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Contesting the National Park theorem? Governance and  
land use in Nech Sar National Park, Ethiopia

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# Contesting the National Park theorem? Governance and land use in Nech Sar National Park, Ethiopia

Girma Kelboro and Till Stellmacher

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# 1 INTRODUCTION

Worldwide concern for natural and biological resources is higher than ever before. Issues such as climate change, loss of biodiversity<sup>1</sup>, ozone layer depletion, or desertification have taken the centre stage in the global discourses. Anthropogenic factors are identified as the main drivers (Ehlers 2008). Some of the human activities such as competitive industrialization and market-orientation have led to outcomes detrimental to the environment. Part of the planet, on the other hand, suffered from policies and intervention that weakened traditional life which considers people as integral part of nature. Based on the observations of the human factor in shaping the planet, natural resources and environment, scientists argue that we entered the geological era of the *Anthropocene* (Crutzen 2002; Ehlers 2008; Zalasiewicz et al. 2008).

Research results give a strong impetus to rethink the human use of natural and biological resources. Data show, for example, that more land was converted worldwide to cropland in the 30 years between 1950 and 1980 than in the 150 years between 1700 and 1850 – with severe consequences to nature and human life (Millennium Ecosystem Assessment 2005:42). Between 2000 and 2005, deforestation contributed to 12% of global carbon emissions (van der Werf et al. 2009:738). Between 1970 and 2006, wild vertebrate animal populations declined by 30% with the highest rate in tropical terrestrial ecosystems (about 59%) and freshwater ecosystems (about 41%) (SCBD 2010:24; WWF 2010:21). Total global loss of species is estimated to be about 0.1 to 1 extinctions per million species per year (Millennium Ecosystem Assessment 2005:21). The current rate of species extinction is estimated to be between 1,000 and 10,000 times higher than it would naturally be<sup>2</sup>. About 38% of the 44,837 global species assessed by the International Union for Conservation of Nature (IUCN) in 2008 have been classified as threatened (Vié et al. 2009:6). The main underlying cause for species extinction is loss of habitat through anthropogenic land use changes (IUCN 1980; Millennium Ecosystem Assessment 2005:42-59).

Protected areas are policy instruments that aim at the preservation and sustainable use of natural and biological resources within a defined geographic area. In the following sections of the paper, we will work with the IUCN definition of protected areas which states: “A *protected area is a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values*” (Dudley 2008:8). According to this definition, there are currently more than 150,000 protected areas worldwide<sup>3</sup>.

Ethiopia has established protected areas in different parts of the country for biodiversity, wildlife and forest conservation. National parks are the most widely used concepts of conservation areas in the country (Stellmacher 2007a). The Ethiopian national parks, however, are characterized by exclusive conservation approaches, little effectiveness, and conflicts between local people living in or adjacent

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<sup>1</sup> “*Biological diversity (biodiversity) means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems,*” (CBD 1992: Article 2), and the natural pattern it forms making the web of life to which human beings are an integral part (SCBD 2000:2).

<sup>2</sup> <http://www.iucn.org/what/tpas/biodiversity/> (accessed on 17/06/2012)

<sup>3</sup> <http://www.wdpa.org/Statistics.aspx> (accessed on 17/06/2012)

to the parks and state authorities (Jacobs and Schloeder 2001; Bassi 2003; Teklu 2006; Stellmacher 2007b; Abiyot 2009; Stellmacher and Nolten 2010; Zewdie 2010; Asebe 2011; Asebe 2012).

We take Nech Sar National Park<sup>4</sup> in Southern Ethiopia as a case to illustrate the predicament of protected area conservation in Ethiopia. The park's long and diverse governance history, the involvement of an international non-governmental foundation in its management, the high level of contestation of its resources and its geographical location between two Ethiopian regional states make Nech Sar NP ideal to study real world complexities of protected area governance. So far, most studies carried out on the park focus either on *local peoples' negative impacts* on natural resources within a park (see for example, Asaye 2008; Aramde et al. 2012) or *dualistic conflicts between local people and park authorities* (Abiyot 2009; Asebe 2011; Bayisa 2011). The study at hand analyses the degradation of resources from Nech Sar NP in the realm of conflicts between different interest groups of local people, governmental and non-governmental park authorities and regional as well as national stakeholders. The two research questions addressed are: (1) what is the interaction between local people, park authorities and higher level stakeholders; and (2) why has governance of Nech Sar NP taken a persistently conflicting direction?

## 2 NATIONAL PARK DISCOURSE

### 2.1 Globalization of the National Park Model

About 8.7 million species are expected to exist on the planet, many of them with multiple values for human beings (Mora et al. 2011:2). *"People rely on biodiversity in their daily lives, often without realizing it. Biodiversity contributes to many aspects of people's livelihoods and well-being, providing products, such as food and fibres, whose values are widely recognized"* (Ash et al. 2007:158). On the other hand, intensified and unsustainable utilization of biodiversity promote negative effects such as land degradation and species extinction.

The national park concept is used for *in-situ*<sup>5</sup> conservation of species and landscapes on the basis of geographical spaces defined for this purpose. National parks enable a country to protect biodiversity in its representative ecosystems within their natural habitats. Some global studies conclude that national parks are effective in preventing habitat loss, predominantly by agriculture and unsustainable forest use (Bruner et al. 2001; SCBD 2010). Such findings provide additional inputs to justify the relevance of national parks as a conservation model.

At the beginning of national parks establishment worldwide in the 19<sup>th</sup> century, the concept followed the idea that local people living in or adjacent to the parks tend to overuse and thereby destroy natural and biological resources and should, hence, be excluded in order to ensure effective conservation (Coad et al. 2008:6; Pimbert and Pretty 1995; UNEP 2006:243). The goals of

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<sup>4</sup> Nech Sar NP is used throughout this paper to shorten the full name "Nech Sar National Park".

<sup>5</sup> *In-situ* biodiversity conservation refers to conserving flora and fauna within their natural habitats whereas *ex-situ* conservation implies species protection outside their natural habitats such as zoo and gene banks (our own definition based on general observations and understanding).

conservation and the interests of local communities were considered as opposite to each other. Agrawal and Gibson (1999:631) sum up the common discourses conservationists used to show the incompatibility: *“Conservation required protection of threatened resources – wildlife, forests, pastures, fisheries, irrigation flows, and drinking water. Members of local communities, however, rely on these resources for their fodder, firewood, water, and food and thus exploit them without restraint.”* In other words, conservationists considered local people mainly as resource extractors with no or little incentives for sustainable use concepts. Influenced by Malthusian ideas (Malthus 1798) and Hardin’s *tragedy of the commons* (Hardin 1968), this philosophy was formalized in the USA and Europe and transferred and implemented in colonial times across the globe (see, for example, Jepson and Whittaker 2002; Chape et al. 2008; Hoffmann 2009). Until the 1980s, policy makers and practitioners were convinced that *“The way to effective conservation was through the heavy hand of the state or through the equally heavy, if less visible, hand of the market and private property rights. Such ideas supported conservation policies that aimed to exclude locals. National parks and other protected areas are the most obvious results of this thinking.”* (Agrawal and Gibson 1999:631). In many African countries, the implementation of such exclusionary approaches produced ‘protection refugees’ and long-standing conflicts which were and are still often related to the fact that *“... local people have not only [been] excluded from the main profits of wildlife tourism, but have also had to pay a price in losing access to crucial natural resources, such as water and land.”*<sup>6</sup>

There are still other international initiatives to create incentives in order to promote biodiversity and landscape conservation through the national park model or other means throughout the world. Some examples of international policies, which contribute to globalization of national parks, include carbon trade, Reducing Emissions from Deforestation and Forest Degradation (REDD), Clean Development Mechanism (CDM) and Payments for Ecosystem Services (PES). Fulfilling some basic criteria such as carbon stocks, reduced deforestation and other ecosystem services may make national parks eligible to obtain finance from these policies. They, however, differ from the original exclusive conservation approaches due to their principle of benefit sharing with local people. Part of the reasons for such policies is the search for remedies for the problems of deforestation, climate change, desertification and biodiversity loss, which are now ranked among the main problems of humankind on the planet (Adger et al. 2001).

The endeavour towards protected areas as tools for biodiversity on a global stage has been renewed recently. The parties to the Convention on Biological Diversity (CBD) revised their biodiversity strategies after evaluating and learning from the failure of the biodiversity targets for the year 2010 (SCBD 2010; Bertzky et al. 2012). In its 10<sup>th</sup> meeting, Conference of the Parties<sup>7</sup> (COP 10) held from 18 to 29 October 2010 (in Nagoya, Aichi Prefecture, Japan) has set new global objectives in the Strategic Plan for Biodiversity and the Aichi targets 2011-2020 in which establishment of more protected areas remains a key element:

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<sup>6</sup> Rutten, M. Parks beyond parks: genuine community-based wildlife eco-tourism or just another loss of land for Maasai pastoralists in Kenya? Issue Paper 111. IIED. <http://pubs.iied.org/pdfs/9181IIED.pdf> (accessed on 30/07/2011)

<sup>7</sup> *The Conference of the Parties (COP) is the governing body of the Convention on Biological Diversity (CBD), and advances implementation of the Convention through the decisions it takes at its periodic meetings. To date the Conference of the Parties has held 10 ordinary meetings and one extraordinary meeting (the latter, to adopt the Biosafety Protocol, was held in two parts). From 1994 to 1996, the COP held its ordinary meetings annually. Since then these meetings have been held less frequently and, following a change in the rules of procedure in 2000, will now be held every two years.* (<http://www.cbd.int/cop/> accessed on 10/10/2012)

*“By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.”<sup>8</sup>*

The plan also includes strategies to be used in order to work towards achieving the targets. The key components of the strategies are setting national targets and capacity building. This implies a call for further engagement of nation states by encouraging them through regional and sub-regional workshops planned for the years 2011 and 2012 with financial support of the Japanese government and other donors. For example, such a conference was held for East Africa<sup>9</sup> in Kigali, Rwanda, 27-30 June 2011 with the theme of updating national biodiversity strategies. One of the objectives of the workshop was to facilitate and help countries to work on their part to contribute to achievement of the targets set by the COP 10. Participating countries reported the status of national biodiversity strategies and action plans and agreed on the need for revision. This shows continuation of globalized efforts to promote further protected area strategies for biodiversity conservation.

## **2.3 Modifications on the National Park Concept – Partnership with People**

The shift in development thinking and practices in the 1970s called for local peoples’ participation in decision-making processes (Chambers 1983). Within the framework of the concept of sustainable development which had its breakthrough in the Rio summit in 1992, local people were believed not only to have the right to participate but also to have valuable knowledge and practices that can contribute to a sustainable use and management of protected areas (Beltrán 2000:3). Development questions were subsequently integrated into environmental conservation concepts (Wandesforde-Smith 2004:14). For example, the current principles of IUCN appreciate the need for participation of local people in the resource use, conservation and management and benefit sharing from national parks (Dudley 2008:6; Dudley and Stolton 2008:51). There is a strong conviction that effectiveness in national parks correlates with governance issues such as policies and laws, enforcement, boundary demarcation and direct compensation to local communities (Bruner et al. 2001). Generally, *“governance has an influence on the achievement of protected area objectives (management effectiveness) but also determines the sharing of relevant costs and benefits (management equity)”* (Borrini-Feyerabend 2003:92).

