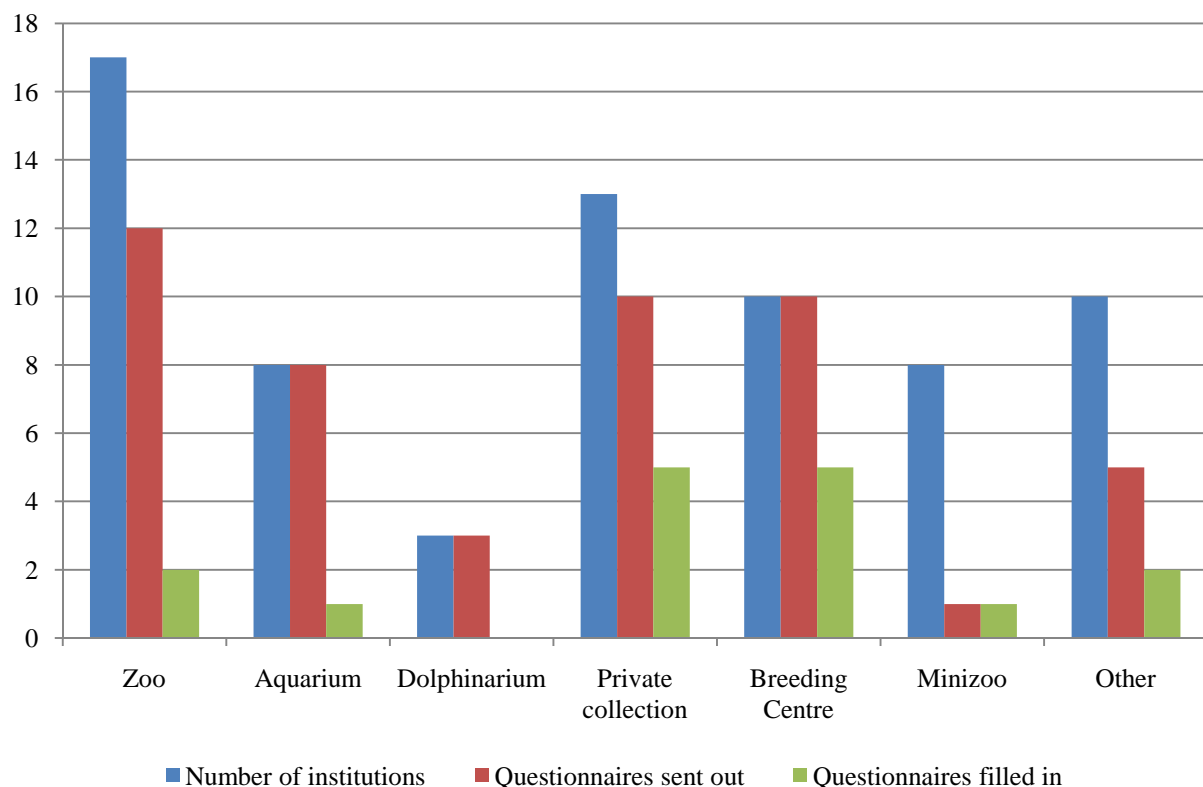


Figure 4.1: Total number of institutions in the region, numbers of questionnaires sent out and questionnaires filled in for each category

Comparing the numbers of replies and filled in questionnaires obtained to the number of questionnaires sent out may give some indications about the willingness and the interest of each category of institutions (see Table 4.1 and Figure 4.1). A particular low result is the one of the 'Zoos' with only 25% of replies on the questionnaires sent out and even more only 17% (2 out of 12 sent) questionnaires filled in. Another fact is the very high response trend of the 'Private collections' with 60% of replies and 50% of questionnaires filled in and the one of the 'Breeding centres' with 50% of replies and 50% of questionnaires filled in. Half of the 'Aquaria' contacted did send a reply but only one institution filled a questionnaire. Finding contact details for the institutions classified 'Minizoo' proved to be difficult and only 1 out of 8 (13% which is the lowest percentage for any of the category) was contacted. This institution did answer and filled in a questionnaire.

From a similar classification of the number of institutions, the number of questionnaires sent out and the number of questionnaires filled in, this time classified by country (see Figure 4.2), a clear predominance of The United Arab Emirates is observed with 55% of the existing institutions and 55% of the questionnaires sent out. This is even more strongly marked with 75% (12 out of 16) of the questionnaires filled in for institutions situated in The United Arab Emirates.

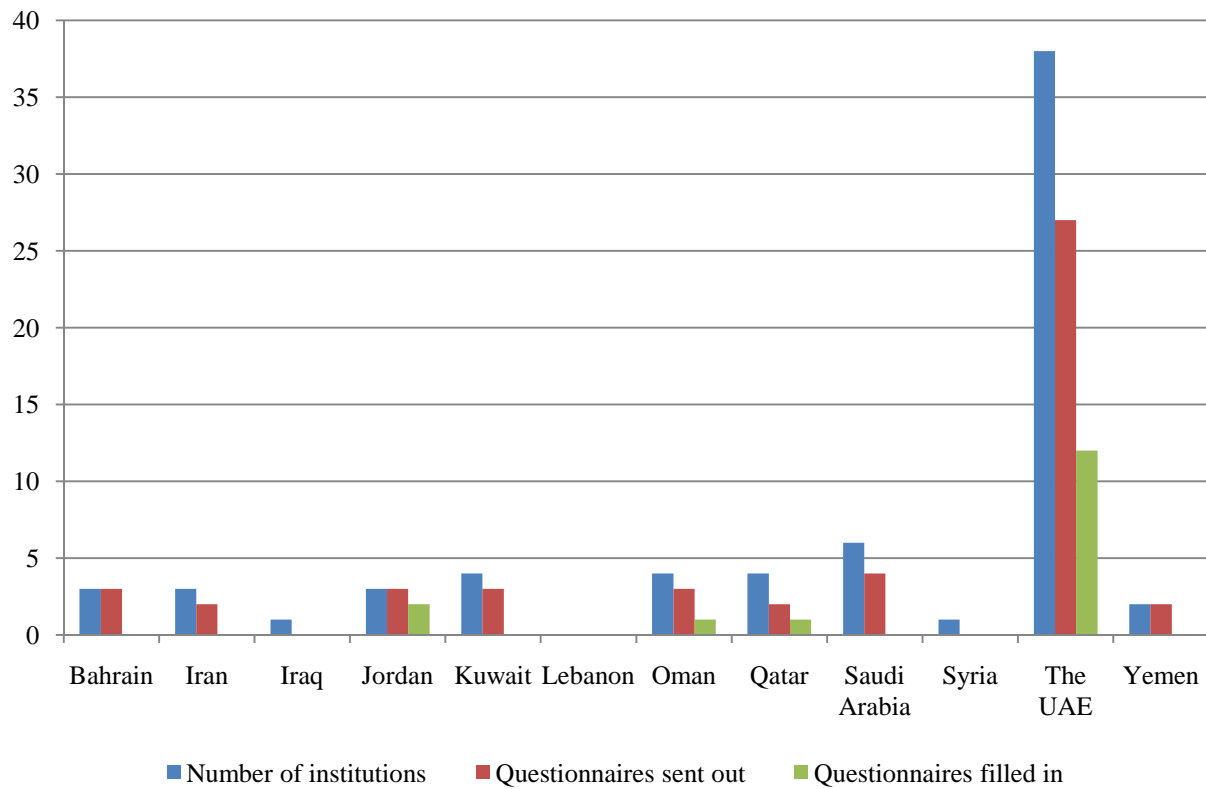


Figure 4.2: Total number of institutions, numbers of questionnaires sent out and questionnaires filled in for each country

The results presented in the coming chapters are based on the sixteen obtained questionnaires. These institutions represent 23% of the total number of known institutions in the Middle East and this should be kept in mind. The results are classified following the order of the main parts of the questionnaire (see Appendix 3).

Basic information about the surveyed institutions

The zoological institutions which did reply to the survey with a full filled in questionnaires are: 2 'Zoos', 1 'Aquarium', 5 'Private collections', 5 'Breeding centres', 1 'Minizoo' and 2 'Others' (see also Figure 4.1).

A very high number of these institutions are situated in The United Arab Emirates (12 institutions, 75%). The four others are found in Jordan (2 institutions), Oman and Qatar (1 institution for each) (see also Figure 4.2).

Full contact details, both postal and electronic, were obtained for these institutions. Ten of them have a website currently available while one is planning to develop such a tool in the coming months.

Nine of the institutions surveyed (56%) are managed within a private ownership, five (31%) are part of a governmental body, one is organized within a cooperative society and the last one is a non-governmental organization.

Nine of the institutions (56%) have mission statement and a vision clearly defined and available and one institution is working on this topic. The six remaining institutions did not provide any information to this question.

The mission statements and visions provided were analysed keeping in mind five important concepts of the roles of modern zoological institutions: 'Conservation', 'Breeding', 'Research', 'Education' and 'Entertainment'. Five out of nine (55%) mention 'Conservation', four (44%) 'Breeding', one (11%) 'Research', three (33%) 'Education' and two (22%) 'Entertainment' (see Figure 4.3). Only one institution (11% out of the nine) has three of the concepts in its mission statement and vision while almost half of them (4 institutions, 44%) has only one of the concepts.

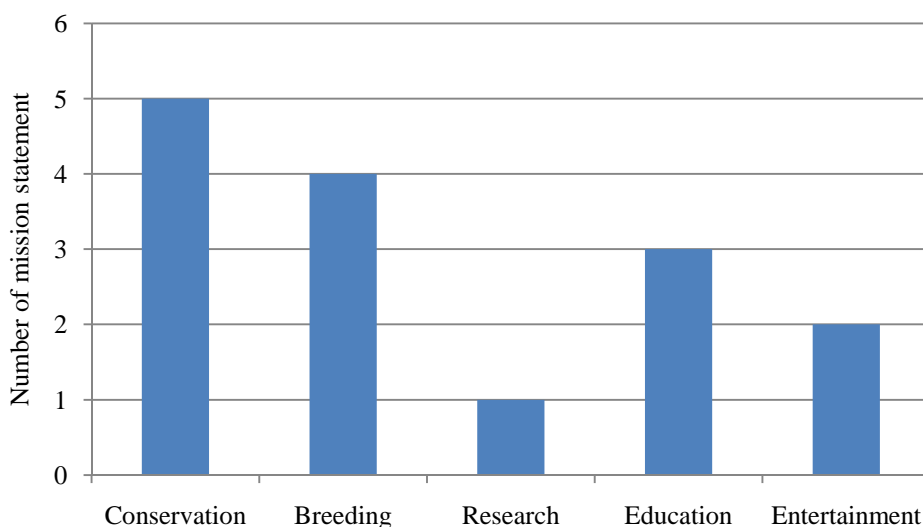


Figure 4.3: Number of mission statement of the surveyed institution which includes the selected concepts (N=9)

Characteristics of the surveyed institutions

The activities of seven of the institutions surveyed (44%) were started in the 2000s and of five (31%) in the 1990s. The oldest institution which answered was opened in 1969 while the youngest one started in 2008.

