A Participatory Approach to Community-Based Curriculum Development for the

Living With Elephants Outreach Program in Botswana

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Human needs and aspirations the world over can only be satisfied as environmental awareness leads to appropriate action at all levels of society, from the smallest local communities to the whole community of nations. Appropriate action requires a solid base of sound information and technical skills. But action also depends upon motivation, which depends upon widespread understanding, and that, in turn, depends upon education. – Mostafa K. Tolba (former Director), United Nations Environment Program, cited in Jacobson, 1995, p. xxiii.
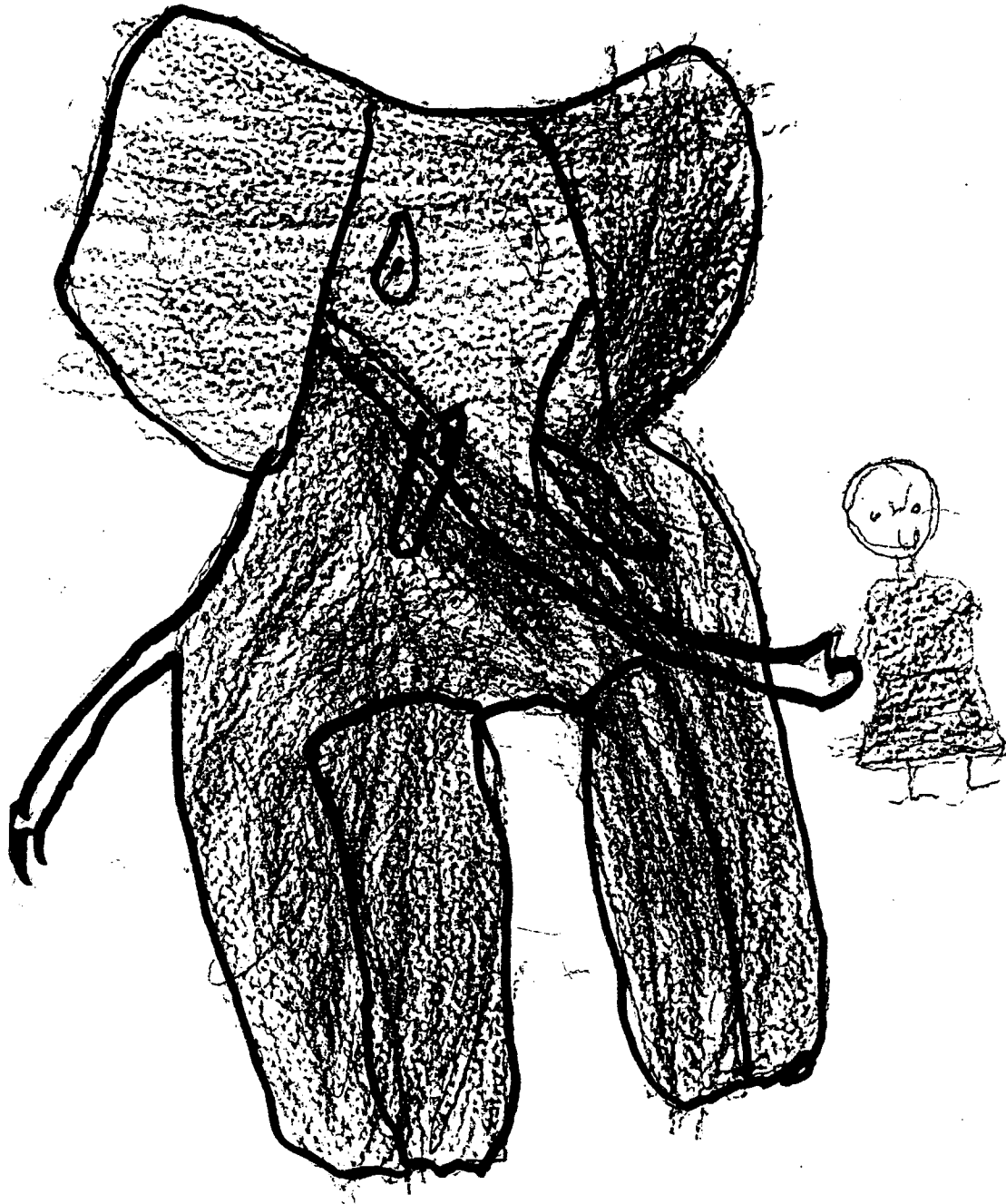
All we have to do to preserve Africa's wildlife heritage is care about the people as much as we care about the wildlife. Both are in the hands of man[sic.].

Bonner, 1993, p.286.

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We learned lots of things from the elephants.

(a participant in the LWE EOP 2002)

What I am going to tell my friends about elephants.

(a drawing from a participant in the LWE EOP 2002)

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Abstract

There are increasing conflicts arising between humans and elephants throughout Africa and Asia. The Republic of Botswana, which has one of the world's largest elephant populations, is no exception. One strategy for improving relations between humans and elephants may be participatory and community-based environmental education initiatives. Thus the goal of my project was to work with the non-governmental organization "Living With Elephants Foundation" (LWE) and local Batswanan communities to apply participatory research methods to the collaborative development of an elephant educational outreach program in Botswana. This study describes the process and the results of efforts to collaboratively develop, test and modify educational programming that aimed to contribute to a sustainable relationship between people and elephants. The study had three phases. Phase I involved reviewing academic and non-governmental organization literature and determining needs of the elephants and people of Botswana through conducting key informant interviews and focus group discussions. Phase II began with an analysis of the initial emergent themes in the data collected in the previous phase in order to develop the goal and objectives and the first draft of the LWE Education Outreach Program. Phase II also involved an evaluation of this version of the program, and was based on student, teacher and community feedback, and the collection of drawings from Botswana students participating in the LWE outreach program. This phase created a space for further revisions, development of follow-up activities, and identification of further needs. Phase III occurred in Canada where I reviewed all the data collected, conducted further analysis as needed and wrote the thesis. This thesis was shared with LWE and a summary will be provided to all interested stakeholders.

Acknowledgements:

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And, last but not least, I would like to thank the African Elephants for their teachings. May you continue to teach the young (and old) of both of our species to respect each other and to learn from the past in order to help make a better tomorrow for all species...

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AfESG – African Elephant Specialist Group (part of IUCN)

AKGF – Abercombie and Kent Global Fund

CAMPFIRE – Communal Areas Management Programme for Indigenous Resources (Zimbabwe)

CBNRM – Community-Based Natural Resource Managment

CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora

COBRA – Conservation of Biodiverse Areas Project (Kenya)

CWF – Canadian Wildlife Federation

DWNP – Department of Wildlife and National Parks (Botswana)

EE – Environmental Education

EOP – Elephant Outreach Program

HEC – Human Elephant Conflict

IISD - International Institute for Sustainable Development

IUCN – International Union for the Conservation of Nature

LIFE – Living in a Finite Environment Programme (Namibia)

LWE – Living With Elephants Foundation

LEC – Local Education Coordinator (Louis Motlaleselelo)

NGO – Non-Governmental Organization

PEO – Principal Education Officer (Maun, Botswana)

WWF – World Wide Fund for Nature

Chapter I: The Problem

Introduction

The African elephant, *Loxodonta Africana*, can conjure up a variety of responses, based on one's values, background and situation. In the words of Hoare (2000), elephants can be considered "as innocent and loveable, dangerous and destructive, or valuable and exploitable" (p.34). Amidst these diverse values, the relations between humans and elephants, both historically and especially recently, have been filled with both threat and hope. In less than a century, human populations have significantly increased while the numbers of elephants have significantly decreased in Africa (Bonner, 1993; BBC, 1999; Cumming et al, 1997; Groning, 1999; Meredith, 2001; Redmond, 1990). As a result, the conservation priorities for the African elephant have taken many paths over the years, occasionally sparking fierce debates (e.g. whether to ban the trade in ivory with the Convention of International Trade of Endangered Species in the 1980s, and into the present) (BBC, 1999; Meredith, 2001; Sheldrick, 2000). According to Osborn and Welford (1999), "[w]ith the decline in poaching, management problems such as elephant/human conflict and locally-over abundant populations, which appear to be linked, are rapidly increasing" (p.7). They also explain that "the basic reason why this conflict exists is the expanding human population and the reduction of land available to elephants. Because these large animals need space, food and water, they compete with humans for the same resources" (p.7).

Many conservation professionals are exploring solutions towards the ever-growing human elephant conflict. Osborn and Welford (1999) suggest that improving relations with affected communities is essential to reducing conflict, and that education

can help to raise tolerance of elephants. Therefore, one step towards a solution for a more harmonious relationship for people living with elephants may be environmental education initiatives.

The Living With Elephants Foundation (LWE) is a non-governmental organization (NGO) committed to elephant conservation; it has recently initiated an education outreach program based in Maun, in northern Botswana (see Figure 1). LWE is dedicated to creating harmonious relations between the African Elephant and human populations in Botswana through identifying sources of conflict and developing strategies for resolution. LWE also offers educational programs with Jabu, Thembi and Morula, the three ambassador elephants, who were orphaned then adopted by Doug Groves between 1988 and 1994 and who now live in the Okavango Delta together, a 2.5 hour drive from Maun (see Figure 1). LWE believes that extensive participation and commitment by the area communities is required to successfully mitigate human/elephant conflicts, while the communities themselves also have expressed a need for solutions to these conflicts (Envik, 2000). As one respondent said regarding Kelsey Envik's research:

> The problem (human-elephant conflict) here is quite serious. We are happy
> you are here to discuss the elephant issue. Our people are desperate. We need to
> be educated on matters of conflict. We don't know why elephants are coming.
> It's all about the future. We need to change our economy so that we do other
> things besides ploughing. Our children must know there are other opportunities.
> (Envik, 2000, p. 51)

Figure 1. The Republic of Botswana (Courtesy of the General Libraries, The University of Texas at Austin, 1995).
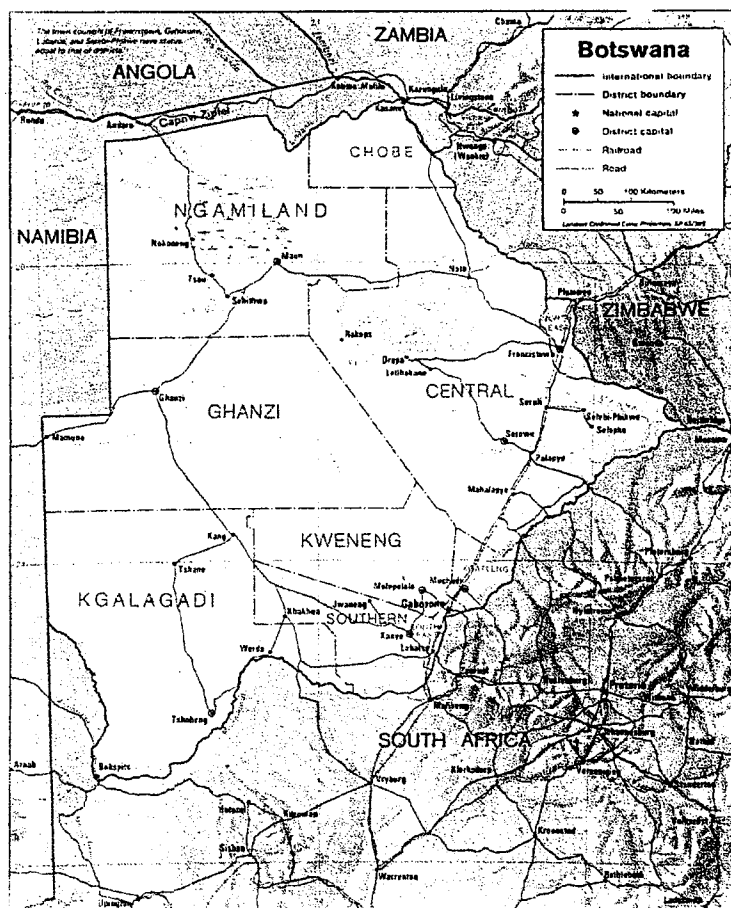
Human-Animal Relations

A growing field of study is known as 'human-animal studies.' While many fields rarely include consideration of animals other than humans, 'human-animal studies' has evolved over time and has included empirical investigations and conceptual analyses of human-animal relationships in both the social sciences and the humanities. Human-animal studies is an interdisciplinary field, and has been represented in the fields of psychology, sociology, anthropology, criminology, geography, political science,

economics, history, postcolonial studies, and feminist studies (Shapiro, 2002). Some

journals that are solely dedicated to this topic include *Society & Animals: Journal of*

Human-Animal Studies, *Anthrozoos*, and the *Journal of Applied Animal Welfare*

Sciences. In reviewing the development of the study of human-animal relations, Shapiro

(2002) described two important criteria in human-animal studies:

> ... respecting animals other than humans by treating them as beings with their
> own experience and interests – not exclusively as cultural artefacts, symbols,
> models, or commodities in a largely human-centred world. Doing so would
> secure the place of animals other than humans in the "moral landscape"(p. 332)

My study is an example of human-animal studies with particular grounding in the fields

of conservation and education.

The African Elephant

African elephants, the largest of land mammals, have fascinated humans since

early civilisation (Groning, 1999; Meredith, 2001). Aristotle, who is said to have

provided the first lengthy treatise on their biology and natural history in the 4th century

B.C., influenced many of the early writers who wrote about elephants (Meredith, 2001).

Many of these early writers found many similarities between elephants and humans. One

of these writers was Pliny, the Roman historian, who in A.D. 77 wrote:

> The elephant is the nearest to man [sic] in intelligence: it understands the
> language of its country and obeys orders, remembers duties that it has been
> taught, is pleased by affection and by marks of honour; nay more, it possesses
> virtues rare even in man [sic], honesty, wisdom, justice, also respect for the stars
> and reverence for the sun and moon. (cited in Meredith, 2001, p.29)

Modern biologists have discovered that elephants possess one of the most

advanced and harmonious social organisations in the world of mammals (Meredith,

2001). With various methods of observation, and other techniques ranging from sifting

through dung to utilizing satellite technology, year after year, biologists have been

increasing our understanding of the African elephant (Meredith, 2001). Of the many

elephant projects, the Amboseli elephant project, begun by Cynthia Moss, and

subsequently expanded by others including Joyce Poole and Katy Payne, was praised by

Richard Leakey, one of Africa's most renowned conservationists:

> [t]he studies at Amboseli have given elephants more of a personal identity than
> any other project. [The understanding that] each elephant has an individual
> personality – it has joy, it has grief, it has communications... you are entitled to
> take credit for one of the major breakthroughs in the relationship between man
> [sic] and a flagship species. (Borchert, 2002, p.61)

As a result of the Amboseli elephant project, elephants have been seen to have an

incredibly sophisticated system of communication (Meredith, 2001; Payne, 1998), to

celebrate birth and copulation (Moss, 2000) and to have reverence for death through their

displays and rituals, which some field biologists have likened to a funeral (Meredith,

2001; Moss, 2000). Based on a variety of elephant research projects, some of the

anatomical and behavioural characteristics that are known of the African Elephant are

summarized and outlined in Table 1.

Table 1. African Elephant Characteristics (from Envik, 2000).

Classification	Order: Proboscidea Family: Ellephantidae Genus and Species: Loxodonta Africana
Sex	Male: Bull Female: Cow
Size	Height: Male – 3.05m to shoulder; female a bit smaller Weight: Male – up to 5900 kg; female up to 3630 kg

Lifespan	Approx. 60 – 70 years
Relations	Subspecies: Savanna (or Bush) elephant and Forest elephant Cousin: Asian elephant Nearest kin: Sea cow and bush hyrax
Breeding	Sexual maturity: 14 – 15 years Mating: any time Gestation: 22 months No. of young: Usually 1 calf born 113 kg and 1 m tall
Diet	Herbivores: Grass, foliage, fruit, bark, branches, twigs, roots, tubers; eat up to 230 kg/day; drink up to 200 litres/day; spend 18 hr./day feeding; digest less than half of what they eat
Speed	Walk 8 – 8.9 km/hr; run up to 40 km/h; cover 81 km/day
Teeth	4 cheek teeth, up to 30.5 cm long, 1 in each quarter of jaw; replaced 6 times
Tusks	Used for digging, barking, stripping, pushing, carrying and jousting; these elongated incisors grow throughout lifetime; grow 15-18 cm/yr.; mixture of dentine; largest recorded tusk was 3.05 m long and 104 kg.
Trunk	Over a hundred thousand muscle fascicles make up the trunk; utilized for exploring, manipulating, breathing, touching, smelling, orientation, snorkeling, wrestling, sound reverberation and production hand, nose, weapon; 2 'fingers' at tip
Ears	Each ear measures up to 2 m²; act as radiators, in hearing, in behavioural signalling
Language	Rich and varied language; a range of sounds to express moods and feelings; low infrasound frequencies inaudible by human ears
Family Life	Close social relationships; Live in family groups of 5 or more Females: Stay together for life with a matriarch Bulls: Live alone or small bachelor groups; leave family unit at 8 – 18 years of age
Habitat	South of Sahara: Mostly bush habitat Central and Western African Countries: Mostly forest dwellers

African elephants are an incredibly important part of the diverse ecosystems that they inhabit. Among their diverse roles in the African savannah and some forested areas, elephants contribute to the survival of many other species, both large and small (Groning, 1999; Sheldrick, 2000; Western, 1990). For example, it has been found that elephants are important agents for seed dispersal, and they improve palatable grass species for other grazers by creating forest gaps that in turn open up more productive and varied ground layers (Groning, 1999; Sheldrick, 2000; Western, 1990). It has also been argued that the existence of elephants can have a negative effect on biodiversity in national parks and protected areas in East and southern Africa (Cumming et al., 1997) and in certain rainforested areas (Hoft & Hoft, 1995) by affecting the woodland structure and density of large trees and lowering the number of bird species. Different researchers have found, however, when large numbers of elephants were allowed to reach high densities, that a cycle of death occurred and the resulting high biodiversity was a positive effect on the landscape, with no long term damage (Trevor, 1993). Still, it is not clearly known the extent to which elephants impact their environment, both positively and negatively, since it is never fully clear what the contributions and or consequences of losing a species to an ecosystem might be until it is lost, or extirpated (Western, 1990).

Human-Elephant Relationships

While the average person, in my experience, knows little about most of the species on the planet, the African elephant appears to be an exception and evokes a vast array of feelings among people. According to Dublin (1994), the then Co-chair of The World Conservation Union's (IUCN) African Elephant Specialist Group (AESG), "no

species of bird or mammal, extant or extinct, has elicited more human emotion than the African elephant" (p.5). These varied emotions, or 'extreme attitudes,' often reflect a 'north/south' split (Dublin, 1994). One possible reason for the 'empathy' that people in the northern hemisphere have for elephants may be the enormous publicity surrounding the species in the late 1980s and early 1990s with the "elefriends" campaign (Redmond, 1990). Another possible reason may be attributed to the increasing exposure of visitors in the northern hemisphere of viewing elephants in zoos, circuses, on safaris, on television, in movies and in other media, which has helped the elephant to be included as part of a group of animals that Wilson (1992) refers to as "charismatic mega-fauna" (large animals popular with the media like whales, bears and dinosaurs).

Modern elephant researchers have described elephants as having characteristics similar to humans, and as having very admirable traits; see the writings of Iain Douglas-Hamilton (1975), Cynthia Moss (2000) and Joyce Poole (1986) and others (Groning, 1999; Meredith, 2001; Redmond, 1990; Sheldrick, 2000; Watson, 2002). However, people who have to share their daily lives and often their livelihoods with elephants often fear and despise them (Dublin, 1994). Today, people and elephants are coming into conflict in a growing proportion of the African elephant's range – a conflict brought about by the very nature of their co-dependence on the land and the resources sustaining them. According to Daphne Sheldrick, founder of the David Sheldrick Wildlife Trust orphanage, "the loss of habitat through human expansion has forced these gentle giants (elephants) into close proximity to humans, and that has generated conflict in which the elephants are always the losers" (Ellis, 2002, p.6)

There is no single African attitude towards elephants, however. In rural sub-Saharan Africa today, wild animals, including elephants, are seen as both a threat and a resource (Osborn & Welford, 1999). Wild animals that are labelled 'problem animals' are considered to be directly competing with humans for a resource such as food, water or space (Osborn & Welford, 1999). In Ngamiland in northern Botswana, for example, the Problem Animal Control Unit describe problem animals as "any animal which caused, is causing, or is threatening to cause damage to property such as livestock, crops, water installations, and fences" (Motshubi, cited in Envik, 2000, p.44). The African elephant is considered to be among the most significant 'problem animals' in southern Africa (Osborn & Welford, 1999).

Historically, the human-elephant relationship has varied. Both the Asian Elephant and the African Elephant have been featured in religious ceremonies and victory parades, and have also appeared on coins, in sculptures and paintings, symbolizing wisdom and power, and were even said to possess pious habits (Groning, 1999; Meredith, 2001). The human-elephant relationship has ranged from elephants being worshipped as a 'god-like' creature, to being captured and trained as transportation for both royalty and military battles, to being hunted due to their perceived overabundance or for trophies (Groning, 1999; Meredith, 2001).

More recently, poached and hunted for their 'white gold,' that is, their ivory tusks, and displaced from their range, the African Elephant has a history of conflict with humans. The African Elephant population has experienced a drop from approximately 10 million at the end of the 19th century to around 600,000 in 1989 (Groning 1999; Williams 1997; WWF, 1997a). In hopes of curbing this decline in population, the African

Elephant was listed as endangered on Appendix 1[1] of the 1989 Convention on

International Trade in Endangered Species (CITES). However, in 1997, the African

Elephant was down-listed to Appendix II[2], in response to pressure from countries

interested in managing high populations in certain areas, and seeking economic gain from

the ivory (Envik, 2000; see Table 2). The pressure was mostly from countries in southern

Africa, namely Namibia, Botswana and Zimbabwe.

Table 2. Botswana's Proposition for CITES in 1997 (WWF, 1997b, p. 9).

Botswana has proposed the annotated transfer of their elephant populations from
Appendix I to II for the exclusive purpose of allowing the following:
  a) direct export of negative stocks of whole or raw tusks of ivory to one trading
      partner (Japan)
  b) international trade in hunting trophies; and
  c) international trade in live animals to appropriate and acceptable destinations.

These pressures, arising from conflicts over land and resources, do not seem to be

improving. According to Stockil, "the main issue facing the elephant now is not CITES

and poaching but competition for space with human beings" (cited in Williams, 1997, p.

30). In southern Africa, it has been estimated that human populations have been

increasing at a rate of 3% per year while elephant populations have been increasing at a

rate of 5% per year (Cumming et.al., 1997). It is not surprising that International NGOs

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[1] Appendix I: "lists species that are the most endangered among CITES-listed animals and plants. These

are threatened with extinction and CITES generally prohibits commercial international trade in specimens

of these species." (CITES, n.d., no page number)

[2] Appendix II: "lists species that are not necessarily now threatened with extinction but that may become so

unless trade is closely controlled." (CITES, n.d., no page number)

such as the WWF and the IUCN list human-elephant conflict as one of their highest conservation priorities (Envik, 2000). The challenge that exists and faces local, national and international decision makers comes from what Peter Scott, founder of the World Wildlife Fund, described as "the unhappy paradox of world depletion and local over-abundance" (cited in Meredith, 2001, p.205).

Human-Elephant Conflicts in Botswana

According to Envik (2000), the region in Botswana most abundant in wildlife including elephants is Ngamiland, in the northwest corner. Osborn and Welford (1999) noted that "this population had limited poaching and is considered the largest single population in Africa" (p.15). It is also an area wherein the people are largely agriculturists. For this reason, the area experiences a high incidence of human-elephant conflict (Envik, 2000). Reasons for this conflict include declining habitat quality and effectiveness, increasing numbers of both humans and elephants and greater migratory barriers that are difficult to resolve for technical, financial and sociological reasons (DWNP, 1997; Osborn & Welford, 1999). According to Osborn and Welford (1999), problems such as damage to borehole pumps and to fences that restrict elephant access to water are currently more common than crop damage in Botswana.

There is a second smaller population of elephants, estimated at 800, that move between Zimbabwe and Botswana, located in the extreme east of Botswana around the Tuli Block and Shashe/Limpopo river confluence (Osborn & Welford, 1999). In total, the number of elephants estimated to live in Botswana range from 80,000 (Gibson et al, 1998) to 128,000 (Van der Vaal, cited in Envik, 2000). This makes Botswana's elephant

population the largest in the world, with an estimate that the population will increase at a rate of around 6% per annum (Gibson et al., 1997), a higher increase than the general predicted estimate of 5% per year (Cumming et.al., 1997).

Strategies for Mitigating Human-Elephant Conflict

Perceived wildlife threats have elicited a variety of human responses around the world, ranging from religious/spiritual ceremonies to poison (Knight 2000). Today, many conservation professionals are exploring solutions towards the ever-growing presence of human-elephant conflict. There are many suggestions and responses for dealing with the conflicts ranging from culling (killing) 'excess' or 'problem' animals (Cumming et al., 1997) to temporarily denying the elephants access to certain areas (Hoft & Hoft, 1995). Recent pilot projects in Asia and Africa demonstrate that living in greater harmony with elephants is possible through changes in human and/or elephant behaviour (IUCN/SSC, 1997; WWF, 1998). Various experimental strategies and pilot projects for mitigating human-elephant conflict have included: various fencing constructions including electric fencing options (Osborn & Welford 1999); olfactory methods (Osborn & Welford, 1999); physical barriers such as the construction of moats and trenches (Osborn & Welford, 1999); an experimental application of chilli grease on rope surrounding crops in the Maasai Mara area (Leo Niskanen, personal communication, October 16, 2002); protection of food stores (Envik, 2000; Osborn & Welford, 1999); artificial water points (Ben, cited in Envik, 2000); the identification of conflict zones and factors (Human Elephant Task Force cited in Envik, 2000); land-use planning options (IUCN/SSC, 1997; Osborn & Welford, 1999); acoustic deterrents, chemical repellents,

and even attempting to change elephant behaviour through conditioning (Envik, 2000; Osborn & Welford, 1999). Other strategies include community-based resource management and environmental education which will be discussed in the following sections.

Community-Based Natural Resource Management in Botswana

The move to a more community-oriented approach to conservation in Africa has taken many forms (Hulme & Murphree, 2001). An increasingly popular approach is devolving land-use management authority to communities (Osborn & Welford, 1999). For example, Botswana currently has 30 Community-Based Natural Resource Management areas (CBNRM's) and similar programs exist in Zimbabwe with CAMPFIRE (Osborn & Welford, 1999), in Namibia with LIFE (Envik, 2000) and in Kenya with COBRA (Mugabe & Masika, 1996). These programs attempt to integrate rural development with wildlife management in a way that is sustainable for wildlife and humans. With increasing recognition by wildlife managers and policy makers that rural Africans must be involved in the management of natural resources, it is argued that villagers ought to be given greater responsibility and custodianship of natural resources, such as wildlife, and be encouraged to take up sustainable management regimes.

