PEOPLE, PRIMATES, AND PEACE: A CASE STUDY IN BARBARY MACAQUE
ETHNOPRIMATOLOGY AND INTERDISCIPLINARY CONSERVATION IN THE RIF MOUNTAINS OF MOROCCO

by

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ABSTRACT

The endangered Barbary macaque (*Macaca sylvanus*) of North Africa, the only macaque outside of Asia and north of the Sahara, has experienced a continual decline in numbers over the course of several decades. Understanding perceptions of endangered species such as the Barbary macaque and attitudes towards conservation may be critical to conservation initiatives and their durability. Using an ethnoprimatological approach, I investigate perceptions of Barbary macaques as well as macaque conservation in the Rif Mountains of northern Morocco. In doing this, I observed and participated in the daily practices of Barbary Macaque Awareness and Conservation (BMAC), a Moroccan nongovernmental organization (NGO) whose sociocultural approach to macaque conservation seeks to aid both people and macaques. Additionally, I conducted semi-structured interviews (*n*=24) with urban and rural Moroccans exhibiting various degrees of contact with macaques and BMAC. Results indicate that macaques are commonly viewed as valuable endemic species and seen as important to local ecologies. There were significant differences in how urban and rural experiences shaped their perceptions of macaques. Despite some negative religious connotations, respondent attitudes were positive towards macaques and macaque conservation across all groups. BMAC’s interdisciplinary research methods and socio-cultural approach to conservation, which is highly inclusive of local populations, may be a useful model for future primate conservation endeavors.

Key words: Barbary macaque, Morocco, human-wildlife conflict, conservation, primates, peace and conflict studies, ethnoprimatology, ethnography
DEDICATION

For mom, who loved all things in nature and never met a stranger. And for dad, a devoted public servant, who never faltered in the pursuit of reason and logic. I’ve refused to let your absence define me. Instead, I like to think your lives have inspired me – to be a good and useful human.

Bonnie Sue Parsons Alexander 1942-2001
Denson Marvin Alexander 1927-1994
LIST OF ABBREVIATIONS AND SYMBOLS

BMAC – Barbary Macaque Awareness and Conservation

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

IUCN – International Union for Conservation of Nature

IVLP – International Visitor Leadership Program

LEK – Local ecological knowledge

NHP – Nonhuman primate

NGO – Nongovernmental organization

TEK – Traditional ecological knowledge

UNESCO – United Nations Educational, Scientific, and Cultural Organization
ACKNOWLEDGEMENTS

When I first began my graduate studies and I had many discussions with Lori Cormier trying to decide on a thesis topic. Finally, one day she asked me, “So what do you know about Barbary macaques?” as she pointed to a postcard with a Barbary macaque I sent her from Morocco a number of years prior. Her question set forth an inquisition into everything I could find on Barbary macaques and I never looked back. So, I have to thank Lori for asking me that question and supporting me as I journeyed through graduate school. It was a long road but she was always reassuring and fully supportive of the direction my research took.

At the time I made this decision I had no idea Siân Waters had already embarked on an ethnoprimatological study of Barbary macaques in northern Morocco. More than year and many emails later, Siân became a second mentor to me, and my research in Morocco would not have possible without her. Siân invited me to conduct research in the Rif on human-macaque interactions and be a participant observer to her social-cultural methods of conservation. This experience has changed the way I view conservation and has been an invaluable anthropological experience. I have to say if Lori Cormier has been my ethnoprimatology guru, then Siân has been my Barbary macaque and conservation guru. With immense gratitude, I thank you both for your support and for helping make this research project happen.

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CHAPTER 1.
INTRODUCTION

Human-wildlife interactions occur in any space where humans and wildlife are sympatric, or have overlapping ecologies (Hill and Webber; Hurn 2012; Knight 2000; Kansky and Knight 2014). At times, these interactions result in human-wildlife conflicts and may be highly problematic when endangered species are involved. Such conflicts are often rooted in underlying sociocultural, political, and historical problems and are not easily resolved through traditional conservation methods. Thus, there has been a call for increased interdisciplinary approaches to conservation (Aslan 2013; Bennett et al. 2017; Dickman 2010; Madden and McQuinn 2014; Mascia et al. 2003; Sandbrook 2013). Given the need to better understand this type of approach and how it may be implemented, I will present a case study of Barbary macaque (Macaca sylvanus) conservation in Morocco, where sociocultural factors were incorporated into an inclusive conservation plan that considers all aspects of the human-primate interface as well as human to human conflicts creating barriers to conservation (Waters 2014).

The Barbary macaque, once endemic to the entirety of North Africa, is now limited to the mountainous areas of Morocco and Algeria (Fodden 2007). Populations of wild Barbary macaques have declined over 50% since the 1980s, primarily due to poaching for the illicit pet trade and loss of habitat (Camperio Ciani et al. 2005; Camperio Ciani and Mouna 2006; Van Lavieren and Wich 2009; Waters 2014). Nationwide conservation efforts of the Barbary macaque have been historically sporadic due to lack of governmental funding and weak public support. However, the implementation and normalization of Barbary macaque conservation
appears to be on the rise in northern Morocco as the result of sociocultural approaches to conservation by a Moroccan-based primate conservation organization. The apparent success of this organization, Barbary Macaque Awareness and Conservation (BMAC), is the result of an interdisciplinary program that seeks to understand underlying human barriers to conservation and resolve historically rooted problems between important stakeholders. By taking into consideration the cultural, socio-economic, and political factors driving attitudes towards the Barbary macaque, BMAC has developed a highly inclusive and potentially sustainable conservation program (Waters 2014).

As a result, my goal is to understand the relationship between Barbary macaques, Moroccan actors, and this organization. To achieve this, I take an ethnoprimatological approach using mixed methods. Ethnoprimatology, the study of human-nonhuman primate relationships, is an ideal framework for exploring perceptions of primates and human-macaque interactions. This interdisciplinary subfield of anthropology seeks to understand the influence of humans and nonhuman primates on one another, particularly in areas where they are sympatric (Cormier 2003; Fuentes 2012; Fuentes and Wolfe 2007; Riley 2006; Sponsel 1997; Wheatley 1999). Ethnoprimatology not only provides an opportunity to increase baseline knowledge of human-primate relationships but may also inform and evaluate conservation effectiveness.

Using the theoretical framework of ethnoprimatology, my key objectives are to investigate human-macaque interactions, religious and cultural perceptions of Barbary macaques (*Macaca sylvanus*), and attitudes towards BMAC and macaque conservation in the Rif Mountains of northern Morocco. Using the standard ethnographic methods of anthropology, namely semi-structured interviews and participant observation, I conducted semi-structured interviews with three different groups of Moroccans (*n*=24): students, shepherds, and the urban
working class. As a constant participant in BMAC’s daily routine, I observed their daily interactions with wild macaques and the many groups of people with whom the organization came into contact.

In chapter two, I will address human-wildlife interactions and then expand on the call for theoretical fields outside the biological sciences to be utilized in conservation initiatives (Aslan 2013; Bennett et al. 2016; Bennett et al. 2017; Dore et al. forthcoming; Madden and McQuinn 2014; Mascia et al. 2003; Remis and Jost-Robinson 2017; Sandbrook 2013; Setchell et al. 2017; Waters et al. forthcoming). I also address several anthropological fields relevant to conservation, including cultural and biological anthropology and their subfields of ethnoprimatology and ethnobiology. Finally, contributions from peace and conflict studies to conservation are a worthy addition given their potential to resolve human-to-human conflicts that may affect endangered wildlife. The holistic merging of these fields may be important to future conservation initiatives.

Then, in chapter three, I will discuss the geographic, cultural, and religious setting for this study. A Mediterranean tourist hotspot, the Kingdom of Morocco is host to a biologically diverse landscape and an expanding environmental movement. Moreover, while Islam, the predominate religion of Morocco, offers a holistic view of ecology and animal welfare, pro-environmental attitudes may be additionally shaped by changing cultural norms.

Chapter four will provide background information on Barbary macaque status, distribution, and ecology. This species is on the International Union on the Conservation of Nature (IUCN) Red List and classified as endangered (Butynski et al. 2008). However, despite its protected status, Barbary macaque populations continue to decline (Benrabah 2015; Cameperio Ciani et al. 2005; Camperio Ciani and Mouna 2006; El Alami et al. 2013; Ménard et al. 2014; van Lavieren and Wich 2009; Waters 2014). Of greatest concern is the population in
the Middle Atlas, where tourism and habituation of macaques has resulted in elevated rates of poaching (Ménard et al. 2014; van Uhm 2016). In contrast, recent research in the northernmost range of the Barbary macaque has revealed this may be only remaining sustainable population of this species (Waters unpublished data).

In chapter five, I will cover the methods used to carry out this research. Using ethnographic methods, I conducted semi-structured interviews with Moroccan citizens in the Rif Mountains regarding their interactions with Barbary macaques and attitudes towards macaque conservation. Additionally, I was a participant observer for eight weeks with the primate conservation organization, Barbary Macaque Awareness and Conservation (BMAC).

Chapter six will discuss my ethnographic immersion with BMAC and the organization’s inception and growth. I will also explore BMAC’s interdisciplinary approach to conservation, which is inclusive at all levels of Moroccan society to insure involvement of all stakeholders. My participant observation allowed me to understand how the group developed under the leadership of conservationist and primatologist Siân Waters, the director and founder of BMAC. Additionally, I observed the organization’s interactions with wild Barbary Macaques as well as concerned citizens and policy makers. My time with BMAC allowed me to observe their interactions with people throughout northern Morocco as well as understand their conservation methodology. It also allowed me to fully grasp the attitudes towards their work by different groups.

In chapter seven I will present the detailed results of the semi-structured interviews. I examine the similarities within and between groups of Moroccans and how their beliefs and experiences might shape their attitudes regarding macaques and macaque conservation. Moreover, these findings provide a glimpse into the marked differences between urban and rural
perceptions. I also found the interview results reinforced my observations while participating in the daily activities of BMAC.

In chapter eight, I will discuss the full range of ethnographic data and their implications. My primary observation is that within each group there were distinct trends. Students were well versed in academic rhetoric and cited biodiversity and awareness (education) as highly important. The working class was broader in their interests and harken the importance of tourism for themselves as well as the national economy. By contrast, the shepherds view macaques through an internal lens as fellow forest dwellers and as having ecological value. The religious responses to macaques and conservation demonstrate underlying Muslim values towards conservation across urban and rural groups. I end this chapter with a proposal of BMAC’s methodology as a ‘biosocial peace’ model highly relevant to an integrated approach primate conservation.

Finally, in chapter nine, I conclude by explaining the importance of this research. First, it may be useful in understanding attitudes towards Barbary macaque conservation in northern Morocco and contributes to a growing scholarship on the human-primate interface throughout Morocco (Maréchal et al. 2011; Ménard et al 2014; Mojolo et al. 2013; van Uhm 2016; van Laveren 2008; Waters 2014). Additionally, this work demonstrates the potential of ethnoprimatology and qualitative methods in understanding local perceptions of conservation and evaluating local receptiveness to conservation.
CHAPTER 2.
TOWARDS AN INTEGRATED CONSERVATION: HUMAN-WILDLIFE CONFLICT AND AN INTERDISCIPLINARY APPROACH TO CONSERVATION

The Human-Wildlife Dilemma

With an increasing human population globally, human-wildlife interactions and the resulting pressures on endangered species have reached a critical point. While there are some success stories, there are many more trapped within a complex web of human behaviors and in dire need of disentanglement. As such, there is a call for novel problem solving of conservation problems through the recruitment of the social sciences and other relevant fields outside of the biological sciences (Aslan 2013; Bennett et al. 2017; Hill et al. 2017; Madden and McQuinn 2014; Mascia et al. 2003; Sandbrook 2013). Using qualitative methods that solicit socially contextual and reflexive data, conservation scientists may look more deeply into the human behaviors often driving problems or creating barriers to conservation (Rust et al. 2016; Rust et al. 2017; Sutherland et al. 2017; Young et al. 2018). More specifically, we must take heed of the underlying sociocultural, historical, and political factors that shape attitudes in addition to perceptions, values, and norms (Bennett 2015; Bennett et al. 2017; Hurn 2012; Kansky and Knight 2014; Knight 2000; Manfredo 2016).

While many human-wildlife interactions do not result in conflict, there are a plethora of potential conflict scenarios that may occur under various circumstances (Hurn 2012; Kansky and Knight, 2014; Rust et al. 2016). As seen in Table 2.1, there are many direct and indirect conflicts between humans and wildlife. Actions by wildlife directly affecting humans might include
Table 2.1. Sources of human-wildlife conflicts, actors involved, context of conflict. [H/A (Human-animal): refers to direct conflict; H/H/A (Human-human-animal): refers to human conflicts that are underlying causes of human-animal conflicts.]

<table>
<thead>
<tr>
<th>Source of Conflict</th>
<th>Actors</th>
<th>Context</th>
<th>Examples</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsistence</td>
<td>H/A</td>
<td>Direct competition over resources; animals as a food source</td>
<td>Crop raiding by wildlife; competition by wildlife with domesticated animals; killing of domesticated animals by wildlife; human utilization of animals as food</td>
<td>Mariki et al. 2015; Rust et al. 2016; Waters 2013</td>
</tr>
<tr>
<td>Migration</td>
<td>H/H/A</td>
<td>Forced movement or displacement; natural population dispersion</td>
<td>Relocation of animals due to natural forces or human alteration of habitat; relocation of humans due to natural or other causes</td>
<td>Gellert and Lynch 2003; Wetzel et al. 2012</td>
</tr>
<tr>
<td></td>
<td>H/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defensive</td>
<td>H/A</td>
<td>Perceived danger</td>
<td>Threats to human lives from animals such as large felids, elephants, venomous snakes, etc.; animals may be defending territory or offspring</td>
<td>Pohja-Mykrä 2016; Mariki et al. 2015; Inskip et al. 2014</td>
</tr>
<tr>
<td>Political (local)</td>
<td>H/H/A</td>
<td>Disturbance of local human-animal balance due to governmental boundaries</td>
<td>Creation of parks and expulsion/displacement of local populations by government from lands specifically designated for the protection of wildlife</td>
<td>Brockington 1999; Mascia and Claus 2007</td>
</tr>
<tr>
<td>Political (national)</td>
<td>H/H/A</td>
<td>Large scale conflicts</td>
<td>Wars of any type may result in pressures on humans that, in turn, create new pressures on wildlife.</td>
<td>Dudley et al. 2002</td>
</tr>
<tr>
<td>Economic</td>
<td>H/H/A</td>
<td>Poaching and sale of wildlife</td>
<td>Poaching and sale of wildlife (to supply pet trade, sell as food source, or use in tourism) driven by basic needs; can also be driven by illicit trade in wildlife for large-scale underground activities</td>
<td>Van Uhm 2016; Bowen-Jones et al. 2003; Rosen and Smith 2010; Waters 2014</td>
</tr>
<tr>
<td></td>
<td>H/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural</td>
<td>H/H/A</td>
<td>Neglect or retaliatory destruction</td>
<td>Can result from ethnic or class discrimination</td>
<td>Rust et al. 2016</td>
</tr>
<tr>
<td>Conservation</td>
<td>H/H/A</td>
<td>Animosity towards conservation initiatives</td>
<td>Local human stakeholders may harm wildlife or refuse to support conservation initiatives when not included in conservation decision making processes</td>
<td>Bell et al. 2008; Hazzah et al. 2014; Theodossopoulos 2003</td>
</tr>
<tr>
<td>Biological</td>
<td>H/A</td>
<td>Zoonotic disease transmission</td>
<td>Increasing proximity between humans and wildlife where barriers previously existed; includes increased proximity due to tourist activities</td>
<td>Carne 2017; Cormier 2011; Dansk et al. 2001; Fuentes 2006</td>
</tr>
<tr>
<td>Cultural</td>
<td>H/H/A</td>
<td>Cultural practices that utilize wildlife or other local resources placing pressure on wildlife</td>
<td>Traditional practices; changes to traditional cultural practices resulting from outside (economic or political) forces</td>
<td>Cormier 2003; Damania et al. 2003</td>
</tr>
</tbody>
</table>
crop raiding, attacks on livestock, or direct attacks on humans. In contrast, human aggressions directed at wildlife include retaliation for destruction of property (Mariki et al. 2015), aggression due to perceptions of danger (Inskip et al. 2014; Pohja-Mykrä 2016), or retaliation in response to political or conservation pressures (Mariki et al. 2015).

In more indirect instances, human groups feel threatened by conservation initiatives excluding local populations in decision making or may result in feelings of animosity when restrictions are place on subsistence practices in a previously unrestricted area (Hazzah et al. 2014). Other conflicts may result from large-scale human events, which have a domino effect on the surrounding environment. Civil wars and the resulting displacement of human populations can shift or reduce resources and leave people with few others means to survive besides poaching (Dudley et al. 2002; Hurn 2012; Knight 2000).

In short, the failure to take into consideration such socio-cultural, political, and economic context of local populations may lead to increased roadblocks to conservation (Rust et al. 2016; Setchell et al. 2017; Waters 2014). Numerous cases studies demonstrate how such negative scenarios can play out between conservationists and the public. Responses range from those who actively impede conservation (Rust et al. 2016) to resistance or defiance of conservation (Pohja-Mykrä 2016) to the outright retaliatory killing of wildlife (Inskip et al. 2014; Mariki et al. 2015).

In the case of impeding conservation, Rust (et al. 2016) examined the socio-political landscape of livestock farms in Namibia. These farms have had little success in reducing large carnivore predation despite their best efforts. Their data demonstrated that poor indigenous employees were, among other things, taking livestock themselves and blaming it on the carnivores. The researchers determined this conflict had emerged out of a long history of
systemic racism and resulted in retributive actions towards white farm owners (Rust et al. 2016). For example, and as stated by one worker, “There are so many people without jobs that if a person doesn’t want to work for such a low salary, someone else will; so the white people are still in power.” Another farm worker noted that, “I think all workers sometime steal and kill livestock. I would say 90% of people are doing this when there is a dispute and the workers want revenge.” (Rust et al. 2016, p. 7-8)

In another case also involving large carnivores, Pohja-Mykrä (2016) discovered that increasingly stringent laws protecting large carnivores in Finland created a sense of injustice among local hunters whose concerns over land rights went unheard. With heavy sentiments of resentment, these hunters would then kill protected carnivores in acts of ‘rural defiance.’ Other residents would then ignore the actions of law-breaking hunters in their own quiet acts of political dissent (Pohja-Mykrä 2016).

Bell et al. (2008) describe resistance to Saima ringed seal conservation in Finland when the “place based knowledge” of local inhabitants was not taken into consideration, nor their involvement requested at any point during the implementation of the conservation program. Outside researchers made assumptions that local fishermen were unconcerned with seal preservation and in direct competition with them. As a result, these fishermen were left with a sense of marginalization in their own village and were reluctant to participate in the initiative despite their interest and personal connections to these seals (Bell et al. 2008). In expressing his discontent with ‘outsider’ conservationists one fisherman stated, “They don’t give a shit about ordinary people” (Bell et al. 2008, p. 285). Another fisherman explained their relationship with local seals,

When the fisherman hauled the net to the boat, the seal looked around a little and returned to the lake. I mean if there are big conflicts between the seal and the fisherman
that would not happen. This happened almost every evening. The seal knew it could get food from there. And the fisherman did not mind. If he had he would have hit the seal with the blunt end of his axe so as to knock it away without harming it. It was such a joy, in a way. An exciting thing that the seal makes visits inside the seine sometimes. [Bell et al. 2008, p. 285]

In a similar situation, resistance to turtle conservation on the Greek island of Zakynthos (Theodossopoulos 2003) resulted from environmentalists taking a polarized approach of human exclusion from nature to enact its preservation. However, like the case of the Saima seal, the local worldview, nor their relationship with the land, were taken into consideration. As one disgruntled inhabitant explained,

Have a look around you…Do you see these beautiful fields, the beautiful nature? This is our land. We’ve been working this land since we were children. Once upon a time, we used to have landlords telling us what to do. Then, with tourism, just as we lifted our heads up, the ecologists started talking about the turtle. They told us we cannot build on our land, we cannot make any progress on it. They say they care about the earth. What do they know? They say we should protect the turtle. Who is going to protect us from the turtle?...It only brings troubles. [Theodossopoulos 2003, p. 1]

In some instances, resistance turns into to outright retaliation. And in the case of elephants, conflicts can be highly tenuous since there may be direct harm caused to humans as well as crop raiding. A case study described by Mariki et al. (2015), describes how elephants were driven off a cliff in Tanzania in response to feelings of domination, oppression, and marginalization (Mariki et al. 2015). Again, the sentiments of local populations make clear their feelings regarding top down conservation initiatives that conspire with governments and outside agencies,

We are angry that investors and conservationists are expanding wildlife protected areas in order to enable wildlife to flourish and attract tourists, while we are squeezed. They want wildlife to dominate at the expense of people. (Mariki et al. 2015, p. 25)

This type of backlash to conservation has also been documented in Bangladesh (Inskip et al. 2014) where tigers have been killed in retaliation of local authorities’ refusal to act. In
addition, past killings of people by tigers increases the fear it will happen. Regarding the situation one resident stated,

[The authorities] did not make a plan to send the tiger back into the jungle. They did not try to scare off the tiger…They did not do anything. They came and were standing normally. We saw they had no role in helping us: one was making a call to his wife, another to his daughter to say that they were in front of a tiger. Then we thought we had to do something for ourselves. We could not depend on them, otherwise we would be killed. We were forced to kill the tiger…They forced us to kill the tiger. [Inskip et al. 2014, p. 44]

In these examples, the voices of local populations speak volumes. They provide clarity and point to a key barrier to conservation – essentially that wildlife should not be given priority over people. To do so is to create further conflict or conflict were none existed previously. However, without the use of social science methods these voices would go unheard, thus, highlighting the need to expand research across disciplinary divides and utilize tools soliciting both quantitative and qualitative data to create more holistic and context driven conservation initiatives.