None of the institution provided an inventory of their animal collection but fourteen (88%) gave details about the number of species and the total number of animals maintained in their institution. The total number of species in each institution ranges from 6 to 421 species, with an average of 86 species per institution and a median of 48.5 species. The total number of animals ranges from 20 to 75 000 animals, with an average of 11 500 animals per institution and a median of 1 275 animals. Eleven institutions (79% out of 14) maintain mammals' species and eleven (79%) birds' species. Reptiles' species are found in six institutions (43%) while amphibians, fishes and invertebrates are each found in three institutions (21%). Two institutions (14%) have representatives of the six taxa (mammals, birds, reptiles, amphibians, fishes and invertebrates) and three institutions (21%) are specialized in only one taxon.

Of the fourteen institutions which give details about their animal collection, nine (64%) have a collection which includes less than 25% of endangered species (categories 'Vulnerable', 'Endangered' and 'Critically Endangered' from IUCN). Four institutions (29%) have an animal collection with 25% to 50% endangered species and one institution has more than 75% endangered species within its collection.

The size occupied by the institutions surveyed varied from 0,002 km² (=2 000 m²) to 225 km² with an average of 26 km² and a median of 2 km². The only one aquarium which filled in a questionnaire was not taken into account for this parameter as the actual measure for such institution is more the number of litres within the tanks.

Seven institutions which answered the questionnaires (44%) are opened to the public while the nine remaining (56%) are not. From the seven which receive visitors, three institutions have less than 20 000 visitors per year, three have between 100 000 and 500 000 guests per year and one institution has more than 1 000 000 visitors every year.

Details about the annual budget were provided by ten institutions out of sixteen (63%). The annual budget of these institutions ranges from an equivalent of 10 000 € to 14 000 000 €, with an average of 1 800 000 € and a median of 375 000 €.

The total number of staff in each institution surveyed ranges from 4 to 800 persons per institution with an average of 122 staff per institution and a median of 39.5. The actual number of persons working in the zoological department of each institution was given for fifteen institutions. This number varies from 1 to 130 persons with an average of 29 and a median of 13 per institution. The number of zoological staff was linked with the total number of staff in each institution and it results in percentages from 7% (zoological staff out of total staff) to 100% with an average of 42% and a median of 35%.

Of the sixteen institutions surveyed, nine (56%) have a full time veterinarian on site who provide the veterinary care for the animals of the collection, five (31%) have a part time veterinarian, one institution calls in a domestic animals veterinarian in case of emergencies and one institution did not provide information to this question.

Confidentiality of the information provided in the filled questionnaire and willingness to share these data were asked in the last question of this second part of the questionnaire. Ten institutions (63%) answered that they are fully opened to the publication of the information they provided while three (19%) asked to keep confidential their annual budget. Finally, the remaining three (19%) stated their data as confidential. Nevertheless four institutions out of the ten which are fully opened (40%) did not mention their annual budget in the filled questionnaire.

Current activities of the surveyed institutions

Conservation

Ten institutions among the sixteen which did fill in a questionnaire (63%) state that they are participating in conservation projects in the wild while the six others are not. Four institutions mentioned 'Financial support' as a way of participation, six 'Expertise', eight 'Research' and finally six 'Education' (see Figure 4.4). Two institutions are helping *in situ* conservation by all four means.

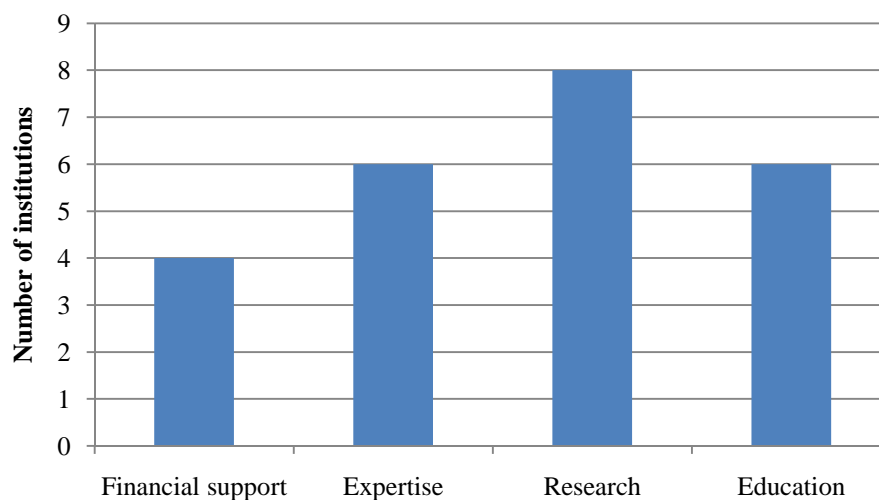


Figure 4.4: Number of institutions which support conservation for each of the selected mean (N=10)

Nine institutions (90% out of ten) support programs which are running in the Middle East. Six of these institutions are helping programs only in this region while the three other institutions mention as well programs in the surroundings areas (Iran, East Africa and Maldives). Finally the last institution is only focusing its participation in regions outside the Middle East (America and Africa).

Ten institutions (63%) take part in captive breeding programs. There is no direct overlap between the ten institutions which support *in situ* conservation and the ones which answered doing managed captive breeding.

Nine institutions give details about the level of population management they are taking part in. Five of these institutions are doing national cooperation, five institutions collaborate at the regional level (Middle East), five take part in the European breeding programs (EEP, ESB, etc.) and four are part of worldwide cooperation for captive breeding. Three institutions are limited to collaboration within the Middle East and not wider while the six others take part in European or worldwide programs.

Eight institutions detail the number of captive breeding programs they are part of. This number ranges from 1 to 20 programs per institution with an average of 9.25 programs and a median of 7.

A large majority of these programs are for species originated from the Middle East or from African regions. Mammals' species are the primary focus, just followed by birds and reptiles. No amphibians, fishes or invertebrates managed programs were mentioned by the surveyed institutions but programs for these taxa are generally limited as well in other regions (Europe and North America for example). Nevertheless programs for these taxa at the level of one institution do exist in the Middle East.

Fifteen institutions (94% out of sixteen) are wishing to extend their activities in conservation (nine institutions) or start to work on this field (six institutions).

Research

Fourteen institutions among the surveyed institutions (88%) state that they are doing research. Of these fourteen, three institutions (21%) achieve research in the wild, seven (50%) in captivity and four (29%) in both fields.

The number of scientific publications staff from each surveyed institution authored or co-authored during the past five years was queried in the sent questionnaire. Three institutions (19% out of sixteen institutions) answer that their staff did not take part in any scientific publications during the past five years (these three do not include the two institutions which are not doing research), half of the institutions published between one and five items, three institutions (19%) between five and ten and two institutions (13%) were involved in more than ten scientific publications.

Fifteen institutions (94% out of sixteen) are wishing to extend their activities in research (thirteen institutions) or start to work on this field (two institutions).

Education

Nine institutions (56%) have an educational program within their institution. By means of education, the use of signs is mentioned by four institutions, shows and presentations by five institutions and school programs by seven institutions. Two institutions added furthermore that they organized regular guided tours.

Five institutions (31%) have special staff dedicated to education. Four detail the number of staff for this department which ranges from 2 to 25 persons.

Twelve institutions (75%) are willing to extend their activities in education (nine institutions) or start to work on this field (three institutions).

Current exchanges between the surveyed institutions

The existing national and international collaborations within the zoos in the Middle East were assessed throughout a set of questions. The number of exchanges between institutions per year is a first indicator of the level of existing collaboration. These exchanges may be of any kind, as exchange of information, exchange of animals, exchange of staff, etc. Of the sixteen institutions which did fill in the questionnaire, one (6%) has no current exchanges with other institutions in the region, eight institutions (50%) realize between one and five exchanges per year, five institutions (31%) between five and ten exchanges and two institutions (13%) more than ten exchanges per year.

Apart from the amount of exchanges which are done, it is important to know where these exchanges happened and which country are concerned (see Figure 4.5). The United Arab Emirates was mentioned by 100% of the institutions which do exchanges. Qatar, Saudi Arabia and Yemen are following in terms of number of exchanges and were mentioned by four institutions (27%) each. None of the institutions surveyed are doing exchanges with Iran and Iraq.

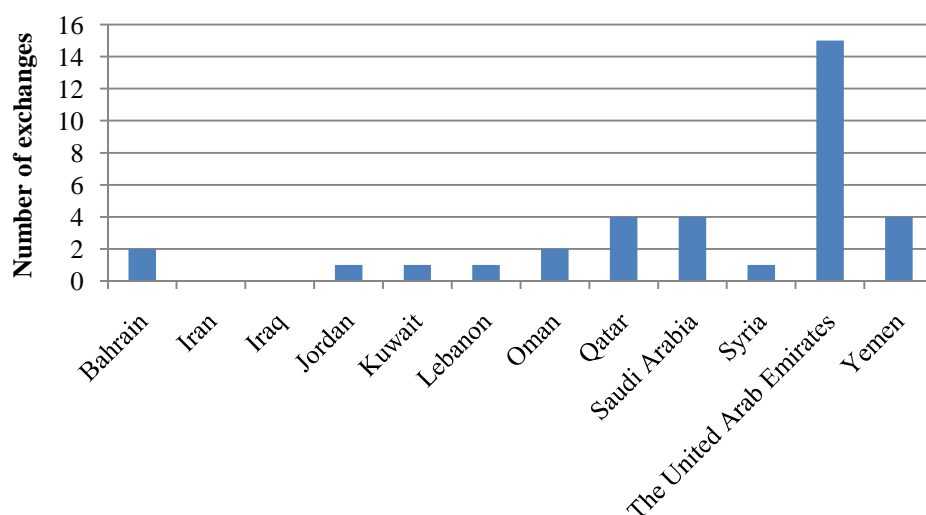


Figure 4.5: Number and geographical situation of the existing exchanges within the Middle East (N=15)

The very high frequency of mentions of The United Arab Emirates may be partly explained by the fact that 75% of the filled in questionnaires are coming from zoological institutions based in this country. National exchanges are often easier than exchanges among different countries. Nevertheless the four institutions situated outside The United Arab Emirates mentioned as well doing exchanges with this country.

There is only one zoological institution in Iraq and this country is just recovering from a difficult international situation, which may be linked to the fact that no exchange is currently occurring with this country. Iran has three confirmed zoological institutions but is geographically more isolated from the other countries in the Arabian Peninsula and is on the Asiatic mainland.

Four institutions of the sixteen surveyed (25%) are already member of an international zoo association (WAZA or EAZA). From preliminary research (see Chapter 3), we know that a total nine institutions in the region are already member of such international zoo associations (WAZA, EAZA, SEAZA and IZE).

Of the twelve surveyed which are not yet member of an international zoo association, eight (67%) are wishing to become member of such an organization. The World Association of Zoos and Aquariums (WAZA) was mentioned by two of them.

Six institutions of the sixteen surveyed (38%) are members of the International Species Information System (ISIS). This represents 86% of the seven members of this system in the region.

