

**EVALUATING SUCCESSFUL CONSERVATION
PARTNERSHIPS BETWEEN ZOOS AND
AQUARIUMS, FEDERAL AND STATE
AGENCIES AND NON-GOVERNMENTAL
ORGANIZATIONS**

By

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LIST OF ABBREVIATIONS

AZA	American Zoo and Aquarium Association
CAP	Conservation Action Partnership
CEF	Conservation Endowment Fund
EFA	Exploratory Factor Analysis
ESA	Endangered Species Act
FCC	Field Conservation Committee
FIG	Fauna Interest Groups (now known as CAPs)
FWS	United States Fish and Wildlife Service
MOP	Memorandum of Participation
MOU	Memorandum of Understanding
PCA	Principal Component Analysis
SAG	Scientific Advisory Group
SPSS	Statistical Package for the Social Scientist
SSP	Species Survival Plan
TAG	Taxonomic Advisory Group
WCS	Wildlife Conservation Society
ZSL	Zoological Society of London Group

CHAPTER 1
INTRODUCTION

Foreword

One of the most important and consistent trends in wildlife conservation has been the emergence of numerous partnerships between organizations and governmental agencies. Zoos and aquariums, in particular, have been crucial partners with agencies, such as the U.S. Fish and Wildlife Service and non-governmental organizations, such as the Nature Conservancy. With these organizations, zoos and aquariums have become partners in captive propagation and reintroduction of threatened and endangered species, partners in environmental education, field monitoring, and species rehabilitation in emphasizing the conservation of unique local habitats.

During the same period, zoos have become partners with one another. Under the auspices of the American Zoo and Aquarium Association (AZA), Species Survival Plans (SSPs) were established among member zoos. SSPs are formal agreements among cooperating institutions and agencies for exchange of breeding animals in captivity, with the principle objective being the expansion of captive breeding populations of listed species designed to maximize retention of species' genetic and demographic diversity in captivity. Zoos and aquariums are not required to be members of AZA or be involved in SSPs, over 200 in North America have made a conscience choice to join the organization. Those who choose to be a part of AZA must comply with recommendations made by each SSP committee to maintain accreditation.

Zoos make especially good partners in wildlife conservation. Their generally favorable publicity and eminent environmental education and conservation programs attract millions of visitors each year. Moreover, they have live wild animals for the public to see up close, as well as increasing amounts of interpretive, educational materials on animals and conservation. Many zoos are increasingly sponsoring *in situ* or field studies on free-ranging wild animals, and some, such as the Tulsa Zoo, feature the role of humans in their interpretive displays. Overall then, the lines between zoos and aquariums, public wildlife management agencies, environmental education programs, non-governmental organizations, and even museums, are blurring as their objectives increasingly overlap.

Although partnerships play an important role in conservation programs, there have been few published reports evaluating their effectiveness or analyzing the characteristics of successful partnerships. Now is a particularly crucial time to undertake such evaluation due to increasing financial constraints on all organizations and the urgent need for species recovery and habitat preservation. Partnerships with zoos and aquariums have become increasingly prevalent over the past 30 years, providing crucial understanding and data (Clark and Brunner, 2002). Since partnerships can be effective, a design of what constitutes successful partnerships would increase the probability of success both for those that are established and partnerships that may develop in the future.

The Problem

The current status of our imperiled environment combined with a lack of resources by any single organization has necessitated the creation of conservation

partnerships. Still there are many institutions who are not involved in partnerships for several reasons. These may be lack of resources (i.e. time, money, personnel, or even desire), misunderstanding about partnerships, or communication failure between entities. It can be assumed that there are organizations whose efforts are being duplicated and could be streamlined through involvement in partnerships. The goal of this research is to characterize and identify factors that contribute to successful partnerships both in terms of attaining objectives of partnerships and amicable relations within partnership, and then share this information with zoos and aquariums and their partners. To do this, I asked AZA accredited institutions to evaluate all past and present conservation partnerships in an attempt to identify successful partnership characteristics. I also identified the benefits and challenges of conservation partnerships and provided suggestions on how to create and foster successful future relationships. With this information, I can educate those currently involved in partnerships, as well as those organizations seeking to become involved in partnerships. Now, and in the future, conservation partnerships are, and will become essential vehicles for species and habitat recovery.

Purpose of the Study

It is clear partnerships are essential for the future success of conservation organizations, and strive to achieve the ultimate goal of restoring and preserving biodiversity. Establishing and maintaining a working relationship with multiple organizations, while working to achieve a common, fundamental goal can be difficult. Results of this research may serve as guidelines for existing and future conservation partnerships help them avoid stagnation and ineffectiveness.

Acknowledging that human encroachment and environmental irresponsibility have caused ecological crises, we must embrace the responsibility to repair the damage inflicted (Chapin et al., 2000). Energetic, cooperative partnerships at all levels are steps in the right direction.

Objectives of the Study

It is important that we investigate exactly what makes conservation partnerships between North American zoos/aquariums and other entities successful due to the enormity, urgency, and grave importance of species and habitat conservation. Therefore this research was designed with the following objectives:

- To identify key characteristics of successful past and present conservation partnerships.
- To identify the benefits and challenges partners faced in these relationships.
- To predict trends in conservation partnership frequency between North American zoos/aquariums, United States federal and state agencies, and other non-governmental organizations.
- To provide meaningful suggestions aiding the formation and maintenance of successful, effective partnerships.

Literature Review

Evolution of Purpose

Zoological gardens and menageries have been a fascination of civilizations throughout the ages, beginning with the first zoos in Egypt around 2500 B.C. (Hoage and Diess, 1996). Zoos began as places of entertainment for the privileged few but have evolved into cultural institutions where conservation, scientific research, education, and recreation are now the primary goals (Croke, 1997; Kisling, 2001). Now more than ever, critical conservation issues such as the decline of indigenous species from habitat loss and fragmentation are at the forefront of society's concerns. The loss of a keystone species is often an indicator of a more serious problem such as imperiled biological and ecological diversity (Chapin et al., 2000). Because of these serious concerns, North American zoos/aquariums, U.S. federal and state agencies, and non-governmental conservation organizations took action by implementing legislation and voluntary programs, regarding species and habitat degradation, in an attempt to curtail and recover the serious biological losses suffered.

One of the most important biological legislative measures in U.S. history became law in 1973 when President Richard Nixon signed the Endangered Species Act (ESA) (Czech and Krausman, 2001; Mann and Plummer, 1995). The ESA allowed for the listing and federal protection of threatened and endangered species. ESA not only proclaims federal protection for listed species, it also declares that all species are worthy of protection, no matter how uncharismatic (Butler, 1999). A major problem is not with the act itself, but with its implementation (Miller et al., 1994). Endangered species

recovery is complex, uncertain, and many times under public scrutiny producing a host of administrative challenges (Miller et al., 1994).

In 1992, action 69 of the world *Global Biodiversity Strategy* strongly encouraged the strengthening of the conservation role of zoos and aquariums and the much needed work to identify “national and international opportunities for their further contribution to conservation” (Miller et al., 1994). The international conservation community was pleading for the modern zoo community to reach beyond local and national borders and create more effective ways to contribute to global conservation (Hutchins and Conway, 1995).

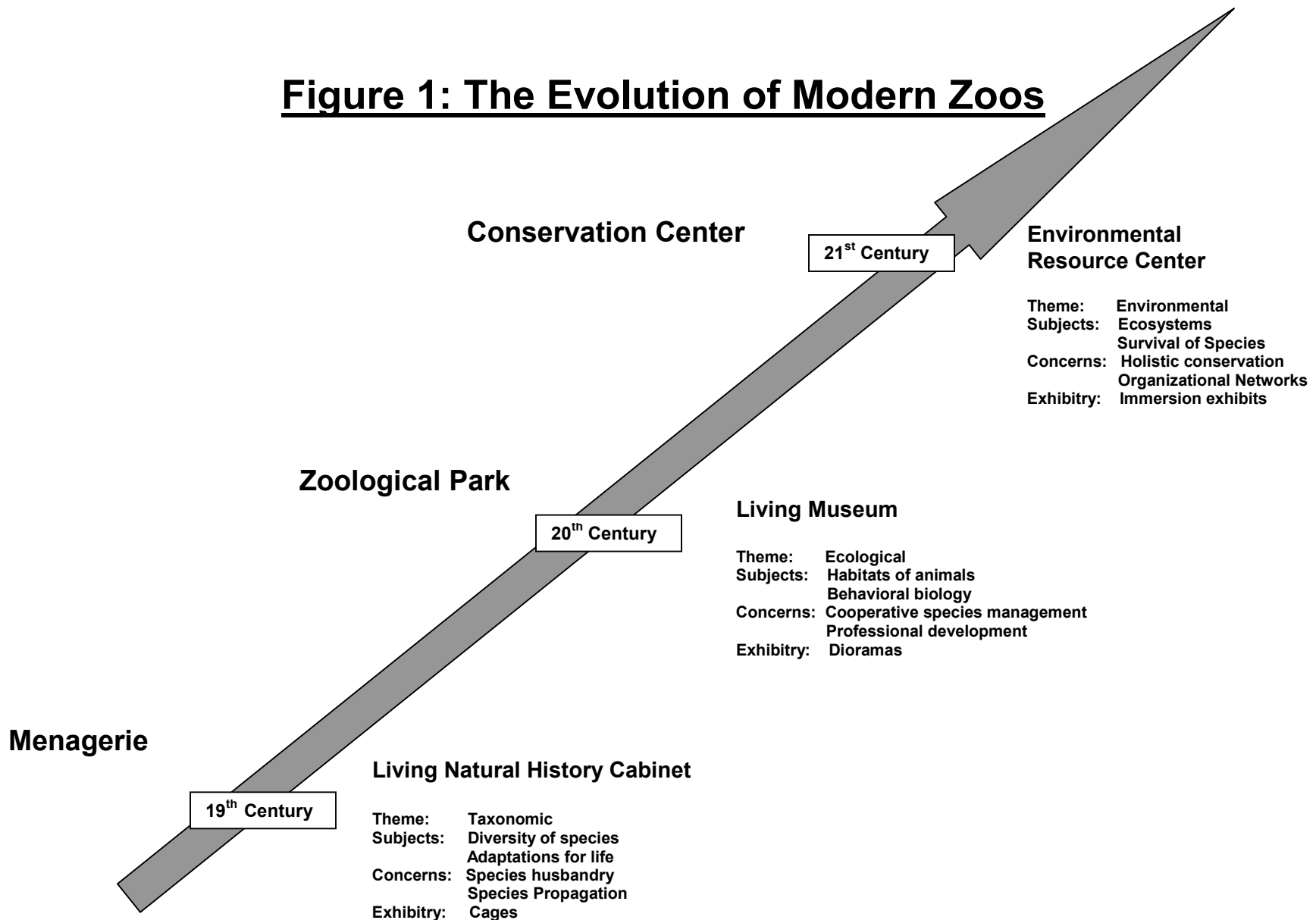
Zoos are ever-evolving organizations whose objectives are influenced by the needs and priorities of the society in which they reside (Kisling, 2001). Recently, the focus has changed within many U.S. zoos and aquariums. A change in focus toward education, communication with visitors, immersive species display, and conservation has all evolved within the past century (Rabb, 1995) (Figure 1). Today, such changes have been promoted by the urgent need for species recovery efforts combined with new conservation expectations of zoos and aquariums. Now aware of their modern conservation role, zoos and aquariums are taking a broader view of species recovery (Rabb, 1995) and habitat preservation.

Conservation Efforts of the American Zoo and Aquarium Association (AZA)

In 1981, the AZA created voluntary participatory conservation programs such as Species Survival Plans (SSPs) (AZA, 2005). SSPs were originally established to

Figure 1: The Evolution of Modern Zoos

7



Source: George B. Rabb, 1995, in *Expanding conservation partnerships*

maintain healthy, self-sustaining populations of captive animals that are demographically stable, genetically diverse, and in a few cases, able to be reintroduced (AZA, 2005; Clark and Brunner, 2002). SSPs, along with other programs such as Taxonomic Advisory Groups (TAGs), Scientific Advisory Groups (SAGs), and Conservation Action Partnerships (CAPs), have assisted in maintaining viable, captive populations of many species and have educated the public about endangered species' decline (AZA, 2005; Hutchins and Conway, 1995).

In the past, the main purpose of SSPs has been focused on genetic and demographic management, but more recently, many are attempting to create a balance between *in situ* and *ex situ* conservation (Hutchins and Conway, 1995). SSPs have expanded to include field conservation as an integral part of overall conservation and recovery efforts (Hutchins and Conway, 1995; Johnson, 1999). Recent organizational restructuring within the AZA has made it easier to promote and facilitate field conservation among its 200⁺ members. Establishing a Field Conservation Committee (FCC), Conservation Action Partnerships (CAPs), and guidelines covering international field conservation initiatives by AZA member institutions, has paved the way for increasing field conservation efforts (Hutchins and Conway, 1995). Learning how to create and manage effective conservation partnerships can facilitate *in situ* and *ex situ* conservation efforts.

Many SSPs have succeeded in combining *in situ* and *ex situ* efforts. For example, the cotton-topped tamarin SSP maintains viable captive populations, supports active field conservation and education programs, and seeks to advance scientific knowledge within the local and conservation community (Hutchins and Conway, 1995). At this time, over

100 SSPs are in place in zoos and aquariums throughout the United States (AZA, 2005; Rabb, 1995).

Conservation Endowment Funds (CEFs)

Established in 1991 for the purpose of providing funding to AZA accredited zoo and aquarium conservation projects and partnerships, the CEF has donated to more than 177 projects and supports every major type of conservation and animal health initiative (AZA, 2005). CEF grants are designed to link zoo and aquarium conservation education messages with *in situ* conservation efforts (AZA, 2005). The scope of CEF assistance includes projects involving habitat preservation and scientific improvement among zoo and aquarium staff within AZA accredited institutions (AZA, 2005).

Field Conservation Committee (FCC)

Established in 1993 by the AZA Board of Directors, the FCC's "primary goals are to: (1) promote field conservation efforts by AZA member institutions; (2) educate members about their potential role in field conservation; (3) provide assistance/guidance to member institutions that wish to expand their involvement; (4) catalogue and monitor successful examples of *in situ* conservation by its members; (5) work closely with the AZA Conservation and Science Office to meet these and other related goals" (Hutchins and Conway, 1995). The FCC has held major symposia dealing with zoos and aquariums and field conservation at AZA annual conferences. It has also created an effective tool used by AZA member institutions called the *AZA Field Conservation Resource Guide*, which describes various methods and benefits of field conservation involvement, as well

as explains the biological, cultural, and financial challenges of field conservation (AZA, 2005; Hutchins and Conway, 1995).

Conservation Action Partnerships (CAPs)

Another committee under the auspices of the AZA is CAPs, formerly Fauna Interest Groups (FIGs), which help coordinate field conservation activities in various geographic regions, “hot spots” of biological diversity. CAPs include AZA member zoos and aquariums, along with advisors from the specific regions and other non-governmental organizations (AZA, 2005; Hutchins and Conway, 1995). Members of CAPs network with field researchers, government wildlife agencies, and conservation planners. Many times Memorandums of Understanding (MOUs) are used to solidify the relationship between AZA, CAPs, and appropriate government wildlife agencies (Hutchins and Conway, 1995). Currently CAPs are established in places such as Madagascar, Brazil, Meso-America/Caribbean, Paraguay, Venezuela, Coral Reef areas, South-East Asia, East Africa, the West Indies, and North America (AZA, 2005).

International Conservation Programs within AZA

Conservation partnerships, especially international ones, are complex and their processes and outcomes can be uncertain (Hutchins and Conway, 1995; Miller et al., 1994). As Hutchins and Conway (1995, p.123) state, internationally “wildlife conservation is primarily a social problem which must take into account legal, political, cultural, economic, and ethical considerations.” A major objective of any international partnership must address local priorities and issues (Hutchins and Conway, 1995) to be a

long-term, successful effort. The AZA has established guidelines that discourage AZA member institutions involved in international conservation initiatives from unjustifiably extracting wild animals from partnering countries. Guidelines also include suggestions on cultural sensitivity and transferring of technology from a developed region to a less developed area (Hutchins and Conway, 1995).

Conservation through Education

Zoo and aquarium conservation education has evolved from a recreational, passive experience to a hands-on, creative learning endeavor for everyone. Upon recognizing their vital impact on local communities, zoos and aquariums initiated changes in their educational processes (Rabb, 1994). Zoos and aquariums soon realized that for the public to make the connection between zoo and aquarium collections and the urgent need to alter personal behaviors, the interpretive educational message, design, and implementation had to be improved. Today many zoos and aquariums strive to motivate behaviors of zoo visitors long after they have left zoo-grounds (Rabb, 1994). Investigative research within zoos and aquariums and within social disciplines has begun to determine more about visitor interests and receptivity to the educational and conservation message (Rabb, 1994). Expanding the conservation message to varying audiences (such as zoo membership, governances, and employees) allowed for conservation ambassadors, championing public action and behavioral changes, to be reborn within the local communities. These new roles require a shift to more holistic approaches in education and more refined communication strategies to motivate zoo and aquarium audiences (Hutchins and Conway, 1995; Rabb, 1994).

Evaluating and Improving Conservation Partnerships and Programs

In other disciplines such as sociology, economics, and business, there has been much research about what makes relationships between organizations effective. Despite the growing urgency for conservation and recognition of its work and successes by the scientific community, there has been little effort to explore these collaborations. This lack of effort may be due to the former organization and mind-set of zoos and aquariums, U.S. federal and state agencies, and other NGOs. For decades, each has worked independently toward the same goal, but did not combine efforts. Fortunately, this is changing. Organizational exclusivity has been exchanged for cooperation, as federal, state, and local initiatives are paving the way for the formation of partnerships. Indeed, empirical studies provide pragmatic information about improving and modifying conservation and recovery programs. Although real life experiences create a strong foundation for success, added scientific research into the structure, functioning, and process of conservation partnerships will enhance success. There has been relatively little research regarding characteristics of successful structure and process in a functional zoo and aquarium conservation partnership (Table 1.1).

Mallinson (1991) led the way in the late 1980s in the proceedings of the Zoological Society of London (ZSL) November, 1989. During the symposium, Mallinson (1991) detailed the conservation strategies of Jersey Wildlife Preservation Trust (JWPT), Wildlife Preservation Trust International (WPTI), and Wildlife Preservation Trust Canada (WPTC). He predicted that breeding programs would increasingly rely on

national and international cooperation and suggested that conservationists adopt a far more interdisciplinary approach to the protection of species and habitat (Mallinson, 1991). Mallinson stated that successful conservation partnerships and programs can be effective only if they are adopted and supported by local populations living in the regions where species are endemic (Mallinson, 1991). Mallinson also found that success depends on the technical quality of the proposal, strength of political support, commitment from all stakeholders involved, a proper human balance, forming personal relationships, and the existence of policy framework for the conservation effort (Mallinson, 1991).

Soon Miller et al. (1994) investigated common organizational problems associated with the inadequate planning and implementation process of endangered species recovery. They proposed the following recommendations for improving the initial planning stages of the recovery efforts: (1) the formation of a task-oriented recovery team of experienced leaders to provide guidance in the planning process; (2) incorporating species specific experts to allow critical recovery issues to be properly addressed; (3) later in the recovery process, the lead agency should impart most of its implementing obligations to other partners who are contractually obligated to complete their portion of the work, while still maintaining supervision of the project (Miller et al., 1994). One of their recommendations was to establish a national database of qualified recovery experts, published to aid the formation of recovery teams by conservation organizations.

Table 1.1. Characteristics of Successful Partnerships found in Previous Studies					
	Mallinson (1991)	Miller (1994)	Clark and Brunner (1996)	Rocha and Jacobson (1998)	Kleiman et al. (2000)
TYPE OF PARTICIPANTS IN EACH STUDY	Examples from Wildlife Preservation Trust (WPT)	Applicable to all recovery programs	Examples of NGOs, agencies, universities and AZA institutions	NGOs and protected areas	AZA SSPs and FWS
Characteristics of Partnership Success					
STRUCTURE				X	
Invoking an interdisciplinary approach to conservation	X	X			X
Ensuring technical quality of the proposal	X				
Establishing overall conservation policy framework	X				
Internal and external reviews of goals and process					X
Decentralizing organizational structure, strong, and task-oriented					X
Creating a quick and effective communication process					X
Increasing the amount of funding					X
Establishing MOUs to articulate roles and responsibilities					X
Incorporating species-specific experts		X			
Forming a task-oriented recovery team of leaders		X			
PROCEDURES/PROCESS				X	X
Allowing for flexibility within structure and process		X	X		X
Allowing for a consensus decision-making process		X	X		
Deterring "goal-substitution"			X		
Improving distribution of funding					X
Gaining acceptance and support from local community	X				
Gaining strong political support	X				
PERSONALITIES					
Forming personal relationships	X				
Creating the proper human balance	X				
COMMITMENT					
Ensuring commitment from all stakeholders	X				

Attaining knowledgeable, experienced participants, while allowing for flexibility with the recovery program, taking a multidisciplinary approach, and allowing for consensus decision-making would, from their perspective, improve endangered species recovery (Miller et al., 1994).

Similarly, Clark and Brunner (1996) suggest that the decision-making process is also critical to functioning of partnerships for endangered species recovery. They warn against what they call “goal-substitution”, or ulterior motives, of partnership participants that can distract from the true goal of the partnerships, which is usually species recovery (Clark and Brunner, 1996). An example of “goal-substitution” given by Clark and Brunner is the Australian eastern barred bandicoot (*Perameles gunnii*) program that was composed of a single governmental agency for over ten years and was later joined by several NGOs and universities. Scientific validation, project planning, and communication about the roles, goals, and rules of operation was limited. Individual organizations began to pursue their own goals without consideration of the negative consequences to species recovery. Technical and organizational implementation was ineffective and species continued to decline. Scientific data and evaluation of effectiveness were lacking, thus there was little learning and few improvements made throughout the duration of the partnership. Eventually emergency action was taken to streamline decision-making activities. Working groups were formed to gather better scientific data; communication about the goals of the program was encouraged; a strategic planner was appointed to improve implementation; appraisal systems were instituted so that frequent communication and updates from groups was received by

decision-makers; and on-going evaluation finally improved the structure and operations of the program (Clark and Brunner, 1996).