**Human-Nonhuman Primate Relationships**

Like other wildlife, nonhuman primates (NHP) are by no means immune to misperceptions, negative attitudes, and increased human pressures on their wild populations. In fact, the physical and behavioral similarities between humans and other primates greatly complicates their situation since primates are often subjected to the same moralistic standards of humans (Corbey 2005; Ohnuki-Tierney 1987; Waters 2014). As a result of this historically anomalous relationship, human perceptions of nonhuman primates range from reverence to fear. Indeed, human relationships with NHP are distinct from other nonhuman animals (Corbey 2005; Fuentes 2012; Cormier 2003).
Humans and NHP often share spaces due to various circumstances including religious tolerance (Fuentes 2010; Wheatley 1999), the utilization of primates as a food source (Cormier 2003), and overlapping ecologies (Cormier 2003; Riley 2007; Waters 2014). In some instances, proximity to primates is driven by tourists’ desire to observe wild primates at close range (Lee and Priston 2005; Wallis and Lee 1999) or to obtain primates as pets (Fuentes 2002; Waters 2014). Additionally, many modern human-primate interactions are intentionally sought in the name of science whereby primates are purposefully habituated to facilitate their close study (Lee and Priston 2005; Wallis and Lee 1999).

As a result of their behavioral plasticity, macaques (Macaca) in particular are thought to have the highest degree of interaction with humans than any other NHP, and often have their highest densities where they come into contact with humans (Fleagle 1999; Fuentes 2006). Members of this genus, Macaca, have the widest geographic range of all nonhuman primates and comprise nineteen species in total. Found throughout Asia, Europe, and North Africa, macaques are highly opportunistic and live in a wide variety of habitats. In fact, macaques are so successful they are often commensal with humans but may also be seen as a “weed” species. Their resilience is further demonstrated by the ability of Barbary macaques and Japanese macaques (M. fuscata) to tolerate the coldest climates of any NHP (Fleagle 1999).

In particular, Buddhist and Hindu temples throughout Asia are the site of extensive human-macaque interactions since monkeys are granted elevated status by these religions (Fuentes 2010; Wheatley 1999). However, despite their peaceful coexistence in certain locations, human-macaque relationships are riddled with complexities and conflict. In some cases, macaques frequently crop raid, may be destructive around human habitations, and can behave aggressively towards unsuspecting tourists (Fuentes 2006; Jones-Engel et al. 2006; Wheatley
1999). This type of behavior is not limited to macaques. While studying the Guajá in the Amazon Cormier (2002) noted habituated pet monkeys (often capuchins or howlers) would eventually become aggressive towards people and self-harm when their lack of social interaction diminished with age and isolation.

While some species of wild primates are considered weed species and have few restrictions on their populations, there are many others classified as either threatened or endangered. A recent report revealed that approximately 60% of primate species are threatened with extinction because of unsustainable human activities and 75% of all primate species are in decline (Estrada et al. 2017). These numbers are more than cause for alarm and stress the need to explore new and integrated solutions to persisting problems.

Interdisciplinary Challenges and Contributions from Anthropology

Due to the need for understanding the complexities of human-wildlife interactions and the need to expand the toolkit of conservation, there has been increasing push towards an interdisciplinary approach (Aslan et al. 2013; Green 2015; Madden and McQuinn 2014). This examination of the human dimension of conservation would be achieved ideally through the inclusion of the social sciences, as well as other relevant disciplines (Bennett et al. 2016; Knight 200; Setchell et al. 2016). The holistic field of anthropology and the inherently interdisciplinary subfield of ethnoprimatology have already begun to address conservation issues. In fact, the Moroccan case study I will discuss later is but one example. More recently, the field of peace and conflict studies has seen promising application when applied to conservation (Madden and McQuinn 2014). In total, more reflexive, qualitative methods are needed to document and contextualize human-wildlife conflicts. In doing this, social and biological scientists can develop
more innovative and socially equitable approaches to difficult conservation problems (Bennett et al. 2016; Knight 2000; Setchell et al. 2017).

Nathan Bennett (et al. 2016), an environmental social scientist and advocate of the conservation social sciences, outlines the roadblocks impeding a more creative and interdisciplinary approach to conservation. First, there is the rift between philosophies and ways of thinking between fields. Then, there is specialized terminology and methodology among different disciplines. Moreover, funding is often linked to the labels and organizational cultures (Bennett et al. 2016). Yet, these are hardly insurmountable barriers.

Others (Waters 2014; Wyborn 2015) point out that co-producing knowledge from the beginning of a research project may also bridge the divide while providing practical solutions for all stakeholders (Waters 2014). Ultimately, the aim of an interdisciplinary approach is to employ multiple methods and fully contextualize a conflict in order to effectively disentangle underlying causal factors, transform relationships, and create long-term solutions (Bennett et al. 2017; Madden and McQuinn, 2014; Setchell et al. 2017). Bennett (et al. 2017) and Mascia (et al. 2003) remind us this may be an ideal means of resolving problems rooted in multiple, complex, and integrated sociocultural problems.

Among the social sciences, the holistic nature of anthropology is ideally suited for inquiries into conservation (Setchell et al. 2017). The four fields of anthropology include cultural anthropology, biological anthropology, linguistics, and archaeology. Collectively, they provide insight into the human experience in space and time. More specifically, the theoretical areas of cultural and biological anthropology are highly applicable to conservation since they provide access to both qualitative and quantitative methods, which may be used independently of one another or concurrently (Cormier 2003; Fuentes 2012; Riley 2006).
Through use of qualitative methods such as ethnography, cultural anthropology provides us with insight into cultural-specific perceptions of wildlife and ecologies (Knight 2000; Russell and Harshbarger 2003; Setchell et al. 2017). The standard methodology of ethnography includes semi-structured or open ended interview questions combined with some degree of participant observation. Such questions allow respondents to answer freely rather than their answers be constrained by the standard questionnaire model. Moreover, participant observation allows a researcher to immerse themselves into a setting and capture patterns of behavior as they are acted out. Participant observation not only compliments interview data, but may also reveal inconsistencies in actions versus stated intentions. In sum, the point is to record the *emic*, or insider’s viewpoint contrasted with the *etic*, or outsider’s view, to create a well-rounded description of a particular cultural phenomena (Bernard 1994; Pike 1985). Again, such data is necessary since cultural nuances along with generalized perceptions shaped by past experiences and socio-religious values often drive attitudes and behaviors towards conservation (Bennett et al. 2015; Manfredo 2008; Manfredo et al. 2016)

Another relevant area closely related to cultural anthropology is traditional or local ecological knowledge (TEK or LEK). Such a source of information can prove crucial given the intimacy that local populations have with their surrounding environment. TEK and LEK are situated in the field of ethnobiology, another subfield of anthropology, and examine the ways that humans view and utilize flora and fauna in culturally specific ways (Drew 2005; Setchell et al. 2017) This can be important since knowledge of the ecosystems in which people live is typically extensive and can provide insight into not only their worldviews as they relate to wildlife, but may also yield critical information on the behaviors of endangered species.
The work of Siân Waters (2014), to be discussed at a later point in this paper, provides one example of LEK use. Waters was dependent on local shepherds in the Rif Mountains of Morocco to find groups of macaques scattered about remote mountainous areas. Spending their days in these sometimes steep and dense tracts of forests with their herds, the locations of macaque troops was common knowledge for the shepherds. With their help, Waters could gain a general estimate of the macaque’s location and then triangulate their precise location by looking for physical signs of macaque activity (i.e. scat, partially eaten foods, signs of foraging). Once located, the groups could then be more closely observed and their numbers counted (Lee and Priston 2005; Waters et al. 2015).

Another example comes from the work of John and Terese Hart in eastern Zaire. Working closely with a forest dwelling tribe called the Mubuti, the Harts tracked and captured okapi (*Okapia johnstoni*) to collect data on their biology and population status (Hart and Hall 1996). The Harts may not elaborate in their publications, but the 1990 video, “The Heart of Brightness,” describes their time in the Ituri forest and makes clear their indebtedness to the local Mbuti that aided in their research.

Returning to the subject of biological anthropology, this field’s methods are also important in examining human and non-human actors as members of a shared ecology and the ways they influence one another’s physiology. In some instances, zoonotic disease transmission presents a danger to humans as well as endangered wildlife populations already under pressure from reduced habitat (Carne et al. 2017; Daszak et al. 2001; Fuentes 2006; Smith et al. 2009). Stress levels of wild animals in close proximity to humans is another area for concern since this may result in behavioral changes and immune system suppression. For example, research from Morocco on Barbary macaques and tourism demonstrates how unregulated tourism in the Middle
Atlas Mountains results in changes to macaque biology and behavior (Borg et al. 2014; Carne et al. 2017; Maréchal et al. 2011). Unknown to tourists, they negatively influence the health of the macaques by approaching them at unsafe distances and offering human food items to these monkeys. The unfortunate result is increased anxiety (Maréchal et al. 2011) in addition to increased weight, poor coat health, and increased parasite (Borg et al. 2014; Marechal et al. 2011).

Biological methods also examine the potential for bidirectional disease transmission between humans and nonhuman primates. This is especially problematic for endangered primate populations (Carne et al. 2017; Fuentes 2006) and precautions become a necessity when tourists are in direct contact with wild or semi-wild primates. However, oftentimes merchants using monkeys as photo props in Morocco will encourage tourists to pose with these animals within close range of the face, increasing the likelihood of transfer of disease through mucosal exchange (Carne et al. 20017; Fuentes 2006; Waters personal communication). Scratches and bites resulting from aggression are also common from unregulated interactions between tourists and primates (Fuentes 2006). While in Bali researching Hindu monkey temples, Wheatley (1999) noted positive feedback for aggressive behaviors since food was obtained through increased aggression. As noted earlier in this chapter, Cormier (2002) also witnessed increased aggression in habituated (pet) monkeys.

Setchell et al. (2017) demonstrates how the combined use of ethnographic and biological methods can provide a holistic view of a given problem. Conservation efforts in Gabon created strife between local human inhabitants and protected areas by failing to include people living on the perimeter of the protected areas. Having been excluded from the planning process, local inhabitants were subjected to regular crop-raiding by local wildlife that they were unable to
prevent despite their best efforts. This led to loss of food and income, a decline in health, and overall reduced security. Lack of inclusion and increased vulnerability resulting from conservation efforts made residents resentful and reluctant to comply with local conservation initiatives. However, a comprehensive study of this complex situation included using biological research methods to assess crop damage while concurrently using ethnographic methods to gather sensitive data on the feelings of marginalization by local residents (Setchell et al. 2017). Setchell (2017) refers to this approach as “biosocial.”

Another area of integrated inquiry is the anthropological subfield of ethnoprimatology. This highly interdisciplinary field incorporates varying degrees of cultural and biological methodology. Taking an ethnoprimatological approach to human-primate interactions was initially proposed by Leslie Sponsel (1997) and offers a uniquely holistic examination of the human-nonhuman primate interface. This discipline considers humans and nonhuman primates as equally important members of the same ecosystem but also takes into account the myriad of influence they have on one another, including cultural context (Cormier 2003; Fuentes 2012; Fuentes and Hockings 2010; Fuentes and Wolfe 2002; Riley 2006; Riley and Priston 2010; Wheatley 1999). For example, in the case of Cormier’s work in Amazonia, she describes the complex physical and cosmological interface between the Guajá worldview and the monkeys with whom they share their forests,

Monkeys are actually more human than anthropologists to the Guajá. In fact, so are the trees. In Guajá animistic beliefs, all forms of plants and animal life in the forest are endowed with souls and are woven into their kinship system. Among the forest being, monkeys, and especially the howlers, are considered to be more closely related to the Guajá than any other forest being. Herein lies the resolution to the paradox of how monkeys can be both nurtured as children and hunted for food...The role of monkeys in the Guajá culture is not merely alimentary. Infants whose mothers are killed for food are kept as pets and incorporated into to an even greater extent into the kinship system at the household level. These pets are never eaten, are nurtured as children, and can even be considered to serve as surrogate children to the Guajá women. Pet monkeys have a
considerable presence in the Guajá community. In a village of approximately 108 individuals, 90 monkeys were kept as pets during the research period. In some households, there were more monkeys than human beings. [Cormier 2003, p. xxiii-xxiv]

Taking an ethnoprimatological approach, primate populations and behavioral ecology may be studied using biological methodology while ethnographic methods investigate cultural-specific attitudes and worldviews of nonhuman primates (Fuentes and Hockings 2010; Riley 2006). In some cases, there is more focus on cultural components, and in others, primatology may take center stage. In either instance, the way we see and examine human-primate interactions is expanding exponentially. In fact, as the subfield of ethnoprimatology has grown over the last two decades, it has become apparent that any type of human-nonhuman primate relationship should be subject to examination (McKinney and Dore 2018; Palmer and Malone 2017; Riley 2013). Moreover, the application of ethnoprimatology to conservation is critical since fewer barriers may be encountered when people sharing spaces with endangered primates are acknowledged as stakeholders and valued for their knowledge of local flora and fauna (Cormier 2003; Waters 2014).

In summary, the various modes of anthropology allow researchers to understand in full the cultural relevance and biological context of a given subject. Additionally, the holistic nature of anthropology makes it useful in unpacking human relationships previously damaged by top-down, or heavy handed, conservation or government interference (Geoghegan and Renard 2002; Setchell et al. 2016; Theodossopoulos 2003; Waters 2014).
In the call to further integrate theoretical approaches, peace and conflict studies have been a recent and promising addition to the field of conservation (Madden and McQuinn 2014). Peace and conflict studies work with several goals in mind, namely to understanding the elements of peaceful behaviors within and between groups (Bonta 2006; Fry 2006), as well as instruments necessary for peace building and nonviolent conflict resolution (Deutsch 2014; Fry 2006; Lederach 1995; Ramsbotham 2011).

One component of peace and conflict studies is the field of conflict resolution. Conflict resolution is a relatively new field and only became formalized around the 1950s and 1960s, during the height of the Cold War. Like its predecessor, international relations, conflict resolution has sought to be multilevel, multidisciplinary, multicultural, both analytic and normative, and theoretical as well as practical. In short, it takes into account that conflicts are made up of a complex dynamic of attitudes and behaviors but are not beyond resolution when addressed constructively and creatively (Ramsbotham 2011).

More specifically, conflict can be defined as differences between two parties, whereby an individual or group have seemingly incompatible goals (Ramsbotham 2011). Thus, conflict resolution is the result of an in-depth process during which stakeholders reach a lasting solution to a problem by establishing a set of strategies that consider human needs, security, identity, and self-determination (Fisher 2006; Lederach 1995; Ramsbotham 2011). In contrast, conflict transformation takes this one step further and leads to identity transformation and systemic change (Lederach 1995, p. 20; Ramsbotham et al. 2011).

A leading scholar in the field of conflict resolution, John Paul Lederach (1995) takes a highly cross-cultural and applied approach to resolving conflict. He utilizes two primary models
in his training: “the prescriptive approach based on transferring conflict resolution technology from one setting to another, and the elicitive approach based on building from cultural resources in a given setting” (Lederach 1995, p. 7). Moreover, he points out that conflict is a “socially constructed cultural event” and that conflicts do not ‘just happen’ to people. Rather, “people are active participants in creating situations and interactions they experience as conflict.” Thus, it makes sense that “a person’s common sense and accumulated experience and knowledge are the primary basis of how they create, understand, and respond to conflict” (Lederach 1995, p. 9).

In addition to conflict resolution, peace studies offer lessons in the ways various societies handle conflict and how worldviews can influence cohesion between differing groups. Looking at peaceful societies and peace systems around the globe, peace scholars such as Bruce Bonta (1996) and anthropologist Douglas Fry (2006) have distilled the traits that either reduce or prevent conflict. Lessons learned from peace studies, those specifically taking a broad cross-cultural approach, can aid promoting a creative problem-solving atmosphere in both Western and nonwestern settings (Bonta 1996; Fry 2006; Fry and Souillac 2014).

Moreover, Douglas Fry and Geneviève Souillac (2014) point out the utility of breaking out of Western-centric molds when addressing conflict: “Conflict entails divergent interests, needs, or goals, and a cross-cultural view demonstrates that people address conflict in numerous ways…” (Fry and Souillac 2014, p. 604). In short, looking at conflict from multiple angles and through a creative lens increases the possibilities for resolution (Bonta 1996; Fry and Souillac 2014). According to Fry and Souillac (2014), such lessons from indigenous and small-scale hunter-gatherer societies are often overlooked in postindustrial Western societies. Specifically, Fry (2006) describes a number of important peace maintaining attributes common to many
indigenous societies. These attributes include interdependence, a common identity (by expanding the “us”), and the establishment of peaceful societal norms.

Additionally, the concept of value orientation is one means of looking at indigenous forms of conflict resolution. Unlike Western individualistic and competitive values, many small-scale and egalitarian societies tend to orient towards “certain C and R words,” such as "cooperation, collaboration, collectivity, relationships, respect, and reciprocity” (Fry and Souillac 2014, p. 607). These attributes are useful in building dialogue, given their “peace-with-justice-oriented-values” (Fry and Souillac 2014, p. 604). Moreover, the authors stress that when people have fulfilling relationships, they are more likely to contribute to the success of the community to which they belong.

Finally, Francine Madden, founder of Human-Wildlife Conflict Transformation, has succeeding in merging the field of conflict resolution and cross-cultural models into conservation. In their model, Madden and McQuinn (2014) emphasize flexibility, the building of trusting relationships, engaging with the community, and empowering people by including them in the decision-making and implementation process. These attributes are then applied to an analytical model whereby they: first identify disputes, then determine underlying conflicts, and ultimately reveal identity-based needs.

According to Madden and MacQuinn (2014) current conservation, rooted in biology, typically does not take into account the non-material psychosocial needs of humans living with wildlife or those struggling with human on human conflicts, that in turn, influence human-wildlife relations. Superficial agreements over conflicts often result in compromise and less than satisfied stakeholders, while mutually agreed upon solutions are more durable and result in improved conservation outcomes (Madden and McQuinn 2014). In addition, it is imperative to
bridge multiple levels of conflicts to influence policy (Fisher 2006). Creating a bridge between levels of people in society as well as organizations leads to increased dialogue between grassroots movements, local leaders, and policy makers at higher levels of governance. As a result, solutions are more likely to be agreed upon at all levels and by all stakeholders (Fisher 2006; Francis 2002; Madden and McQuinn 2014).

Ultimately, these lessons from human-wildlife conflict, anthropology and ethnoprimatology, and peace and conflict studies, are only a starting point for creating a more dialogical, participatory, integrative, and reflexive approach to conservation. Through expanding and bridging disciplinary boundaries as well as creating culturally and contextually driven pro-conservation identities and norms we may increase the wellbeing of both humans and wildlife facing ongoing conflicts.
CHAPTER 3.

MOROCCO: THE LANDSCAPE, THE GREEN RESISTANCE, AND ISLAMIC ATTITUDES TOWARDS ANIMALS AND PRIMATES

The Cultural and Biological Landscape of Morocco

The setting of this study is the North African Kingdom of Morocco. Beyond its tourist packed beaches, Morocco abounds with ecological diversity and landscapes ranging from the mixed oak forests in the northern Rif Mountains, to the alpine-like landscape of the Middle Atlas, and finally, the arid regions and Sahara to the south. Geopolitically, Morocco is part of a larger region called the Maghreb, meaning “west” in Arabic, and consists of Morocco, Algeria and Tunisia.