Conferences and workshops are an important tool of global collaboration, often used within the frame of associations. Staff of fourteen of the surveyed institutions (88%) attended at least one of such a meeting during the last three years. Twelve institutions (86%) mentioned meetings in the Middle East, eight (57%) in Europe and one (7%) in another part of the world (namely South Africa). Six of the institutions attended meetings only in the Middle East and not outside of the region.

Potential of a zoo association in the Middle East

After all the preliminary questions about basic characteristics of the institution and existing collaboration, the last part of the questionnaire focuses on the potential of a zoo association in the Middle East.

The sixteen institutions surveyed (100%) considered that a regional zoo association in the Middle East would be useful. None of the institutions think that it would be generally irrelevant but some comments were made about possible reasons for unsuitability or difficulty. One institution mentioned that a regional association would be irrelevant because no use (this same institution replied nevertheless at the previous question that such an association would be useful). Another institution informed that such an association would be irrelevant because there are already existing international associations (this institution is not yet member of such an organization but is willing to be part of one). The complexity to create and put into practice a regional zoo association in the Middle East was put forward by three institutions. Finally possible apathy and the importance to be relevant and adapt to the special expectations and needs of local zoological institutions were mentioned as well.

In a logical consequence of the above statement about total usefulness of a regional association, the sixteen institutions (100%) would consider to become member of a regional zoo association if such a one would exist. One institution mentioned nevertheless that financial reason may prevent it to participate and two others were warning about possible political reasons which could limit their involvement. It is important to quote that the statements “No necessity for cooperation” and “Cooperation already in place within other framework” were not chosen by any institution.

Different kinds of membership could be used in zoo association. The most common one among existing international associations is membership by institution. On a more limited scale, some other associations went for a personal membership in which staff of a zoological institution may become member of the association. The opinion of the surveyed institutions was asked in this matter and fourteen (88%) answered that an institutional association in which the membership is by institution would be the most suitable for a possible association in the region. One institution (6%) would prefer an association in which staffs are members. Finally one institution mentioned that a combination of both kinds of memberships could be an option.

By being member of a regional framework, zoological institutions would expect to gain benefits and advantages from this position. To be able to satisfy these expectations, it is important to know in advance which they are and to set up the association keeping them in mind. Six main possible benefits were defined and it was asked to each institution for which they would expect help from a regional zoo association (see Figure 4.6). ‘Exchange of information’ was mentioned the most (fourteen institutions, 88%) just followed by ‘Exchange of animals’, ‘Conference/workshop’ and ‘International connection with worldwide association’ quoted by twelve institutions (75%) each. Logically ‘Exchange of information’ is the field in which institutions (fifteen of them, 94%) would give the most support. ‘Exchange of animals’, ‘Conference/workshop’ and ‘Technical assistance’ are the three following branch supported by potential members of a regional association. ‘Exchange/training of staff’ appears to be the least category in which institutions would expect benefit or give support. Nevertheless 63% of the surveyed institutions hope to benefit in this matter and 50% would give the support, which are both still high percentages. The conclusion could be that the six defined fields are all of high importance for a potential zoo association in the region.

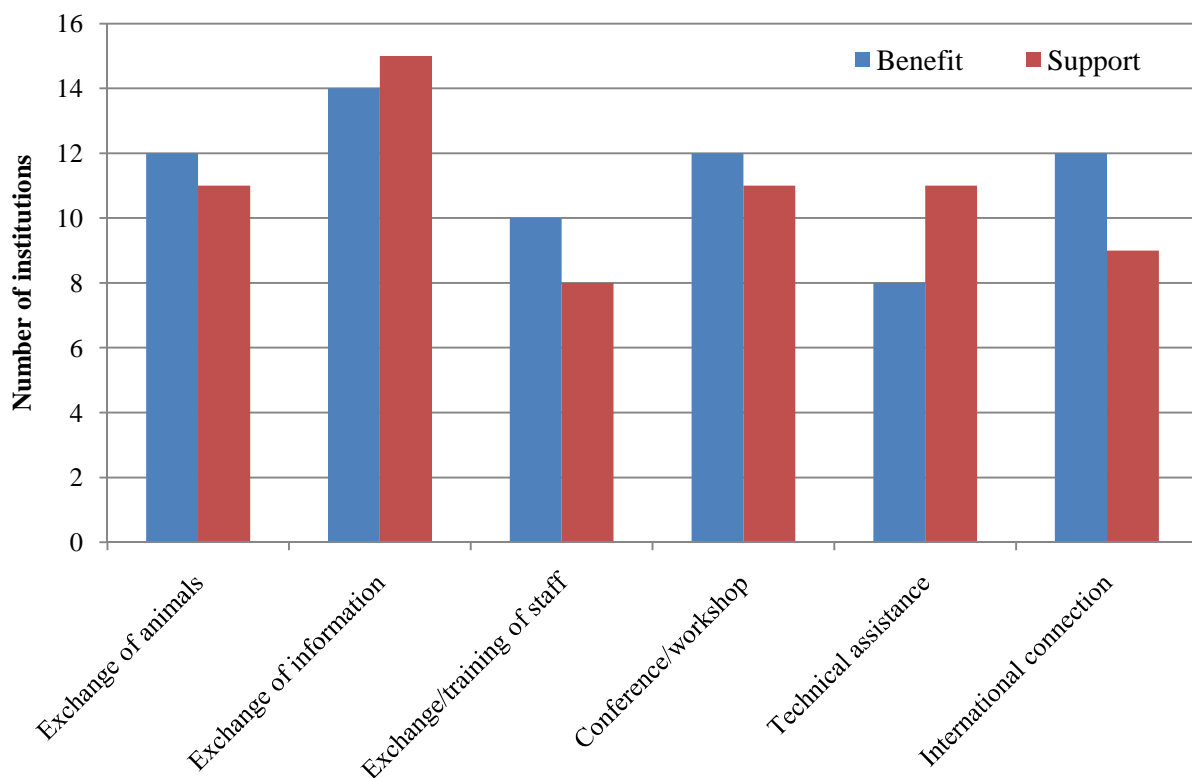


Figure 4.6: Numbers of institutions which would expect benefit or give support from and to a regional zoo association in the Middle East (N=16)

From this question, some comments were added in the filled in questionnaires. One institution surveyed hopes that a regional zoo association would help to improve the zoological facility standards in the region. Furthermore one institution added that it would support a zoological community with exchange of animals only under certain conditions, which comes across the previous comment. Finally one institution in the region also proposed to support the potential association by providing a secretariat.

The high majority of zoo associations worldwide are organized in a structure of committees (see, among others, ‘WAZA Council & Committee’¹⁷, ‘EAZA Organisational Structure’¹⁸, ‘AZA Bylaws’¹⁹, ‘SEAZA Committees’²⁰). From these different examples thirteen possible committees were defined and listed in the distributed questionnaires. Active participation from the potential member institutions in these committees was queried (see Figure 4.7).

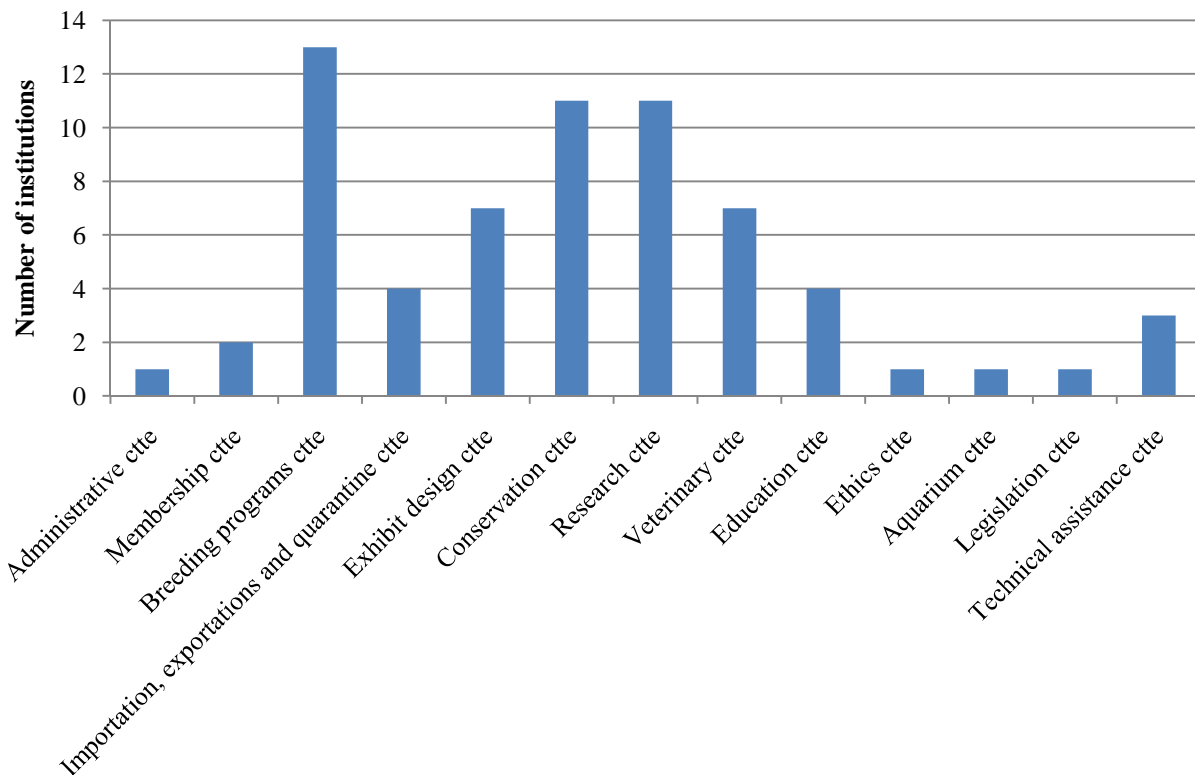


Figure 4.7: Numbers of institutions which would take part actively in potential committees of a regional zoo association in the Middle East (N=16)

The ‘Breeding programs committee’ received the most potential participation with thirteen institutions (81%) which stated their interest. The ‘Conservation committee’ and the ‘Research committee’ appear to be both popular with a potential of eleven members (69%). This is for sure linked with the fact that these activities are well underway among the zoological facilities and that there is much to share and collaborate on. The ‘Education committee’ was mentioned by only four institutions (25%) and in this matter it is important to remind that more than half of the surveyed institutions (nine institutions) are not opened to the public. There is only a small interest for organizational committees as the ‘Administrative’ and the ‘Membership’ ones or for a potential ‘Ethic committee’ or ‘Legislation committee’. Only one ‘Aquarium’ filled in a questionnaire and therefore there is only one institution interested in an ‘Aquarium committee’. As seen in chapter 3, this category of institutions is a fast growing one, especially during the last few years. One institution commented that a ‘GIS & Spatial analysis committee’ should be implemented. The remark from another institution was that only three committees are necessary, one administrative, one about animals and husbandry and one about education.

¹⁷ <http://www.waza.org/en/site/about-waza/council-committee>

¹⁸ <http://www.eaza.net/about/Pages/Organisational%20Structure.aspx>

¹⁹ <http://www.aza.org/About/detail.aspx?id=303>

²⁰ <http://www.seaza.org/Committee.html>

5. CONCLUSION

The results and data collected following the methods explained in Chapter 2 lead to a conclusion which answers each of the research questions defined beforehand.