In the wake of economic and conservation successes enjoyed by a few pilot CBNRM projects, Botswana continues to turn its attention to linking communities, ecology and economy for overall prosperity. According to Osborn and Welford (1997), Botswana's low human density and large wildlife areas give the country the potential to

have a very effective community-based natural resource management programme (see also Envik, 2000).

Totolo and Alphopheng (cited in Alphopheng et al., 1998) assert that wildlife resources, if properly managed, have the potential to benefit the majority of Botswanans. For example, through the use of Wildlife Management Areas (WMAs), Controlled Hunting Areas (CHAs) and the proposed joint venture management strategy in Botswana, the Department of Wildlife and National Parks seeks to guarantee direct benefits from wildlife to local communities. And, as mentioned in the previous paragraph, much effort has been made to link conservation with rural development in the CBNRM areas (Anstey et al, 1999). These protected areas of southern Africa, particularly in Botswana, while large by global standards, do not cover the entire range of many large animals such as the elephant. However, large areas of 'bush' still exist over much of the land that is held communally. Therefore, the areas in which people live are also within the range of elephants. In many CBNRM villages, elephants and other wildlife are a constant danger. Ironically, then, "elephants are [both] the most valuable resource and the most costly for a village to live with" (Osborn & Welford, 1999, p.12).

In Northern Botswana, the surrounding communities of the Okavango Delta are presently living in wildlife areas overwhelmed with management restructuring plans. The Botswana government is in the process of giving greater control of natural resources, including wildlife, to communities through CBNRM. As such, communities need to explore economic options that will foster long-term sustainability and prosperity. To date, communities have been exploring photographic safari possibilities and various other sustainable industries. Unfortunately, one of the major obstacles to embracing wildlife-

based operations is the negative perception and experiences with problem species, in particular, the African elephant (Envik, 2000).

As outlined in Botswana's National Development Plan 8 (NDP 8), the country's developmental goals focus on sustainability of natural resources. The plan stresses the role of linking community, ecology and economy together to provide for future generations (Government of Botswana, 1997). Long-term development priorities for the government of Botswana, therefore, focus on strengthening the roles of: 1) indigenous people and their communities in natural resource management and planning; 2) non-governmental organizations in environmental education and local capacity building; and 3) government in their efforts to provide greater community control over natural resources (Government of Botswana, 1997).

Given these national priorities, the path towards sustainable development will be difficult if the links between community, ecology and economy are broken. For example, in a recent Participatory Rural Appraisal (PRA), many informants voiced their fear of large game, especially elephants (Taylor, 1997). As elephants increasingly raid crops and villages, the communities' negative perception deepens and opportunities for CBNRM lessen (Osborn & Welford, 1999), making human-elephant conflict one of the largest obstacles to CBNRM (Taylor, 1997).

With the advent of CBNRM, tourism has become the second-largest income generator for Botswana (Envik, 2000). It is clear that elephants have been an attraction for the photographic safari industry and are a target species for the hunting safari industry. For example, according to Michler (2002), "[t]here are 210 elephants on quota for 2002. Of the entire income that accrues to [the Botswana] government from hunting,

56 per cent comes from this species alone" (p.35). However, focusing on tourism benefits and other financial incentives for communities in CBNRM and other community wildlife conservation programs has its own risks. For example, Kuriyan (2002) warns that there is "a danger of relying solely on monetary incentives that can create new relationships of economic dependency and unsustainable expectations for compensation to tolerate wildlife" (p.950). While fraught with potential pitfalls, CBNRM represents an opportunity. Within the framework of CBNRM, Environmental Education may prove to play an important role.

Mitigating Human-Elephant Conflicts Through Environmental Education

Living harmoniously with elephants is possible through certain changes in agricultural practices, human perceptions and behaviours (Envik, 2000; Osborn & Welford, 1999; WWF 1998). Education is a key element for any of these changes to occur. As Osborn and Welford (1999) suggest, improving relations with affected communities is essential to reducing conflict, and "[e]ducation is essential to raising tolerance" (p.27). Educational initiatives aimed at fostering sustainable and viable relations between elephant and communities thus have never been more timely and necessary, yet the state of environmental education (EE) in many African countries is not ideal. For example, Taylor (1998) conducted an international comparative study of the status of EE in primary education in 10 southern and eastern African countries (including Botswana) and concluded that the current provisions for EE in primary education in the countries sampled are insufficient and do not appear to be effective at the national level. Taylor (1998) recommended that more resources and expertise are required.

There have been various other EE initiatives in Africa; the 'Summary of Education and Communication for Sustainability in Africa' (EcoSA) is a database containing details of a vast array of EE programmes currently being implemented across the continent (Vare, 1998). Vare (1998) maintains that one of the priorities for EE in Africa includes both curriculum development and training. Totolo and Alphopheng (cited in Alphophen et al., 1998) concluded that one of the most effective ways of equipping future leaders with the necessary skills and techniques to tackle environmental problems is to include EE in the school curriculum. It is also critical that a sense of duty to conserve and use the environment in a more sustainable way is fostered in youth as well as adults. Education needs to be integrated with other social strategies for conservation to ensure sustainability (Alphopheng et al, 1998, Fien et al, 2001).

EE is seen as an intervention that can increase the capacity for social change and improvement (Vare, 1998). Not surprisingly, then, EE is also one of the key social strategies for conservation used by the World Wide Fund for Nature (WWF, 2000) who consistently argue that successful biodiversity conservation depends on creating practical policies and programmes in local contexts that have the approval and support of the local population. Indeed, in the WWF document, *Africa's Elephants: Current Issues and Priorities for Action*, one of the recommendations is "to promote education and awareness among local communities to demonstrate the benefits of elephant conservation to them" (WWF, 1997a, no page number).

My Personal Approach to EE

My project was interdisciplinary and rooted in an approach to environmental education (EE) that is holistic, critical, and committed to both social and environmental justice. Increasingly, it is recognized that conservation cannot be divorced from the 'human dimension' (Gray, 1993). In order for conservation to be effective, people must come to their own understandings of why conservation is important, and education can play a crucial role in this process (Fien et al., 2001). Indeed, according to Mucunguzi (1995), EE is the most important contributor to the transformation of attitudes regarding the sustainable utilization of environmental resources. It is thus vital that EE moves beyond simply the acquisition of cognitive information, but also focuses on increasing awareness, examining and changing attitudes where necessary, building skills, and encouraging citizen participation (UNESCO-UNEP, 1985).

Building on my own interdisciplinary background (geography, environmental science, parks planning, forestry, philosophy and education), I incorporate various perspectives and pedagogical approaches in my own EE work. I have been influenced by the writings of the prominent nature educator Joseph Cornell whose concept of 'Flow Learning' and interdisciplinary approach to education for nature awareness have inspired the creation of a wide variety of nature experiences designed to increase empathy with all of life (Cornell, 1989).

I am also influenced by the philosophy of humane education, which encourages kindness, care and compassion towards animals, through formal and non-formal educational processes (Selby, 1995). Fostering humane relationships between humans and animals also appears to have an important spin-off in contributing to humane

relationships between humans of different genders, ethnicities, races, cultures or nations (Selby, 1995).

Similarly, I have found ecofeminism inspiring and believe it can contribute greatly to sustainability education, because of its explicit acknowledgement of interconnected oppressions. Gaard (1993) explains:

> Drawing on the insights of ecology, feminism, and socialism, ecofeminism's basic premise is that the ideology which authorizes oppressions such as those based on race, class, gender, sexuality, physical abilities, and species is the same ideology which sanctions the oppression of nature. Ecofeminism calls for an end to all oppressions, arguing that no attempt to liberate women (or any oppressed group) will be successful without an equal attempt to liberate nature. (p.1)

Ecofeminism, in particular, provides analytical tools that highlight the complexity of environmental and social justice problems.

According to Bak (1995), it is important, however, to be sceptical of the assumption that EE, of any stripe, is automatically 'a good thing' and that it should be implemented immediately. EE discourse has been dominated by the voices of the Western/ Northern white middle class and it is only now that other voices are appearing in the literature (Lewis & James, 1995; Taylor, 1996). It is thus important to carefully scrutinize assumptions about EE and work to ensure that both the theories and practices are appropriate for an African context (Bak, 1995). Indeed, while conducting any research or implementing any educational intervention, it is important to use decolonizing methodologies (Smith, 1999).

Much of the formal education system in Africa is rooted in a colonial past and thus tends to use authoritative and top-to-bottom approaches. Mucunguzi (1995), for one, critiques this approach. Similarly, proponents of sustainability education, critical

pedagogy and EE advocate the need for learning to be grounded in the lives of students

(Fawcett, Bell, & Russell, 2002). Educational practices and curriculum materials should

be situated in students' cultures and reflect community contexts (Russell, 1999). Further,

it is important to integrate and embrace the diversity of the biophysical environment,

people, social and economic systems into the curriculum (Mucunguzi, 1995; UNICEF,

1988). I assert that EE should emphasize an interdisciplinary, people-centred and

participatory approach to environmental concerns, and take heart that this approach has

already been demonstrated to be effective in African contexts (Ghai, 1992; Jacobson,

1995; Mucunguzi, 1995).

Chapter II: The Project

Overview of My Project

It is clear that the challenges that face communities, governments, wildlife

managers, educators and elephants in Botswana (and in Africa generally) are incredibly

difficult. While steps have been made towards environmental sustainability, there

remains much to be done. Environmental education (EE) has the potential to play a very

important role in ensuring the people and elephants of Botswana enjoy a mutually

beneficial and sustainable relationship. My project was one such effort.

Throughout my 3 months in Botswana, I mainly worked with the Living With

Elephants Foundation (LWE), namely Doug and Sandi Groves, the co-founders, along

with Julien Marchais, a volunteer from France who was in Botswana for my first few

weeks and who later stayed in contact via email. I also worked with a local education

coordinator named Louis Motlaleselelo, who helped LWE and me throughout the entire

project, thanks to the funding I was awarded from the Canadian International

Development Agency. I also spent 2 weeks in Kenya collecting materials and

interviewing elephant experts. With the help of these aforementioned people, I was able

to gather input, ideas and support from 13 teachers from 4 schools in the Maun area, over

100 community members from the villages of NG32, 9 government officers from Maun

including the Principal Education officer, and 78 children who participated in the

program, from both the Maun-based schools and villages of NG32. Together, we were

able to collaboratively plan and develop curriculum for the LWE Elephant Outreach

Program (EOP). During this process, we (Louis, Doug, Sandi and I) also managed to

facilitate eight 2-day EOPs for the aforementioned student groups. We also collected

feedback and input from the 2 adult groups (teachers and government officers) that we hosted at the LWE field station. Based on this process, I wrote the *First Draft of the Teacher's Package* for LWE, and gave copies to the participating teachers and government officers involved with education, and wrote a full written description of the program and curriculum for LWE, entitled the *Main EOP Document*.

The Living With Elephants Foundation

LWE was officially registered as a non-profit organization in Botswana on October 15, 1999 thanks to the efforts of Kelsey Envik and all those who participated in and supported her project, particularly the co-founders, Sandi and Doug (see Envik, 2000). LWE is a Maun-based NGO that operates out of a small field station on the southern border of the Moremi Game Reserve, in the Okavango Delta, Botswana (see Figure 2). It is dedicated to creating harmonious relations between the African Elephant and human populations in Botswana through identifying sources of conflict, developing strategies for resolution and offering educational programs. Among its members, LWE counts three African elephant ambassadors, namely Jabu, Thembi and Morula, who live with Doug and Sandi and their Batswanan elephant keepers at the LWE field camp. Jabu and Thembi are 16 years old and were orphaned during a cull in Kruger National Park when they were 2, while Morula, who is 26, was orphaned from a cull in Zimbabwe and was adopted by Doug and Sandi in 1994 (Doug Groves, pers.comm., 2002).

LWE believes that one of the best ways to improve relations between humans and elephants is to expose Botswana's youth to their natural heritage up close and to give youth an opportunity to discuss the ecological and economic issues their country and

people face. As a result, LWE has recently created an educational outreach program, the 'Elephant Outreach Program' (EOP), where Botswana's youth can share in an educational experience while having an opportunity to have direct encounters with Jabu, Thembi and Morula (Groves, 2000).

LWE currently depends on volunteers, both local and international, and has one paid position of a seasonal local education coordinator, when funding is available. One of LWE's biggest challenges is to secure funding, and in the past they have received generous donations from both local and international groups which have included: Grey Matters (owned and operated by Sandi and Doug), the Abercombie and Kent's Global Fund (AKGF), the Canadian International Development Agency, and a number of Maun businesses which have donated products and services or offered discounted prices on purchases. Prior to my arrival in Botswana, Sandi, Doug and Julien had invested both time and money into meeting with various members of the NG32 and education communities, hosted 2 groups of students, secured funding from the AKGF, and purchased equipment and supplies for the upcoming EOP season (Sandi Groves, pers. comm., 2002). Based on some of these earlier meetings and discussions, Sandi and Julien decided to focus efforts initially on the Standard Six (grade six) students (children aged 9 – 11), and given logistics that required an overnight stay at the LWE field station, to offer a 2-day program.

Rooted in a participatory approach to community-based curriculum development, this project also supports the mission of LWE of mitigating human-elephant conflict, recognizing that "extensive participation and commitment by the area communities is a requirement for success" (Groves, 2000, no page number). This project also meets other

LWE objectives such as: "To disseminate, both locally and internationally, information on the African Elephant, its range and its relationship with the people who live side-by-side with it" and "To collect, analyze, share and distribute information on the African elephant, its ecosystem and relationship with people" (Groves, 2000, no page number).

My Role

I learned about LWE from a former Lakehead professor, Dr. Michael Quinn, who after moving to the University of Calgary, supervised Kelsey Envik's Master's project *Living With Elephants: A Non-Governmental Organization Based Strategy for Botswana* (Envik, 2000). Learning that LWE continued to need assistance, I contacted Sandi in February, 2002. She invited me to help LWE develop EOP curriculum materials using a participatory, community-based approach. I accepted this invitation and secured funding, primarily from the Canadian International Development Agency with some additional funding from Lakehead University's Vice Provost of Student Affairs and the Lakehead University Student Union.

On my way to Botswana, I visited Kenya for two weeks, where I had previously lived for two years, between 1998 and 2000. Through contacts, I was able to meet with various experienced professionals involved in elephant research, conservation and education in Kenya, where I sought to determine the needs of the elephants in relation to the EOP.

Once in Botswana, I learned that LWE wanted me to act not only as a researcher and curriculum developer, but also to double as the facilitator and organizer of the EOP, which included responsibilities such as managing logistics and the budget. While this

provided me with a very rich, hands-on, and rewarding learning experience, it constrained the amount of time that was available to me to focus on my research and data collection. The result was less time for interviews and less time spent in the villages. As well, I found that both time and distance were limitations given the vast size of the area and the remoteness of the villages in NG32. Villages were often more than an hour apart on remote bush roads and from 1-4 hours from Maun and/or the LWE field station. It soon became clear that 3 months in Botswana was not going to be long enough to spend as much time as I would have liked with the members of the villages of NG32. On the positive side, being immersed in the running of the EOP did allow me to understand more fully the needs and challenges of the program, LWE, the elephants, and students.

Cross-cultural communication is often a barrier in international development work. My inability to communicate fluently in Setswana affected my understanding of more subtle forms of cultural communication, and of many of the direct communications with the students and village members in Botswana who were not fluent in English. When necessary, I depended on a translator, Louis Motlaleselelo, who also became the local education coordinator for LWE.

The data I collected with Louis were in the form of interviews, focus-group discussions, and student drawings and observations. Based on this data and my immersion in the facilitation of the EOP, I worked with LWE to develop the initial draft of the goal and objectives for the LWE EOP and the *First Draft of the Teachers Package.* This was later delivered to all participating teachers and two government officers who work for the Ministry of Education. I also prepared a description of the LWE EOP to date entitled the *EOP Main Document,* including all lesson plans and logistical

information, which was left for LWE and Louis in Botswana (see Appendix D: Selected Lesson Plans and Information from the EOP Main Document).

The Role of the Local Education Coordinator

During the planning and proposal-writing stage, it became clear that I would need a local counterpart to help with my data collection, not only with translations but to help with important cultural interpretation. After discussions via email with Sandi in February 2002, it seemed to make the most sense for this individual to ideally be someone who could double as LWE's Local Education Coordinator (LEC), someone who could be trained and gain experience with the EOP, hopefully contributing to the long-term success of the EOP.

Over email, Sandi, Julien and I developed critieria for the LEC, but, unfortunately, there was not enough time to advertise the criteria in the villages of NG32 before my arrival. Thus soon after my arrival in Botswana, I knew it was essential that we move quickly to hire a LEC. I met Louis from Ditsipi Village (the largest of the six villages of NG32), when he accompanied the first village group to the EOP after my arrival. While participating in the EOP as one of two adult chaperones, Louis demonstrated a natural ability and talent in working with children in an educational environment, along with his knowledge of the wildlife of the Okavango Delta and his skills in translating between Setswana and English. I therefore approached Sandi, Doug and Julien, and together we came to a consensus that we would hire Louis, through my funding with CIDA, as both my research assistant and translator in hopes that he would become the future Local Education Coordinator.

Throughout the process of collaboratively developing the curriculum for the EOP in Botswana, Louis helped with all the logistics, planning, and implementation of the meetings, interviews and facilitation of the EOP. He acted as interpreter for all the interviews with adults and/or students and for groups participating in the EOP. He also assisted with navigating the various 4x4 rental vehicles that I drove throughout NG32 on the bush roads in the Okavango Delta, and in Maun. Louis received training and experience as an environmental educator as well as in the use of computers, including skills in word processing, the use of the Internet and email. With these new skills, Louis also helped transcribe data into the computer, and trained two local teachers on the use of web-based email.

Chapter III: The Process

Overview

One strategy for improving relations between humans and elephants may be participatory and community-based EE initiatives. Thus the goal of my project was to work with the LWE and local Batswanan communities to apply participatory research methods to the collaborative development of an elephant outreach program in Botswana. This study focused on the collaborative development, testing and modification of educational programming that aimed to contribute to a humane relationship between people and elephants. Generally, the approaches, methods and techniques used were influenced by participatory research methods (IISD, n.d.; Rietbergen-McCracken & Narayan, 1997).

This study had three phases. Phase I involved an extensive literature review as well as information gathering on the needs of the elephants and people of Botswana through conducting key informant interviews and focus group discussions (source of methods). Priority was placed on creating a space for as many community members as possible to help collaboratively design the education program's activities through focus group and individual interviews. Phase II began with an analysis of the initial emergent themes in the data collected in the previous phase in order to develop both the goal and objectives of the LWE Elephant Outreach Program (EOP) and a first draft of the LWE education outreach program. Phase II also involved an initial evaluation of this version of the program, and was based on student, teacher and community feedback, participant observations, and the collection of drawings from Batswanan students participating in the LWE outreach program. This phase created a space for further revisions, development of

follow-up activities, and identification of further needs. Phase III occurred in Canada

where I completed the data analysis and wrote the thesis. Upon completion, this thesis

will be shared with LWE and a summary will be provided to all interested stakeholders.

A summary of the phases is outlined in Table 3.

Table 3. Summary of the Activities Accomplished in the Phases.

Phase	Activities
Phase One	- literature review in Canada and Kenya - needs of elephants: key informant interviews in Kenya - needs of people in Botswana (students, community and teachers): key informant interviews and focus group discussions
Phase Two	- analysis of initial emergent themes - development of goal and objectives of the LWE EOP - development first draft of the LWE EOP and teachers package - initial evaluation of the LWE EOP - program revisions and development of follow-up activities and identification of further needs
Phase Three	- review of data and further analysis - thesis writing - summary of thesis to be delivered to stakeholders

The research questions which informed my work with LWE, included: .

1. What is important in trying to collaboratively develop curriculum for the

LWE EOP in Botswana and what type of curriculum would foster positive

human-elephant relations given financial and temporal constraints?

2.   What are the key issues in human-elephant relations, especially in NG 32

(Ngamiland 32, a Community Based Natural Resource Management area) in

northern Botswana?

3.   What are the current attitudes towards elephants and what are the needs of

both the people and the elephants in the area in regards to the LWE EOP?

4.   What are the educational needs of the students and teachers in regards to

elephant conservation in the area?

5.   How successful is the LWE program in meeting the educational needs of the

students and teachers, and in meeting the needs of the community and the

elephants?

Methods

My Approach

Prior to exploring the details of the methods that I used during my study, it is

important to describe briefly the approach I took in my research. To begin, I regard the

following words of Lather to be incredibly insightful: "Research approaches inherently

reflect our beliefs about the world we live in and want to live in" (1991, p.51). Thus the

following will briefly explain my beliefs and methodological predilections that

influenced the choices I made regarding the methods in my study.

I felt that qualitative research methods were the most applicable when dealing

with social research, especially for my particular study, given I was interested in

collecting data in the form of words and pictures, rather than numbers (Bogdan & Biklin,

1998). However, there are many ways of doing and thinking about qualitative research. I

agree with Tuhiwai Smith (1999) that there are multiple traditions of knowledges, and many ways of knowing. I also concur with Lather (1991) who argues that knowledge is neither objective nor absolute.

Prior to conducting research in Botswana, I felt that it was important to be aware of where I was coming from, the influences that have shaped my beliefs about the world that I live in and want to live in (Lather, 1991), and thus my potential biases in my approach to conducting this study. I described in the first chapter my personal approach to EE. It is also important to note that I am coming from a white, Western worldview, as a woman with only limited experience living in Africa (under 3 years) but who has worked and studied in the fields of outdoor, experiential and EE for over 12 years. I was also aware that I was approaching the study as a Canadian, an outsider interested in environmental and social justice, conducting academic research in Botswana.

The literature that has most helped to shape my methods and approach has come from the fields of critical pedagogy and EE, and in terms of methods specifically, *Decolonizing Methodologies* by Tuhiwai Smith (1999) and *Getting Smart: Feminist Research and Pedagogy with/in the Postmodern* by Patti Lather (1991). In general, I support an approach to research which is participatory, postcolonial and emancipatory, and which is part of the movements for social and environmental justice.

Because of my commitment to participatory post-colonial methods, I followed an emergent design. Following a participatory approach requires the researcher to keep flexible, ready to adapt to new possibilities, especially when it comes to the realities and the unknowns of fieldwork. In order to understand more of what a 'participatory

approach' might mean, I found myself reading literature from the development and conservation fields.

'Participatory Rural Appraisal' (PRA), one of the more common names given for this approach in the development field, became very popular in the 1990s. Rietbergen-McCracken and Narayan (1997) defined PRA as "[a]n approach (and family of methodologies) for shared learning between local people and outsiders to enable development practitioners, government officials, and local people to plan together appropriate interventions" (p. 1). Key principles for PRA include participation whereby "local people serve as partners in data collection and analysis" and flexibility whereby there is no "standardized methodology;" instead methods depend "on purpose, resources, skills and time" (Rietbergen-McCracken & Narayan, 1997, p.3). These two key principles certainly informed my own research in Botswana.

What does it mean to be participatory? And just how participatory ought one be? In the guide put out by the International Institute for Sustainable Development (n.d.), it is argued that "[n]ot every single method or technique to be used must be participatory; but the overall ethos of the research must be so, and the question of the ultimate ownership of the knowledge is an important consideration" (p.2). Thus not only was it important that I try to get as much input into curriculum development for the EOP as possible, but also that I give copies of this study, and the products that were developed during the study to participants and/or stakeholders in Botswana who requested it. For example, the *EOP Main Document* (Appendix D) was written for LWE, and all teachers and two government officers in the Ministry of Education participating in the study received a copy of the *First Draft of the Teachers Package* (Appendix E).

In my study, I found the work of Hulme and Murphree (2001) to be incredibly

valuable in helping me to understand community-based natural resource management and

for ideas on how to incorporate community into curriculum development (e.g.

conservation community, LWE, teachers, government workers, students and members

from villages in NG32 and selected schools in Maun). On the continuum of 'just how

participatory' an approach can be, Rietbergen-McCracken and Narayan (1997) list the

range of participation from information-sharing to consultation to collaboration to

empowerment. Hulme and Murphree (2001) offer a similar range of participation, from

information-giving to consultative to functional to interactive (see Table 4 for details).

While I had hoped to situate my work on the most participatory end of the continuums

described by Reitbergen-McCracken and Narayan, and Hulme and Murphree, it was not a

realistic goal for this project, given time and logistical constraints.

Table 4. Different Levels of Participation in Development Programs (from Hulme and Murphree, 2001, p. 28).

Participation Typology	Roles assigned to local people
Passive	Told what is going to happen or already happened. Top-down information belongs to external professionals
Information giving	Answer questions from extractive researchers. People not able to influence analysis or use.
Consultative	Consulted. External agents listen to views. Usually externally defined problems and solutions
Functional	Form groups to meet predetermined objectives. Usually done after major project decisions made, therefore initially dependent on outsiders but may become self-dependent, and enabling
Interactive	Joint analysis and actions. Use of local institutions. People have stake in maintaining or changing structures or practices.
Self-mobilization or empowerment	Take decisions independent of external institutions. May challenge existing arrangements and structures.

In terms of curriculum development, I found the work of Jacobson (1995, 1999), Selby (1995), Cornell (1989), and The Canadian Wildlife Federation (1995) to be helpful (see pages 17 – 20 in Chapter I). As with the project generally, I wanted to use a participatory approach. Since target audience research can help in the development of EE programming (Jacobson, 1995), I felt that it was important that I obtained feedback from the students who participated in the LWE EOP. According to Jacobson (1999), it is important to understand your audience's baseline knowledge and attitudes in order to create effective EE programs.

The Site

Preliminary work for the study took place in Canada and Kenya. Specifically, data collection took place over a period of 3.5 months in Kenya (10 days, October 11th – October 22nd, 2002) and Botswana (3 months, October 24th, 2002 – January 15th, 2003). (See Figure 2 for a map of Africa.) While in Kenya, all interviews were in the Nairobi area. Fieldwork in Botswana took place in the southern part of the Okavango Delta, in the town of Maun, and north of Maun, in the area known as NG32 in Ngamiland, that is currently a community-based natural resource management area that includes 6 villages. All interviews were conducted at a location of the interviewees' choice and included offices and local restaurants in Nairobi, the LWE field site, villages in NG32 in the Okavango Delta, and schools and offices in the Maun area.