Benefit-sharing arrangements are becoming important mechanisms in governing forests, wildlife and biodiversity in developing countries within the frameworks of co-management (community-based wildlife conservation; joint/participatory forest management), PES, REDD, CDM and egalitarian considerations concerned with access (Nkhata et al. 2012). These policy instruments have a bearing on the relationships between parks and local people. They are trying to create incentives for

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<sup>8</sup> <http://www.cbd.int/decision/cop/?id=12268> (accessed on 25/09/2012)

<sup>9</sup> The full report of the workshop and other related documents available at: <https://www.cbd.int/doc/?meeting=CBWNBSAP-EAFR-02> (accessed on 25/09/2012)

conservation and disincentives for overutilization for the people living in or adjacent to national parks.

One means to increase direct benefits for local people from national parks is management zoning. Zoning enables dividing protected areas into *core protection areas*, used for exclusionary conservation, *buffer zones* which can be used by local people – thereby reducing pressure on core areas – and *transition or development areas* in which local people can exercise their full management responsibility (Diego 2001:3-5; Nelson and Makko 2005). This approach is used, for example, in the Serengeti National Park in Tanzania (Nelson and Makko 2005).

Revenues from tourism and sport hunting are other potential means for local people to benefit from protected areas. In Ethiopia, some regional states developed guidelines on how local people should benefit from these revenues. For example, payment regulations for the division of wildlife revenues from national parks in the Southern Nations, Nationalities and Peoples' Regional State (SNNPRS) foresee that 30% of the revenues generated from visitors, sales of crocodile skin and hunting site rent has to be given to local communities, 10% to the SNNPRS treasury, and 10%, 15% and 35% to the zone, *wereda* and the national park management respectively (SNNPRS 2007:26).

The other extreme of local benefit sharing involves the situation in which local people organize themselves and bear the full responsibility for protected area management. One example is the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe (Tenkir 1999).

### 3 METHODOLOGY

#### 3.1 Location and Description of the Study area, Nech Sar National Park

Nech Sar NP<sup>10</sup> is located in SNNPRS (Figure 1), about 510 Km south of Addis Ababa. The park covers an area<sup>11</sup> of about 514 km<sup>2</sup> composed of diverse habitats including the grasslands, acacia savannah, woodlands, rivers, riverine forests, ground-water forests and parts of lakes. Duckworth et al. (1992:1) describe the ground water forest in Nech Sar NP as a biologically rich rare habitat. The topography of the park is characterized by mountains and plains with elevation range from 1,100 to 1,600 meters above sea level (Clark 2010:2). The town of Arba Minch with more than about 80,000 inhabitants<sup>12</sup> is

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<sup>10</sup>The name “Nech Sar” literally means “white grass” in Amharic, the Ethiopian national language. This name is derived from the whitish dry grass cover of Nech Sar grass plains in the dry season.

<sup>11</sup> Ethiopian Wildlife Conservation Authority information on parks and wildlife sanctuaries [http://www.ewca.gov.et/nech\\_sar\\_national\\_park](http://www.ewca.gov.et/nech_sar_national_park) (accessed on 03/05/2012)

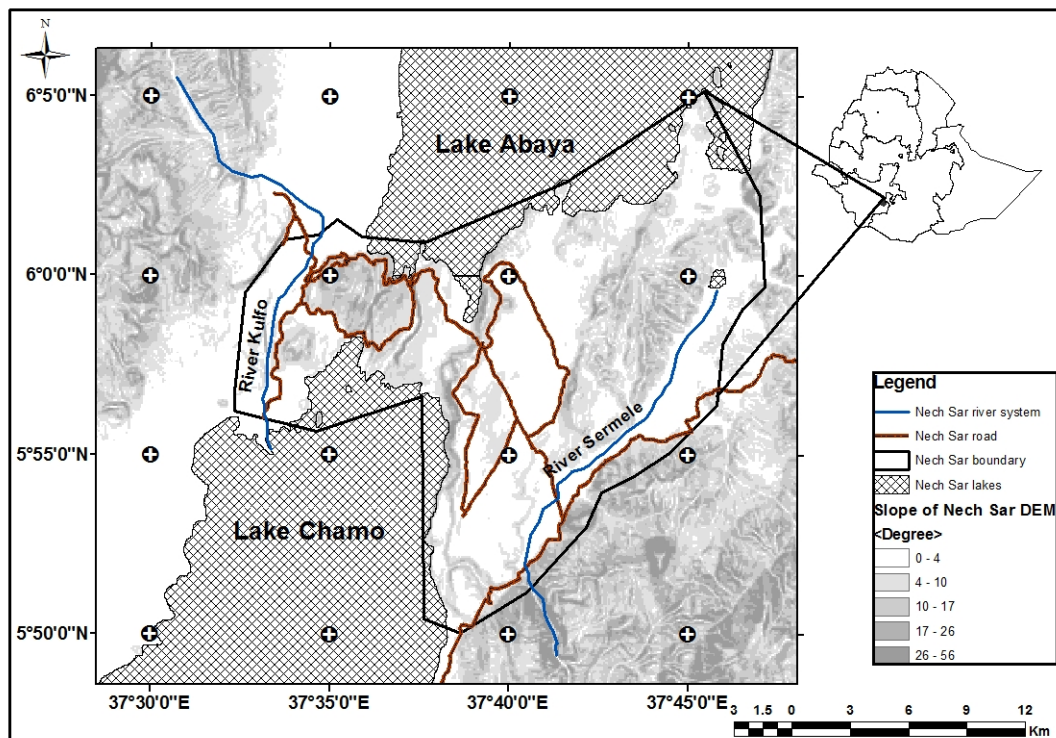
<sup>12</sup> [http://www.susana.org/docs\\_ccbk/susana\\_download/2-86-en-susana-cs-ethiopia-arba-minch-arborloo-household-sanitation-2010.pdf](http://www.susana.org/docs_ccbk/susana_download/2-86-en-susana-cs-ethiopia-arba-minch-arborloo-household-sanitation-2010.pdf) (accessed on 17/06/2012)



situated in the park's western border. The north and south of the park are bordered by Lake Abaya<sup>13</sup> (the largest lake in the Ethiopian Rift Valley) and Lake Chamo<sup>14</sup> respectively.

The ground water forest in the park is characterized by diverse plant species composition (Mateos, 2003). Lying within the Somali Masai Regional Centre of Endemism, one of the major floristic regions in Africa, the park has approximately 800-1000 plant species (Tadesse Mesfin pers. comm. 1991 cited in Duckworth et al. 1992:7). It also harbours a population of plains zebra, Grant's gazelle, the endemic Swayne's hartebeest, Greater kudu, hippopotamus, Nile crocodile and about 330 bird species to mention some (BirdLife International 2011). As a result, Nech Sar NP is known for its biodiversity and belongs to the East African Biodiversity Hotspot (CI 2007).

Figure 1: Location of Nech Sar NP



Source: Provided by Aramde in 2011

The park is, however, acknowledged as one of the protected areas in Ethiopia that suffer from a high anthropogenic resource extraction and loss of habitat. Overfishing in the lakes, wood gathering from the forests, cattle grazing in the grasslands and farming in the Sermelle River Valley are identified as the major problems facing the park (for example, Freeman 2006 and all quarterly reports of Nech Sar NP during 2005 to 2008).

<sup>13</sup> Formerly known as Lake Margherita

<sup>14</sup> Also called Lake Shamo or Lake Ciamo

## 3.2 Data Collection Methods

Before starting empirical fieldwork, secondary data was reviewed in Germany and Ethiopia. The field research was carried out between May 2010 and March 2011. Diverse tools were employed in several stages of data collection. The first stage involved observations, key informant interviews, focus group discussions, transect walks and resource mapping activities in Nech Sar NP with key informants of Guji<sup>15</sup>. Open discussions combined with visualization techniques through mapping of resources on the ground enabled the groups of Guji villagers not only to provide information to the researchers but also initiate further discussions on their perception of resource status, problems and possible solutions (Figure 2). Transect walks together with key informants additionally helped in collecting information. We used the findings obtained at this stage to develop semi-structured questionnaires. In the second stage of data collection, a random sample of 120 households (60 from the Guji living inside Nech Sar NP and 60 Kore farmers residing in the Amaro Highlands in Yero *kebele* but hold farmlands inside Sermelle River Valley within the park) was interviewed using the semi-structured questionnaires. Finally, researchers and experts working in state organizations at federal, regional, zone, *wereda*<sup>16</sup>, *kebele*<sup>17</sup> and park administration levels were interviewed.

Figure 2: A group of Guji pastoralists discussing on issues related to Nech Sar NP (left); a Guji women's group discussion (right)



<sup>15</sup> Unless otherwise specified, we use the term “Guji” in reference to the Guji-Oromo pastoralists who live in Nech Sar within the *de jure* boundaries of a national park. The people also call themselves as such. They belong to Oromo nation, the largest ethno-linguistic group in Ethiopia.

<sup>16</sup> Sometimes considered as equivalent to a district

<sup>17</sup> The lowest level government administrative unit in Ethiopia (located at the community level, equivalent to a neighbourhood), below *wereda*

## 4 RESULTS AND DISCUSSION

### 4.1 Establishment of Nech Sar National Park

Technical support of UNESCO advisors laid foundations in the history of protected area establishment and governance in Ethiopia. Blower (1968:282) states, “As the result of recommendations of a UNESCO mission (Brown and Grimwood) which visited the country in 1964-65 a Wildlife Conservation Department was established ..., and five expatriate game wardens have since been appointed to assist in the establishment of national parks and reserves and in the training of Ethiopian staff.” As part of a UNESCO mission’s plan to protect natural and biological resources inside Ethiopia<sup>18</sup>, Nech Sar NP was recommended as a game reserve in 1967 by Blower and in 1969 by Melvin Bolton who were then wildlife advisors of the Ethiopian government (Blower 1967; Blower 1968; Bolton 1970). Bolton made follow-up observations on the earlier work of Blower and generally agreed to the proposal of the area by the latter as a game reserve with adjustments on the map. The history of the establishment of Nech Sar NP and other protected areas in Ethiopia resembles the protected area history in other African countries. In Namibia, for example, the establishment of game reserves was forced by the German colonial government (Hoole and Berkes 2010). Early observations of the wildlife richness by Charles Andersson and Francis Galton in 1850 and additional information by McKierman led to the proclamation of the Etosha National Park in 1907 as one of three game reserves in then German South West Africa<sup>19</sup>.