Ruled by King Mohammed IV, Morocco is considered a constitutional monarchy and has a population of around 33 million. One-third of Moroccans are urban dwellers with a third of these living in Casablanca alone (Njoku 2006). With a western coastline along the Pacific and northern coastline on the Mediterranean ocean, Morocco relies heavily on trade and tourism with Europe. However, the ease of travel between these two continents has also created an ideal route for wildlife to be illegally smuggled across the Strait of Gibraltar into Europe.

From 1912 to 1956, Morocco was under French-Spanish rule. As a result, the French language is spoken throughout Morocco and Spanish more so in the north, where Spanish colonial activities were primarily concentrated (Njoku 2006). Occupation by these countries was devastating to the forests of Morocco due to heavy logging throughout the country. While the Spanish erased vast areas of forest cover in the Rif (Moore et al. 1998; Waters 2014), further
south, traditional Berber systems that controlled overgrazing were disrupted by the French and failed to be reestablished following Morocco’s independence (Auclair et al. 2011; Ilahaine 1999).

At present, Morocco is still largely agricultural, with 50% of the population working in the agricultural sector, 35% in the service industry, and 15% in industry. Unfortunately, the national unemployment rate is as high as 23% (Njoku 2006). Such a high degree of unemployment has resulted in the widespread cultivation of cannabis as an easily accessible cash crop, making it more attractive than traditional crops (McNeill 1992; Moore et al. 1998). Despite restrictions on the trade in cannabis, it is currently legal to grow and an unofficial leading national export. The unfortunate result of this intensification is that cannabis production has severely degraded parts of the Rif (Moore et al. 1998).

Tourism makes up a large part of Morocco’s economy, second only to phosphate mining. Many tourists seek out the alpine mountains of the Middle Atlas, and to the south, the ancient city of Marrakesh which is also a UNESCO World Heritage Site (Schmitt 2005). This southern region, often romantically depicted in films and media, reflects the more popularized imagery of Morocco – exotic, barren, and mildly dangerous. Unfortunately, these images do little to help curb the trade in Moroccan wildlife since the main square in Marrakesh displays ‘performing’ macaques and snake charmers as an integral component of the cultural lure. Other endangered species, such as the Spur-thighed tortoise (Tesudo graeca) and Dorcas gazelle (Gazella dorcas) (Figure 3.1), are openly offered for sale and treated strictly as objects of commodification rather than species protected by local laws and international agreements (Bergin and Nijman 2014). One survey on the wildlife trade in Morocco found that out of seventeen cities, Marrakesh represented the highest volume of animal products, with 707 specimens openly for sale. They
also found that 93% of the species sold in Marrakesh and elsewhere were endemic and protected under Moroccan law (Bergin and Nijam 2014).

**Figure 3.1.** Example of wildlife products for sale in Jemna el Fna, the main square of Marrakesh (photo by author).

With its integral role in ancient trade routes, Morocco has long been a crossroads between Africa, the Middle East, and Europe (Njoku 2006; Lighfoot and Miller 1996). By the end of the seventh century Islam had been introduced to Morocco by the Islamic Empire (Hourani 1991). However, despite the introduction of Arab culture as part of the Islamic expansion, the indigenous Berbers of Morocco, or *Imazighen*, who occupied the region since around 2500 B.C.E., continued their tribal customs and maintained regional dialects of *Tamazight* (Brett and Fentress 1996). Arabic is currently the national language of Morocco and was given precedence over indigenous languages since it is the sacred language of the Quran, the holy text of Islam. However, despite their decline in use, Berber dialects have been given greater
attention in recent years and efforts are being made to insure their preservation (Brett and Fentress, 2007).

From a religious standpoint, most Berber and Arab Moroccans follow the Islamic faith and are predominately Sunni Muslims. In addition to Islam, there is a small population of Berber Jews still residing in Morocco (Njoku 2006). However, a tradition of Sufism is also widespread with the tombs of patron saints spread across Morocco. Annually, 735 different pilgrimages, or mouseem, take place in Morocco during which travelers seek out saints’ tombs, or qubba. These devotees pay homage to their patron saint and ask for blessings to carry them forward into the coming year (Deil et al. 2005). In the temperate north, these Sufi tombs reside in forested areas and can serve as important locations for wildlife, since they remain sacred areas and are off limits for extraction of resources. In some cases, they remain untouched for decades and have become ecological relics of sorts (Ajbolou et al. 2006; Deil 2005).

Overall, Morocco’s natural landscape ranges from a rich Mediterranean and Atlantic coastline to the Sahara in the south. In between lie the Middle Atlas Mountains, home to forests of Atlas Cedar (Cedrus atlantica), some of which are estimated to be hundreds of years old. However, encroaching desertification is already taking a toll on these ancient cedar forests (Linares et al. 2011). In northern Morocco, where the Rif Mountains reside, the opposite problem occurs with a high degree of erosion during the rainy season. The mean annual rainfall is 494 mm to 2169 mm (Ajbolou 2006), and it is not uncommon to see roads washed out and the entire sides of hills washed away. With a typical Mediterranean climate ranging from 15° C to 10° C (Ajbolou 2006), along with adequate amounts of rainfall, the wet season is marked by an immense diversity of flora.
In the Rif Mountains, the primary location of this study, Jebel Bouhachem (Figure 3.2) is one of the highest elevations at 1681 m. The mixed oak forests of Bouhachem Forest, a Mediterranean hot spot of biodiversity (Ajbolou 2006), are dominated by several oak species: the evergreen cork oak (*Quercus suber*), deciduous (*Q. canariensis*), and the Pyrenean oak (*Q. pyrenaica*). Pines (*Pinus pinaster maghrebiana*) are also endemic to the area, and along with cedars (*Cedrus atlantica*), occur at higher altitudes (Ajbolou 2006; Waters 2015). It was in the mixed oak forests of Bouhachem that we most frequently saw troops of Barbary macaques, whether they were foraging in grassy clearings or moving from one location to another through the forest. Of note are the cork oaks of Bouhachem, whose bark is harvested by the government periodically and used by locals as well. Adolescents can be seen along roadsides selling small stools made of cork. However, this is only one of many forest products obtained by villagers.

While Bouhachem Forest is the primary field site of the conservation group whose work I studied, the urban study sites for this research are also located in the northernmost part of the Rif Mountains and consist of the city of Tetouan and the coastal city of Martil. Tetouan is a larger version of the white towns of Andalusian Spain as many of the Muslims from that region moved south to Morocco at the time of Christian reconquest (Pennell 2000, p.31). Tetouan has a population of around 464,000 (“Tetouan, City Morocco…”, 2018) and remains an important center of commerce in the Rif.

In contrast, the smaller city of Martil, with a population of 64,000 (“Martil…”, 2018), is a coastal tourist location for primarily Moroccan rather than foreign tourists. With its reasonable off-season rates it makes for an ideal location for students from nearby Tetouan to find housing. The majority of student respondents in this study were interviewed in the city of Martil.
**Figure 3.2.** Map of Morocco and study area including Jebel Boughachem and Tetouan. (The city of Martil, east of Tetouan on the Mediterranean coast, is not shown) (Waters 2014).

*The ‘Green Resistance’ in Morocco*

In recent years, distinctly Moroccan identities and voices have become more outspoken. The women’s movement (Baker 1998; Sandberg and Aqertit 2014) and the indigenous Berber movement (Brett and Fentress 1996) are well established, but there is yet another that has gained momentum. This environmental movement, referred to as the “Green Resistance” by Williams in his 2014 article, marks a new stage in Morocco’s history and is the result of a post-colonial nation experiencing modernization as well as an increased population (Moore et al. 1998; Njoku 2006).

In response to a diminishing biodiversity the activists in this environmental movement, or Green Resistance, are taking a critical look at governmental control over Morocco’s diverse
landscape and encouraging a collective responsibility towards endemic and endangered species. This includes the exceptions made for tourism that often affect endangered wildlife, including the Barbary macaque. Although tourism is one of the highest income generators in Morocco, it does so at a high cost to Morocco’s biodiversity.

Researcher Diana Davis (2006) explains that much of the growing resistance to government control over lands is driven by avoidance of mounting environmental problems by the government. Such governmental attitudes are derived from a continuation of a colonial narrative of land misuse by local inhabitants. The narrative blames pastoralists for over grazing and agriculturists for prolonged intensive farming practices. However, the misuse of lands by the government following their acquisition has exceeded any problems that may have existed prior to colonial and post-colonial government control (Davis 2006). To add to the intensity of this fight for ownership over their natural heritage and basic needs, there have been multiple failures of government-sponsored projects, such as dams, that only fuel tensions. In fact, the continued building of dams for energy might exacerbate the increased drying taking place in Morocco due to climate change and the desertification of the southern regions (Williams 2014).

As a result of these looming environmental problems, the Moroccan grassroots activist, Mohammed Benata, has launched a campaign against the government-led development of areas important to biodiversity. He describes how the tourism industry has taken precedence over Morocco’s natural spaces and how “Plan Azur,” created by the government, proposes to create six new tourist stations along the Mediterranean coast. Benata suggests this massive project will only create short-term profits at the cost of the environment (Williams 2014). In addition, many of these coastal sites are important to hundreds of bird species, whose habitat will be lost in the
process. Adding insult to the scenario is Morocco’s geographic position between the African and European continents classifying it an international flyway for migrating birds.

Benata has also organized an anti-fracking conference for the whole of North Africa. As Mohammed put it, “We need to organize ourselves on the international level, just like corporations.” He also stated, “We are required and obliged to defend our national heritage because if we don’t, they will destroy everything” (Williams 2014, p. 5).

This growing environmental narrative also takes into account the wildlife of Morocco. In particular, the citizen activist, Oussama Abaouss, has chosen to focus on Morocco’s ecology and various species of endemic animals. In 2011, he founded the Facebook page entitled, *Tribu des écolos du Maroc*, which provided a forum for environmental concerns as well as disseminated educational materials on endemic and threatened Moroccan wildlife. His efforts produced a well-circulated petition to remove Barbary macaques from Jemna el Fna, the central square in Marrakesh. (Unfortunately, the petition resulted in no improvements for these macaques.) Also, since creating this highly participatory Facebook group, Abaouss has gone on to create a website, [www.ecologie.ma](http://www.ecologie.ma), which he uses to as an educational tool and to address environmental issues specific to Morocco.

More recently, Abaouss travelled to the United States under the International Visitor Leadership Program (IVLP) (for more information see: [https://eca.state.gov/ivlp](https://eca.state.gov/ivlp)) with the purpose of learning how to improve efforts in Morocco on fighting wildlife trafficking and poaching. The IVLP is an international exchange program hosted by the U. S. Department of State Bureau of Education and Cultural Affairs for emerging foreign leaders to engage with and build relationship with their professional counterparts. When I asked Abaouss what he hoped to achieve in his work, he explained,
I hope that this experience will allow me to find inspiration to improve our efforts in Morocco in order to consolidate a community around themes related to conservation. I also hope to be able to benefit from the opportunity to build an international network for a positive and solidarity-based exchange. Since my involvement in the field of conservation in Morocco, I continue to see the complexity of the subject as a challenge to which the media and civil society must be brought. I try to bring my contribution and this experience here in the USA will improve my level of expertise that I hope to put to good use for the interest of the conservation of biodiversity in Morocco.

Yet, despite the efforts of civic activists like Benata and Abaouss, there is still a massive contradiction of local identities and national interests as the government continues to support projects vehemently opposed by Moroccan environmental groups as well as international NGOs. In addition to the projects mentioned by Benata, the conflict surrounding the central square of Marrakesh is one of great concern since it reinforces Orientalist imagery and perpetuates dominate colonialist attitudes towards both Moroccans and endemic wildlife found in the square. The UNESCO protected activities of ‘intangible cultural heritage’ in Jemna el Fna have even been described as a ‘Disneyfication’ of Moroccan culture by one author (Schmitt 2005). In other words, it is an attempt at making Moroccan cultural heritage static and fetishized for the sake of tourism. Moreover, this city and the main square’s status as UNESCO World Heritage Sites lend further legitimacy and diminish the likelihood that Morocco’s biological heritage will be prioritized over tourism.

Islamic Attitudes Toward Animals and the Environment

While attitudes toward the environment in Morocco may vary, there are still many Moroccans who value the diverse landscape and biodiversity of their country. While underlying values are often not a direct determinate of behavior (Manfredo 2012), they still might provide a foundation from which to build positive attitudes and perceptions (Bennett 2016).
In case of Islam, there are fundamental elements that are pro-conservation minded. For example, Foltz (2003) points out that the Quran carries a message of social justice including conscientious stewardship and that Muslim environmentalism and Islamic environmentalism (based exclusively on scriptures) are both on the rise (Gade 2012; Foltz 2003; Foltz 2006; Mangunjaya and McKay 2012). Additionally, Islamic scholars Nadeem Haque and Al-Hafiz Basheer Ahmad Masri (2011) summarized the relationship of Islam with the environment, as well as nonhuman animals, by stating,

…the Islamic worldview is integrated and global; it is founded upon reason and action, infused with a consciousness of One God (Allah). In this vein, Islam provides a comprehensive code of conduct for our worldly life, extending moral consideration toward nature as part of a truly universal ethics. [Haque and Masri, p.279]

Masri (2007; Masri and Haque 2011) goes on to delineate four specific principles, or ecognitions, in Islam for the advocacy of animals as described in the Koran: 1) all nonhuman animals are a trust from God; 2) equigenic rights do exist and must be maintained; 3) all nonhuman animals live in communities; and 4) all nonhuman animals possess personhood. The first principle stresses humankind’s stewardship over animals and is integrated into the second and most profound principle regarding the equitable rights of humans, nonhumans, and the environment. The third and fourth principles equate nonhuman animals with humans by stating that animals are to be respected since they have the inherent ability to communicate with one another and live in communities as humans do (Masri 2007; Masri and Haque 2011).

Foltz (2006) also talks at length about the perceptions and use of animals within the Islamic worldview. He points out the high degree of variations in behavior towards animals depending on the cultural norms of a given Muslim society. While Foltz (2006) reiterates that the Quran and Hadith generally speak in terms of respect for all life, he reminds us that animal rights are often secondary to human needs. Thus, cultural context and individual circumstances are
highly influential in a Muslim’s perceptions or behavior towards non-human animals (Alexander 2018; Foltz 2006) and the environment (Foltz 2003). Moreover, Foltz notes that circumstances that gave rise to the Hadith, the teachings of the Prophet Mohammed, are often imbued with historical relevance. Therefore, modern dilemmas may demand new interpretations to cope with current social and environmental conditions.

Islamic Attitudes Toward Primates

When it comes to traditional Islamic attitudes specifically towards primates, there are feelings of ambivalence like those found in the Western, predominately Christianized, world. Historian Robert Jansen (1952), has managed to place these Abrahamic sentiments towards primates into a historical and geographic context. Jansen (1952) connects early Christian references to primates to the Egyptian baboon god Thoth and Christian tendencies to equate primates to their idol-worshiping Egyptian enemies. This Christian obsession with heathen semi-idolatry is taken one step further with associations to the Devil, the ultimate imitator. Thus the “ape,” most often depicted as the tailless Barbary macaque, became “the unworthy imitator par excellence, [and] eventually came to be known as “simia Dei” (Jansen 1952, p. 19). The plethora of primate imagery throughout Medieval and Renaissance Europe and the frequency with which primates, often the Barbary macaque, is depicted as the symbolic representation of the devil (Figure 3.3) and the “Fall of Man,” is evidence of Christian and Abrahamic sentiments towards primates (Jansen 1952, p. 109).

The Barbary macaque was undoubtedly the most popular primate in Europe due to the close of proximity of North Africa to the European continent. According to Jansen (1952) the Barbary macaque was one of three types of primates familiar to Europeans, especially during the
Middle Ages and Renaissance. In addition to the Barbary macaque, baboons from Egypt

**Figure 3.3.** *The Fall of Man* (1514), by Ludwig Krug, depicts the Biblical Adam and Eve with a Barbary macaque (Jansen 1952, p. 127).

and Ethiopia, and tailed monkeys from Asia and sub-Saharan Africa were collectively the typical primate representatives throughout European art and daily life. More specifically, the Barbary macaque has a vestigial tail that is not visible, and has been historically and incorrectly, called an ape. However, this physical attribute is problematic from a religious standpoint (Jansen 1952). It seems the lack of a tail shaped Christian views of Barbary macaques as keen imitators of humans, not only in behavior, but in anatomy. This resulted in further disdain since its appearance suggested these ‘apes’ were attempting to imitate the man, and thus, the image of God (Jansen 1952).
Like early Christian references, pre-Islamic sources set the stage for Muslims to view monkeys as a human-like, but morally inferior creatures. The “great chain of being” was a fixture of Islamic culture, just as it was in the Christian world (Jansen 1952; Kruk 1995). However, while this hierarchical structure places NHP just below the rank of humankind, who is closer to the spiritual realm, it also acknowledges the similarities of primates to humans. In short, humans are to angels what apes are to humans. Both are one step short of being complete (Jansen 1952).

Given this arrangement, the metamorphosis of humans into primates is another aspect of primate characteristics to be explored within Islamic sources. Interestingly, the concept of metamorphosis is common throughout numerous cultures (Cormier 2017; Flores 2007). Even in Morocco the supernatural Jinn are shape shifters, moving from animal to human and back again (Westermarck 1899). Yet, in Islamic cultures the concept of metamorphosis is also imbued with negative connotations regarding specific species (Cook 1999). More specifically, there is a Koranic passage (5:60) that implies human devolution into swine and apes, “Those whom Allah has cursed, against whom He has been angry, of whom He has made monkeys and pigs because they worshipped the powers of evil.”

The most problematic aspect of the metamorphosis concept is that in Western society (Jansen 1952), as well Islam (Tlili 2012) and pre-Islamic sources (Cook 1999), this process is viewed as a form of “punitive transformation” (Jansen 1952, p.97). As a form of retribution for one’s sins or lack of devotion to God, such a transformation is not to be taken lightly since it constitutes changing from one form to another, essentially devolution from human to subhuman (Jansen 1952; Kruk 1995; Tlili 2012). Islamic scholar Tlili (2012) suggests that the physical state of being a human in a nonhuman body is form of psychological and physical punishment. To
have the mental awareness of a human but be in the body of a primate is torture unto itself (Cook 1999). In addition, there is the literal pain of transforming from a human in a human body to that of a (potentially smaller) primate (Tlili 2012).

One final aspect from the Abrahamic cultures is the deviant and sinful reputation attributed to primates that happens to coincide with attitudes towards women. Because of the assumed sinfulness and overt sexuality of women and monkeys, both were granted a status inferior to that of man in both Christian and Islamic cultures (Jansen 1952; Kruk 1995). Ibn Qutayba’s story of the she-monkey that was stoned for adultery is one key example (Cook 1999).

The negative connotations towards primates found in Islam often create an underlying sense of indifference, if not outright negativity. Despite this, the greater good is often seen as a more relevant requirement for proper behavior in Islam, especially in the case ecological responsibilities (Masri 2007). This sentiment may be extended to the status of animals in Islam. While subject to debate, animals are often seen as existing on the same level as humans for numerous reasons. However, although they do not have the reasoning capabilities of man, this is not seen as an excuse to deem as inferior, but rather as a responsibility on the part of humans to protect them from harm (Masri 2007; Tlili 2012).

Additionally, attitudes towards primates in Muslim cultures are not fixed in time and space and reflected in historian Remke Kruk’s (1995) statement that, “The inclination to consider animals as having equal rights of man was not widely accepted, but certainly not absent from this culture (Kruk 1995, p.31).” When referring to monkeys, she gives the example of Islamic scholar Ibn Khaldun (d. 1406), who placed monkeys high on the chain of being and as having the “right condition to be transformed into the organism just above it on the scale (Kruk 1995, p.31).” Moreover, according to Khaldun, monkeys have similar traits as humans such as the ability to
think and shape their own perceptions (Kruk 1995). At times, this trait leads people to hold primates responsible for their actions and subsequently take retaliatory actions against them (Lee and Priston 2005; Waters 2014).