Figure 2. The Continent of Africa, Highlighting Kenya and Botswana (Courtesy of the General Librairies, The University of Texas and Austin, 1995).
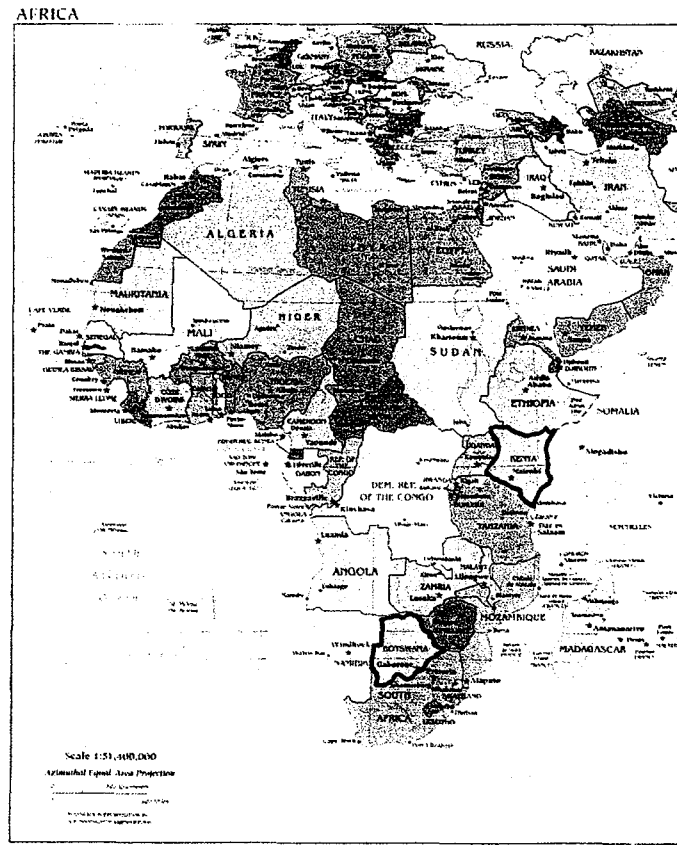
The Participants

Negotiating access or 'getting in' is a common problem in field research (Woods, 1986). A greater degree of participant hospitality and openness is garnered if preceded

by invitation. This may be especially true for communities in Botswana that might initially reject foreign interest and/or influence in their day-to-day lives, since the term 'research,' as Smith (1999) explains, can conjure up many negative associations and be seen as intrusions by the West. Fortunately I was invited by Sandi of LWE to work on this project. In Kenya, key informants were recommended to me either by personal contacts or other key informants and the interviews that took place in Botswana were recommended by Sandi and Doug of LWE, Louis, or by key informants and/or stakeholders in Maun.

LWE believes that "extensive participation and commitment by the area communities is a requirement for success" (Groves, 2000, no page number), and thus Sandi and Doug were very interested in having input from the local communities. However, because Sandi and Doug's commitments included taking care of their elephant 'herd' and managing their business, Grey Matters, they were unable to visit with the communities themselves. Their primary role was to facilitate parts of the EOP (i.e. the 'Elephant Experience,' discussions and question periods) and attend the rest of the EOP and meetings as much as they were able, while Louis was present and helped facilitate the EOP in its entirety, and accompanied me on all interviews and focus group discussions that took place after he was hired.

Once Louis and I gained entry and ethical considerations were explained, the interviews, informal discussions and/or group interviews commenced. Prior to any interview, either a verbal or written explanation of the purpose of the study was provided (Appendix A). Interviews commenced after participants signed a consent form (Appendix B) or gave verbal consent, with Louis as a witness.

Various stakeholders were interviewed individually or in focus groups. They were selected based on several factors, using a purposive sampling technique (Johnson & Christensen, 2000; Patton, 1990). The participants either a) had been or were actively involved in elephant research and/or elephant conservation, b) had been or were actively involved in wildlife conservation in Africa, and/or c) lived and/or taught in the district of NG32 or Maun. All participants were selected to gain information needed to develop curriculum for the EOP (see Table 5). Limitations of time and distance, and the desire to respect the cultural and professional lives of the participants influenced the methods chosen. (For example, given how busy most people were, focus group discussions were often more appropriate than individual interviews.)

Table 5. Selection of Method.

Information Needed	Participants and Method
Needs of elephants	Interviews with key informants in Kenya
Needs of teachers	2 meetings with groups of teachers (1 group who visited the LWE field station in the Okavango Delta to meet LWE and the elephants, and 1 group in a school in Maun who either participated in the first meeting or in the EOP with their students)
Needs of students	Comments and questions of students while participating in the EOP
Needs of community	Comments and questions of members of the villages of 3 of the villages in NG 32 who participated in kgotlas (village meetings)
Feedback on the EOP	Comments from: children and adult chaperones (teachers and village members) who participated in the EOP; the community during the kgotlas; the 9 government officers from Maun who were brought to the Okavango Delta to experience the EOP and meet with LWE; and the last 3 groups who participated in the EOP who completed the 'review sheet' questions. Also, drawings were collected from the children and some adult chaperones who participated in the EOP.

While in Kenya, I conducted interviews with key informants (listed in Table 6) who helped me understand the needs of the elephants, and who also consequently offered me advice. All of these interviewees were conservation professionals, either educators or researchers, working in their fields for over 10 years, and were initially approached via email or telephone. However, the ideas of one of the elephant researchers was not based on an interview, but rather on a public presentation at the National Museum of Kenya that I was invited to attend while I was in Nairobi. The information included in the presentation provided the information I was seeking.

Table 6. Key Participants in Kenya.

Description of Key Participants	Location	Number of Participants
Elephant researcher	Nairobi, Kenya	2 (1 female and 1 male)
Elephant conservation professional	Nairobi, Kenya	2 (1 female and 1 male)
Professor in field-based wildlife management	Nairobi, Kenya	1 (male)
Conservation educator	Nairobi, Kenya	1 (male)

While in Botswana, in collaboration with Sandi, Doug and Louis, I conducted focus groups with key informants who helped me understand the needs of the community, students and teachers, and who also consequently offered ideas and input into the development of the EOP, (see Table 7). Louis and I also collected data from the students and adults who participated in the EOP, including post-program drawings of the children and some adults.

Table 7. Key Participants in Botswana.

Description of Key Participants	Location	Number of Participants
Teachers	Maun, Botswana	13 (4 female and 9 male)
Parents and adult chaperones participating in the LWE Elephant Outreach Program	Maun, Botswana	10 (5 male and 5 female)
Students from schools	Maun, Botswana	40 (20 female and 20 male)
Students from villages in NG32	Okavango Delta, Botswana	38 (19 male and 19 female)
Members of 3 villages of NG32 villages	Okavango Delta, Botswana	77 adults 32 children
Government officers: Departments of Education (2), Teacher Training (1), Wildlife and National Parks (1), Supplies (1), Transportation (1), Prisons (1), Immigration(1)	Maun, Botswana	9 (7 male and 2 female)

All interviewees in Botswana were initially approached in person or via letter, radio or telephone. My first focus group was with a group of teachers from the Maun area, who were initially contacted by LWE through a letter and/or personal invitation. This group also included the Principal Education Coordinator in Maun and a teacher from Moremi Primary School who helped to coordinate the teachers' visit. This meeting took place at the LWE field station where they also met Sandi, Doug and the LWE herd, and camped overnight.

My next focus groups were with the members of the villages in NG32 or schools in the Maun area. Once all four schools had visited the LWE field station and participated in the EOP, Louis, Sandi and I held a focus group with the teachers of these four schools as well as the initial group of teachers and the Principal Education Coordinator. The purpose of this meeting was to present the plans for the EOP thus far, and gain feedback to further develop the EOP. After this meeting, Sandi invited the

Principal Education Officer to select and contact nine other government officers from the area to visit the LWE field station. The two-day visit to LWE and focus group with the government officers occurred during the last weekend of my stay in Botswana.

It was imperative that I used traditional oral-based methods of communication in order for Botswana participants to engage in the process. In NG 32, this meant using the kgotla for community discussions. A village kgotla is the main meeting place in a village where people come together, hold meetings, share opinions and hear cases (Louis Motlaleselelo, pers. comm., 2002; Silitshena & McLeod, 1998). Certain traditions were respected and followed during the kgotla, including the practice of having the headwoman and/or headman of the village introduce and conclude the kgotlas with a prayer/blessing (see Table 8).

Table 8. Outline of Kgotla.

1) Opening prayer
2) Introductions and background of LWE and EOP
3) Our purpose in developing the EOP: to gain a better understanding of the relationship between elephants and people in NG 32
4) Note that people can remain anonymous especially in any reports we do or publications
5) Ask questions
6) Thank you and closing prayer

The villages of NG 32 that we visited were selected based on Louis' perception of the villages that were likely experiencing higher incidences of conflict with elephants and the amount of time that would be required for driving to the site. (We did not have time to access all 6 of the villages of the NG 32 community). The villages that were selected were Xaraxau, Ditshipi and Morutsa/Xauxau. These village members are mostly from

the Bayei tribe. Each village was informed of our intention to visit at least a week prior, either by word of mouth through Louis' contacts and/or family, or through the VHF radio system (each village has its own radio). Village members were then invited with the help of the village radio contact person. Community members thus joined the kgotla on a voluntary basis. Louis facilitated and translated all discussions at the 3 kgotlas.

Each village and school group participating in the EOP included up to 10 children, aged 9 – 12, who were accompanied by 2 adult chaperones who were parents, teachers or heads of villages. Louis and I facilitated informal discussions with the adults of these groups around the campfire, during drives or other un-programmed time during their visit, to learn their opinions and recommendations for the development of the EOP.

Data Collection

The individual interviews or focus groups were semi-structured and a general interview guide (Patton, 1990) was used. I had a list of questions on a piece of paper or in my notebook that I could refer to while conducting the interviews and focus groups, although I was not limited to only these questions. This flexible approach allowed questions to act as initiators and enable discussions to unfold from the participants' perspectives and not solely from my perspective (Marshall & Rossman, 1998). For a list of guiding questions, see Tables 9, 10 and 11. The duration of interviews/focus groups varied due to the nature of the open-ended questioning.

Table 9. Questions for Conservation Professionals (educators or researchers).

Interviews in Kenya with the conservation professionals (educators or researchers)
- What country were you born in and what country are you currently a resident of?

- What do you feel are the most important issues relating to elephant conservation today?   - What do you feel are the needs of the elephants in regards to the educational outreach program?   - In regards to the Living With Elephants Outreach Program, what do you feel are important aspects that should be incorporated into the curriculum planning?

Table 10. Questions for Teachers and Administrators.

Interviews in Botswana: Teachers
- What does EE mean to you?   - Have you received any special training in the area of EE?   - Do you feel that the topic of EE is adequately addressed in the national curriculum?   - Do you feel that it is easy to incorporate EE into the different subject areas?   - Do you feel that there are any particular subject areas that require more attention, or that the students would benefit from greater attention?   - Do you feel that students would benefit from a visit to the LWE field station to participate in an EE program focusing on elephants? Why? Why not?   - What teaching strategies should be included in the LWE outreach program (for example, certain skills, group work, etc.)?   - Do you feel that teachers would be willing to participate in pre-program and post-program activities if LWE was to offer a teacher's pack? What materials would you find beneficial to use?

Table 11. Questions for Community Members in Kgotlas.

Questions (translated into Setswana by Louis during the kgotlas)
#1 – Please share any traditional stories that involve or are about elephants (that we might share with students who visit LWE EOP).
#2 – What are some of the traditional uses of Elephant dung? (based on a suggestion that was made by some teachers and some children in Maun)
#3 – Do you feel that there are any benefits to having elephants living near you?
#4 – Do you feel that there are any conflicts/challenges living with elephants? How frequent and what time of the year?
#5 – Because you have been living with elephants for so many years, what are some of the solutions or ideas of solutions that you may have in dealing with these conflicts/problems?
#6 – Anyone who has a comment or questions on the project they are welcome

Where needed, Louis acted as my translator (Setswana-English). Unfortunately,

due to technical difficulties (i.e. the tape recorder did not work), interviews and focus

groups were not audiotaped as originally planned. Instead, I took notes throughout;

Louis also occasionally took notes. All notes were written in my (or Louis') notebook or on a large poster in front of the groups, in full view of the participants. This way, if anyone wanted to see what was written, they had full access, and nothing was hidden. After the interviews and focus groups, Louis and I typed all notes.

In October 2002, the focus group with the 10 teachers from 4 schools took place at the LWE field station, where they camped overnight in the tents provided. Sandi, Doug, Julien and I began by driving them out to the site from Maun, and giving them a tour of the area. Doug and Sandi then introduced the teachers to Jabu, Thembi and Morula. We then went on a short game drive before cooking dinner around the campfire. The next morning, Julien and I facilitated the focus group.

Another focus group with 8 teachers took place in a school in Maun in late November 2002. Invitations were given to all teachers who either participated in the initial focus group in October, or who had accompanied one of the student groups who participated in the EOP. We began with an overview of how the EOP had developed thus far, and how we had included their earlier ideas. After their questions were answered, we then asked for their ideas, specifically on the teachers' booklet/package that teachers had earlier requested we develop and on how to ensure the future sustainability of the EOP.

Focus groups with community members were conducted at special kgotlas. Louis translated at two of the three villages and facilitated the kgotlas, while I took notes. At the third kgotla, Louis encouraged a local young man to do the translations. When people would make comments and/or questions, the translator (either Louis or the young man from Morutsa/Xauxau) would share their words in English to me, at which time I would write them down.

The final focus group was held at the LWE field station with Batswanan government officials. They took part in the two-day EOP. Ten government officials from the Maun area were invited through the Principal Education Coordinator. Nine out of the 10 invited government officials accepted the offer. I picked up the group in Maun, and drove 2.5 hours through the bush roads of the Okavango Delta to the LWE field station. During their visit, they volunteered to take part in the EOP activities, including the welcome games, an 'elephant signs' nature walk, the elephant experience where they met the herd with Doug and Sandi, and a sunset game drive before cooking dinner over the campfire. After a night's sleep in the tents to the sound of lions roaring, the group had breakfast. The officers enthusiastically volunteered to play more of the educational games that had been developed for the EOP thus far. We concluded the morning with the focus group, asking them to comment on the program, and to give us suggestions on how to ensure the future sustainability of the EOP.

During the 8 EOP's piloted while I was in Botswana, Louis and I determined children and adult participants' previous knowledge of elephants and collected questions they had about elephants. After students and the chaperones had lunch, played initial welcome games and made nametags, we brought the students to our shaded 'outdoor classroom.' Sitting in a circle formation facing a poster board, Louis and I would ask the students and chaperones, "What do you already know about elephants?" We would write their ideas on the poster; if the group of students could not read, I would draw a picture next to the comment so that the group could understand what was written on the board. Once we seemed to exhaust all the comments from this first question, Louis and I would ask, "What do you want to learn about elephants?" Most of the school groups came

prepared with their comments and questions, since Louis and I had met with each teacher and gave them hand-outs with the two questions on it. We also collected the questions and comments from students in the schools who did not participate in the EOP. (LWE could only accept groups of 10 at a time due to tent space, and the need to limit the group size while visiting the elephants.) This allowed the students from the standard six classes who did not participate in the EOP to be involved to some degree. We hoped participating schools returned with the answers to all of the questions and reported other things they learned in the program.

We also collected post-program drawings of elephants by the children participating in the EOP; we hoped their drawings would be a window into their attitudes towards elephants. As the program evolved, we asked 3 different questions to initiate the drawings; each question was used with 2-3 groups. The first question, created by Sandi, Julien and I, was "Draw your experience in this program." The second question was adapted from Fawcett's (2002) research on children's attitudes to bats, racoons and frogs: "What happens when a person meets an elephant?" The third question came from one of the teachers, "What will you tell your friends about elephants?" If the students did not speak English, Louis would translate the question into Setswana.

Finally, to evaluate the pilot EOP, Louis and I administered program review sheets to students and chaperones in the last 3 groups, 2 schools and 1 village group (see Appendix C). Also, Louis and I did our best to record in our field notes as many informal comments as we could from the students, teachers, and parents who participated in the EOP.

I kept a log to record field notes, impressions, and information that helped me to situate myself in the context of the study. For example, on one occasion I wrote, "Louis said that people often argue a lot and/or fight at these kgotlas, and that they often last a long time. Maybe that's why some avoid coming now." The log was also used to record emerging patterns, methodological notes, observations and a list of people that I wished to acknowledge in my thesis (Bogdan & Biklin, 1998).

Although limited by time, to prevent misinterpretation, I tried to check in with the participants, Sandi, Doug or Louis to bring clarity to the data that was collected. For example, when I typed in data, Louis edited it, or when he typed it in, I edited it. I also had ongoing discussions with Louis regarding initial interpretations of the data, in particular, from the kgotlas and the post-program drawings. Also, Sandi, Doug, Louis and I held a discussion one evening under the stars (and jumping bush babies) at the LWE field station about some of the data, and based on that, came to a consensus on the initial goal and objectives of the EOP. As well, Louis and I were able to show the local teachers in the second meeting how we had incorporated their ideas, and were able to check the accuracy of our interpretations and solicit additional feedback.

Ethical Considerations

Informed Consent. Informed consent was obtained from all participants in this project. All participants were made aware of the nature of this study, their potential role in it, the voluntary nature of their participation and provisions for confidentiality. All names of individual participants except for the members of LWE, namely Sandi, Doug, Louis and Julien, were kept confidential and therefore remain anonymous. I acquired

either signed consent (see Appendix B), or verbal consent, with Louis as a witness. I also ensured that all participants were aware of the purpose of the project (Appendix A), and that they could withdraw from the study at any point. I did this at the beginning of each interview or each focus group. All original data will be kept in a secure environment and will be kept for at least seven years without destruction. I had sole access to raw data but provided a synopsis of the interviews and focus groups with no names attached to LWE. Participants were given a code number or pseudonym known only to me (and information to break codes was and will be stored separately from the data itself).

Dissemination of results. As part of the participatory process, there was ongoing dissemination of results to LWE, teachers and other community members. As requested, LWE, Louis, 2 government officers and 2 teachers who have access to email will be given a copy of the final thesis. LWE, Louis, the Principal Education Officer in Maun, and all teachers participating in this study were given a *First Draft of the LWE EOP Teachers' Package* (Appendix E) prior to my departure from Botswana in January, 2003. In addition, funders (Canadian International Development Agency, Lakehead University Student Union, Lakehead University Vice Provost Student Affairs) will be given a summary of the thesis. The Canadian International Development Agency will post a report I have written for them on their website (www.cbie.ca/cida/main_e.html).

Elephants. I also wanted to extend ethical considerations to include the elephants themselves. I aimed to participate in educational outreach programming and/or activities that I believed either directly or indirectly discouraged behaviours that threaten the elephants, and did not participate in any programming that involved inappropriate handling of the elephants.

Data Analysis

Information gathered through the literature review, interviews, focus groups, kgotlas and program reviews were analyzed on an ongoing basis throughout this project. With the help of Louis, I made notes of all of the interviews and focus groups, and began to make some preliminary inferences regarding potential codes. The interview and focus group notes were then compiled for a complete analysis of the data using the "constant comparative method" (Bogdan & Biklin, 1992; Patton, 1990) upon return to Canada. I noted phrases and words that displayed patterns, which enabled me to apply specific codes. The codes were then assigned to specific categories. Finally, overall themes emerged. For example, while analyzing the data from Kenya, the codes of 'all sectors of the community,' 'community benefits from elephants,' 'training the locals,' 'community and planning,' 'understanding what the locals want to learn,' 'community support,' and 'incorporating traditional knowledge' were assigned to the category of 'community involvement' which was later assigned to 'recommendations for the EOP.'

We also used the data collected to develop the EOP, and to begin the process of evaluation. For example, learning what kinds of questions the students were asking helped us to develop the EOP curriculum. For example, we created a 'Nature Walk' that incorporated the questions that the children were asking regarding what elephants eat, how they interact and impact their ecosystem – and understanding different signs of elephants in their surroundings, (i.e. identifying their direction of travel through observing their tracks/footprints.) With the help and suggestions of the teachers, and the *Botswana Primary School Syllabus for All Subjects* (1993) for standards (grades) 6 and 7, we analyzed the Botswana curriculum looking for potential links that the EOP could

make. For example, we learned that one of the science objectives in the 'module' entitled 'Environmental Awareness' is the understanding of "the relationship between plants and animals in food chains and food webs." We then developed and included the 'Food Web' educational game as part of the EOP (which is described in the *EOP Main Document*, and in Appendix D).

The process of evaluation evolved throughout my time in Botswana, and began with oral presentations from students and later included written evaluation forms, or Review Sheets (Appendix C). The completed review sheets were briefly read by Louis, Sandi and I at the end of each of the programs. I later analyzed and summarized the completed review sheets upon my return to Canada, in order to begin to evaluate the EOP, by finding out some of the facts the students were learning, to identify the students' highlights, as well as their suggestions on how the EOP could improve.

The post-program drawings of the children were analyzed based on emergent techniques adapted from the research of Barraza (1999) and Fawcett (2002). Drawings from each of the three questions were analyzed separately. All drawings were then used in the construction of thematic categories. Based on the different patterns that emerged, I constructed categories for the responses to each question. For example, for the second question, "what happens when a person meets an elephant," 3 categories were established: 1) depiction of a positive or safe experience with elephants; 2) depiction of fear or anxiety; and 3) not determined or unrecognizable places and situations. Although drawings avoid linguistic barriers and enable comparisons between groups of different languages and abilities (Barraza, 1999), there was still a cultural barrier between the children and myself. Therefore, in terms of trustworthiness (Lincoln & Guba, 1985), I

tried to gain some insight into the interpretation of the drawings from Louis, prior to

leaving Botswana.

Chapter IV: The Product

To refresh readers' memories, in this thesis I describe the results of the participatory process to collaboratively develop, test and modify educational programming aiming to contribute to a sustainable relationship between people and elephants. Throughout the development of the curriculum for the EOP, I took into consideration the needs of the elephants, teachers, students, and communities of NG32 and the objectives in the Botswana Primary School Syllabus. To sum, the data collected in Kenya and in Botswana allowed us to develop the EOP, and later inspired us to begin the process of evaluation. See Table 12 for a summary. Please note that many of the direct quotations included in this chapter are people speaking in their 2nd or 3rd language.

Table 12. Chronology of Data Collection and Curriculum Development.

• Collected data from experts in Kenya and teachers and students in Botswana
⇓
• Determined the goal and objectives with Louis, Sandi and Doug of LWE
⇓
• Developed activities for EOP with links to the Botswana curriculum for standard 6 and 7
⇓
• Feedback and review sheets collected from teachers and students participating in the EOP
• Second meeting with teachers
• Village kgotlas to gain community input
• Met with government officials from Maun
⇓
• Designed Teachers Pack and delivered to teachers and 2 government officers
• Wrote the *EOP Main Document*

The Needs of African Elephants

All humans have a point of view, but as I developed the curriculum materials, I also wanted to take into consideration the elephants' point of view. In order to do this, in Kenya, on my way to Botswana, I interviewed 5 people (elephant researchers, conservation and education professionals). I also attended one public talk by an elephant researcher. Four key themes emerged from my discussions with the key informants in Kenya: 1) issues facing elephants; 2) needs of elephants; 3) recommendations for minimizing conflict between humans and elephants; and 4) recommendations for the EOP.

Issues Facing the African Elephant

One of the elephant researchers, during his talk in Nairobi, Kenya, summarized the historical issues and dilemmas facing elephants:

> the issue in the 1960's was to cull or not to cull; the dilemma was that there were too many elephants... The issue in the 70's and 80's was the "elephant holocaust," the question was to trade or not to trade... The 1990's issue is "cease fire" [once poaching was under control] then increased human-elephant conflict.

The professor in field-based wildlife management also cited "human-wildlife conflict" as the major issue currently facing elephants, and noted that in Kenya, "more people are killed by elephants than any other wildlife together." The cause, he felt, was too many elephants in too small of an area. The conservation educator also blamed encroachment, that is, human disturbance/development which forces elephants into smaller habitat areas, as one of the biggest issues facing elephants. He suggested that we need to "give enough room for elephants, big space, and we can stop encroaching on the elephants' ecosystems."

The experts also noted a number of other issues of concern. For example, the conservation educator also listed other issues currently facing elephants including drought, climate change, and the ivory trade. In his opinion,

> if the ivory trade opens, the elephants in Kenya will be in trouble. We are neighbouring Ethiopia, Sudan and Somalia and they have sophisticated weapons and they can pass [the borders]. The elephant will be in trouble here in Kenya.

Also, the two conservation professionals mentioned the "bush meat crisis" as another issue facing elephants, a crisis facing many species of mammals, reptiles and birds living in forest or bush in Africa that are being hunted for commercial or subsistence purposes. One conservation professional also said that in Botswana "overpopulation [of elephants] is the main problem."

Needs of the Elephants

The needs of the elephants fell into four categories, namely food, water, safe space and the need to find mates. In his current research, one of the elephant researchers said that he was trying to "look at the dilemma from the elephant's perspective." He concluded that "the elephants' dilemma is where to go to find food and security" and overall, the elephants need "food, water, security, and the need to find mates." The elephants need "safe space," or what other experts described as "big space," or "the need... to be peaceful and not to be harassed." In addition, the professor in field-based wildlife management said that the "parks are not the size to accommodate [elephants] and [they] should be entitled to live in areas outside the park to satisfy their needs, which would only happen if people see them as a resource instead of a pest."

Recommendations for the EOP

Many of the people I interviewed in Kenya had specific suggestions for the development of the EOP. For example, incorporating traditional knowledge was seen as important and they recommended that we find out how traditional practices and beliefs incorporate a conservation ethic through folk tales, stories and traditional methods of "how they lived with the elephants." The conservation educator suggested an explicit emphasis on teaching for the "appreciation of elephant conservation."

The Kenyan experts also recommended teaching about elephant behaviour and social life. One elephant researcher suggested that students might appreciate learning that elephants are long-lived, similar to us, lead complex lives, are loyal to each other and have a matriarchal system. One of the elephant conservation professionals mentioned that we should "get them to see wild elephants interacting, and have them understand that those are their families, and that we can't just take them from their families without consequences." The conservation educator also suggested that it is important to "highlight what is an elephant, [how] they have a right to live; in fact we are the ones pushing them away from the ecosystems!" The professor in field-based wildlife management suggested finding out what the community does and does not know about elephants, in order to decide what to include.