1. What is the current situation of zoos and aquaria in the Middle East?

- *How many zoological collections exist in the Middle East and which are they?*

A total of 69 confirmed zoological institutions were found in the region. Fragmented and unconfirmed data were collected for 22 more institutions.

- *What type of institutions are they, what are their characteristics and how are they organized?*

From the 69 zoological institutions in the Middle East, 17 are 'Zoos' (25%), 8 'Aquaria' (12%), 3 'Dolphinaria' (4%), 13 'Private collections' (19%), 10 'Breeding centres' (14%), 8 'Minizoo's' (12%) and 10 'Others' (14%). Each category has its own characteristics and developments. These are briefly mentioned in Chapter 3 and Appendix 2.

Detailed information about characteristics of the 16 zoological institutions which replied to the survey are found in Chapter 4.

- *What kind of activities do the regional zoological institutions realize?*

Conservation and research are two main fields in which zoological institutions from this region are actively involved: 63% of the surveyed institution participates in conservation *in situ* and 88% states that they are doing research. Education is less developed with only 56% of the institutions involved but a large part of the institutions in this region are not opened to the general public.

2. What is the potential of a regional zoo association in the Middle East?

- *What are the existing national and international collaborations within the zoos in the Middle East?*

Nine zoological institutions in the Middle East (13%) are already members of international zoo associations, mainly based in other regions. This includes the World Association of Zoos and Aquariums (WAZA), the European Association of Zoos and Aquaria (EAZA), the South East Asian Zoos Association (SEAZA) and the International Zoo Educators Association (IZE). Furthermore seven zoological institutions within the Middle East are members of the International Species Information System (ISIS).

Without a structural framework, a certain number of collaborations happened already among zoological institutions in the region. Most of exchanges are done with institutions situated in The United Arab Emirates.

- *What would be the expectations and the intentions of the local zoological institutions about a regional zoo association?*

All the surveyed institutions are interested to join a potential regional zoo association in the Middle East. They expect to gain benefit from it mainly in terms of 'Exchange of information', 'Exchange of animals', 'Conference/workshop' and 'International collection with worldwide association'.

- *What are these institutions willing to invest in such an association?*

The surveyed institutions are willing to support with a high participation most of the fields mentioned, as 'Exchange of information', 'Exchange of animals', 'Conference/workshop' and 'Technical assistance'. Active involvement in breeding programs, conservation and research committees appear to be the most intended.

6. DISCUSSION

From the brief analysis of zoological collections in the Middle East (see Chapter 3) and the results from the survey realized (see Chapter 4), a clear potential for a regional zoo association could be drawn. The foundation of such an association requests a process through different steps and a strong basis structure which will allow further development and success for the mutual enrichment and advancement of the members. Whatever the impetus, the decisions made by the founders during the start-up period of the new organization will have a profound impact on its success, effectiveness and longevity (Knowledge Center Staff, 2006).

As a first step, it is always important to research the association's potential membership and to define a core group of leaders. The sixty-nine zoological institutions, including 'Zoos', 'Aquaria', 'Dolphinaria', 'Private collections', 'Breeding centres', 'Minizoo's' and 'Others', represent the global potential membership. From these sixty-nine, 23% (sixteen institutions surveyed) have already clearly state their interest for a regional zoo association. A core group of leaders may be seen already among the institutions which showed their interest and answered to the sent questionnaires. Such a group could serve as the organizing committee. It is also wise, however, to see that the core group represents all factions of the constituency the new organization will serve, not just a few leaders or a well-established clique. A broad support would be needed to get the new group off the ground and all facets of zoological institutions in the region should feel they have representation among the decision-makers. Therefore it would be important to have representatives from institution of each category in the organizing committee. Only one 'Aquarium' filled in a questionnaire while three others answered that they were not interested. If a regional zoo association in the Middle East would like to represent as well this type of institution which is more and more numerous in the region, it will be important to consider their participation from the starting point and ask professionals from these institutions to take part actively. A large part of the potential membership of a regional zoo association in the Middle East is as well institutions that are not opened to the public and this should be kept in mind from the start.

A second step is to develop a mission statement for the association to be created. This should reply to the question "What needs of the potential members are currently unmet and could be filled by a new organization?". A mission statement is usually supported by written objectives and goals. Objectives are further explanations of ideas touched on only briefly in the mission statement. Goals are far more specific, usually measurable actions that the organization plans to undertake over a defined period of time. (Knowledge Center Staff, 2006)

From the surveyed institutions, it is possible to see that conservation and research are already two fields very much developed within the zoological institutions. In this matter there is a high potential for exchanges of information, resources and skills. The development of breeding programs, which include as well exchanges of animals in a conservation oriented way, is probably the third most important task of a possible regional association.

A possible draft mission statement for a regional zoo association in the Middle East could be the following: "The regional zoo association in the Middle East want to create a strong supporting network of zoological institutions in the Middle East to strengthen collaboration and exchanges, in a way to serve global conservation needs and to improve welfare of captive animals. Research both *in* and *ex situ* and education of the public are two capital fields in which the association with its members want to reach leadership."

Choosing an organizational structure and a management option are important steps as well. Basically there are four options or methods of management: ‘All volunteers’, ‘Volunteers with a skeletal staff’, ‘Association management company’ and ‘Stand-alone association’ (Knowledge Center Staff, 2006). Start-up organizations often choose to be managed entirely by volunteers because it is the least expensive. However, all-volunteer management has various disadvantages. Another management option is to have volunteers working with a skeletal staff. Usually this means a paid administrator works on a part- or full-time basis, assisted by a group of volunteers for different and specific tasks. A third option is contracting with an association management company. Finally a stand-alone organization means a fully operational office staffed by full-time professional and support employees.

From the current situation of zoological situations in the Middle East, it seems that one of the two first options are the most realistic and feasible ones.

An institutional membership in which each member is a full zoological institution, in contrary of a staff association, seems to be the most feasible system in the region, as it is for most of the international zoo association. Precise types of members are still to be defined and decided upon. The necessity for standards or not has also to be agreed. At least a code of ethics has probably to be written. In all these matters, it will be very important to keep in mind the high diversity in terms of personal and finances from the zoological institutions in the region. Some institutions are limited to very low budget and staff while some others deal with thousands of animals’ specimens and budget of several million of euros.

Through the survey realized, a bunch of people have already pointed out their interest and motivation to take part in various committees. A proposal for an organizational structure is drawn in Figure 7.1.

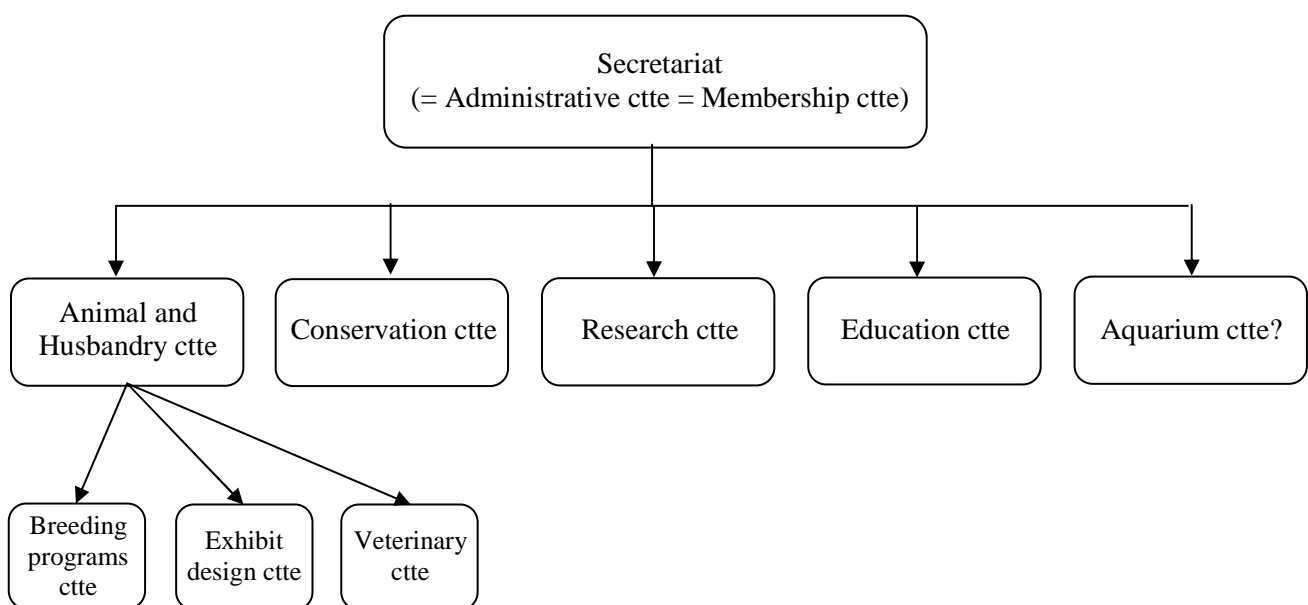


Figure 7.1: Possible structure and committees (ctte) of a regional zoo association in the Middle East

The financial support and the way to finance the new organization have to be examined carefully. Sponsorship may be an option in this matter.

Designating a geographical situation for the headquarters or potential organizing committee is critical but some comments can be mentioned. 55% of the zoological institutions in the Middle East are found in The United Arab Emirates. Furthermore 75% of the institutions which did answer to the survey are situated in this same country. It sounds logical that a base should be started at the closest proximity to the highest number of potential members.

Furthermore, two zoological institutions situated in The United Arab Emirates, namely a main 'Zoo' and a 'Private collection', have mention their strong interest to help to set up a regional zoo association. The combination of these impetuses could be very productive and efficient as a sound base on the way to create a first regional zoo association in the Middle East.

Holding a zoo workshop with the aim to bring together the potential members and a core group of potential leaders could be the first practical step to go ahead with the creation of a regional zoo association. Such a workshop may be used to bear out the global interest of the zoological institutions in the region, to define a clear mission statement, to examine potential financial support, to set up an organizing committee, etc. This could be the actual starting point of the Middle East Association of Zoos and Aquaria (MEAZA)!