In Nech Sar NP, Blower developed a boundary proposal whereas Bolton’s suggestion involved modification on the map recommended by Blower by including additional areas and zoning the land into core area and buffer zones. Bolton also accompanied his map of Nech Sar area to be protected with descriptions. The grassland plains were identified as the core area of the park due to their importance to conserve grazers including the endemic Swayne’s hartebeest as well as plains zebra, greater kudu and gazelle. Other parts of the park were suggested as buffer zones. By making additional visits to Nech Sar twice in 1970, Bolton proposed the area to be established as a national park or equivalent protected area in his final assessment. Based on a combination of the boundary proposals of Blower and Bolton, the Ethiopian Wildlife Conservation Organization (EWCO) designated the area as a national park in 1974. EWCO developed the final map of Nech Sar NP with little revisions to the boundaries proposed by Bolton, but without introducing his concept of zoning (EWCO 1974). The original area of the game reserve does not include, however, the forest and aquatic habitats of Abaya and Chamo lakes.

Additional steps were taken in order to produce the current map of the park which includes small parts of the lakes. In the 1970s, the forest of Nech Sar, designated as Arba Minch National Forest Priority Area, was protected by the State Forest Conservation Department (SFCD) in the Ministry of Agriculture whereas the aquatic habitats were not given a formal recognition probably due to a limited understanding about their resources and potential for biodiversity conservation. An agreement was reached between EWCO and SFCD in 1984 to form an all-encompassing protected area that covers an ecologically complete unit comprised of forest, wildlife and landscape, and terrestrial and aquatic habitats. The objective of forming such a unified conservation area was the

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<sup>18</sup> [http://www.protectedplanet.net/sites/Nechisar\\_National\\_Park](http://www.protectedplanet.net/sites/Nechisar_National_Park) (accessed on 24/06/2012)

<sup>19</sup> <http://www.etoshanationalpark.co.za/history> (accessed on 11/10/2012)

outcome of discussions which resulted in appreciating the need to reduce duplication or gap of efforts and to create a protected area that maintains the spatial integrity identified as a necessary step in order to achieve effective and efficient governance of the protected area (Mateos Ersado, personal comm. 2010).

Reports on the level of human presence in Nech Sar area date back to the 1970s. The earlier reports attempted to show the convenience of Nech Sar for protected area establishment by indicating the associated costs, which were considered apparently as insignificant. For example, Makin et al. (1974:32) state, *“The population density is low and there is little cultivation within the area, though permanent settlements of ... pastoralists are on the increase, with consequent pressure on grassland.”* Hence, when Nech Sar was recommended as a national park, the enforcement costs and political repercussions were expected to be low mainly due to the relatively low population size. A development plan for wildlife conservation in Ethiopia prepared by the Ministry of Agriculture states:

*“Nech Sar NP is unspoiled and practically inhabited by man. Hence, the area had the least human encroachment and, consequently, there is abundant wildlife. A census conducted during 1973/4-1974/5 by wildlife experts have shown that there are 1222 persons living in 302 houses with a livestock population of 5897 head, mostly cattle. 502 of the persons live in permanent villages whereas others are pastoralists. After further assessment, these people can easily be resettled elsewhere in the Sidamo and Gamo Gofa regions where plenty of suitable land is available.”* (MoA 1972:73)<sup>20</sup>.

Different levels of protection were recommended, in principle, regarding human settlement in the park and resource use. From the establishment of the park in 1974 onwards, settlement and agricultural cultivation inside the park were to be fully prohibited. To reduce the pressure of cattle grazing, a phased approach was suggested by the EWCO which involved licensing of grazing and reduction of cattle population (Makin et al. 1974:32). The experience in other East African national parks was mentioned to indicate the possibility to combine cattle and wildlife grazing: *“Experience in East Africa has shown that cattle and wildlife need not be incompatible provided limitations are imposed on cattle numbers; prospects for the cooperation of local grazers might be improved by giving them a share of the park revenue, along lines followed in the Masai Amboseli Reserve in Kenya”* (ibid.). The reference for sharing the experience was possibly considering that people living in Nech Sar NP are comparable to those of the Masai with regard to their dependency on cattle.

## **4.2 Lack of Administrative Stability**

Organizational set-ups responsible for administering and managing natural resources in Ethiopia have experienced frequent changes in the last half century. Protected area management is no exception. From 1964 to 1970, all national parks, wildlife sanctuaries, wildlife reserves and controlled hunting areas had been administered by the Wildlife Conservation Department in the Ministry of Agriculture with the general guidance provided by the Wildlife Conservation Board. Since 1970, the administration of protected areas had been handed over to the Ethiopian Wildlife Conservation Organization (EWCO), which is accountable to the Ministry of Agriculture (Hillman 1993a:27-29).

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<sup>20</sup> Ethiopian calendar in *Tir* (January), which is equivalent to 1980

Between 1970 and 1980, nine national parks and two wildlife sanctuaries were established in Ethiopia and included into the EWCO structure. The two forms of protected areas are defined in the country as the principal wildlife conservation areas<sup>21</sup>.

Since the time of its designation as a national park in 1974, Nech Sar NP has experienced fundamental and repeated changes in its formal organizational status. As the Military Regime of the *Derg* took control in 1974, its revolutionary policy change also affected Nech Sar NP governance. People living in the park were told to settle outside its boundaries. The Ganta/Gandule people who used to live on the lake islands agreed to resettle. They moved to a land area close to the park on its western direction. However, Guji did not want to resettle outside the park by justifying their resistance with ancestral rights to the land and their preference to live in the area due to its convenience for their cattle in terms of the grazing land and water availability. The government did not want to negotiate with them. Hence, its militiamen and scouts of the park forcefully removed Guji from the designated boundaries of the park in 1978 Ethiopian Calendar (1985/6). Violent measures taken against Guji include burning down houses and shootings. Kore smallholder farmers were also prohibited from their traditional farming practices they had been carrying out in Sermelle River Valley by burning down crops in their farm fields at the same time as the forceful measure was taken against the Guji. As a result, Nech Sar NP remained free from human settlement until 1991.

Another turning point in the Nech Sar NP management was the transitional period after the regime change in 1991. That was the time when the park's natural resource degradation was accelerated most as in other protected areas of Ethiopia (Table 1 shows the negative reactions of the people throughout the country as the strength of *fencing* approach was weakened). In the power vacuum during the transition period, the Kore people, Arba Minch town residents and people from the highlands surrounding Arba Minch and Guji returned back to Nech Sar NP. Arba Minch town residents and people from Gamo Highlands began indiscriminate cutting of firewood and timber. The Guji returned with their cattle to the Nech Sar grassland plains and the Kore people continued their cultivation in the Sermelle River Valley. The Guji also continued crop cultivation which was began in the valley before they were forcefully driven out of the park. The resource exploitation was at its peak in May and June 1991. The massive deforestation and extensive fishing activities were reduced through concerted efforts of the park authorities and Gamo Gofa Zone Police. However, cattle

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<sup>21</sup> The major forms of wildlife conservation areas in Ethiopia are defined according to Proclamation No. 541/2007 Article 2 as follows (FDRE 2007):

- i) *National park*: an area designated to conserve wildlife and associated natural resources to preserve the scenic and scientific value of the area which may include lakes and other aquatic areas;
- ii) *Wildlife sanctuary*: an area designated to conserve one or more species of wildlife that require high conservation priority;
- iii) *Wildlife reserve* : an area designated to conserve wildlife where indigenous local communities are allowed to live together with and conserve the wildlife; and
- iv) *Wildlife controlled hunting area*: an area designated to conserve wildlife and to carry out legal and controlled hunting.

Based on the definition it is possible to categorize the wildlife conservation areas into principal (national park and wildlife sanctuary) and secondary (wildlife reserves and controlled hunting areas) wildlife conservation areas similar to the conservation initiatives taken in the country in the 1970s and 1980s (Hillman 1993a:32). In IUCN standards, national parks and wildlife sanctuaries of Ethiopia fall under IUCN Category II whereas wildlife reserves and wildlife controlled hunting areas can be considered equivalent to IUCN Category IV and VI respectively.

grazing in the grassland plains and crop cultivation in Sermelle River Valley continued<sup>22</sup>. The conflict between local people and park authorities in Nech Sar is similar to the situation in other African national parks. In the Namibian Etosha National Park, the Hai//om people have ancestral claims to the land, but were forcefully removed by park authorities in 1950. Ever since the park authorities and the Hai//om people are in a state of continuous conflict (LEAD 2006).

Table 1: Damage and degradation in protected areas during and after the regime change in 1991

Protected area	Damage
Abijatta-Shala National Park	Infrastructure looted and destroyed, government vehicles burned
Babille Elephant Sanctuary	Incursions of large numbers of refugees from Somali
Bale Mountains National Park	Livestock control fences were cut, all outposts were destroyed, Mountain nyala and wolves were shot
Gambella National Park	Infrastructure and vehicles were destroyed
Kuni-Muktar Mountain Nyala Sanctuary	Mountain nyala were shot, forestlands were cleared
Mago National Park	Park was abandoned by staff and store and houses were looted
Nech Sar National Park	Outposts located far from the headquarters were damaged and looted; incursions into the main grassland plain by the Guji agro-pastoralist
Omo National Park	Poaching increased
Senkelle Swayne's Hartebeest Sanctuary	All infrastructure was destroyed and the herd was widely dispersed
Simien Mountains National Park	All park infrastructure was destroyed

Source: Jacobs and Schloeder (2001:18) taken from Hillman (1993a, b); Jacobs and Schloeder (1993)

The federal government handed over the park management to the newly established SNNPRS in 1995. That transfer period and the subsequent time were problematic for the park as it is stated in the EU-supported National Park Rehabilitation Project<sup>23</sup> evaluation report prepared by a consulting firm known as MGM Environmental Solutions Limited. According to MGM (1999), sufficient capacity was not built in the Agricultural Bureau of SNNPRS, which was by then mandated for administering natural resource management in the region. The report also reveals that little progress was made in terms of resource sustainability in the park. Difficulty in dealing with the relations between SNNPRS and Oromia was cited as the main hindrance in the endeavours to implement the project in Nech Sar NP. The difficult and lengthy negotiation between SNNPRS and Oromia regarding resettlement of Guji was unsuccessful within the duration of the project and beyond. In fact, failure of resettlement of Guji was considered as an important reason for abortion of the project<sup>24</sup>. Resettling Kore was also not possible when the project was active. It was, however, possible to resettle about 1088 Kore households<sup>25</sup> in 2004 to Abulo and Alfacho *kebeles* located about 15 Km south of the park.

Another milestone in the park's history was when the responsibility of Nech Sar NP was handed over to the non-governmental international conservation organization, African Parks Network (APN) by then known as African Parks Foundation. APN agreed to take over the management responsibility of

<sup>22</sup> Mateos Ersado, personal communication in February 2011, Awassa

<sup>23</sup> The project was developed by the EWCO and signed between the Ethiopian Government (Ministry of Agriculture) and the EU to implement during 1995-1998 in order to support the legalization processes of the parks, infrastructure development, provision of equipment and resettlement of people from Nech Sar, Mago and Omo national parks.

<sup>24</sup> Interviews with F01 on 17/09/2010, Awassa

<sup>25</sup> Nech Sar NP archives and interviews with Abulo and Alfacho *kebele* administrators in 2010

the park on February 01, 2005 for 25 years based on an agreement signed between the Federal Ministry of Agriculture, the SNNPRS President's Office and APN on February 17, 2004. According to the agreement, APN was responsible for the technical park management and the establishment of collaborations with stakeholders involved.