Other scholars, such as Foltz and Masri, have little to say about Islamic and Muslim perceptions towards primates, possibly since there is less attention given to primates when compared to the stigma surrounding dogs and pigs. Foltz (2006) does bring up the Koranic passage that mentions NHP and ultimately creates negativity towards them. Again, this passage refers to unbelievers being turned into pigs and monkeys. While it is certainly an insult to be turned into a pig, which is considered unclean, being transformed into a monkey simply means you exhibit subhuman behavior.

Fortunately, as a result of Islamic food restrictions, the bush meat trade in primates has been of little concern in Morocco or other Muslim countries (Foltz 2006; Masri 2007). Islamic views of primates provide some degree of protection due to the halal, or forbidden, status of primates as a food source. Islamic food guidelines for proper consumption specify that cloven-hooved and cud-chewing species are permissible; thus, the reason why the genus Sus is excluded from Muslim menus (Foltz 2006; Masri 2007). However, as already mentioned, cultural context can result in the killing of primates for other reasons such as conflict over resources and general frustrations over NHP behaviors.

While this preferential treatment of primates pales in comparison to the Hindu reverence for primates, it does seem to incite a fear of eating another life form that was previously human. This is especially true when looking to the already mentioned Quranic passage in addition to historical Islamic references of metamorphosis between humans and primates (Kruk 1995). In any case, a holistic view of ecology in Islam combined with a prohibition on primates as a food
source may benefit the Barbary macaque in a region where any additional pressures on their populations could result in their demise. Yet, these elements alone do no provide a solution since the killing of Barbary macaques is still common throughout Morocco.

In summary, the cultural and religious landscape of Morocco is primed for calling attention to the loss of biodiversity and the unique status of NHP. Yet, any impetus to save the Barbary macaque may be predicated on fully overcoming negative religious sentiments and increasing the intrinsic value of this species. In the next chapter I will discuss Barbary macaque behavioral and ecology, human-macaque relations in Morocco, and the need to eliminate long-held colonialist assumptions of Barbary macaques as exotic pets and status markers.
CHAPTER 4.
THE BARBARY MACAQUE: DISTRIBUTION, ECOLOGY, AND HUMAN-MACAQUE INTERACTIONS IN MOROCCO

Barbary Macaque Distribution and Ecology

Unique among its genus, the Barbary macaque (*Macaca sylvanus*) (Figure 4.1) is the only member of *Macaca* outside of Asia and the only nonhuman primate north of the Sahara, including a semi-wild population in Gibraltar. Despite its resilience, this species has continued to decline in numbers for several decades and is currently classified as endangered by the International Union for Conservation of Nature (IUCN). The Barbary macaque was once endemic throughout North Africa but is now isolated to relic forests in the mountains regions of Morocco and Algeria (Fodden 2007; Lavieren and Wich 2009).

Historically the people of North Africa have lived with Barbary macaques in relative peace, but, like other places, a growing human population along with socio-economic changes have placed humans and the Barbary macaque in increasing proximity with one another. As a result of competition over resources, poaching for the illegal pet trade, and desertification, wild Barbary macaque populations have seen a 50% drop in their overall population since the 1980’s (Cameperio Ciani et al. 2005; Camperio Ciani and Mouna 2006; van Lavieren and Wich 2009; Waters 2014). At present, there are an estimated 2500 Barbary Macaques in Algeria (Benrabah 2015) and 10,000 to 12,000 in Morocco (Waters unpublished data).

In Morocco, the Barbary macaque can be found in the Rif Mountains in the north and in the Middle and High Atlas Mountains in the central and southern regions. The Rif Mountains
support scattered groups with a total estimated population of 4000-5000 individuals (Waters 2014). Researchers estimate the Middle Atlas population around 5000, and the High Atlas also supports around 1000 individuals (Namous et al. 2017). The Algerian population of Barbary macaques is distributed throughout the north in Chiffa, Grande Kabylie, Petite Kabylie, and Chrea. Researchers estimated the Algerian macaque population in the 1980s to be around 4000 (Mouna and Camperio Ciani, 2006). However, the current population is thought to be around 2500 individuals (Benrabah 2015).

**Figure 4.1.** Adult Barbary macaque with infant crossing dirt road in Bouhachem Forest (photo by author).

Throughout its modern-day range, wild Barbary macaques are found in cedar forests, pine, fir, and oak forests, and mixed cedar-oak, which is more varied in undergrowth and likely richer in food. However, these macaques also take refuge in other habitats, such as chestnut groves and rocky ridges (or cliffs) with scrub or herbaceous vegetation (Mouna and Camperio Ciani, 2007; Fooden, 2007).
Barbary macaques are predominately terrestrial (Figure 4.2) and forage on a large variety of roots, buds, fruits, and seeds but also seek out invertebrates such as scorpions, ants, and insect larvae. During the winter they feed on cedar shoots, and in the autumn, on acorns. Cedar bark is stripped from cedar trees in the spring and summer months where cedars are available (Mouna and Camerpio Ciani, 2006). Like other macaque species, the Barbary macaque is capable of surviving fluctuations in climate and food sources.

Figure 4.2. Two Barbary macaques forage in Bouhachem Forest. This same open space may also be used by local livestock (photo by author).

They prefer habitat with tall trees, not just for alternative feeding during times of snow, but for security from predators (Mouna and Camperio Ciani 2007). Although the Barbary lion (Panthera leo leo) and leopard (Panthera pardus pardus) are extinct in the Morocco, predators such as the red fox (Vulpes vulpes) and the African Wolf (Canis lupus lupaster) exist in relative abundance. Domesticated dogs (Canus lupus familiaris) often prey on young macaques as well (Camperio Ciani and Mouna 2006; Waters 2014).
The average size of Barbary macaque groups is 27.1 but can vary from seven to 88 individuals. In the case that fission occurs, female matrilines usually remain intact throughout the fission process (Fooden 2007). Population density also varies by habitat and resource availability. Densities of up to 19-70 individuals can occur in undisturbed forests compared to 0.37 – 4.50 in degraded areas. Home range varies widely depending on habitat, from 18.4 ha in the Middle Atlas to 804.5 ha in the Rif (Fooden 2007; Waters 2014). Groups traverse their range throughout the day and return to a safe elevated location to sleep at night.

The typical male to female ratio is equal (Namous 2017; Waters et al. 2015) with females reaching reproductive age around 5 years and males between 5 and 7 years. Barbary macaque mating season takes place between September and April, and births occur between February and September. The longest recorded life span for a male is 25 years and 30 for a female (Fooden 2007).

One significant feature of Barbary macaque behavior is the high frequency of interactions between males and infants compared to other macaque species. The dominant male will often carry infants, and in some cases this occurs immediately after birth. This “dyadic” behavior possibly serves as an altruistic kin-investment function. Yet, these male-infant interactions often result in a “triadic” interaction as well, where a lower-ranking male will present an infant to a higher-ranking male in a possible attempt at “agonistic buffering” (Fooden 2007).

Barbary Macaques and the Illicit Pet Trade

The Barbary macaque has had a long-lived relationship with the people of the Middle East, Europe, and North Africa. Archaeological evidence demonstrates a clear distribution of Barbary macaques regionally. For example, they have been discovered to the east in ancient
Egyptian ruins (Goudsmit and Brandon-Jones 1999), early Romans settlements (Hughes 2003), and as far north as Iron-Age Northern Ireland (McCormick 1991). In recent centuries, Barbary macaques retained their position as common pets throughout Europe (Jansen 1952), a practice that has continued to this day and is the primary threat to this species (van Uhm 2016).

In fact, as the trade in pet Barbary macaques increased over the past few decades, numerous sanctuaries were established in Europe to accommodate surrendered adult Barbary macaques (van Laverien 2008; van Uhm 2016). Ultimately, proximity to Europe and the overall geographic availability of this species has been a contributing factor in its popularity. Historian Jansen (1952), points out that throughout the Middle Ages and Renaissance, the Barbary Macaque became the “ape par excellence” of Europe as both pet and entertainer. The multitude of images throughout Europe that depict “apes,” or mislabeled Barbary macaques, in various scenes and settings is a testament to their popularity in Western culture (Jansen 1952).

Across the Strait of Gibraltar in Muslim North Africa, sentiments regarding primates and Barbary macaques have been equally exploitive for centuries. It was from North Africa that Europeans would have easily acquired these primates through well-established trade routes (van Uhm 2016). In fact, Jansen (1952) notes evidence that North African monkey trainers and their performing “apes” were brought over as early as the 11th century to entertainment eager European crowds. Ironically, the popularity of primates, regardless of the setting, has been spurred by both fascination and disdain. Christian and Muslim associations of primates as devious beasts and tricksters has allowed humans to relate closely with NHP while also justifying their capture and abuse (Corby 2005; Jansen 1952; Kruk 1995).

Currently, Barbary macaques are the most frequently seized species by European law enforcement authorities and part of a multibillion dollar trade in illicit goods, including the trade
in wildlife and wildlife products (van Uhm 2016). Trade routes culminating along the shores of Morocco provide a literal gateway out of Africa for numerous goods and species, including Barbary macaques (van Lavieren 2008; van Uhm 2016).

In Morocco, Barbary macaques may not be owned or traded without proper documentation. However, laws protecting this primate are not sufficient given the profits to be gained from their trade. Smugglers use well established trade routes (Figure 4.3), most recently documented by Daan van Uhm (2016). Barbary macaques are acquired from the wild, typically in the Middle Atlas, by poachers awaiting orders from dealers. They are then sold by poachers to middle men for around €50-100 and ultimately offered for sale by traders at €200-250. However, these are the prices for Morocco alone. The price for a Barbary macaque in Europe may increase.

**Figure 4.3.** Barbary macaque smuggling routes (van Uhm 2016).
tenfold to much as €2000 (van Uhm 2016), creating an unstoppable incentive. The number of poached infants annually appears to have declined over the past decade from around 500 to 200 due to increased enforcement of wildlife regulations as well as a downturn in the European economy (van Uhm 2016). However, the continued removal of such a high number of infants is impeding population recovery, especially in the Middle Atlas Mountains (Camperio Ciani and Mouna 2006; Menard et al. 2013).

**Human-Macaque Interactions in Morocco**

Throughout Morocco people encounter Barbary macaques in a variety of situations, but outside of the forest setting, someone may see an illegally held pet macaque or one used as a photo prop for tourists. While these may be common occurrences throughout Morocco, both have begun to decrease in frequency in the Tangier and Tetouan area since reports of illegally held macaques and legal enforcement has increased in the past few years (Waters 2014). However, more recently, Waters and El Harrad have discovered there is a high degree of recidivism of photo touts using macaques. Following the confiscation of an illegally held macaque the accompanying fines often go unenforced, resulting in a lack of deterrence (Waters and El Harrad forthcoming).

Of the three areas where Barbary macaques reside, tourism in the northern most Rif Mountains, the location of this study, does not typically involved macaques as a tourist destination. However, Moulay Abdessalam, a small village and Sufi pilgrimage site does reside within Bouhachem Forest. When travelling to this holy site, people encounter macaques along the road that traverses a large portion of the forest. Fortunately, without habituation, the
macaques in this region are not easily approached and usually flee into the forest the moment someone exits their vehicle.

While poaching is not a problem in this area, this is not to say that the opportunity to obtain an infant macaque does not exist. The dogs that accompany shepherds in the forest often charge macaque troops, resulting in an infant occasionally getting left behind amidst the frenzy. However, close interactions and dialogues about macaques with local villagers have created some social pressure to conserve this species, and as a result, have discouraged keeping these separated infants. Instead, people are more likely to report the incident to the authorities or BMAC (Waters 2014).

Although there is a lack of poaching the Rif, there are other issues creating conflict between humans and macaques in this region. Waters describes a number of locations prone to crop raiding by Barbary macaques where fields are located in close proximity to macaque habitat. However, almost having pity for these animals that so closely resemble humans in form and behavior, many farmers will simply “teach them a lesson” instead of outright killing them. Often, the solution is to humiliate and punish these simian thieves by sewing hats on their hats or placing a can with rocks around their neck. This inadvertently results in their own troop ostracizing them as they flee from their undignified troop mate (Waters 2014).

Another conflict in the Rif that has seen some degree of relief is the hunting of Barbary macaques by young shepherds (Waters 2014). Young men and boys are delegated to shepherding by their families and often take to hunting macaques for sport despite it being forbidden in their religion and also illegal. Waters believes this to be a result of their feelings of isolation and low social status. It may also serve as a means of reinforcing the human-animal divide and shaping boundaries in the forest. Once shepherds reach an age appropriate for marriage, they cease
shepherding. However, they may return to it much later in life, but with a greater sense of respect for these macaques as a family oriented species (Waters 2014).

In contrast to the farmers and shepherds of the Rif, the Middle Atlas Mountains are subject to a tremendous amount of tourism. While shepherding and farming also takes place in this region, tourism is likely the most problematic issue. In particular, the habituation of Barbary macaques by tourists through close proximity and provisioning has led an increase in infant accessibility by poachers (Majolo et al. 2013; Ménard et al. 2013; van Lavieren 2008). In the High Atlas, tourists also seek out macaques and provision them as well (El Alami et al. 2012). However, these Middle and High Atlas encounters may be less problematic than the imagery created by the Jemna el Fna, the main square of Marrakesh.

The city of Marrakesh, a well-known tourist destination and UNESCO World Heritage site, is allowed to use Barbary macaques as photo props despite their endangered status (van Lavieren 2008). The issues created by use of macaques in the square are threefold. The use of this Endangered species is condoned by the government, despite their attempts elsewhere to discourage people from keeping them as pets or merchants using macaques to attract tourists. In addition to sending conflicting messages to people, the perceptions created by these “trained” macaques, as well as their close proximity to their human handlers, gives the further impression they are docile and could make an ideal pet. Finally, these handlers are known to act as brokers and will arrange for sales of macaques to anyone showing an interest in buying one (Bergin et al. 2018; van Uhm 2016).

Furthermore, the imagery created by the macaques used in Marrakesh is not only felt on a local level but also the world over, as perceptions of primates are often shaped by images in mass and social media (Aldrich 2018; Nekaris et al. 2013). The advertising of Marrakesh creates an
image of an exotic tourist local filled with Orientalist ideals of dancing monkeys and charmed snakes. However, along with these photos are those posted to social media of tourists posing with Endangered Barbary macaques. Combined, they form the wide-spread and unfortunate assumption that primates are not only ideal pets, but that they are less likely to be Endangered (Leighty et al. 2015; Ross et al. 2011; Schroepfer et al. 2011).

In this chapter I have reviewed the diverse behavioral ecology of Barbary macaques and reviewed the primary causes of human-macaque conflicts in Morocco. At present, Barbary macaque populations are under continued duress due to unsustainable rates of poaching. The Middle Atlas is a primary site of macaque poaching and has been directly linked to tourism (Ménard et al. 2013) and demands from tourists (van Uhm 2016). Thus, unregulated tourism is a critical area of concern in Barbary macaque conservation. Next, I will review the ethnographic methods I use to examine attitudes and perceptions towards macaques and conservation in Morocco and address the limitations of this study.
CHAPTER 5.
ETHNOGRAPHIC METHODS AND DATA COLLECTION

In this chapter, I explain how I carried out ethnographic research on human-Barbary macaque relationships in northern Morocco. I provide details of the methods used and the means of data acquisition. I conducted the research using two qualitative research tools, namely participant observation and semi-structured interviews (Bernard and Ryan 2010). Like other qualitative studies, the information I gathered was dependent on connections to the local population. I made these contacts with the help of BMAC and several students who were generous with their time and felt this to be an important study.

I used the semi-structured interview format since it allows for more flexibility in responses than a questionnaire alone (Bernard and Ryan 2010). Moreover, this interview method allowed me to direct the questioning but also encourage extended responses based on the willingness of the respondents to participate, their degree of knowledge of the subject matter, and their range of personal experiences. In some cases respondents who were less familiar with the translator conducting the interview gave less information, whereas respondents who knew the translator or NGO were put at ease and often provided more information.

Participant observation provides a way to validate information told to researchers by respondents while also grasping the overall context of a particular circumstance in time and space (Bernard and Ryan 2010). Tried and true methods in anthropology, these two approaches provide an insider view, or the emic, in addition to an outsider view, or the etic. Both are
important for developing an objective study and reducing inconsistencies when interpreting data (Bernard and Ryan 2010).

For this study, I spent a total of eight weeks with the Moroccan primate conservation NGO, Barbary Macaque Awareness and Conservation (BMAC), during May and June of 2013, and October of 2014. During my time observing BMAC, I maintained detailed field notes on their activities and interactions and conducted interviews with Moroccan citizens who had various types and degrees of experience with macaques and the conservation NGO. The interviews took place in three separate locations: Bouhachem Forest, the coastal city of Martil, and the city of Tetouan, all of which are located in the Rif Mountains of northern Morocco.

I interviewed a total of 24 individuals (20 men and 4 women) ranging in age from 19 to 60. There was an obvious bias towards men likely due to culturally gendered roles in Moroccan society. For example, in the case of rural respondents, the occupation of ‘shepherd’ is typically performed by young boys, but older men may stand in when boys are unavailable. Moreover, while woman are seen outdoors in rural areas, it is the male head of household that often speaks with guests. The four women that were interviewed were urban students and made accessible through contact with other students. In urban areas, women are active outside the home but may be more visible since they may have less restrictive gender roles than rural women. The urban working group is also made up entirely of men. They had a range of occupations including bus driver, pharmacist, waiter, fisherman, business owner, taxi driver, and university administrator. The bias towards men may have also resulted from of the comfort level of my translators who were often responsible for contacting known respondents or general members of the public.

In total, these respondents were contacted using a variety of methods: 1) nonprobability sampling, in which respondents were contacted directly by the conservation NGO; 2) snowball
sampling, in which several students provided contact with other students; 3) and convenience sampling of the general public in the city of Martil (Bernard and Ryan 2010). The three groups of respondents were broken down into three categories: students (n=8), shepherds (n=8), and urban working class (n=8). Shepherds constitute the only definitive rural respondents.

The a priori questioning (Bernard and Ryan 2010) followed several lines of inquiry in order to explore various aspects of human-macaque relationships in this region (Table 5.1). It included: types of contact and experiences with macaques, overall knowledge and perceptions of this species, contact with the NGO and their activities, and knowledge and perceptions of Barbary macaque conservation.

Table 5.1. Semi-structured questions used in this study.

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<tr>
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<th>Question</th>
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<tr>
<td>1</td>
<td>In general, what do you think about the monkeys here in Morocco?</td>
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<td>2</td>
<td>Have you seen them before? If so, where and how often?</td>
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<td>3</td>
<td>What usually happens when you encounter the monkeys?</td>
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<td>4</td>
<td>Are there any local stories about the monkeys? If so, what are they?</td>
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<td>5</td>
<td>Are there any good or bad things about the monkeys?</td>
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<td>6</td>
<td>How does your religion generally view the monkeys?</td>
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<td>7</td>
<td>Have you or your children seen any educational programs about the monkeys?</td>
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<td>8</td>
<td>Do you find this information useful and why?</td>
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<td>9</td>
<td>How do you feel about the macaque conservation work taking place here?</td>
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<tr>
<td>10</td>
<td>Do you think the monkeys should be protected? If so, why?</td>
</tr>
<tr>
<td>11</td>
<td>What do you think is the best way to help the monkeys?</td>
</tr>
</tbody>
</table>

The time taken for each interview ranged from approximately 15 to 45 minutes since respondents were allowed as much time as they felt necessary to answer the questions. Translators were used for all informants who were unable to speak English. In most cases, the translation was from Arabic directly to English. However, a number were translated from Arabic to Spanish and then to English. Despite the degree of awkwardness of these latter translations,
this was a method already established and frequently used by the director of BMAC. The only obvious bias were interviews and translations about Barbary macaque conservation by members of BMAC. However, some of these same respondents would have been difficult, if not impossible, to access without contact through this organization.

Before conducting this research, I obtained approval from the University of Alabama at Birmingham Internal Review Board (IRB). Per IRB guidelines, prior to interviewing a respondent I (directly or through use of a translator) provided them with information regarding the goals of project and informed them their participation was entirely voluntary. They could withdraw consent at any time. Also, prior to beginning the interview, they were asked permission to be tape-recorded throughout the interview. As a result, the majority of interviews were recorded and later transcribed; however, several were translated on site and notes taken by hand.

My work has several obvious limitations. As already mentioned, a larger sample size is needed to explore the nuances of the human-macaque interface in Morocco. Also, expanding research on attitudes towards Barbary macaque conservation in other areas of Morocco, such as the Middle Atlas and Marrakesh, would prove useful, especially given the steady and massive, tourism industry. Additionally, more time for participant observation at the intersection of macaques and humans in Morocco could prove useful. Like so many other studies, I have raised more questions to be asked or clarified from this body of information.