From their perspective, a better understanding of the decision-making process in endangered species recovery would lead to more successful partnerships. After citing several other empirical examples of poor decision making through goal substitution within endangered species recovery, Clark and Brunner (1996) state that the decision-making process of a recovery effort should be open and flexible since recovery can be highly uncertain and unpredictable. They encouraged and explained the use of seven decision-making functions: intelligence, promotion, prescription, invocation, application, appraisal, and termination to improve endangered species recovery (Clark and Brunner, 1996).

Rocha and Jacobson (1998) analyzed three new partnerships between protected areas and NGOs in Brazil to better understand the phenomenon of conservation partnerships. They analyzed how the partnerships worked, the benefits and problems of the three partnerships, and what conditions made them successful (Rocha and Jacobson, 1998) (Table 1.1 and 1.2). Partnerships provided multiple benefits that included better infrastructure, improved management, local recognition, and public involvement. Problems included significant bureaucracy, lack of specific legal support, and unclear definition of roles and procedures. They determined 4 major categories that make conservation partnerships successful: (1) structure; (2) procedure; (3) community involvement; (4) and qualities of partners.

Other researchers support the use of internal evaluation and external peer review as tools to improve conservation programs and partnerships. Researchers have begun

Table 1.2. Benefits, Problems, and Improvements of Conservation Partnerships found in Previous Studies

	Mallinson (1991)	Miller (1994)	Clark and Brunner (1996)	Rocha and Jacobson (1998)	Kleiman et al. (2000)
TYPE OF PARTICIPANTS IN EACH STUDY	Examples from Wildlife Preservation Trust (WPT)	Applicable to all recovery programs	Examples of NGOs, agencies, universities and AZA institutions	NGOs and protected areas	AZA SSPs and FWS
Benefit, Problem, or Improvement					
<i>BENEFIT</i>					
Improved infrastructure				X	
Improved management				X	
Local recognition for the effort				X	
Increased public involvement				X	
<i>PROBLEM</i>					
Dealing with bureaucracy				X	
Lacking legal support				X	
Uncertainty of roles and procedures				X	
<i>IMPROVEMENT</i>					
Developing a criterion for success or progress on the way to delisting species					X
Planning replacement of program coordinators					X
Creating more <i>in situ</i> collaborations					X
Joining training courses and holding workshops where experts can collaborate and brainstorm					X
Creating a national database of qualified recovery experts		X			
FWS would like to see decentralization and more autonomy					X
AZA SSP coordinators would like to see less administrative work and more support from AZA					X

advocating interdisciplinary approaches to conservation programs and partnerships suggested in the 1990s (Mallinson, 1991). Kleiman et al. (2000) emphasized the need for internal review (where participants review all or some aspects of their program and change their activities as new knowledge and understanding are acquired) and external reviews (less frequent than internal reviews, but highly structured and broader in focus, and conducted by high-quality, external reviewers) of conservation programs, biologically and socially. For example, some conservation programs appear to be successful biologically (such as recovery of a particular species), but fail miserably when it comes to the social aspects (such as public support, interorganizational relations, relevant values, attitudes, and knowledge of key stakeholders). Kleiman et al. (2000) believed that more frequent internal reviews concerning adequacy of program goals and process were necessary, followed by less frequent, external peer review evaluating the broader scope of the program. When investigating a conservation program, it is important to examine the organizational structure (e.g. establishing of roles, goals, guidelines, and timelines) to determine the proper function. Process can include: “how information is shared among stakeholders, the frequency and quality of communication, the management skills of the program leader, the decision making procedure, and the standards and norms for the function or the group” (Kleiman et al., 2000). To improve conservation programs, they recommend being flexible with and decentralizing organizational structure, creating less hierarchy, and creating a strong, task oriented, quick, and effective communication process among organizations (Kleiman et al., 2000).

With the interdisciplinary approach of evaluating partnerships between organizations, the idea of researching the human dimensions of partnerships was finally

applied to endangered species recovery efforts in 2001 by Moosbrucker and Kleiman. In their study, 22 FWS and AZA SSP coordinators and other field leaders were interviewed by phone and asked questions about the structure, process, and recognition/evaluation of the programs. Respondents suggested providing a master MOU template to articulate the roles and responsibilities of each partner. Second, most individuals wanted to see improved distribution and increased amount of funding. From their parent organizations, FWS team members wanted to see decentralization and more autonomy, and AZA constituents wanted less administrative work and more support from AZA. Telephone interview respondents recommended creating more *in situ* collaborations, joining training courses and holding workshops where experts could creatively collaborate and brainstorm. Recommendations were also given for developing procedures for internal and external reviews throughout the program or partnership existence, as well as planning for and replacement of project coordinators. Finally it was suggested that developing a criterion for success or progress on the way to delisting a species would be meaningful to recovery efforts (Moosbrucker and Kleiman, 2001).

To add a practical perspective to the ideal structure and functioning of conservation partnerships, the article by Kleiman and Mallinson (1998) details the overwhelmingly successful conservation partnership between the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), several NGOs, and individuals who constitute four International Recovery and Management Committees (IRMCs) for lion tamarin (*Leontopithecus*) conservation. Since the outset of lion tamarin conservation in the early 1970s, several conservation and research teams had been working independently to recover the species. With their mutual objective of preserving

viable, self-sustaining populations of lion tamarins and their habitat (Brazil's Atlantic rainforest—Mata Atlantica) and using *Leontopithecus* as a “flagship” species, these independent entities joined forces and have been able to recover a vanishing population of four species of tamarins since the beginning of the partnership. In order to achieve these objectives, metapopulation management programs incorporating “known *in situ* subpopulations and scientifically managed captive populations” have been instituted (Kleiman and Mallinson, 1998).

IBAMA coordinated four IRMCs to help guide recovery efforts, manage the four species of *Leontopithecus*, and “unify individuals and teams in setting and implementing science-based objectives and turn [their] conservation goals into policy” (Kleiman and Mallinson, 1998). IRMCs were composed of a multidisciplinary group of conservationists, zoo biologists, field researchers, educators, administrators, and staff from IBAMA (over 50% were Brazilian). “Each committee has two conservation chairs and all IRMC chairs serve as voting members on the other committees” (Kleiman and Mallinson, 1998). This process ensured clear and consistent communication between committees. Each committee consists of technical advisors who provide scientific information, but are not voting members (Kleiman and Mallinson, 1998).

Common priorities were assimilated by instituting a universal process for IRMC functioning. General priorities for *Leontopithecus* were established, as well as species-specific priorities that took into account problems, issues, and histories of each particular species. Implementation of conservation and research was through small teams who were “high-performance” and task-oriented, and not as much concerned with process due to their informal, flexible, and nonbureaucratic structure (Kleiman and Mallinson, 1998).

The article details the decision-making processes of the IRMCs using the Clark and Brunner (1996) paper where they outline a successful decision-making processes. IRMCs were financially self-sufficient and funded their own activities. Even though there were four IRMCs working on four different species of lion tamarins, each with their own agendas, methods, yet still with mutual, collective goals, they were successful in partnering. IRMCs are seen by Brazil's government as technical advisors. Annual meetings are conducted regularly in order to share personal experiences, knowledge, and values. Conflicts are resolved through informal mediation by committee chairs as needed. They had a well-balanced group of experts and locals creating neutrality, a greater pool of expertise and ingenuity, and the ability to create capacity building with local Brazilians. They had an educational program that reached the public, media, and created awareness about the plight of tamarins. But one criterion they lacked was a formal budget (fund-raising is left up to the individual teams, and they were not able to contract out work). Another drawback was they did not have an official staff since all members of the committees had other responsibilities and lacked true authority in Brazil, which made them less effective in the long-term (Kleiman and Mallinson, 1998). Overall, individuals and teams involved with lion tamarin conservation experienced successes and challenges in the system, but found ways to overcome these obstacles and created a truly successful partnership. The real joy in this success is that lion tamarins and their habitat are on their way to recovery.

The Fundamental Role of Conservation Partnerships

Cooperative partnerships can be defined in several different ways. Simply put, they are anything from two local partners who work together on a one-day event, to multiple partners involved in long-term collaboration (O'Connor, 1996). *Within the scope of this paper, a partnership is defined as “a committed, long-term relationship” (Rabb, 1995) between institutions with a common objective, allowing each side to dedicate time, money, and/or personnel to the partnership to accomplish a certain conservation task that neither institution could do alone.* Such cooperative partnerships have many benefits that include, but are not limited to, increased flow of information among field scientists, zoo researchers, and local communities, which leads to more successful captive propagation programs, more effective conservation education, and new perspectives on future research (Mallison, 1996; Rocha and Jacobson, 1998).

Conservation partnerships now extend across institutional and corporate lines (Clark and Brunner, 2002). With the inclusion of such a wide variety of different organizations with unique cultures, structures, and processes, it is critical that a greater knowledge of partnership organization and structure be understood so that we can engineer long-lasting, effective partnerships.

The trend in endangered species recovery and habitat preservation is to form more and larger conservation partnerships (Clark and Brunner, 2002). Combining the efforts of local, national, and international communities to recover and preserve species and habitats has proven to be a challenging, yet rewarding feat. The goal of partnerships is to maximize the availability of resources, increase cooperation among all participants, and improve probability of recovering species (Clark and Brunner, 2002).

Through the implementation of federal legislation and AZA conservation programs, an estimated 192 species may have been saved during the time period from 1973-1998, and 98% of the ESA's listed species would have been saved from extinction (Scott, 2000). Much of this success can be attributed to the partnerships that zoos and aquariums share with the FWS, since all SSPs that involve U.S. species are tied to a FWS recovery plan (AZA, 2005; Scott, 2000). During its 1998 Annual Conference, AZA signed a Memorandum of Understanding (MOU) with FWS that established an extensive framework for species conservation and education about the importance of biological, economic, and aesthetic contributions made by native species and their habitats improving our nation's quality of life (AZA, 2005).

SSPs, TAGs, CAPs, etc. depend upon conservation partnerships. Neither zoos nor federal agencies can alone save these species. In light of a struggling national economy, partnerships are looked upon more favorably than ever before (Block, 1993). These organizations understand the monumental effort required for endangered species recovery, and most have concluded that they cannot succeed without cooperative efforts.

At the opening of the Smithsonian National Zoological Park's Bald Eagle Refuge Exhibit (BERE), one leading zoologist stated that "[a]s wildlife habitat loss continues to threaten animals' populations, partnerships in conservation have become essential in protecting the diversity of animals and their habitat" (Harrelson et al., 1998). The BERE is a result of joint partnerships between zoos, conservation organizations, and the FWS.

Along with the benefits of partnerships come the challenges of creating and maintaining efficacy within those partnerships. The more complex partnerships become, the greater the challenge to focus on the fundamental goal of protecting endangered

species/habitats. The partnerships and programs are only as effective as our abilities to share information and work together (Meritt, 1997). For this reason, species survival depends on the formation of effective, cooperative partnerships unified by the common interest of recovering wildlife and protecting biodiversity.

CHAPTER II

METHODS

Overview

Preliminary surveys were distributed to one individual from 230 AZA accredited institutions and related facilities in North America to determine how many institutions had conservation partnerships according to our definition (see “research definitions” section below). Focus groups were conducted with two AZA accredited institutions; trends in respondents’ suggestions were analyzed and added to the telephone interview questionnaire. Telephone interview questionnaires were distributed to those who returned the preliminary survey and confirmed they had conservation partnerships and to those who agreed to participate in the telephone interview. Telephone interview participants were interviewed between 10 minutes-1.5 hours, depending on how much each individual wanted to elaborate on their partnerships. Telephone interview respondents were asked closed- and open-ended questions about their personal experiences with conservation partnerships (Fink, 2003a; Fink, 2003b).

Preliminary surveys and telephone interview responses were coded and added to Statistical Package for the Social Scientist (SPSS) for analysis. One-sample t-tests were used to determine response bias. No significant response bias was found. Next, descriptives were produced and principal component factor analysis was conducted to determine the principal components of partnership success, the benefits and challenges

with current partnerships, the trends in partnerships, and finally any improvements that can be made to increase the success of future conservation partnerships. Open-ended questions were also analyzed using grounded theory method of qualitative data analysis by coding and categorizing each response to support the quantitative data (Strauss and Corbin, 1990; Strauss and Corbin, 1997).

Research Definitions

A conservation partnership was defined as “a committed, long-term relationship” (Rabb, 1995) between institutions with a common objective, allowing each side to dedicate time, money, and/or personnel to the partnership to accomplish a task that neither institution could do alone. Although there can be several definitions of a successful partnership for the purposes of my research, I defined “success” as attaining partnership objectives. I realize that a partnership can succeed in reaching its biological goals, yet fail in other areas such as gaining local partnership support, educating the affected community, or causing unwanted internal or external political conflict (Kleiman et al., 2000). In my research, I was interested in determining how to achieve the biological goals of a partnership, as well as how to limit secondary negative effects as stated above.

I was interested in the relationship between institutions, in addition to the actual projects. Although I am aware that partnerships and projects go hand-in-hand and cannot be distinctly isolated from one another, I am interested in evaluating relationship dynamics and social structure and processes of the relationship between institutions.

Research Subjects

The study focused on current and past conservation partnerships of AZA institutions with other North American zoos and aquariums, other non-governmental organizations (NGOs) (worldwide), and/or U.S. federal and state agencies. The target population consisted of 1 representative from each of the 230 AZA accredited institutions and related facilities as listed in the 2004 AZA Membership Directory (AZA, 2004). Representatives from each institution were first contacted on the basis of their current job title and then included in the interview process based on their conservation partnership experience. Initial contact with the zoo/aquarium interviewee was made based on job title at each institution, selected in the following order: (1) Director of Conservation, Science, or Research; (2) General Curator or Director of Education (whomever was deemed appropriate by the institution); (3) Assistant Director (was chosen if neither of the other positions existed or was currently being held). Because zoos and aquariums differ in number of employees, job descriptions, and titles, the above criteria were used to determine who might best to represent each institution. Once contacted, individuals were able to determine whether they were the most knowledgeable representatives with conservation partnership experience. If the zoo or aquarium staff member possessed inadequate partnership experience, as determined by the primary investigator, another institutional staff member with more partnership experience was located and subsequently interviewed.

Response Bias

To determine the presence of response bias within the research, I divided respondents into three types of sample populations, the preliminary survey respondents, the telephone interview respondents, and the non-respondents (those who did not respond to the preliminary surveys and thus did not participate in the telephone interviews.) The 2003 AZA Annual Survey of Members was used to assemble four characteristics that represented both the AZA zoo population and the aquarium population appropriately (AZA, 2005) The following characteristics were found to describe the AZA target population adequately: (1) annual operating budget; (2) number of species and specimens; (3) number of total full-time employees; (4) annual attendance (AZA, 2005). For each characteristic, the mean was calculated for the entire AZA population and then compared with each of the three types of sample populations (as described above) using the Statistical Package for the Social Scientist (SPSS) one-sample t-tests (SPSS, 2003). Each sample population mean was compared against the target population mean to determine if there was a significant response bias at the 95% confidence interval. Out of the 15 t-tests run, just 2 tests showed a statistically significant difference in mean at the 95% confidence level. Annual operating budget means for the preliminary survey respondents and the non-respondents showed that their means were lower at the 95% confidence interval. Therefore I use caution when applying these results to zoos and aquariums with annual operating budgets of less than \$9,941,894 (about 65% of AZA institutions). But the vast majority of our findings are applicable to all AZA accredited institutions.

Preliminary Survey

The preliminary survey was designed and distributed to: (1) identify how many institutions were currently involved in conservation partnerships; (2) determine what types of institutions were involved; (3) and request permission for a telephone interview (Appendix “A”).

From June 2004 through December 2004, one qualified individual (see above description of how “qualified” was determined) from each AZA accredited institution was systematically contacted by the primary investigator (PI) three times by one or a combination of the following methods: electronic mail, telephone, or fax (contact information came from the *2004 AZA Membership Directory* or through the individual zoo or aquarium website). Each individual was either (1) sent a personalized cover letter explaining the research or (2) the research was described by the PI over the telephone. A copy of the preliminary survey, and the Oklahoma State University Institutional Review Board (IRB) guidelines and consent form was also given to each participating individual. Confidentiality and anonymity was promised to the participants to increase the honesty and comprehensiveness of responses (Fink, 2003a; Fink, 2003b). Subjects who participated in the preliminary interviews were then contacted by e-mail or phone to set up a telephone interview.

Focus Groups

To design the telephone questionnaire, the results of an intensive literature review were combined with candid answers from two separate focus groups, performed with a subset of researchers in AZA accredited zoos that are currently involved in conservation partnerships and in close geographic proximity to the researcher (Barbour and Kitzinger, 1999; Krueger and Casey, 2000). Focus group information augmented published literature and ensured that respondents' suggestions were included in the telephone interview questionnaire. Again, confidentiality and anonymity was promised to the participants to increase the honesty and comprehensiveness of responses (Fink, 2003a; Fink, 2003b; Krueger and Casey, 2000).

Each focus group consisted of 6 or 7 participants who were familiar with conservation programs and partnerships at their institutions. Sessions lasted 50 minutes and 1.5 hours and a flip-chart with topic questions was placed at the front of the room to keep the respondents focused on the subject at hand (Krueger and Casey, 2000). To assist in the design of the telephone interview questions and to create realistic questions and choices from the zoo and aquarium perspective, focus group participants were asked a series of open-ended questions about what characteristics contributed to their successful conservation partnerships. With the written permission of the participants, focus group sessions were tape recorded to ensure proper interpretation and more detailed analysis later (Krueger and Casey, 2000; Stewart and Shamdasani, 1990). I also transcribed brief notes while conducting the interviews to identify the nonverbal interactions between respondents and to take brief outline notes of the discussion to supplement later tape transcription (Stewart and Shamdasani, 1990).

First, focus group tapes were transcribed word-for-word and analyzed by the cut-and-paste technique (described later in this paragraph) for cost and time effectiveness (Krueger and Casey, 2000; Stewart and Shamdasani, 1990). Final transcriptions were searched to identify relevant discussion of research questions. Major topics of the discussion were categorized and material regarding each topic was identified (Krueger and Casey, 2000; Stewart and Shamdasani, 1990). Material within the transcription was color-coded to identify it with a topic and its relative importance to the research questions (Stewart and Shamdasani, 1990). The colored sections were then cut apart and placed together according to topic in Microsoft Word format. Interviewer notes taken during the focus group discussion were then added to the text where applicable.

Transcripts were then analyzed by thematic units, noting recurring themes, beliefs, or explanations within the discussion that were not already included somewhere in our questionnaire (Stewart and Shamdasani, 1990). Any and all thematic material received in the focus groups was then added to the telephone questionnaires.

Telephone Interview Questionnaires

Telephone interview questionnaires were designed to explicate the following research objectives: (1) what are successful characteristics of conservation partnerships (Toupal, 1997); (2) what are the benefits and challenges of conservation partnerships; (3) what are the trends of conservation partnerships; and (4) how can conservation partnerships be improved (Appendix “F”). Telephone interviews were conducted from August 2004 through January 2004. Each respondent was asked to rank the

characteristic, benefit, challenge, or improvement on a Likert scale of 1-5 (where 1 was the lowest ranking and 5 was the highest ranking) according to their personal experiences with conservation partnerships (Fink, 2003b; Fink, 2003d). I thought the 1-5 Likert scale was the most recognizable and the most comfortable format for the majority of respondents. The respondents also had the opportunity to add their personalized responses to each question, so as not to limit the choices to only those items found through focus groups and literature (Fink, 2003a; Fink, 2003b). I placed the most prominent questions (as per our research objectives) at the beginning of the survey due to its length and potential time constraints of the respondents. More open-ended questions were given at the end of the questionnaire to allow respondents time for thoughts and suggestions throughout the closed-ended questions of the survey. Positively- and negatively-stated questions were placed in succession and allotted the same number of choices, as not to bias responses (Fink, 2003b).

Respondents who returned their preliminary survey, who noted that their institution was currently involved in conservation partnerships, and who agreed to participate in a 15 minute telephone interview were included in the telephone interviews.

Participants were contacted by e-mail or phone to schedule an interview time. At least 1-2 days before the interview, participants were sent a copy of the telephone interview questions for review and ease of conducting the interview due to number of questions. Interviews lasted anywhere from approximately 10 minutes to 1.5 hours depending on how much each participant was willing to elaborate. Open and closed-ended questions were asked in the interview to allow participants a chance to add opinions and suggestions (Fink, 2003a; Fink, 2003b; Fink, 2003c).

Quantitative Analysis of Preliminary Survey and Telephone Interviews

To determine which characteristics were most important to the success of conservation partnerships, Statistical Package for the Social Scientist (SPSS) was used for factor analysis of the data. Using exploratory factor analysis (EFA), I computed the observed correlation matrices for each observed variable in questions 1, 2, 3, 5, and 7 of the telephone interview questionnaire to determine if our variables were linearly related to one another (Landau and Everitt, 2004; Puri, 1996; SPSS, 2003). Next, I chose principal component analysis (PCA), because it is the simplest method of data extraction to remove meaningful factors from the correlation matrix. My goal was to replace a larger set of variables (the subset of questions from our questionnaires) with a smaller set of representative variables, reducing the data and attaching meaning to each identified factor (Landau and Everitt, 2004; SPSS, 2003). Telephone interview questions were designed and posed in such a way as to reveal underlying components or factors (components and factors will be used interchangeably throughout this paper since we used PCA as our method of analysis) of successful conservation partnerships that could be used for PCA (Norusis, 2003). Each question on the telephone interview questionnaire was analyzed separately by EFA under the assumption that each question was searching for a distinct underlying factor (Hofstee et al., 1998). Using PCA, I assumed that each observed variable was a linear combination of a smaller number of common factors shared by all variables and unique factors specific to the variable and representing error (Landau and Everitt, 2004; Norusis, 2003). The extracted factors explain progressively smaller portions of the total sample variance and each component is uncorrelated with the others (Landau and Everitt, 2004; Norusis, 2003). The first

principal component extracted represents the combination of variables that accounts for the largest amount of variance in the sample (Hofstee et al., 1998). The second principal component extracted represents the combination of variables accounting for the second largest variance, and the third principal component represents the third most variance, and so on to the final extracted component (Hofstee et al., 1998; Norusis, 2003; Rodeghier, 1996). By analyzing the percentages of the total variance explained by each factor, the eigenvalues (that display factors that account only for variances greater than 1), and the scree plots for each question, I determined that the four factor solution was most appropriate (Landau and Everitt, 2004; Norusis, 2003; Rodeghier, 1996).