Handing over the main responsibility of a protected area to an NGO body was unique in the Ethiopian protected area history. Proponents expected a best practice show case which could have been later replicated in other protected areas in Ethiopia. Opponents, however, feared that an NGO would not be able to manage a national park beyond providing a *gap-filling role* to the government's efforts.

The engagement of APN in Nech Sar NP management during 2005-2008 led to a dramatic improvement of the human and financial resources as shown in Table 2 and Figure 3. Increased personnel capacity of, in particular, the scouts had the potential to better control illegal activities in the park. Extra payments encouraged the scouts to work overtime.

The agreement foresaw the resettlement of the three local groups (Guji, Gamo/Ganta and Kore) to areas outside the park boundaries. In other words, the agreement stipulated a park free from Guji who also farm within Sermelle River Valley; smallholder farmers of Chamo Leto<sup>26</sup> (most of them Gamo/Ganta) who live within the boundaries of the park; and Kore smallholder farmers who cultivate crops inside Sermelle River Valley. According to the agreement, the SNNPRS was responsible to resettle all these people to outside the park boundaries before the APN management became fully operational in Nech Sar. SNNPRS resettled Kore even before an agreement was signed with APN. But the people who settled in Chamo Leto were not resettled and negotiations between the people and Gamo Gofa Zone of SNNPRS continued during the APN management. The situation with these people was not taken as a serious matter by APN possibly for two reasons: (1) a relatively smooth negotiation was taking place between the people and Gamo Gofa Zone; and (2) the people live towards the periphery of the park on its western direction which makes it of a relatively less concern as compared to Guji who live within the area considered as critically important for survival of key wildlife species including the endemic Swayne's hartebeest. Given the persistent explanation of Guji about their cultural and historical association to the land and their belongingness to the Oromo nation, it was necessary for Oromia Region to participate as an important stakeholder though it was not party to the agreement reached to authorize APN to manage the park (APN 2004:21). However, little progress was made in the efforts to convince Guji to agree to the resettlement proposal as specified in the agreement signed among SNNPRS, Ministry of Agriculture and APN.

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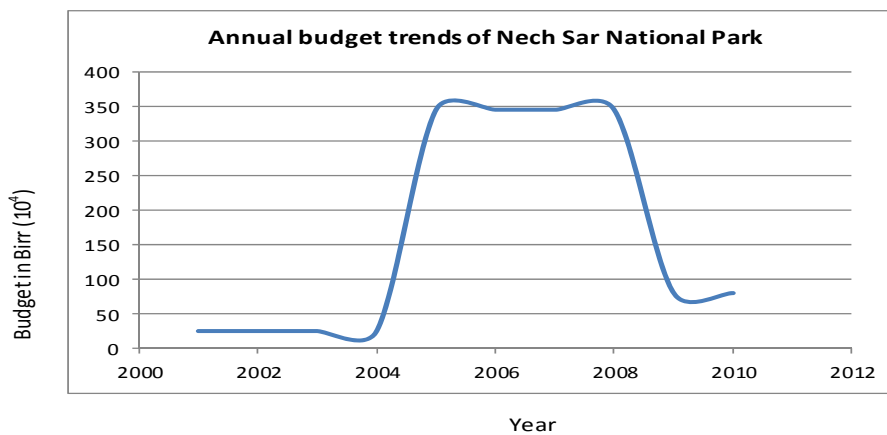
<sup>26</sup> Part of Nech Sar NP on its south western part that borders Lake Chamo.

Table 2: Personnel of Nech Sar NP before, during and after APN

Positions	In 2004 (under government administration)	In 2005/6 (during APN)	In 2010 (under government administration)
Warden	1	1	1
Project coordinator	-	1	-
Community coordinator	-	1	-
Expert	1	-	-
Medium-level wildlife and habitats expert	-	-	1
Junior wildlife and habitats expert	-	-	1
Community-wildlife expert	-	-	1
Tourism expert	-	-	-
Scout	25	60	39
Support	14	19	15
<b>Total</b>	<b>41</b>	<b>82</b>	<b>58</b>

Source: Nech Sar NP archives

Figure 3: The budget boom during APN's initial works in Nech Sar NP went down upon its withdrawal



Source: Based on data from Nech Sar NP archives

After three years only, however, APN disrupted the agreement in 2008, stopped all its activities in Nech Sar NP and withdrew from Ethiopia. The reasons for APN's drawback are manifold. The difficulty to negotiate the differences in interest between Oromia Region and SNNPR contributed to the complication of the park's management by APN as manifested on the issue of resettling people out of the park. However, the full picture of the developments that led to APN's withdrawal can be understood by looking into the whole process from the time of the agreement.

APN was unsatisfied by the failure to resettle Guji and searched for an alternative solution. It initiated a direct negotiation with the people of Guji. Following a series of meetings with Guji and Kore smallholder farmers in January and February 2007 in which a consensus was reached on the need for negotiations, a general meeting of stakeholders was held at Arba Minch University on March 25, 2007. Participants of the meeting included delegates of Borana Zone of Oromia Region, Gelana *Wereda* of Borana Zone, SNNPRS, Gamo Gofa Zone of SNNPRS, Arba Minch *Wereda* of Gamo Gofa Zone, Amaro Special *Wereda* of SNNPRS; Hotels, Parks and Tourism Agency of SNNPRS, Addis Ababa University, Arba Minch University, Wondo Genet College of Forestry, SNV, Forum for



Environment, the Ethiopian Pastoralist Research and Development Association, APN, the Guji and Kore people. In the subsequent stages, direct negotiations were held between APN and representatives of the Guji, however, without involving SNNPRS bodies. The output of these talks foresaw officially allowing part of the land which belongs to the park to Guji with the intention of protecting the grassland plains as a core conservation zone from direct human uses. APN claims this measure as an urgent step towards saving the core area while further negotiation work will continue with Guji and Kore communities in order to establish buffer zones. Officers who served at different positions for APN also emphasize that the objective of defining the core area does not in any way imply re-demarcation of the park boundaries. However, Guji households and government authorities perceive that the negotiation was about re-defining the park boundaries as a whole beyond the concern for the core area (discussed further in section 4.3.3). The agreement was accepted by Oromia as shown with official signatures of the delegates from Borana Zone and Gelana *Wereda* but was not accepted by SNNPRS authorities. In particular, the SNNPRS Parks, Tourism and Hotels Commission and the Bureau of Agriculture argued that the whole process went without their involvement except the attendance of the first meeting at Arba Minch University. In one interview, an executive officer of SNNPRS Council stated: “APN negotiated with Guji without our notice. As a result, we were not in a position to accept the agreement between APN and the people.”<sup>27</sup> APN justified its decision to stop its engagement in Nech Sar NP with the rejection of the newly negotiated boundary to protect the core area<sup>28</sup>.

Although the initial period of the APN engagement was promising, APN’s withdrawal heralded the start of another problematic transition period for Nech Sar NP. The park management became non-functional again. Payments of park staff salaries were stopped at least temporarily. In consequence, the park’s flora and fauna again became subject to rapid deforestation, illegal fishing and wildlife killing. For example, between 2007/8 and 2009/10, about half of the endemic Swayne’s hartebeest population in the park was lost (Table 3). The negative consequences of a boundary agreement signed between APN and Guji are extensively discussed in section 4.3.3.

After APN’s withdrawal, in 2008, the responsibility for the park administration was taken-over by the SNNPRS Bureau of Culture and Tourism. In 2009, it was again handed over to the Federal Ethiopian Wildlife Conservation Authority (EWCA).

## **4.3 Contrasting Explanations and Conflicts**

### **4.3.1 The Reasoning of Degradation: Conservationists vs. Local People**

From the perspective of conservationists, biodiversity of Nech Sar NP was relatively intact in the first decade of its establishment (Duckworth et al. 1992; Asaye 2008). The 1990 Cambridge Expedition concludes that “*the park is extremely well-managed and poaching is minimal*” (Duckworth et al. 1992:1). The park experienced loss of its resources in later years. A study on land use/land cover changes in Nech Sar NP between the years 1986 and 2000, shows that bushy shrub grassland had been declining at a rate of 470 ha/annum, the riparian forest cover at a rate of more than 3.34 ha/annum and the swamp vegetation at a rate of 92 ha/annum (Asaye 2008:58-60). In the same period, cultivated land in the park increased at a rate of 12 ha/annum (Ibid).

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<sup>27</sup> Interviews with F032 on 09/11/2010, Awassa

<sup>28</sup> An official letter written by APN on Termination of Management Activities in Nech Sar NP in December 2007

Trends of wild animal population are even more alarming. For example, the population of Swayne's hartebeest (*Alcelaphus buselaphus swaynei*) – the park's flag-ship species which had been used to justify its establishment (Bolton, 1970) – declined extremely (Table 3).

Table 3: The population of Swayne's hartebeest in Nech Sar NP between 1967-2012

Number of Swayne's hartebeest	Year of census	Sources
130	1967	Bolton (1973:103)
100	1969/70	Bolton (1970:7)
100	1972	Bolton (1973:103)
61-77	2002/3	Befekadu (2005:14)
35	2007/8	Aramde et al. (2011:88)
12	2009/10	Demeke and Afework (2011:311)
13	End of 2010	Nech Sar National Park Records
6	2012	Nech Sar National Park Records

The other illustrative case is that of plains zebra (*Equus quagga*), which is among the most prominent mammals in Nech Sar NP. The zebra population size increased tremendously between 1970 and 1985 and decreased until 1995, while the latest trend again shows an increase (Table 4).

Table 4: Changes in the population status of plains zebra in Nech Sar NP

Year	Population size (approx.)	Source
1970	400	Bolton (1973)
1985	6500	Kirubel (1985)
1995	3000	EWCO 1995
2002	4500	Yisehak et al. (2007)

*Source:* Adapted from Yisehak et al. 2007:83

Our research findings show how local people perceive problems related to natural resource degradation in Nech Sar NP. The Guji observed reduction in the qualities and quantities of specific grass species and other plants which are useful for cattle grazing. In the interviews with the Guji, statements were given such as, "*The amount of grass preferred for grazing has been getting lower and lower*"<sup>29</sup>, "*Buleluka, which is among the grasses our cattle like, was the dominant grass in Irgansa*"<sup>30</sup>, "*where we live. But the space is now taken up by trees*"<sup>31</sup>, "*Hergedda was a dominant grass in Irgansa. But, now, Abidooyo, an invasive shrub, is dominant*"<sup>32</sup>. These statements underlie the concerns of conservationists.