In the next chapter I will present important aspects of my participant observation with BMAC. My time with the organization allowed me to observe their interactions with people throughout northern Morocco as well as understand their conservation methodology. It also allowed me to fully grasp the attitudes towards their work by various Moroccan actors.
CHAPTER 6.
BARBARY MACAQUE AWARENESS AND CONSERVATION: BEGINNINGS, GROWTH, AND APPROACHES TO CONSERVATION

Beginnings of the Organization

Barbary macaque conservation in Morocco became an important issue in the 1990’s when the realization set in that increasing numbers of infant macaques were being smuggled out of the country to supply the illicit pet trade (van Lavieren 2008). Initially, research on Barbary macaque population decline were concentrated in the Middle Atlas (Camperio Ciani et al. 2005; Camperio Ciani and Mouna 2006; Majolo et al. 2013; Mouna and Camperio Ciani 2007) due to the high degree of tourism and poaching already occurring there. However, while much attention has been given to the Middle Atlas macaques, few attempts had been made to extensively survey macaque populations in the steep and rocky Rif Mountains until recently (Fa 1982; Waters 2007). One substantial obstacle to researching macaques in the Rif derives from terrain that is extremely difficult to traverse. Even today, this region is dismissed by many as having a small population of 500 individuals or less. In fact, the most recent estimates are over 2000 and growing, making this the most stable population of Barbary macaques within their home range (Waters 2014).

The Rif Mountain region had not been surveyed extensively since the 1980’s (Fa 1982), when Siân Waters, a primatologist and conservationist from Wales, decided to venture into this less desirable territory in 2004. She sought to determine if any Barbary macaques remained in the Rif. Much of the macaques’ past habitat in the lower Rif had already been erased, but the
often impassible northernmost mountains were left to the stewardship of local shepherds and
their families residing in small villages throughout the region. These shepherds would eventually
become co-collaborators with Waters and the cornerstone of her research.

Waters initially encountered much laughter and ridicule when she first arrived in
Morocco and asked people if they knew anything about macaques in the Rif. For many locals,
monkeys were not a source of pride, let alone a subject worthy of research. However, over the
course of the next decade, Waters forged numerous close relationships and gained the support of
government officials as a result of her long-term presence and inclusive approach. She officially
established the nongovernmental organization (NGO) Barbary Macaque Conservation in the Rif
in 2010. Since then, the name of the organization has been changed to Barbary Macaque
Awareness and Conservation (BMAC). Moreover, BMAC is recognized by the Moroccan
government as an official Moroccan NGO.

Waters’ approach, and the aim of the organization, is to understand the full breadth of
human-macaque relationships in Morocco. Moreover, Waters has consistently used an
interdisciplinary approach to conservation with an emphasis on exploring underlying social,
cultural, and political reasons for the decline in macaque populations in Morocco. While the
research conducted by Waters (in preparation for developing a conservation framework) might
fall under the label of ethnoprimatology, she prefers to classify her approach as socio-cultural
conservation since her work stretches far beyond the forest to local and region municipalities.

Much the inspiration for her work in Morocco came from working as a conservation
scientist with the Swift fox reintroduction program in Montana. It was there that a member of a
local Native American tribe applauded the reintroduction as a cultural and spiritual success
despite lack of follow-up data to confirm the reintroduction met its goals. It was then that she
realized the context of wildlife within people’s minds was just as important as the ecological context that is the focus of so many researchers (Waters 2014; Waters 2016). The importance of culturally specific ideologies is often over looked in conservation, despite their ability to shape the way we see and interact with the environment and one another (Manfred 2008).

An emphasis on context in Morocco is of equal importance for Waters and includes collaborating on the development and implementation of conservation goals. To this end, BMAC employs several Moroccan citizens, including Ahmed El Harrad, who has been Waters’ primary informant from the onset of her research. El Harrad is currently Deputy Director of BMAC and president of the organization’s board and plays an integral role in the organization. Two other villager employees work in the Bouhachem Forest and keep constant track of macaque populations since they are in close proximity. They also provide local ecological knowledge (LEK) regarding macaque behavioral ecology.

The organization reaches city dwellers through educational outreach but also with social media. As many as 2345 Facebook followers are Moroccan, comprising a large percentage of their total 5118 followers. Ultimately, the long-term presence of BMAC, employment of Moroccan citizens, a highly inclusive approach to conservation, and recognition by the government as an official Moroccan NGO, all collectively add weight to BMAC’s credibility among local populations.

Daily Routine and Projects

During my six weeks with BMAC, between late May and June of 2013, and again in November of 2014, I was exposed to every aspect of their work. I was a participant observer living with Waters in the coastal town of Martil and traveled into the forests with the team every
few days. Because the field sight was remote, had minimal facilities, and lacked internet access, there was a need to return to the apartment in the city for maintaining business matters and to update the group’s activities on social media. Social media is an important and cost effective advertisement tool for many conservation groups, and, in the case of BMAC, proved an invaluable tool for reports of illegally held macaques by concerned members of the public (Waters and El Harrad 2013).

Our trips into the mountainside involved routine counts of any macaque troops crossing the roads in Bouhachem Forest. To some degree, these counts were opportunistic, but it also depended on the time of day. Each of the four macaque troops in Bouhachem Forest (mean group size of 62) has a known territory but moves vertically along the mountain throughout the day (Waters et al. 2015). From morning onwards the groups typically migrate towards lower altitudes to forage in open areas, or marjdas, and then back to higher altitudes to nest for the night. Of course, much of the surveying work was also conducted off road. During our ventures deep into the forest, it became apparent that illegal logging activity was a serious issue in some areas despite government regulations of forest use. However, villagers are allowed limited access to firewood, cuttings for livestock, wood for house construction, and cork.

While surveying the area for macaque activity (Figure 6.1), signs of other wildlife, and indications of any illegal activities, Waters and El Harrad greeted and conversed with any shepherds or villagers we came across. We encountered shepherds relatively frequently and they were typically accompanied by large herds of goats and several dogs (Figure 6.2, Figure 6.3). Moreover, it was not uncommon to find the forest dotted with small groups of free-ranging livestock such as cows and mules.
Outside of the daily activities in the forest, there was an even busier schedule to adhere to. While traveling with the organization, I attended numerous events with them, from education programs in rural schools, a university presentation, and one presentation with a Spanish non-profit working in the Rif. Finally, we drove south to Marrakesh, where Waters presented at the World Environmental Education conference. In addition to these programs, I was present when they signed a formal agreement with the Moroccan Haut Commissariat des Eaux et Forêts to continue monitoring Bouhachem Forest for illegal activities and forest fires. In signing the agreement, BMAC would also facilitate the confiscation of illegally held Barbary macaques ordered to be seized.

**Figure 6.1.** Siân Waters, Ahmed El Harrad, and Mohammed Chetuan of BMAC examine an area where Barbary macaques had recently been foraging (photo by author).
Figure 6.2. A partial herd of goats grazing in Bouhachem Forest with dogs present (photo by author).

Figure 6.3. A shepherd and his dogs walk along the road that traverses Bouhachem Forest (photo by author).
Synthesizing BMAC’s Methods

The extensive range of BMAC’s work and resulting network of supporters is critical to a successful conservation initiative. BMAC works on multiple levels of society, from the forest to the village to the national level (Figure 6.4). This multi-level network aids in building and maintaining relationships, especially with communities closest to macaque populations. In fact, incorporating people into her research was a primary aim of Waters’ throughout the development of the organization (Waters 2014).

Moreover, the shepherds became an integral part of Waters’ research in the often steep and impassible terrain of Bouhachem Forest. Waters and El Harrad were forced to triangulate the location of macaque troops by talking extensively with village residents and shepherds. Shepherds spend most of their days in the forests where macaques reside and have an intimate knowledge of troop locations. As a result, Waters and El Harrad have built a foundation of trust and friendship with local villagers and shepherds while also mapping all macaque groups in Bouhachem Forest, their primary field site.

BMAC also instituted a dog welfare program in which the shepherd dogs of Bouhachem were collared for identification to determine if they were owned or feral. Part of the reasoning for this was to determine dog ownership and assist with dog health, since several cases of rabies had been reported in Bouhachem. Again, this type of issue is of concern since wild macaque populations are in constant contact with shepherds’ dogs. Moreover, it provided an opportunity to discuss dog-macaque interactions with villagers while providing de-wormers and rabies vaccinations. Dog health overall is important since domestic dogs are one of the greatest predatory threats to macaques in Bouhachem. In short, these meetings with villagers resulted in
increased awareness by local residents and the acute realization that they played an important role in the fate of this species.

In regard to interactions with other organizations, I personally saw the ease with which Waters and El Harrad interacted with the public, government officials, and other conservation organizations. BMAC is regularly welcomed into various educational settings ranging from the university to rural schools. Their civic education programs have also been well-received and

**Figure 6.4.** Levels of BMAC interactions throughout Morocco.

<table>
<thead>
<tr>
<th>Level</th>
<th>BMAC Role</th>
<th>Actors</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Government</td>
<td>Ecosystem protection/ Education/ Confiscations</td>
<td>Work with government/ Other NGOs/Citizen activists/ Liaison for international students</td>
</tr>
<tr>
<td>Local/Municipal</td>
<td>Education of public/ Confiscations</td>
<td>Urban public/Citizen activists/ University Faculty and Students</td>
</tr>
<tr>
<td>Local/Village</td>
<td>Education of public/Domestic animal welfare/ Confiscations</td>
<td>Rural shepherds/Villagers/ Domesticated animals/ Primary School Students</td>
</tr>
<tr>
<td>Forest/Wildlife</td>
<td>Conservation and research/ Monitor forest health</td>
<td>Barbary macaques/Other local species</td>
</tr>
</tbody>
</table>

bolstered support from urban residents as a result. Surprisingly, urban-living Moroccans play a key role in macaque conservation as well since they have the economic strength to support the work of BMAC and the confidence to report illegally held individual macaques (Waters and El Harrad 2013).
Because the public trusts BMAC, the government has come to trust them as well. As a result, they have not only achieved recognition by the Moroccan government as an official Moroccan NGO but are also official partners with the Moroccan Haut Commissariat des Eaux et Forêts, as already mentioned. In keeping with this agreement, government officials have begun to regularly confiscate and fine individuals keeping macaques illegally. This occurred less frequently before the organization agreed to their partnership.

BMAC’s integration into Moroccan society and respectful approach are only a few of the reasons their methods have succeeded in raising awareness for the endangered Barbary macaque. In consideration of the power dynamics and tensions in the past between the rural, urban, and governmental actors, BMAC proceeds carefully and has worked to establish bridges between them. The rural population of the Rif has been especially supportive since they live closest to, and often share spaces with, Barbary macaque populations. The benefits they receive from BMAC reinforce that the needs of people are as important as that of wildlife.

By taking this approach, BMAC has further empowered people to become actively involved in conservation. In fact, reports of illegally captured macaques have increased ten-fold throughout the region over the past few years and reports are frequently made through social media messaging (Waters and El Harrad 2013). Furthermore, BMAC has facilitated a safe and effective means for the government to confiscate illegally held macaques and potentially reintroduce them (Waters et al. 2016). In short, BMAC has become a mediator of sorts between the government and nongovernmental actors seeking to curb the demand for pet macaques and protect the remaining wild populations.

In addition to the over-arching multi-level method I witnessed, I also observed the delicate approach taken and values that were emphasized during their interactions with various
groups. BMAC’s relationship with the Moroccan government and citizenry is not taken lightly since to alienate any group would be counter to the goal of inclusive conservation. As I already stated, the establishment of trust was imperative and the maintenance of these relationships is key. Once built, these relationships are imperative since the continuation of any type of work in the Rif, or the whole of Morocco, is dependent on these same groups. Longevity is one issue brought up as a challenge to primate conservationists (Riley and Zac 2015) that is difficult to impossible without building positive relationships before, during, and following research implementation.

Thus, when looking at the care and time taken to build the relationships BMAC has with the Moroccan government and citizenry, there were numerous elements to their approach that became apparent (Table 6.1). Many of these recall aspects of peace studies already discussed in chapter two, including respect, cooperation, interdependence, common identity, collectivity, and a focus on relationships (Bonta 1996; Fry 2014; Fry and Souillac 2014). Other peace and conflict resolution elements include fact-based research, adherence to ethical approaches, trust building and equity between stakeholders, consideration of cultural and socio-political context, and a serving in nonthreatening and mediator-type role (Deutsch 2014; Madden 2014).

Many of these factors are prerequisites for building and maintaining positive relationships and play a fundamental role in conflict resolution and peace-building (Deutsch 2014; Fry 2014; Lederach1995; Ramsbothan 2011). In addition, they overlap with an inherently interdisciplinary and anthropological approach to conservation. Collectively, they create a complimentary and holistic foundation for any conservation initiative.

In summary, my time interacting with Waters and BMAC allowed me to grasp the full range of relationships and nuanced approach central to the goals of this organization. The
Table 6.1. Elements of peace and conflict studies used by BMAC in their conservation initiative.

<table>
<thead>
<tr>
<th>Peace and Conflict Studies Elements</th>
<th>Application by BMAC</th>
<th>Source</th>
</tr>
</thead>
</table>
| Use ethical approaches              | • Maintain an ethical approach to primate research  
|                                     | • Highly professional relationship with other organizations  
|                                     | • Always give credit to others where necessary  | Deutsch 2014; Lederach 1995; Madden and McQuinn 2014 |
| Respect all parties                | • Culture, local traditions, religion, and LEK is valued  
|                                     | • Coproduction of knowledge  
|                                     | • Co-publishing with non-academics is valued  | Fry and Souillac 2014; Lederach 1995 |
| Create trust formation and equity  | • All stakeholder opinions are valued  
|                                     | • Careful planning of events so as not to alienate other groups  | |
| Establish interdependence and collective goals | • Conservation cannot happen without local people  
|                                     | • Requires cooperation between groups of people  
|                                     | • Goal should a win-win for everyone; not a competition  
|                                     | • Reframe problems with collective goal in mind  | Deutsch 2014; Fry and Souillac; Madden and McQuinn 2014 |
| Gathering all the facts            | • Decisions are not made in a cultural vacuum or based on biological measures alone  
|                                     | • Use all relevant information in decision making  | Lederach 1995; Madden and McQuinn 2014 |
| Consider sociopolitical context    | • Understanding the broader social and political context  
|                                     | • Understand informants’ feelings are shaped by political events and urban-rural divide  
|                                     | • Current and past power dynamics influence attitudes  | Deutsch 2014; Lederach 1995; Madden and McQuinn |
| Involve all parties                | • Insure all are informed  
|                                     | • People must feel included in planning and avoid hidden agendas  | Lederach 1995; Madden and McQuinn 2014 |
| Establish a collective identity    | • Anyone can be a conservationist and has a responsibility to be one (people are urged to report illegally held animals, neglect or abuse of animals)  
|                                     | • Macaques represent a collective biological heritage  
|                                     | • Shared identity also through a growing environmental movement in Morocco  
|                                     | • Social media followers establish ties with conservationists online; report illegal activities online  | Fry 2006; Fry and Souillac 2014 |
| Build relationships as mediator or friendly peacemaker | • Act as neutral party between groups  
|                                     | • Non-threatening or neutral position (people feel they can come to BMAC whereas the government is often not trusted and intimidating)  
|                                     | • Provide solutions to problems at local and governmental levels  | Fry 2006; Fry and Souillac 2014; Lederach 1995; Madden and McQuinn |

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framework of BMAC was based on prior ethnographic research by Waters and arose from the realization that human cultural values and needs are a critical aspect of conducting conservation. Moreover, Water’s time with the shepherds of Bouhachem facilitated bi-directional information transfer whereby shepherds learned from Waters while she learned from them. In addition, the establishment of positive relationships within and between groups in Moroccan society has indirectly created an informal, if not diplomatic, dialogue between concerned actors in Morocco society.

Here, I have explored the participant observation component of my research and the inception and growth of BMAC. I have also highlight the ways the organization has implemented an inclusive and equitable conservation program that focuses on interdisciplinary methods of data collection and co-production of knowledge with local shepherds. Their work utilizes a number of elements that are peace based and diplomatic in their application, resulting in a sustainable and highly participatory approach to conservation. In the next chapter I will discuss the results of the semi-structured interviews and the marked differences between perceptions of rural and urban respondents.
CHAPTER 7.

INTERVIEW RESULTS: URBAN AND RURAL ATTITUDES TOWARDS BARBARY MACAQUES AND MACAQUE CONSERVATION

Coding and Resulting Themes

The variety of respondents and their experiences provided a limited but clear example of the types of relationships between humans and Barbary macaques that are typical to Morocco. As already described in the methods, the focus of questioning was positioned around: 1) experiences with Barbary macaques; 2) general knowledge and perceptions of macaques; 3) contact and experiences with BMAC; 4) and general knowledge and perceptions of conservation. I further divided these categories into two primary areas, those related specifically to Barbary macaques and those related to the conservation NGO.

While some respondents answered all questions in detail, there were others that had no relevant experiences or information related that question. I coded interview responses using a general inductive approach (Bernard and Ryan 2010; Thomas 2006) and sorted the data into structural and thematic categories (Bernard and Ryan 2010). The categories that emerged were roughly based on the a priori semi-structured questions. Structural categories include: occupation, age, location of residence, and urban verses rural respondents. The two primary thematic categories are Barbary macaques and the Conservation NGO. In turn, these are broken down into experiences and knowledge/perceptions of each (Table 7.1).
Table 7.1. Categories established based on coded responses to interviews.

<table>
<thead>
<tr>
<th>BARBARY MACAQUES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experiences with Barbary macaques:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Contact:</td>
<td></td>
</tr>
<tr>
<td>a. Location of contact</td>
<td></td>
</tr>
<tr>
<td>b. Degree of contact</td>
<td></td>
</tr>
<tr>
<td>c. Context of contact</td>
<td></td>
</tr>
<tr>
<td>2. Personal experiences</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge and Perceptions of Barbary macaques:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Perceived benefits</td>
<td></td>
</tr>
<tr>
<td>2. General, folk, and religious knowledge/perceptions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONSERVATION NGO</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experiences with Conservation NGO:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Contact:</td>
<td></td>
</tr>
<tr>
<td>a. Context of contact</td>
<td></td>
</tr>
<tr>
<td>b. Degree of contact</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge and Perceptions of conservation and NGO:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Perceived benefits of NGO</td>
<td></td>
</tr>
<tr>
<td>2. Knowledge and perceptions of conservation</td>
<td></td>
</tr>
</tbody>
</table>

I used a priori questions related to knowledge/perceptions and experiences, since these are commonly used in ethnoprimatological studies. This field typically utilizes an integrated approach to explore various aspects of the human-nonhuman primate interface, often taking into account physical proximity, context of interactions, and cultural and religious perceptions of NHP (Cormier 2003; Fuentes and Hockings 2010; Riley 2006). In addition, since the questioning and coded data lent itself to these categories, the categories of perceived benefits and degree of contact were established. These elements are important since they might influence attitudes towards wildlife and conservation (Bennett 2016; Kansky and Knight, 2014). The degree of contact with BMAC was determined by respondents’ answers combined with my knowledge of their degree of involvement with the organization. Respondents’ knowledge and perceptions of conservation were ascertained by asking respondents if Barbary macaques should be protected, and in their opinion, what are the best ways to achieve this goal.
Results of Semi-Structured Interviews

The resulting answers revealed emerging subthemes based on how many respondents gave similar answers. Thus, the most salient areas of interest or concern became apparent. These areas of salience are represented in the following tables, arranged by respondent groups and thematic category. However, individuals may be counted more than once if they gave multiple answers related to the same category. For example, if a student saw a Barbary macaque at a zoo and in the wild, they would be counted in both categories. Some respondents may not have offered any information for a given category.

Barbary Macaques: Experiences

Location of Contact with Barbary Macaques

The urban respondents’ point of contact with Barbary macaques (Table 7.2) was diverse and demonstrated regular travel to popular tourist destinations in Morocco, such as the Middle Atlas, Marrakesh, and local zoos. Several individuals saw macaques in more than one location. However, all eight shepherds described their contact within the limits of Bouhachem forest rather than a tourist-related setting.