Throughout all of the interviews, it became clear that all of the key informants felt that it was essential 'to include the community' in the planning and development of any elephant conservation project if it is to be successful. For example, one of the elephant researchers said, "as in other parts of Africa, we believe here that local people hold the key to the future of elephants." He also said that "the island fortress is one solution

[creation of parks and protected areas free of human development and presence], and the winning of community solutions and coexistence is another." One of the elephant conservation professionals suggested to "train locals in the standardized data collection [of the International Union for the Conservation of Nature/African Elephant Specialist Group (IUCN/AfESG)], to find out exactly what human-elephant conflict means in that specific area, differentiate between real and actual conflict because things can be exaggerated." He went on to say that "the way to start [an elephant conservation project] is to understand the community, and the movements of the elephants." Others concurred with comments such as "the key is winning community support" and that to "include the communities is a must." The conservation educator said,

> Involve the community from the planning process to implementation. Have community representatives. Get chief, business people, community, all sectors in the village represented, and tourism and conservation departments.

He also said "the community will be much more willing if they are involved from the beginning, from the word go. They can suggest ways the community can benefit." Indeed, two of the experts felt that the curriculum should specifically mention how the community will financially benefit from conservation. For example, one stated,

> the most important thing is that you need the people to accept and endorse the idea that they want elephants in their area, and this will only happen if they see them as an economic asset through hunting and/or tourism... If we can get folks to see elephants/wildlife as a livestock, as an alternative source of income/land use planning... It isn't enough just showing kids how wonderful elephants are, rather than just abstract values to nature, its better to give specific examples of [ecotourism] projects that are successful.

Recommendations for Minimizing Human-Elephant Conflicts

The key informants in Kenya also offered ideas on how to minimize conflicts between humans and elephants that could be included in future development of the EOP.

These included: fencing, compensation programs, proper land use management, and viewing elephants as an economic resource. For example, one of the elephant researchers suggested the importance of "early fencing of crops BEFORE crop raiding. Ideally, fence in crop areas and don't mix elephants and crops!" She also said, "don't put too much temptation in front of them [the elephants], and try to fence it off while you can." The professor in field-based wildlife management suggested "a group of farmers getting together to do the fencing, maybe a team with an NGO, puts the responsibility on the people." The conservation educator shared a different view, he said, "Encourage not to fence, to allow free movement."

One of the elephant researchers suggested that "complex problems require complex solutions. Wise land management is the key!" Similarly, the conservation educator said, "Better land use management, better use of land... tourism is a better use of land." One of the conservation professionals suggested "alleviating human-elephant conflict through cropping patterns, how they are arranged" and gave an example of "the use of chilli grease on the ropes lining the crops in the Maasai Mara."

The compensation programs were also seen as an important suggestion in minimizing human-elephant conflicts. For example, one of the elephant researchers described the success of a compensation program in southern Kenya and one of the elephant conservation professionals suggested creating "land use/schemes of insurance, and a compensation fund within the community." The conservation educator and the professor in field-based wildlife management also agreed.

My Response

Listening to these Kenyan experts confirmed to me the complexity of the issues

facing elephants and the need for perseverance in addressing human-wildlife conflict in

Africa. The most significant issue facing elephants appears to be their decreasing habitat

and lack of safe space, which is linked to human encroachment.

The experts advocated the importance of including the community throughout the

development of the EOP, right from the start. Our community-based approach to

curriculum development was consistent with that advice. Incorporating what the

community wanted to learn in the curriculum became an important component in this

study.

In the development of the program then, the ideas carried forward included:

- implementation of the community-based approach to curriculum development

- inclusion of traditional stories

- content related to the similarities between humans and elephants

While a number of the experts did advocate the importance of emphasizing the

economic value of elephants in the program, I did worry about the perils of

commodification. Instead, the idea to emphasize elephants' commonality with humans

was more attractive. The EOP included reference to the elephant's social system and

their similarities to humans. Sandi and Doug often tried to bring the EOP participants'

questions back to how "human" the elephants are. For example, when a student asked

how the elephants learn, Sandi responded "just like you learn." Similarly, when asked

about discipline, Doug noted that "just like your parents discipline you, guiding you

gently… so [elephants are] very similar to people."

The Needs of the Teachers

Recommendations from the Teachers

There were two focus group meetings held with groups of teachers. Prior to any of the EOP visits, Julien, an LWE volunteer and I co-facilitated the first meeting with teachers at the LWE field station. I wrote down as many of their comments made throughout their visit as possible, and also took notes of the focus group meeting. Louis and I facilitated the second meeting, which took place after the last of the LWE school visits, to give an update on the EOP and to gather feedback and further ideas. I wrote down all notes on poster paper in the front of the classroom. In addition, Louis and I also took notes of informal discussions we had with teachers while they were participating in the EOP with their students.

Meeting 1: Visiting the LWE field station. We asked the teachers, "How do you see elephants?" Their response was "you know, we see elephants as destructive," and the words most often used to describe elephants were 'fear' and 'destruction.' For example, prior to meeting Jabu, Thembi and Morula, one teacher said, "I don't know if I'm going to enjoy this. I'll decide after I see the elephants. You know, we see elephants as destruction." Another said: "elephants have been aggressive, because we have been aggressive to them." Another expressed his concern about the potential success of the EOP, "I don't know if it will work, we see animals, like elephants, as destroyers of the environment" but went on to acknowledge "they are not all destruction to the environment, also positive to the environment."

After the afternoon at the LWE field station, their comments all seemed very positive. For example, one teacher said, "even though they [elephants] are so dangerous, it shows they can be tamed and peaceful." Other comments included, "fantastic, I learned a lot," "that was exceptional, I am going to write an essay about this," while another said: "I personally think it is okay. If this could be applied to the children, this could be okay. This service is good."

During the formal group discussion at the end of their visit, the teachers voiced safety concerns, particularly around supervision and exposure to the potential dangers of wild animals. With the teachers we agreed that LWE would have the students wear whistles around their necks while participating in the EOP, to blow in case of emergency. The teachers also suggested creating some rules of conduct (e.g. following directions and staying within sight.) In addition to these rules, we also decided that no student (or adult) was allowed to wander away from the camp circle, and at night, each tent would be given a flashlight, and students needed at least one student partner and one adult when visiting the outdoor toilet after dark.

Teachers also offered suggestions regarding ways to connect the EOP to the Botswana syllabus. The teachers felt the most appropriate links were with science and social studies. One of the teachers added, "right now, standard one has EE throughout all subjects, which will soon be incorporated into all the standards and across all forms." The teachers also invited me to visit one of their schools so that I could examine a copy of the syllabus to find specific outcomes and objectives.

The teachers also came to a consensus that they wanted a booklet created, which later became known as the *Teachers' Package*. For example, one teacher wanted

booklets given to the schools "with pictures and information, the little ones especially like pictures." Another teacher felt the booklet should "include photos, pictures and information including behaviour, how they interrelate with people and such." Other teachers suggested that the content should include how the elephants eat, their weight, their skin, texture, trunk, adaptations to different environments, how they store water, amount of food they eat in a day, what plants they like best, the distance they travel each day, group dynamics, how big groups are when travelling, and the relative number of males and females.

The teachers also suggested that a picture be taken of the children while visiting LWE and meeting the elephants. The teachers also said that incorporating drawings would be a great idea, and one teacher suggested, "the kids should do a drawing, then they can discuss [the drawing]," either at school or at LWE. When asked if a two-day program was appropriate, one of the teachers said, "they can spend the next morning here [at LWE], then go back in the afternoon as long as it isn't late."

There were a variety of other suggestions. For example, they felt it would be important to include an evaluation of the program, perhaps using a small test or comment sheet. The teachers also came to a consensus on the need for 2 adult chaperones for 10 students, one of whom would be a teacher and, when possible, one parent or member of the Parent/Teacher's Association. Teachers also felt publicity was important to increase awareness of the EOP. One said, "I was also thinking of another idea, maybe inviting the media people here, to see what you are seeing and doing here. And sell the idea to the people. Even Ngami Times."

Meeting 2: In a classroom in Maun. During this second meeting, one of the teachers questioned the overall frame for the EOP, that is, "Humane Education." He asked, "it sounds good, but practically, how can this work if we also depend on others, animals and plants?" I explained that "it doesn't necessarily mean, for instance, that we have to stop eating meat, but that we can take care and treat the cows and other livestock with care and kindness while they are alive." He agreed, with a smile, and said he understood.

Revisiting the concept of a *Teachers' Package*, Louis and I shared the ideas brought forward by the teachers who attended the first meeting. The teachers in this second meeting recommended that it should include activities, the schedule of the EOP, and an elephant fact sheet. The teachers also offered further suggestions for the EOP:

- incorporate traditional knowledge/stories and uses of elephants and elephant dung

- lend videos on elephants to the schools, including *A Herd of Their Own*

- have the LEC, Louis, travel to schools to give talks and facilitate activities

- make books and literature about elephants accessible while at LWE

- describe the games/activities in more detail in the Teachers' Package

- encourage classes to borrow a video camera from the Teachers' Resource Centre to film their visit

- encourage students to present drama and poetry upon return

- ask students to share with their class the games they learned during the EOP when they return

To ensure the sustainability of the EOP, the teachers suggested the following: giving recognition to those who have supported the EOP such as funders; approaching

other potential sources for sponsorship/funding; and approaching the Principal Education Officer, Council, schools and parents for help with transportation and food.

My Response

We were able to incorporate the majority of the recommendations of the teachers as we developed the EOP curriculum and educational materials. Based on their recommendations and input, we pursued the idea of creating a *Teachers' Package*. With the help of Louis, Sandi and Doug, I wrote the first draft, which we then delivered to all 13 teachers as well as the Principal Education Officer in Maun and 2 government officers from the Ministry of Education at the end of my stay in Botswana (Appendix E).

In response to the teachers' safety concerns we developed 6 safety rules, which we enforced throughout the facilitation of pilot EOPs, see Table 13. We made sure that children who participated in the EOP were given at least one photo of themselves with Jabu, Thembi or Morula; see Figure 3 as an example. We also incorporated the teachers' suggestion to incorporate drawings into the EOP, and all students had an opportunity to draw at least one picture prior to departing the LWE field station.

As well, we developed an initial method for evaluation, namely a 'Review Sheet' (Appendix C), which we administered to the last 3 groups who participated in the EOP during my stay. The group size stayed at the teachers' suggestion of 10 children plus 2 adult chaperones, which was also in accordance with LWE's limits.

Table 13. Safety Rules While Participating in the EOP.

#1 – Listen and follow all directions given to you by the L.W.E. staff, representatives and teachers throughout the trip.
#2 – Everyone will be issued a whistle to wear around their neck for safety, and must not blow the whistle unless they are in an emergency.
#3 –While at camp, everyone must stay within the circle of visual area of camp.
#4 – You must wear shoes at all times (due to the presence of scorpions etc).
#5 – While visiting with the elephants (Jabu, Thembi and Morula), stay together as a group, and do not wander away from the group unless accompanied by an adult.
#6 - At night, no one should walk alone even within the camp circle (therefore if you need to get up in the night, you must wake up your tent partner and an adult).

Figure 3. Example of Student Photograph Taken During EOP

Making Curriculum Connections

I visited a school and examined the Botswana Syllabus with the help of a few of

the teachers present in the first meeting. I focused first on science and social studies, and

then turned to English and mathematics, looking for potential links to the EOP

curriculum (see Table 14).

Table 14. EOP Links to the Botswana Primary School Syllabuses for All Subjects (1993).

STANDARD SIX		
Subject and Module	**Topic**	**Pupil's will:**
Science: Module 3 – Animals in Nature	3.1 Uses of Animals	3.2 acquire knowledge of and appreciate the use we make of animals
Science: Module 9 – Environmental Awareness	9.1 Food Chains and Food Webs	9.1 explain the relationship between plants and animals in the food chains and food webs
Social Studies: Unit 3: Human Activities	1. Southern Africa's Natural Resources	Describe the natural resources found in Southern Africa. *Specific Instructional Objectives*: 3.1.01 list the various economic activities in Southern Africa
English	1. Listening 2. Speaking 3. Reading 4. Writing	(various general objectives and specific instructional objectives for each of these four topics are linked with the EOP curriculum)
Mathematics	Pictorial Representation	Read and plot graphs that show current events. *Specific Instructional Objectives*: Graphs that keep record of current events.
STANDARD SEVEN		
Science: Module 3 – Animals in Nature	3.1 Common Wild Animals in Botswana	Acquire knowledge of some of the wild animals found in Botswana Appreciate the value of wild animals of Botswana *Pupil's should be able to:* 3.1 identify common wild animals of Botswana 3.2 describe some of the important uses of wild animals of Botswana

The recommendations that I did not have time to pursue further and/or incorporate while in Botswana included: publicity (such as contacting media and/or publishing a newspaper article); having Louis travel to schools to give talks and facilitate activities with the students; creating an official LWE library that can be used by the participants at the EOP; encouraging a school group to borrow the video camera from the Teachers' Resource Centre and film their trip to show to other students at school; and approaching the Principal Education Officer, council and schools for help with transportation and food. These ideas could perhaps be considered by LWE in the future as they further develop the EOP.

The Needs of the Students

To gain a greater understanding of the needs of the students, I collected their oral and written comments on what they already knew about elephants and what they wanted to learn about elephants, which was incorporated into the pilot EOP. All 78 students who participated in the LWE EOP shared comments with Louis and me on these two topics. Louis and I typed all their comments and questions into the computer, and Louis translated from Setswana to English where necessary.

"What I Already Know About Elephants"

The students shared 146 oral and written comments regarding what they already knew about elephants. These comments were collected at the start of the program, after the students arrived at the LWE field station and ate lunch, following the welcome activities. The students' comments could be categorized as either: 1) perceptions of

elephants (36%); 2) elephant behaviour (29%); 3) elephant characteristics and facts

(21%); and 4) value of elephants (14%), and are summarized in Table 15.

Table 15. Summary and Breakdown of Previous Knowledge Shared by Students.

Category	Code	Frequency (Total number of comments = 146)	Frequency Percentage (rounded to nearest whole number)
Perception of elephants	Dangerous or destructive	46	33 %
	Positive	4	3 %
Elephant Behaviour	General Behaviour	23	16 %
	Feeding Habits	12	8 %
	Social Structure	8	5 %
Elephant Characteristics and Facts	Elephant Anatomy	9	6 %
	Elephants – largest mammal	5	3 %
	General Descriptions	18	12 %
Value of Elephants	Tourism	9	6 %
	Ivory	6	4 %
	Other	6	4 %

Based on the category and codes in Table 15, two overarching themes emerged,

each representing 50% of the comments: 1) human-elephant relations; and 2) knowledge

of the African elephant. 'Human-elephant relations' encompass the categories of

'perceptions of elephants' and 'value of elephants.' Regarding perceptions, the most

frequent response (33%) depicted elephants as being dangerous or destructive. Here are

samples of such comments: " I already know that elephants are dangerous," " I knew that

they can break trees and can kill people when they are angry," "elephants are dangerous

and they can kill every thing they want to kill," "elephants are aggressive" and "they

[elephants] also destroy good branches, which could be used for poling." One quarter,

13, of the comments actually used the word dangerous. Among the comments referring

to elephants as being 'destructive,' the majority referred to elephants destroying trees,

while others mentioned destruction of "our houses at our cattle posts," "the crops" and "our boreholes when they want to drink water."

Some of these comments seemed to be based on local stories and beliefs. For example, in order to escape from elephants who are chasing you, run to the left; elephants don't like the smell of pregnant or breastfeeding mothers; elephants don't like red or white colours; and elephants will chase people "if they [the people] are far from their places." Another belief that came up more than once describes the behaviour of an elephant after it has killed a person, avoiding contact with other elephants for a significant period of time. The 3% of comments that described elephants in a more positive light were the following: "elephants don't like killing people," "they can be helpful sometimes," "the most docile animal," and "others like playing like running and playing hide and seek."

Regarding the perceived value of elephants, most comments referred to their financial value, through tourism (e.g. "it's a resource that attracts tourists") along with the use of their tusks as ivory (e.g. "their tusks are used to make ivory as jewels"). Certainly the financial benefit to Botswana seemed significant, for example, students said, "elephants are liked most by tourists" and "elephants are significant in our country because most people from other countries come in Botswana to see [elephants] than other animals in the world, then after they pay money, then our country become rich."

The second broad theme that emerged, 'knowledge of the African elephant,' included 'elephant behaviour' and 'elephant characteristics and facts.' General behaviour (e.g. "elephants can cross very big rivers"), feeding habits (e.g. "elephants eat palm fruits"), and social structure (e.g. "the head of elephants is a female"), were typical

comments that fell in the category of knowledge of elephant behaviour. Many of the comments within this category referred to what elephants don't like, including dogs, hippos, and loud noises. Some comments described what their behaviour is like when they are angry, including ear flapping and raising of their trunks. As well, four comments shared by the students describing elephant behaviour made references to the similarities between humans and elephants (similar to the elephant researchers in Kenya!): "elephants, like people, do mourning their dead," "elephants, like humans, like swimming," "elephants also fight for territory just like humans do" and "also, like people, elephants do take a rest in the shade."

The comments categorized as 'elephant characteristics and facts' could be broken down into elephant anatomy (e.g. "they use their ears to cool their body"), elephant as the largest mammal (e.g. "it is the biggest land mammal in the world"), and general descriptions (e.g. "it has a long trunk and short tail"). Other comments I coded as general descriptions referred to where elephants can be found, such as "in the parks and game reserves," and "in many countries but in Botswana most."

Overall, although the majority of comments shared by the students at the start of their participation in the EOP seemed to focus on elephants as dangerous and destructive, some of the students did understand the financial importance of elephants to their country in the form of tourism and ivory. Also, some of the students knew many facts about elephants, perhaps through direct observation of elephants living in their area (two schools and all four of the villages have elephants frequenting their areas), although some of their previous knowledge may be based on stories and beliefs from their family and

community members, and/or through books and other literature and media to which they

are exposed.

"What I Want to Learn About Elephants"

Once the students finished sharing what they already knew about elephants, we

usually took a break for a snack (water and fruit and/or cookies) then moved into the next

sharing session, focusing on what the students wanted to learn about elephants. There

was no shortage of things the students wanted to learn about elephants. Louis and I

collected 257 questions from the 78 students. I grouped the questions that the students

shared with us into five different categories: danger of elephants (14%); value and

importance of elephants (8%); elephant behaviour (32%); elephant characteristics and

facts (35%); and habituated elephants (7%), as summarized in Table 16.

Table 16. Summary and Breakdown of Questions Asked by the Students.

Category	Code	Frequency (total number of questions = 257)	Frequency Percentage (rounded to nearest whole number)
Danger of elephants	How dangerous or destructive are elephants?	12	5%
	Why are elephants dangerous?	13	5%
	How can humans protect themselves or avoid elephant attacks?	11	4%
Elephant Behaviour	General behaviour	24	9%
	Feeding habits and facts	36	14 %
	Elephants feelings/sensations	10	4%
	Family/Social structure	13	5%
Elephant Characteristics and Facts	Elephant Anatomy	50	19%
	Speed	12	5 %
	General Descriptions	29	11%

	Traditional knowledge	6	2%
Value of Elephants	Importance and benefit to Botswana	7	3 %
	Benefit to people in general	3	1%
	Why are elephants important?	4	2%
	Value of elephant 'products' as tusks, hide or meat	6	2%
Habituated Elephants	Specific questions about LWE herd	5	2%
	Caring for habituated elephants	13	5%

Based on the categories and codes listed in Table 16, two overarching themes

emerged: 1) understanding elephants; and 2) human-elephant relations. 'Understanding

elephants' included desires to know more about 'elephant behaviour' and 'elephant

characteristics and facts'; together they accounted for over 65% of all questions asked by

the students. Elephant characteristics and facts included the questions I coded as

'elephant anatomy' (e.g. questions about the teeth, skin, ears, trunk, toes, eyes, mouth,

intestines, neck, hair, breasts and vocal/sound making abilities), 'speed' (how fast

elephants can travel/run) and 'general descriptions' (height, weight, lifespan, gestation

period, number of babies, mating, stages of growth and development). Elephant

behaviour referred to questions about 'general behaviour' (including swimming, sleeping,

ear flapping), 'feeding habits and facts' (how and what they eat including quantities, and

how they consume water including quantities), 'family/social structure' (whether or not

elephants travel in groups and how they raise their young), and 'elephant feelings/

sensations' (whether or not elephants feel pain when they eat thorns, step on thorns, toss

thorns on their skin in the dirt, and their fear of fire and loud noises).

The students also asked questions relating to some of the stories that had been told

to them by their family and/or community, which I coded as 'traditional knowledge.'

These questions included 2 on whether or not it was true that elephants were made up of different kinds of meat (including human meat) while the other 4 questions were: "can an ant kill an elephant?"; "is it true that elephant dung can make medicine?"; "why do elephants dislike people who are pregnant?"; "why do elephants kill a person, cover him/her with branches, and stay there for a while?"

The second theme, 'human-elephant relations', accounted for 35% of all questions asked, and included the categories of 'danger of elephants,' 'value/importance of elephants to humans,' and 'habituated elephants.' It is interesting to note that there were a significant number of questions asked regarding the danger of elephants (14% of all questions asked). More specifically, the students were concerned with how dangerous or destructive elephants are, and also what makes them dangerous, aggressive or angry. For example, some of the students asked, "is it friendly or dangerous?"; "I want to know what make it to be dangerous"; "what makes them to kill people?"; "I want to learn the damage that elephants do on the bush." In addition, the students also asked questions regarding how they (or people in general) could protect themselves from attacks from elephants, or how to avoid the attack in the first place (4% of all questions asked). For example, one student asked, "how can I defend myself when they attack me?"

The students also seemed curious about the value, importance and benefits of elephants, and asked questions about how important elephants are to Botswana, or to people in general. Students were also interested in learning about the importance or value of elephant 'products' such as ivory, hides, or meat. For example, one student asked, "I want to learn why their tusks are very important." In addition, four students simply asked the question, "why are elephants important?"

The least number of questions asked by the students were about 'habituated elephants,' (7% of all questions), but quite a number of students were curious about how to care for habituated elephants, including how to train and feed them. Understandably, some students also asked specific questions about the LWE elephant herd, Jabu, Thembi and Morula, including where they were from, how they got their names, and how they were transported and trained, along with whether Sandi and Doug enjoy living with them.

My Response

After doing a preliminary review of the first 3 groups of students' comments demonstrating the previous knowledge of the students and their questions, I held an evening meeting with Sandi, Doug, and Louis. At this point, it seemed to me that the majority of the students were describing elephants negatively, as dangerous and destructive, yet were very interested in learning more about elephant biology, characteristics and behaviour, and about human-elephant relations. Taking into account student comments and the other information I had collected in Kenya and Botswana, the four of us developed the Goal and Objectives for the EOP:

To encourage a more positive perception of elephants through developing a greater understanding and appreciation of the African Elephant. Through participating in discussions, activities, games and written assignments; and interacting with Jabu, Thembi and Morula, the students will:

- *Gain a greater understanding of elephant biology (behaviour/characteristics)*
- *Explore issues dealing with elephant-human relations*
- *Explore the diversity of interactions between elephants in their habitat/ecosystem*

- *Explore actions that help create a more harmonious and sustainable relationship between humans and elephants*

After observing and listening to Sandi and Doug facilitating the 'elephant experience' during the EOP, in other words, while introducing Jabu, Thembi and Morula, and allowing the students to interact with the herd (including such things as close observations, touching of the skin, feet, trunk, tail, and sometimes even waving and dancing with them), Sandi and Doug covered many of the specific questions that the students had about the LWE herd, and more.

However, not a lot of attention has been placed on addressing habituated elephants in general, or on making clear distinctions between wild and habituated elephants. Perhaps more attention could be placed on these areas in the EOP. One suggestion is to include this topic after and/or before visiting the LWE herd, perhaps while concerns of being safe near wild elephants are addressed in the lesson entitled 'How to Greet a Wild Elephant' in the *EOP Main Document*, (see Appendix D).

The idea to include traditional knowledge, stories, beliefs and practices recommended by the experts in Kenya was also suggested by the teachers and students. Louis and I therefore attempted to collect some of these resources during our meetings with the community, at the kgotlas.

The Needs of the Community

The Kgotlas in the Villages of NG32

Louis and I met with 3 of the 6 villages of NG 32, and in keeping with the traditional oral-based methods of communication, we met in the village kgotla, or the

main meeting place in a particular village. In total, there were 77 adults and 32 children who voluntarily attended the kgotlas. However, due to the nature of the kgotlas and perhaps due to time or cultural norms and traditions, not everyone spoke at the kgotlas. Therefore, the following summary of what Louis and I heard at the kgotlas is based on the comments shared by the individuals who did speak up, and were translated from Setswana to English, then transcribed into my notebook in plain view of those present. We began with the headman or headwoman facilitating the opening prayer, then Louis gave some background information on LWE, and then followed with the 6 questions, listed in Table 11.

Our first question asked the members of the village to share stories about elephants, or that involve elephants, since this seemed to be an area in the EOP that we had not incorporated yet. In total, there were 8 stories that were shared. As an outsider, I do not feel fully comfortable analyzing the folk stories and traditional beliefs shared by the members of the three villages; however, I will summarize the commonalities that I found among them.

Six of the eight stories shared either involved elephants that were once humans (e.g. "in the past, elephants were human beings...") or had human-like characteristics (e.g. such as being a married couple, as in one story with a rhino and elephant as a couple), and/or involved elephants that acquired various body parts from taking human made artefacts common to the area (e.g. reed mats for ears, stick for pounding grain that became the trunk, sieve for the sole of the feet). In one case, one village member said, "in my opinion, an elephant is a human being," and gave the reasons such as their human-like behaviours (e.g. washing in the river, breastfeeding their young, sharing their

"traditional law" that if a one's spouse or mother/father dies, one doesn't move with others. He went on to add, "even if I eat elephant meat, I know it is a human being." Other stories that were shared included a story about how a hare tricked both elephant and hippo, and a belief that "when an elephant has killed a human being, it doesn't mix with others."

Our second question asked people to share traditional uses of elephant dung. In total, there were 8 uses given. For example, 3 people described the use of elephant dung as mosquito repellent. Others cited medicinal uses of elephant dung including placing warmed dung to "cure legs" and treating asthma. One woman explained that "unless it is from witchcraft," elephant dung could be used medicinally to help with certain womb disorders. One man offered a number of medicinal uses including curing malaria and protecting newborn babies from evil. He also mentioned that you could smoke it if you don't have cigarettes. One villager explained in his opinion, why elephant dung is used as medicine:

> I believe that the elephant dung is used as medicine. I believe this because traditional doctors use elephant dung mixed with other herbs to cure patients. I believe this because elephants eat almost every tree/plant in the bush.