The causes for the resource degradation in the park are, however, viewed differently. Conservationists tend to highlight that local people are the main agents of the park's degradation. For example, Yisehak and his colleagues account the zebra population increase since 1995 to implementation of strict wildlife management regulations including regular patrolling by Nech Sar NP scouts (Yisehak et al. 2007). There is also an apparent consensus among conservationists from early on that the forests of Nech Sar NP are heavily exploited by illegal firewood collectors; there are problems from pastoral use at the eastern fringe of the park and fishing takes place in both lakes (Duckworth et al. 1992:1). Hence, removal of cattle and control of poaching had been expected to

<sup>29</sup> Interviews with S123 on 08/10/2010

<sup>30</sup> Name of Nech Sar by Guji

<sup>31</sup> Interviews with S18 on 04/10/2010, Nech Sar NP

<sup>32</sup> Interviews with S125 on 12/10/2010, Nech Sar NP

improve the game stocks as much of the grassland was degraded by cattle (Bolton 1973:107). Town dwellers from Arba Minch are taken accountable for overfishing as well as illegal cutting of the riverine lowland forests while the Guji people are blamed for overgrazing and trampling and disease transfer between the domestic and wild animals in Nech Sar NP (Freeman 2006). The findings of Hasan et al. (2011) shows that woody species encroachment as well as the density and cover of unpalatable forbs and size of bare land were higher in the heavily grazed and fire-suppressed part of the grassland plains. Similar conclusions are drawn about the impact of people and their livelihood strategies on wildlife in other protected areas of Ethiopia expecting it to become even worse with increase in population (Andeberhan 1982; Stephens et al. 2001; Borghesio and Giannetti 2005; Almaz 2009; Vial 2010; Mamo and Bekele 2011; Vial et al. 2011) as it is the case with the global understanding that *“biological diversity continues to be destroyed by human activities at an unprecedented rate”*<sup>33</sup>.

Referring to the findings of Yisehak et al (2007) who justified the increasing zebra populations with more patrolling by scouts, there are several reasons which cast doubts on the explanation. A 60 year old Guji village elder (*jarsa olla* also known as *jarsa biyya*, which literally means elder of the country) told us that zebra are neither harmful nor useful<sup>34</sup>. The people inside the park and in its immediate vicinity do not consume zebra meat. Although its fur is used for decoration of seats among the Konso people in some areas, this cannot be considered as a significant threat since these people live more than about 30 Km far away from the park. The doubt on the effectiveness of patrolling to attribute to zebra population increase can also be underlined by the situation of the APN engagement during 2005-2008 in which a better patrolling system was established. Intensification of the patrolling system did not overcome, for example, the problem of cattle grazing by the Guji. Illegal wood collection by Arba Minch residents and other human activities also continued regardless of the increase in the intensity of patrolling system during APN (Aramde et al. 2011).

Guji, in fact, claim that exclusive approach of the conservationists is responsible for the degradation of natural resources in Nech Sar NP. Here is how Guji informants explain the impact of this approach: *“In our culture, we had a practice of burning grass before the rain. That practice, which can kill trees and bushes at the early stages of their growth or before germination, is prohibited in Nech Sar. Trees grow without hindrance and dominate grasses.”*<sup>35</sup> Guji used bush fires traditionally to promote grass regeneration. Our informants explained that the killing of bushes by fire opens space for the grass growth. However, as they describe further, the prohibition of man-made bush fire promoted denser bush cover which reduces grass coverage (for example, see Figure 4). Many Guji hence perceive the prohibition of seasonal fire in the grassland plains as a cause for expansion of invasive species. This perception is in stark contrast to views of conservationists who relate the encroachment of bush species to overgrazing in which livestock uproot grasses creating a way for growth of bushes, shrubs and trees.

Concentration of cattle and people to a relatively small area on the contrary to their tradition of transhumance is the other reason Guji give to justify degradation of the grassland plains. Population

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<sup>33</sup> <http://www.cbd.int/doc/publications/rio10-brochure-en.pdf> (CBD and UNEP statements on “the convention on biological diversity 10 years on taking stock, looking forward” accessed on 10/07/2011).

<sup>34</sup> Interviews with K01 on 30/06/2012, Nech Sar NP

<sup>35</sup> Interviews with S117 on 09/10/2010, Nech Sar NP

control, ethnic regionalism<sup>36</sup> and the enforcement of park regulations forced them use smaller areas more intensively. Nowadays, they drive their cattle only between Sermelle River Valley and the Nech Sar grassland plains, a much smaller area than before. Some Guji elders also attribute the degradation of grass to break-down of their traditional worships. *“There were dense covers of grasses preferable for our cattle grazing. But, now, tree cover is increasing while grass cover is decreasing. I think this disaster is happening since our elders are not doing traditional rituals against all kinds of evils anymore.”*<sup>37</sup>

Figure 4: *Abutilon* spp., a widespread invasive species in the Nech Sar grassland plains



Guji also partly attribute the degradation of grass in the plains to drought prevalence. Our informants mentioned that for several consecutive years, there had been no sufficient rainfall. Grasses dry-up and give space for trees. After their early stage of growth, drought is not problematic for trees unlike grasses. How far climate change influences ecosystems and biodiversity in Nech Sar NP should be a subject for future research.

Guji repeatedly mention that the nature-caring culture of their ancestors rendered possible today's wildlife occurrence in Nech Sar NP. Elders say that they do not consider existence of some big wild mammals like lions in their area as a problem. They rather consider the animals as integral components of their environment. There is a belief among some of the elders that messages about nature are understood by observing the animal behaviours. For example, when zebras are gathered together in the Nech Sar grassland plains and stand still in groups, then Guji see this as a sign of rain coming. The message conveyed by a roaring style of hyena is understood by the *nama beeka* (men of wisdom), one who had the capacity to understand and interpret the messages (Hinnant 1977: 107).

Differences in perception on natural resource degradation in Nech Sar NP between conservationists and Guji is practically reflected in handling interactions between the people and natural resources. Exclusion of local people from ecosystems as an instrument against natural resource degradation has dominated the park-local people relationship ever since its establishment. For local pastoralists and

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<sup>36</sup> Ethno-linguistic-based federalism has been implemented in Ethiopia since the 1991 regime change. Since 1995 the country comprises nine regional states and two city administrations. More than about 90% of interviewed Guji mentioned that negotiations with Kore people to use seasonal grazing land in the Amaro Mountains has become more difficult because Amaro is in SNNPRS administration.

<sup>37</sup> Interviews with S120 on 11/10/2010, Nech Sar NP

peasants, this issue directly boils down to a matter of access and use of natural resources needed for their livelihoods.

#### 4.3.2 Access and Use of Natural Resources: the Root Cause for Conflicts

Conservationists tend to prioritize the protection of biodiversity and ecosystems. This can in many ways contradict to needs and priorities of local people living in and around a piece of land in which biodiversity and ecosystems were identified to deserve conservation efforts. For Arba Minch town residents, for example, Nech Sar NP area is associated with timber and firewood extraction for subsistence and income generation (Figure 5, left). Lemlem and Fassil (2006:196) state: *“particularly timber extractors and firewood collectors strongly depend on the forest to cover their daily expenses and accomplish their daily life activities.”* Other sources for construction and fuel are rarely available. Particularly migrant workers from the Gamo Highlands gather wood from the Nech Sar NP to sell it in Arba Minch. Fishermen depend on the fish harvest mainly from Chamo Lake (Figure 5, right).

Figure 5: A group of women carrying wood harvested from Nech Sar forest to sell in Arba Minch town (left); fishermen working on Chamo Lake (right)



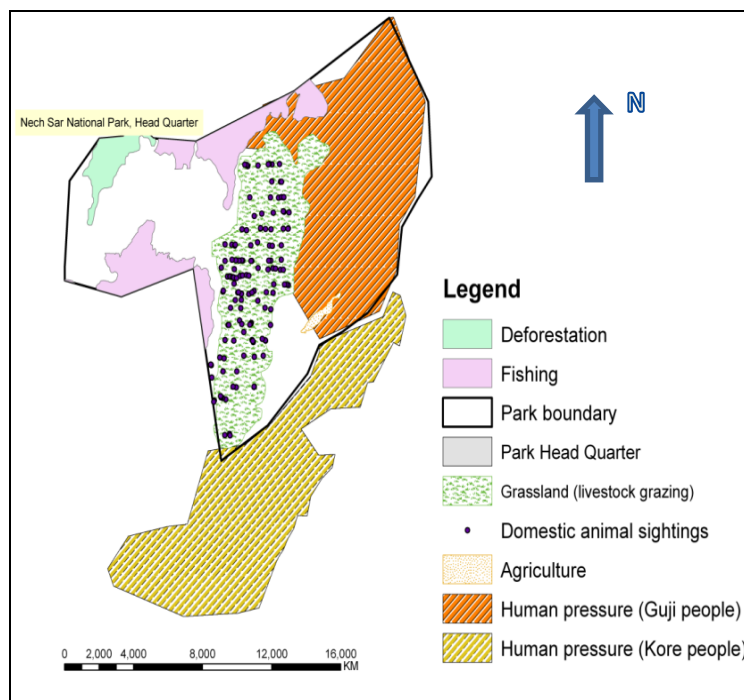
An informant born and raised around Arba Minch who now serves as a scout for Nech Sar NP shared us his understanding as follows<sup>38</sup>:

*“From my experience, I can tell you that unless other alternatives are available to the people, all conservation efforts are futile exercises. Wood collectors need alternatives which can be more attractive than gathering and selling wood. There are households who used the wood sale as a source of income to cover school fees for their children up to university education. There should be alternative source of grass, water and other resources for Guji as well. It is impractical to simply tell them to control cattle entry to the park area while they live at the ‘nose of the park’.”*

Dependence of Arba Minch town residents and daily labourers from Gamo Highlands on fish and wood; Kore smallholder farmers and Guji for farmland; and Guji for cattle grazing has continued regardless of the pressure from park authorities in order to effectively avoid human overuse of the park. At the time of this study, we observed the *de facto* land use patterns in the park as shown in Figure 6. These forms of land uses are defined as illegal by Ethiopian Wildlife Conservation Proclamation No. 541/2007.

<sup>38</sup> Interviews with F03 on 24/10/2010, in the ground water forest of Nech Sar NP

Figure 6: Land use and anthropogenic pressure on Nech Sar NP



Source: Based on community resource maps, field notes and GPS-based observations by the researchers in 2010.

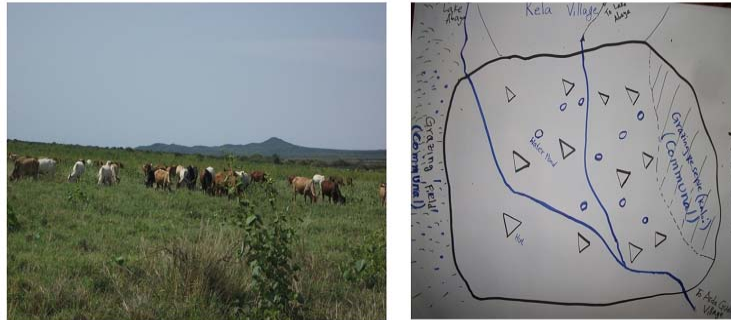
Guji claim Nech Sar grassland plains as their ancestral grazing land (Figure 7, left). This is evidenced by the mental resource map in Figure 7 (right), drawn in a focus group discussion. An interesting message of the map is that the Guji consider the Nech Sar grassland plains, the park's core conservation area, as their main grazing land. Figure 7 (right) also shows that the Guji's prime concern centres on cattle grazing land and access to both Lake Abaya and Lake Chamo as crucial resources for watering their cattle. Sermelle River is an alternative source to water the cattle. However, the water from the lakes is preferred due to its saltiness.