Table 7.2. Location of contact with Barbary macaques by group.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Location of Contact</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Middle Atlas</td>
<td>Marrakesh</td>
<td>Bouhachem/forest</td>
<td>Zoo/not in wild</td>
</tr>
<tr>
<td>Students/urban n=8</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Working class/urban n=8</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Shepherds/rural n=8</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>
**Degree and Context of Contact with Barbary Macaques**

The degree of contact between the rural and urban groups (Table 7.3) was significant with shepherds understandably spending the most time near or around macaques. Overall, students had more brief encounters than the working class or shepherds with the exception of the intern and biology student who had conducted fieldwork in Bouhachem. In contrast, all shepherd respondents saw macaques in Bouhachem Forest on a routine basis, if not daily. Shepherds had the most contact of all three groups, and those experiences were exclusively with wild macaques.

**Table 7.3. Degree of contact with Barbary macaques.**

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Degree of Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Students/urban n=8</td>
<td>1</td>
</tr>
<tr>
<td>Working class/urban n=8</td>
<td>0</td>
</tr>
<tr>
<td>Shepherds/rural n=8</td>
<td>8</td>
</tr>
</tbody>
</table>

Regarding differences in context of contact (Table 7.4), students saw macaques in zoos more than the other groups. Students and working class saw macaques in a greater variety of occasions. Although the working class did not mention zoos, it is possible they had also seen macaques in local zoos, but that experience was no longer salient in contrast to seeing macaques in the wild. Students and working class seemed to regularly partake in macaque tourism in the Middle Atlas or likely pilgrimages through Bouhachem Forest to reach Moulay Abdelsallem.

**Table 7.4. Context of contact with Barbary macaques**

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Context of Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tourism/Middle</td>
</tr>
<tr>
<td></td>
<td>Atlas or zoo</td>
</tr>
<tr>
<td></td>
<td>Bouhachem /</td>
</tr>
<tr>
<td></td>
<td>Pilgrimage</td>
</tr>
<tr>
<td></td>
<td>Research</td>
</tr>
<tr>
<td></td>
<td>Herding</td>
</tr>
<tr>
<td>Students/urban n=8</td>
<td>5</td>
</tr>
<tr>
<td>Working class/urban n=8</td>
<td>3</td>
</tr>
<tr>
<td>Shepherds/rural n=8</td>
<td>0</td>
</tr>
</tbody>
</table>
Personal Experiences with Barbary Macaques

In each group, respondents spoke of their personal experiences (Table 7.5) in seeing wild macaques as generally enjoyable. Personal experiences for the students and working class were consistent with the locations where they encountered macaques. Tourist locations, such as Azrou and Ifrane, are home to habituated macaques that are no longer afraid of people and can become aggressive as a result of tourist provisioning. However, Bouhachem macaques are unhabituated and afraid of humans, forcing people to watch from a distance and often from their vehicles.

In contrast to the urban groups, shepherds did not mention trying to approach or feed the macaques and were more concerned with the benign nature of the macaques as inhabitants of the forest. Typically, macaque behavior was inconsequential and did not interfere with the shepherds’ activities. There was concern by the shepherds that the macaques might be harmed by unruly youths. One shepherd rescued an infant macaque and described it as a profound experience for him. His story is discussed in detail in Chapter 7.

Table 7.5. Types of personal experiences with Barbary macaques.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>Personal Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students/urban</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Enjoyed interacting with them (Ifrane, Middle Atlas)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They did not react to her (Ifrane, Middle Atlas)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Likes to see them</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They run, except those used to people</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They run away, but some stay calm</td>
</tr>
<tr>
<td><strong>Working class/urban</strong></td>
<td>2</td>
<td>Like to watch them from their car (Bouhachem)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Never seen in wild</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Likes to watch them in the forest (Bouhachem)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Likes to feed them (Ifrane, Middle Atlas)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Were aggressive and wanted food (Ifrane, Middle Atlas)</td>
</tr>
<tr>
<td><strong>Shepherds/rural</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>They do no harm</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Macaques move out of your way/keep their distance</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Like to see them in the forest</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Rescued an infant once</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Saw boys shouting at them</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Saw boys trying to catch them</td>
</tr>
</tbody>
</table>
Perceived Benefits of Barbary Macaques

All groups stated some type of perceived value in Barbary macaques (Table 7.6).

Students and working class felt the ecological value of macaques was of the greatest importance. Aesthetics and tourism were also similar for both, but students leaned towards more academic-minded areas such as research and the macaques’ role as a bioindicator. The working class further described the macaques as generally good and important for the region. In regard to perceived benefits, shepherds had fewer overall responses and fewer economic responses compared to the students and working class. However, they did have a general sense of the macaques’ ecological and inherent value.

Table 7.6. Perceived benefits of Barbary macaques.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>Perceived Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students/urban</td>
<td>6</td>
<td>Ecological value</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Aesthetic value</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Tourism</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Important to region/unique species for country</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Attract researchers</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Bio-indicator</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>No special value</td>
</tr>
<tr>
<td>Working class/urban</td>
<td>4</td>
<td>Ecological value</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Generally good to have around</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Important to region/unique species for country</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Aesthetic value</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Tourism</td>
</tr>
<tr>
<td>Shepherds/rural</td>
<td>3</td>
<td>They are naturally/inherently good</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They help fertilize the forest</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Forest without animals has no soul</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Aesthetic value</td>
</tr>
<tr>
<td>(n= 3 No information</td>
<td></td>
<td>given)</td>
</tr>
</tbody>
</table>

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General Knowledge of Barbary Macaques

In the case of general knowledge (Table 7.7), shepherds gave the most responses to this category. The shepherds also gave more details describing the ecology and behavior of the macaques. While many students were aware the Barbary macaque is a native species, they gave fewer specifics than the working class or shepherds. The working-class respondents seem to have more varied exposure to macaques or macaque related situation as their answers reflected this. They may have also gleaned information from the education programs presented by the NGO.

Table 7.7. General knowledge of Barbary macaques.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>General Knowledge of Barbary Macaques</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students/urban</strong></td>
<td>5</td>
<td>They are an endemic species</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Used for entertainment/to generate income</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Know of person with infant macaque pet in Tetouan</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Smart, like a cheating person</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Used as photo props in Marrakesh</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Their behavior changes in captivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( n=2 ) No information given</td>
</tr>
<tr>
<td><strong>Working class/urban</strong></td>
<td>2</td>
<td>Like any other animal</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Are intelligent animals</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Live in the Rif and Atlas Mts.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Heard that children throw rocks at them</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They leave when people come</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They do crop damage, but not much</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Are used as photo props in Marrakesh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( n=2 ) No information given</td>
</tr>
<tr>
<td><strong>Shepherds/rural</strong></td>
<td>2</td>
<td>They are normal/like other animals</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>More near water (especially during summer)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>One macaque will monitor for safety of group</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>They are animals of the mountain and forest</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They have food and medicine in the mountain</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>In the winter see them all over</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They do not harm sheep or goats</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Know of person with infant macaque pet in Tetouan</td>
</tr>
</tbody>
</table>
Folk Knowledge Related to Barbary Macaques

When asked about any folk knowledge pertaining to Barbary macaques (Table 7.8), only four respondents (17%) out of all groups (n=24) commented on this question. Two people described folk stories, one from the Middle Atlas and one from the Rif, in situations where macaques interacted with humans in a human-like manner. The tale from the Middle Atlas is a cautionary story of a human infant taken by a macaque family after an infant macaque was stolen from its family. The folk story from the Rif was a classic tale of the monkeys and the hat salesman and originated in Europe (Jansen 1952).

Two other stories were of recent encounters, such as a person who shot a macaque and was later attacked by a wild boar, as well as a detailed narrative of one shepherd’s experience rescuing an infant macaque. Overall, the lack of folklore related to Barbary macaques indicated they have very little cultural relevance to Moroccans. Rather, the stories, personal or otherwise, present a potential shift in attitudes despite the lack of folklore and in conjunction with increased interest in the conservation of this species.

Table 7.8. Folk knowledge related to Barbary macaques.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>Folk Knowledge of Barbary Macaques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students/urban</td>
<td>1</td>
<td>Human and macaque swapped infants from Middle Atlas (n=7 No information given)</td>
</tr>
<tr>
<td>Working class/urban</td>
<td>(n=8 No information given)</td>
<td></td>
</tr>
<tr>
<td>Shepherds/rural</td>
<td>1</td>
<td>Person shot monkey and then attacked by wild boar</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Personal narrative of infant macaque rescue</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Story of Jbella man with hats (Rif) (n=5 No information given)</td>
</tr>
</tbody>
</table>
Religious Perceptions of Barbary Macaques

All but one respondent gave extensive answers regarding religious perceptions of Barbary macaques (Table 7.9). Several common themes were apparent throughout the three respondent groups: respect, protect, do no harm, value all life, all life has a purpose. However, there is also one negative metamorphosis theme among all groups that refers to a verse in the Koran equating nonbelievers with monkeys. According to this verse, nonbelievers were turned into monkeys and dogs. This theme was most prevalent in the working class with 50% of this group referred to it. However, respondents suggested in other statements that the metamorphosis was not the only Islamic view on monkeys since respecting all life is an important aspect of the religion.

Table 7.9. Religious perceptions of Barbary macaques.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>Religious Perceptions of Macaques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students/urban</td>
<td>5</td>
<td>Respect all animals, including monkeys</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Protect/provide for all animals</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Value all life/all life is sacred</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Monkeys sometimes seen as bad/metamorphosis story</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>All animals have a purpose</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>No right to kill/harm anything</td>
</tr>
<tr>
<td>Working class/urban</td>
<td>4</td>
<td>Monkeys sometimes seen as bad/metamorphosis story</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Respect all animals, including monkeys</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>No right to kill/harm anything</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Like other animals</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Protect/provide for all animals</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>All animals have a purpose</td>
</tr>
<tr>
<td>Shepherd/rural</td>
<td>2</td>
<td>God made them as he made us</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>All animals are God’s creatures</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They are like free people</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They struggle for survival like us</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>All animals have a purpose</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Monkeys sometimes seen as bad/metamorphosis story</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>No idea how Islam views monkeys</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Like other animals</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>God will harm you if you harm them</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Nurture all animals</td>
</tr>
</tbody>
</table>
Even more interesting are the reflexive statements by shepherds emphasizing human commonalities with monkeys. The shepherds referred to the macaques as one of God’s creatures, for example, that “he made them just as he made us.” In the same religious sentiment, they also indicated that Barbary macaques, with whom they share the forest, also struggle to survive in the same manner as humans and are also like “free people.”

Conservation NGO: Experiences

Degree and Context of Contact with BMAC

Overall, working class and shepherd respondents had higher contact (Table 7.10) with BMAC, while the students had less contact with the organization. Three students and one working class respondent were unaware of the organization. The shepherds were in relatively frequent contact with BMAC, and only one shepherd had not personally met any organization members but knew of them from others in the area.

Table 7.10. Degree of contact with BMAC.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Degree of Contact with BMAC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Student/urban n=8</td>
<td>2</td>
</tr>
<tr>
<td>Working class/urban n=8</td>
<td>2</td>
</tr>
<tr>
<td>Shepherds/rural n=8</td>
<td>6</td>
</tr>
</tbody>
</table>

Regarding the context of contact (Table 7.11), working class respondents were primarily in contact with BMAC through attendance at exhibits and football programs. Students knew of BMAC through either personal experience, educational exhibits, or through university contacts. The majority of shepherds knew of BMAC since the organization’s primary field sight is located in Bouhachem Forest and is frequented by these same shepherds.
Table 7.11. Context of contact with BMAC.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>Context of Contact with BMAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students/urban</td>
<td>3</td>
<td>Aware of BMAC’s work</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Intern with BMAC</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Fieldwork in Bouhachem</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Martil exhibit $(n=3$ Not aware of their work)</td>
</tr>
<tr>
<td>Working class/urban</td>
<td>6</td>
<td>Martil exhibit</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Football program $(n=1$ Not aware of their work)</td>
</tr>
<tr>
<td>Shepherds/rural</td>
<td>7</td>
<td>Bouhachem Forest</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Education program</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Heard of the programs</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Employed by them $(n=1$ Not aware of their work)</td>
</tr>
</tbody>
</table>

Barbary Macaque Conservation: Knowledge and Perceptions

*Perceived benefits of conservation efforts and BMAC*

Some respondents did not volunteer information about BMAC, and while one shepherd said the children enjoyed the education programs, two indicated the children did not necessarily understand the message. This could be due to the lack of exposure the young rural children had with the macaques in the forest. Overall, the conservation and education work of the NGO was perceived as important by all groups. Additionally, all groups indicated an overall sense of effectiveness with conservation and education efforts by BMAC. However, not all respondents were asked this question since BMAC members aided in translation during the interviews and wanted to avoid biasing the respondents (Table 7.12).
Table 7.12. Perceived benefits of conservation BMAC.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>Perceived Benefits of BMAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students/urban</td>
<td>4</td>
<td>Their work is useful/important</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Education of public is useful</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They include local people in conservation</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>They provide real solutions; are grounded in reality</td>
</tr>
<tr>
<td></td>
<td>(n=3 No information given)</td>
<td></td>
</tr>
<tr>
<td>Working class/urban</td>
<td>4</td>
<td>They educate/make people aware</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>It is important work</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>They work hard to protect macaques</td>
</tr>
<tr>
<td></td>
<td>(n=1 No information given)</td>
<td></td>
</tr>
<tr>
<td>Shepherds/rural</td>
<td>2</td>
<td>There is more awareness now</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Macaques are living better now</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Kids like the lessons but may not understand</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Their work is useful/important</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Fewer monkeys are found dead now</td>
</tr>
<tr>
<td></td>
<td>(n=1 No information given)</td>
<td></td>
</tr>
</tbody>
</table>

Knowledge and Perceptions of Conservation

Respondents’ knowledge of Barbary macaque conservation efforts and perceptions of conservation were extensive (Table 7.13). All respondents volunteered their thoughts regarding Barbary macaque conservation. Moreover, attitudes towards macaque conservation were positive, and some were explained in great detail. Overall, urban respondents (students and the working class) felt macaque conservation should be focused on protection and education. Supporting conservation was also salient for the working-class group. Creating tougher laws and stopping their use in Marrakesh was mentioned by students and working class groups as well.

Rural shepherds gave a variety of responses in addition to protection of the macaques in general, and specified protection from dogs. Once again, the shepherds equated the macaques with their own situation by implying that they are both dependent on the forest. Also, harming macaques was equated to harming another human, or even harming oneself. One respondent said
that macaques should be left alone and their habitat improved by replenishing trees. This was likely stated since trees are frequently felled illegally in Bouhachem Forest.

Table 7.13. Knowledge and perceptions of conservation.

<table>
<thead>
<tr>
<th>Population Sample</th>
<th>Number of Responses</th>
<th>Knowledge and Perceptions of Conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students/urban</td>
<td>7</td>
<td>Macaques and habitat should be protected</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Education/awareness programs are important</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Protect macaques from dogs/predators</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Provide resources for macaques</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Conservation should understand all the problems</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Conservation should help both people and macaques</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Stop their use in Marrakesh</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Support conservation efforts</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Tougher laws needed</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Global changes needed</td>
</tr>
<tr>
<td>Working class/urban</td>
<td>6</td>
<td>Macaques and habitat should be protected</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Education/awareness programs are important</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Support conservation efforts</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Help by telling others</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Stop their use in Marrakesh</td>
</tr>
<tr>
<td>Shepherds/rural</td>
<td>4</td>
<td>Macaques and habitat should be protected</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Protect macaques from dogs/predators</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Do not harm macaques</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Help by planting trees</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Tougher laws needed</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Leave them in the forest</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Provide resources for macaques</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Support conservation efforts</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Education/awareness programs are important</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>If macaques go away, then so do we</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Torturing animals is torturing yourself</td>
</tr>
</tbody>
</table>

In this chapter I have presented the results of the semi-structured interviews and found that interactions and experiences influence perceptions of Barbary macaques. Moreover, although urban and rural groups have different vantage points due to their proximity to these animals, they have overall positive attitudes regarding macaques and macaque conservation. In addition, respondents view this species as an important component of Moroccan biodiversity and a number of underlying religious values may be important to the conservation of this species.
The collective data from these semi-structured interviews will be combined with the bulk of my participant observation in the following chapter. The interview data works in tandem with my observations to ultimately shape a partial glimpse into the human-macaque interface and perceptions of macaques in northern Morocco. Additionally, I will place this research in relation to other studies and the available literature.
I have sought to understand the general perceptions of Moroccans regarding Barbary macaques in addition to attitudes towards macaque conservation. Through participant observation with BMAC and semi-structured interviews, I determined that perceptions of this primate are shaped, to a large degree, by interactions and experiences with Barbary macaques along with cultural and religious values. There were several primary trends: 1) there were marked differences in urban and rural interactions with Barbary macaques; 2) general perceptions of macaques between urban and rural were significant, 3) there were strong religious sentiments regarding macaques across all groups, and 4) there was an overall support of Barbary macaque conservation across all respondent groups.

Within each group, there also distinct trends (Table 8.1) demonstrating the similarities in concerns for conservation but having arisen from disparate cultural contexts. For example, the students are understandably well versed in academic rhetoric and cite biodiversity and awareness (education) as highly important. The working class is broader in their interests and harken the importance of tourism for themselves as well as the national economy. By contrast, the shepherds view macaques through an internal lens as fellow forest dwellers and allies against those who would take them from their forests or the forests from them. The religious values and perceptions among the respondents reflected pro-conservation values across all three groups and will be discussed later in this chapter.
Table 8.1. Trends in respondents’ perspectives of macaques and conservation by group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Interface Type</th>
<th>Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students (urban)</td>
<td>Distal interface and academically informed perspective</td>
<td>- Macaques are important components of regional biodiversity</td>
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<td>- Education as tool for conservation important</td>
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<td>- Conservation important for survival of species</td>
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<td>Working class (urban)</td>
<td>Distal interface with external perspective</td>
<td>- Value macaques as unique species.</td>
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<td>- See as benign animal despite metamorphosis story</td>
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<td>- Economically important for tourism</td>
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<td>- Conservation through protection important for macaque survival</td>
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<td>Shepherds (rural)</td>
<td>Proximal interface with internal perspective</td>
<td>- Increased reflexivity and see macaques as allies</td>
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<td>- Not an economic resource, but integral part of forest</td>
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<td>- Protect macaques by protecting forest and reducing aggression towards individual animals</td>
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Urban and Rural Interfaces with Barbary Macaques in the Rif

The contrast between the interviews with urban and rural Moroccans was the most pronounced. This is not surprising given the role of experiences and knowledge on perceptions (Bandara and Tisdell 2003; Bennett 2015; Lutz et al. 1999). Urban Moroccans see Barbary macaques less frequently, through the lens of tourists, and often outside of an exclusively wild setting with the exception of Bouhachem Forest. However, rural shepherds spent much of their time grazing flocks and see wild unhabituated macaques on a regular basis.

In short, urban respondents saw the macaques externally, as an academic or tourist would - as a resource for tourism (for personal and economic reasons), having overall ecological value, and as a unique species to the region. On the other hand, shepherds viewed the macaques from an internal vantage point - as a cohabitant of the same forest spaces, a rural ally, and as an ecological necessity. Additionally, both the urban and rural groups made statements regarding the intrinsic value of Barbary macaques, namely that they were naturally good, good to have
around, or people simply liked to see them. One shepherd poignantly stated, “Imagine one time nature without animals – is like nature lacking meaning. The soul of the forest is the animals” (Shepherd, age 37).

Regarding proximity and types of experiences, neither the urban or rural residents spoke negatively of Barbary macaques, but encounter them under different circumstances. Urban respondents often saw captive macaques in zoos, or habituated wild macaques in the Middle Atlas. One tourist from Martil stated, “I love their reaction to being fed so I give them food sometimes. They approach people and take food.” (Public transit worker, age 35). Another person gave a similar response, “It is a pleasure for me and my family to see them. The monkeys come for food and we feed them” (Business owner, age 38). However, a Tetouan resident described the problematic result of tourists feeding these macaques, “In Ifrane, the wild monkeys were strange and aggressive. They wanted food” (University administrator, age 43).

Unlike visitors to the Middle Atlas, urban respondents that saw macaques while driving through Bouhachem Forest were forced to watch from their cars since these macaques are fully wild and unhabituated. When traveling through Bouhachem, one visitor stated, “I hide in my car so they don’t see me and flee. If they see us, they go into the trees and leaves, but if they don’t see us they begin to eat on the ground” (Fisherman, age 46).

In contrast to urban Moroccans, the shepherds of Bouhachem see Barbary macaques on a regular basis, several times a day at most, but rarely less than once a week. Their intimate sharing of spaces with Barbary macaques and the frequency with which they encounter macaques results in a vastly different perspective than that of urban Moroccans (Bell et al. 2007; Lutz et al. 1999; Waters 2016). Their responses indicated no direct conflict between macaques and the shepherds of this area. For example, one shepherd stated, “They are good and don’t
bother anyone. The monkey lives for itself, looks for food for itself, and doesn’t cause any trouble” (Shepherd, age 46). Three of the eight shepherds stated that the macaques move out of your way and keep their distance. Another shepherd explained that when he sees macaques in the forest, “I look and it’s normal to see them and I go on my way. They give way so you can pass - they avoid you” (Shepherd, age 50).