Our third question asked whether or not villagers saw any benefit to having elephants living in their area. There were 15 comments in total. Over half of all the comments, or 8 (or 53%), were negative, and described elephants as having no importance, mainly due to being dangerous or destructive. The various village members participating in the kgotlas explained that this was due to the fact that elephants destroy their crops (3 comments), contaminate their water sources, destroy the bush, or their boats (mokoros) or, in one case, an elephant had destroyed a house in one of the villages. One senior man

in one of the villages said, "I find elephants have no importance. Elephants are troublesome because they destroy our crops and contaminate our water." Some of the individuals simply explained that they were afraid of elephants. For example, one man said, "elephants are of no importance because I am afraid of elephants, when they enter the village I am afraid they will kill people."

The 7 comments that acknowledged the benefits and described the value and importance of having elephants living in their area came from all 3 of the villages, (although in one village, the only positive comment came from a 12-year old boy who had participated in the EOP). Three individuals cited tourism as a benefit to having elephants in their area. For example, one young man said, "I'm not supporting the motion [that elephants are not important], I know they are beneficial to me, whenever I have clients (photographic safari tourists), I don't have to walk far and I can show the clients elephants ... and I can make income." Others acknowledged the benefit of elephants economically, and listed the resulting jobs and development in the area (i.e. the building of schools and offices.) One member also said,

> I really see elephants as important, because I eat meat from elephants [that was delivered to this particular village from a safari hunting company] and they break down trees in the bush and I can collect firewood. I don't know why people are saying they are not important.

However, one elder said, "elephants are important but what the government has to do is reduce the numbers, there is more than should be here. They should sell to other countries that don't have elephants, and kill some and sell the ivory."

Our fourth question asked about challenges villagers faced living with elephants: including how frequently, and what time of the year conflicts usually happened. Out of the 9 comments recorded, 6 (66%) cited the destruction of crops by elephants as a

challenge to living with elephants. Some said that elephants "destroy our crops during the day and night" and another said "during and after the summer – Jan/Feb and March, and they destroyed everything in almost every farm here." Another individual said that the destruction of crops by elephants has been increasing yearly. (It is also important to note that according to Louis, the number of community members tending crops and/or the size of fields is increasing yearly, due to the availability of tractors and drivers donated as a result of the contract that NG32, as a Community Hunting Area, has with an international hunting safari company.) Other comments included challenges such as elephants destroying trees out in the bush and in the village, and other important plants such as wild palm, which villagers use to weave to make baskets and to make wine. Lastly, one woman voiced her concern that "elephants once came here near the radio building, and I was afraid it might destroy the radio inside."

Our final question asked for their solutions to these challenges. Of the 11 comments that we recorded, 6 were complaints that they could not shoot elephants because the government protects them, and that the compensation for crop destruction from the government should be increased. For example, one individual said,

> The elephants are troubling, and the government does not allow us to shoot them. People are scared and they don't know what to do. The elephants can get into the fields even during the day. And we are very scared of it to scare it away. Compensation is too small. If we had guns in our houses – we cannot shoot them. Elephants have been protected more than humans. Fifty pula [equivalent to $12.50 CAD] cannot even provide for the whole family.

Another individual said, "The government should sell these elephants to the hunting safaris. The hunting safaris should shoot the elephants all year round. By doing this the elephants would go away from this place." A couple of individuals mentioned that there were simply too many elephants, and that the government should take action. One

villager said, "there is no solution that can be taken so far to stop the elephants from destroying our fields because they are too many. We want the government to reduce the numbers of the elephants." Only two individuals actually suggested potential ways of minimizing human-elephant conflict. One simply mentioned going to the Department of Wildlife and National Parks for compensation, where "you may get 50 pula even though they destroyed a huge field!" while the other comment was,

> I tried to make a plan to scare the elephants by making a [word unknown] around the fields and I failed because the elephants continue to enter into the field. I tried making scarecrows with sticks and plastic and the elephants picked it up and tossed into the trees and then he entered into the field.

Although most individuals did not share what they do in attempt to minimize elephant-human conflicts during the kgotlas, Louis showed me some of the ways that people had been trying to deter elephants (e.g. hanging plastic bags on string around crops/fields, banging pots to scare elephants, and in his own personal situation, his family had built a small home in the middle of their field they use to grow crops so that they are present during the growing season so that if elephants visit their crops, they could try to scare them away).

The kgotlas confirmed the importance of continuing to explore ways of minimizing elephant-human conflict, since the villagers were interested in learning more about potential solutions. For example, one young woman said,

> We are having this problem, we heard that elephants don't like much noise. We don't know how to chase these elephants. We want to learn about more ideas to chase them away from our fields... Are there any solutions?

My Response

Since Louis and I met with the villages of NG32 just prior to the last 2 student groups participating in the EOP, we unfortunately did not have enough time to officially incorporate the traditional stories from the kgotlas into the EOP. However, Louis did share with the students of the last two groups the traditional medicinal uses of elephant dung that we had learned during our visit to the villages. A rough write-up of the stories that Louis and I transcribed into the computer was included as ideas for pre-EOP activities in the *First Draft of the LWE EOP Teachers Package* (Appendix E), in the hope that the teachers could use these in class or ask students to collect other local stories through conducting interviews with their family and community members and sharing them in a drama presentation.

After reflecting on what the village members shared at the kgotlas, I am recommending to LWE that: 1) when and if it is financially and logistically possible, they include an adult Elephant Outreach Program, whereby adults can visit the LWE field station; and/or 2) create a 'problem solving' group, which regularly meets (perhaps 2-4 times a year) to share and learn more about potential ways of minimizing conflicts with elephants; and 3) to start an inventory of human-elephant conflicts in the area, with pilot projects aiming to minimize the conflict, along with idea sharing. Also, I recommend LWE meet with the international hunting safari company who holds the 5-year renewable lease within NG32 (and who supplies/donates the tractors to the community to make more crops, which seems to be contributing to the increase of the conflicts in the area) to build more awareness of LWE, and to perhaps share some of the findings from this

thesis. LWE might also pursue making linkages to other CBNRM initiatives in Botswana.

The Pilot EOP

The pilot EOP was a 2-day program offering the participants (10 students plus 2 adult chaperones) experiential, EE activities ranging from a nature walk that explores how elephants interact and contribute within their ecosystem (see Appendix D), to the incredible 'elephant experience' where the participants had the opportunity to meet, interact and learn from the LWE herd, Jabu, Thembi and Morula, along with Doug and Sandi who shared their wealth of knowledge, understanding and love of African elephants. We began with fun 'ice breaker' activities that helped to welcome the group, to be comfortable sharing throughout discussions and activities, and to set a tone that encouraged the full participation of the students throughout. Louis and I facilitated this program for 8 different groups throughout my stay, 4 with Maun area schools and 4 groups from villages in NG32.

The EOP incorporated an approach to EE that is: 1) interdisciplinary, in that we incorporated a variety of subjects within the program, including science, English, mathematics, social studies, physical education, music and art (for example, the participants prepared a presentation about elephants that involved singing and dancing, while the activity entitled 'Oh Tlou' involved both physical activity through running, and incorporated math, through the graphing of the elephant population during the game, see Appendix D); 2) holistic and student-centred, in that we incorporated what the students wanted to learn while participating in the program, and allowed the students to express themselves and share with each other throughout the program and the learning process; 3)

community-based, through incorporating various suggestions of the teachers, villagers

and children and; 4) experiential, through the development and facilitation of hands-on

active games where the students were not simply passive recipients of information, but

rather were active in their learning process (e.g., handling dry elephant dung to learn the

eating habits of elephants, and touching elephants to feel the texture of the skin and hair).

The EOP also incorporated: 1) the philosophy of humane education in promoting care

and kindness towards all animals throughout all of the programming; and 2) Howard

Gardner's (1983) theory of multiple intelligences (logical-mathematical, linguistic,

spatial, musical, bodily-kinesthetic, interpersonal and intrapersonal) through the

interdisciplinary programming. For a further description of some of the educational

games and activities included in the EOP, see Appendix D, and for a sample EOP 2-day

schedule and background information that teachers received prior to their visit, see the

First Draft of the Teachers' Package in Appendix E.

In addition to the educational programming, the EOP also offered participants a

rustic camping experience, where the accommodations included canvas dome tents (for 2

– 3 students comfortably), foam pads to sleep on, one flashlight per tent, a simple canvas

shade surrounding a washing area with basins of water and a shaded outdoor

toilet/outhouse. The participants supplied their own blanket(s) and personal toiletries.

LWE purchased the food prior to their visit, and the group cooked over an open fire,

cleaned their own dishes and participated in other camp activities.

There was a limited amount of free time, given our tight schedule. Nevertheless,

during the less programmed time, the students often sat around the campfire, washed

themselves, or worked on their final song presentation. Most groups were also given the

opportunity to visit a local photographic safari company, Abercombie and Kent's luxury Stanley's Camp, to tour and talk about the impact and benefits of safari tourism on the local community and economy. We also offered an evening 'game drive' that provided unpredicted learning opportunities. Wildlife viewing also occurred during the approximately 1.5 – 2.5 hour drive to and from the LWE field station to their village or school where the groups were picked up, through bush roads in the Delta, where the groups often encountered a diversity of wildlife, including wild elephants. We used large 4x4 safari game-viewing vehicles, similar to those that tourists ride in while on photographic safaris, rented from a locally owned vehicle rental/safari company.

Evaluation of Pilot of the EOP

This is not an exhaustive evaluation of the pilot of the EOP, but I felt it was important to share the words, both written and oral, of the children, teachers, and community who took the time to share them.

Student Feedback

"What I learned about elephants" Since we started the program with 'what I already know about elephants' and 'what do I want to learn about elephants,' we tried to provide time throughout the program for students to write 'what I learned about elephants.' Ideally, we ended the program that way. The 120 written comments that we collected from the last 2 school groups could be grouped as follows: perception of elephants; elephant behaviour; elephant characteristics and facts; importance/value of elephants; habituated elephants; and other (see Table 17.) The categories and codes are similar to those found when analyzing the needs of the students.

Table 17. Written Comments on What Students Learned About Elephants During EOP (last 2 groups).

Category	Code	Frequency (Total number of comments = 124)	Frequency Percentage (rounded to nearest whole number)
Perception of elephants	Dangerous or destructive	6	5%
	Positive	3	2%
Elephant Behaviour	General Behaviour	11	9%
	Feeding Habits	9	7%
	Social Structure	1	<1%
Elephant Characteristics and Facts	General Descriptions	8	2%
	Speed	3	2%
	Elephant Anatomy	2	6%
	Folk/traditional stories	2	2%
Value of Elephants	Contributing to ecosystem (soil, insects, seed dispersal)	23	7%
	Other – Medicine	9	19%
Habituated Elephants	LWE herd (Jabu, Thembi and Morula)	43	2%
	Trained Elephants	3	35%
Other	Other animals	1	<1%

As with the needs of the students, two themes emerged: 'human-elephant relations' accounted for 70% of the written comments, while 'knowledge of the African elephant' accounted for 29%. Human-elephant relations encompassed the categories of perception of elephants, value of elephants, and habituated elephants. The theme of knowledge of the African elephant encompassed the categories of elephant behaviour, elephant characteristics and facts. The category of 'other' accounted for less than 1%, and did not fit into either of the themes (eg. "I saw many places and a lot of animals").

Some comments could be categorized as the perception of elephants as dangerous and destructive, but unlike the results of their previous knowledge of elephants, all also described the cause of elephants being dangerous or destructive. For example, some of the comments included, "I learned that elephants are animals that are

dangerous if you distract them," "It can broke down some trees when it is angry, hungry or when it is with its baby." The comments that I labelled as 'positive' within the category of perceptions of elephants seemed to all describe elephants as "friendly" and were most likely referring to the three elephants that they met at LWE.

Over a quarter (26%) of all comments fell into the category of 'value of elephants.' Unlike their earlier comments, these students wrote about new things they were learning, and many focused their comments on the elephants' dung, which most likely was learned during our nature walk. More specifically, the written comments of the students focused on the medicinal uses of elephant dung, and how the elephants contribute to their ecosystem through seed dispersal, providing nutrients to the soil through their dung, and creating habitat and food for various insects. For example, some of the comments coded as 'contributing to the ecosystem' include "elephants are very important because their dung can make medicine and it is bush mosquito coil," "elephant dungs makes nutrients for soil" and "its dung is very importance to insects. They lay eggs inside the dung of elephant."

The category of 'habituated elephants' generated the highest number of written comments (37%). The comments that I coded as 'LWE herd' (35%) encompassed all the comments that the students wrote about Jabu, Thembi and Morula. Their comments ranged from specific facts such as their age, where they came from, and what they saw them do. Some of the comments included, "the three elephants we learn with are Thembi, Jabu and Morula" and "I saw three kind elephants that can do anything," "I learned that Jabu, Morula and Thembi are friendly if you treat them nicely," and "Jabu and Thembi are 16 years old." The comments that I coded as 'trained elephants' were

comments that inferred that the students were learning about either the fact that elephants could be trained, or how they could be trained. For example, one student said, "I learned that elephants can be kept by humans," "I learned that elephants can hear some languages", and "elephants can dance and can sleep when you tell them." This clearly reinforces the need to discuss habituated versus wild elephants in the EOP.

The second theme I called 'understanding the African elephant' encompassed the categories of elephant behaviour and elephant characteristics and facts. Elephant behaviour encompassed general behaviour, feeding habits and social structure. Students wrote about different behaviour that they learned about elephants including elephants can swim well, cross rivers, and that they cover themselves in dust or mud to protect themselves from the sun and insects. They also wrote about all the various plants/trees that elephants eat, how they eat, and how much they eat. Although there was only one comment that I coded as social structure, it was about the family bond and care amongst the elephants. That student wrote, "we talked about when other elephant sick or injured other one sleep it or stay next to it."

The category I called "elephant characteristics and facts" encompassed elephant anatomy (the two comments were about their feet and trunk) and speed (how fast the elephants could run, for example, one student wrote, "I learned that elephants can run 35km an hour"). In addition, the code I called general descriptions encompassed all the students' written comments on their size and how big their feet and footprints were. Finally, the student comments that I called "folk stories" were based on what Louis told me were stories/beliefs that are commonly shared within the community about how "only an ant can kill an elephant." They were relayed by students rather than Louis and me.

Seeing these two written comments demonstrated to me that the students are also

teaching each other.

Review Sheets

The last three groups (two schools and one village) answered questions that Louis

and I prepared together (see Appendix C). Overall, the responses demonstrated some of

the learning that took place in the EOP, and the feedback was very positive. Their

recommendations for improvement will cost LWE money to implement. The responses

on the *Review Sheets* are summarized in Table 18.

Table 18. Summary of the Responses on the *Review Sheets* (last 3 groups).

What do elephants need to survive (list 3 things)?   All students responded correctly. Most of the responses listed "food, water and space," since this is what was presented during the 'Oh Tlou' game. The other responses included "good neighbours," "love", "freedom," "safe place," "shelter," "mud," "trees," and "grass, leaves and bark."
Name three ways that elephants contribute positively to the ecosystem.   Interestingly, the majority of the responses were categorized as 'contributing to humans' and acknowledged the economic importance of elephants,' specifically in the tourism industry. For example, students said that elephants contribute positively to the ecosystem because elephants "encourage tourism," "are important because they bring money," "attracts tourists," "are sources of income" "develop our country when tourists come to see them," "make the roads when [they] come from the river," and "their dung makes medicine." Some students even mentioned for aesthetic reasons, including for example, that elephants "decorate the forest," "they make the forest look nice," and "when it is broke trees, the bush lookey nice." One student wrote, "the importance of elephants is to serve people." All other responses described ways that elephants' contribute to the natural world, or the ecosystem, and wrote that "elephant dung disperses seeds around the world," "add manure to the soil," "its dung is food for other animals," "some insects hide in elephant dung," "create space by breaking down trees," "they bring more elephants and funny things like dancing," "their ecosystem are important to insects," "for cutting down trees," and "making food."
Name 3 other species (plant, insect, or mammal) in the ecosystem that have a relationship to elephants and briefly explain how.   Most of the students talked about the dung beetle (that we often talked about during the

EOP), while others listed grass, horseflies, vultures, lions, plants, hyenas, and others. It seemed as if the students understood the concept of relationships presented in the 'Food Web' game, since they related many of their answers to the content of the game.

Circle the two most important senses that elephants rely on (smell, touch, taste, sight or hearing)
The groups were correct (circling smelling and hearing) 75% of the time.

What do elephants use their trunk for?
The majority wrote that they use their trunk for "smelling," while the other comments were: "breathing," "touching," "trumpeting," "drinking water," "eating," "helping to take food to its mouth," and "holding water for a long time."

What should you do if you meet an elephant in the bush or near your place?
In one group, only 50% the students answered correctly, while in the other two groups, at least 75% of the students answered this question correctly. For example, the incorrect answers included running away (which may cause the elephant to chase you if it wasn't already charging), while examples of correct answers included, "don't disturb the elephant, but go around it," and "you should observe its movement and walk quietly down wind." It seems as if there should be more attention given to this topic in the EOP, to make it very clear to the students, including the differences between seeing a wild elephant after interacting with the LWE herd that they were able to get so close with.

Draw a picture of the front and back prints of an elephant and label them.
At least 80% of all students who responded were correct, (drawing the textured prints with the front print larger and rounder, with the back print slightly smaller and more of an oval shape).

What did you like most about your visit?
The responses were positive, and included various parts of the whole experience, including "the food," "the transport," "colouring," "the staff who were friendly and patient," and learning "what elephants need to be safe." However, the majority of the responses were either about visiting or "touching" the elephants, (Jabu, Thembi and Morula) or viewing other wildlife, or were about enjoying playing the educational games, and participating in the "lessons and activities." My favourite comments included, "I enjoyed the elephant dance," and "I was enjoy when I was touch elephant because it was my first time touching an elephant."

What did you learn that surprised you most while you were here?
Most of the responses, or half of all responses, were categorized as 'elephant facts'. These comments listed various facts that the students learned about elephants, including: "that an elephant can run 35 km fast," "what elephants need to be safe," "how elephants use it's trunk for," "that elephants can hear," "about the different elephant sounds," "some elephants are not dangerous" and "how to be safe." The second most frequent category of response was 'trained elephants,' and included the students' fascination with Doug and Sandi's ability to interact with the trained and habituated LWE elephants. For example, the students were surprised to learn that "elephants can respond positively to the educators," "elephants understand English," "elephants responding to what they are told," "how elephants behave if not treated badly," "communication between elephants and LWE staff," "socialization can also be between humans and elephants," and that "Thembi, Morula and Jabu are polite elephants." Other students responded that they were surprised to learn of "the importance of elephants," "the different games," "the

importance of my eyes," "the way I was treated," and that "truly elephants can live with people."
How were the Elephant Outreach Program staff and educators? All of the responses were positive, and described the LWE staff as "friendly," "helpful," "generous," "polite" and "competent." One student said, "Sue and Louis were good teachers. Sandy and Doug were good teachers for elephants."
How can we improve our Elephant Education program? Most of the comments were recommendations about the construction of the LWE field station, which would cost LWE money. Of these recommendations, the majority recommended fencing the whole camp (either for safety reasons dealing with concerns of wildlife, or for aesthetics), with one comment actually suggesting that at LWE there "should be someone with a gun in case of serious attacks by animals." Other recommendations suggested constructing a classroom (instead of the current shaded outdoor classroom with the large tarpaulin), or a more permanent toilet area (instead of the shaded outhouse construction). Other recommendations included increasing the EOP to 3 days (instead of only 2) while others felt that there was nothing to improve.

Student Drawings

On the second day of the EOP, Louis and I provided the opportunity for students to draw pictures. The first two groups drew pictures on what they experienced while participating in the EOP. The next three groups drew pictures on "what happens when a person meets an elephant," while the last three groups drew pictures on "what are you going to tell your friends about elephants."

Drawings in response to the first suggestion, "draw your experience in this program," 3 categories became apparent: 1) being close to elephants; 2) non-elephant parts of the program; and 3) other wildlife. Generally, students drew pictures of a combination of objects or experiences on the same page. The majority of pictures (56%) included either elephants interacting with people (usually the students themselves) or elephants interacting in their ecosystem (eating, pooping, and smelling), which I categorized as being close to elephants (see Appendix F). However, a significant amount (30%) of the drawings included non-elephant parts of the program, including the tents, a

campfire, the vehicles, tables, food, and people playing games. Interestingly, there were a number of the drawings (14%) of wildlife other than elephants, including giraffes, hyenas and zebras. Although the most significant part of the experience is observing and interacting with the elephants, many other parts of the EOP are leaving an overall impression on the students, including the camping, meals and wildlife viewing.

For the second suggestion for a topic for drawing, "what happens when a person meets an elephant," three categories were established: 1) depiction of a positive or safe experience with elephants; 2) depiction of fear or anxiety; and 3) not determined or unrecognizable. The majority of the drawings, or almost half (48%), depicted fear or anxiety with people running away from elephants, hiding from an elephant, and a couple of the drawings depicted a person pointing or holding a gun near an elephant (see Appendix F). A little over a quarter of the drawings (28%) depicted a positive or safe experience, with a person shown walking a safe distance around an elephant smiling, hiding behind trees smiling, while another student was waving at the elephant. One quarter (24%) of the drawings were either unrecognizable, or unable to be put into one of these two categories. The number of drawings which portray negative depictions of elephants (fear, anxiety or aggression) confirms the importance and value of continuing to provide the EOP and other related programs for the community.

For the final suggestion of topic, "What will you tell your friends about elephants," 4 categories were apparent: 1) observed elephant behaviour; 2) close interactions with elephants; 3) experiences with other parts of the EOP; and 4) unrecognizable places or situations. The majority of the drawings (55 %) were categorized as 'observed elephant behaviour' and depicted elephants performing various

behaviours such as eating, standing in different poses, smelling and even pooping (see Appendix F). The category of 'close interactions with elephants' encompassed 21% of the drawings, and generally were pictures of them or other children touching or waving to the elephants, most of which depicted the person (often themselves) smiling (see Appendix F). It still seemed that other parts of the EOP, which was 10% of all the drawings, included such things as playing games, sleeping in tents and participating in game drives, viewing wildlife other than elephants. Only 3% of the drawings were unrecognizable places or situations.

Teacher and Adult Chaperone Feedback

While the school and village groups were participating in the EOP, or while visiting the schools after their visits, Louis and I often had a chance to facilitate some informal discussions with the teachers, parents or other adults who accompanied the children. During or after these discussions, I would do my best to write their comments into my notebook, which Louis and I later transcribed into the computer. I separated their comments into positive feedback and recommendations for change.

Positive Feedback. In general, the feedback was very positive with a high degree of enthusiasm. The teachers and other adult chaperones often shared what they appreciated about the EOP, and the perceived benefits, importance and value of the program. They acknowledged that they "learned a lot of things" not only from the LWE staff, but also "from the elephants." For example, at the end of a visit from one of the villages, an adult chaperone said, "I appreciated playing the games and I learned that people and elephants have similar lives."

Many teachers and other adult chaperones acknowledged the benefit of the EOP in helping to better the students' perception of elephants thus helping to create a more harmonious relationship between humans and elephants. For example, while driving out to the LWE field station to participate in the EOP, a teacher said, "you know, these students only see these elephants as dangerous, today they are going to experience something different." An adult chaperone from one of the villages said, "in Africa here, the elephant is a dangerous animal and we should know how to behave with them and it gives our children an idea for the elephant, how they can behave." One teacher, after receiving the group photos and certificates (see example in Appendix G) to be distributed to his students said, "from now onwards, people can look at our pictures and see that people can be friends to elephants."

They also acknowledged the power of the experience of being in close proximity to the LWE elephants, including the chance to touch them. For example, an adult chaperone from one of the villages said, "you know, I always looked at the elephant with fear. And yesterday, when we were approaching the elephants the students were saying that they were full of fear and felt dizzy. Louis and I told them to have no worries. And they touched them."

Interestingly, based on the discussions with the teachers and other adult chaperones, I learned that there were other benefits to the EOP aside from educating students about elephants. For example, other benefits included: 1) the opportunity for teachers to bond with their students outside of the classroom; 2) allowing the groups to "get away and enjoy being in nature"; 3) relaxation; 4) learning other ideas, activities,

teaching styles and approaches to education; and 5) training students and adult chaperones who are interested in becoming guides in the tourism industry.

Also, the benefits of the EOP seem to extend beyond the group of students selected to participate in the program. For example, one teacher, after returning back to her school, provided time for the students who participated in the EOP to present and answer questions to the rest of the class about their visit. The teacher said, "that the students were very excited, and that [the students who did not visit LWE for the EOP] kept asking so many questions." When I asked her how we could improve the EOP she said, "I didn't focus on the improvements! I only focused on the excitement [of the student group]!" She later advised we keep the activities around the campfire that combine culture and modern stories, for "sharing stories and what we learn from stories is important, mixing culture, the modern and animals" and she went on to give examples of elders in the past sharing many stories that taught important lessons.

Recommendations for Change. Generally, recommendations were about one of 4 things: 1) increasing the number of days of the EOP (suggested by every group who visited); 2) constructing a more developed site; 3) suggestions of whom to approach to seek further funding in order to secure the sustainability of the program (including government officials, schools, council and other businesses); or 4) publicizing LWE and the EOP through media and other sources.

Comments and Feedback from the Kgotlas

Once the first five questions were asked (see Table 11, p. 42 of this document), Louis and I provided time towards the end of the kgotlas for the community members to

share comments, concerns and feedback regarding the EOP. (Louis translated comments into English and I wrote them in my notebook and later transcribed them into the computer, and Louis edited them). Some of the members of the villages inquired about issues of safety, including whether or not fences surrounded the LWE field station, whether or not the kids sleep separately from the adults, along with some questions about how the camp is set up, and about the food and menu. A man suggested inviting children older than the current target age group (9-12) and said,

> If we are doing this project to make these kids aware this is good. We should take kids who can understand those things better. These kids (9-12) may approach elephants thinking they are like your elephants [Jabu, Thembi and Morula] and they may be at high risk after visiting the elephants. Maybe take 12 – 16, or those who understand better?

(Interestingly, according to my 'observer notes,' this same man approached me after the kgotla, wanting his younger kids to participate in the LWE EOP!) A woman and mother who had participated in the EOP suggested, "You should increase the number of days so that the children can learn more," while another woman suggested that LWE "must increase the number of caretakers [chaperones] who go with the children so they can manage and easily control them."