With the number of factors determined and still assuming orthogonality, I used varimax rotation to create a simple data structure to minimize the number of variables with high factor loadings allowing for easier interpretation of the data (Landau and Everitt, 2004; Norusis, 2003; Rodeghier, 1996). I used a cut-off point of 0.40 when interpreting the rotated factor loadings.

Using a model of internal consistency, Cronbach's alpha was used to determine the properties of measurement scales and each item that makes up the scale, based on the inter-item correlation (SPSS, 2003). An alpha of 0.70 or higher is assumed to be an acceptable value, although alpha less than 0.70 can also be justified (SPSS, 2003).

Qualitative Analysis of Telephone Interview Data

Telephone interview respondents were given the opportunity to add their qualitative responses to survey questions, in case the predetermined choices were not all-

inclusive or entirely representative of their recommendations. Thus for questions 1, 2, 3, 5, 7, 10, and 13 qualitative responses were possible. Responses to these questions were analyzed using the grounded theory method for social science (Strauss and Corbin, 1990). The grounded theory method allows researchers to conceptualize and categorize the data by coding qualitative responses to supplement the quantitative data.

After each telephone interview, a summary coinciding with each interview was written. Each qualitative response was transcribed word-for-word and elaborations were summarized. Using the grounded theory method, the complete qualitative response was placed in an appropriately designed Excel spreadsheet and coded “qualitative response.” Next each response was analyzed line-by-line examining the data word-for-word and sentence-by-sentence. Line-by-line coding allowed us to conceptually label to identify phenomena and eventually assign categories to the concepts (Strauss and Corbin, 1990). Repeated concepts were noted and tallied. The focused coding procedure was used to pinpoint key categories, give them properties and dimensions, and then link the responses (Strauss and Corbin, 1997). Each category was named and placed in successive rows for easy comparison. The focused codes were then used to complement the quantitative data of the questionnaire.

CHAPTER III

RESULTS

Overview

One-hundred and five individuals representing AZA accredited institutions and related facilities responded to the preliminary survey to determine which institutions had conservation partnerships, approximately how many they have and with whom. Ten of the preliminary survey respondents stated that they were not currently involved in conservation partnerships. Out of the remaining 95 preliminary survey respondents, 75 participated in telephone interviews that asked a series of closed- and open-ended questions about their conservation partnerships (Appendix “F”).

PCA indicated that structure, personalities, process, and commitment were the four major components of conservation partnership success (each defined on pp. 42). Specifically, interviewees thought within those categories “effective leadership,” “clear and consistent communication,” and “trust between partners” led to the greatest partnership success when ranked on a Likert scale.

Increased field resources, shared time and capital, and increased ingenuity and expertise were the three categories of benefits indicated through PCA. Specifically, within those categories interviewees thought “creates potential for future partnerships,” “increases the pool of expertise,” and “educates public and locals about conservation and zoo/aquarium mission” were the greatest benefits when ranked on a Likert scale.

Challenges of partnerships were categorized into two principal components through PCA: structure and process. Specifically, within those categories, interviewees thought “failure of one partner to keep up its share of the work,” “lack of time among staff to devote to partnership,” and “decision-making without communication” were the three greatest challenges with conservation partnerships when ranked on a Likert scale.

When suggesting future changes with conservation partnerships, respondents identified three major concerns: “training on how to develop effective collaborations,” “developing effective evaluation criteria,” and “improving communication resources.”

Qualitatively, respondents also suggested that someone create a printed or online partnership database with information for potential partners and about the participating organizations, objectives of the partnership, expertise needed within the partnership, and contact information. Respondents also felt that fostering stronger one-on-one relationships with partners and forming more local partnerships (county, city, state, etc.) are changes that should be made to facilitate the formation and efficacy of conservation partnerships.

Preliminary Survey and Telephone Interview Response Rate

When the study began in May 2004, there were 213 AZA accredited institutions and 17 related facilities. One hundred and five individuals, each representing a separate AZA accredited institution or related facility, responded to the preliminary survey questionnaire. One-hundred and three of these respondents were from AZA accredited institutions and two were from related facilities, yielding a response rate of 48% for AZA

accredited institutions and 12% for the related facilities. The total preliminary response rate was 46%.

Of these 105 AZA accredited institutions and related facilities, 10 were not currently participating in conservation partnerships (as per our study definition). Seventy-five of the remaining 95 (79%) responding institutions agreed to participate in the telephone interview.

**Objective 1: To identify key characteristics of successful
past and present conservation partnerships**

The top five characteristics of successful conservation partnerships in order were: (1) “effective leadership by those in charge” with the highest mean of 4.57; (2 and 3) “trust between partners” and “clear and consistent communication between partners” both with means of 4.52; (4) “clearly defined objectives” having a mean of 4.49; (5) “clearly defined roles for the partners within the partnership” with a mean of 4.33 (Table 2.1). Because respondents were asked to state successful characteristics of partnerships from their personal experiences, some respondents had never experienced the success factors listed; therefore, the “Ns” differ among characteristics.

Additionally, respondents were given the opportunity to qualitatively respond to the same question of what are characteristics of successful conservation partnerships (note: not all respondents chose to give qualitative responses, which accounts for lower “frequency” numbers) (Table 2.2). Grounded theory analysis indicated that characteristics of successful partnerships that appeared most often were: (1) building

sustainability or capacity building in local communities (especially through education); (2) gaining governing board support for conservation efforts; (3) involving qualified individuals with strong interpersonal skills; (4) forming trusting, personal relationships with partners; and (5) gaining support from local zoo/aquarium community.

Principal Components and Commonalities of Successful Partnerships

PCA type factor analysis was conducted on the observed variables used to define successful characteristics of conservation partnerships. The varimax rotated four-factor solution revealed four principal components that led to the success of conservation partnerships: (1) structure; (2) personalities; (3) process; (4) and commitment.

Table 2.3 summarizes the factor loadings of each variable on the four principal components. The factor loadings explain how highly each of the observed variables correlates with its coinciding component (or factor). The first component represents the combination of variables that accounts for the largest amount of variance in the sample, the second component accounts for the second largest, and so on to the fourth component. The first component (C1) was named “structure” and consisted of the following observed variables that lead to successful conservation partnerships, in order from most highly correlated to least correlated according to PCA factor loadings:

- 1) Clearly defined objectives.
- 2) Clearly defined roles for the partners.
- 3) Effective leadership by those in charge.

- 4) Partners' ability to focus on primary objectives.
- 5) Effective partnership planning/design.
- 6) Clear and consistent communication between partners.
- 7) Changes in roles of partners agreed upon by most involved.

The second component (C2) was named “Personalities” and consisted of the following observed variables, in order from most highly correlated variable to least correlated:

- 1) Personalities of individuals directly involved from other partner(s).
- 2) Personalities of individuals directly involved from zoos/aquariums.

The third component (C3) was named “Process” and consisted of the following observed variables, in order from most highly correlated variable to least correlated:

- 1) Mutually beneficial for partners involved.
- 2) Equal ownership within partnership.
- 3) Consensus decision-making from most involved.

The fourth component (C4) was named “Commitment” and consisted of the following observed variables:

- 1) Commitment from zoo/aquarium staff to the partnership (other than financial).
- 2) Commitment from other partner's staff to the partnership (other than financial).

Table 2.3 illustrates the communalities of the observed variables, showing the proportion of variance explained by the common factor. The higher the communality, the greater the variance explained by the component.

The two observed variables that can be best explained by the components are: “Personalities of individuals directly involved from zoos/aquariums” with a score of 0.877 and “Personalities of individuals directly involved from other partner(s)” with a score of 0.885.

Corresponding Cronbach's Alpha Values for Characteristics of Success

Table 2.4 displays each principal component and its corresponding alpha value, as well as the observed variables that make up the principal components. Structure has a corresponding alpha value of 0.652. Personalities have a corresponding alpha value of 0.934. Process has an alpha value of 0.737. Commitment has a corresponding alpha value of 0.737. The alpha values give the overall reliability of the scale and the inter-item correlations. The higher the alpha value, the more the items in the scale are related to each other and the greater the internal consistency (or repeatability) of the scale as a whole (SPSS, 2003).

Verbal Presentation of Principal Components and their Observed Variables

Table 2.5 presents the four principal components that lead to partnership success and their corresponding observed variables. As noted in the “Principal Components and

Commonalities of Successful Partnerships” section, “structure” accounts for the greatest proportion of variance in the sample, then “personalities,” “process,” and finally “commitment.” The observed variables are still placed in the same positions as they are displayed on the factor loadings, with the highest correlated observed variable first under its corresponding component.

Definitions of Principal Components of Successful Partnerships

Structure was defined as the blue-print or plan of the partnership and its project or projects, inclusive of the design of the organization, the function of the partnership, definition of roles and functions of people involved (including leadership), and the interactions required between the roles (Moosbrunker, 2001).

Personality was defined as emotion, thought, and behavior patterns unique to an individual.

Process was defined as a sequence of events or operations yielding a particular outcome. Process included, but was not limited to: how the group dynamics worked, the individuals interacted, participants communicated, and decisions were made, distinct from their content (Moosbrunker, 2001).

Commitment was defined as seeing to completion any temporal, financial, verbal, and contractual obligation agreed upon during the partnership process. Commitment also includes fulfilling assigned roles within the partnership throughout the duration of the relationship (Table 2.6).

**Memorandums of Understanding (MOUs), Memorandums of Participation (MOPs),
and other legal agreements**

From the literature, I hypothesized that formal agreements such as Memorandums of Understanding (MOUs), Memorandums of Participation (MOPs), and other legal agreements also led to successful conservation partnerships, especially international ones. Thirty-seven percent of telephone interviewees had MOUs, 1% had MOPs, 7% had other legal agreements, and 32% had a combination of some or all of the above. Therefore, a total of 77% of the telephone interview respondents had some kind of formal agreement within their current conservation partnerships (Figure 2).

I also asked the telephone interviewees whether these formal agreements helped them to achieve the objectives of their partnerships. Overwhelmingly 83% of the interviewees said formal agreements did help conservation partnerships achieve their objectives (Figure 3). One interviewee added:

“[t]he act of preparing the MOU seems almost more useful than having the MOU. It allows the partners to establish the scope and nature of a conservation partnership, familiarizes the participants with each collaborator's desired roles and responsibilities, clarifies the overall funding arrangements and the management of data or information that results from the partnership. Forging the agreement establishes and clarifies the conservation partnership and creates a foundation for the actual project work. Linking partnership activities within a federal permit strengthens the agreement to share resources and expenses.”

Other reasons given in support of formal agreements for partnerships were:

- 1) they allow partners to articulate roles, goals, expectations, and financial obligations.
- 2) they confirm commitment to each other and to the partnership.
- 3) they create legal dimensions.

Many of the respondents said that formal agreements help to strengthen international partnerships, as discussed later in the next chapter.

Twelve percent of the respondents did not believe that formal agreements helped their partnerships achieve their objectives. Reasons they gave were:

- 1) they produce a negligible impact on the partnership.
- 2) they are seen as a formality and lead to greater bureaucracy.
- 3) they generate excessive paperwork.

Five percent of the respondents were not sure if the formal agreements helped achieve their conservation partnership's goals.

Characteristics that Inhibit Conservation Partnership Success

In Table 3.1, descriptive analysis was performed to identify the characteristics that inhibited conservation partnership success because in times of crisis, they might not necessarily be the same characteristics that lead to success. Our results indicated that the top five characteristics that inhibited success are almost the same characteristics that lead to success. In order from greatest to least inhibitory, they are: (1) "ineffective leadership

by those in charge” with a mean score of 4.17; (2) “lack of clear, consistent communication between partners” with a mean of 4.00; (3) “unreliable or insufficient sources of funding” yielding a mean of 3.94; (4) “objectives of the partnership were never clearly defined” with a mean of 3.90; (5) “insufficient trust between partners” with a mean score of 3.84.

The leadership theme was still the most critical element of partnership success for both ranking questions. But, according to the order, communication is a slightly larger inhibitor, and trust inhibits partnership success less. More importantly, lack of funding was seen as the third greatest inhibitor to partnership success, but was ranked tenth when it came to the characteristics that led to partnership success.

Again, interviewees were given the opportunity to add their qualitative responses to the question of what characteristics inhibit conservation partnership success (Table 3.2). Respondents’ suggestions were analyzed using the grounded theory method. Two responses appeared most often: (1) lack of governing board support (especially changing leadership values to view conservation as a priority); and (2) lack of qualified individuals (in zoos and aquariums) to fill partnership obligations.

Principal Component Analysis for Characteristics that Inhibit Partnership Success

PCA was conducted on the characteristics that inhibit conservation partnerships, but question 1 made more conceptual sense than the interpretations conducted for question 2. Therefore the PCA data for question 2 was not included in the thesis.

**Objective 2: To identify the benefits and challenges partners face within
conservation partnerships**

Benefits of Conservation Partnerships

The top three benefits of conservation partnerships, in order from greatest to least, were: (1) “Creates potential for future partnerships” with a mean score of 4.19; (2) “Increased pool of expertise” with a mean of 4.18; and (3) “Directly or indirectly educates public and locals about conservation and zoo/aquarium mission” with a mean score of 4.03 (Table 4.1).

Respondents were also asked to rank only the top five benefits of conservation partnerships from their experiences (“1”=Greatest Benefit) (Table 4.2). Because some respondents would rank every benefit a “5” on the previous Likert scaling question, I wanted to make sure respondents were putting thought into which benefits have been most rewarding from their experiences. The top three of these rankings were similar, but in a different order: (1) “Increased pool of expertise” with a mean ranking of 2.33; (2) “Directly or indirectly educates public and locals about conservation and zoo/aquarium mission” with a mean ranking of 2.50; and (3) “Creates potential for future partnerships” with a mean ranking of 2.86.

In Table 4.3, respondents were given the opportunity to add their qualitative responses to the above question. The top three most frequently cited benefits of conservation partnerships, in order from most frequently cited response, are: (1) “Increased support (especially financial, staff, and resources)”; (2) “Creating a larger

impact on conservation (especially through education and consumer actions)”; and (3) “Increased staff exposure and experience to partnerships”.

Principal Components and Communalities of the Benefits of Partnerships

Table 4.4 summarizes the factor loadings received for the benefits of conservation partnerships. The varimax rotated three-factor solution revealed the following principal components, seen as benefits of conservation partnerships: (1) Increased field resources; (2) Shared time and capital; and (3) Increased ingenuity and expertise. Again, the factor loadings explain how highly each of the observed variables correlates with its coinciding factor. The first component (C1) was named “Increased field resources” and consisted of the following observed variables:

- 1) shared field work duties.
- 2) shared field equipment.
- 3) shared supervision duties.

The second component (C2) was named “Shared time and capital” and consisted of the following observed variables:

- 1) increased ability to fundraise.
- 2) more efficient use of staff time.

The third component (C3) was named “Increased ingenuity and expertise” and consisted of:

- 1) increased pool of ideas and innovations.
- 2) increased pool of expertise.

Also displayed in Table 4.4, shared field equipment and shared field work duties have the two largest communalities. Again the higher the communality, the greater the amount of variance explained by the component.

Corresponding Cronbach's Alpha Values for Benefits of Conservation Partnerships

Alphas were also calculated for the three principal components for the benefits of conservation partnerships. "Increased field resources" had an alpha of 0.806, "shared time and capital" had an alpha of 0.934, and "increased ingenuity and expertise" had an alpha of 0.737. Therefore, all items had a relatively high inter-item correlation within each component (Table 4.5).

Verbal Presentation of Principal Components and their Observed Variables

Table 4.6 presents the three principal components seen as benefits of partnerships and their corresponding observed variables. As noted above, "increased field resources" accounts for the greatest proportion of variance in the sample, then "shared time and capital," and "increased ingenuity and expertise." As before, the observed variables are still placed in the same positions as they are displayed on the factor loadings, with the highest correlated observed variable first under its corresponding component.

Challenges of Conservation Partnerships

The top three problems with conservation partnerships, in order, are: (1) “Failure of one partner to keep up its share of the work” with a mean score of 3.68; (2) “Lack of time among staff to devote to partnership” with a mean of 3.58; and (3) “Decision-making without communication involved” had a mean score of 3.51 (Table 5.1).

Each respondent was asked to rank the top five challenges with conservation partnerships (1=greatest challenge) (Table 5.2). The top three challenges, in order, were: (1) “Perception of zoo/aquarium negatively affected because of partner” with a ranking of 2.11; (2) “Lack of time among staff to devote to partnership” with 2.38; and (3) “Failure of one partner to keep up its share of the work with a mean ranking of 2.57. The Likert scaling question “perception of zoo/aquarium negatively affected because of partner” was ranked eleventh out of eleven choices, yet on this ranking question, respondents ranked it as “1”. This is explained by looking at the “Ns” for this ranking question (further explanation can be found in the discussion section).

The top three most frequently suggested challenges of conservation partnerships according to the qualitative data were: (1) “lack of resources (people, time, and money);” (2) “too large of partnership (too many partners involved creates too much complexity);” and (3) “moral and ethical disagreements about how to attain objectives” (Table 5.3).

Principal Components and Communalities for Challenges of Partnerships

PCA type analysis was conducted on the challenges of conservation partnerships, and it revealed 2 principal components: (1) structure and (2) process (Table 5.4).

Structure consisted of the following observed variables:

- 1) conflicts over sharing of duties.
- 2) disagreements over methods of attaining objectives.
- 3) failure of one partner to keep up its share of the work..

Process consisted of the following observed variables:

- 1) communication between partners may require more time.
- 2) difficulty in measuring effectiveness of partnership.
- 3) lack of time among staff to devote to partnership.

Communalities associated with each observed variable were also calculated and “Disagreements over methods of attaining objectives” with 0.735 and “Communication between partners may require more time” with a 0.707, yielded the highest communalities (Table 5.4).

Corresponding Cronbach's Alpha Values for Challenges with

Conservation Partnerships

Cronbach's alphas were also calculated for the two principal components of challenges with conservation partnerships. Table 5.5 also shows the two principal components, each component's corresponding alpha, and the observed variables

associated with each principal component. Structure has an alpha of 0.796 and process has an alpha of 0.714.

Verbal Presentation of Principal Components and their Observed Variables

Table 5.6 presents the two principal components seen as challenges of partnerships and their corresponding observed variables. As noted above, “structure” accounts for the greatest proportion of variance in the sample, then “process”. As before, the observed variables are still placed in the same positions as they are displayed on the factor loadings, with the highest correlated observed variable first under its corresponding component.

Objective 3: To predict the future trends of conservation partnerships between zoos and aquariums, state and federal agencies, and other non-governmental organizations

Future Trends of Conservation Partnerships

This study asked several questions to determine the trend of conservation partnership existence. Figure 4 shows the responses to the question “Is your institution involved in more, about the same number of, or fewer conservation partnerships than 5 years ago?” Eighty percent of the respondents confirmed that they were currently involved in more conservation partnerships than they were 5 years ago. Just 15% said

they were currently involved in the same number of partnerships as 5 years ago, and only 5% said they were currently involved in fewer partnerships. The main reason cited for having fewer conservation partnerships than 5 years ago was that the point person at the partner institution was no longer present (either retired or changed jobs), and the partnership was terminated.

Ninety-four percent of the respondents expect partnerships to increase in the future, 3% expect the number of partnerships to stay the same, and another 3% expect the numbers to decrease (Figure 5).

Figure 6 shows the average number of partnerships each institution currently possesses and with what entities they have partnerships. If the partnership contained more than one organization, I asked them to list only the primary driving organization. On average, surveyed institutions have over four partnerships with NGOs, more than one partnership with a U.S. federal wildlife resource agency, more than one partnership with a U.S. state wildlife resource agency, over 5 with zoos and aquariums, over one with private industry, more than 2 with universities, and almost one with the “other” partners. In the “other” category, most respondents added that they had a partnership with another country.

Objective 4: To provide meaningful suggestions aiding the formation and maintenance of successful partnerships in terms of research, education, and conservation

Future Changes in Conservation Partnerships

The top three changes that can be made to improve conservation partnerships, with number one being the most effective change, are: (1) “Training on how to develop effective collaborations” with a mean score of 3.63; (2) “Developing effective evaluation criteria for partnerships” with a mean of 3.51; and (3) “Improving communication resources (e-mail, websites, etc.)” had a mean score of 3.45 (Table 6.1).

Each respondent was also asked to rank the top five changes that could be made to facilitate conservation partnerships. On a scale of 1-5 (1=Most effective change) and using the same choices, they ranked: (1) “improving communication resources;” (2) “training on how to develop effective collaborations;” and (3) “interpersonal training for individuals involved in partnerships,” as the top three most effective changes (Table 6.2).

Again, each respondent was asked if they had a qualitative option to add to the above question (Table 6.3). The top three suggestions respondents made were in the following order: (1) “creating a printed or online national/international database where partners can identify the project, partners involved, lead organization, expertise needed for the partnership, and the contact information for interested partners;” (2) “building one-on-one relationships (having a reliable contact person);” and (3) “getting involved in more local conservation efforts (city, state, region, etc.).”

CHAPTER IV

DISCUSSION

Findings

The results of this study revealed five major findings.

Finding #1: Successful Characteristics of Conservation Partnerships

Through Likert scale ranking, the top three characteristics of successful conservation partnerships were found to be, in order beginning with most successful: effective leadership, trust between partners, and clear and consistent communication. In addition, respondents qualitatively noted that other avenues to success are building sustainability or capacity building in local communities, gaining governing board support for conservation, involving qualified individuals with strong interpersonal skills, forming trusting, personal relationships with partners, and gaining support from zoo/aquarium local community. Using PCA, successful characteristics can be categorized as: structure, personalities, process, and commitment.

Likert Scale Rankings

When ranked on a Likert scale, the top three characteristics of conservation partnerships, in order from most important, are: (1) effective leadership by those in

charge; (2) trust between partners; (3) clear and consistent communication between partners.

Effective Leadership

Respondents agreed that the most important characteristic of a successful conservation partnership is “effective leadership”. But what comprises effective leadership? How should a conservation partnership be led? Why is leadership so important? To answer these questions, I searched the literature to determine what constitutes an effective leader.

The key responsibility of an effective leader is to create a shared reality between group members focusing on the common goal(s) of the partnership, while maintaining a democratic leadership style. Good leadership produces high morale which manifests itself as increased effort, commitment, and productivity (Perrow, 1986). A successful partnership leader should be active in planning, communicating information, scheduling activities, and being open to new ideas. The leader should also consider the feelings of peers, have respect for their mutual ideas, and promote trust by establishing good rapport with all stakeholders and with consistent, two-way communication (Perrow, 1986; Scott, 1981).