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APPENDIX 1: Inventory of zoological institutions in the Middle East linked with the realized survey

Institution	City	Main category	Contact	Reply	Filled	Visit
Bahrain - 3 institutions						
Al Areen Wildlife Park and Reserve	Al Areen	Zoo	√			√
The Dolphin Resort	Manama	Dolphinarium	√			√
Bahrain Aqualife Centre	Manama	Other	√	√		√
<i>The King of Bahrain Park and Zoo</i>	<i>Manama</i>	<i>Lack of data</i>				
Iran - 3 institutions						
International Mashhad Zoo	Mashhad	Zoo	√			
Tehran Zoological Gardens	Tehran	Zoo				
Kish Dolphin Park	Kish Island	Dolphinarium	√			
<i>Amol Zoo</i>	<i>Amol</i>	<i>Lack of data</i>				
<i>Wildlife Breeding Station</i>	<i>Arasbaran</i>	<i>Lack of data</i>				
<i>Babolsar Zoo</i>	<i>Babolsar</i>	<i>Lack of data</i>				
<i>Bandar Abbas Zoo</i>	<i>Bandar Abbas</i>	<i>Lack of data</i>				
<i>Darabad Zoo</i>	<i>Darabad</i>	<i>Lack of data</i>				
<i>Isfahan Zoo</i>	<i>Isfahan</i>	<i>Lack of data</i>				
<i>Ahovan Park Zoo</i>	<i>Kish Island</i>	<i>Lack of data</i>				
<i>The Reptile Exhibition</i>	<i>Kish Island</i>	<i>Lack of data</i>				
<i>Mysteries of the World Zoo</i>	<i>Kish Island</i>	<i>Lack of data</i>				
<i>Shiraz Zoo</i>	<i>Shiraz</i>	<i>Lack of data</i>				
<i>Haftchenar Nature & Wildlife Museum</i>	<i>Tehran</i>	<i>Lack of data</i>				
<i>Pardisan Nature Park</i>	<i>Tehran</i>	<i>Lack of data</i>				
Iraq - 1 institution						
Baghdad Zoo	Baghdad	Zoo				
<i>Luna Park</i>	<i>Baghdad</i>	<i>Lack of data</i>				

Jordan - 3 institutions						
Aqaba Aquarium	Aqaba	Aquarium	√			
Shaumari Wildlife Reserve	Azraq	Breeding centre	√	√	√	
Badia Centre for Ecological Education (BCEE)	Um Al Qutain	Minizoo	√	√	√	
<i>Amman Zoo in Ghamadan Natural Park?</i>	<i>Amman</i>	<i>Lack of data</i>				
<i>Amman Zoo just off the airport road on the road to East Amman?</i>	<i>Amman</i>	<i>Lack of data</i>				
Kuwait - 4 institutions						
Kuwait Zoo	Kuwait City	Zoo	√			√
The Scientific Centre	Salamiya	Aquarium	√	√		√
Desert Animal Centre	Kabd	Breeding centre	√			
Little Jungle	Kuwait City	Other				
Lebanon - 0 institution						
<i>Aley Zoo?</i>	<i>Aley</i>	<i>Lack of data</i>				
<i>Monteverde Zoo Park?</i>	<i>Beyrouth</i>	<i>Lack of data</i>				
<i>Zoo at the Bnachii Lake?</i>	<i>Bnachii Lake</i>	<i>Lack of data</i>				
<i>Noah's Island?</i>	<i>Mina</i>	<i>Lack of data</i>				
Oman - 4 institutions						
Aquatic Exhibition of Marine Living Species at Marine Science & Fisheries Center	Sidab	Aquarium	√			
Zoo Garden	Seeb	Private collection				√
Oman Mammal Breeding Centre	Bait Al Barakah	Breeding centre	√	√	√	√
Arabian Oryx Sanctuary	Jaaluni	Other	√	√		
Qatar - 4 institutions						
Doha Zoo	Al Dawhah	Zoo	√			√
Al Wabra Wildlife Preservation	Al Shahaniah	Breeding centre	√	√	√	√
Al Dosary Zoo	Shanhaniyah	Minizoo				
Oryx Farm and Equestrian Club	Shahaniya	Other				

Saudi Arabia - 6 institutions						
Al Taraf Model Zoo + Al Dewani Parrots Farm	Al-Jafar	Zoo	√			
Beautiful Creatures Zoo and Museum	Jeddah	Zoo				
Riyad Zoo	Riyad	Zoo	√			
Taif Zoo	Ta'if	Zoo				
National Wildlife Research Center (NWRC)	Ta'if	Breeding centre	√			
King Khalid Wildlife Research Center	Thumamah	Breeding centre	√			
<i>Jeddah Aquarium</i>	<i>Jeddah</i>	<i>Lack of data</i>				
<i>Um Al-Salam Zoo</i>	<i>Jeddah</i>	<i>Lack of data</i>				
Syria - 1 institution						
Damascus Zoo	Damascus	Zoo				
The United Arab Emirates - 38 institutions						
Al Ain Wildlife Park and Resort	Al Ain	Zoo	√	√	√	√
Kids Park Abu Dhabi	Al Bahiah	Zoo	√			√
Dubai Zoo	Dubai	Zoo	√	√		√
Arabia's Wildlife Centre	Sharjah	Zoo	√	√	√	√
Dubai Aquarium & Underwater Zoo	Dubai	Aquarium	√			√
Atlantis The Palm (The Lost Chambers + Aquaventure & Dolphin Bay)	Dubai	Aquarium	√	√	√	√
Burj Al Arab	Dubai	Aquarium	√	√		√
Sharjah Aquarium	Sharjah	Aquarium	√	√		√
Marine Research Centre and Aquarium	Umm Al Quwain	Aquarium	√			√
Dubai Dolphinarium	Dubai	Dolphinarium	√			√
Abu Dhabi Wildlife Centre (ADWC)	Abu Dhabi	Private collection	√			
Emirates Heritage Club - Shamalia Island	Abu Dhabi	Private collection				
Endangered Wildlife Breeding and Conservation Centre (EWBCC)	Al Ain	Private collection	√	√		
Wrsan Farm	Al Ajban	Private collection	√	√	√	
Al Bustan Zoological Centre	Al Dhaid	Private collection	√	√	√	√
H. E. Sheikh Butti Maktoum's Wildlife Center	Dubai	Private collection	√	√	√	√
Nakhlee Breeding Centre	Dubai	Private collection				

Wadi Al Safa Wildlife Centre	Dubai	Private collection	√	√	√	
Zabeel Palace of Mohammed bin Rashid Al Maktoum	Dubai	Private collection	√			
Private Collection/Breeding Centre from Abdulaziz Al Mutawa	Dubai	Private collection	√	√	√	
Hatta Conservation Area	Hatta	Private collection	√			
Alzobair Stud/Private collection from Shk. Addallah al Thani	Sharjah	Private collection	√			√
Pro Falcon	Al Ain	Breeding centre	√			
Dubai Falcon Centre/Birds of Prey Show	Dubai	Breeding centre	√	√	√	√
Nad Al Shiba Avian Reproduction Research Centre	Dubai	Breeding centre	√	√	√	
National Avian Research Centre (NARC)	Sweihan	Breeding centre	√			√
Khalifa Park	Abu Dhabi	Minizoo				√
Zoo from Nasir Khalifa Al Shamsy in Bidaa Bit Saud	Al Ain	Minizoo				√
Mushrif Park	Dubai	Minizoo				√
Sadra Park	Kalba	Minizoo				√
Al Jazeera Park	Sharjah	Minizoo				√
Sharjah National Park	Sharjah	Minizoo				√
Arabian Wildlife Park/Sir Bani Yas Island	Abu Dhabi	Other	√	√	√	
Dubai Desert Conservation Reserve (DDCR)	Dubai	Other	√	√	√	√
Reptiles World	Dubai	Other				√
Dubailand	Dubai	Other				√
International Reptile Exhibition	Dubai	Other				√
Animal Management Consultancy	Umm Al Quwain	Other	√			
Yemen - 2 institutions						
Sana'a Zoo	Sana'a	Zoo	√			
Taiz Zoo	Taiz	Zoo	√			
Total	69 institutions		49	23	16	34

APPENDIX 2: Inventory of zoological institutions in the Middle East with basic information for each institution

This inventory of the zoological institutions in the Middle East contains primary information for each institution. Full name of the institution is given as well as its category, completed by possible secondary category or details about the category used when necessary. Full address is followed by details of the contact person in each institution. Basic information include type of the organization, year of opening/creation, size, total number of species, total number of animals, species in each group (mammals, birds, reptiles, amphibians, fishes and invertebrates) and the percentage of species endangered (categories 'Vulnerable', 'Endangered' and 'Critically Endangered' from IUCN) within the collection. Finally the file for each institution is completed by the number of visitors per year (if the institution is opened to the public), the total number of staff, the number of staff working in the zoological department and details about the veterinary care.

The World Zoo and Aquarium Conservation Strategy (WZACS) recognizes that integrated conservation activities will vary in different parts of the world because of cultural and social factors and the everyday reality of life. Furthermore cultural, economic and political factors will influence the emphasis placed upon the variety of environmental and conservation issues in zoos and aquariums in different parts of the world. (WAZA, 2005)

Therefore a primary background of each of the twelve countries considered for this research is also included. This is done through five parameters: population, surface area, Human Development Index (HDI), HDI rank and international tourist arrival. The population is the one from 2007 published in the Human Development Report 2009 (United Nations Development Programme, 2009). The surface area is from the Demographic Yearbook 2007 (United Nations Statistics Division, 2007). The Human Development Index (HDI) is an index which measures achievements in terms of life expectancy, educational attainment and adjusted real income. The HDI in 2007 for each country is available in the Human Development Report 2009 (United Nations Development Programme, 2009). Finally, statistics about tourism trends are published by the World Tourism Organization (UNWTO) in the UNWTO World Tourism Barometer²¹. Current information for each country is not available and the most recent known total number of international tourist arrival is therefore indicated for each country.

Name and contact details for most of the institutions mentioned in this list are available and kept in a database by the author. Special request may be sent to jonaslivet@wanadoo.fr.

²¹ <http://www.unwto.org/facts/eng/barometer.htm>

BAHRAIN

Population: 0.8 million (2007) - Surface area: 750 km²

HDI: 0.895 (2007) - HDI rank: 39

International tourist arrival: 4.9 million (2007)

Al Areen Wildlife Park and Reserve

Category: Zoo

P.O.Box 28690, Riffa
Al Areen
Bahrain

Year of opening/creation: 1975
Size: app. 300 ha
Total number of animals: 500?

Opened to the public: yes

Total number of staff: 94

The Dolphin Resort

Category: Dolphinarium

Manama
Bahrain
Phone: +973 1729 0900
Fax: +973 1731 1108
Email: info@dpbahrain.com
<http://www.dpbahrain.com/>

Year of opening/creation: 1998
Total number of species: 2
Total number of animals: 3?
Species in each group: mammals 2

Opened to the public: yes

Bahrain Aqualife Centre

Category: Other (Aquarium consultancy and turnkey project designer)

P.O.Box 2044
Manama
Bahrain
Phone: +973 1773 2773
Fax: +973 1773 2770
<http://www.baqualife.com>

Type of the organization: Private owner
Year of opening/creation: 1985

Bahrain Aqualife Centre is a professional fish trader and consultant in aquariums. Among other facilities, it built in 1995 and is still managing three tanks with local fish species in The Gosi Shopping Complex.

IRAN

Population: 72.4 million (2007) - Surface area: 1 628 750 km²

HDI: 0.782 (2007) - HDI rank: 88

International tourist arrival: 1.7 million (2004)

International Mashhad Zoo

Category: Zoo

Mashhad

Iran

Email: m.jahangir@yahoo.com

<http://www.mashhadzoo.com/>

Opened to the public: yes

Tehran Zoological Gardens

Category: Zoo

Tehran

Iran

Year of opening/creation: 1992

Size: 4,5 ha

Opened to the public: yes

Kish Dolphin Park

Category: Dolphinarium (+ Minizoo?)