Securing access to grazing land for cattle is extremely important for Guji because cattle are integral parts of Guji life. They have economic and social values that can only be understood through deeper observations. To begin with, the interviewed Guji households generate 74% of their income<sup>39</sup> from the sale of cattle and cattle products. They also highly depend on cattle products (mainly milk and milk products) for their diet. In addition to the direct economic role milk and milk products play, they also have social values. During our stay within the Guji community in 2010, we had been drinking fresh milk from one traditional container together with others who surround food prepared mainly from maize or, occasionally, from *enset* (*Ensete ventricosum*). We were told that eating in this way symbolizes acceptance into the community. At the initial stage of entry into the community, we had been given fresh milk only rarely. After spending time among Guji, we were invited more and more into their houses and given fresh milk to drink together in groups. The coming together of people to eat food and drink milk from one container implies a communal life and security. There is a strong belief among the Guji that people who have eaten from the Guji hands will never be harmful to them. They also discuss various issues during the food. Drinking *bunaa qalaa* (prepared by roasting coffee beans) is the leading facilitator to share information and ideas. Fresh milk is again the main ingredient in *bunaa qalaa*. Guji children were very healthy and strong possibly because they always

<sup>39</sup> Summarized data from own interviews conducted in Nech Sar NP in 2010.

drink milk. One can easily notice the authority of women on milk. They are the ones who provide a certain amount in the container as they think is sufficient for a given group of men. Hence, failure to consider the issue of cattle which are treasured in Guji culture obviously results in conflicts.

Figure 7: Cattle grazing inside the Nech Sar grassland plains (left); mental resource map in which Guji in Mado village considered the grassland plains as their cattle grazing field (right)



Source: The resource map on the right side was prepared by communities in Medo Village in Nech Sar National Park

The level of conflicts between the park authorities and Guji differ, however, depending on the number of cattle held by the households. Households with large numbers of cattle need wider grazing grounds. The only larger grazing areas around the Guji residence are the grassland plains within Nech Sar NP in which park scouts frequently patrol. The area of the Nech Sar grassland plains is estimated to be 100 Km<sup>2</sup>, which is about 19% of the total size of the park (Asaye 2008:40). Guji with less numbers of cattle prefer smaller grazing lands around Sermelle River Valley in which park scouts patrol less frequently. The other question that worth considering is whether households with relatively less cattle holding size are satisfied to continue at the same level. This was assessed by interviewing sample households in which we obtained data on the past condition and future plans of the households.

The past trend of the cattle shows the tendency of the households to increase their cattle holding. We obtained data on the estimates of cattle holding per household in 2010 and five years before to make a general overview of the trend. The difference calculated from the estimates of the cattle holding between the two time periods shows that the cattle population is increasing at a rate of about 6% per year. In 2010, about 531 Guji households with an average of 82 cattle per household with a total of about 43,542 cattle lived inside the park and grazed in the grassland plains. Five years before, the average cattle holding per household could be estimated to be 62 making the total cattle population to be about 32,922<sup>40</sup>.

Guji households would also prefer to increase the cattle holding size in the future. About 81% of them showed interest to increase their cattle holding size (Table 5). An estimated 49% of them justified their desire to increase the cattle holding size with lack of other alternatives to support their

<sup>40</sup> In the Guji culture, cattle are not counted directly. Each group which consists of descendants from one mother cow is identified with her name. Cattle missed during the day are also identified not by counting all the cattle, but in reference to the groups under the respective mothers. Hence, the question of how many cattle each household owns was not easy for them to answer. In many cases, there was a tendency to hide the actual cattle holding size. Therefore, it is important to be cautious about the actual number of cattle. However, the data is important to give a general direction of the trend in cattle size based on their own estimates.

livelihoods whereas social status was important for about 14% of the respondents. Use of cattle as a saving strategy to purchase a shop or house in a town was mentioned as an important factor to increase cattle by around 19% of the respondents. Interest in town life had not been and was not common among the Guji. However, the informants wanted to have a shop or house in towns and rent out to generate an additional income. They compared few oxen with a big house in town. In this way, they demonstrated how crop farming is relatively less valuable in terms of its contribution to *saving* money. Financially valuing cattle is rather an emerging concept among Guji than a norm. There is an initiation of advisory services from agricultural extension workers to encourage Guji households to sell their cattle and save money in banks located in towns and cities. Those who pioneered in accepting this idea are applauded by the extension workers and *wereda* authorities as exemplary to others to follow. This advice is directed to lessening the grazing pressure on the park and the resulting conflicts with park authorities. Moreover, there is also a general consensus among authorities in Gelana *Wereda* administration that quality should be given priority in cattle ownership among the Guji. This has shaped the form of advice the agricultural extension service personnel provide to the Guji. The increase in the market price of cattle has also influenced the thinking among Guji about financial values of cattle. There is a push factor from the park authorities due to the fear of an increasing grazing pressure from the growing cattle size in Guji holdings.

Table 5: Future preferred plan of cattle holding by Guji households in Nech Sar NP and their justifications

	Reason for increasing/decreasing cattle in the future				Total
	Social status	Livelihood	Saving	Grazing land shortage*	
<b>Increase</b>	8	29	11	0	48
	13.6%	49.2%	18.6%	0%	81.4%
<b>Decrease</b>	0	0	3	8	11
	0%	0%	5.1%	13.6%	18.6%
<b>Total</b>	8	29	14	8	59
	13.6%	49.1%	23.7%	13.6%	100%

Source: Our sample household interview data collected in 2010  
 \* Reason for reducing cattle holding size

Nech Sar NP authorities consider cattle grazing as the most pressing problem of the park for several reasons as the park warden explained: *“Grazing in the park negatively affects biodiversity by exhausting grasses and related resources; common use of the grassland plains by wildlife and domestic animals increase the risk of disease transmission to and from wildlife; and their presence in the park makes the park less attractive to tourists as they are interested more in observing wild animals.”*<sup>41</sup> Referring to the signs of exhaustion in the grass cover, the authorities argue that the park area suffered from overgrazing by the cattle emphasizing that the cattle population is well beyond the carrying capacity of the area.

Guji and Kore people see little benefits from having the land protected as a national park. About 86% of Guji and 90% of Kore sample households interviewed do not see any benefit from existence of a

<sup>41</sup> Interviews with F037 on 22/10/2010, Nech Sar NP headquarters



park in the area (Table 6). In other words, this much proportion of the people does not like the park to exist. However, Tessema and his colleagues (Tessema et al. 2010) report on the basis of their study

Table 6: Usefulness of Nech Sar as a park to Guji and Kore

		Guji	Kore	Total
<b>Benefits Obtained from Nech Sar NP</b>	<b>No benefit</b>	51	52	103
		86.4%	89.7%	88%
	<b>Employment</b>	4	1	5
		6.8%	1.7%	4.3%
	<b>Medicines (cattle vaccination)</b>	3	0	3
		5.1%	0%	2.6%
	<b>Existence of Natural Resource</b>	1	5	6
		1.7%	8.6%	5.1%

Source: Our sample household interview data collected in 2010

from four different protected areas of the country that many of the respondents had positive views towards parks. Our findings in Nech Sar NP research is in contrast with an earlier study of the park by Desalegn (2008, 242-243) which reports that 58.2% of the respondents liked the presence of the park whereas the remaining had the opposite view. There are four possible ways to explain this: (1) the former research works were not clear with park as an institution or the natural resource contained within; (2) the difference in the informants used might have resulted in the difference in the findings; (3) the variation in the length of time the researchers took in the field and methodological combinations matter; or (4) additional interventions after the field data was collected in 2004 for the study by Desalegn might have resulted in changes on the views towards the park until we collected another data in 2010. We experienced the difference in the type of answers to the way the same question was addressed to our informants. For example, during initial periods of the research which mostly involved informal discussions and some interviews to develop a general understanding about the people and their interaction with natural resources, we used to ask the benefits of the park. The answer was very positive. The other form of question as we moved further in our research was, “whether they want the park to exist or not” for which the answer was “yes”. We received a radically different response after reframing our question into “park as it is managed by the government now”.

### 4.3.3 Contested Boundaries

Protected area governance is concerned with managing diverse interests of very different stakeholders on the same piece of land. Tourists; national, regional and local government authorities; non-government bodies; and various interest groups of local people have different, often incompatible, interests and targets. The way these interests are reflected in land use planning can be either a source of conflicts or cooperation depending on the way in which land use decisions are made and the extent to which objectives of diverse interest groups are accommodated. Therefore, both the processes and results are important to achieve higher effectiveness and sustainability in protected areas governance. In Nech Sar NP, ever since its establishment in 1974, boundary issues have been yet another major conflicting concern.

For the Guji, the Nech Sar NP boundaries are interpreted in terms of their impact on access to grazing land and water for their cattle. As the Guji live within the park area, their daily interactions with scouts are much more intensive as compared, for example, to the Kore people. When being asked about the location of the park boundaries, all 56 interviewed Guji people responded that they know

the park boundaries, compared to only 39% of the 51 Kore interviewees. All Guji interview partners who contemplated to know the boundaries referred to that which was agreed upon in the negotiations made between the Guji and the APN in 2007. However, still 66% of the Guji interviewees believe that even this boundary is unfair mainly due to its limitation to access grazing land and *Melka*<sup>42</sup> of Chamo and Abaya lakes (Table 7). A typical response, in which Guji refer to grazing land for their cattle, is given by one of our interview partners:

*"The park boundary is not reasonable. It has not considered our need for grazing land and water for our cattle. 'How can you sleep without eating enough?' It is a matter of survival that our cattle get access to grass and water. However, we lead a fearful life due to the repeated physical abuse by scouts. They may beat you at any time when you are with your cattle inside the park or on your way to water them."*<sup>43</sup>

In the boundary issue, many Guji perceived a prioritization of wildlife over local people. A Guji elder argued that the park gives more attention to wildlife than human beings:

*"I know all the wardens from the first up to now. I doubt whether you know the first warden of Nech Sar. Do you? All the people who have taken authority over the park came just now. I am one of those who lived here before and after the park establishment. I know the ups and downs we passed through because of this park. Every time, we are under a stressful condition since we are limited to a small area for grazing our cattle on which our life depends. The necessary area for wildlife is protected from us. No one has taken care of our life. That is my conclusion from the experience I have in the history of this park."*<sup>44</sup>

Negotiations were held over the park boundaries at different times in order to find an optimal equilibrium for park-people interactions. The first major negotiations between the delegates of Oromia and SNNPRS to re-demarcate the park boundaries<sup>45</sup> took place in 2003. A committee that involved delegates of SNNPRS Bureau of Agriculture and Natural Resource Development, Gamo Gofa Zone Rural Development Coordination Main Department, Amaro Special *Wereda* Justice and Administrative Affairs Coordination Main Department and Amaro Special *Wereda* Rural Development Coordination Main Department representing the SNNPRS; delegates of Borana Zone Justice and Administrative Affairs Coordination Department and Gelana *Wereda* Public Administration Office from Oromia Region; EWCO; and representatives of Nech Sar NP worked on re-demarcation from end of August to early September 2003 (Nehassie 23-29, 1995 in the Ethiopian Calendar). For the discussions on the park boundary re-demarcation, the committee used boundary description prepared in 1974 by EWCO when Nech Sar was designated as a national park, maps of Nech Sar and its surroundings prepared by the Ethiopian Mapping Authority, experienced *wereda* and *kebele* officers from the Guji and Kore as key informants, employees of Nech Sar NP (ethnically Guji and Kore) and GPS data. The committee finally identified 23 beacon points (benchmarks) to recommend for approval by Oromia and SNNPRS.