FWS and AZA SSP coordinators from the Moosbrucker and Kleiman (2001) study agreed that the three most important qualities of a leader were: (1) interpersonal skills; (2) leadership skills; and (3) being a team player. Specifically leadership skills were explained as vision, initiative, seeing the big picture, strategy, clear goals, prioritizing hard decisions, conducting meetings well, and delegation (Moosbrucker and Kleiman, 2001). Partnership leaders should also be able (1) “to convince staff, board

members, and donors that a partnership is necessary;" (2) "to focus [the] coalition's efforts on areas of common interest and to move the agenda forward beyond the goals of the individual institution;" (3) to "allow all sides and views to be heard;" (4) to ensure that groups are equitably engaged; (5) to provide "recognition of accomplishments to each member;" and (6) finally to "know when it is time to dissolve a coalition or to limit its size" (Dietz et al., 2004).

A more complicated study of leadership was initiated by Fred Fiedler's "contingency" theory when he demonstrated that the "climate" of the group situation decides the most effective leadership course. If within a conservation partnership, the group situation is either highly favorable or highly unfavorable for the leader, a task-oriented leader does best. If the climate is in-between, the leader skilled in interpersonal relations is most effective. A favorable situation was defined as "the extent to which relationships between the leader and the member are good, tasks can be easily programmed, and the position of the leader is clearly established" (Perrow, 1986).

With the variety of leadership qualities stated above, no wonder it is difficult to recruit effective conservation leaders. In most situations, no matter if the partnerships are led by democratic means, it is ultimately up to the leader to make the final decisions. Trust and confidence in the leader must be legitimate to reduce conflict and produce consensus decision-making leading to partnership success. As seen in the following paragraphs (*Trust* and *Communication*), much of the success of conservation ultimately depends on the leader and how he/she establishes partnership structure and processes.

Trust

Trust was ranked as the second most important characteristic of successful conservation partnerships. Partnerships are formed so that organizations can cross institutional and cultural boundaries and combine their resources for the common goal of conservation. This idea implies the need for strong interpersonal dynamics between partners and trust is central to the idea of building a strong structure and process.

Lewicki and Bunker (1996) define trust as “a state involving confident positive expectations about another’s motives with respect to oneself in situations entailing risk” (p. 117). Yet trust is seen, not as a static definition, but as a dynamic phenomenon that takes different shapes in varying stages of a relationship, which is why trust is an incredibly difficult concept to explore. Three types of trust are generally described: (1) deterrence-based trust; (2) knowledge-based trust; and (3) identification-based trust. Deterrence-based trust is built on consistency of behavior—that people will do what they say they will do. Knowledge-based trust is grounded in behavioral predictability—when one has enough information about individuals to understand them and accurately predict their behavior. Identification-based trust is based on empathy of other’s desires and intentions. Trust is built in this form when one person takes on the emotional values of the other person because of a connection between the individuals and thus can act for the other person (Lewicki and Bunker, 1996).

Trust in every form changes and evolves from deterrence-base, to knowledge-based, and finally to identification-based trust. Each subsequent level of trust that is gained creates the foundation for the next level of trust to be built. Movement from

stage to stage may require a shift in the prevailing values and beliefs of partners (Lewicki and Bunker, 1996).

During the deterrence-based phase, trust must be built from nothing into a strong foundation, and optimistically should occur frequently within conservation partnerships. Thus at the out-set of all partnerships, it is extremely important to create deterrence-based trust. Within the stage of knowledge-based trust, trust is violated when it is perceived that the individual's actions were freely chosen. At this point cognitive and emotional reassessments of the partner are likely to occur to incorporate new information and redefine the individual(s) in light of the event. Violations of trust within the stage of identification-based trust are actions that go against our own commonly shared beliefs and tap into the moral values that define the relationship (Lewicki and Bunker, 1996). It is for these reasons that building and maintaining trust is so vitally important to the success of a partnership.

According to interviewees, lack of face-time, cultural differences, and absence of mutual interest can prevent identification-based trust from occurring. This can be especially true when dealing with international partnerships, but it is something to strive for in each relationship.

Trust is not easily secured or maintained. Trust-building is a process of understanding and respecting cultures, beliefs, ideals, and boundaries—critical elements of a successful conservation partnership are more far-reaching than we can imagine. Trust can significantly affect all aspects of partnership processes, decision-making, communication, equal ownership, and many others.

Communication

Clear and consistent communication between partners was ranked as the third most important characteristic of partnership success. Every dimension of a partnership requires a transfer of information from one individual to another, which authenticates the importance of clear and consistent lines of communication. The ability to communicate with all partners is also important in building and keeping trust in a partnership.

Dimensions of communication, such as its candor, frequency, and scope are salient elements. Transparency of communication is vital to partnership success and evolves by creating trust. Consistency of communication leads to partnership success by deterring misunderstandings. Keeping all partners informed improves success, especially in circumstances when (1) there are several partners; (2) there are language barriers; or (3) there is a lack of supporting technology.

Finally, the scope of communication is also a crucial aspect of the partnership. The sequence of communication and designation of key partners is important in partnership design. Do we involve all partners, funding sources, locals, governments, etc. in the communication process? This communication scope should be established during the planning phase of the partnership, but certainly be updated throughout its process.

Qualitative Suggestions given by Respondents

Capacity Building

Respondents also suggested that long-term, successful conservation comes about through local capacity building efforts. Capacity building in local communities is

defined as a “potential to perform—ability for locals to successfully apply skills and resources to accomplish their goals” (Horton et al., 2003, p.37). Its goal is to develop human skill and improve social infrastructure within a community, which can lead to a greater understanding of the importance of species and habitats. Capacity building is an on-going process, not just a one-time event. It must be integrated into the structure and process of the conservation partnership from the beginning. Answering questions like: “Who is our audience?,” “What is their knowledge-base?,” “How can we create sustainability through education?,” are a few questions that need to be taken into consideration when initiating capacity building. It is also important to use existing local capacity and resources, taking advantage of livelihood strategies actually employed by local communities (Horton et al., 2003). To create a sustainable environment, the community and local governments must trust in the goals and vision of the partnership. Buy-in from local governments and communities is essential in the capacity building effort and the sustainability of the partnership and project at hand. Therefore, trust must be gained, communication must be clear, and the leader(s) of the partnership must be able to create a shared vision and mutual respect between partners and locals/governments.

Governing Board Support

Gaining governing board support for conservation efforts was also seen by respondents as a characteristic that helps a partnership succeed. Conservation and zoos and aquariums have not been associated with each other until the last two decades. It is a paradigm shift that must be carefully balanced with the changing society to ensure that

zoos and aquariums maintain their legitimacy (Kisling, 2001). That is why in the eyes of many zoo/aquarium board members, revenue is still seen as a top priority because they operate with money brought in from attendees and through government support, approved by voters. Although some zoo boards may understand the importance of the zoo/aquarium conservation mission, some boards still do not put conservation ahead of the financial bottom line, according to telephone interviewees. What many do not realize is that if such species and habitats no longer exist, then the legitimacy of the zoo/aquarium is no longer valid either. Zoos/Aquariums are ever-evolving organizations whose objectives are influenced by the needs and priorities of the society in which they reside (Kisling, 2001). While often a challenge, conservationists must create buy-in from zoo boards and leadership (as well as local communities who vote on taxes and bonds) in some way, whether that be an emotional plea or scientific evidence to necessitate zoo/aquarium involvement in conservation. Boards must be convinced that the scientific evidence reveals now more than ever, critical conservation issues, such as the decline of indigenous species from habitat loss and fragmentation, are at the forefront of society's concerns (Chapin III et al., 2000).

Qualified Personnel

One telephone interview respondent suggested involving a neutral partner, one who does not have a personal agenda or does not depend on the results of the project for continued funding. The respondents suggested that adding a zoo or aquarium to a partnership with a federal or state agency, NGO, or university can often add this neutral balance needed for success.

Involving qualified individuals with strong interpersonal skills can also contribute to the success of conservation partnerships due to the prevalent nature of social interactions among individuals coming from different institutional environments and cultural backgrounds. People who have the technical expertise, as well as strong social skills can be extremely valuable to partnership success. In this way, team members can form personal relationships with other partners, gaining trust and creating a shared sense of reality, making the partnership process run smoother.

Zoo/Aquarium Community Support

Local support from the zoo/aquarium community can never be underestimated when leading to successful conservation partnerships. Many times community support is dictated by their environmental values, which in turn can influence the goals of the partnership and the degree of community support for the partnership (Scott, 1981). Financial, political, and social support from the public can determine whether a partnership continues.

Principal Components

Through PCA, I was able to categorize successful components of conservation partnerships into four elements: structure, personalities, process, and commitment.

Structure

Structure is defined as the planning stage of the partnership and its project(s). Structure involves designing the organization and function of the partnership, articulating roles, expectations, functions and lines of communication for each individual (including leadership), and defining the interactions required between the roles (Moosbrucker and Kleiman, 2001). Understanding and accounting for social, political, economic instability, as well as language barriers and cultural differences in international partnerships is decisively important. Structure includes the presence of governing board and leadership support, plus any local government support necessary for partnership/project implementation and identification of necessary technology and infrastructure.

How to Create Structure--Partners first must determine the function and goals of the partnership. Its purpose must be clear to all stakeholders before proceeding on to other structural elements. With its purpose in mind, partners can choose which experts to involve in the partnership by asking the following questions: Who will be the driving organization? What expertise is needed? Is there a neutral balance among chosen partners? At the first meeting, the group should appoint a leader, determine the lines and frequency of communication between all parties, roles and responsibilities of each partner, methods of operation plus long- and short-term evaluation strategies. Timelines and secure funding sources for support along the way are also crucial to proper functioning. Structure must also be designed to appropriately integrate expertise and experience level of the partners involved (Morgan, 1997). With expertise and experience come power and autonomy that can, therefore, significantly shape behavioral structure. Complications will ensue if these structural components are not taken into

consideration and articulated effectively to each party. Partners must create and maintain a detailed enough structure where those within that partnership possess a shared sense of reality (Morgan, 1997). Well-defined yet flexible structure creates smooth processes later in the relationship. Therefore the planning stage is critical to success and great care should be taken to anticipate potential problems prior to implementation.

Leadership--Leaders influence structure, which in turn, impacts the success of the partnership. Leaders must set boundaries and norms within the partnership that may differ from institutional boundaries and norms that partners are traditionally accustomed. The leader must establish clear purpose, goals, and methods for the partnership, effectively implement a feedback loop (evaluation) to identify potential problems, and properly motivate and team-build at all times.

Technology--Determining the availability and quality of technology is necessary in partnership planning. Few partnerships create their own technology, rather they are imported from the environment in the form of mechanical equipment, such as GPS and telemetry or through local experts and computers and programs (Scott, 1981). Processes of trust and communication will be affected positively or negatively as a function of technology.

Formal agreements---The majority of respondents believe formal agreements allow for articulation of goals, roles, expectations, and financial obligations and establish all salient elements of structure (Figure 2 & 3). Especially in international partnerships, formal agreements confirm commitment to the partnership. This confirmation can be vitally important since international partners get less face-time and consistency of communication might be intermittent depending on local technology.

“Formalization may be viewed as an attempt to make behavior more predictable by standardizing and regulating it. This, in turn, permits ‘stable expectations to be formed by each member of the group as to the behavior of the other members under specified conditions. Such stable expectations are an essential precondition to a rational consideration of the consequences of action in a social group’” (Scott, 1981).

Formal agreements establish a basis for trust and, in some cases, legal dimension within the partnership. For example, Jersey Wildlife Preservation Trust (JWPT) has become a signatory to formal agreements with international governments like Brazil, Indonesia, Madagascar, Mauritius, Morocco, Spain, St. Lucia, and St. Vincent (Mallinson, 1991 (conference held in 1989)) and have seen great success with many of their partnerships.

Personalities

Personality is another category that is viewed as important to the success of conservation partnerships. Personalities are emotions, thoughts, and behavior patterns unique to an individual. Personalities greatly affect all social interactions internal and external of the partnership. When combining several individuals, each with different institutional and cultural value systems, each with a mutually realized, but sometimes not identical goal, conflicts are sure to arise. Personality-based conflicts are difficult to overcome, but can be minimized with good leadership, defined communication avenues, clearly defined structure, and flexible partnership process. Some respondents explained

that personalities, depending on their influence, can make or break the partnership. It is for this reason that qualified individuals with strong interpersonal skills are truly crucial.

Process

Process is another category vital to partnership success. Process is a sequence of events or operations yielding a particular outcome. Process includes, but is not limited to how the group dynamics work, how the individuals interact, how participants communicate, and how decisions are made, distinct from the content of all the former (Moosbrucker and Kleiman, 2001). Partnerships are open systems with constantly changing, dynamic processes. Therefore, flexibility must be a part of the process. Partners must be prepared for setbacks and challenges that lead to changes in structure and process.

How to Create Effective Processes--Critical processes in partnerships are: gaining governing board support, capacity building within local communities (Mallinson, 1991 (conference held in 1989)), creating a decision-making process (Clark and Brunner, 2002), maintaining equal ownership within the partnership (balancing power), ensuring a mutually beneficial partnership for all, designing a communication process, gaining local community support, and establishing an effective internal and external evaluation processes (Kleiman et al., 2000) throughout the life of the partnership.

Securing and maintaining governing board support should be a priority because without institutional backing, the partnership lacks a solid foundation. Convincing board

members can be done through sound, scientific evidence and honest, compelling communication.

All parties must adhere to the consistency and quality of communication anticipated by other members. Reports, e-mails, and internal evaluations distributed to all stakeholders are ways to keep the communication process functioning successfully.

The decision-making process must be established and enforced from the beginning of a partnership, especially knowing there are partners coming from varying institutional backgrounds. Partners need to discuss the rules and boundaries of processes such as conflict resolution, daily activities, and meeting discussions. Decision-making should be an open, flexible, and fair means of settling disputes and meeting the common goal (Clark and Brunner, 2002).

Leadership must encourage long-term and short-term evaluation of biological and social aspects of the partnership. Evaluation should be advocated and integrated throughout the life of the partnership. Establishing guidelines and consistency of internal evaluation must occur. Funding external peer evaluation on a less regular basis is also important to maintaining proper feedback within the partnership.

Structure and process go hand in hand and work simultaneously to create successful conservation partnerships. Gaining board support for the partnership is a process that must be put into motion at the outset, but it is also an on-going process of maintaining legitimacy in the eyes of the governing board. The foundation of the partnership can be weak without securing this support in the aforementioned ways.

Each individual within the partnership must maintain a sense of ownership to preserve smooth process. The delicate balance of power can be protected by including all sides in processes, such as decision-making, goal-setting, and debating. Consensus

goal-setting will also confirm that all parties are receiving mutual benefit from the partnership.

Commitment

Commitment is the final category. Commitment is defined as seeing to completion any temporal, financial, verbal, contractual obligations, in conjunction with fulfilling assigned roles within the partnership. True, commitment is the dedication of time, money, and resources to the partnership. But commitment is more than a definition. It lies in the core of the individuals who make up the partnership. It comes from the values and beliefs of individuals and is many times manifest through the passion of an individual toward the partnership. One telephone interview respondent added that one of the benefits of partnerships is that they intrinsically motivate staff. Through partnerships and *in situ* conservation efforts, commitment is redefined. When commitment is present, strong lines of communication may already be established and trust generally follows. Reciprocity is also seen with commitment. Knowing other partners share similar goals, values, and commitment, other members of the partnership may also feel obligated to give that same level of commitment.

“[V]irtually none of the conservation actions and proposals that money can buy have any long-term value, unless people are committed to seeing them through. ‘It is individual effort that stimulates another person to make an effort, and another and another, until finally the sectors of society to which they belong also make the effort—Noah’s army is led, not by

generals, but by foot soldiers in the field” (Durrell, 1986)
(Mallinson, 1991).

Finding #2: Benefits of Conservation Partnerships

Benefits of conservation partnerships can be grouped into the following categories using PCA: increased field resources, shared time and capital, and increased ingenuity and expertise. Along with these categories, “creates potential for future partnerships,” “increases pool of expertise,” and “directly or indirectly educates public and locals about conservation and zoo/aquarium mission” are the top three benefits of conservation partnerships according to their Likert rankings.

Principal Components

Increased Field Resources

Many times field projects lack the most basic of resources. A field researcher may have a Moped, but no money for gasoline. A field researcher might not have a GPS unit to assist his/her project on Neotropical migrants. It is for these reasons that forming and maintaining partnerships is so vital. Shared field work duties, shared field equipment, and shared supervision duties are all part of the benefits of partnerships.

Shared Time and Capital

Similarly, shared time and capital is a chief motivator for creating partnerships. Smaller institutions may not have the staff time, expertise, or financial capacity to design and implement conservation projects. Combining efforts and the financial contributions can make the partnership and project a reality.

Increased Ingenuity and Expertise

Lastly, increased ingenuity and expertise is the third major benefit of conservation partnerships. Pooling experts from across the zoo and aquarium world or even around the world can greatly enhance brain-storming, problem-solving, and decision-making capabilities. All these are true, especially considering that such qualified experts have, not only technical competence, but practical *in situ* and *ex situ* experience. Also, involving smaller zoos or new partners in a partnership can add increased ingenuity to the partnership process. New team members can have imaginative suggestions and can add a diverse “flavor” to the mix.

Likert Scale Ranking

Although these three categories shed light on a majority of the benefits of partnerships, I did not see them as totally representative of all benefits gained from partnering. According to the Likert scale ranking question about benefits “creating potential for future partnerships,” “increasing the pool of expertise,” and “directly or indirectly educating the public and locals about conservation and zoo/aquarium mission” were seen as the top three benefits of partnerships.

Creating Potential for Future Partnerships

I have already discussed the pooled expertise, but creating potential for future partnerships is a significant benefit. Although the responsibility of conservation in the world today is far-reaching, many conservation organizations are well-known and highly visible in a number of partnerships and projects (e.g. Wildlife Conservation Society (WCS), Conservation International (CI), or The Nature Conservancy (TNC)). Partnerships can be an integral way to establish strong relationships with other influential conservation organizations. Partnering can be a way to get a foot in the door to work on other projects with reputable partners, especially for smaller institutions. Networking through partnerships is a strategic way to produce a consistently greater impact on conservation and learn through the experience.

Directly or Indirectly Educating Public and Locals

More often than not, one goal of conservation partnerships is to educate. Educating general zoo/aquarium public, as well as indigenous people, is often a matter of changing deeply ingrained values and systems of belief to encourage behavioral changes that preserve wildlife and its habitat. Education for the local public and indigenous people must be a priority. Michael Klemens, the director of the Metropolitan Conservation Alliance of the WCS recognized that, “[c]onservation won’t work unless we engage local communities. We can’t ask people in other countries to conserve their natural resources unless we show them that we are conserving natural resources in our own country. We need to be better stewards of our wildlife and natural habitats at the community level” (Cohn, 2000). Better stewardship is learned through

education and through publicizing conservation partnerships and the importance of their impact throughout international, national, and local environments.

Finding #3: Challenges of Conservation Partnerships

Again using PCA, challenges of conservation partnerships can also be grouped into structure and process. “Failure of one partner to keep up its share of the work,” “lack of time among staff to devote to partnership,” and “decision-making without communication between partners” were seen as the top three challenges of conservation partnerships.

Principal Components

Structure

Challenges with structure were identified as “conflicts over sharing of duties,” “disagreements over methods of attaining objectives,” and “failure of one partner to keep up its share of the work.” Each of these challenges implies weaknesses in the structural dimensions of the partnership. Again, clarifying roles, goals, and methods of attaining partnership objectives will deter such challenges.

Process

Challenges with process were identified as “communication between partners may require more time,” “difficulty in measuring effectiveness of partnership,” and “lack of time among staff to devote to partnership.” Each of these challenges implies

process inefficiencies. They suggest unrealistic estimation of time and devotion by each party at the outset of the partnership.

Likert Scale Ranking

Specifically when ranked on a Likert scale, “failure of one partner to keep up its share of the work,” “lack of time among staff to devote to partnership,” and “decision-making without communication” between partners were seen as the top three challenges of partnerships. Interestingly when respondents were asked to rank the top five problems of partnerships in non-Likert format, “perception of zoo and aquarium staff negatively affected by partner” was ranked as the number one challenge, but only ranked this high by 18 respondents. This finding means that there have been few interviewees who have experienced “perception” as a problem, but those who have experienced it, consider it to be the most significant challenge within their partnership experience. “Perception” means that the integrity or character of the zoo or aquarium has been compromised due to the reputation of a zoo or aquarium partner. For example, if a zoo was to partner with an oil company (who may be known for polluting public water sources) on a project involving river otters, public perception of the zoo might be damaged because of this partnership.

Finding #4: Improvements that can be made to Current Conservation Partnerships

Improvements that can be made to current conservation partnerships are “training on how to develop effective collaborations,” “developing effective evaluation criteria for

partnerships,” “improved communication resources (e-mail, websites, etc.).”

Respondents also added that a database of current partnerships, their scope, contact information, and needed expertise would be extremely beneficial to prospective partners. Also building stronger one-on-one relationships and initiating more local conservation efforts are much needed improvements.

Likert Scale Ranking

Train Partners to Develop Effective Collaborations

Many AZA accredited institutions have the rare advantage of a close network of institutions, similar enough in structure and function that they are able to share effective methods and learning experiences with each other to create more successful partnerships. AZA offers training courses run by experienced professionals who share their experiences of what has worked for them. Communicating partnership experiences may not be the ultimate key to success, but can certainly allow less experienced partners to gain insight into what has worked.

AZA's *Field Conservation Resource Guide* assists by specifically describing successful partnership experiences, effective education practices and local training, sociocultural issues that might arise in the field, and techniques for fund-raising and public relations. As of 2003, the Zoological Society of London Group (ZSL) was compiling a large, cross-referenced database where organizations can search and learn from a variety of successful conservation projects (Canonica et al., 2003).