A few members of the community requested assistance in dealing with the conflict they are experiencing with elephants. For example, a young woman said, "We are having this problem, we heard that elephants don't like too much noise. We don't know how to chase these elephants. We want to learn about more ideas to chase them away from our fields. Are there any solutions?" A few other people seemed more preoccupied with the issue of compensation. For example, an elderly man said,

> Thank you for the meeting. An example of problems we have with lions into the buffalo fence that kill all our donkeys, and we were only given 120 pula from the

Wildlife Department, but donkeys cost 300 pula! If you can be the intermediary between us and our government, we need to be compensated more!

Comments and Feedback from the Government Officers from Maun

The meeting with the 9 government officers from Maun involved a 2-day visit to the LWE field station, and involved idea sharing, and participation in the EOP activities, including meeting and learning with Sandi, Doug and Jabu, Thembi and Morula, and playing some of the educational games that had been developed for the program. The Principal Education Officer in Maun, who helped organize and plan this visit, chose the 9 government officers. The following is a summary of the comments from the feedback and discussions that were facilitated at the end of their visit.

During the meeting that Louis, Sandi and I facilitated with the government officers on the morning before they left the LWE field station, they offered a number of positive comments about the EOP. The officers said that they liked the fact that we attempted to incorporate children from the class who were unable to visit and participate in the EOP (we can only host 10 children at a time), that the EOP is experiential, "with a child-centred vs. passive approach," and that it is a "balanced curriculum, [incorporating] the needs of the community into the program." One stated, "we are trying to explore strategies for Environmental Education infused in our education curriculum in other subjects, this is another effective strategy to do this." One officer commented with "we Batswana have not been taking care of the environment, and this is important" while the EOP reminded one officer that we should "subscribe to the idea that you did not inherit from your parents, but borrowed it from their children." One officer said that the LWE EOP "will help [the students] become responsible and environmentally conscious adults."

In addition, another benefit that resulted from the government officers visit was highlighted with an officer who said, "the PEO [Principal Education Officer] did a good thing bringing us officers here, it promotes working together and collaboration, work along the lives with the DWNP [Department of Wildlife and National Parks, Supplies] for food, etc."

During this same meeting, the government officers also offered LWE several suggestions or recommendations. One officer suggested developing a follow-up activity to check for learning later on, which the officer said is "what we call dip-sticking, in order to see if the oil is still there." A number of the officers suggested inviting higher government and media for both publicity and support (financial and otherwise). For example, they suggested to "start with local authorities and go higher," and that "if government helped with full funding, maybe [LWE] could develop a bigger camp, [with] more students." The officers also suggested to "even invite the Vice President, he is very supportive" and to invite "the President since ecotourism has been put into place." The local media that the officers suggested to contact included "BTV [Botswana Television]", "Mmegi/The Reporter," "The Guardian," and "The Voice." One government officer added, "I am happy that the media should be incorporated, often only negative things are heard over the radio, lets share good things exposed to the people and community."

The government officers also offered suggestions for finding further funding and support, including approaching companies, such as the Diamond Company in Botswana, and developing relationships with relevant organizations such as the Ministry of Education, the Department of Wildlife and National Parks, and the University of Botswana. When asked for ideas for funding from government departments, they

responded that "the purpose of us being here is to do this. Unfortunately there was no Council [local politicians] because they were on leave, [however] the group here may be in a position to assist, for example, to borrow truck and supplies."

Other suggestions offered by the government officers during this meeting focused on developing a structure of selecting which groups and or schools to include in the EOP. For example, the officers' suggestions included extending the program into secondary education, since "many have only read in books, but have never seen an elephant in person," and selecting schools who are already interested in wildlife and the environment, and "maybe putting into place competition to be selected, or through a recommendation with the Principal Education Officer." The Principal Education Officer disagreed and responded, "we need to motivate schools who are not doing well, and others were chosen because they were doing well as a reward or they were located near a high elephant area." The officers concluded that school groups should go through the Principal Education Officer's office, and needed criteria to use in the selection. At the end of the meeting when I said that LWE's biggest constraints to incorporating all these ideas were human resources and money, the group responded with "hire us!"

My Response

To summarize, the evaluation of the pilot of the EOP was generally very positive, although the majority of the recommendations will cost money or require some decision-making by LWE. For example, LWE will need to decide how many student groups per year are feasible, and to explore the possibility of extending the length of the EOP, given financial and temporal constraints. Certainly, they should continue building their

relationship with the government officers who participated in the weekend visit to the

LWE field station, especially with the Principal Education Officer, and to pursue their

suggestion of receiving funding and support for transportation and food from the

Departments of Education and Transportation, the Council, and the schools. Also, based

on the recommendations of the teachers and community (villagers of NG32 and

government officers), LWE should explore the possibilities of inviting higher levels of

government for support, approach the media to publish more articles (at least two have

been published already), explore the idea of extending the invitation to hosting high

school groups (which would require changing the curriculum accordingly), select and

explore potential relationship building and potential funding opportunities with

organizations and governments, both local and international.

Revisiting the Larger Problem

It seems clear that the EOP has the potential to support some of the objectives

outlined in the Botswana syllabus and the mission statement of LWE, and those identified

by teachers, students and community members. The EOP included many opportunities

for participants to learn more about elephants and their relations to the ecosystem, the

economy and the community. As well, the EOP included ideas which emphasized the

similarities between humans and elephants. As was stated earlier, modern elephant

researchers (Douglas-Hamilton & Douglas-Hamilton, 1975; Groning, 1999; Moss, 2000;

Meredith, 2001; Poole, 1986; Sheldrick, 2000; Watson, 2002) have found that elephants

share many characteristics with humans; this also reflects traditional stories of the

community members of NG32. Emphasizing the similarities between humans and elephants also fits well with the philosophies of humane education (Selby, 1995).

The EOP also helps meet the aims of the CBNRM initiatives in Botswana (Government of Botswana, 1997), linking ecology, community and economy (Hulme & Murphree, 2001). After discussions with the professionals in Kenya, I felt hesitant to focus on the economic benefits that elephants bring to the community, concerned that the EOP would then be encouraging the commodification of elephants. Kuriyan (2002), for example, warns that there is a danger in relying solely on monetary incentives which can create economic dependency and unsustainable expectations for compensation. While the EOP did not overemphasize economic rationales for elephant conservation, we did feel that it was important to mention the important economic benefits that elephants bring to the community through safari tourism.

This study certainly supported Osborn and Welford's (1999) assertion that there is no single attitude towards elephants. Nevertheless, the majority of community members (teachers, students and village members) described elephants as either dangerous or destructive prior to participating in the EOP. This attitude may become an obstacle to CBNRM initiatives in NG32, as noticed by Envik (2000). It was thus encouraging to find that, after participating in the EOP, some students described elephants as friendly and others were better able describe the cause or reason for the elephants being dangerous or destructive. In the short term, then, many participants in the EOP tended to have a more positive attitude towards elephants.

Discussions with community members at the kgotlas and with wildlife professionals in Kenya underscored Stokil's (in Williams, 1997) conclusion that the main

issue facing the elephant now is not poaching, but competition for space with human beings. The community members who participated in the kgotlas concluded that the main concern they had with elephants was crop damage, followed by water disturbance and safety concerns, which contradicts Osborn and Welford (1999)'s conclusion that problems such as damage to borehole pumps and to fences that restrict elephant access to water are currently more common than crop damage in Botswana. In order for CBNRM initiatives to succeed in this part of Botswana, the particular concerns and needs of the community must be taken into account.

CBNRM is a national priority in Botswana. LWE certainly supports the CBNRM attempts to integrate rural development with wildlife management in a way that is sustainable for both wildlife and humans through devolving decision making from government to the community level (Hulme & Murphree, 2001). As villagers are given greater responsibility and custodianship of wildlife, and are encouraged to manage sustainable programs, initiatives like the EOP could help communities learn more about the wildlife that live within their areas, informing their decision-making.

The Ministry of Education in Botswana intends to increase EE across the curriculum, and the EOP may be able help local teachers meet these new curriculum objectives. Through its emphasis on curriculum development and teacher training and support, which Vare (1998) argues to be vital to EE in Africa, this project demonstrates one way of increasing the resources and expertise required for EE to be successful at the primary level in Botswana (Taylor, 1998). Further, because of the participatory approach, the EOP was designed in such a way as to be appropriate for an African context (Bak, 1995; Ghai, 1992, Jacobson, 1995; Mucunguzi, 1995). (I am sure, of

course, that my Western influences and biases were very much present in this project, but the involvement of Louis and the community members hopefully helped mitigate this.)

Certainly, the participatory approach to curriculum development process helped avoid the problems of authoritative and top-down approaches identified by Mucunguzi (1995); his recommendation to integrate and embrace the diversity of the biophysical environment, people, social and economic systems into the curriculum was certainly taken to heart. As Fawcett, Bell and Russell (2002) argue, EE needs to be grounded in the lives of students. Educational practices and curriculum materials should be situated in students' cultures and reflect community contexts (Russell, 1999).

Chapter V: Looking Back and Forward

Conclusions and Recommendations

Throughout my 3 months in Botswana and 2 weeks in Kenya collaboratively

developing curriculum for the EOP, I found assessing and incorporating the needs of the

elephants and community in a participatory approach to community-based curriculum

development to be both challenging and rewarding. Throughout the participatory

process, the curriculum of the EOP changed accordingly as we learned more and as

greater input was gathered. This will certainly continue to do so as LWE evolves, and as

more people, both local and international, influence the program and the organization as a

whole. A summary of this study and the development of the EOP is summarized in Table

19. The outcomes and potential long-term impacts from this project are summarized in

Table 20.

**Table 19. The Summary of this Study and the Development of the Elephant
Outreach Program.**

Needs of elephants, students, teachers, community members of NG32, objectives in the Botswana syllabus and LWE Mission
⇓
Developed the initial goal and objectives of the EOP
⇓
Developed the activities/curriculum of the EOP
⇓
Community filter (through the help of the LEC throughout and participating students, teachers, government officers and members of NG32)
⇓
EE filter (interdisciplinary, holistic/student-centred, experiential, and incorporates the philosophy of Humane Education : care, kindness and compassion towards all animals; and Howard Gardner's Theory of Muliple Intelligences : Logical-Mathematical, Linguistic, Spatial, Musical, Bodily-Kinesthetic, Interpersonal and Intrapersonal)
⇓
Pilot EOP
Initial evaluation of the pilot EOP
Creation of curriculum materials (*Teachers Package* and *EOP Main Document*)
⇓
Thesis writing (data analysis, conclusions and recommendations)

Table 20. Outcomes and Potential Long-term Impacts From This Project.

Outcomes and results from this study:
- curriculum materials for LWE, including the 'First Draft of the EOP Teachers' Package (Appendix E), to be used by local teachers, participating schools and the LWE team to supplement visits to LWE for the EOP
- capacity building and technical transfer through training and support of a Local Education Coordinator in EE theories and practices, curriculum development and program facilitation and evaluation
- development of the 'LWE EOP Main Document' that included lesson plans (Appendix D), a risk management plan, contacts, and other useful information that can be used by LWE in order to run the EOP into the future
- the beginning of an ongoing program evaluation to be used by LWE
Long-term impacts from this project may include:
- the development of LWE as a leader in community-based education and elephant relations awareness in Botswana, a known source of information regarding human/elephant relations in northern Botswana, and a model for the use of education in wildlife management
- improved relations between communities and elephants in northern Botswana, which would therefore improve the living standards for both species
- assistance to teachers in meeting the objectives of the Ministry of Education's Syllabus for Primary Schools in multiple subject areas, including science, social studies, English, and math.
- an increased partnership between local schools and LWE, and creation of links between the school environment, the community and LWE

It seems that the EOP has the potential to contribute to meeting the village, national and international need for improving human-elephant relations, thus contributing to elephant conservation through education. However, LWE, the communities in Botswana (and other communities living within elephant range) and the elephants themselves still have a challenging journey ahead. Throughout my relatively short journey through this study, there were things that worked well and there were certain challenges.

1) Hiring and working with a local counterpart, Louis Motlaleselelo, as the LEC was invaluable throughout my time in Botswana, for he not only helped with important translations with different groups, but he also helped to bridge our cultural differences, kept me from being lost in the vast remote bush roads in the Okavango Delta and was

helpful and supportive throughout. He also has the potential to play a significant role in LWE as a facilitator in implementing the EOP in the future, and as a contact or representative of the villages of NG32.

2) The kgotla meeting structure was invaluable in that it allowed Louis and I to listen to a diversity of individuals in the 3 villages that we visited. However, there were too many people to gather more detailed comments, and we only managed to record comments from a few key individuals who spoke up

3) I only managed to participate in 3 kgotlas in the 6 villages of NG32. More time in Botswana would have allowed me to spend more time with the communities in the villages and therefore dive deeper into the issues, in order to understand the problem more completely.

4) Ideally, I would have liked to have met with the communities long before developing the pilot EOP. Meeting with the teachers, students, villagers and others while simultaneously facilitating the EOP was less ideal. It did, however, allow me to immediately test curriculum ideas with real groups.

5) The two meetings with the teachers worked well, however, it would have been good to have more time with the teachers one-on-one. Also, I would have liked to have had the opportunity to spend more time in the schools with the students, both those who visited LWE and those that did not.

Overall, informants in Kenya felt that the issue of human-elephant conflict (and other human-wildlife conflict) is the biggest concern facing the African Elephant, and is mainly caused by human encroachment, and increasingly, the bush meat crisis. In Botswana, this is complicated by the fact that the country has a relative abundance of

elephants, which is considered to be overpopulation by some. With parks not big enough to accommodate elephants, there is a great need to work with communities living near or outside parks in the elephant's range to find ways of minimizing human-elephant conflict, and to secure the future of both species. Based on the analysis of the discussions with community members in this study, many of the participants in northern Botswana, both adults and children, described elephants as dangerous and destructive. This confirms the problem and the importance of working together on solutions so that the two species to live together harmoniously; education can play an important role as LWE's EOP has demonstrated. Based on the data collected throughout this study, the following are recommendations for LWE as they continue their projects. Most are dependent on logistics and financial and human resources, however, so not all will be immediately feasible.

Short Term and Long Term Recommendations for LWE and the EOP

- Address the safety concerns relating to the community's concern about wildlife, including exploring the possibility of fencing the LWE field station (with local materials, as per suggested by EOP participants). If this is not desirable or feasible, explicitly address the decision to leave the camp in its natural/rustic state.

- Continue highlighting the needs of the elephants (food, water, safe space, and security) and the social bonds between elephants in the EOP.

- Continue incorporating the needs of the community into the EOP, for without social justice we cannot attain environmental justice; humane education is one way to work towards both.

- With the help of the community, incorporate traditional knowledge into the EOP (e.g. how traditional practices and beliefs incorporate a conservation ethic through folk tales, stories and traditional methods of living with elephants through story-telling around the campfire at night).

- Give more attention in the EOP to the topic of staying safe near wild elephants, and address the differences between wild and habituated elephants.

- Consider inviting guest speakers to the EOP (for example, from the Department of Wildlife and National Parks) as per suggested by the government officers.

- Explore the possibility of expanding the current EOP (2-day/1night) to a 3-day/2-night program.

- Develop an adult EOP, whereby adults from the community of NG32 visit the LWE field station for an educational program to learn and share ways of improving elephant-human relations.

- It will be important to relate and connect the EOP to the new curricula when the Ministry of Education in Botswana develops it.

- Explore the potential of having Louis (or whoever is the LEC) to travel to local schools and/or villages in the area to give information and facilitate activities (therefore spreading the messages and activities in the EOP).

- Encourage classes to borrow a video camera from the Teachers' Resource Centre to film their visit.

- Increase the number of adult chaperones from 2 to 3 during village visits (as per suggested by village members during one of the kgotlas).

- Work on the 'goal and objectives' of the EOP to include specific student outcomes matched to the curriculum.

- Consider creating a local and/or international intern program that would provide experience for youth to teach and assist in facilitating the EOP.

- Investigate current research practices on how to minimize human-elephant conflicts (through such things as fencing, compensation programs, proper land use management), and include information on current experimental pilot projects for mitigating human-elephant conflicts from other areas in Africa into the EOP curriculum (such as pepper grease on rope surrounding crops), and create a community 'problem solving' group, which regularly meets (perhaps 2-4 times a year) to share these ideas. Include the information gathered from these meetings into the EOP and/or have resources available at the LWE field station.

- Start an inventory of human-elephant conflicts in the area (with specific details, perhaps as outlined by the IUCN/AfESG).

- Explore the potential of 'local compensation' programs, where locals create their own 'insurance program' to help if and when crops become damaged from elephants.

- With the help of the community of NG32, explore the possibility of collaboratively mapping the villages for high human-elephant conflict areas.

Resource Recommendations

- Make booklets for the students and/or schools with pictures and information that is age-appropriate, perhaps in the form of an activity book (with questions and

answers) that could be used while participating in the EOP, or as a resource to be left in the hands of teachers or libraries at local schools.

- Continue to build resources for teachers and students who attend the EOP: books and other literature about elephants for participants of the EOP, related scientific field equipment, etc.

Recommendations for Exploration of Partnerships and Funding

- Approach the local hunting safari company (who holds the lease to NG32) for support and contributions to LWE (financial and otherwise).

- Hire full time staff and/or volunteers (local and/or international) to fill the positions of LEC, treasurer, logistics coordinator and funding coordinator

- Invite the media to the LWE field station (newspaper, radio, television) to publicize the EOP.

- Invite higher level politicians to gain their support.

Finally, further research could help address the need to create a more harmonious relationship between humans and elephants, and could contribute to EE programming. Although not an exhaustive list, some suggestions for further research include:

1) pre- and post-studies of the potential benefits of the EOP on participants from schools and or villages

2) a study that compares the needs of the students coming from the villages and those coming from the schools ✦

3) a study that addresses, in more detail, the needs of the villagers in NG32, and their vision for development (and conservation) in their area

4) a description of the current environmental ethics of the students participating in the EOP

5) an investigation of any differences between actual versus perceived conflict with elephants (and other species)

In a country with tourism as its second largest income earner after diamonds, widespread fear of elephants and repeated statements by officials and community members that the children and community need to learn more about elephants, there is certainly a need for a program like the EOP to continue. Further, with a growing elephant population in northern Botswana (5% per annum), and an increase in agricultural practices, there will be increasing conflicts between the two species. A collaborative approach to developing and facilitating an elephant focused environmental education program may be one step to achieving the mission of LWE, to create a more harmonious relationship between humans and elephants. While I remain hopeful that the EOP and LWE will contribute to the success of the CBNRM initiatives in NG32 and help improve of the relationship between humans and elephants, only time will tell whether the youth and adults participating in the EOP will contribute to a better tomorrow for both elephants and humans.

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Appendix A: Cover Letter/Introductory Statement

Dear Participant

Thank you for volunteering and taking the time to participate in a study concerning the Environmental Education Outreach Program of the Living With Elephants Foundation. Sue Hamel of Lakehead University, Canada, in collaboration with the Living With Elephants Foundation, Botswana, is conducting the study entitled: A Participatory Approach to Community-Based Curriculum Development for the Living With Elephants Foundation in Botswana.

Recent consultations with Batswanan community members, the Government of Botswana, and non-governmental organizations (NGOs) helped to create a new NGO for Botswana called the Living With Elephants (LWE), which became officially registered in Botswana in 1999. LWE is dedicated to creating harmonious relations between the African Elephant and human populations, and does this through identifying sources of conflict, developing strategies for resolution and offering educational outreach programs that encourage a positive relationship between elephants and people. Through discussions with communities who live with elephants, with people who study and/or work with elephants, and people who study and work within wildlife management and education, I hope to work towards a better understanding of a participatory approach to community-based curriculum development, and in doing so, collaboratively develop the Living With Elephant Outreach Program that aims to create a more sustainable relationship between humans and elephants.

During this particular phase of the study, you will be asked a few questions which will take approximately 30 minutes of your time. Questions will include, but are not limited to citizenship and place of origin, educational and professional background, and needs that should be addressed in an EE program focusing on the conservation of elephants.

All information you provide will remain confidential and securely stored at Lakehead University for seven years. However, the findings of this project will be made available to you at your request upon the completion of the project.

Thank you for your cooperation,

Sincerely,

Sue Hamel

Sue Hamel   Project Supervisor:
129 Prospect   Dr. Constance Russell
Thunder Bay, Ontario   Faculty of Education, Lakehead Unversity
P7A 5L3   955 Oliver Rd.
Canada   Thunder Bay, Ontario
Suecanoe43@hotmail.com   P7B 5E1 Canada
                                             (807) 343-8049 (crussell@lakeheadu.ca)

Dear Parent/Guardian:

My name is Sue Hamel, and I am a Masters of Education student at Lakehead University, Canada. I am working in collaboration with the Living With Elephants Foundation, Botswana, is conducting the study entitled: A Participatory Approach to Community-Based Curriculum Development for the Living With Elephants Foundation in Botswana. We are hoping to improve the educational outreach program that is offered by the Living With Elephants Foundation.

I am interested in observing the children who will be participating in the Living With Elephants Outreach Program in order to understand how to improve the program. I feel that through observing the students, asking a few questions, and looking at their drawings, that I may be able to understand what the children want to learn in the program, in order to help create a more successful educational experience. I will be one of the teachers that will be present throughout the two-day educational program, and I will be taking notes on various observations that I see. I will also collect drawings from the students that may help LWE to see whether or not their education outreach program has been successful in meeting their goal of helping to improve the perceptions of elephants. All information gathered during the study will remain confidential and securely stored at Lakehead University in Thunder Bay, Canada, for seven years. However, a summary of the results or a copy of your child's drawings will be made available to you at your request upon the completion of the project.

Recent consultations with Batswanan community members, the Government of Botswana, and non-governmental organizations (NGOs) helped to create a new NGO for Botswana called the Living With Elephants (LWE), which became officially registered in Botswana in 1999. LWE is dedicated to creating harmonious relations between the African Elephant and human populations in Botswana and does this through identifying sources of conflict, developing strategies for resolution and offering educational outreach programs which encourage a positive relationship between elephants and people. Through discussions with communities who live with elephants, with people who study and/or work with elephants, and people who study and work within wildlife management and education, I hope to work towards a better understanding of a participatory approach to community-based curriculum development, and in doing so, collaboratively develop the Living With Elephant Outreach Program that aims to create a more sustainable relationship between humans and elephants.

Thank you for your cooperation,

Sincerely,

Sue Hamel.

129 Prospect	Project Supervisor: Dr. Constance Russell
Thunder Bay, Ontario	Faculty of Education, Lakehead Unversity
P7A 5L3 Canada	955 Oliver Rd., Thunder Bay, Ontario
(suecanoe43@hotmail.com)	P7B 5E1 Canada (807) 343-8049 (crussell@lakeheadu.ca)

Appendix B: Consent Forms

Consent forms for Adults

My signature on this form indicates I agree to participate in a study by Sue Hamel, who is

working on a study entitled: 'A Participatory Approach to Community-Based Curriculum

Development for the Living With Elephants Foundation in Botswana', and it also

indicates that I understand the following:

1. I am a volunteer and can withdraw at any time from the study.

2. There is no apparent risk of physical or psychological harm.

3. The data I provide will be confidential.

4. I will receive a summary of the project, upon request, following the completion of the

project.

I have received explanations about the nature of the study, its purpose, and procedures.

_____

Signature of Participant   Date

Consent Form for Parents of Children

My signature on this form indicates that my son or daughter will participate in a study by

Sue Hamel entitled 'A Participatory Approach to Community Based Curriculum

Development for the Living With Elephant Outreach Program'.

I have received an explanation about the nature of the study and its purpose. I understand

the following:

1. My child is a volunteer and can withdraw from the study at any time.

2. There is no apparent danger of physical or psychological harm.

3. The data provided by my child will remain confidential.

4. I will receive a summary of the project, upon request, following the completion of the

project.

_____

Signature of Parent or Guardian   Date

Appendix C: Elephant Outreach Program Review Sheet

Living With Elephants Education Outreach Program REVIEW

What do elephants need to survive? (List at least 3 things)

_____

Name 3 ways that elephants contribute positively to their ecosystem:

_____

_____

Name 3 other species (plant, insect or mammal) in the ecosystem that have a relationship to elephants in some way, and explain briefly why:

_____

_____

Circle the two most important senses that elephants rely on:

Touch   smell   taste   hearing   sight

What do elephants use their trunks for?

_____

What should you do if you see an elephant in the bush or near your place?

_____

Draw a picture of the front and back prints of an elephant and label them:

What did you enjoy most while you were here?

_____

What did you learn that surprised you most while you were here?

_____

How were the Elephant Outreach Program staff and educators?

_____

_____

How can we improve our Elephant Education Program?

_____

_____

Name: _____   From: _____

Appendix D: Selected Lesson Plans and Information from the EOP Main Document

*** *Note: These were written for the teacher/facilitator of the EOP (LEC and/or other LWE representative), and although not exhaustive, is intended to give some background information. Please see other books, resources, and/or Sandi and Doug for more information.*

LWE EOP Lesson Plan for: Icebreakers

Title: Icebreaker Game(s)

Objective(s) and Brief description: Get students to know each other and be comfortable with each other while at LWE.

Age Group: 9-12 yrs (even elders if they like)

Number of students: no limit.

Duration: 15 minutes

Materials and Location Needed: You will need a number of 'animal cards' which can be homemade, with names of animals on them, and a drawing of the animal for those who are unable to read English. There must be two copies of each animal, so that when you hand them out there should be two participants who get the same animal within the group. If you have 12 participants and two LWE staff participating in the activity (14 in total, you should have 7 different animals, 2 copies of each). Students need space to stand in a circle and space to sit in the shade afterwards to introduce their partners.

Background information: It's important that there is an activity done at the beginning of the visit to make students/participants comfortable with each other and with the place.