When exhibiting a general knowledge of Barbary macaques, four urban respondents (25%) provided no general information about Barbary macaques. The most frequent response was from five students (62%), specifying that Barbary macaques are endemic to Morocco. Otherwise, the urban respondents provided situational and contextual descriptions such as: people use macaques as photo props in Marrakesh, they had heard of people throwing rocks at the macaques, macaques sometimes damage crops, and some people keep macaques as pets.

The shepherds gave more overall responses related to general knowledge and more details describing the ecology and behavior of the macaques. For example, one shepherd explained, “In the summer they move a bit towards water, and in winter they are all over” (Shepherd, age 60). Another shepherd stated that, “There are lots if you go to a water site” (Shepherd, age 50). One shepherd offered a detailed explanation of macaque behavior,

The macaques usually have one that monitors. When this one sees something strange coming he shouts certain calls. The others stop and listen and pay attention. If they see something coming or nothing [dangerous], they go back to what they were doing…eating or playing. If they saw danger coming, then they run quickly to a tree. [Shepherd, age 37]

Regarding the benefits gained by the presence of Barbary macaques, almost one-third of all urban respondents felt a sense of national pride towards these macaques since they are a species unique to only Morocco and Algeria. Moreover, 50% of the working class and 86% of the students explained the macaques were of ecological value. This perception is not surprising given that some respondents were biology students However, students of various disciplines
often have exposure to environmental awareness materials in their classes and on television. One student explained, “Macaques are a bioindicator species – a key to ecosystems. If they disappear others will as well. Entire systems will be altered” (Student, age 25). “Each animal in this world has a place and objective in the ecosystem,” one student stated (Student, age 24). In urban groups, there was a general sense of pride given the Barbary macaque’s status as an endemic species and its attractiveness to not only tourists, but to researchers, as stated by a student respondent. Three urban respondents specifically cited economic benefits through tourism. “The idea of having monkeys here is important to the whole region,” a local bus driver (age 35) explained. A resident from Tetouan felt the macaques brought “advantages for tourism and for the country” (Administrator, age 43).

However, no economic benefits of macaques were mentioned by the shepherds. One shepherd explained his own interests, “Seeing people come here to study these animals – then why if I am not educated should I not study them also? I do not need the economic benefits. The material benefits are not the point, but benefit from the surroundings in nature” (Shepherd, age 37). Rural respondents may have been less responsive regarding the overall benefits of macaques since these animals are not necessarily viewed as having benefits outside of the forest. The macaques are essentially valued as an integral part of the forest ecology, not as a product unto themselves. Moreover, the economic benefits of poaching are lacking in Bouhachem since there is less tourism, fewer buyers, the macaques are unapproachable, and they are generally difficult access due to the rocky terrain. When macaques have been captured in this area, it is often due to opportunistic circumstances in which dogs managed to separate an infant or juvenile macaque from its troop as they fled (Waters 2014).
In northern Morocco, urban and rural respondents agreed that macaques have an ecologically functional value, but macaques are additionally beneficial for tourism according to urban respondents. Of significant note, rural shepherds were as likely to intrinsically value Barbary macaques as urban respondents. This could possibly be due to a lack of direct conflict between macaques and Bouhachem shepherds. Instead, there is a historically problematic relationship in this area between rural and urban residents, including governmental actors (Waters 2014). The strife with those considered ‘outsiders’ may have influenced the shepherds’ sense of alliance with the macaques as co-residents of the same forest spaces.

Both urban and rural respondents enjoyed watching macaques and share an overall concern for their wellbeing. This suggests an overall intrinsic value rather than extrinsic value. Intrinsic value is preferable since it does not require economic incentive. Regarding contrasting urban and rural attitudes, Lutz et al. (1999) and Bandara and Tisdell (2003) found that rural and urban perceptions of wild spaces vary but remain positive due to the vast exposure people have to the media and on-air educational programs. However, it is also the amount of time and use of wild spaces and wildlife that shapes perceptions. Rural individuals tend to spend more time outdoors, use products extracted from forests, and may also work in those same spaces. In contrast, those in urban areas spend less time overall outdoors and view wild spaces as more of a recreational outlet and (Lutz et al. 1999).

Bandara and Tisdell found that while rural residents often placed more value on the ‘direct use value’ (2003, p. 336) of wildlife products, both rural and urban residents equally felt that wildlife, in this case elephants, should be conserved for future generations (Bandara and Tisdell 2003). In both cases, rural residents may see both forests (Lutz et al. 1999) and animals (Bandara and Tisdell 2003) as a type of economic resource. However, while rural residents are as
likely to be supportive of wild spaces and wildlife there can be shifts in behavior resulting from negative encounters with governmental and nongovernmental organizations’ failure to acknowledge rural perceptions and context (Bandara and Tisdell, 2003; Bell and Hampshire 2008; Ericsson and Heberlein 2003).

Despite the small sample size used in this study situated in northern Morocco, there is an obvious similarity between the attitudes of the urban and rural Moroccans when compared to groups outside this region. Experiences are typically combined with norms and underlying values to shape attitudes. Thus, perceptions are experiential and culturally contextual, which are critical to understanding human-wildlife interactions (Bennett 2015; Manfredo 2008) One important aspect of such studies is that wildlife is valued for different reasons by differing groups. Exacerbating tensions between groups (for example, urban and rural) only creates further polarization and animosities rather than building unified support (Bell and Hampshire 2008; Waters 2014).

Another component in the contrasting perspectives of urban and rural perspectives is the connection of people to contextual spaces and the knowledge they hold about those spaces. The reflexive nature (Cormier 2016) of the shepherds’ perceptions of macaques contrasts sharply with that of urban groups from the same region and is deeply rooted in their sense of place. It is this orientation of local people within a social and ecological setting that shapes “local dialects” (Bell et al. 2008, p. 279) and subsequently how people think about and react to conservation initiatives that move into a given area (Bell et al. 2008).

According to social anthropologist Sandra Bell, “a local dialect is a specific environmental discourse open to change, but framed by experiences of place held in common by other interlocutors. It may be refined in relations to others, especially those perceived as people
that do not truly ‘belong’ to the place in question” (Bell et al. 2008, p. 279). Aside from the importance of the physical sense of place and the experiences that have transpired, it is important to understand the role of knowledge in a “local dialect.” It is exactly the views of local villagers and shepherds, their knowledge of macaques and the forest, that BMAC has made central to their conservation initiative.

Religious Sentiments Towards Barbary Macaques

All respondents, with one exception, made statements pertaining to the status of monkeys in Islam. There were several clear themes related to religious views that emerged including: 1) respect and value all life; 2) protect and do no harm; 3) all life has a purpose; 4) metamorphosis story; 5) and anthropomorphic reflexivity. The first three of these themes they have secular application as well but were stated by respondents to be situated well within the theoretical bounds of Islam. Yet, while Islam shapes the lives many Moroccan Muslims and their worldview, Foltz (2003) reminds us that,

…there is a distinction to be made between Islamic environmentalism – that is, an environmentalism that can be demonstrably enjoined to the textual sources of Islam – and Muslim environmentalism, which may draw its inspiration from a variety of sources including but not limited to religion. Around the world, one can find increasing examples of both. [p. 359]

At no time did the respondents in this study indicate there was an “Islamic environmentalism.” However, their responses reflect a clear connection between the religion and their perceptions of the natural world, including nonhuman animals.

While Barbary macaques fall into no specific classification in Islam, many respondents stressed that all animals, including Barbary macaques, filled a specific ecological role or function. Moreover, whether implicit or realized, there were numerous responses by all groups to
macaques as sharing attributes with humans, according to the Islamic religion. Thus, the concept of divine metamorphosis is likely embedded in the respondents’ perceptions of NHP despite the negativity of the concept. Alternatively, the stated similarities between humans and animals may also result from acknowledgment that both are creatures of God. According to Foltz, this would be consistent with the concept of unity, or tawhid, is a key component of Islam, and taken to mean “the oneness of God,” or even “all-inclusive” by modern Muslim environmentalists. (Foltz 2003, p. 360)

Furthermore, the concept of general respect for animals was mentioned by half of all respondents (n=12), and three of working-class respondents specifically stated they do not have negative feelings towards macaques despite the metamorphosis story. Instead, they were just as likely to provide positive religious responses regarding Barbary macaques. Two respondents from the working class stating the macaques “were like any other animal.” They are essentially saying to have respect for all animals, but the wording eludes to a less sanctified status. For example, on respondent explained, “It’s a normal animal [monkeys] and it’s in the Koran too. God returned bad people as monkeys and pigs” (Martil resident, age 42). The same person went on to say, “I like to see them [macaques] very much. I don’t see them often, but feel lucky when I do.”

Only two students mentioned the metamorphosis story with the majority of students (75%) saying the Islam emphasizes respect for all life. One student stated, “In Islam, all life is sacred. We do not have the right to kill anything. All have a purpose in life” (Student resident of Martil, age 25). Another student said, “Islam tells us to give respect to all animals, including monkeys” (Student, age 24). An additional student (age 41) elaborated on the topic of human de-evolution,
There is no specific tale about monkeys. [Although] there are some verses in the Koran. Their level is less than human – less valued than humans. Maybe the same level as a wild boar, but generally there is a sense of conserving nature. In some verses the nonbelievers are seen at the level as monkeys and the wild boar. In another verse, it says [they are like] those who do not think or use their mind. This makes a difference. God gives you a mind and if you don’t use it you would be similar to other animals – or maybe you are less than [other animals].

Similar to the previously mentioned differences between the rural and urban groups, the shepherds’ responses were the most reflexive, comparing macaques to humans, even in the context of religion. Only one shepherd made any reference to metamorphosis, but three of the shepherds specifically compared macaques to humans. Two stated that macaques were made by God as he made humans. “God made them on earth just like he made us. There’s no difference” (Shepherd, age 60). Another implied they have personhood, “They are like free people. People who hurt them aren’t nice because when you see the monkeys, they are like people.” The same shepherd, in response to seeing boys shouting and throwing stones at macaques said, “What result will you get? They only torture themselves and the animals” (Shepherd, age 46). Finally, one person described how macaques “[struggle with] survival like us. So why would we hurt or bother them” (Shepherd, age 50)

Like the other two groups, two shepherds explained that macaques were not unique but are like other animals with all having a purpose. “There is nothing specific [in Islam] about monkeys. In our religion, we nurture all animals. [We] just take care of them” (Shepherd, age 49) One respondent expanded on the nuances of the religion in relation to monkeys and animals in general,

I’m not aware of anything [about monkeys], but generally the religion [Islam] says not to harm anyone. If you harm anyone you will be judged in the afterlife. Even if you kill an ant without purpose you will be judged later on. It’s all about life. Killing is taking from God. We don’t have a right to take it. [Shepherd, age 37]
According to the respondents, Islam stresses ecological inclusivity and strong sense of stewardship. This holistic worldview appears to place more emphasis on ecology and biodiversity than on importance on the status of primates specifically as does Western science. Moreover, there are extensive passages in the Hadith regarding animal welfare (Foltz 2006; Masri 2007), which could easily be connected to the statements of valuing all life and protecting animals. However, while the protection and care of all animals is divinely rewarded, individual context dictates the practicality of one’s actions (Alexander 2018; Foltz 2006).

Thus, Masri provides a backdrop for the sentiments towards animals in Islam, intersecting with the broader attributes of Islamic environmentalism as explored by Foltz (2003). Foltz (2003) suggests that while Islam tends to be anthropocentric like the other Abrahamic religions, Christianity and Judaism, there is the potential for greater environmental awareness as part of the Islamic model of stewardship, or khilafa (p. 362). In expressing the concept of khilafa, Hadith 6:165 says, “It is He who has made you vice-regent on Earth.” Foltz (2003) also points out that the concept of ‘aql, or rational intelligence, is according to the Koran (39:9), “a gift from God given for a purpose” (p. 362). Such a concept suggests that new and relevant information could be a source of empowerment, in addition to an act of benevolence towards God. However, it is also important to reframe Muslim religious (environmental) thinking in the context of socio-cultural conservation. Information critical to conservation, regardless of how sacred or useful it might be, is rarely accepted by individuals who are not respectfully approached or engaged in a meaningful way.

Thus, Islam is positioned to lead the way in global environmentalism since the sentiments reflected by the respondents in this study, reflective of the more theoretical aspects of the religion, are positioned perfectly to bridge the religious and the secular variants of conservation.
(Foltz 2003; Gade 2012; Mangunjaya and McKay 2012). Respect for all life, protecting and doing no harm, and the concept of all life having a purpose are potentially another way of stating that biodiversity is important, as are the individual species within a given ecosystem, and that both warrant protection (Figure 8.1).

Figure 8.1. The relationship of Islam to fundamental concepts in environmentalism and conservation according to the respondents (photo credit: Wikipedia commons).

However, when looking at this arrangement pragmatically, although these elements are intrinsically valued in Islam, there must also be a realization of the impending problems and awareness of solutions for change to occur. Thus, Barbary macaques may be gaining intrinsic value by association and resulting from Muslim values combined with modern science and awareness initiatives. Whatever the case, the apparent shift in attitudes, while slow, are
significant given the deeply rooted cultural and religious depictions of monkeys as deviants and tricksters unworthy of respect.

**Attitudes Toward Macaque Conservation**

As described in the previous section, respondent attitudes towards Barbary macaques were positive. Additionally, the respondents, both urban and rural, were supportive of macaque conservation. The responses to conservation knowledge and attitudes solicited various responses but all were positive towards the conservation of Barbary macaques, with or without knowledge of BMAC. Interestingly, the ‘stories’ told by two respondents were concerned with exploitation and animal welfare.

The working class urban respondents, with the exception of two individuals, were aware of the work of BMAC and five of the eight (62%) stated that awareness and education were important. Six of the eight (75%) stated that they supported the protection of Barbary macaques and the NGO. The two people that were unaware of BMAC were still supportive of macaque conservation.

When asked what they felt would be the best ways of helping Barbary macaques, three of working class respondents articulated their concerns. One respondent said, “Protect their areas, tell people the importance of its [macaques’] role, and support people working to protect them” (Tetouan resident, age 45). Another stated, “Most important is to tell and educate people of its [macaques] role in nature. All animals should be protected and we need education programs” (Martil resident, age 35). A Martil resident (age 38) who was very familiar with BMAC specified,
[We must] Stop people from using them like in Marrakesh and get people to understand [their] importance and why they are here. All animals have a purpose. If you look at macaques you see an extraordinary way of life.

Students were also supportive of Barbary macaque conservation despite three (38%) having never heard of BMAC specifically. Like the working class, six of the students (75%) stated that protection for this species was necessary. One student from Martil said, “All wild animals should be protected by the authorities” (Student, age 25). Another stated, “It is our responsibility to protect them” (Student, age 23). In keeping with the general attitude of students and their influence by academia, six students also said that education was an important factor for conservation. This was how one student himself became more fully aware of Barbary macaques. He explained,

Actually, I didn’t know about the macaques until I met Ahmed and Siân of BMAC in 2007. Then I realized there was wildlife there in the forests of the Rif. I knew they were in the Middle Atlas but not in the Rif. I was unaware of the macaques and that they are threatened and there is an initiative to conserve and protect their habitat. (Student, age 41)

Regarding shepherds’ responses, they primarily made protective insinuations about the macaques and implied they should be left alone. For example, 50% of the shepherds said macaques did no harm and were concerned with violent actions towards the macaques. Such an intimate sharing of spaces, personal experiences, and religious sentiments, are likely responsible for the shepherds’ highly personal perspective on these macaques. Moreover, for shepherds the protection of the forests where these macaques reside means protection for humans using forest resources as well. The stark perspective of one shepherd demonstrated this point, “If we don’t protect them and [as a result] send them away, then we will have to be sent away too” (Shepherd, age 60).

Interestingly, as expressed by at least two of the shepherds, the concept of divine punishment may be extended to those who inflict harm on monkeys and fail to see their worth.
One shepherd (age 46) knew a person who shot a monkey a long time ago. The animal was wounded, but the person who shot the monkey came back later wounded by a wild boar. “So,” he said, “if you hurt an animal, you can expect the same.” The idea that such a punishment can be redirected towards humans, even when the victim itself may be the result of divine punishment, attests to the degree to which this species is valued by these shepherds.

Although, there was a time, according to Waters (2015; Waters 2018 in press), that these same shepherds would not express their fondness for macaques in front of others. It was only when interviewed alone that they confessed their interest in this animal’s wellbeing. That has changed due to increasingly positive sentiments throughout the region. Now villagers and shepherds talk openly about the need to protect Barbary macaques.

An additional element that may be shaping attitudes relates to the benign nature of this species to the residents of Bouhachem. As one shepherd said, “Why kill them? They are not threatening and we can’t eat them. The monkeys don’t harm our sheep and goats.” Another shepherd respondent stated, “We don’t sell them, we don’t eat them, and they don’t threaten us here and our agriculture.”

_Narratives About Barbary Macaques and Primates in Morocco_

While there was very little folklore mentioned by the respondents, I still wish to discuss the topic briefly since it provides a glimpse into the place of Barbary macaques in Moroccan culture according to the respondents. In short, according to a sample of Moroccan literary sources monkeys are rarely referenced in Moroccan culture. This sampling of Moroccan lore and literature revealed only one folk tale about monkeys out of 270 stories, poems, and ballads, and five proverbs out of 2,013 (Appendix A).
Thus, the stories told by these respondents are few but significant. One story is a cautionary changeling story about taking infant macaques from the wild. Another was the tale of the monkeys and the hat salesman and is an imported trickster tale from Europe (Jansen 1952). The final story was a contemporary narrative about rescuing an infant macaque. In the case of one Bouhachem shepherd, he was in a situation where he was forced to decide if he should take action to save a young Barbary macaque.

The first, and shortest, story was the infant swap tale and is reminiscent of other infant swap or changeling lore. This story from the Middle Atlas was told to the respondent by a family member in the city of Gercif. He said it was passed down from one generation to the next to make people think about their relationship with macaques. It describes an infant macaque taken from its family by humans. In retaliation, the macaques took one of the human babies and raised it. Afterwards, the human was returned to its family.

The second story is from the Rif and describes a man selling hats. He explained,

> At an early age grandads and grandmas would tell a story about a Barbary macaque. There was a man selling Jbella hats, about 10-20 of them, and he grew tired and went to sleep under a tree. Monkeys came and took the hats one by one until they took all the hats except one. When the man woke up he said, “Where are my hats?” He saw what they had done - trying to be clever.” (Shepherd age, 49)

This story is a classic tale that emerged from a well-known engraving (Figure 8.2) according to art historian Robert Jansen (1952). However, in this case, the hats being sold are described as the locally produced Jbella hats unique to the Rif since folklore tends to migrate and take on elements of its new location (Klipple 1992).
**Figure 8.2.** Engraving: *The Pedlar Robbed by Apes*, Florentine (c. 1470-1490). Image depicts the sleeping (hat) salesman and the monkeys stealing his goods (Jansen 1952).

Finally, one shepherd excitedly told his personal story of rescuing an infant macaque,

One day I found a monkey baby and it was under the tree and surrounded by dogs. At that time I intervened. The baby felt safe with me and I felt a connection with the baby. Ok they are the same as us [he thought]. We have our language and they have theirs. They have their own mind and thinking maybe more than humans do. At the time I found the baby it was relieved and sat on my leg and I was petting him to calm him. The mother was in the tree above. Then she came down and took the baby very quickly. I was afraid since she might think I was trying to harm the baby. If I hadn’t found the baby at this time the baby would be dead. [Shepherd, age 37]

Storytelling such as the Bouhachem rescue, along with regional folklore, give us some insight into the shifting perceptions of macaques in Morocco. The shepherd’s story of his macaque rescue was an example of a contemporary narrative and holds importance in the
repetition of this person’s experience as he tells it to eager new audiences. More importantly, personal experiences are often effective in shaping positive and negative perceptions of a species (Kansky, Kidd and Knight 2016).

While the Barbary macaque appears infrequently in Moroccan lore and literature, just as primates appears rarely in Islamic sources (Tlili 2012), these contemporary, local, and regional stories point to a normalization of Barbary macaque conservation into mainstream Moroccan society. The trickster story reflects typical traditionalist views of primates. But in contrast, when the people take pride in a native species and cites stories of respect for this animal we can deduce that macaques are a valued member of the local ecosystem, even if they have marginal cultural importance.