Develop Effective Evaluation Criteria

Evaluation of partnerships and programs has been described by one respondent as “the North Star that everyone is striving for, but cannot seem to reach.” It seems that proper and useful evaluation of partnerships and programs is difficult for some institutions. But there is useful literature and research on evaluation of conservation programs (Kleiman et al., 2000; Miller et al., 2004; Miller et al., 1994; Rocha and Jacobson, 1998). The ZSL is creating a measurement tool by developing Key Performance Indicators (KPIs) to allow zoos and aquariums to evaluate their *ex situ* and *in situ* conservation programs and relay their relative successes and impacts to the public (Canonico et al., 2003).

Improve Communication Resources

Improving communication resources might entail improving website and direct e-mail contact. Qualitatively, respondents added that zoo/aquarium websites should allow easier access to employee e-mails. Others also added that creating a comprehensive database describing characteristics of on-going partnerships, such as (1) who is involved; (2) contacts names; (3) expertise/equipment needed; and (4) objectives, would be invaluable, especially for smaller zoos with fewer resources. Similarly a database of potential funding sources was also suggested (Table 6.3).

Qualitative Responses

Improve One-on-One Relationships

Respondents also recommended that improvements be made with interpersonal relations. They said building strong one-on-one relationships has been overlooked as a key to successful conservation partnerships and needs to be improved. Again, the strong structural foundation is built by trust and communication. Following this same logic, some respondents mentioned that it has been helpful for them to have one contact person at the partnership with whom they build a strong working relationship. Unfortunately those respondents also discovered that when their point person left that particular position, the partnership became strained, sometimes to the point of complete disintegration.

Form more Local Partnerships

Finally, forming more local partnerships was suggested as another improvement. More local partnerships could help in a variety of ways for the local community. They would allow for more publicity of partnerships and allow the community to see the benefits and the global impacts of conservation through a simple, localized effort. More local partnerships allow zoos and aquariums to give back to the local communities and species, and make it easier for the public to connect their conservation actions with the zoo and aquarium collection.

Finding #5: Trends of Conservation Partnerships

Trends from my study show a significant increase in the number of partnerships from five years ago. They predict a continued increase in the number of partnerships that will be formed in the future between AZA and outside organizations, reemphasizing the importance of partnerships to the future of endangered species recovery by all institutions.

From published literature and this research, there is an overwhelming consensus that the number and scope of conservation partnerships (*in situ* and *ex situ*) is increasing substantially and will likely continue to increase (Clark and Brunner, 2002; Cohn, 2000; Harrelson et al., 1998). Alliance building with participants sharing similar values, goals, and perspectives reflects a crucial reality. Entities are realizing the status of our imperiled biodiversity and have the sense of urgency and cooperation needed to preserve it. As Michael Hutchins, former Director of AZA's Conservation and Science Department explained, "If you asked what zoos and aquariums were doing for conservation 10 years ago, everyone would have said captive breeding for reintroduction. But zoo [and aquarium] leaders are now realizing that captive breeding is not enough" (Praded, 2002, p.27).

A greater number of zoos and aquariums are also realizing the need for *in situ* recovery efforts. Field conservation work is increasingly common at AZA accredited zoos and aquariums establishing their presence in 86 countries with 2,230 conservation and research projects. Roger Williams Park Zoo in Rhode Island is just one small-size zoo, with the invaluable assistance of many other zoos, that has established conservation areas to preserve species, creating a 50,000-acre reserve in Papua New Guinea to protect the threatened Matschie's tree kangaroo (*Dendrolagus matschiei*) (Praded, 2002). With

the cooperation of several near-by landowners, prime forestland has been set aside for the kangaroo and landowners have agreed not to hunt this species for at least five years. Lisa Dabek, former Director of Conservation and Science at the Roger Williams Park Zoo (now with the Woodland Park Zoo in Washington) explained that as of 2002 there was a “core group of about 20-25 zoos at the forefront of conservation efforts.” But she insists that “[m]ore will follow over time.” Hutchins and Terry Maple, former Director of Zoo Atlanta, insist that if zoos and aquariums create a multidisciplinary approach and inspire a new type of financial contributor, then zoos and aquariums may become one of the world’s leading forces in conservation (Praded, 2002).

We also see a trend in zoos and aquariums from a species-based approach to conservation to a more holistic approach to conservation now (Harrelson et al., 1998). For this habitat-based approach to be effective, partnerships are inevitable and certain to increase.

Implications

The results of this study provide several implications and recommendations for improving conservation partnership success. This study is the largest of its kind regarding conservation partnerships in the zoo and aquarium world. The results and recommendations of this study can be applied to a wider audience than previous studies of similar context. The following recommendations will lead to a better understanding of partnership interactions and organization as a whole, while fostering the desire to form more partnerships. There is no single answer for forming and maintaining partnerships. Partnerships are dynamic phenomena that require time, dedication, and

flexibility to help them succeed. Through detailed research, this research provides the reader with recommendations taken from peers and experts in the field of conservation.

Most conservationists are biological scientists who are highly skilled in the area of technical expertise of species and habitats, but are not as much in the area of human relations (Miller et al., 1994). Yet every partnership, recovery program, or conservation effort requires the use of personal interaction, decision-making, consensus-building, and many other elements crucial to human relationships. There is a vital need for zoo and aquarium experts to gain stronger interpersonal skills, a greater understanding of organizational theory, and the knowledge to apply these skills in conservation partnerships.

Although there are many benefits of conservation partnerships, there are nonetheless challenges that may impede partnering. Creating this multidisciplinary approach, also suggested by other authors (Dietz et al., 2004; Moosbrucker and Kleiman, 2001), will assist partners in identifying and correcting organizational problems, not simply their symptoms.

Recommendations

Recommendations for establishing successful conservation partnerships include:

1) Improve structural organization of partnerships—the integral foundation of conservation partnerships is accurate verification of need for involvement. Some respondents added that biologists from their institutions establish dialogue with a variety

of potential partners and then visit the project area to assess community needs and determine if there is a need for the partnership to be established.

Organizational Structure

Critical elements to structure are identifying goals (long-term and short-term), roles, responsibilities, expectations, lines of communication, financial obligations of each party, integrated evaluation procedures, and a partnership timeline. A democratic, autonomous, flexible structure seems to work most effectively with conservation partnerships. Because partnerships are unpredictable and highly dynamic, structure and leadership must be flexible enough to account for changes in methods and process.

Communication Structure

Lines, hierarchy, and scope of communication must be established, and the roles and purpose of the dialogue must also be recognized because conflict can arise between participants with concerns and methods of operation that are too disparate from one another. When the foundation of communication is strong, all partners know the objectives and share a sense of responsibility and ownership that evokes a shared sense of commitment.

Recruitment of Partnership Personnel

Identifying strong, effective leadership is critical and will also dictate the structure of the partnership. One of the primary responsibilities of the leader is establishing a sense of shared reality and value for all partners. In this way, boundaries

can be established and guidelines will be respected and adhered to throughout the partnership.

Involving qualified individuals with strong interpersonal skills is vital to the partnership. All partnerships involve human dimensions, cooperation, and coalition which cannot be successful if partners become contentious.

I also recommend identifying at least one contact person in each organization who is organized, possesses excellent communication skills, and is trustworthy, to champion partnership efforts. Many respondents saw this as a decisive component to partnership success.

2) Improvements in Conservation Partnership Process—because partnerships are so complex, there are several processes involved. Processes such as consensus-building, decision-making, communication, trust-building, implementation of evaluation and capacity building are just a few that are important in the efficient functioning of a partnership.

The Trust-building and Communication Processes

To enhance other processes, I recommend that strong, personal relationships be established with all stakeholders. These relationships must begin with trust-building. Trust is fostered and maintained through transparency and consistency in communication. When the communication process is effective, fewer decision-making and ownership issues arise. Partners must also be prepared to talk and listen. Partnerships are built on mutual understanding, values, and purpose and are strained if there is too much one-sided talking and not enough reciprocal listening. Ultimately,

mutual understanding and communication create smoother consensus-building processes.

The Capacity-building Process

Another fundamental element of conservation partnerships is capacity building in local communities. Promoting species preservation and habitat-sustaining efforts is a monumental task at any level. Partners must first foster advocacy for the partnership within the local community so values and behaviors can change. The partnership's participatory process must also be integrated at every level. To promote legitimacy and allegiance, local communities and governments must feel a shared ownership.

The Integrated Evaluation Process

Short-term and long-term evaluation of partnerships and projects is vital. Partners must identify what they wish to measure and then how to apply those recommendations. They must also determine if what they are measuring effectively impacts the success of the partnership. This research simply inquired about the need for evaluation, while Kleiman et al. (2000) made specific suggestions for evaluating both, biologically and socially. For example, they suggest "external peer reviews of long-term complex conservation programs every five years supported by more frequent (annual) internal reviews" (Kleiman et al., 2000). Kleiman et al. (2000) believe an important aspect is having a qualified leader with "considerable expertise to organize the format and oversee the review process itself." Also, it is necessary to gain agreement from all stakeholders of "the goals and objectives of the conservation program, what is to be

evaluated, and the criteria for defining success. Finally, the best evaluations are inclusive and involve all participants and stakeholders” (Kleiman et al., 2000).

3) Future Improvements for Conservation Partnerships

Create a Database of Partnerships

Find ways to incorporate more small- and medium-size zoos into conservation partnerships. Zoos and aquariums with greater resources are more likely to become involved in partnerships.

Therefore, I recommend creating an online, cross-referenced database that includes active partnerships and their following components: each partnership’s goals/objectives/scope, names and affiliations of partners involved, expertise needed, and contact information for the partnership. This database would allow prospective partners an opportunity to become involved, network, and experience work outside of their institution. AZA has what is called *AZA in Action* that compiles a list similar with what is suggested.

Discuss Partnership Experiences

Sharing personal experiences of conservation partnership success and hardships assists other institutions in their journey through the conservation partnership “experiment.” AZA institutions can do this through casual networking or enrolling in AZA classes that teach how to build successful conservation partnerships. For example

in my interviews, a respondent added that about twice a month his institution conducts regional conference calls/meetings with about 20-30 different conservationists discussing their work with partnerships and projects. Every call begins with a moderator explaining a brief agenda. They discuss conservation issues (e.g. a bear project) and have the potential to form new partnerships with other participants. The conference call lasts no more than one hour, and participants can add comments at will and can hang up when necessary. This type of experience-sharing is a creative way to foster long-distance communication with peers and create potential for future partnerships.

Emphasize Local Partnerships

Lastly, forming international conservation partnerships is certainly a worthwhile venture, but creating local partnerships within community, state, and regional areas can be just as rewarding and necessary. There are a variety of species and habitats in our own backyards that need our help. In the U.S., species such as the black-footed ferret (*Mustela nigripes*) and Attwater's greater prairie chicken (*Tympanuchus cupido attwateri*) are considered threatened or endangered, and many more species are likely to become listed in the future. Forming local partnerships also allows the public to "learn by doing." Helping conserve species and habitats creates an intrinsic value for nature and has the ability to alter behavior. Local conservation efforts allow the public to make the connection between the zoo/aquarium collection and the importance of conservation efforts, leading to a greater amount of buy-in from the community.

Conclusion

The number of conservation partnerships is certain to increase due to the imperiled status of the earth's biota. With the trend in conservation leading to more holistic approaches to conservation and more field-based efforts, partnerships are essential to keep pace with degradation of habitats and loss of species locally, nationally, and globally. To ensure a functioning ecosystem for future generations, organizations must cross institutional boundaries, pool their resources, and focus their efforts on recovering the only planet we know. To do this effectively, it is imperative that conservationists come to know more about what creates highly stable, efficient partnerships. Conservation partnerships are not only a culmination of scientific experts, but a test in interpersonal relations that must be understood for the proper functioning of the human system. To avoid serious errors, particular attention must be paid to partnership structure, process, and human dynamics. All partnerships are experiments in progress, dynamic systems, constantly changing environments whose participants must evolve to succeed. This research is in no way asserting that there is one recipe for partnership success. It was undertaken in the hopes that such information can provide those already in conservation partnerships and others considering partnership involvement, recommendations to contemplate before or during their relationships. With greater knowledge of and experience with the conservation partnership process, we might collectively achieve the greater goal of preserving biodiversity and a self-sustaining ecosystem now and for generations to come.

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Variable	Mean	Standard Deviation	Minimum	Maximum	N^{***}
<i>Characteristics of Conservation Partnership Success</i>					
1. Effective leadership by those in charge	4.57	0.643	3	5	74
2. Trust between partners	4.52	0.777	2	5	75
3. Clear and consistent communication between partners	4.52	0.665	2	5	75
4. Clearly defined objectives	4.49	0.623	3	5	75
5. Clearly defined roles for the partners within the partnership	4.33	0.723	2	5	75
6. Commitment from zoo/aquarium staff to the partnership (other than financial)	4.19	0.865	1	5	75
7. Partners' ability to focus on primary objectives	4.16	0.777	2	5	74
8. Commitment from other partner's staff to the partnership (other than financial)	4.11	0.820	2	5	74
9. Mutually beneficial for partners involved	4.05	0.884	1	5	75
10. Secure, identifiable source(s) of funding	4.00	0.822	2	5	75
11. Allowing flexibility to enhance growth of partnership	3.92	0.888	2	5	74
12. Effective partnership planning/design	3.88	0.903	1	5	72
13. Consensus decision-making from most involved	3.68	0.923	1	5	74
14. Changes in roles of partners agreed upon by most involved	3.67	0.852	1	5	69
15. Personalities of individuals directly involved from other partner(s)	3.55	0.874	2	5	75
16. Personalities of individuals directly involved from zoos/aquariums	3.55	0.874	2	5	75
17. Changes in procedures agreed upon by most involved	3.55	0.880	1	5	66
18. Equal ownership within partnership	3.09	1.062	1	5	74
*Likert Scale of 1-5 was used where 1=Least important to success 5=Most important to success					
**Number of respondents varies because some respondents have not personally experienced these characteristics of success					

Table 2.2: Qualitative Suggestions given by Telephone Interview Respondents

<i>Question 1: What characteristics make conservation partnerships successful from your personal experiences?</i>	
<i>SUGGESTION</i>	<i>FREQUENCY OF RESPONSE</i>
Building sustainability or capacity building in local community (especially through education)	4
Gaining governing board support for conservation efforts	2
Involving qualified individuals with strong interpersonal skills	2
Forming trusting, personal relationships with partners	2
Gaining support from zoo/aquarium's local community	2
Creating a research department or research director position at zoos and aquariums	1
Maintaining focus on partnership goal	1
Changing agency perception about what zoos and aquariums can offer	1
Recognizing zoo's and aquarium's responsibility to educate	1
Allowing public to make the connection between zoo and aquarium collection and conservation	1
Learning from other partners' experiences	1

Table 2.3: Summary of Items and Factor Loadings for Varimax Orthogonal Four-Factor Solution for Characteristics that Lead to Successful Conservation Partnerships

Variables	Components				Communalities
	C1	C2	C3	C4	
<i>Characteristics of Successful Conservation Partnerships</i>					
Clearly defined objectives	0.670	-0.364	0.094	0.106	0.602
Clearly defined roles for the partners within the partnership	0.629	-0.156	0.043	0.075	0.428
Effective leadership by those in charge	0.615	0.402	-0.051	-0.065	0.546
Partners' ability to focus on primary objectives	0.573	-0.259	0.021	0.029	0.396
Effective partnership planning/design	0.545	0.123	-0.341	0.283	0.508
Clear and consistent communication between partners	0.541	0.001	0.183	-0.003	0.326
Changes in roles of partners agreed upon by most involved	0.440	0.183	0.364	-0.192	0.397
Personalities of individuals directly involved from other partner(s)	-0.139	0.927	0.071	0.027	0.885
Personalities of individuals directly involved from zoos/aquariums	-0.113	0.904	0.181	0.124	0.877
Mutually beneficial for partners involved	-0.060	0.002	0.806	0.145	0.675
Equal ownership within partnership	0.151	0.083	0.742	0.067	0.584
Consensus decision-making from most involved	0.107	0.121	0.662	0.299	0.554
Commitment from zoo/aquarium staff to the partnership (other than financial)	0.012	0.118	0.216	0.865	0.809
Commitment from other partner's staff to the partnership (other than financial)	0.096	-0.022	0.148	0.857	0.766

Table 2.4: Principal Components Analysis with Varimax Rotation and Coefficient Alphas for Characteristics of Successful Conservation Partnerships

Variables	Factor Loadings
STRUCTURE	
Cronbach's Alpha= 0.652	
Clearly defined objectives	0.670
Clearly defined roles for the partners within the partnership	0.629
Effective leadership by those in charge	0.615
Partners' ability to focus on primary objectives	0.573
Effective partnership planning/design	0.545
Clear and consistent communication between partners	0.541
Changes in roles of partners agreed upon by most involved	0.440
PERSONALITIES	
Cronbach's Alpha= 0.934	
Personalities of individuals directly involved from other partner(s)	0.927
Personalities of individuals directly involved from zoos/aquariums	0.904
PROCESS	
Cronbach's Alpha= 0.737	
Mutually beneficial for partners involved	0.806
Equal ownership within partnership	0.742
Consensus decision-making from most involved	0.662
COMMITMENT	
Cronbach's Alpha= 0.659	
Commitment from zoo/aquarium staff to the partnership (other than financial)	0.865
Commitment from other partner's staff to the partnership (other than financial)	0.857

Table 2.5: The Four Principal Components of Successful Conservation Partnerships and their Corresponding Observed Variables*			
<i>PRINCIPAL COMPONENTS</i>			
Structure	Personalities	Process	Commitment
Clearly defined objectives			
Clearly defined roles for the partners within the partnership			
Effective leadership by those in charge			
Partners' ability to focus on primary objectives			
Effective partnership planning/design			
Clear and consistent communication between partners			
Changes in roles of partners agreed upon by most involved			
	Personalities of individuals directly involved from other partner(s)		
	Personalities of individuals directly involved from zoos/aquariums		
		Mutually beneficial for partners involved	
		Equal ownership within partnership	
		Consensus decision-making from most involved	
			Commitment from zoo/aquarium staff to the partnership (other than financial)
			Commitment from other partner's staff to the partnership (other than financial)

***Above table is structured so as to replace the factor loadings with the observed variables that describe each component. Each observed variable is placed largest to smallest correlation with its principal component.**

Table 2.6: Definitions and Identifications of Principal Components of Successful Conservation Partnerships as determined by Principal Component Analysis	
<i>Principal Component</i>	<i>Definitions of Principal Component</i>
Structure	Defined as the planning stage of the partnership and its project(s). Designing the organization and function of the partnership*, articulating roles, functions* and lines of communication for each individual (including leadership), and defining the interactions required between the roles*.
Personalities	Defined as emotion, thought, and behavior patterns unique to an individual. Personalities greatly affect all social interactions internal and external of the partnership.
Commitment	Defined as seeing to completion any temporal, financial, verbal, contractual obligations, in conjunction with fulfilling assigned roles within the partnership throughout the duration of the collaboration.
Process	Defined as a sequence of events or operations yielding a particular outcome. Process includes, but is not limited to how the group dynamics work*, the individuals interact*, participants communicate*, and decisions are made*, distinct from the content of all the former.
<i>*Partial definitions taken from (Moosbrunker, 2001)</i>	

Table 3.1: Descriptives Statistics for Characteristics that Inhibit Conservation Partnerships Success*					
Variable	Mean	Standard Deviation	Minimum	Maximum	N^{bc}
<i>Characteristics that Inhibit Conservation Partnership Success</i>					
1. Ineffective leadership by those in charge	4.17	1.088	1	5	72
2. Lack of clear, consistent communication between partners	4.00	1.108	1	5	71
3. Unreliable or insufficient sources of funding	3.94	0.944	1	5	68
4. Objectives of the partnership were never clearly defined	3.90	1.156	1	5	67
5. Insufficient trust between partners	3.84	1.321	1	5	67
6. Lack of clearly defined roles for partners within the partnership	3.74	1.128	1	5	68
7. Insufficient commitment from zoo/aquarium staff (other than financial)	3.62	1.261	1	5	69
8. Ineffective partnership planning/design	3.62	1.172	1	5	68
9. Insufficient commitment from other partner's staff (other than financial)	3.42	1.157	1	5	67
10. Changes in roles not agreed upon by most involved	3.39	1.100	1	5	67
11. Goal displacement (some individuals possess secondary objectives)	3.34	1.241	1	5	65
12. Not mutually beneficial for all partners involved	3.31	1.162	1	5	68
13. Insufficient flexibility between partners	3.27	1.048	1	5	70
14. Personalities of individuals directly involved from other partner(s)	3.24	1.292	1	5	71
15. Changes in procedures not agreed upon by most involved	3.23	1.005	1	5	66
16. Lack of consensus decision-making by most involved	3.18	0.999	1	5	67
17. Personalities of individuals directly involved from zoos/aquarium	3.03	1.236	1	5	69
18. Unequal ownership within partnership	2.62	1.151	1	5	71
*Likert Scale of 1-5 was used where 1=Slightly inhibits success 5=Strongly inhibits success					
**Number of respondents varies due to the fact that some respondents have not personally experienced these inhibiting factors					

Table 3.2: Qualitative Suggestions given by Telephone Interview Respondents

<i>Question 2: What characteristics inhibit conservation partnerships success from your personal experiences?</i>	
<i>SUGGESTION</i>	<i>FREQUENCY OF RESPONSE</i>
Lack of board support (especially changing values--viewing conservation as a priority)	2
Lack of qualified individuals to fill partnership positions	2
Lack of communication among partners (especially about finances)	1
Reputations of partnering institutions	1
Corrupt partner(s) (financially and ethically)	1
International laws and regulations impeding conservation activities	1
Conflicting personalities within partnerships	1

Table 4.1: Descriptive Statistics for Likert Scale Ranking* of Benefits of Conservation Partnerships						
Variable	Mean	Standard Deviation	Minimum	Maximum	N**	
<i>Benefits of Conservation Partnerships</i>						
1. Creates potential for future partnerships	4.19	0.93	2	5	75	
2. Increased pool of expertise	4.18	0.80	2	5	74	
3. Directly or indirectly educates public and locals about conservation and zoo/aquarium mission	4.03	1.08	1	5	75	
4. Increased pool of ideas and innovations	4.01	0.785	2	5	74	
5. Positive implications gained by partnering with certain institutions	3.96	1.120	1	5	75	
6. Increased ability to fundraise	3.84	1.098	1	5	74	
7. Shared financial costs	3.70	0.996	1	5	73	
8. Shared field work duties	3.35	1.184	1	5	71	
9. More efficient use of staff time	3.19	1.115	1	5	69	
10. Shared field equipment	3.13	1.292	1	5	68	
11. Shared supervision duties	2.54	1.090	1	5	63	
*Likert Scale of 1-5 was used where 1=Least benefit 5=Greatest benefit						
**Number of respondents varies because some respondents have not personally experienced these benefits						