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<sup>42</sup> In Guji, the term refers to main gates to access water for their cattle.

<sup>43</sup> Interviews with S104 (a 30 year old Guji man) on 03/10/2010, Nech Sar NP

<sup>44</sup> Interviews with S119 (a 66 years old Guji elder) on 08/10/2010, Nech Sar NP

<sup>45</sup> Nech Sar NP archives.

Table 7: Reasonability of the existing Nech Sar NP boundary

	Reasonable or not			Total
	Yes	No	Don't Know	
<b>Guji</b>	19	37	0	56
	34%	66%	0%	100%
<b>Kore</b>	6	14	31	51
	12%	27%	61%	100%
<b>Total</b>	25	51	31	107
	23%	48%	29%	100%

Source: Our sample household interview data collected in 2010

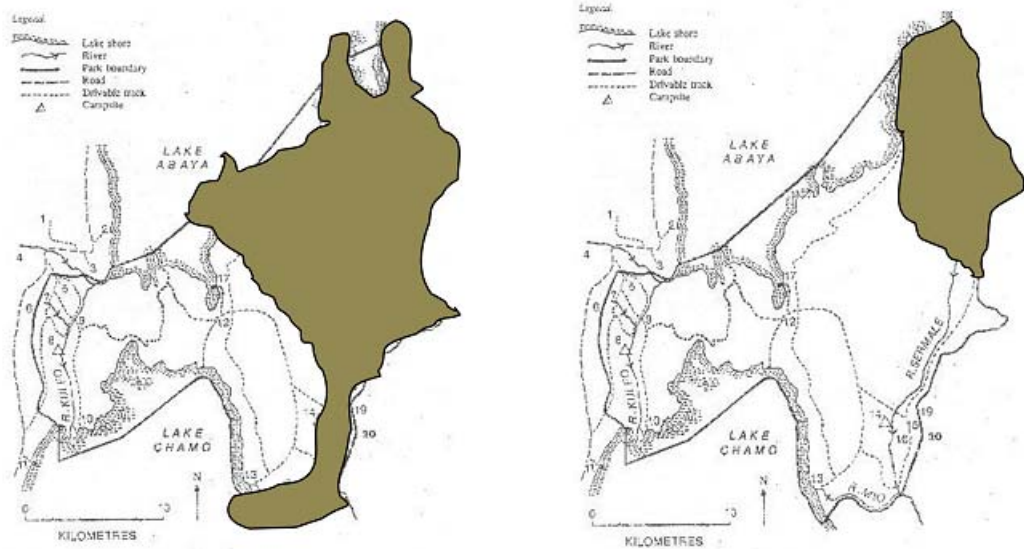
Reaching an agreement between the delegates of SNNPRS and Oromia, however, was difficult on some of the beacon points. The Oromia delegates expressed their concern that the boundary proposed did not consider the age-old resource use tradition of Guji. They opposed, in particular, the inclusion of *Melka* Hitu and Haro Ropi areas into the park. The Borana Zone and Gelana *Wereda* delegates argued that Lake Haro Ropi and its surroundings are necessary for the seasonal cattle grazing of the pastoralists while *Melka* Hitu serves as a ferry to cross Lake Abaya in order to access the cattle market in Arba Minch. Other market places such as Dilla, Amaro Kele and Tore are hundreds of Kilometres far away and hence out of reach for the Guji. The following map (Figure 8) shows the approximate area of Guji settlement in Nech Sar NP before the engagement of APN (left) and the approximate area of the preferred position of Oromia Regional State delegates (right).

Nech Sar NP delegates debated<sup>46</sup>, on the contrary, that the areas mentioned had remained as part of the park since its designation in 1974. They stated that even the name 'Haro ropi' is taken from the herd of hippopotamus found within the lake. They argued further that it is known to be an area to which larger mammals from the Nech Sar grassland plains come in search of water and feed in dry seasons. In addition, they emphasized the touristic potential of that area. The park authorities argued in conclusion that leaving these areas to the Guji for settlement would increase the likelihood that they would return back to the park. Finally, no compromise could be reached to re-demarcate the park boundaries. Until today, the contentious situation remained unresolved.

The second major attempt to negotiate the park's boundaries, which again ended in failure, was held between Guji and the APN. The focus in this round was more on protecting the core area, the grassland plains of the park. What seemed to be a better option for APN was to negotiate the settlement boundary beyond which Guji should not come into the core wildlife conservation zone, which includes the area from the grassland plains in the east up to and including the ground water forest of Nech Sar NP. The zoning principle and practice APN initiated for Nech Sar NP to save the major wildlife concentration zones was apparently inspired by the work of Bolton in the 1970s (Mateos Ersado pers. comm. 2010).

<sup>46</sup> Information translated from a report written in Amharic summarizing the final outcome of the negotiation process

Figure 8: Approximate area of Guji residence and use (left); on the right: approximate area of preferred position of Oromia Regional State delegates following the negotiations in 2003 (right)



Source: Personal communication with experts and document reviews in 2010

APN started the negotiations with a stakeholders' workshop described in section 4.2. The negotiations between APN and Guji ended with an agreed map which was then presented to the Oromia and SNNPRS governments for approval. In this map, a large area of land which was a part of the park since it was designated in 1974 was recommended for Guji as a settlement area. Conservationists who had been working for APN, however, maintain that there was a possibility to negotiate community conservation areas once the core area is protected from settlement and cattle grazing. In other words, further negotiation on the community conservation areas may bring more land to conservation than what is achieved in the negotiation. On 18 October 2007, APN wrote a letter to the federal and regional governments that a workable compromise was achieved with Guji in such a way that Nech Sar NP can fulfil its role as a national park. In the letter, APN emphasized that any further compromise means that Nech Sar NP will no longer qualify as a national park, and APN will have no choice other than to start the process of terminating the Nech Sar NP agreement and reapply the resources to other parks in Africa.

On 27 November 2007 the SNNPRS's Presidents Office in Awassa wrote a letter<sup>47</sup> to the APN Chief Executive Officer (CEO) in the Netherlands that the SNNPRS will not accept APN's negotiated boundaries. The letter listed the following reasons:

- The boundary negotiation was carried out in contrary to the tri-lateral agreement signed at the beginning between the APN, federal government and SNNPRS;
- Involvement of Oromia delegates from Gelana *Wereda* and Borana Zone denotes an act of decision-making by another regional body within the administrative jurisdiction of SNNPRS;

<sup>47</sup> Letter of Ref. No. SE/RS223/3024 and date 27/11/2007 written to Mr. Peter Fearnad, CEO of APN.

- The Kore re-settlers left the area for wildlife conservation with the understanding that the Guji people will also have to leave the park's territory and, hence, such a compromise with the people who resisted the resettlement plan is unacceptable to the Kore. It is also unfair to allocate the land and properties they left to others "victimizing" them only since they did not resist the government's resettlement plan;
- Amaro Special *Wereda*, Gamo Gofa Zone and Arba Minch Zuria *Wereda* administrations strongly opposed the "illegal" negotiations of APN with Guji;
- The repercussion of such a negotiation on the future relation between Guji and Kore on the rights to land is understandable;
- Exclusion of Kore people after their resettlement in negotiating with Guji will negatively affect their trust on the government and park;
- The boundary negotiation puts the wildlife and their habitats at risk; and
- The Guji who settled at the "heart" of the park including its grassland plains and Sermelle River Valley have to be resettled outside the park boundaries by the government in the same way as the recent resettlement experience of Guji and Gamo who used to live at Chamo Leto area of the park.

As a consequence of SNNPRS's rejection of the re-demarcation proposal, APN decided to terminate its activities in Nech Sar NP and in Ethiopia and to fully withdraw from the country. However, the contested boundary matter of Nech Sar NP continued further. Another round of boundary negotiations started in 2010. EWCA wrote a letter to Oromia and SNNPRS governments with a proposal to re-start the boundary negotiation process.

## 5 CONCLUSION

The key challenges in governing Nech Sar NP are conflicts which are rooted in its socio-economic, political and ecological complexity. Conflicts between the park authorities and local people began with Nech Sar's designation as an exclusive wildlife conservation area which ultimately led to forceful actions to resettle people out of the park boundaries. This negative mainstream blueprint of 'people-park' conflicts in Africa can be explained not only by the high dependence of local people on the natural resources in the parks but also by the incapacity of key decision-makers to reach consensus that combine the interests of different stakeholders regarding the use, management and conservation. The above depicted case of Nech Sar NP illustrates this disability in detail. A key problem emanates from Nech Sar NP's location between two regional administrative states, SNNPRS and Oromia, which have different local interests. The negotiations between the two regional states show that they were not able to reach common grounds due to implied administrative boundary interests which go beyond park management issues. Undoubtedly, this negatively influenced the park authorities' room to manoeuvre as demonstrated in the failure of the APN initiative. Research on protected area still often perceive 'the state' as an homogenous entity and habitually solely focus on conflicts between local communities and 'the state'. Issues related to the question how horizontal and vertical conflicts among different governmental bodies affect protected area governance need hence to be researched in more detail in the future.

The Ethiopian wildlife policy approved at national level remained to be the least influential institution vis-à-vis the practical day-to-day life of the people in the park. The situation in Nech Sar NP is a live

example to illustrate the disparity between policy making and local practice often leading to “paper parks” in Africa. Factors like population growth and increasing opportunity costs for land will make the situation not easier in the future.

Unless the incentives to conserve resources and the disincentives to deplete them are high enough for local people, protected areas in countries like Ethiopia will be under threat. Local people’s traditional culture to conserve and use natural resources sustainably is often weakened by population pressure, land use changes and governmental and other external interventions. Nech Sar NP stands not alone. Similar conclusions are drawn in other African cases and studies on protected areas around the world (Andrew-Essien and Bison 2009). Consequently, although effective law enforcement is needed, it should not be taken as the sole means to achieve sustainable protected area governance.

Nevertheless, local people should be appreciated for their contribution to have the forests and biodiversity resources in the area. Putting the blame on local people inside or adjacent to protected areas should be replaced by understanding the underlying factors that push the people to over-utilize the resources. The case of Nech Sar NP demonstrates that loss of biodiversity and degradation of the landscape is not only the concern for conservationists. Hence, the common understanding about the problem can provide a good foundation to work towards legitimate solutions. To change the current situation, people and other stakeholders should be engaged actively and directly in the policy processes, discussions and actions in protected area resource use, management and conservation. National policies and guidelines as well as protected area authorities and conservationists should appreciate the weakness and the consequent failure of the traditional exclusionary approach, which considered protected areas as isolated *islands*, and be prepared to integrate the different perspectives and knowledge systems to handle the complexity on the ground.