Kish Island

Iran

<http://www.kishdolphinpark.com/>

Opened to the public: yes

IRAQ

Population: 29.5 million (2007) - Surface area: 438 317 km²

HDI: n/a - HDI rank: n/a

International tourist arrival: n/a

Baghdad Zoo	Category: Zoo
Baghdad	Year of opening/creation: 1971
Iraq	Opened to the public: yes

JORDAN

Population: 5.9 million (2007) - Surface area: 89 342 km²

HDI: 0.770 (2007) - HDI rank: 96

International tourist arrival: 3.7 million (2008)

Aqaba Aquarium

Category: Aquarium

Aqaba

Jordan

Phone: +962 3 203 5801/03

Fax: +962 3 203 5802

Email: marinepark@aseza-env.gov.jo

Year of opening/creation: 1981

Opened to the public: yes

Shaumari Wildlife Reserve

Category: Breeding centre

P.O.Box 1215

Jubeiha 11941

Azraq

Jordan

Phone: +962 7 99957939

Fax: +962 5 3835225

<http://www.rscn.org.jo>

Type of the organization: Non-governmental organization

Year of opening/creation: 1975

Size: 22 km²

Opened to the public: no

Total number of staff: 7

Zoological department: 4

Veterinary care: Domestic animals veterinarian called in for emergencies

Badia Centre for Ecological Education (BCEE)

Category: Minizoo (Ecological Education Center)

P.O.Box 3090

Irbid

Um Al Qutain

Jordan

<http://www.badia.gov.jo/bcee>

Type of the organization: Cooperative society

Year of opening/creation: 2007

Size: 2000 m²

Total number of species: 6

Total number of animals: 20

Species in each group: mammals 2, birds 2, reptiles 2

Species endangered: Between 25% and 50%

Opened to the public: yes

Number of visitors per year: 1 000

Total number of staff: 4

Zoological department: 2

Veterinary care: Full time domestic animal veterinarian with experience with wildlife

KUWAIT

Population: 2.9 millions (2007) - Surface area: 17 818 km²

HDI: 0.916 (2007) - HDI rank: 31

International tourist arrival: 0.3 million (2007)

Kuwait Zoo

Category: Zoo

P.O.Box 21422
Saffa Code 13075 Saffa
Al-Omariya
Kuwait City
Kuwait

Year of opening/creation: 1968
Size: ca. 8 ha
Total number of species: ca. 200
Total number of animals: ca. 2 000

Opened to the public: yes
Number of visitors per year: ca. 200 000

Total number of staff: ca. 50

The Scientific Centre

Category: Aquarium (+Desert Animal Collection)

P.O.Box 3504
Salmiya 22036
Kuwait
Phone: +965 22240313
Fax: +965 25710298
Email: info@tsck.org.kw
<http://www.tsck.org.kw/>

Type of the organization: Private owner
Year of opening/creation: 2000

Opened to the public: yes

Member: EAZA, SEAZA

Desert Animal Centre

Category: Breeding centre

Kabd
Kuwait
Email: public_relations@safat.kisr.edu.kw
<http://www1.kisr.edu.kw/>

Opened to the public: no

Little Jungle

Category: Other (Project under development)

Kuwait City
Kuwait
Phone: +965 390 2635

LEBANON

Population: 4.2 millions (2007) - Surface area: 10 452 km²

HDI: 0.803(2007) - HDI rank: 83

International tourist arrival: 1.3 million (2008)

No confirmed zoological institution

OMAN

Population: 2.7 million (2007) - Surface area: 309 500 km²

HDI: 0.846 (2007) - HDI rank: 56

International tourist arrival: 1.3 million (2008)

Aquatic Exhibition of Marine Living Species at Marine Science & Fisheries

Category: Aquarium

Sidab
Oman

Year of opening/creation: 1986

Zoo Garden

Category: Private collection

Seeb
Oman

Opened to the public: no

Oman Mammal Breeding Centre

Category: Breeding centre

P.O.Box 64
Muscat 111
Seeb Airport
Al Seeb
Bait Al Barakah
Oman
Phone: +968 2 453 0220
Fax: +968 2 462 2509

Type of the organization: Governmental body
Year of opening/creation: 1981
Size: 49 ha
Total number of species: 27
Total number of animals: 400+
Species in each group: mammals 26, birds 1
Species endangered: Less than 25%

Opened to the public: no

Total number of staff: 15
Zoological department: 1
Veterinary care: Part time veterinarian

Arabian Oryx Sanctuary

Category: Other (Breeding centre?)

P.O.Box 246
Muscat 100
Oman
<http://www.oryxoman.com>

Data confidential

QATAR

Population: 1.1 million (2007) - Surface area: 11 586 km²

HDI: 0.910 (2007) - HDI rank: 33

International tourist arrival: 0.7 million (2004)

Doha Zoo

Category: Zoo

P.O.Box 23211
Al Dawhah
Qatar
Phone: +974 468 2610
Fax: +974 468 2690

Size: ca. 15 ha
Total number of species: 152
Total number of animals: 2113
Species in each group: mammals 61, birds, 62, reptiles 22, amphibians 3, invertebrates 4

Opened to the public: yes
Number of visitors per year: 250 000

Total number of staff: 137

Al Wabra Wildlife Preservation

Category: Breeding centre

P.O.Box 44069
Doha
Al Shahaniah
Qatar
Phone: +974 4718708
Fax: +974 4718707
Email: office@alwabra.com
<http://awwp.alwabra.com/>

Type of the organization: Private owner
Year of opening/creation: 2000
Size: 2 km²
Total number of species: 90
Total number of animals: 2 000
Species in each group: mammals 35, birds 50, reptiles 4, amphibian 1
Species endangered: Between 25% and 50%

Opened to the public: no

Total number of staff: 150
Zoological department: 45
Veterinary care: Full time veterinarian on site

Member: EAZA, ISIS

Al Dosary Zoo

Category: Minizoo

Shanhaniyah
Qatar
<http://www.dosarizoo.com/>

Opened to the public: yes

Oryx Farm and Equestrian Club

Category: Other (Breeding centre?)

Shahaniya
Qatar

SAUDI ARABIA

Population: 24.7 million (2007) - Surface area: 2 149 690 km²

HDI: 0.843 (2007) - HDI rank: 59

International tourist arrival: 14.8 million (2008)

Al Taraf Model Zoo + Al Dewani Parrots Farm

Category: Zoo (+ Breeding centre?)

P.O.Box 25341

Year of opening/creation: 1996

Al-Jafar

Saudi Arabia

Opened to the public: yes

Email: altarafzoo@hotmail.com

<http://www.dewaniparrots.com/zoo/index.php>

Beautiful Creatures Zoo and Museum

Category: Zoo

Jeddah

Year of opening/creation: 1985

Saudi Arabia

Size: ca. 2 ha

Opened to the public: yes

Riyad Zoo

Category: Zoo

P.O.Box 27055

Opened to the public: yes

Riyad

Saudi Arabia

Taif Zoo

Category: Zoo

Ta'if

Opened to the public: yes

Saudi Arabia

National Wildlife Research Center (NWRC)

Category: Breeding centre

P.O.Box 1086

Size: 650 ha

Ta'if

Saudi Arabia

Opened to the public: no

<http://www.nwcd.gov.sa/English/researchcenter.aspx>

King Khalid Wildlife Research Center

Thumamah

Saudi Arabia

Email: kkwrc.ksa@zajil.net

<http://www.ncwcd.gov.sa/English/researchcenter.aspx>

Category: Breeding centre

Year of opening/creation: 1987

Size: 800 ha

Total number of species: 13

Total number of animals: 585

Species in each group: mammals 11, birds 1, reptiles 1

Opened to the public: no

Total number of staff: 14

Member: ISIS

SYRIA

Population: 20.5 million (2007) - Surface area: 185 180 km²

HDI: 0.742 (2007) - HDI rank: 107

International tourist arrival: 5.4 million (2008)

Damascus Zoo

Category: Zoo

Damascus
Syria

Opened to the public: yes

UNITED ARAB EMIRATES

Population: 4.4 million (2007) - Surface area: 83 600 km²

HDI: 0.903 (2007) - HDI rank: 35

International tourist arrival: 5.9 million (2003)

Al Ain Wildlife Park and Resort

P.O.Box 1203
Al Ain
Abu Dhabi, UAE
Phone: +971 3 782 8188
Fax: +971 3 782 9112
<http://www.awpr.ae>

Category: Zoo (+ Breeding centre + Botanic garden and natural history museum)

Type of the organization: Governmental body
Year of opening/creation: 1969
Size: 900 ha
Total number of species: 198
Total number of animals: 5 000+
Species in each group: mammals 112, birds 45, reptiles 20, amphibians 1, fishes 5, invertebrates 5
Species endangered: Less than 25%

Opened to the public: yes
Number of visitors per year: From 100 000 to 500 000

Veterinary care: Full time veterinarian on site

Member: WAZA, ISIS, IZE

Kids Park Abu Dhabi

P.O.Box 111026
Al Bahiah
Abu Dhabi, UAE
<http://www.kidsparkuae.com>

Category: Zoo

Year of opening/creation: 2008
Size: ca. 2 ha

Opened to the public: yes

Dubai Zoo

Public Parks & Horticulture Department
Dubai Municipality
P.O.Box 67
Dubai
Dubai, UAE
Phone: +971 4 3027774
Fax: +971 4 3499437

Category: Zoo

Year of opening/creation: 1967
Size: 1.7 ha
Total number of species: 166
Total number of animals: 913
Species in each group: mammals 57, birds 79, reptiles 30

Opened to the public: yes
Number of visitors per year: From 100 000 to 500 000

Total number of staff: 30
Zoological department: 21
Veterinary care: Full time veterinarian on site

Member: WAZA

Arabia's Wildlife Centre

P.O.Box 29922
Sharjah
Sharjah, UAE
Phone: +971 6 5311212
Fax: +971 6 5311156
Email: breeding@epaa-shj.gov.ae
<http://www.breedingcentresharjah.com>

Category: Zoo (+ Breeding centre)

Type of the organization: Governmental body
Year of opening/creation: 1998 (BCEAW)/2000
(Wildlife Centre)
Size: 200 ha
Total number of species: 130
Total number of animals: 3 000
Species in each group: mammals 49, birds 22, reptiles 32,
amphibians 4, fishes 22, invertebrates 20
Species endangered: Less than 25%

Opened to the public: yes/no
Number of visitors per year: From 100 000 to 500 000

Total number of staff: 95
Zoological department: 50
Veterinary care: Full time veterinarian on site

Member: EAZA, ISIS

Dubai Aquarium & Underwater Zoo

P.O.Box 191741
Dubai
Dubai, UAE
Phone: +971 4 448 5200
Email: enquiries@thedubaiaquarium.com
<http://www.thedubaiaquarium.com>

Category: Aquarium

Year of opening/creation: 2008

Opened to the public: yes

**Atlantis The Palm
The Lost Chambers + Dolphin Bay**

Palm Jumeraih
Dolphin Bay: P.O.Box 211222
The Lost Chambers: P.O.Box 211188
Dubai
Dubai, UAE
Phone: +971 4 3636000
<http://www.atlantisthepalm.com>