Table 4.2: Descriptive Statistics for Alternate Ranking* of Benefits of Conservation Partnerships*					
Variable	Mean	Standard Deviation	Minimum	Maximum	N**
<i>Benefits of Conservation Partnerships</i>					
1. Increased pool of expertise	2.33	1.414	1	5	45
2. Directly or indirectly educates public and locals about conservation and zoo/aquarium mission	2.50	1.502	1	5	44
3. Creates potential for future partnerships	2.86	1.307	1	5	49
4. Increased ability to fundraise	2.93	1.311	1	5	41
5. Increased pool of ideas and innovations	3.17	1.358	1	5	48
6. Shared financial costs	3.25	1.295	1	5	32
7. More efficient use of staff time	3.29	1.590	1	5	14
8. Shared field work duties	3.38	1.147	1	5	16
9. Positive implications gained by partnering with certain institutions	3.45	1.319	1	5	40
10. Shared field equipment	3.67	1.414	1	5	9
11. Shared supervision duties	5.00	0.000	5	5	3
*Respondents were asked to rank the top 5 benefits of conservation partnerships (1= Greatest Benefit)					
**Number of respondents varies because some respondents did not feel like they could rank all 5 benefits and due to the fact that respondents were only asked to rank the top 5 benefits					

Table 4.3: Qualitative Suggestions given by Telephone Interview Respondents

<i>Question 3: What are the benefits of conservation partnerships from your personal experiences?</i>	
SUGGESTION	FREQUENCY OF RESPONSE
Increased support (especially financial, support staff, and resources)	4
Creating a larger impact on conservation (especially through education and consumer actions)	3
Increased staff exposure and experience to partnerships	3
Increased opportunities to network	2
Motivates staff/intrinsically valuable	2
Increase sustainability/capacity building	2
Synergy produced through collaboration	1
Socioeconomic benefits for local community	1
Creating credibility for your or other's institutions	1

Table 4.4: Summary of Items and Factor Loadings for Varimax Orthogonal Three-Factor Solution for Benefits of Conservation Partnerships						
Variables	Components			C3	C2	C1
	C3	C2	C1			
<i>Benefits of Conservation Partnerships</i>						
Shared field work duties	-0.021	-0.098	0.893			0.807
Shared field equipment	-0.110	0.123	0.885			0.811
Shared supervision duties	0.075	0.425	0.694			0.667
Increased ability to fundraise	-0.065	0.868	-0.073			0.762
More efficient use of staff time	-0.029	0.755	0.272			0.644
Increased pool of ideas and innovations	0.846	0.123	-0.208			0.774
Increased pool of expertise	0.845	-0.220	0.141			0.782

Table 4.5: Principal Components Analysis with Varimax Rotation and Coefficient Alphas for Benefits of Conservation Partnerships

Variables	Factor Loadings
INCREASED FIELD RESOURCES	
Cronbach's Alpha = 0.806	
Shared field work duties	0.893
Shared field equipment	0.885
Shared supervision duties	0.694
SHARED TIME AND CAPITAL	
Cronbach's Alpha = 0.934	
Increased ability to fundraise	0.868
More efficient use of stafftime	0.755
INCREASED INDUSTRY AND EXPERTISE	
Cronbach's Alpha = 0.737	
Increased pool of ideas and innovations	0.846
Increased pool of expertise	0.845

Variable	Mean	Standard Deviation	Minimum	Maximum	N**
<i>Challenges with Conservation Partnerships</i>					
1. Failure of one partner to keep up its share of the work	3.68	1.169	1	5	69
2. Lack of time among staff to devote to partnership	3.58	1.159	1	5	74
3. Decision-making without communication between partners	3.51	1.146	1	5	69
4. Ownership issues (e.g. one partner taking all of the credit or exclusion of original partner)	3.28	1.280	1	5	60
5. Communication between partners may require more time	3.03	1.171	1	5	71
6. Disagreements over methods of attaining objectives	2.95	1.099	1	5	63
7. Conflicts over sharing of duties	2.91	1.094	1	5	64
8. Difficulty in measuring effectiveness of partnership	2.82	1.221	1	5	68
9. Conflicts over cost-sharing	2.70	1.293	1	5	60
10. Inequality of conservation partnership experience between partners	2.59	1.163	1	5	66
11. Perception of zoo/aquarium negatively affected because of partner	2.50	1.559	1	5	58
<i>*Likert Scale of 1-5 was used where 1=Least challenge 5=Greatest challenge</i>					
<i>**Number of respondents varies because some respondents have not personally experienced these challenges</i>					

Variable	Mean	Standard Deviation	Minimum	Maximum	N^{ns}
<i>Challenges of Conservation Partnerships</i>					
1. Perception of zoo/aquarium negatively affected because of partner	2.11	1.183	1	4	18
2. Lack of time among staff to devote to partnership	2.38	1.469	1	5	50
3. Failure of one partner to keep up its share of the work	2.57	1.347	1	5	47
4. Decision-making without communication between partners	2.85	1.288	1	5	39
5. Inequality of conservation partnership experience between partners	3.10	1.546	1	5	21
6. Communication between partners may require more time	3.14	1.125	1	5	36
7. Difficulty in measuring effectiveness of partnership	3.15	1.599	1	5	20
8. Disagreements over methods of attaining objectives	3.20	1.568	1	5	15
9. Ownership issues (e.g. one partner taking all of the credit or exclusion of original partner)	3.22	1.453	1	5	32
10. Conflicts over cost-sharing	3.33	1.528	1	5	21
11. Conflicts over sharing of duties	3.83	1.007	1	5	24
*Respondents were asked to rank the top 5 challenges with conservation partnerships (1=Greatest Challenge)					
**Number of respondents varies because some respondents did not feel like they could rank all 5 challenges and due to the fact that respondents were only ask to rank the top 5 challenges					

Table 5.3: Qualitative Suggestions given by Telephone Interview Respondents

<i>Question 5: What are the challenges with conservation partnerships from your personal experiences?</i>	
SUGGESTION	FREQUENCY OF RESPONSE
Lack of resources (people, time, money, etc.)	2
Too large of partnership (too many partners involved creates too much complexity)	2
Moral/ethical conflicts with methods of attaining objectives	2
Lack of leadership support (buy-in)	1
Lack of clear guidelines and procedures for partnership	1
Distrust among partners	1
Personalities conflicts	1
Lack of communication	1

Table 5.4: Summary of Items and Factor Loadings for Varimax Orthogonal Two-Factor Solution for Challenges of Conservation Partnerships

Variables	Components		Communalities
	C1	C2	
<i>Challenges with Conservation Partnerships</i>			
Conflicts over sharing of duties	0.829	0.125	0.702
Disagreements over methods of obtaining objectives	0.825	0.231	0.735
Failure of one partner to keep up its share of the work	0.780	0.265	0.679
Communication between partners may require more time	0.056	0.839	0.707
Difficulty in measuring effectiveness of partnership	0.313	0.730	0.586
Lack of time among staff to devote to partnership	0.268	0.717	0.631

Table 5.5: Principal Components Analysis with Varimax Rotation and Coefficient Alphas for Challenges of Conservation Partnerships

Variables	Factor Loadings
STRUCTURE	
Cronbach's Alpha=0.796	
Conflicts over sharing of duties	0.829
Disagreements over methods of attaining objectives	0.825
Failure of one partner to keep up its share of the work	0.780
PROCESS	
Cronbach's Alpha= 0.714	
Communication between partners may require more time	0.839
Lack of time among staff to devote to partnership	0.730
Difficulty in measuring effectiveness of partnership	0.717

Table 6.1: Descriptive Statistics for Likert Scale Ranking* of Future Changes that could be made to Improve Conservation Partnerships with Resources their Institution Currently Possesses					
Variable	Mean	Standard Deviation	Minimum	Maximum	N
<i>Changes that can be made to facilitate the formation and efficacy of conservation partnerships</i>					
1. Training on how to develop effective collaborations	3.63	1.088	1	5	75
2. Developing effective evaluation criteria for partnerships	3.51	1.107	1	5	75
3. Improving communication resources (e-mail, website, etc)	3.45	1.200	1	5	75
4. Sessions at AZA professional meetings to help facilitate partnerships	3.09	1.317	1	5	75
5. Sessions at Other professional meetings to help facilitate partnerships	3.03	1.197	1	5	75
6. Interpersonal training for individuals involved in partnerships	2.91	1.199	1	5	75
*Likert Scale of 1-5 was used where 1=Least important change 5=Most important change					

Table 6.2: Descriptive Statistics for Alternate Ranking* of Future Changes that could be made to Improve Conservation Partnerships with Resources their Institution Currently Possesses					
Variable	Mean	Standard Deviation	Minimum	Maximum	N^{obs}
<i>Changes that can be made to facilitate the formation and efficacy of conservation partnerships</i>					
1. Improving communication resources (e-mail, website, etc)	2.42	1.370	1	5	55
2. Training on how to develop effective collaborations	2.54	1.255	1	5	69
3. Interpersonal training for individuals involved in partnerships	2.94	1.464	1	5	49
4. Developing effective evaluation criteria for partnerships	3.08	1.550	1	5	62
5. Sessions at AZA professional meetings to help facilitate partnerships	3.23	1.254	1	5	60
6. Sessions at other professional meetings to help facilitate partnerships	3.65	1.214	1	5	51
*Respondents were asked to rank the top 5 changes that could be made in conservation partnerships (1=Most effective change)					
**Number of respondents varies because some respondents did not feel like they could rank all 5 changes and due to the fact that respondents were only ask to rank the top 5 changes					

Table 6.3: Qualitative Suggestions given by Telephone Interview Respondents

<i>Question 7: What changes can be made to facilitate the formation and efficacy of conservation partnerships, using the resources your institution currently possess?</i>	
SUGGESTION	FREQUENCY OF RESPONSE
Creating a printed or online national or international database where partners can identify project, partners involved, lead organization, expertise needed for the partnership, and contact information	5
Building one-on-one relationships (having a reliable contact person)	4
More local conservation involvement (city, state, region)	3
Increased support and facilitation from AZA Conservation and Science Department	2
Accurately articulating what your institution can contribute to the partnership and keeping that commitment	2
Implementing evaluations (especially on zoo/aquarium based education) and then training on how to use evaluation effectively	2
Gaining increased freedom from zoo/aquarium leadership to do conservation work	2
Adding a neutral partner to create better dynamics (e.g. one who does not rely on the results for continued funding)	1
Increased recognition of conservation partnership success	1
Training on how to get involved in conservation partnerships	1
Creating a printed or online list of funding sources to draw from when designing a partnership	1
Changing corporate culture, especially within non-game agency to change the way partnerships are perceived	1
Creating a university course that teaches about partnering (including grant-writing, cultural sensitivity, and cultures and law of foreign countries when creating conservation partnerships)	1
Holding conferences at a more centrally located point to allow more smaller facilities to attend	1
Training on how to interpret legal documents within a partnership	1
Increasing interdisciplinary networking opportunities	1

Figure 2. Percent of telephone interviewees who have formal agreements within their current conservation partnership.

Figure 2: With your Institution's conservation partnerships, do you have any of the following formal agreements?

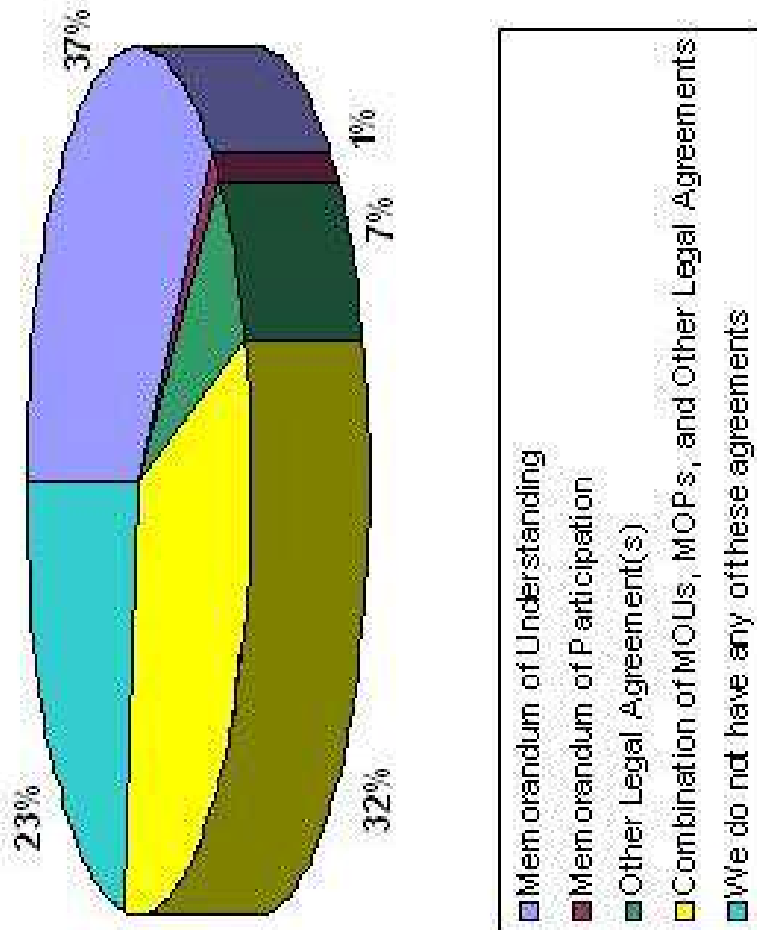


Figure 3. Percent of telephone interviewees who believe that their formal agreements help their conservation partnerships achieve their objectives.

Figure 3: Percent of telephone interviewees who believe formal agreements help their conservation partnerships achieve their objectives

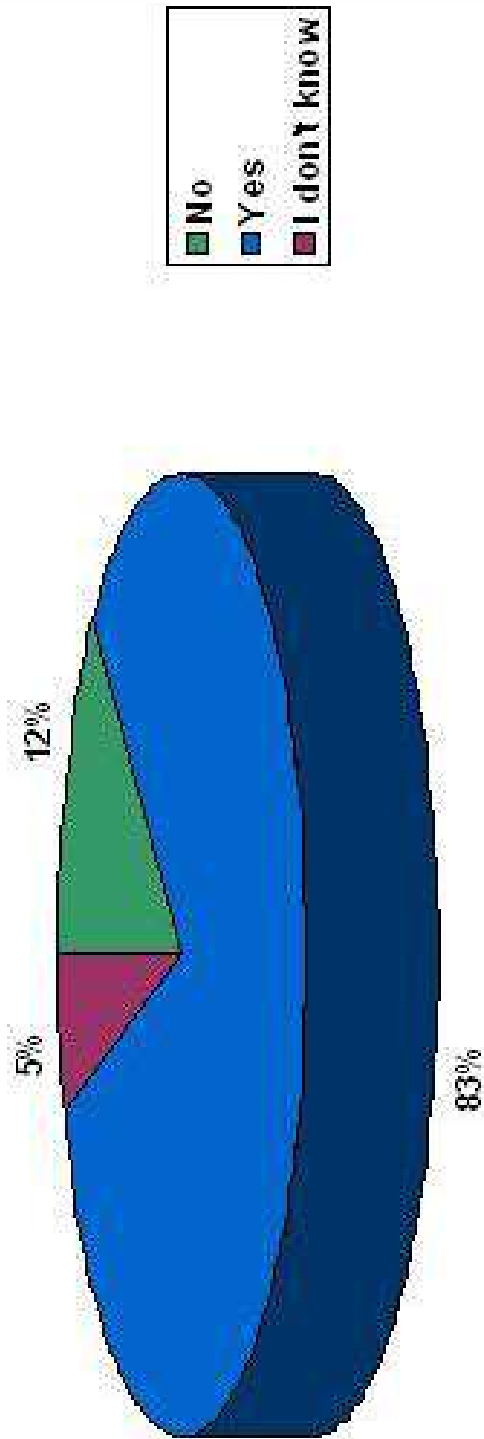


Figure 4. Percent of telephone interviewees who estimated that they are involved in more, the same number of, or fewer conservation partnerships than five years ago.

Figure 4: Would you estimate that your institution is involved in more, about the same number of, or fewer conservation partnerships than 5 years ago?

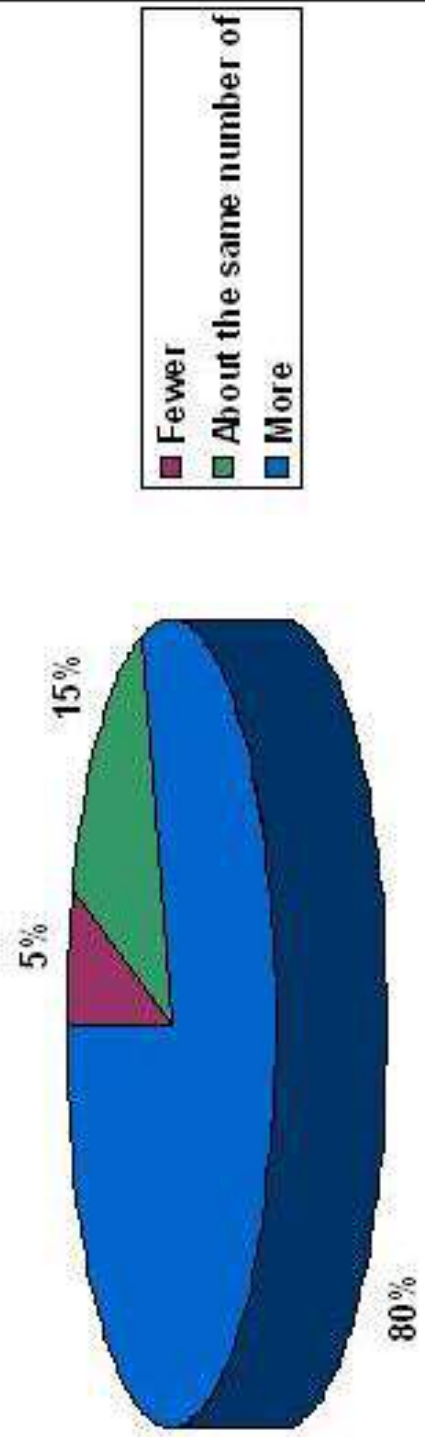


Figure 5. Percent of telephone interviewees who believe that the number of conservation partnerships between zoos and aquariums and other institutions will increase, remain the same, or decrease in the future.

Figure 5: In the future, the formation of conservation partnerships will:

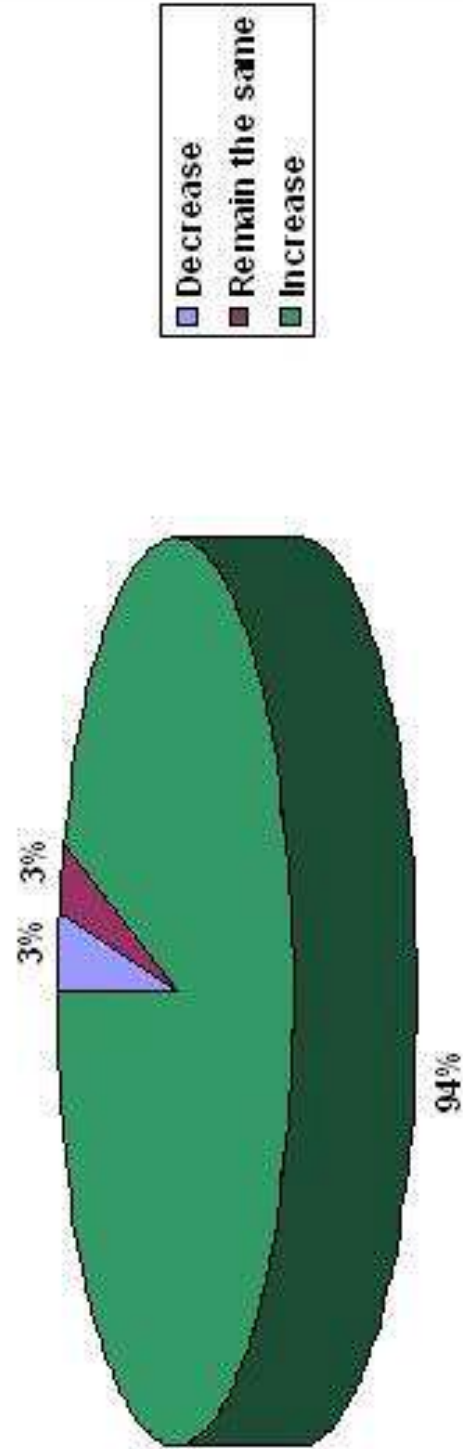


Figure 6. Average number of conservation partnerships that preliminary and telephone interviewees were involved with as of Summer/Fall 2004.