Many of the responses already discussed imply that Islamic religious values, and the overall cultural perspective of Moroccans, are concerned with the broader issues of animal welfare and biodiversity. Thus, these factors may take precedence over any one species, including Barbary macaques. However, this does little to deter people in northern Morocco from taking a proactive and positive view of individual macaques suffering at the hands of humans, and in turn, initiate rescues of illegally held macaques (Waters 2014; Water and El-Harrad 2013).

*Attitudes Toward the Primate Conservation NGO*

As already stated in the previous section, all respondents had positive attitudes towards Barbary macaque conservation, even those \( n=5 \) without contact with BMAC. While the fact that some people had never heard of this NGO might hint at their work having limited reach, it does not exclude the possibility that their work has diffused throughout the area and reached people indirectly. However, multiple public educational programs by BMAC have taken place in
Martil, as well as regular educational programs and sponsored football tournaments in rural schools.

In total, majority of the respondents ($n=19$) had exposure to BMAC and were contacted by the organization to provide feedback on their work and overall perceptions of Barbary macaques as part of this study. While this may impart some degree of bias, it is the only way to identify people who are familiar with their work, and presented a unique opportunity for them to voice their opinions and concerns.

The most stated responses about the work of BMAC from the urban groups were that their work is important (50%) and their education of the public is also important (50%). In contrast, the shepherds focused on the outcomes they have personally witnessed and attribute to the work of BMAC. Three of the seven shepherds who had been in contact with BMAC stated that macaques are in a better position now and they find fewer macaques dead. Three shepherds also felt there is more general awareness about Barbary macaques and that BMAC’s work is important to them. However, two of the shepherds felt that the rural children that saw BMAC’s education programs may have not fully understood the information. As stated in the results, this may be due to the rural children’s overall lack of exposure to Barbary macaques both in the forest and at tourist hot spots. Another bias could result from gender roles and the age at which children begin to be tasked with domestic chores outside of the home and in the forest.

Several respondents with a high degree of exposure to the organization were highly articulate regarding BMAC’s work and expressed optimism regarding their continuation. I am inclined to use the more detailed statements of these respondents since they succinctly reflect their feelings towards BMAC and Barbary macaque conservation. One particularly well informed student explained his views on Barbary macaque conservation,
You can look at different factors that make life difficult for the monkeys. Look at all the issues and determine what is the best way to conserve them. My point of view dealing with the environment is to conserve the inhabitants. Local people must collaborate. They must contribute. People have their own rules like goods they get from the forest. Make local people involved in conservation. Show them another way. Selling monkeys or killing monkeys may be this way and they will do it. But if you show them there is another way they will get money and protect the forest and the monkeys. People feel like they are an important element in the project. This will make them more responsible. [Student, age 41]

Regarding the general usefulness of the work of BMAC, the same student talked about past attempts by other organizations to randomly disseminate information rather than understand local audiences.

There were many NGOs, and, in 1998, one project – their whole story was out of focus. They wanted to do something without preaching the real goal. They had no vision. BMAC is on the ground of reality. They meet the people and try to get close to where the issue is locally – to better understand relationships, all of them: ecological, economic, social, political. This makes them better to propose solutions. [Because of this] It would be easy to figure out how to disseminate the information to be useful. Just because you disseminate flyers doesn’t mean you know the information. To know the information, you need to go create a relation between the people and you. And you need to feel their concern. It makes you like one of them once they make you one of them. Your concern is real and you see differently from any other NGOs or authorities. You can propose solutions and translate that to the authorities. Being in the middle – a moderator, serves a lot. It helps people get what they need. Helps the authorities understand the people, and also you will be sure the information reaches the place it will have the most impact. [Student, age 41]

The shepherds were also supportive but had distinct experiences and views from those of the urban residents. An optimistic and supportive shepherd stated,

I think it is good that these people come to try and conserve the monkey at the limit of extinction. Because there was no one concerned about the conservation of these monkeys. Anyone could sell them or kill them and no one would argue or anything. Now I appreciate the work that this association does. I try to help as far as I can. Three years after BMAC started working in the area the state of the monkeys improved. The cases of monkeys being found dead reduced dramatically. [Shepherd, age 37]

He went on to say,

People used to throw stones and kill them, but people don’t do this anymore. Now we can say people are starting to think about it. There is a change in thinking…I never thought
about conserving or not until I saw a BMAC activity [presentation]. They didn’t bother people so why conserve them. Now I start to see the monkeys differently. The forest without them is like a dead forest. I appreciate the situation and I started to act the same. If I see someone charging or attacking [a monkey] then I stop them. All are God’s creatures so why should we kill them?

Yet another shepherd explained,

Thanks to the awareness activities of the association [BMAC] people now pay attention. People sometimes do not pay attention to the issue, but after this they do. They saw people coming to protect the monkeys –so they see activities that are strange – when they never paid attention before, and now they do. They [people] want to protect them. There is no reason not to. They are not dangerous to us, the children, or the crops. Now they [the macaques] are living better than before. [Shepherd, age 49]

Having these Moroccans expand on the importance of Barbary macaques and macaque conservation allows their voices to be heard and their concerns recorded for the sake of the organization as well as the primate they seek to protect. However, and more importantly, it is critical that these respondents also know that their voices and opinions are valued.

*Normalizing Barbary Macaque Conservation in Moroccan*

Often, attitudes towards a species are shaped by the experiences and relationships people have with conservation scientists working to protect those animals (see chapter two). In this case, the overall attitudes of urban and rural respondents indicate a sense of trust in BMAC and support of their work. These positive attitudes towards Barbary Macaques and macaque conservation can be explained through the extensive work of the organization on numerous levels of Moroccan society. Moreover, their ability to approach conservation with an inclusive socio-cultural focus has been integral to their recruitment of supporters and network of activism.

Regarding this network, BMAC’s work is successful since it utilizes elements of interdisciplinary peace building and conflict mediation. These elements allow BMAC to work on a local, regional, and national scale and engage a wide variety of audiences. More importantly,
the non-threatening nature of their approach facilitates the empowerment of Moroccans seeking to report illegally held macaques while also building anti-primates-as-pet attitudes. This is an important aspect of their work given the historical lack of governmental action towards the trade in macaques.

However, despite the complexities presented by the exception of macaque photo props in Marrakesh, there has been an overall governmental receptiveness to BMAC over the past few years. BMAC has facilitated a means for the Moroccan Haut Commissariat des Eaux et Forêts to monitor macaque populations in the Rif and more readily confiscate poached macaques. As a result, this has allowed the Commissariat to increase attention to endangered species trafficking throughout Morocco and across international borders. In defense of those in governmental roles specifically shaping and enforcing laws to protect wildlife, their partnership with BMAC is an indication of their broader intentions and goals aimed at protecting Morocco’s biodiversity. The Eaux et Forêts has employed BMAC to give programs in areas outside of the Rif and recommended funding by the United States to aid in outreach for the Convention on International Trade in Endangered Species of Flora and Fauna (CITES). (BMAC did succeed in obtaining this funding for approximately one year until changes in the U.S. government shifted funding priorities.) Thus, while governmental action towards the Barbary macaque trade has been slow to progress on a national scale, they have been eager to act on regional levels to strengthen and enforce laws and support educational programs conducted by BMAC.

The ability of BMAC to bring disparate groups together (i.e. urban, rural, governmental entities, and nongovernmental citizenry), to mediate between these groups, and to facilitate conservation methodologies through a network of activism are their greatest assets. This is in addition to the monitoring of macaque populations, ethnographic research on human-macaque
relations, and recruitment of local actors as key contributors and co-producers of their research. Waters and her team have achieved this by taking an approach to conservation that looks at underlying sociocultural barriers to conservation while building relationships through ethical and inclusive field practices. Moreover, they have further empowered people by building on local socio-religious values. I also believe their conservation program will continue to be effective because of the positive responses from the respondents in this study and the observations that allowed me to witness the integrated interface between people, macaques, and primate conservation in northern Morocco.

In short, the qualitative nature of this research provided a window through which I could view and understanding the broader patterns of BMAC’s work. BMAC’s methodology successfully uses applied and theoretical tools from cultural anthropology, biological anthropology, and peace and conflict resolution fields. In keeping with Setchell’s (et al. 2017) description of the holistic work of Waters’ and several others as “biosocial,” I go one step further in describing the work of Waters as a biosocial peace approach (Figure 8.3) and a potentially effective means of achieving sustainable conservation.

The Future of Barbary Macaque Conservation

Ultimately, the Rif Mountains of northern Morocco may hold the last sustainable Barbary population in existence. However, while there is a growing interest in Barbary macaques amongst Moroccans in general, there is also often a lack of understanding amongst some urban Moroccans regarding the ecological and behavioral needs of these animals. For example, despite having expressed support of Barbary macaque conservation, there were two urban respondents
that saw macaques in the Middle Atlas and stated they liked seeing the macaques as well as feeding them. A third person attested to their potential to be aggressive towards tourists.

This is problematic due to wild macaque provisioning on a regular basis by tourists. Such provisioning creates a feedback whereby humans and macaques are, at worst, put at risk for zoonotic disease transfer. At best, the typical social and foraging behaviors of these macaques become altered due to the introduction of human food items and increased stress levels from proximity to people (Borg at el. 2014; Maréchal et al. 2011). Moreover, the risk for injury is even greater given the aggressive human behaviors towards these macaques and the lack of understanding of facial distress signals in macaques (Maréchal et al. 2017). In short, while these
tourists enjoy approaching and feeding these animals, there is potential for bi-directional disease transmission and ongoing habituation and poaching of these animals.

Thus, there is some discordance between wanting to protect macaques and understanding the spectrum of tourist behaviors negatively affecting these animals. Indeed, the human fascination with these primates is the very cause of their continued decline. While the close physical range of interactions in the Middle Atlas may or may not be influenced by Marrakesh tourism, they certainly manage to contribute to the overall misconception that these primates are typically docile, if not domesticable. Marrakesh is visited by millions of tourists every year who depart with misconceptions about macaque behavior and believe them to be ideal exotic pets. This outcome is not surprising given resent research showing the connection between seeing primates in human environments, or in close proximity to humans, as less likely to be endangered (Leighty et al. 2015; Nekaris et al. 2013; Ross et al. 2011; Schroepfer et al. 2011).

While tourism can aid in the conservation of many species, it can also be a cause of their decline for a number of reasons. In the case of Marrakesh, these monkeys are forced into submission and fail to exhibit normal behaviors as a result. As for the Middle Atlas macaques, their tolerance of humans is part of a provisioning feedback. Basically, when provisioned, they continue to seek foods from humans rather than forage as they normally would. In both cases, atypical behavior is misinterpreted as normal behavior and leads to their ongoing demand as pets inside and outside of Morocco and a denial that this species is critically endangered.

As a former wildlife rehabilitator I have seen the effects on wildlife from numerous human-animal encounters. One of the most problematic issues is the atypical behavior of habituated wildlife tolerating the close presence of humans. This scenario often ends tragically because these same wild animals are no longer fearful of humans. At worst, they will eventually
become aggressive towards people; at best, they will have highly unpredictable behavior. I deduce from this that many people have misconceptions of what constitutes domestication, which is a long and complex process and very different from habituation.

Moreover, the centuries old practice of keeping Barbary macaques for entertainment and pets throughout Europe (Jansen1952) does little to slow the tide of illegal macaque ownership and demand for macaques as pets (van Uhm 2016). The elevated status associated with exotic pet ownership is, in turn, emulated by the growing middle class of Morocco. Thus, there is an unfortunate historical basis for the fondness and familiarity of this species. Addressing the issue of Barbary macaque conservation is ongoing in Europe with many zoos and sanctuaries working in conjunction with BMAC to educate the public about wild Barbary macaques and the ills of primate pet keeping. Ultimately, only by decreasing the demand for pet macaques will macaque populations throughout Morocco reach sustainable numbers.

In short, information regarding the endangered status of Barbary macaques has been widely accepted and is helping reshaped attitudes towards this primate in Morocco. However, the disconnect between some urban residents and wild macaques in the Middle Atlas and the use of primate photo props in Marrakesh is an area in need of further attention. Many Moroccans are supportive of removing macaques from the square and are working to inform other on the dangers of the pet trade. However, the condoning of macaque photo props for the sake of tourism by the highest levels of Moroccan government sends a mixed message to many Moroccans and foreign tourists. Thus, the Marrakesh exception is one of the greatest potential threats to Barbary macaque conservation.

The most promising aspect of this study is the willingness of Moroccans to conserve this primate based on new information introduced by the conservation team and elsewhere. However,
the economic impact of tourism is a force to be reckoned with and may only be swayed through reducing demand for primate interactions. In Morocco, this might be achieved with a focus on animal welfare on the one hand and biodiversity on the other. I say this since, for many urban Moroccans, macaques do not appear to be inherently important as macaques, but rather as an endemic wild animal and important component of Morocco’s biodiversity. However, influencing tourist behavior and the demand for pets from abroad is another matter that must be dealt with, in part, beyond the borders of Morocco, if not at the border itself.
CHAPTER 9.

CONCLUSION

The results of this research are important in several ways. First, they are useful in providing feedback for BMAC on the overall acceptance of their work by the Moroccan citizenry and contribute to evidence-based conservation (Ferraro and Pattanayak 2006; Stem et al. 2005). Moreover, this research also contributes to a growing scholarship on the human-primate interface in Morocco (Maréchal et al. 2011; Ménard et al. 2013; Mojolo et al. 2013; van Uhm 2016; van Laveren 2008; Waters 2014; Waters et al. 2018). Additionally, this work demonstrates the usefulness of ethnoprimatology and qualitative methods in understanding local perceptions of conservation and evaluating local receptiveness to conservation. My hopes are that the results are somehow useful for conservation in Morocco through the identification of the most salient concerns for Muslims and the different groups interviewed.

To summarize, the work of BMAC has further empowered a growing environmental movement in Morocco and provided government officials a means of safely confiscating illegally held macaques. This network facilitates a full-spectrum of action (Figure 9.1). More importantly, in addition to legal deterrents, there are now citizen activists with increased concern for this species. In short, bringing together NGOs, urban and rural citizenry, and governmental actors has sparked the normalization of Barbary macaque conservation in Morocco, at the very least in the Rif region where BMAC’s center of operations has been situated for almost a decade.

The wealth of information Waters herself has gathered in Bouhachem has established baseline data important for conducting conservation in other parts of Morocco where tensions
might be elevated and the need to resolve conflicts imperative. So, while there is still much yet to do in Morocco and abroad to curb the insatiable demand for Barbary macaques as pets, there is hope that this and other endangered species might thrive from increasing holistic conservation methods.

**Figure 9.1.** The network of activism and actions connecting BMAC, Barbary macaques, and Moroccan actors.

Finally, this work sits at the edge of a paradigm shift in conservation that has taken a firm hold since I began this research. The long-awaited reunion of the biological and social sciences has come to fruition with mainstream journals such as *Science* and *Nature* calling attention to the need for understanding human behavior and socio-cultural values to solve seemingly intractable and long-lived conservation dilemmas (Biggs et al. 2017) in addition to human well-being and sustainability issues (Sterling et al. 2017). In addition, numerous other academic journals and
researchers are calling for a greater integration of social science methods into conservation to compliment the biological sciences that have historically dominated conservation (Dore et al. 2018; Green et al. 2015; Sutherland et al. 2017; Teel et al. 2017).

The integration of locally contextual and nonwestern worldviews in conservation is heavily undervalued and exemplified by one Bouhachem shepherd’s statement. In describing the forests of the Rif where he lives and works, he provides another dimension of culturally imbued meaning only accessible through qualitative studies, “Imagine one time nature without animals. It is like nature lacking meaning. The soul of the forest is the animals.” People of all walks of life and cultures are critical allies in conservation. In fact, it is their right to be included. Who are we to deny them a role in shaping and governing our shared multispecies spaces at home and around the globe?
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Rust, Niki, Amber Abrams, Daniel Challender, Guillaume Chapron, Arash Ghodddousi, Jenny Gilman, Catherine Gowan, Courtney Hughes, Archi Rastogi, Alicia Said, Alexandra Sutton, Nik Taylor, Sarah Thomas, Hita Unnikrishnan, Amanda Webber, Gwen


APPENDIX A: Collections of literature from Morocco, area where collected, type of literature represented, and the type and number of animals as primary characters.

<table>
<thead>
<tr>
<th>Collection</th>
<th>Locations collected</th>
<th>Literary type/number of entries</th>
<th>Animals as primary characters/number of occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Berber Odes: Poetry from the Mountains of Morocco</em> (Peyron 2010)</td>
<td>Rif, Middle Atlas, and High Atlas Mountains</td>
<td>Oral poetry (47)</td>
<td>Rat (1) Monkey (1) Turtle (1)</td>
</tr>
<tr>
<td><em>Tashelhiyt Berber Folktales from Tazerwalt</em> (Stroomer 2002)</td>
<td>Southern Morocco</td>
<td>Folktales (45)</td>
<td>Gazelles (1) Snake (1) Sheep (1) Bird (2) Hedgehog (2) Scorpion (2) Frog (1) Dung beetle (1) Lion[-man] (1) Goldfinch (1) Falcon Owl (2) Tortoise (1) Mosquito (1) Stork (1) Porcupine (1) Jackal (1) Donkey (1) Cock (1) Ram (1) Hound (1) Cat (1) Rat (1) Lizard (1) Sparrow (1)</td>
</tr>
<tr>
<td><em>The Last Story Tellers: Tales from the Heart of Morocco</em> (Hamilton 2011)</td>
<td>Jemma el Fna, Marrakesh (Southern Morocco)</td>
<td>Folktales (37)</td>
<td>Gazelle (1) Chicken (1) Frog (1)</td>
</tr>
</tbody>
</table>
### Moorish Literature: Comprising romantic ballads, tales of the Berbers, stories of the Kabyles, folk-lore and national traditions*
(Bassett et al. 1901)

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<tbody>
<tr>
<td><strong>Eagle (1)</strong></td>
<td><strong>Bird (1)</strong></td>
<td><strong>Donkey (1)</strong></td>
<td><strong>[Black]Cat (1)</strong></td>
<td><strong>Stork (1)</strong></td>
<td><strong>Bird (1)</strong></td>
</tr>
</tbody>
</table>

### Wit and Wisdom in Morocco: A Study of Native Proverbs (Westermarck 1930)

<table>
<thead>
<tr>
<th>Broad reaching collection from Morocco</th>
<th>Proverbs (2013)</th>
<th><strong>Monkey (5)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bull[fight] (2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Jays (1)</strong></td>
<td></td>
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<tr>
<td><strong>Turtle (1)</strong></td>
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<td><strong>Frog (1)</strong></td>
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<tr>
<td><strong>Serpent (1)</strong></td>
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</tr>
<tr>
<td><strong>Cock (1)</strong></td>
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</tbody>
</table>

*Kabyles have been excluded from this sample since this is a Berber ethic group specific to Algeria.

**Due to high number of the proverbs and animal listings, only the number entries with monkeys are provided here.*
Form 4: IRB Approval Form
Identification and Certification of Research Projects Involving Human Subjects

UAB's Institutional Review Boards for Human Use (IRBs) have an approved Federalwide Assurance with the Office for Human Research Protections (OHRP). The Assurance number is FWA00005960 and it expires on January 24, 2017. The UAB IRBs are also in compliance with 21 CFR Parts 50 and 56.

Principal Investigator: ALEXANDER, SHERRIE
Co-Investigator(s): X130416002
Protocol Number: X130416002
Protocol Title: Factors Shaping Perceptions of the Endangered Barbary Macaque (Macaca sylvanus) in the RIF Mountains of Morocco

The IRB reviewed and approved the above named project on __6-7-13__. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services. This Project will be subject to Annual continuing review as provided in that Assurance.

This project received EXPEDITED review.

IRB Approval Date: __6-7-13__

Date IRB Approval Issued: __6-7-13__

Marilyn Doss, M.A.
Vice Chair of the Institutional Review Board for Human Use (IRB)

Investigators please note:

The IRB approved consent form used in the study must contain the IRB approval date and expiration date.

IRB approval is given for one year unless otherwise noted. For projects subject to annual review research activities may not continue past the one year anniversary of the IRB approval date.

Any modifications in the study methodology, protocol and/or consent form must be submitted for review and approval to the IRB prior to implementation.

Adverse Events and/or unanticipated risks to subjects or others at UAB or other participating institutions must be reported promptly to the IRB.