Procedures:

Introduction/ Framing	- Tell the students that the purpose of the game is to have them get to know each other and feel comfortable about themselves, and most of all, to have fun! - Note: if you have fun, they will!
Main Activities/ Detailed Description	- Allow each student to choose an 'animal card' (a folded piece of paper that has an animal name on it, with a picture of it e.g. lion, elephant, hyena, snake, etc). Each animal will appear twice in the group. - tell the students they are not to let anyone else see the animal that they have chosen (but if they need help they can ask the LEC to give the name of the animal in Setswana, whispered in their ear) - then let all the students/participants demonstrate the animal on their paper only by sounds and actions. All the students act out at

	the same time! This will be a little noisy and busy – but fun! - The task is for each student to find their rightful partner, by identifying them with their sounds and actions (e.g. a lion will find their lion partner hopefully by hearing their roar!) - Each participant should find his or her partner amidst the animal sounds/actions (unless you counted the animal cards incorrectly!). Some students may have a hard time finding their partner and may need help! Make sure this stays light and fun, the point here is to loosen the group up and not feel awkward – so if you make lots of noises and actions, they will feel more comfortable!)
Reflection/ Review and Closure	- Once everyone is paired up, have the pairs sit together, and find out what their partner has in common with the animal that is on their card. Each pair will introduce their partner to the group, tell the group their name and what their partner has in common with the animal they were in the game.
Suggested Extensions	- other ideas for 'icebreakers' include: - placing an animal/tree/insect/reptile/bird (that lives in the Delta) pinned on the back of everyone's shirts with a clothes peg, and have them walk around the group asking questions to the group what animal they are, asking only yes or no questions until they find out what animal is attached to their back. (e.g. – Do I have four legs? Do I have fur? Etc)

(Adapted from 'Animal Charades' from the Canadian Wildlife Federation's Project Wild Workshop)

LWE EOP Lesson Plan for: 'Blind Spotting'

Title: Blind Spotting

Objective(s) and Brief description: To get students knowing the important senses of elephants (and humans!). And to have fun!

Age Group: 9-12 yrs (although the adults all seem to enjoy participating!)

Number of students: 10 students (+2 adults)

Duration: 20 minutes

Materials and Location Needed:
- One big poster with an elephant drawn on it, missing a trunk
- 'Bostick' to attach the poster to a hard vertical surface such as a side of a vehicle, a tent, or an upright table
- one cut-out trunk (that will fit the elephant on your poster!) with bostik on the back, so it can stick to the poster!
- one blindfold such as a piece of material or a bandanna

- students should be sitting in a shady/sheltered area in a half circle facing the poster

<u>Background Information</u>: Elephants depend mostly on their sense of smell as their most significant sense, followed in importance by their hearing.

The elephant's trunk may be as long as 2.4 m and is formed from the upper lip and nose, with two 'muscular fingers' at the tip. The trunk can push, pull suck, sniff, blast air and make noises. It is sensitive enough to be used as a 'hand' to pick up a small seed but strong enough to pull down large branches or trees. With its amazing sense of smell the trunk can warn the elephant of danger as well as touch or greet another elephant to find out who they are and maybe how they are feeling. A young elephant takes six months to learn basic trunk control and years to master the more complicated actions. The nostrils from two tubes down the centre which can hold between eight to ten litres of water when drinking or showering.

Elephants have excellent hearing, and can hear things at a distance of up to 15 km! They can make sounds in order to communicate (they also communicate in many other ways including using their trunks – to smell each other! Sometimes they even smell in the mouth of the other elephant!). Among the many sounds that elephants can make, they can produce a very deep sound, which is so low that humans cannot hear it. This 'infrasound' travels well through air and vegetation, and might be felt through the soft soles of their feet as it is transmitted by vibrations through the ground. (*from Born Free's Animal Fact sheet no.10*)

<u>Procedures</u>:

Introduction/ Framing	- Ask the students what they think are the senses that elephants rely on the most and why? - Ask the students what they think are the senses that humans (and other primates) rely on most and why? (Most primates rely most on their sense of sight) - Discuss a little about how elephants smell, why, how, and their ability to communicate long distances (see background info and Doug/Sandy).
Main Activities/ Detailed Description	- During the activity students sit in a half circle facing the drawn elephant, then they can volunteer to come up one at a time. The volunteer is given the trunk then blind folded and guided towards the poster area where they will try and stick the trunk where it is supposed to be. (Ask the rest of the group to stay silent until they are finished, and make sure each participant is applauded after so they feel encouraged!)
Reflection/ Review and Closure	Try to ask the students what they learned from the activity and review the two important senses of elephants and humans.
Suggested Extensions	- Group the students into pairs, one blindfolded and one not. Let them do blind walks, allowing the blind folded one to try to identify different things through smelling and hearing calls in nature (then

	later writing about it). Then the partners can share with each other before switching roles.

LWE EOP Lesson Plan for: 'How to Greet a Wild Elephant!"

<u>Title</u>: How to greet a wild elephant!

<u>Objective(s) and Brief description</u>: Students will discuss and practice how to be safe when in the presence of wild elephants. **NOTE: This one is very important, since some of the adults in the villages stated that they felt this would be an important part of the EOP!

<u>Age Group</u>: all ages

<u>Number of students</u>: no limit (as long as everyone can hear)

<u>Duration</u>: 30 minutes

<u>Materials and Location Needed</u>: Students will need note books, and there should be enough space to walk around, and shade and/or shelter to be comfortable.

<u>Background Information</u>: Elephants are peaceful but they can be aggressive if sick, injured or harassed, if they have young calves or if they live in, or have moved away from, an area where elephants are hunted. Whether or not an elephant reacts aggressively is to a certain extent determined by how the rest of its group behaves at that time, and how it has learned to respond to threats as it grew up. *(Facts from-WILD WAYS by-PETER APPS, 1992).*
Behaviour to be aware of: When an elephant is nervous or angry it may trumpet and shake its head to slap its ears on its body. Early signs to be aware of include: ears spread, head raised, and trunk up. These signs show that an elephant is aware of your presence and may be feeling concerned. It is a good time to start moving slowly out of his/her space.

See Doug and Sandy and/or Louis Motlaleselelo for more tips.

<u>Procedures</u>:

Introduction/ Framing	- We have been lucky to be able to meet three elephants that have become close friends/family with people – Doug and Sandy - namely Jabu, Thembi and Morula. It is important to note that these elephants are used to people because Doug (and Sandy) helped to raise these elephants from when they were young, and are experienced elephant handlers. However, wild elephants have had very different experiences, sometime positive but sometimes negative with regards to people. Some individuals, like some

	humans, have also become slightly naughty and all elephants can be dangerous. However, there are ways we can help to keep safe while enjoying being in the presence of wild elephants. - We will discuss, explore and share ideas about how we can stay safe when in the presence of wild elephants, (the brothers/sisters/cousins of Jabu, Thembi, and Morula!)
Main Activities/ Detailed Description	- put the students into groups of three, where they can discuss their ideas of what the appropriate actions should be when in the presence of wild elephants, and have them prepare a quick drama presentation (act out what they think should be the appropriate actions – one student plays the elephant, and the other two acting as people!) - then ask them to come together as one big group , and have one group at a time act out the scenarios and/or have one individual from each group tell the group their ideas while others are taking notes and asking questions/discussing. - After all groups have finished, or during their presentations, the instructor will give more information/tips to the students.
Reflection/ Review and Closure	- review what they shouldn't do (i.e. running away, provoking the elephants, making loud noises or fast movements) and review what they should do (walk slowly, get shelter in big trees or in house/car if possible, stay calm, stay downwind if possible while walking around the elephant in the bush, ...)
Suggested Extensions	- could have them draw pictures about what they learned... - could talk about other wildlife, and general tips for staying safe in the bush - could talk about what to do if there is an elephant in the crops/fields, suggestions for what to do or to share what solutions the communities may have been practicing so far...

LWE EOP Lesson Plan for: Elephant Signs in Nature Walk!

Title: Elephant Signs in Nature Walk!

Objective(s) and Brief description: Students will participate in an experiential nature walk, where they will explore different signs of elephants, while also learning about the interactions between elephants in their habitat/ecosystem. Students will be touching, smelling, observing, walking,

Age Group: 9-12 yrs (really all ages!)

Number of students: 15 at most, since any more would become a crowd in the bush!

Duration: 15 – 30 minutes

<u>Materials and Location Needed</u>: Simply an area in the bush to walk around that has obvious signs of elephants (near camp is easy, especially on the road away from the camp area where there are mud marks on trees, stripped bark, broken trees and branches, and ideally foot prints. Make sure before you leave to get some elephant dung placed somewhere on the walk, since this is a fun part of the walk to look closely, and handle dung!)

<u>Background information</u>:
It is endless the information you can talk about and explore on the nature walk. Here are some examples
- How elephants play an important 'gardening' role by helping plants to spread their seeds. When elephants eat fruit, many seeds pass through them undigested. They are then dropped as part of the elephants' dung onto the ground. As the dung rots, it provides the seeds with the fertilizer they need to grow – an ideal start to life! (from *Born Free's Animal Fact sheet no. 10*)
- Elephants spend a remarkable 16 – 18 hours per day eating and drinking. They are herbivores, and eat a wide variety of grasses, roots, leaves, shrubs, bark and fruit. Elephants sometimes eat mineral-rich solid or even rock when they need special salts or nutrients.
- Elephants are often called 'nature's bulldozers' and can have quite an impact when searching for their food. In the dry season, when food is scarce, elephants will pull down whole trees to reach the few green leaves on the top. Elephants can have a big effect on vegetation, turning woodland into grassland. This may seem destructive, but it is part of a 'natural cycle', which helps the other animals (especially grazers – such as zebras, wildebeests, etc) that need grassland to feed on and survive, and the grassland will gradually turn to woodland again!
- In the dry season elephants sometimes dig deep holes in dry river beds to reach underground water, using their tusks and trunk. Once an elephant has dug a waterhole, other animals can use it and therefore survive in times of drought. (from *Born Free's Animal Fact Sheet no.10*).
- Although elephants are extremely heavy they can move very quietly. This is because their weight is spread across a cushion of fatty, elastic tissue inside the soles of their large feet, which act as shock absorbers. The two front feet take most of the weight, and therefore are larger and leave bigger prints that are round, while the back two feet are smaller and leave more oval-shaped prints.

Procedures:

Introduction/ Framing	Make sure the group has had enough to drink and eat, and mention to the group that you will embark on a nature walk, to look and talk about signs of elephants! Ask the group to stay together as a group for the walk, and that they can bring their notebooks if they want to take notes.
Main Activities/ Detailed	Throughout the walk, you can bring up the facts above or other information about. It can be fun to stop periodically and ask the students to look around to find signs of elephants. When you come

Description	across dung (if it is dry), ask them to each take a piece into their hands and to look through it in detail, to find out what the elephant(s) have been eating. Try to find a seed in the dung so that you can talk about the role of elephants in seed dispersal. Check out elephant foot prints – and ask the students to tell you which way the elephants are going, and how do know this. Also, determine which footprints are the front ones, and which ones are the rear ones and explain why. Other topics you can discuss include: the relationship of the dung beetle with the elephants' dung, providing food for other animals in the ecosystem, water at watering holes, etc.
Reflection/ Review and Closure	Have the kids write down in their notebooks things that they have learned during the Nature Walk. You could have them draw elephant prints in their notebooks, write lists of animals, plants and insects that have a relationship with elephants in some way (trees, soil, dung beetles, grazers, etc).
Suggested Extensions	You can have the students either verbally, or in their notebooks, discuss how elephants can have a positive effect on the ecosystem, or how they contribute, while also mentioning that an increasing population can have a more significant impact, especially when the elephant populations are being squeezed into smaller and smaller areas for habitat, due to the encroachment of people/farmers - you could draw this on a poster so that the students can have a clear visual picture of what encroachment is – and/or have the students play a form of a tag game, where there is a circular boundary. Every few minutes keep bringing the boundary in closer, making it smaller until they start bumping into each other. This could give you a springboard to talk about encroachment.

LWE EOP Lesson Plan for: Food Web Web!

Title: Food Web!

Objective(s) and Brief description: The students will explore the relationships and interconnections within the different species in the ecosystem.

Age Group: 9-12 yrs (even elders if they like)

Number of students: 15 at most (due to the length of the rope, but if you had a longer rope/yarn, you could include more!)

Duration: 15 minutes

Materials and Location Needed: Students need space to stand in a circle in the shade. You will need a long rope (30 metres minimum) or a long thick, sturdy yarn or wool string.

Background information: Everything in the ecosystem is interconnected.

Procedures:

Introduction/ Framing	Everything in the ecosystem is interconnected in some way. In this game we will explore the relationships of many different life forms in the Delta ecosystem, including insects, mammals, plants etc.
Main Activities/ Detailed Description	- start with holding a rope in your hands (untangled is essential). - Tell the group that you are an elephant, and that there are many components in their habitat that they are connected with, or have relationships with in some way (could be that they eat it, need it for shelter, or are preyed on by it). - Ask for a volunteer to give an example of something in the ecosystem here that has a relationship with an elephant (for example, a dung beetle who relies on and feeds on their dung; a horse fly that feeds on the elephants blood; a lion that preys on their young; a big sausage tree that gives them shade from the sun; a mapane tree that provides food for them etc). - When a volunteer from the group puts up their hand and gives the animal/insect/plant that has a relationship with the elephant, and explains HOW they have a relationship, you can pass them the rope, keeping the end in your hands. - Then ask the group to think of something that has a relationship with what that students said (If, for example, the volunteer mentioned a horse fly, then the group is thinking of what has a relationship with a horse fly). - When someone puts up their hand and tells the group the next relationship, the rope is then handed to them, with the last participant keeping some still in their hands. The rope gets passed around the group, each time with a student naming another species that has a relationship with the last one mentioned, keeping some of the rope in their own hand. (No student is to repeat. The goal is to have all students offering one relationship and each having hold of the rope.) Eventually it should look like a big web connecting all the students demonstrating how all the different species that were mentioned in the ecosystem are connected. - Once every student has had a chance to mention a species and is part of the 'web,' the naming part of the game ends. Get the rest of the rope in your hands, so that now you have both ends of the rope. Keep the rope tight and ask the group to pull out gently (gently!) so that the rope becomes taught. Mention a disturbance in the ecosystem (such as the horse flies killed due to a spraying of pesticides, or all elephants have been poached in an area etc). The species that was directly affected should let go of the rope and let it fall to the ground. Then, ask the next

	two who felt the rope loosen, let go of the rope, and so on and so on. - The group should watch the web fall to the ground, student by student.
Reflection/ Review and Closure	- Ask the students what they learned from this activity? - Discuss food webs, and the interconnectedness of all life in the ecosystem, and how when one species is limited or becomes locally extinct, how the rest of the species are affected. Some species, however, can have a more of an effect than others, for example, the elephant.
Suggested Extensions	- Students could draw a food web in their notebooks, - You could also discuss the difference between a food web and a food chain

LWE EOP Lesson Plan for: 'Oh Tlou!'

Title: Oh Tlou! (** note: adapted from 'Oh Deer' in the Canadian Wildlife Federation's Project Wild Activity Guide, 1995)

Objective(s) and Brief description: Students will be able to:
1) identify and describe food, water and safe space as the three essential 'needs' of elephants (components of habitat)
2) recognize that some fluctuations in wildlife populations (including elephants) are natural, as ecological systems undergo a constant change

Students become 'elephants' and components of habitat/needs in a highly involving physical activity.

Age Group: 4 – 12 (although adults seem to enjoy this too!)

Number of students: no limit (as long as everyone can hear)

Duration: 30 – 45 minutes (depending on length of discussion afterwards)

Materials and Location Needed:
- There should be enough space to be able to let students run around, and shade and/or shelter to be comfortable (the area where Thembi sleeps is perfect!).
- Bring a big poster paper and markers
- Elephant trunks if you want so they can wear them when they are elephants in the game!
- Optional: Students can have note books (if they have them).

Background Information: A variety of factors affects the ability of wildlife (including elephants) to successfully reproduce and to maintain their populations over time. Disease, predator/prey relationships, varying impacts of weather conditions from season to season (e.g. flooding, drought), accidents, environmental pollution, hunting, poaching

and habitat destruction and degradations (the last three are the most significant limiting factors for African elephants!) are among these factors.

Some limits are naturally caused and others are culturally induced and serve to prevent wildlife populations from reproducing in numbers greater than their habitat can support. An excess of such limiting factors, however, leads to threatening, endangering, or eliminating whole species of animals.

The most fundamental of life's necessities for any animal are food, water and shelter (and in this case, safe space). Without these essential components, animals cannot survive!

Wildlife populations are not static. They continuously fluctuate in response to a variety of stimulating and limiting factors. We tend to speak of limiting factors as applying to a single species, although one factor may affect many species. Natural limiting factors, or those modeled after factors in natural systems, tend to maintain populations of species at levels within predictable ranges. This kind of 'balance in nature' is not static, but is more like a teeter-totter than a balance. Some species fluctuate or cycle annually. Habitat components are the most fundamental and therefore the most critical of limiting factors in most natural settings.

In addition to the 'basic needs' of elephants, elephants have a very complex social system, and the young rely on the older elephants to teach them everything. Elephants live in family groups led by the oldest female, called the 'matriarch.' Families consist of female elephants, called 'cows' with their calves and adolescent offspring (teenagers). The older male elephants called 'bulls' will often roam between groups to find out whether any females are ready to mate. Sometimes several family groups may gather together to travel, eat or drink. They will also congregate when under stress or in danger. The survival of the family group depends upon the wisdom of the matriarch. Using knowledge passed down through generations, the matriarch knows the best places for food, water and where to go in times of shortage (elephant information from *Born Free's Animal Fact sheet no. 10*).

Procedures:

Introduction/ Framing	- Ask the group: what are the most important things that elephants need to survive? (Food, water, safe space/shelter). These are actually the most essential components of habitat for ALL animals on earth (including us!)
Main Activities/ Detailed Description	- Review the components with actions: Food (Dijo in Setswana) with two hands over the stomach, Water (Metsi in Setswana) with two hands over the mouth, and Safe Space (Phatla in Setswana) with two hands over the head like a pointy roof. Call out the component, and have them practice to get these actions clear. - Make an area- playing field, with one line at one end, and one line at the other end, to decipher to end zones/boundaries - Split the group in half; one half should stand at one end of the playing field behind the line, the other half at the other end of the playing field behind the line. - One group are elephants (you could give them some trunks if you

	like!), and the other group becomes components of habitat/elephant 'needs.' Both groups face in opposite directions (don't let them peek to see each other!). Have the elephants make one of the three signs (Phatla, Dijo, Metsi) of what they think they will need. Then, also have the 'components' decide what they want to be. When you say "go!", let the groups turn around and face each other. The components of habitat/elephant 'needs' stay where they are holding their 'symbols,' while the elephants run to find the habitat component they 'needed.' If an elephant does not find the component they need (i.e. if they needed Metsi and there was no Metsi, they walk over to the component line, and will become a component of habitat for the next round). Only one student who is an elephant can get a component of habitat at a time. If two race to get there, only the one that touches the component or need first gets it, and brings that student back to the elephant line, where they also become an elephant (and can get an elephant trunk to wear if they want!) - Each round elephants either increase or decrease, depending on whether or not the elephants are able to get their 'needs' or not. Mark down on the poster paper the number of elephants in each round to keep track. - Continue to play a number of rounds, usually up to around 8 is enough (if you keep the rounds going quickly, the students won't lose interest!)
Reflection/ Review and Closure	- review the components of habitat, the essential things that elephants need to survive (along with all other animals!) - bring the group to a place where you can post the big poster paper, and you can graph the populations of the elephants from the game, and briefly discuss that wildlife populations naturally fluctuate up and down, just like in the game. You can also discuss other needs that elephants have to survive besides these basic ones. You can draw a picture of an elephant in the center, with different 'needs' on the outside with arrows, (pictures are always better than words since some may not be able to read English!). Some possible 'needs' may include: (food, water, space – area where they feel safe and so they can migrate for food), washing/bathing, other elephants, family, love, mates, shelter and mud to protect from the sun, older elephants to teach the young, etc. I usually have the students think about what THEY need, and then we relate it to elephants (these seems to be easier for them). Therefore, when they say 'clothing' I say – mud and a big tree for shelter from the bugs and sun! etc - Discuss how we (humans) can help elephants get what they need? (you can touch on land uses/encroachment issues here, not harassing them, hunting/poaching issues, etc)

After the visits:
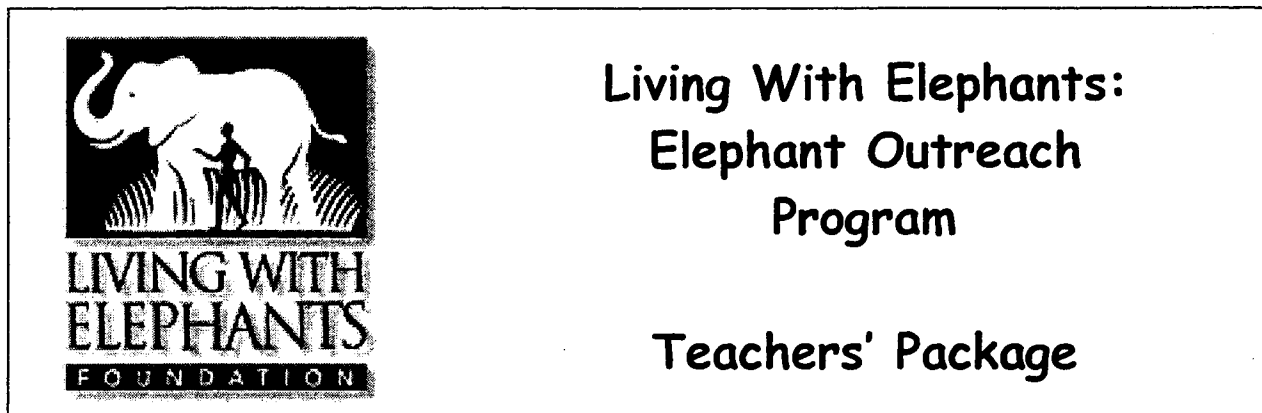
Checklist after each visit

- ❑ Have the films processed at Photo Lab (currently 10 % discount)
- ❑ Deliver the certificates (see Appendix F) ideally in person (with students'/chaperones' names on them, signed by LWE representative(s)), to the village or school along with a picture (see page 62 for an example) for each participant, and one group shot for the group (to be placed in the staff room or for the village community), see page >> for an example.
- ❑ Collect all receipts for expenses incurred and organize them, and enter all purchases into the Excel sheet to update the budget expenditures

After the full EOP season is over:

- ❑ After developing the films at Photo Lab (10% discount at the moment), select the best shots as gifts to thank all the funders, sponsors and any volunteers for the success of the visits
- ❑ It would be a good idea to send a thank you to the OKMCT board, the representatives from Stanley's Camp, and the villages who participated. It would be best to thank everyone in person, although a letter with a photo attached would be great.
- ❑ To the sponsors a common message/thank you letter should be sent with picture(s) scanned to all sponsors. Every person/company/organization involved should be mentioned. This message could also be sent by e-mail to every active member of LWE.
- ❑ Depending on the interest of the Ngami Times, a short article with a picture can be published
- ❑ Any other journalist or magazines interested in coming or to observe LWE or interview staff must request photos if desired and bear the costs.
- ❑ Invoices to A&K (After all the visits, an invoice and copies of all the expenses/receipts with a full final budget has to be sent to Olivier Souchon, at the A&K office in Maun, who is in charge of the funds form AKGF).
- ❑ Update the database of children and chaperones for our records to avoid the possibility of repetition

Appendix E: First Draft of the EOP Teachers' Package

Living With Elephants: Elephant Outreach Program

Teachers' Package

Table of Contents:

Note:

LWE = Living With Elephants Foundation

EOP = Elephant Outreach Program

LWE MISSION STATEMENT:

LIVING WITH ELEPHANTS is dedicated to relieving conflict and competition between the African Elephant and human populations in Botswana. We do this by identifying sources of conflict, developing strategies for resolution and offering educational programs that encourage a harmonious relationship between elephants and people. We believe that extensive participation and commitment by the communities is a requirement for success.

Related LWE Objectives that the EOP is helping to achieve:

- To disseminate, both locally and internationally, information on the African Elephant, its range and its relationship with the people who live side-by-side with it.

- To collect, analyze, share and distribute information on the African elephant, its ecosystem and relationship with people.

LWE EOP Educational Approach during the Planning of the curriculum

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We took into consideration the following:
> The needs of elephants
> The needs of teachers, students, and communities in NG 32
> The objectives in the Botswana Primary School Syllabus
> Goal and Mission of LWE

We incorporated an approach to environmental education that is:
> Interdisciplinary
> Holistic/student-centred
> Community-based
> Experiential
> And incorporates:
  - the philosophy of Humane Education (care and kindness towards all animals) and
  - Howard Gardner's Theory of Multiple Intelligences (Logical-Mathematical, Linguistic, Spatial, Musical, Bodily-Kinesthetic, Interpersonal and Intrapersonal)

LWE 'Elephant Outreach Program' Goal and Ojectives:

To encourage a more positive perception of elephants through developing a greater understanding and appreciation of the African Elephant.

Through participating in discussions, activities, games and written assignments; and interacting with Jabu, Thembi and Morula, the students will:
- Gain a greater understanding of Elephant biology (behaviour/characteristics)
- Explore issues dealing with Elephant/Human relations
- Explore the diversity of interactions between Elephants in their habitat/ecosystem

LWE EOP Connections to the objectives in the Botswana Primary School Syllabuses for all subjects (1993):

Standard Six:

Science

Module 3 – Animals in Nature

Topic	Pupil's will:
3.1 Uses of Animals	3.2 acquire knowledge of and appreciate the uses we make of animals

Module 9 – Environmental Awareness

Topic	Pupil's will:
9.1 Food Chains and Food Webs	9.1 explain the relationship between plants and animals in food chains and food webs

Social Studies

Unit 3. Human Activities

Topic	Pupil's will:	Specific Instructional Objectives
1. Southern Africa's Natural Resources	3.1 describe the natural resources found in Southern Africa	3.1.01 list the various economic activities in Southern Africa (tourism)

English

Topic	Pupil's will:
1. Listening 2. Speaking 3. Reading 4. Writing	(various general objectives and specific instructional objectives for each of these four topics are connected with the LWE EOP curriculum)

Mathematics

Topic	Pupil's will:	Specific Instructional Objectives
Pictoral Representation	Read and plot graphs that show current events	Graphs that keep record of current events.

Standard Seven:

Science

Module 3 – Animals in Nature

Topic	Pupil's will:	Pupils should be able to:
3.1 Common Wild Animals in Botswana	3.1 Acquire knowledge of some of the wild animals found in Botswana 3.2 Appreciate the value of wild animals of Botswana	3.1 identify common wild animals of Botswana 3.2 describe some of the important uses of wild animals of Botswana

Ele-Facts!!!

(from the LWE website, see www.livingwithelephants.org)

The African Elephant is the pre-eminent symbol of African wilderness. It plays an important role in the folklore, religion, art and culture. Powerful, funny, tender, and scary, elephants tug at our emotions. Their exceptional intelligence, longevity, gregarious nature, and unique adaptations place them in a category of their own.

Like fire and climate, the African Elephant is a prime modulating factor in African ecosystems. As a keystone species they play an important ecological role in nutrient recycling, thicket opening and seed dispersal. This combined with their need for large range areas and a diversity of habitats means that by conserving the African elephant one conserves entire ecosystems.