Category: Aquarium (+ Dolphinarium)

Type of the organization: Private owner
Year of opening/creation: 2008
Size: 12 million gallons (= 50 million liters)
Total number of species: 421
Total number of animals: 65 000
Species in each group: mammals 1, fishes 378,
invertebrates 43
Species endangered: Less than 25%

Opened to the public: yes
Number of visitors per year: More than 1 000 000

Total number of staff: 210
Zoological department: 130
Veterinary care: Full time veterinarian on site

Burj Al Arab

P.O.Box 74147
Dubai
Dubai, UAE
<http://www.burj-al-arab.com>

Category: Aquarium (Aquarium in hotel)

Year of opening/creation: 1999

Opened to the public: yes

Sharjah Aquarium

P.O.Box 39939
Sharjah
Sharjah, UAE
Phone: +971 6 556 6002
Fax: +971 6 556 6003
<http://www.sharjahaquarium.ae>

Category: Aquarium

Year of opening/creation: 2008

Opened to the public: yes

Marine Research Centre and Aquarium

P.O. Box 21
Umm Al Quwain
Umm Al Quwain, UAE

Category: Aquarium

Year of opening/creation: 1984

Opened to the public: yes

Dubai Dolphinarium

P.O.Box 232292
Dubai
Dubai, UAE
Phone: +971 4 336 9773
Fax: +971 336 9774
Email: info@dubaidolphinarium.ae
<http://www.dubaidolphinarium.ae>

Category: Dolphinarium

Year of opening/creation: 2008
Total number of species: 2
Species in each group: mammals 2

Opened to the public: yes

Abu Dhabi Wildlife Centre (ADWC)

P.O.Box 32909
Abu Dhabi
Abu Dhabi, UAE
<http://www.abudhabiwildlifecentre.com>

Category: Private collection

Opened to the public: no

Emirates Heritage Club/Shamalia Island

P.O.Box 42959
Abu Dhabi
Abu Dhabi, UAE

Category: Private collection

Opened to the public: no

Endangered Wildlife Breeding and Conservation Centre (EWBCC)

P.O.Box 64634
Al Ain
Abu Dhabi, UAE

Category: Private collection

Opened to the public: no

Wrsan Farm

P.O.Box 77338
Al Ajban
Abu Dhabi, UAE
Phone: +971 2 5638862
Fax: +971 2 5638827

Category: Private collection

Type of the organization: Private owner
Year of opening/creation: 1998
Size: 32 km²
Total number of species: 25
Total number of animals: 75 000
Species endangered: Between 25% and 50%

Opened to the public: no

Total number of staff: 800
Zoological department: 75
Veterinary care: Full time veterinarian on site

Al Bustan Zoological Centre

P.O.Box 12964
Al Dhaid
Sharjah, UAE
Phone: +971 6 883 8114
Fax: +971 6 883 8020
Email: bustan55@eim.ae

Category: Private collection (+ Breeding centre)

Data confidential

Opened to the public: no

Member: ISIS

H. E. Sheikh Butti Maktoum's Wildlife Center

P.O.Box 7237
Dubai
Dubai, UAE
Phone: +971 4 337 9097

Category: Private collection (+ Breeding centre)

Type of the organization: Private owner

Year of opening/creation: 1995

Size: 3.14 km² + 8 km²

Total number of species: 90

Total number of animals: 1 600

Species in each group: mammals 45, birds 40, reptiles 4

Species endangered: Less than 25%

Opened to the public: no

Total number of staff: 40

Zoological department: 13+

Veterinary care: Part time veterinarian

Member: EAZA, ISIS

Nakhlee Breeding Centre

Dubai
Dubai, UAE

Category: Private collection?

Opened to the public: no

Wadi Al Safa Wildlife Centre

P.O.Box 27875
Dubai
Dubai, UAE

Category: Private collection

Data confidential

Opened to the public: no

Member: ISIS

Zabeel Palace of Mohammed bin Rashid Al Maktoum

Category: Private collection

P.O.Box 53888
Dubai
Dubai, UAE

Opened to the public: no

Private Collection/Breeding Centre from Abdulaziz Al Mutawa

Category: Private collection (+ Breeding centre)

P.O.Box 6378
Dubai
Dubai, UAE

Data confidential

Opened to the public: no

Hatta Conservation Area

Category: Private collection?

P.O.Box 12188
Hatta
Dubai, UAE

Opened to the public: no

Alzobair Stud

Category: Private collection

P.O.Box 12
Sharjah
Sharjah, UAE
Phone: +971 6 769 1515
Fax: +971 6 7681616
<http://www.alzobairstud.com>

Opened to the public: no

Pro Falcon

Category: Breeding centre

P.O.Box 1200
Al Ain
Abu Dhabi, UAE

Year of opening/creation: 1996

Opened to the public: no

Dubai Falcon Centre/Birds of Prey Show

P.O.Box 1520
Dubai
Dubai, UAE
Phone: +971 4 289 3337
Fax: +971 4 289 1774

<http://birdsofprey-show-dubai.jimdo.com/>

Category: Breeding centre (+ Birds of prey show)

Type of the organization: Private owner
Year of opening/creation: 2005/2009
Size: 10 000 m²
Total number of species: 6
Total number of animals: 125
Species in each group: birds 6
Species endangered: Less than 25%

Opened to the public: no/yes
Number of visitors per year: Less than 20 000

Total number of staff: 5
Zoological department: 3
Veterinary care: Part time veterinarian

Nad Al Shiba Avian Reproduction Research Centre

P.O.Box 5715
Dubai
Dubai, UAE
Phone: +971 4 3357272
Fax: +971 4 3357273

Email: info@nadalshibafalcons.com
<http://www.nadalshibafalcons.com>

Category: Breeding centre (Breeding and Research Centre)

Type of the organization: Private owner
Year of opening/creation: 2001
Size: 0,25 km²
Total number of species: 19
Total number of animals: 218
Species in each group: birds 19
Species endangered: Less than 25%

Opened to the public: no

Total number of staff: 9
Zoological department: 3
Veterinary care: Full time veterinarian on site

National Avian Research Centre (NARC)

P.O.Box 45553
Sweihan
Abu Dhabi, UAE
<http://www.narc.gov.ae>

Category: Breeding centre

Year of opening/creation: 1993

Opened to the public: no

Khalifa Park

Abu Dhabi
Abu Dhabi, UAE
<http://www.khalifapark.com>

Category: Minizoo (Aquarium in museum)

Year of opening/creation: 2007

Opened to the public: yes

Zoo from Nasir Khalifa Al Shamsy in Bidaa Bit Saud

Category: Minizoo

Al Ain
Abu Dhabi, UAE

Year of opening/creation: 2009?

Opened to the public: yes

Mushrif Park

Category: Minizoo

Dubai
Dubai, UAE

Year of opening/creation: 1974
Size: 124 ha

Opened to the public: yes

Sadra Park

Category: Minizoo

Kalba
Sharjah, UAE

Opened to the public: yes

Al Jazeera Park

Category: Minizoo

Sharjah
Sharjah, UAE
<http://www.shjmun.gov.ae/v2/english/parks/montazhat/jazeera.asp>

Year of opening/creation: 1979
Size: 2.5 ha?

Opened to the public: yes

Sharjah National Park

Category: Minizoo

Sharjah
Sharjah, UAE
http://www.shjmun.gov.ae/v2/english/parks/montazhat/national_park.asp

Year of opening/creation: 1982?

Opened to the public: yes

Arabian Wildlife Park/Sir Bani Yas Island

P.O.Box 126888
Abu Dhabi
Abu Dhabi, UAE
Phone: +971 2 8015009
Fax: +971 2 4061500
<http://www.desertislands.com>
<http://www.tdic.ae>

Category: Other (Arabian Wildlife Park)

Type of the organization: Governmental body
Year of opening/creation: 2006
Size: 87 km²
Total number of species: 23
Total number of animals: 7 500
Species in each group: mammals 23
Species endangered: Between 25% and 50%

Opened to the public: yes
Number of visitors per year: Less than 20 000

Total number of staff: 250
Zoological department: 35
Veterinary care: Full time veterinarian on site

Dubai Desert Conservation Reserve (DDCR)

P.O.Box 7631
Dubai
Dubai, UAE
Phone: +971 4 832 9900
Fax: +971 4 809 8710
<http://www.ddcr.org>

Category: Other (Conservation protected area)

Type of the organization: Governmental body
Year of opening/creation: 2003
Size: 225 km²
Opened to the public: yes
Number of visitors per year: From 100 000 to 500 000

Total number of staff: 12
Zoological department: 12

Reptiles World

Dubai
Dubai, UAE
<http://www.globalvillage.ae>

Category: Other (Reptiles' exhibition)

Opened to the public: yes

Dubailand

P.O.Box 66366
Dubai
Dubai, UAE
Phone: +971 4 3680000
Fax: + 971 4 3680011
<http://www.dubailand.ae>

Category: Other (Tigers' enclosure + Project)

Total number of species: 1
Total number of animals: 2
Species in each group: mammals 1

Opened to the public: yes

International Reptile Exhibition

Category: Other (Reptiles' exhibition)

Dubai

Opened to the public: yes

Dubai, UAE

<http://www.globalvillage.ae>**Animal Management Consultancy**

Category: Other (Consultant)

P.O.Box 1022

Umm Al Quwain

Umm Al Quwain, UAE

<http://www.animalmanagement.ae>

YEMEN

Population: 22.3 million (2007) - Surface area: 527 968 km²

HDI: 0.575 (2007) - HDI rank: 140

International tourist arrival: 0.4 million (2008)

Sana'a Zoo

Category: Zoo

P.O.Box 3819

Sana'a

Yemen

Year of opening/creation: 1999

Size: ca. 6 ha

Opened to the public: yes

Taiz Zoo

Category: Zoo

Taiz

Yemen

Year of opening/creation: 1998

Size: ca. 1 ha

Opened to the public: yes

APPENDIX 3: Questionnaire sent to zoological institutions situated in the Middle East

Dear Sir/Madam, (replaced by name if known)

The World Zoo and Aquarium Conservation Strategy (WZACS) strongly recommends that zoo and aquarium partnerships and networks have to be established or strengthened at local, national, regional and international levels.

Zoo associations are found all around the world and gather zoos, aquariums and similar facilities in strong network communities with clear goals (as WAZA, EAZA, AZA, PAAZAB, SEAZA). The benefits of such associations are numerous for their members. Cooperation in various matters, e.g. exchanges of information, experiences, animals, education and breeding programs, conservation efforts, workshops and many other topics, are simplified and easily accessible to the majority of zoological facilities part of the network. Furthermore an organized body is always stronger to face any global challenge as e.g. the creation of legislation and its implementation or an unified response after a disease outbreak.

Up until now, the Middle East never considered the creation of a zoo association. However zoos and aquariums in this region face the same missions, challenges, problems and limitations as anywhere else in the world.