Figure 6: Average number of conservation partnerships preliminary respondents and telephone interviewees were involved with as of Summer/ Fall 2004

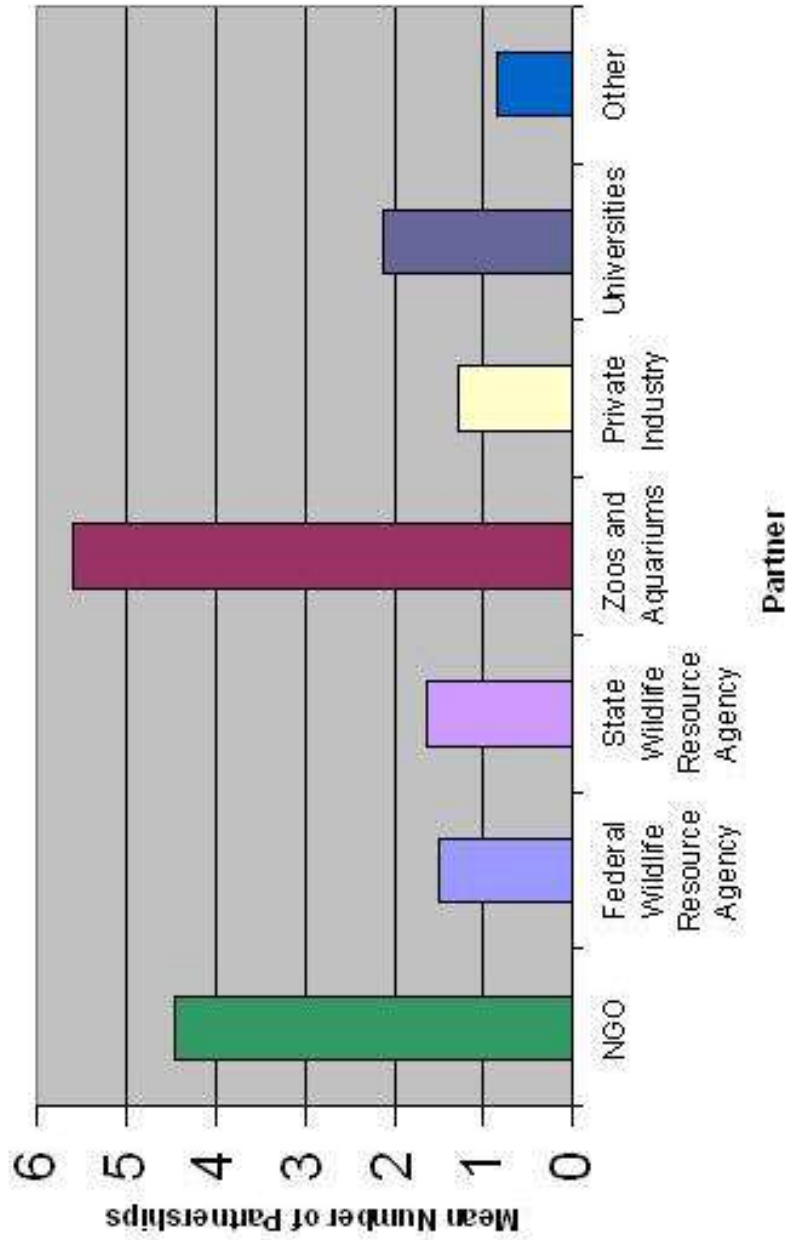
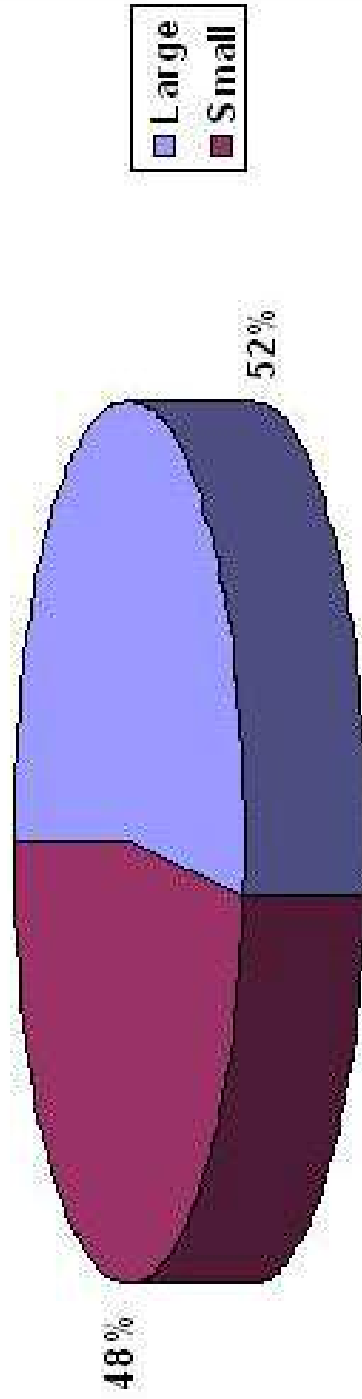


Figure 7. Percent of large and small size institutions surveyed by telephone. Size determined by 2003 annual operating budget data from AZA Annual Survey. *Baker (2001) in her *Communiqué* article states that large size zoos are considered those with annual operating budgets of >\$4million/yr and small size zoos are those with budgets <\$4million/yr.

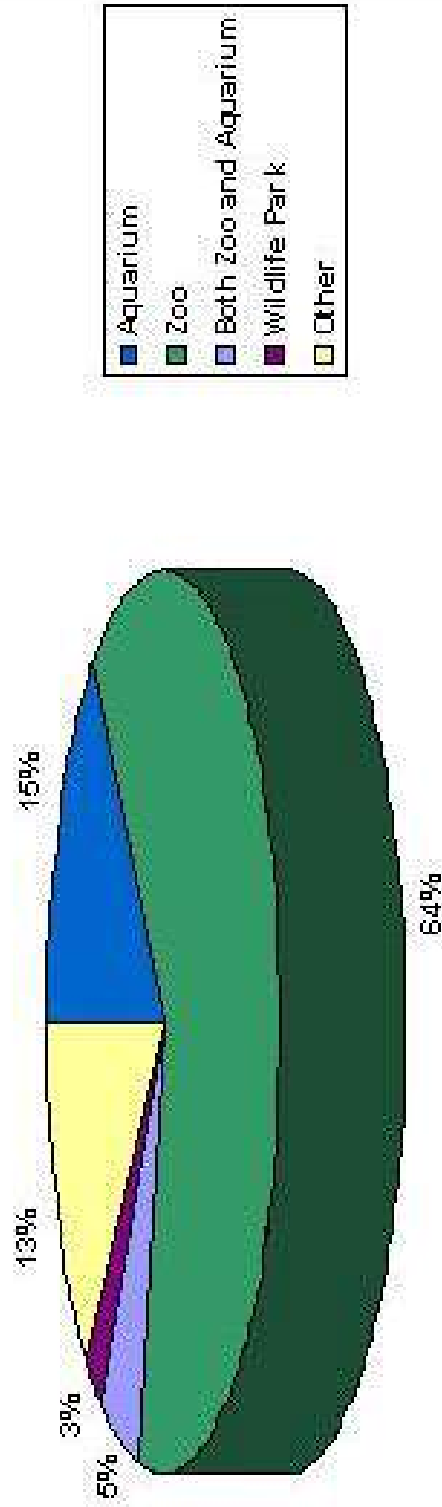
Figure 7: Percent of large and small size zoos included in telephone interviews*



*Size based on 2003 annual operating budget (small size zoos=<\$4million/year and large size zoo=>\$4 million/year) (AZA, 2003)

Figure 8. Type of AZA accredited institution surveyed, according to 2003 AZA annual survey.

Figure 8: Type of institutions* included in the telephone interviews



*According to 2003 AZA survey (AZA, 2003)

Figure 9. Number of years telephone interviewees have been employed at their current institution.

Figure 9: How many years have the telephone interviewees been employed at their current institution?

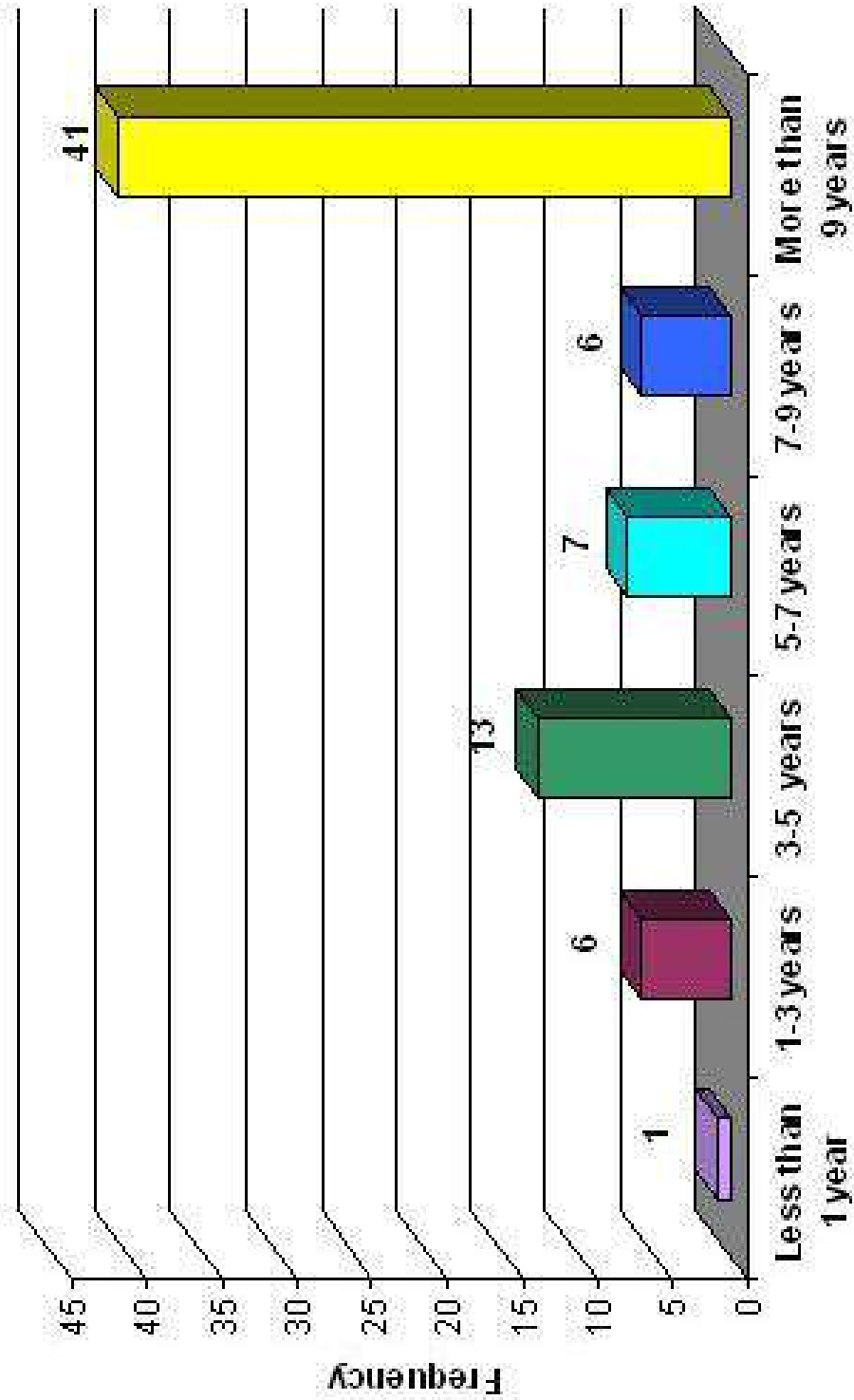
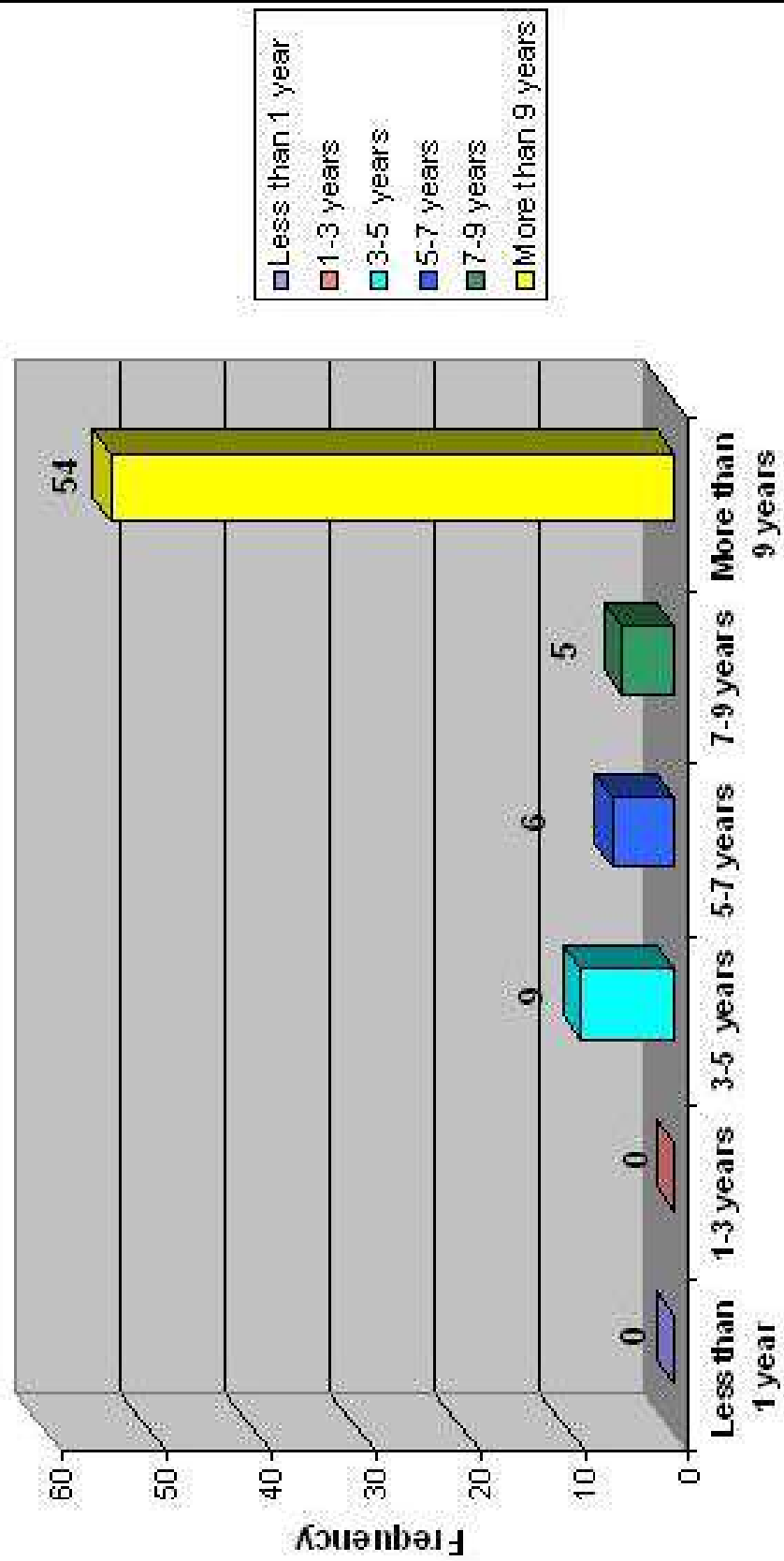


Figure 10. Number of years telephone interviewees have worked in the zoo and aquarium area.

Figure 10: How many years have telephone interviewees worked in the zoo and aquarium area?



APPENDIX A
Preliminary Survey Questionnaire

Preliminary Survey Questionnaire

Please **check** or **legibly write** the answers to the following questions.

Oklahoma State University
Attention: Kathleen Smith
430 Life Sciences West
Stillwater, OK 74078

Phone: (405) 269-4114
Fax: (405) 533-3529
E-mail: smithkat15@hotmail.com

The following questionnaire will ask questions about conservation partnerships. In this questionnaire, we are defining a conservation partnership as *“a committed, long-term relationship (Rabb 1995) between institutions with a common objective, allowing each side to dedicate time, money, and/or personnel to the partnership to accomplish a task that neither institution could do alone.”* Please refer to this definition as needed throughout the survey. All responses given are strictly anonymous and untraceable. You will be sent a copy of the final report by electronic mail when the research is completed. Thank you for your participation.

- 1) Please write your name and the name of the institution with which you are associated in the space below.

- 2) How long have you worked at your current institution?
 - Less than 1 year
 - 1-3 years
 - 3-5 years
 - 5-7 years
 - 7-9 years
 - More than 9 years

- 3) How long have you worked in the zoo/aquarium area?
 - Less than 1 year
 - 1-3 years
 - 3-5 years
 - 5-7 years
 - 7-9 years
 - More than 9 years

- 4) Is your institution involved with any conservation partnerships at this time (please refer to the definition above to help answer this question)?
- Yes
 - No

*If you answered “**no**” to question #4, you are finished with the survey. Please return the completed survey by e-mail, fax, or postal mail to the phone or fax number/address listed above, along with **LAST** page of the IRB Consent Form you have signed. Thank you for your time!

*If you answered “**yes**” to question #4, please complete the remaining questions.

- 5) Who is/are the primary contact(s) from your zoo/aquarium for conservation partnerships (Please give their name(s) and phone number(s))?
- 6) How would YOU define conservation partnership (use the *back* of this sheet for your answer if needed)?

- 7) Which kinds of conservation partnerships is your zoo/aquarium involved with and **estimate** the number you have or have had with each partner **within the last 5 years** (if the partnership involves more than 1 category, mark the **primary driving organization only**)?
- | | | |
|---|-------------------------|-------|
| <input type="radio"/> Non-governmental organizations (NGOs) | estimate number of each | _____ |
| <input type="radio"/> Federal wildlife resource agencies | estimate number of each | _____ |
| <input type="radio"/> State wildlife resource agencies | estimate number of each | _____ |
| <input type="radio"/> Other zoos and aquariums | estimate number of each | _____ |
| <input type="radio"/> Private industry | estimate number of each | _____ |
| <input type="radio"/> Universities | estimate number of each | _____ |
| <input type="radio"/> Other _____ | estimate number of each | _____ |

- 8) Would you or the primary contact(s) listed above be willing to participate in a **15 minute phone interview** for an Oklahoma State University researcher who is asking questions about what characteristics make partnerships effective?
- Yes
 - No
 - Maybe, need more information

9) If you answered “yes” or “maybe”, please provide the following for the primary contact:

Name and title:

Phone number:

E-mail address:

Thank you for taking the time to complete this survey.

Please return this completed survey by fax or postal mail to the phone or fax numbers/address listed at the top of the first page, **along with the LAST page of the IRB Consent Form you have signed.**

APPENDIX B
Initial Cover Letter for Preliminary Survey

15 September 2004

Dear (Personalized Name),

As a research team at Oklahoma State University, we are researching conservation partnerships between AZA accredited zoos and aquariums, state and federal agencies, and other non-governmental organizations.

Even though partnerships may play an important role in conservation programs, there has been little if any effort to evaluate their effectiveness and to define the characteristics of successful partnerships.

Enclosed is a brief 5-minute questionnaire regarding the partnerships with which your institution is currently involved. Please take a few minutes to fill out the enclosed questionnaire and return it by fax or postal mail, along with the signed last page of the enclosed "Oklahoma State University College of Arts and Sciences Consent to be a Research Subject" form. You may keep the remaining four sheets of the consent form for your records.

Information provided by participants will remain strictly anonymous and untraceable to any one individual or institution. Upon completion of the study, we will send participants a summary of the findings by electronic mail.

If you have any questions, please contact Kathleen Smith, Primary Investigator at (405) 269-4114 or smithkat15@hotmail.com.

Thank you for taking the time to complete the enclosed survey, and we look forward to talking with you.

Sincerely,

Kathleen N. Smith, B.S.
Primary Investigator
Research Assistant and Teaching Assistant
Department of Zoology
Oklahoma State University
Phone (405)269-4114
Fax (405)744-7824
smithkat15@hotmail.com

Tammie Bettinger, PhD
Research Biologist
Disney's Animal Kingdom
Tammie.Bettinger@disney.com
Phone (407)938-2847

James H. Shaw, PhD
Thesis Project Supervisor

Professor and Head
Department of Zoology
Oklahoma State University
Phone (405)744-5555

Enclosures: "Preliminary Survey Questionnaire" and "Oklahoma State University Consent Form"

APPENDIX C
Preliminary Survey Follow-Up Letter

24 August 2004

Dear (Personalized Name),

Hello again. This is Kathleen Smith from Oklahoma State University. I am sending this (fax or e-mail) as a friendly reminder about the conservation partnership questionnaire I faxed you June 11. I greatly appreciate your time and know you have a busy schedule. However, if you could please take a few minutes to complete the attached survey and sign the consent form, it would help us proceed with our research. I have again enclosed our cover letter explaining the premise of our research, the "Preliminary Questionnaire" for our research, and the "OSU Consent Form" giving me your written permission to use your answers in our research.

Your input is extremely valuable to the outcome of our research. Once again our sincere thanks for taking the time to complete the attached survey and read and sign the OSU consent form. I hope to hear from you soon. Please do not hesitate to contact me if you have any questions regarding our research.

Thank you so much for your time.

Sincerely,

Kathleen Smith, BS
Teaching and Research Assistant
Department of Zoology
Oklahoma State University
Stillwater, OK 74078
(405)269-4114
smithkat15@hotmail.com

James H. Shaw, PhD
Professor and Head
Department of Zoology
Oklahoma State University
(405)744-9668

Tammie Bettinger, PhD
Research Biologist
Disney's Animal Kingdom
(407)938-284

APPENDIX D
Authorization for Preliminary Survey and Telephone Interview Form

VOLUNTARY PARTICIPATION

I understand that participation is voluntary and that I will not be penalized if I choose not to participate. I also understand that I am free to withdraw my consent and end my participation in this project at any time without penalty after I notify the project director (Kathleen Smith at smithkat15@hotmail.com or (405) 269-4114).

PRELIMINARY SURVEY QUESTIONNAIRE CONSENT DOCUMENTATION FOR WRITTEN INFORMED CONSENT

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: _____ Time: _____ (a.m./p.m.)

Name (printed)	Signature
----------------	-----------

AUTHORIZATION FOR FUTURE TELEPHONE INTERVIEW

I, _____, hereby authorize _____ Kathleen N. Smith _____, to conduct a future telephone interview with me in which she will transcribe my oral responses in an attempt to determine what characteristics make conservation partnerships effective.

I certify that I have explained all elements of this form to the subject or his/her representative.

Signed: _____
Project director

Please fax or mail this signed form to:

Oklahoma State University
Attention: **Kathleen Smith**
Life Sciences West, Room #430
Stillwater, OK 74078
Phone: (405) 269-4114

Fax: (405) 744-7824
E-mail: smithkat15@hotmail.com

APPENDIX E
OSU Informed Consent Information for IRB

**OKLAHOMA STATE UNIVERSITY COLLEGE OF ARTS AND SCIENCES
CONSENT TO BE A RESEARCH SUBJECT**

Title of Research Project:

Evaluating Successful Conservation Partnerships between Zoos and Aquariums, State and Federal Agencies, and Non-governmental Organizations

Principal Investigator (s):

Kathleen N. Smith, B.S.
Research and Teaching Assistant,
Department of Zoology,
Oklahoma State University,
Stillwater, OK 74078

James H. Shaw, Ph.D.
Professor and Head,
Department of Zoology,
Oklahoma State University,
Stillwater, OK 74078

Tammie Bettinger, Ph.D.
Research Biologist and OSU Adjunct Professor
Disney's Animal Kingdom
Lake Buena Vista, FL 32830

The following research will be conducted through Oklahoma State University.