Elephants are "indicator species", meaning their health indicates the well-being of their entire ecosystem. This is due to the vast diversity of vegetation and amount of land an elephant depends upon. In Botswana, as in many other countries, this range is not always protected, and thus, humans are part of the ecosystem as well. To look after elephants, we must ensure their encounters with humans are peaceful. This ultimately leads to the protection of all ecosystem species, including humans.

Natural History:

The African Elephant, with its magnificent size, gentle stride and outstanding emotional intelligence, has captured the world's attention. Indeed, not much is written about the African Elephant without reference to its majestic and powerful presence. Groning writes,

The elephant, that Titan of the animal kingdom, is a miracle of nature. Through the ages, it has received the incredulous gaze of those to whom it seemed some mythical beast, and millions of years have gone into its shaping. Its unique body structure, remarkable intelligence and amazing social behaviour have made the gentle giant adept at the art of life and survival (Groning 1998).

The following table outlines some of the key anatomical and behavioral characteristics of the African Elephant.

Classification	Order: Proboscidea Family: Elephantidae Genus and Species: Loxondonta africana
Sex	Male: Bull Female: Cow
Size	Height: Male – 10 ft to shoulder; female a bit smaller Weight: Male - up to 6.5 tons; female up to 4 tons
Lifespan	Approx. 60-70 years
Relations	Subspecies: Savanna (or Bush) Elephant and Forest Elephant Cousin: Asian Elephant Nearest kin: Sea cow and bush hyrax

Breeding	Sexual Maturity: 14-15 years Mating: Any time Gestation: 22 months No. of young: Usually 1 calf born 250 lb. and 3 ft tall
Diet	Herbivores: Grass, foliage, fruit, bark, branches, twigs, roots, tubers; eat up to 500 lb./day; drink up to 200 quarts/day; spend 18 hr./day feeding: digest less than half of what they eat
Speed	Walk 5-5.5 m.p.h.; run up to 25 m.p.h.; cover 50 miles/day
Teeth	4 cheek teeth, up to 12 inches long, 1 in each quarter of jaw; replaced 6 times
Tusks	Used for digging, barking, stripping, pushing, carrying, and jousting; these elongated incisors grow throughout lifetime, growing 15-18 inches / year; composed of dentine; largest recorded tusk was 10 ft long and 230 lb.
Trunk	Over a hundred thousand muscle fascicles make up the trunk; used for exploring, manipulating, breathing, touching, smelling, weapon, orientation, snorkelling, wrestling, sound reverberation and production; 2 'fingers' at tip
Ears	Each ear measures up to 2 square meters; act as radiators, in hearing, in behavioural signalling
Language	Rich and varied language; a range of sounds to express moods and feelings; low infrasound frequencies inaudible to human ears
Family Life	Close social relationships: Live in family groups of 5 or more Females: Stay together for life with a matriarch Bulls: Live alone or in small bachelor groups; leave family unit at 8 -18 yr. of age
Habitat	South of Sahara: Mostly bush habitat Central and Western African Countries: Mostly forest dwellers

The African Elephant is one of the largest and most silent creatures to glide the earth's surface. Walking beside the elephant, you hear neither footsteps nor breath. It is a creature of enormous heart and mind, never forgetting a scent or the presence of a passing stranger, whether human or not.

Botswana's Elephant Population:

1997 aerial survey data indicated Botswana's elephant population to be 79,305± 21% covering an area of approximately 73,000 sq. km. More recent aerial surveys conducted in 1999 by the Department of Wildlife and Natural Parks (DWNP) indicate a population ranging from 85,000-128,000 in Northern Botswana. This makes Botswana's elephant population the largest of any range state. The population is increasing in number, range and density. Significant changes in vegetation, especially mature trees, have been observed predominantly in the Chobe District, where the highest elephant density occurs. Since there is a lack of information indicating age, structure and recruitment rate of elephants, the population's stability remains unknown.

The Conservation Issues

Since Botswana's elephant range rests largely outside of protected areas in the northern portions of the country and human populations grow at a rate of 1.63% per year, people steadily encroach

on elephant habitat. Shrinking habitat, increasing numbers of both humans and elephants, and greater migratory barriers have led to a substantial increase in the severity and number of negative human-elephant encounters. Banging pots and pans and disturbance shooting frequently fail to assist those people trying to chase elephants from their fields in order to save their crops. Too often, human and/or elephant deaths occur in these face-offs. Negative encounters have produced a change in people's attitudes towards elephants. This has not remained a local concern: as more and more local people express their negativity and fear of living with elephants, conservationists and governments become desperate to find solutions ~ for the sake of both people and elephants.

Today, international conservation organizations focus attention on exploring underlying issues of the human-elephant interface. They want to decipher the root causes of conflict and determine possible solutions for elephants and humans to co-exist. It is not an easy task. Human-elephant encounters, whether resulting in crop, waterpoint or life destruction, have degraded community perception of the elephant to one of severe conflict and competition. This is not an issue limited to Botswana. Asian and other African countries also face an explosion of negative elephant encounters.

Human Elephant Conflict

Research into the probable roots of human-elephant conflict has been minimal to date. But a few pilot projects and theories suggest the causes of conflict to be: 1) loss of habitat due to human encroachment (including urban, agriculture and forestry activities); 2) poor land-use practices which entice elephants to move into human settlements; 3) negative perception of elephants as vermin, due to the lack of direct benefit from their existence; and 4) lack of water and food supply due to fences, war zones, urban settlement, dredging of natural water sources, and natural factors. Generally, as humans move into elephant habitat and elephants flee into areas of human settlements, there is greater direct competition for land, water and food.

Finding solutions to these root problems is imperative for the sake of both human and elephant survival. At this crucial time, when devolution of authority from the state to communities is underway, villagers cannot waste time or energy hiding in huts from elephants. Nor can elephants afford to avoid areas where food and/or water supplies are rich since so much of their original habitat is being compromised by human encroachment. Research and educational initiatives aimed at resolving human-elephant conflict in Botswana have never been more necessary.

Recent pilot projects in Asia and Africa demonstrate that living in greater harmony with elephants is possible through changes in human and/or elephant behavior. There is hope. Short-term studies underway include development of electrical fencing options, chemosensory deterrent technologies, and artificial water sources. These types of solutions are not a panacea. They help only in those urgent situations in need of immediate resolution. But a deterrent only keeps an elephant away from one's crop. It does not change the fact that crops lie in important migratory paths, nor does it alter community perception of the elephant as a societal cost. Thus, longer-term strategies are of particular interest to individuals in research, non-governmental organizations, governments and the private sector who are keen to minimize conflict on a broader scale.

Long-range research priorities put forward by most large international conservation groups include: 1) mapping, monitoring and cataloguing elephant habitat use and movements on an ecosystem basis; 2) incorporating the biophysical requirements of both humans and elephants in these maps; 3) assisting communities to move away from traditional economies such as forestry and agriculture, which can be anti-elephant, to alternative land uses such as eco-tourism which accrue benefit from elephant presence; 4) offering educational programs to communities living with elephants to foster a positive and liveable relationship with elephants; 5) protecting key elephant habitat; and 6) advocating for land-use plans to incorporate the needs of elephants. The international NGO community is eager to initiate efforts towards this end. And Living With Elephants Foundation is excited to lead the way!!

Botswana Facts

Botswana is a country exploding with natural splendour, economic potential and cultural diversity in every corner of its 582 000 sq. km area. Bordered by South Africa in the south and southwest, Namibia in the north and west, Zambia and Zimbabwe in the northeast, Botswana is landlocked by some of the most politically charged nations of our time. Renowned for its vast Kalahari Desert and the largest inland delta in the world, the Okavango Delta, Botswana is a haven for a great diversity of species. Each year, thousands of tourists flock to Botswana to witness the rich profusion of wildlife. Indeed, tourism is one of Botswana's primary economic driving forces next to cattle and diamond exports. With a human population of approximately 1.5 million people, excellent economic performance from its rich resource base and political stability, Botswana offers its people great socio-economic potential. Economic development, of course, has not arrived without its costs. Not all people benefit equally in a society without safety nets; nor can all species adapt and survive human expansion into their habitat. Setting development goals that do not compromise ecological integrity is Botswana's current and ongoing concern.

Community Based Natural Resource Management (CBNRM) is currently proclaimed by the Government of Botswana as the best policy to address Botswana's sustainable development goals. Under the framework of CBNRM, the Government of Botswana slowly relinquishes natural resource control over designated regions to communities living within them. Villagers are simultaneously encouraged to create sustainable eco-tourism operations. In the wake of economic and conservation success enjoyed by a few pilot CBNRM projects around the world, such as Zimbabwe's CAMPFIRE program, there is great hope for similar achievement in Botswana.
As communities take ownership of their resources, the world will watch Botswana's people, ecology and economy develop in new ways. Clearly the path towards sustainable development will be difficult if relationships between community and wildlife undergo strain. And it is becoming clear that the nation is already facing one such strain ~ the conflict between the African Elephant and humans living in their range.

Pre-LWE EOP Activities:

After discussions with teachers from selected Maun Primary schools, a number of suggested activities have been created to assist the teacher(s) prior to visiting the LWE to participate in the EOP.

Activity #1 – Group Knowledge and Questions Inventory
Within a week before the visit, this is an example of an activity that can be facilitated by the teacher with the whole class. Many adaptations are possible, so please feel free to make any necessary changes appropriate for your group. This activity can incorporate the whole class, including those who are unable to visit LWE (since we can only accept 10 students per visit). Each student who is planning to visit can join with a group of students who are not coming, and can share in a discussion and fill out a chart that will list their previous knowledge about elephants, and any and all questions they may have that they hope to have answered with their visit to LWE. The chart may look like the following (can be made in their notebooks or on paper):

What I already know about elephants:	What I want to learn about elephants:

Upon return after participating in the LWE EOP, the students can come back and report and/or present to their small groups back at school the answers to their questions, and a list of:

What I learned about elephants while visiting LWE:

Activity #2: Elephant Stories
Students could perhaps interview their parents/grandparents/family members and write down any stories that they were told as children that involve, or are about elephants. The students could bring these stories to school and share them with the class, (or you could read out loud one of the stories included in this package) and the children could either draw pictures to accompany the story, or perhaps prepare a short drama presentation! After the presentations, there could be a class discussion regarding how the students think that elephants have been portrayed/represented in their culture and beliefs, and why? Is it changing? How?

Local Elephant Stories and Beliefs
(based on stories shared from members of the villages of NG 32):

From Human to Elephant Stories...

"Two elephants, one female and one male, wife and husband, they got into an argument. The female got angry – she stepped into the sieve (seteko) and that's what happened, why they have the feet they have today."

"A female was breast feeding, and had nothing to feed on, and took a stick for pounding grains (sorghum) and that is what is called the trunk today; and took the mattresses (meseme), and those are the ears today; and destroyed the house in the back and turned into an elephant"

" In my opinion, an elephant is a human being, and the reason being is it can wash its young in the river, taking its breast to the mouth of its young, and even like our traditional law – that if your wife dies you don't move with others, when its mother/father dies, it doesn't move with others. Even if I eat elephant meat, I know it is a human being."

"When an elephant has killed a human being, it doesn't mix with other elephants."

"Female elephant and male rhino were husband and wife. The female elephant got pregnant and gave birth to a female rhino. Rhino decided to take the daughter and divorce the female elephant. The female elephant was suffering and needed to get food and used the pounding stick as trunk, and sieve (seteko) as ears, and what we use to pound our food (kika) as feet, thin mattress (meseme) as the tail."

How Hare tricked Elephant and Hippo!

Hare said to Elephant – "I can pull you into the river". Elephant said, "I bet you can't do that". Hare said to Hippo – "I bet I can pull you into the river". Hippo said, "no you can't". Hare gave the rope to Hippo and to Elephant. He told them to start pulling only when they felt a tug on the rope. When Elephant and Hippo started pulling, Hippo ended up giving up and he let his feet go with his front legs going forward and his back legs going backward. Elephant dragged Hippo into the river, and that's why hippo's stomach is pink today!

Preparing to visit LWE for the Elephant Outreach Program:
- Meet with an LWE representative to schedule and confirm the date, schedule and any changes to the logistics/required packing list etc
- make sure the parents' of the students are aware of the trip, the trip schedule, and have signed the Indemnity Forms (and hand these in to an LWE representative prior to departure)
- make sure the students know that they are to pack a blanket, extra clothes and personal toiletries

- go over the safety rules with the students before going so that they are clear on them, and they must agree to abide by them in order to visit LWE and participate in the EOP

Safety Rules while visiting the LWE field station in the Okavango Delta:
#1 – Listen and follow all directions given to you by the L.W.E. staff, representatives and teachers throughout the trip
#2 – Everyone will be issued a whistle to wear around their neck for safety, and must not blow the whistle unless they are in an emergency
#3 –While at camp, everyone must stay within the circle of visual area of camp
#4 – You must wear shoes at all times (due to the presence of scorpions etc)
#5 – While visiting with the elephants (Jabu, Thembi and Morula), stay together as a group, and do not wander away from the group unless accompanied by an adult.
#6 - At night, no one should walk alone even within the camp circle (therefore if you need to get up in the night, you must wake up your tent partner and an adult).

LWE EOP Activities and Schedule:

(a list of possible activities, and schedule may vary slightly from group to group)

Day One	Day Two
- 9:00 (or agreed upon) pick up at the school/village - leave for an approx. 2.5 hour drive to LWE field station in the Okavango Delta, and view/identify game along the way - upon arrival, welcome, discuss safety rules, tour of camp, get comfortable in tents, brief introductions, prepare and eat lunch - short break - Animal name game and introductions, create and decorate name tags - table activities: review previous knowledge about elephants (perhaps learning from the group), make a group list of questions that hope to be answered during the visit, list ways the group may find out the answers to their questions - short break - Nature Walk – looking for signs of elephants, and discussing how elephants interact with their environment - discuss safety during 'Elephant Activity' and then meet Jabu, Thembi and Morula with Doug and/or Sandy Groves and learn about elephants from direct experience! - optional short game drive, return to camp and write in journals about what they learned/their experience - prepare and eat dinner - around campfire – share stories, and ask questions to Doug and/or Sandy Groves	- 7:00 a.m. breakfast - 8:00 meet at the tables - walk to where the elephants sleep and discuss: how to care for elephants, play active games/activities ('Oh Tlou!' and 'Food Web Game') and learn about the needs of elephants/ how elephants are connected to the whole food web/ecosystem, and graph populations of elephants from our game, and discuss how people can help elephants acquire their needs - play a game/activity ('Blind spotting') about senses used by elephants and people - possible visit/tour of Stanley's Camp to discuss the economic benefits of tourism in Botswana and the role of elephants - draw their elephant experience - prepare a musical presentation (song) that involves/about elephants - Review (oral or written) - clean tents and pack up - prepare and eat lunch - do the presentation - drive back to Maun and/or village through Ditshipe and discuss people living with elephants in this area

Suggestions for Post-LWE EOP Activities:

1) Sharing Creatively Their Experience

Have the students present their chart on "What they learned while visiting LWE" with the students who were unable to come, and allow for group and/or class discussions. Perhaps allow for the students who came to LWE to draw, write poems, compositions or create a drama presentation of their visit and/or have the whole class create stories, poems or drama presentations about elephant conservation issues, and/or the challenges that elephants and/or people face living together (make sure both sides – human and elephant - are represented) and have them present these to the whole school.

2) Human and Elephant Waste - Garbage pick up!

Discuss the impact and effects of litter (e.g. – visual impact, hygiene, injuries to domesticated and wild animals including: rodents stuck in glass jars, cuts on tongues from licking tin cans, choking on plastic bags etc). Then, as a class, research and discuss the effects of elephant waste (dung) (e.g. seed dispersal, home to insects, nutrient recycling, food for other animals/insects, medicinal uses `by people...) Perhaps have students in small groups to list 5 negative impacts to the environment from litter, and 5 ways we can minimize litter (eg use dust bins, decrease the purchase of items with lots of packaging, re use plastic bags etc). Perhaps have students research local uses of elephant dung. After the discussions, pick up garbage (human waste) in an area nearby the school that the students identify as a littered area and use garbage bags (talk about safety – being careful picking up any sharp objects) to be brought to the dump.

3) Class Trip to The Craft Centre at The Power Station, Maun

Plan a trip with your students to visit The Paper Mill, inside the Craft Centre (an example of one of the human uses of elephant dung!). At no cost (must call ahead) watch how handmade paper is produced from elephant dung, Mokolwane palm leaves, papyrus and other natural ingredients! It is sometimes mixed with recycled paper from local offices. At a cost (must call ahead for prices and available dates) you and your students could make paper at the Craft Centre with a local artisan, and bring elephant dung and any paper from your school that needs recycling!
Contact: Tanju at #71627102, or 663391 at The Power Station, P.O. Box 39 Maun

4) Other possible ideas:

- lead a discussion or do a class debate on the reasons for and against the opening of the Ivory Trade with the Convention of International Trade of Endangered Species
- assign the students to research at least three examples of advertising (television, radio, newspaper, magazines, billboards, tourist operators, local

businesses, etc) that uses elephants, and have them prepare reasons why they feel the elephant was used in each of the cases
- look into getting a guest speaker from either DWNP, Anti-poaching unit, a staff/guide for a safari company, elephant researcher, a person from a village that lives with elephants or a member of Living With Elephants Foundation to prepare a talk for the class on the elephant populations, conservation, behaviour, tourism and/or human-related issues in Botswana

Acknowledgements:

A special thanks for the support and help during the development of the LWE EOP:
- LWE team and Grey Matters – Doug and Sandy Groves, Julien Marchais, Kelsey Envik, and other LWE international volunteers along with Jabu, Thembi and Morula for the initial dream of this program, and their time, effort, dedication and donations
- Louis Motlaleselelo – the local education coordinator for his time, energy and enthusiasm in the development and the implementation of the EOP
- Mr. Sankwasa – for his support and assistance with the development of the EOP and for organizing the Maun school visits to the LWE EOP
- Julius Matshuba and the teachers from Moremi, Shorobe, Bonatla and Komana Primary Schools who participated in the LWE EOP and helped in the development of the curriculum
- The villages of NG 32 who participated in the LWE EOP, attended the Kogtlas about the LWE EOP, and offered suggestions for the program
- Sue Hamel – a Canadian volunteer student working on her Masters of Education Thesis at Lakehead University, funded through the Canadian International Development Agency (CIDA)
- Canadian Wildlife Federation – 1995 Project Wild Activity Guide (that was used in part and adapted for a couple of the activities within the LWE EOP)
- AKGF (Abercombie and Kent Global Fund) for their generous contributions to fund our first year of the program (equipment and group visits)
- Businesses in Maun including:
  - Riley's Garage (donations of fuel)
  - Photo Lab (discounts on film and processing)
  - Kalahari and Kanvas (discounts on equipment and repairs)
  - Ice Man (discounts on ice blocks)
  - Custro's safaris (discounts on vehicle rentals)

Our Contact Information:

Please visit our website at:
www.livingwithelephants.org
or call #6863198

You can contact us at:
Living With Elephants - Box 66
Maun, Botswana

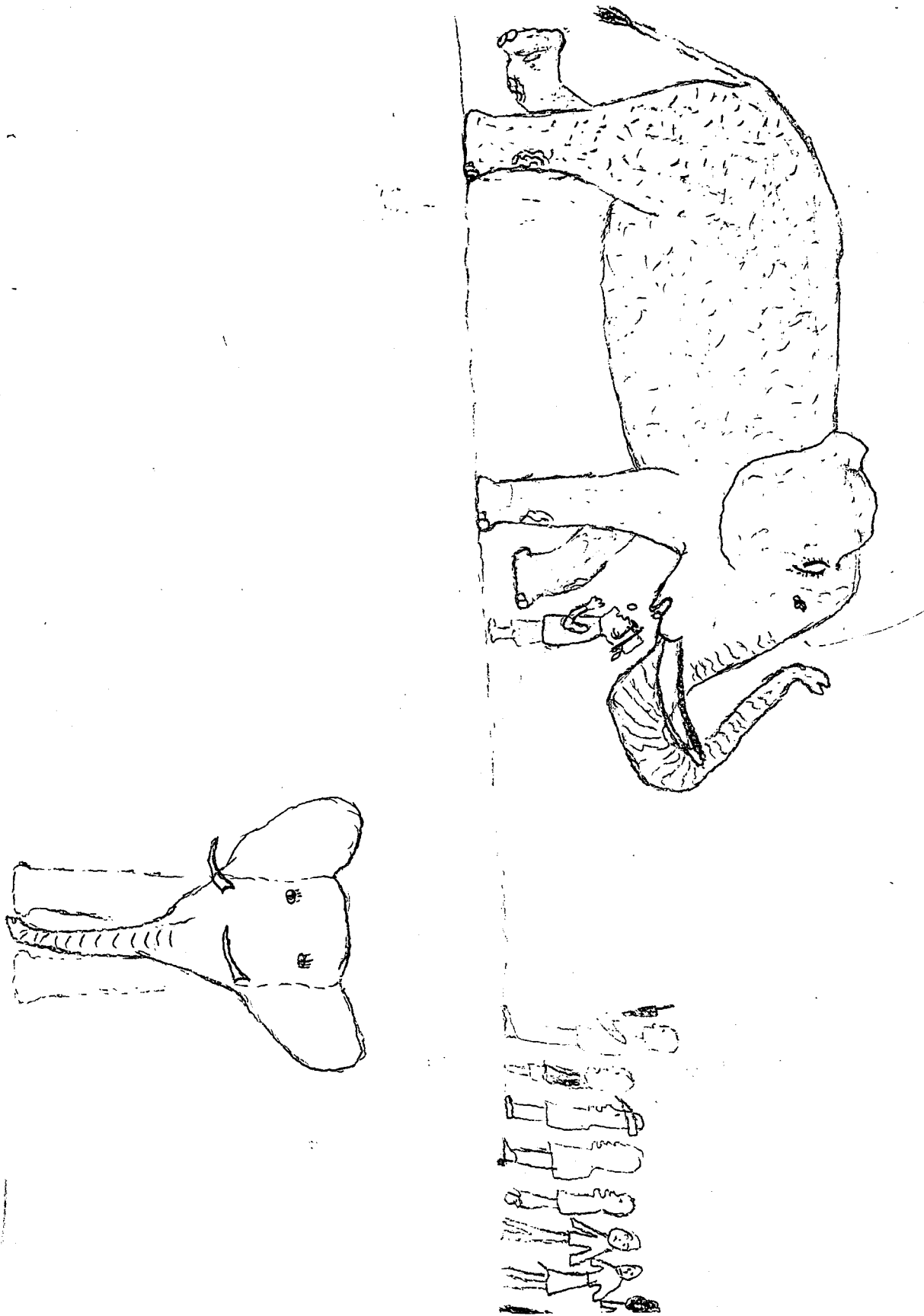**Appendix F: Examples of Student Drawings**

Example of a student's drawing categorized as:
'being close with elephants'
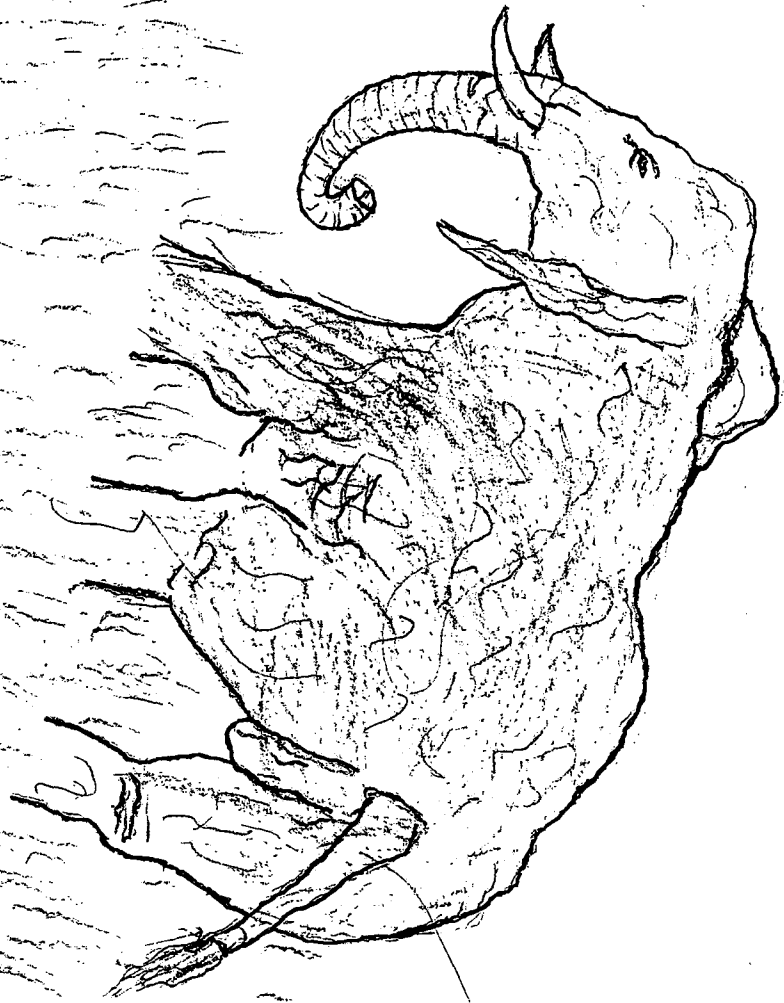when asked, "Draw your experience in this program."

Example of a student's drawing categorized as:
'depiction of fear or anxiety'
when asked, "What happens when a person meets an elephant?"

Example of a student's drawing categorized as:
'close interactions with elephants'
When asked, "What will you tell your friends about elephants?"

Example of a student's drawing categorized as:
'observed elephant behaviour'
when asked, "What will you tell your friends about elephants?"

Appendix G: LWE Certificate and Group Photo for Participants in the EOP

(slightly smaller than actual size)
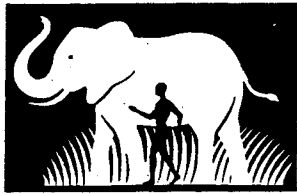
LIVING WITH ELEPHANTS
F O U N D A T I O N

P.O. Box 66, Maun, Botswana Africa
17 Blue Mountain Ridge, Norwalk, CT 06851 USA

The above named individual is now officially
a member of the herd and a friend of
Jabu Thembi and Morula:
through participating in an intensive two day
LWE Educational Program
on the Okavango Delta in Botswana.
During this time they have learned
about elephants and their relationship with in the
ecosystem and with the people of Botswana.

_____   _____
Date   *Living with Elephants Foundation*
            www.livingwithelephants.org

Trunk print by Jabu,
one of our
elephant ambassadors
(Actual Size)