As a student in wildlife management in Van Hall Larenstein in The Netherlands with profound interest in zoos and their role in global conversation I am currently undertaking a research project on zoological facilities in the Middle East, supervised by Ir. Hans Bezuijnen and Drs. Tine Griede. The goal of this research is to give an overview of the current situation of zoos and aquariums in the region and to assess the feasibility of creating a regional zoo association. The interests, the expectations and the possible investments of each local zoological collection will be examined and analysed.

To fulfil this research a questionnaire was prepared. This one is currently been distributed among the many zoological collections in the Middle East. I would appreciate very much your contribution by replying to the questionnaire attached (expected necessary time: approximately 20 min). A reply within two weeks would assure a rapid and consistent development of the research.

The questionnaire is available at:

http://www.surveymonkey.com/s.aspx?sm=kFAO1jxnDMNPMPePxS4J7A_3d_3d

Please note that it is necessary to answer it as a whole and it is not possible to save part of the results without completing the questionnaire.

The results from this survey will be analysed and will lead to a final report which will be send to you in the first quarter of 2010.

If you are not the person concerned by this topic in your institution, please be so kind to transfer this request to the referring staff.

Thanks in advance for your help and contribution to the development of the zoo community in the Middle East.

Jonas Livet
Leeuwarden, 19th October 2009

If you need an Arabic version of the questionnaire, please contact me at jonaslivet@wanadoo.fr and I will consider a translation.

Contact details:
Jonas Livet
jonaslivet@wanadoo.fr
Tel./Fax: +33 (0)3 88 93 19 78
Mobile phone FR: +33 (0)6 85 52 52 19
Mobile phone NL: +31 (0)6 30 31 05 91

Postal address:
Van Hall Larenstein
Drs. Tine Griede
PO Box 1528
8901 BV Leeuwarden
The Netherlands

1. Basic information about the institution

* 1. Name and full address of the institution

Name:
Address:
City/Town:
ZIP/Postal Code:
State:
Country:
Phone Number:
Fax Number:
Email Address:
Website:

2. Contact person for the institution

Name:
Title:
Phone Number:
Fax Number:
Mobile Phone Number:
Email Address:

3. If the person answering this questionnaire is different from the contact person for the institution, please mention your name and email address below:

Name:
Email Address:

4. Type of the institution (Please choose all that apply)

- ☐ Zoo
☐ Aquarium
☐ Dolphinarium
☐ Private collection
☐ Breeding centre
☐ Minizoo
☐ Other (please specify)

5. Type of the organisation

- ☐ Private owner
- ☐ Governmental body
- ☐ Zoological society
- ☐ Consortium
- ☐ Other (please specify)

6. If available or defined, what are the mission statement and the vision of your institution? If available on the website of your institution, just mention the link.

2. Characteristics of the institution

1. Year of opening/creation of the institution

2. If an animal inventory of your collection is available and you are willing to send it to us, please transfer the file to jonaslivet@wanadoo.fr and go directly to question 6.

If not, please fill the next 4 questions.

3. Number of animals maintained in the institution (approximate numbers are accepted)

Total number of species

Total number of specimens

4. Number of species in each group (approximate numbers are accepted)

Mammals

Birds

Reptiles

Amphibians

Fishes

Invertebrates

5. Of the species maintained in the institution, which percentage is considered endangered in the wild (categories Vulnerable, Endangered and Critically Endangered from IUCN)?

- ☐ Less than 25%
- ☐ Between 25% and 50%
- ☐ Between 50% and 75%
- ☐ More than 75%
- ☐ 100%

Comment(s)

6. Size of the institution (in m², ha or km²)? If more than one site, please specify. (approximate numbers are accepted)

7. Is the institution opened to the public? If yes, what is the number of visitors per year?

- ☐ Not opened to the public
- ☐ Less than 20 000
- ☐ From 20 000 to 50 000
- ☐ From 50 000 to 100 000
- ☐ From 100 000 to 500 000
- ☐ From 500 000 to 1 000 000
- ☐ More than 1 000 000
- ☐ Or exact number (please specify)

8. What is the annual budget of your institution? (please specify the currency)

9. How many staff is working in the institution and how many persons are involved in the zoological department?

Total number of staff

Zoological department

10. Who provides the veterinary care for the animals of the institution?

- ☐ Full time veterinarian on site
- ☐ Part time veterinarian
- ☐ Domestic animals veterinarian called in for emergencies
- ☐ Veterinary nurse/technician
- ☐ No veterinary care
- ☐ Other (please specify)

11. The final report from this research will include a list of zoological facilities in the Middle East.

- ☐ I agree that the information provided until now are incorporated into the report.
- ☐ I agree that the information provided until now (apart from the annual budget) are incorporated into the report.
- ☐ I don't agree that any of the information provided until now are incorporated into the report and the data will therefore be treated as confidential.

Comments

12. From the next question on, all the information and replies will be treated as confidential (what ever your answer is to the question 11). The aim is to assess globally the existing national and international collaborations within the zoos in the Middle East and evaluate the potential of a regional zoo association.

3. Current activities of the institution - Conservation

1. Is your institution participating in conservation projects in the wild?

- ☐ Yes
- ☐ No (Go to question 4)

Comment(s)

2. If yes, by which means?

- ☐ Financial support
- ☐ Expertise
- ☐ Research
- ☐ Education
- ☐ Other (please specify)

3. If yes, in which part of the world?

- ☐ Middle East
- ☐ Other (please specify)

4. Is your institution taking part in coordinated captive breeding programs?

- ☐ Yes
- ☐ No (Go to question 7)

Comment(s)

5. If yes, at which level?

- ☐ National cooperation
- ☐ Regional cooperation (Middle East)
- ☐ Cooperation with Europe (EEP, ESB, etc.)
- ☐ Worldwide cooperation

6. If yes, please specify the number of programs and the species involved.

Number of programs

Species involved

7. Is your institution wishing to extend or start activities in conservation?

- ☐ Yes
- ☐ No

Comment(s)

4. Current activities of the institution - Research

1. Is your institution doing research?

- ☐ Yes
- ☐ No (Go to question 3)

Comment(s)

2. If yes, in which field?

- ☐ In the wild
- ☐ In captivity

Comment(s)

3. What is the number of scientific publications staff from your institution authored or co-authored during the past 5 years?

- ☐ 0
- ☐ From 1 to 5
- ☐ From 5 to 10
- ☐ More than 10

Comment(s)

4. Is your institution wishing to extend or start activities in research?

- ☐ Yes
- ☐ No

Comment(s)

5. Current activities of the institution - Education

1. Does your institution have an educational program?

- ☐ Yes
- ☐ No (Go to question 3)

Comment(s)

2. If yes, by which means?

- ☐ Signs
- ☐ Shows and presentations
- ☐ School programs
- ☐ Other (please specify)

3. Does your institution have special staff for education?

- ☐ Yes
- ☐ No

If yes, how many?

4. Is your institution willing to extend or start activities in education?

- ☐ Yes
- ☐ No

Comment(s)

6. Current exchanges with other zoological institutions

1. How many exchanges (of any kind as exchanges of information, of animals, of staff, etc.) per year with other zoos in the Middle East does your institution realize?

- ☐ 0
- ☐ From 1 to 5
- ☐ From 5 to 10
- ☐ More than 10

Comment(s)

2. If exchanges of any kind happened, with which countries in the Middle East?

- | | |
|---|---|
| <input type="checkbox"/> Bahrain | <input type="checkbox"/> Oman |
| <input type="checkbox"/> Iran | <input type="checkbox"/> Qatar |
| <input type="checkbox"/> Iraq | <input type="checkbox"/> Saudi Arabia |
| <input type="checkbox"/> Jordan | <input type="checkbox"/> Syria |
| <input type="checkbox"/> Kuwait | <input type="checkbox"/> The United Arab Emirates |
| <input type="checkbox"/> Lebanon | <input type="checkbox"/> Yemen |
| <input type="checkbox"/> Other (please specify) | |

3. Is your institution already member of a zoo association (WAZA, EAZA, IMATA, EAAM, IZE, SEAZA)?

- ☐ Yes
- ☐ No

If yes, which one(s)?

4. If not, are you wishing to become member of such an international zoo association?

- ☐ Yes
- ☐ No

If yes, which one(s) and why?

5. Is your institution member of ISIS (International Species Information System)?

- ☐ Yes
- ☐ No

Comment(s)

6. Does the staff of your institution attend conferences/workshops (at least one during the last 3 years)?

- ☐ Yes
- ☐ No

Comment(s)

7. If yes, at which geographical level?

☐ Meetings in the Middle East

☐ Meetings in Europe

☐ Other (please specify)

7. Potential of a zoo association in the Middle East

1. What do you think about a regional zoo association in the Middle East?

☐ Useful

☐ Irrelevant

☐ No opinion

Comment(s)

2. For what reasons a regional zoo association in the Middle East could be irrelevant?

☐ Irrelevant because no use

☐ Irrelevant because existing international association(s)

☐ Too complicate to put in practice

☐ Other (please specify)

3. Would you become member of a zoo association in the Middle East if such a one would exist?

☐ Yes

☐ No

Comment(s)

4. If not, which reason would prevent you to be member of a regional zoo association?

☐ No necessity for cooperation

☐ Cooperation already in place within other framework

☐ Financial reason

☐ Political reason

☐ Other (please specify)

5. What kind of zoo association would you recommend?

- ☐ Institutional association (member = zoo)
- ☐ Staff association (member = physical person)
- ☐ No association

Comment(s)

6. In which field would you expect benefit from such an association?

- ☐ Exchange of animals
- ☐ Exchange of information
- ☐ Exchange/training of staff
- ☐ Conference/workshop
- ☐ Technical assistance
- ☐ International connection with worldwide association
- ☐ Other (please specify)

7. In which field would you give support to such an association and its members?

- ☐ Exchange of animals
- ☐ Exchange of information
- ☐ Exchange/training of staff
- ☐ Conference/workshop
- ☐ Technical assistance
- ☐ International connection with worldwide association
- ☐ Other (please specify)

8. If a regional zoo association would exist, in which committee would you take part actively?

- | | |
|---|---|
| <input type="checkbox"/> Administrative committee | <input type="checkbox"/> Veterinary committee |
| <input type="checkbox"/> Membership committee | <input type="checkbox"/> Education committee |
| <input type="checkbox"/> Breeding programs committee | <input type="checkbox"/> Ethics committee |
| <input type="checkbox"/> Importation, exportations and quarantine committee | <input type="checkbox"/> Aquarium committee |
| <input type="checkbox"/> Exhibit design committee | <input type="checkbox"/> Legislation committee |
| <input type="checkbox"/> Conservation committee | <input type="checkbox"/> Technical assistance committee |
| <input type="checkbox"/> Research committee | |
| <input type="checkbox"/> Other (please specify) | |

8. Final words and thanks

1. General comment

Don't forget to push the button "Done" below to send out the filled questionnaire.

Thanks a lot for your contribution to this research project. Your time and effort are very much appreciated.

Any further material or document which may help this project or give further information about your institution may be sent by email at jonaslivet@wanadoo.fr or postal mail at Van Hall Larenstein, Drs. Tine Griede, PO Box 1528, 8901 BV Leeuwarden, The Netherlands.

The results from this survey will be analysed and will lead to a final report which will be send to you in the first quarter of 2010.