Research Introduction/Purpose:

Conservation partnerships are implemented throughout the United States and the world in an effort to conserve and address the problems associated with endangered species management. Financially and logistically, zoos and aquariums, federal and state agencies, and non-governmental organizations cannot recover endangered species populations without cooperative efforts from all organizations involved. This study

investigates what constitutes successful conservation partnerships and what measures may define success of a conservation partnership. A focus group of between six to eight individuals lasting approximately forty-five minutes will be performed prior to the primary study to determine what interview questions to ask in the telephone interviews. Then all American Zoo and Aquarium Association (AZA) member institutions that have conservation partnerships will be asked to participate in in-person or telephone interviews that will last approximately fifteen minutes. In rare cases, follow-up interviews lasting approximately ten minutes may be necessary to clarify any answers given during the telephone interview.

Common characteristics of success found within these partnerships will be noted and statistically analyzed by using confirmatory and exploratory factor analysis, which will test hypotheses to see what characteristics stick together, as well as exploring any characteristics that show common trends within the data. From this, an effective guide for successful conservation partnerships will be synthesized.

Research Procedures:

Preliminary Survey

The purpose of a preliminary survey will be to identify AZA member institutions that participate in conservation partnerships, identify the institutions they have partnerships with, and create a more concrete definition of conservation partnerships. A list of the 229 AZA member institutions and related facilities and the name of each research/conservation director will be obtained from the AZA directory. The assumption is that all accredited institutions and related facilities are reputable organizations that maintain high internal standards and a significant level of cooperation with other reputable conservation organizations.

An institution can earn AZA accreditation by undergoing a detailed review of the institution's policies and procedures regarding items like veterinary care, physical facilities, safety, finance, conservation, research, etc. (AZA 2003). Each institution must also be a permanent cultural facility which owns and maintains wildlife. Each facility must be open to the public regularly and be under the direction of a professional staff (AZA 2003). The accreditation process takes place every five years, and it is required for zoos and aquariums to be members of AZA (AZA 2003).

Each research/conservation director will be sent the preliminary survey by electronic mail (See "Preliminary Survey Questionnaire"). Each research/conservation director will be asked to respond to the survey or forward it to a more qualified institution employee, who should complete the survey and fax or mail it back to the primary investigator. Once the completed surveys have been received by the primary investigator, they will be analyzed to determine which AZA member institutions are involved in partnerships. Those institutions will then become the focus of the telephone interviews

Focus Groups

In order to create and test the telephone interview questions, two focus groups will be performed on a select group of zoo and aquarium professionals (See "Telephone Interview Questionnaire") (Fink 2003a). This group will be selected on the basis of geographical proximity to the interviewer. Tulsa and Oklahoma City Zoos will probably be the subjects of the focus groups.

The primary investigator will contact a zoo employee familiar with the project, explain the project to him/her again briefly and ask for their suggestions on volunteers for the focus groups. Participants will be contacted either by that zoo employee or the primary investigator, explained the premise of the project and then asked if he/she is willing to participate. Once each individual has agreed to participate and a convenient time is scheduled for the focus group, each group will be asked questions from the telephone interview questionnaire in order to gain critical expertise on questions asked on the telephone interview questionnaire.

Within these focus groups, the primary investigator will be able to test the clarity of the questions that are being asked on the telephone interview questionnaire and the quality of the choices given to the telephone interview questionnaire participants before they are performed on the larger sample population in the telephone interview.

The sample size of the focus groups will consist of approximately two groups (one from Oklahoma City Zoo and one from Tulsa Zoo), of six to eight zoo and aquarium professionals, which will allow for both variety and manageability of data.

The format of the focus group will be explained to the interviewees and permission to tape record the information given during the discussion will be obtained.

During the interviews, the interviewer will tape record and transcribe the respondents' answers.

Audio tapes will only be listened to by the primary investigator and her committee members. The answers given by the interviewees will be evaluated for common trends or phrases used to describe conservation partnerships. Once trends and analysis of answers have been completed, contact information of individuals who participated in the focus will be eliminated from the computer program to protect the privacy of these individuals. The data obtained will be anonymous and untraceable. It is to be assumed that the freedom and honesty with which answers are given during the interview will increase with assurance of anonymity.

Tapes will be kept for the duration of the research project for data analysis. At the conclusion of the research, audio tapes will be destroyed.

Telephone Interview Data Collection

In the primary study, telephone interviews will be conducted with each individual representing the selected institution. Telephone interviews were chosen as the data collection method, over standard postal or e-mail interviews because: the research topic requires a personal approach; the potential for building confidence between the interviewer and the interviewee is greater; and cooperation from the interviewees will be greater (Fink 2003d). Due to funding and time constraints, most interviews will not be performed in person.

Each institution will be contacted by telephone or electronic mail notifying them that they have been selected for the study (as per the answers to the preliminary survey questions), giving each individual a detailed explanation of the project, and asking if they would be interested in participating, noting the importance of the research and the minimal time it will take to complete the interview. Most of the individuals will have already given their permission to be interviewed on the preliminary survey. The interviewee and interviewer will choose a convenient time and date to conduct the future interview. Each verbal interview will be preceded by a written introduction e-mailed prior to the interview. The format of the interview will be explained to the interviewee and permission to transcribe the information given during the interview will be obtained.

As stated, telephone interview questions will be compiled from facts gained in review of the literature and focus groups, and will be agreed upon by the study committee members in advance of the interview. Committee consensus is necessary to prevent confusion and misinterpretation of the telephone interview questions and ensure that questions are in keeping with the primary objectives of the research.

Once trends and analysis of answers have been completed, contact information of individuals who participated will be eliminated from the computer program to protect the privacy of these individuals. It is to be assumed that the freedom and honesty with which answers are given during the interview will increase with assurance of anonymity. Contact information will be kept with the interviewer after the interview has been conducted for the purpose of further clarification if necessary.

Risks:

This study is designed to interview individuals about the characteristics that lead to successful conservation partnerships with other institutions. There are no foreseeable risks or discomforts to the subjects involved with participation in this research.

Benefits:

Taking part in this research study may not benefit you personally, but we, researchers, may discover new ideas and create new models that can help other individuals and partnership institutions build effective, successful conservation partnerships, in hopes of making endangered species conservation more effective.

Confidentiality:

People other than those performing the study may look at both interview responses and survey results. Agencies that make rules and policy about how research is done have the right to review these records. Those with the right to look at the study records include Oklahoma State University Institutional Review Board. Records can also be opened by court order. We will keep your records private to the extent allowed by law. We will do this even if outside review occurs. We will use study number 2004-KNS rather than your name in the study records where we can. Your name and other facts that might point to you will not appear when we present this study or publish the results.

Research Contact Person(s):

If you have any questions regarding this research call:

Kathleen N. Smith, Principal Investigator of Partnership Research
(405) 269-4114
smithkat15@hotmail.com

If you have any questions about your rights as a participant in the research study call
Carol Olsen, Director of Oklahoma State University Research Compliance
(405) 744-1676
colson@okstate.edu

APPENDIX F

Telephone Interview Questionnaire

Telephone Interview Questionnaire

Directions: Please review the following survey **before** the telephone interview. Feel free to circle/write your answers ahead of time. You are also encouraged to fill in the "Other" options when applicable. **Please base your answers on the PARTNERSHIPS you are involved with and NOT the PROJECTS. Please also answer based on YOUR PERSONAL experiences with conservation partnerships.**

The following survey will ask questions about conservation partnerships. In this survey, we are defining a conservation partnership as *“a committed, long-term relationship (Rabb 1995) between institutions with a common objective, allowing each side to dedicate time, money, and/or personnel to the partnership to accomplish a task that neither institution could do alone.”* Please refer to this definition as needed throughout the survey. All answers provided in this interview will be kept strictly anonymous and untraceable. We plan to use these results to further cooperation between zoos/aquariums and other partners to assist in preservation, conservation, and education regarding plant and animal species, as well as habitat. A final report will be sent to you by electronic mail at the address you have provided.

1) From your experience with conservation partnerships, which of the following characteristics have been most important, of average importance, or least important to the success (here we are defining “success” as achieving partnership objectives) of your past and current conservation partnerships by telling me the ONE number that best represents your response.

In the following scale, a **1** indicates you believe that characteristic has been least important to the success of your conservation partnerships, a **3** indicates you believe it is of average importance to the success of your conservation partnerships, and a **5** indicates you think it has been most important to the success of your conservation partnerships. **NA** (not applicable) means you have never personally experienced this characteristic within a conservation partnership.

	LEAST IMPORTANT		AVERAGE IMPORTANCE		MOST IMPORTANT	
a) Effective leadership by those in charge	1	2	3	4	5	NA
b) Clearly defined objectives for the partnership	1	2	3	4	5	NA
c) Clearly defined roles for the partners within the partnership	1	2	3	4	5	NA
d) Changes in procedures agreed upon by most involved	1	2	3	4	5	NA
e) Changes in roles of partners						

agreed upon by most involved	1	2	3	4	5	NA
f) Partners' ability to focus on primary objectives	1	2	3	4	5	NA
g) Trust between partners	1	2	3	4	5	NA
h) Effective partnership planning/design	1	2	3	4	5	NA
i) Personalities of individuals directly involved from zoos/aquariums	1	2	3	4	5	NA
j) Personalities of individuals directly involved from other partners (e.g. NGOs, federal or state agencies, etc.)	1	2	3	4	5	NA
k) Commitment from zoo/aquarium staff to the partnership (other than financial commitment)	1	2	3	4	5	NA
l) Commitment from other partners' staff to the partnership (other than financial commitment)	1	2	3	4	5	NA
m) Secure, identifiable source(s) of funding	1	2	3	4	5	NA
n) Allowing flexibility to enhance growth of partnership	1	2	3	4	5	NA
o) Clear and consistent communication between partners	1	2	3	4	5	NA
p) Consensus decision-making from most involved	1	2	3	4	5	NA
q) Mutually beneficial for partners involved	1	2	3	4	5	NA
r) Equal ownership within partnership	1	2	3	4	5	NA
s) Other(s) _____	1	2	3	4	5	NA

2) From your experience with conservation partnerships, which of the following characteristics have strongly inhibited success of your conservation partnerships, moderately inhibited success, or only slightly inhibited the success (here we are defining “success” as achieving partnership objectives) of your past and current conservation partnerships by telling me the ONE number that best represents your response.

In the following scale, a **1** indicates you believe the characteristic only slightly inhibits the success of your conservation partnerships, a **3** indicates the characteristic moderately inhibits the success of your conservation partnerships, and a **5** indicates the characteristic strongly inhibits the success of your conservation partnerships. Again **NA** (not applicable) means you have never personally experienced this characteristic within a conservation partnership.

	ONLY SLIGHTLY INHIBITS SUCCESS	MODERATELY INHIBITS SUCCESS	STRONGLY INHIBITS SUCCESS			
a) Ineffective leadership by those in charge	1	2	3	4	5	NA
b) Objectives of the partnership were never clearly defined	1	2	3	4	5	NA
c) Lack of clearly defined roles for partners within the partnership	1	2	3	4	5	NA
d) Changes in procedures not agreed upon by most involved	1	2	3	4	5	NA
e) Changes in roles not agreed upon by most involved	1	2	3	4	5	NA
f) Goal displacement (some individuals possess secondary objectives)	1	2	3	4	5	NA
g) Insufficient trust between partners	1	2	3	4	5	NA
h) Ineffective partnership planning/design	1	2	3	4	5	NA
i) Personalities of individuals directly involved from zoos/aquariums	1	2	3	4	5	NA
j) Personalities of individuals directly involved from other partners (e.g. NGOs, federal or state agencies, etc.)	1	2	3	4	5	NA
k) Insufficient commitment from zoo/aquarium staff (other than financial commitment)	1	2	3	4	5	NA

	ONLY SLIGHTLY INHIBITS SUCCESS	MODERATELY INHIBITS SUCCESS	STRONGLY INHIBITS SUCCESS			
l) Insufficient commitment from other partners' staff (other than financial commitment)	1	2	3	4	5	NA
m) Unreliable or insufficient source(s) of funding	1	2	3	4	5	NA
n) Insufficient flexibility between partners	1	2	3	4	5	NA
o) Lack of clear, consistent communication between partners	1	2	3	4	5	NA
p) Lack of consensus decision-making by most involved	1	2	3	4	5	NA
q) Not mutually beneficial for all partners involved	1	2	3	4	5	NA
r) Unequal ownership within partnership	1	2	3	4	5	NA
s) Other(s) _____	1	2	3	4	5	NA

3) On a scale of 1 to 5, in which 1 is the least potential benefit and 5 is the greatest potential benefit, what are some **POTENTIAL BENEFITS** of conservation partnerships from **your personal experiences**? Again, NA (not applicable) means you have never personally experienced this characteristic within a conservation partnership.

RANK	LEAST POTENTIAL BENEFIT				GREATEST POTENTIAL BENEFIT	
a)___Increased pool of expertise	1	2	3	4	5	NA
b)___Increased pool of ideas and innovations	1	2	3	4	5	NA
c)___Increased ability to fundraise	1	2	3	4	5	NA
d)___More efficient use of staff time	1	2	3	4	5	NA
e)___Shared financial costs	1	2	3	4	5	NA
f)___Shared field work duties	1	2	3	4	5	NA
g)___Shared field equipment	1	2	3	4	5	NA
h)___Shared supervision duties	1	2	3	4	5	NA
i)___Creates potential for future partnerships	1	2	3	4	5	NA
j)___Directly or indirectly educates public/locals about conservation and zoo/aquarium mission	1	2	3	4	5	NA
k)___Positive implications gained by partnering with certain institutions	1	2	3	4	5	NA
l) Other(s) _____	1	2	3	4	5	NA

4) Please **RANK the top 5** potential benefits in question # 3 (above) by filling in the blank with a number from 1 to 5, with 1 being the greatest potential benefit of conservation partnerships and 5 being the least potential benefit (please do not include "Other" suggestions in the rankings).

5) On a scale of 1 to 5, in which **1 is the least potential problem** and **5 is the greatest potential problem**, what are some **POTENTIAL PROBLEMS** of conservation partnerships from **your personal experiences**? Again NA (not applicable) means you have never personally experienced this characteristic within a conservation partnership.

RANK	LEAST POTENTIAL PROBLEM					GREATEST POTENTIAL PROBLEM
a)___Conflicts over cost-sharing	1	2	3	4	5	NA
b)___Conflicts over sharing of duties	1	2	3	4	5	NA
c)___Failure of one partner to keep up its share of the work	1	2	3	4	5	NA
d)___Ownership issues (e.g. one partner taking all of the credit or exclusion of original partner)	1	2	3	4	5	NA
e)___Communication between partners may require more time	1	2	3	4	5	NA
f)___Decision-making without communication between partners	1	2	3	4	5	NA
g)___Lack of time among staff to devote to partnership	1	2	3	4	5	NA
h)___Disagreements over methods of obtaining objectives	1	2	3	4	5	NA
i)___Difficulty in measuring effectiveness of partnership	1	2	3	4	5	NA
j)___Perception of zoo/aquarium negatively affected because of partner	1	2	3	4	5	NA
k)___Inequality of conservation partnership experience between partners	1	2	3	4	5	NA
l) Other(s)_____	1	2	3	4	5	NA

6) Please **RANK the top 5** potential problems in question # 5 (above) by filling in the blank with a number from 1 to 5, with 1 being the greatest potential problem and 5 being the least potential problem (please do not include "Other" suggestions in the rankings).

7) With the resources your institution currently possesses, what changes in procedures could be made to facilitate the formation and efficacy of conservation partnerships? Please rank these changes on a scale of 1 to 5, where you believe **1 is the least important change** and **5 is the most important change**? You are encouraged to offer your suggestions on how to improve partnership formation and efficacy by completing the "Other" option as well.

RANK	LEAST IMPORTANT CHANGE	2	3	4	MOST IMPORTANT CHANGE
a) __ Interpersonal training for individuals involved in partnerships	1	2	3	4	5
b) __ Improving communication resources (websites, e-mail, etc.)	1	2	3	4	5
c) __ Sessions at AZA professional meetings to help facilitate partnerships	1	2	3	4	5
d) __ Sessions at other professional meetings to help facilitate partnerships	1	2	3	4	5
e) __ Training on how to develop effective collaborations	1	2	3	4	5
f) __ Developing effective evaluation criteria for partnerships	1	2	3	4	5
g) Other(s) _____	1	2	3	4	5

8) Please RANK the top 5 changes in question # 7 (above) by filling in the blank with a number from 1 to 5, with 1 being the most effective change and 5 being the least effective change (please do not include "Other" suggestions in the ranking).

9) Within your institution's conservation partnerships, do you have any of the following agreements (name all that apply)?

- Memorandum of Understanding (MOU)
- Memorandum of Participation (MOP)
- Other legal agreement _____
- We do not have any of these agreements (Skip to question #11)

10) In your opinion, do/does this/these agreement(s) help the conservation partnership(s) to be more effective in terms of achieving its/their goals and if so, how?

- Yes _____
- No _____
- I do not know _____

11) Would you estimate that your institution is involved in _____ conservation partnerships than it was **5 years ago?**

- more
- about the same number of
- fewer
- I do not know

12) Overall, do you think the **trend** in the formation of conservation partnerships between zoos/aquariums and other institutions in the future will:

- increase?
- remain the same?
- decrease?
- I do not know.

13) Is there anything else you would like to add regarding conservation partnerships?

14) Do I have your permission to contact you in case I need clarification on any answers you have given?

- Yes
- No

15) Do you have any suggestions on how to improve our survey? Are there any questions that are confusing and/or need to be clarified? Are there things that you would add to this survey?

Thank you for taking the time to complete this survey. We will e-mail you a copy of the results when they are completed.

APPENDIX G
Telephone Interview Scheduling Letter

9 September 2004

Dear (Personalized Name),

Hello again. This is Kathleen Smith from Oklahoma State University working with Tammie Bettinger on our conservation partnership research project (I had contacted you in (month) about our research). At this time, we have begun the telephone interview portion of our conservation partnership research at Oklahoma State. Is there a convenient time to schedule a telephone interview with you in the upcoming weeks (either this week or next week)? The telephone interview will be with me and will last approximately 15 minutes.

One or two days before the telephone interview, I will send you a copy of the interview questionnaire, so you can review it. Then I will call you and conduct the interview the following day at our scheduled time.

Below is my schedule for the upcoming week:

(Insert Dates and Times available)

Thank you so much for your help and cooperation with our research, (Name). We really appreciate it! I look forward to talking with you soon.

Sincerely,

Kathleen Smith
Teaching and Research Assistant
Department of Zoology
Oklahoma State University
Stillwater, OK 74078
(405)269-4114
smithkat15@hotmail.com

APPENDIX H
IRB Approval Form

**Oklahoma State University
Institutional Review Board**

Protocol Expires: 1/4/2005

Date: Monday, January 05, 2004

IRB Application No AS0453

Proposal Title: Analysis of Conservation Partnerships Between Zoos, State and Federal Agencies, and
Non-Governmental Organizations

Principal
Investigator(s):

✓
Kathleen Nicole Smith
1807 N. Hartford Apt. 124
Stillwater, OK 74075

James H. Shaw
430 LSW
Stillwater, OK 74078

Reviewed and
Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact me in 415 Whitehurst (phone: 405-744-5700, colson@okstate.edu).

Sincerely,



Carol Olson, Chair
Institutional Review Board

VITA

Kathleen Nicole Smith

Candidate for the Degree of

Master of Science

Thesis: EVALUATING SUCCESSFUL CONSERVATION PARTNERSHIPS BETWEEN ZOOS AND AQUARIUMS, FEDERAL AND STATE AGENCIES AND NON-GOVERNMENTAL ORGANIZATIONS

Major Field: Wildlife and Fisheries Biology

Biographical Information:

Personal Data: Born Littleton, Colorado on August 15, 1979 to Linda Burris and Donald Smith.

Education: Graduated from Mullen High School in Denver, Colorado in May 1997. Received Bachelor of Science Degree from Colorado State University, Fort Collins, Colorado in December 2001. Completed the requirements for the Masters Degree of Science with a major in Wildlife and Fisheries Biology at Oklahoma State University in July 2005.

Experience: Employed as a teaching assistant at Oklahoma State University, Department of Zoology, August 2002 through May 2005. Employed as a research assistant Summer 2004.

Professional Memberships: American Society of Mammalogists, Animal Behavior Society, Audubon Society (including the Payne County Audubon Society).

Name: Kathleen Nicole Smith

Date of Degree: July, 2005

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: EVALUATING SUCCESSFUL CONSERVATION PARTNERSHIPS BETWEEN ZOOS AND AQUARIUMS, FEDERAL AND STATE AGENCIES AND NON-GOVERNMENTAL ORGANIZATIONS

Pages in Study: 157

Candidate for the Degree of Master of Science

Major Field: Wildlife and Fisheries Biology

Scope and Method of Study: Partnerships are essential for the future success of conservation organizations, and they strive to achieve the ultimate goal of restoring and preserving biodiversity. Establishing and maintaining a working relationship with multiple organizations, while working to achieve a common, fundamental goal can admittedly be difficult. Results of this research will serve as guidelines for existing and future conservation partnerships to avoid stagnancy and ineffectiveness. This research identifies characteristics and trends in conservation partnerships between American Zoo and Aquarium Association (AZA) accredited institutions and related facilities, and their partners, such as non-governmental organizations (NGOs), U.S. federal and state agencies, academic institutions, and private industry. One hundred and five AZA accredited zoos and aquariums or related facilities participated in the preliminary survey, and 75 AZA zoos and aquariums were interviewed by telephone. During the telephone interview, respondents were asked a series of questions about which characteristics most contributed to the success of their current conservation partnerships.

Findings and Conclusions: Structure, personalities, process, and commitment were found to be the four principal components of successful conservation partnerships through Principal Component Exploratory Factor Analysis. Effective leadership, clear and consistent communication, and trust between partners were the three characteristics that lead to partnership success. Increased field resources, shared time and capital, and increased ingenuity and expertise were found to be the three principal components of partnerships. Creates future partnerships, increased pool of expertise, and educates public and locals about conservation were the top three benefits when ranked on a 1-5 Likert scale. Challenges with conservation partnerships were grouped into structure and process. The top three challenges with partnerships were failure of one partner to keep up its share of the work, lack of time among staff to devote to partnership, and decision-making without communication between partners. Several improvements can be made to partnerships: training on how to develop effective collaborations, developing effective evaluation criteria, and improving communication resources. Creating a database of partnerships and building strong one-on-one relationships were also recommended.

Advisor's Approval: _____ Dr. James H. Shaw _____