## 6 REFERENCES

- Abiyot Negera Biressu 2009. Resettlement and local livelihoods in Nechsar National Park, Southern Ethiopia. MPh thesis. University of Tromsø. Tromsø, Norway.  
[www.ub.uit.no/munin/bitstream/handle/10037/2060/thesis.pdf](http://www.ub.uit.no/munin/bitstream/handle/10037/2060/thesis.pdf) (accessed on 28/07/2011)
- Adger, W.N., Benjaminsen, T.A., Brown, K. and Svarstad, H. 2001. Advancing a political ecology of global environmental discourses. *Development and Change* 32: 681-715.
- Agrawal, A. and Gibson, C.C. 1999. Enchantment and disenchantment: the role of community in natural resource conservation. *World Development* 27(4): 629-649.
- Almaz Tadesse Kebede 2009. Sustaining the Allideghi Grassland of Ethiopia: influence of pastoralism and vegetation change. All Graduate Theses and Dissertations. Paper 309.  
<http://digitalcommons.usu.edu/etd/309> (accessed on 10/07/2011)
- Andeberhan Kidane 1982. Wildlife management problems in Ethiopia. *Walia* 8:3-9.
- Andrew-Essien, E. and Bisong, F. 2009. Conflicts, conservation and natural resource use in protected area systems: an analysis of recurrent issues. *European Journal of Scientific Research* 25(1): 118-129.
- APN 2004. African Parks: managing national parks to help wildlife and people. Annual report.  
[http://www.african-parks.org/xMedia/PDF/AnnualReport/APN\\_AnnualReport\\_2004.pdf](http://www.african-parks.org/xMedia/PDF/AnnualReport/APN_AnnualReport_2004.pdf) (accessed on 25/06/2012)
- Aramde Fetene, Girma Mengesha and Tsegaye Bekele 2011. Spatial distribution and habitat preferences of selected large mammalian species in the Nech Sar National Park (NSNP), Ethiopia. *Nature and Science* 9(3): 80-90.
- Aramde Fetene, Tsegaye Bekele and Tiwari, P.K. 2012. Impact of human activities on ground water forests of Arba Minch: a case study from Ethiopia. *International Journal of Basic and Applied Sciences* 1(1): 54-60.
- Asaye Nigussie 2008. Analysis of land and vegetation cover dynamics using remote sensing and GIS, a case study of Nechisar National Park. MSc thesis, Addis Ababa University, Ethiopia.
- Asebe Regassa Debelo 2011. Contested terrains: conflicts between state and local communities over the management and utilization of Nech Sar national park, southern Ethiopia. *Journal of Sustainable Development in Africa* 13(5): 49-65.
- Asebe Regassa Debelo 2012. Contesting views on a protected area conservation and development in Ethiopia. *Soc. Sci.* 1: 24-46. doi:10.3390/socsci1010024
- Ash, N., Fazel, A., Assefa, Y., Baillie, J., Bakarr, M., Bhattacharjya, S., Cokeliss, Z., Guhl, A., Girot, P., Hales, S., Hirsch, L., Idrisova, A., Mace, G., Maffi, L., Mainka, S., Migongo-Bake, E., Muro, J.G., Pena, M., Woodley, E. and Zahedi, K. 2007. Biodiversity. In: Schomaker, M., Keating, M. and Chenje, M. Global environment outlook GEO4: environment for development. pp. 157-192.  
[http://www.unep.org/geo/geo4/report/05\\_Biodiversity.pdf](http://www.unep.org/geo/geo4/report/05_Biodiversity.pdf) (accessed on 17/06/2012)

- Bassi, M. 2003. Synthesis of lessons learned enhancing – equity in the relationship between protected areas and local communities in the context of global change: horn of Africa and Kenya. [http://cmsdata.iucn.org/downloads/cca\\_mbassi.pdf](http://cmsdata.iucn.org/downloads/cca_mbassi.pdf) (accessed on 19/06/2012)
- Bayisa Feye 2011. Livelihood, conflicts, and Nech Sar National Park: local livelihoods, conflicts and its impact on the sustainability of Nech Sar National Park in southern Ethiopia. LAP LAMBERT Academic Publishing. Saarbrücken, Germany.
- Befekadu Refera 2005. Population Status of Swayne’s Hartebeest in Ethiopia. In: Monfort, S. And Correll, T. (eds.). Fifth Annual Sahelo-Saharan Interest Group Meeting. Hotel Kanta, Souss, Tunisia, 21-24 April, 2005. pp. 10-15.
- Beltrán, J. (ed.) 2000. Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines and Case Studies. IUCN, Gland, Switzerland and Cambridge, UK and WWF International, Gland, Switzerland. xi +133pp.
- Bertzky, B., Corrigan, C., Kemsey, J., Kenney, S., Ravilious, C., Besançon, C. and Burgess, N. 2012. Protected Planet Report 2012: tracking progress towards global targets for protected areas. IUCN, Gland, Switzerland and UNEP-WCMC, Cambridge, UK.
- BirdLife International 2011. Important Bird Areas factsheet: Nechisar National Park. <http://www.birdlife.org> (accessed on 18/07/2011)
- Blower, J.H. 1967. Report on a visit to the Nechisar area, Lake Chamo. Ethiopian Wildlife Conservation Organisation. Addis Ababa, Ethiopia. (unpublished)
- Blower, J. 1968. The wildlife of Ethiopia. *Oryx* 9: 276-285.
- Bolton, M. 1970. Rift Valley lakes ecological survey. Report 4: the Nechisar Plains (second part). EWCO report, Addis Ababa, Ethiopia. (unpublished)
- Bolton, M. 1973. Hartebeests in Ethiopia. *Oryx* 12: 99-108.
- Borghesio, L. and Giannetti, F. 2005. Habitat degradation threatens the survival of the Ethiopian bush crow *Zavattariornis stresemanni*. *Oryx* 39(1):44-49.
- Borrini-Feyerabend, G. 2003. Governance of protected areas – innovation in the air. *Policy Matters* 12:92-101.
- Bruner, A.G., Gullison, R.E. Rice, R.E. and da Fonseca, G.A.B. 2001. Effectiveness of parks in protecting tropical biodiversity. *Science* 291:125-128.
- CBD 1992. Convention on Biological Diversity. United Nations.
- Chambers, R. 1983. Rural development: putting the last first. Essex, England: Longmans Scientific and Technical Publishers, John Wiley. New York, USA.
- Chape, S., Spalding, M. and Jenkins, M. 2008. The world's protected areas: status, values and prospects in the 21st century. UNEP World Conservation Monitoring Centre. Cambridge, UK. 359pp.



- CI 2007. Biodiversity hotspots. Conservation International. Washington, DC, USA.  
<http://www.biodiversityhotspots.org> (accessed on 18/07/2011)
- Clark, D.L. 2010. An introduction to the natural history of Nech Sar National Park. Ethiopian Wildlife and Natural History Society. Addis Ababa, Ethiopia.
- Coad, L., Campbell, A., Miles, L., Humphries, K. 2008. The costs and benefits of protected areas for local livelihoods: a review of the current literature. Working Paper. UNEP World Conservation Monitoring Centre, Cambridge, U.K. 42pp. <http://www.ibcperu.org/doc/isis/9408.pdf> (accessed on 01/08/2011)
- Crutzen, P.J. 2002. Geology of mankind. *Nature* 415:23.
- Demeke Datiko and Afework Bekele 2011. Population status and human impact on the endangered Swayne's hartebeest (*Alcelaphus buselaphus swaynei*) in Nechisar Plains, Nechisar National Park, Ethiopia. *African Journal of Ecology* 49(3): 311-319.
- Desalegn Wana 2008. Local people's perceptions and attitudes towards the management of Nech-Sar National Park, Ethiopia. In: Jeffery, M.I., Firestone, J. and Bubna-Litic, K. Biodiversity conservation, law+livelihoods: bridging the North-South divide. Cambridge University Press. Cambridge, UK. pp. 233-250.
- Diego, M. 2001. Buffer zones around protected areas: a brief literature review. *Electronic Green Journal* 1(15). <http://escholarship.org/uc/item/02n4v17n> (accessed on 07/05/2012)
- Duckworth, J.W., Evans, M.I., Safford, R.J., Telfer, M.G., Timmins, R.J. and Chemere Zewdie 1992. A survey of Nechisar National Park, Ethiopia. Report of the Cambridge Ethiopia Ground-water Forest Expedition 1990. ICBP Report No. 50. Cambridge, UK.
- Dudley, N. (ed.) 2008. Guidelines for applying protected area management categories. IUCN, Gland, Switzerland.
- Dudley, N. and Stolton, S. (eds.) 2008. Defining protected areas: an international conference in Almeria, Spain. IUCN, Gland, Switzerland. 220pp.
- Ehlers, E. 2008. Das Anthropozän. Die Erde im Zeitalter des Menschen. Wissenschaftliche Buchgesellschaft (WBG). 284pp.
- EWCO 1974. Nechisar National Park. Ethiopian Wildlife Conservation Organization, Addis Ababa, Mimeo (Amharic/English) 15pp.
- EWCO 1995. Ethiopian Wildlife Conservation Areas Summary Sheets. Ethiopian Wildlife Conservation Organization, Addis Ababa, Ethiopia.
- FDRE 2007. Proclamation No.541/2007: a proclamation to provide for the development conservation and utilization of wildlife. Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia. Addis Ababa, Ethiopia.
- Freeman, D. 2006. Natural resource management in and around Nech Sar National Park: a situation analysis. Final Report. Forum for Environment. Arba Minch, Ethiopia. 42pp.

- Hardin, G. 1968. The tragedy of the commons. *Science* 162: 1243-1248.
- Hasan Yusuf, Treydte, A.C., Sebsebe Demissew and Zerihun Woldu 2011. Assessment of woody species encroachment in the grasslands of Nechisar National Park, Ethiopia. *African Journal of Ecology* doi: 10.1111/j.1365-2028.2011.01271.x. <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2028.2011.01271.x/abstract> (accessed on 29/07/2011)
- Hillman, J.C. 1993a. Ethiopia: Compendium of Wildlife Conservation Information. Vol.1: NYZS - The Wildlife Conservation Society - International, New York Zoological Park, Bronx, NY.
- Hillman, J.C. 1993b. Ethiopia: Compendium of Wildlife Conservation Information. Vol.2: NYZS – The Wildlife Conservation Society - International, New York Zoological Park, Bronx, NY.
- Hinnant, J.T. 1977. The gada system of the Guji of southern Ethiopia. PhD thesis. The University of Chicago. Chicago, Illinois, USA.
- Hoffmann, V. 2009. Extension science: what was it, what is it and what might it be in the future? In Paffarini, C. and Santucci, F.M. (eds.). pp. 17-21. Proceedings of European XIX Seminar of Extension Education: theory and practice of advisory work in a time of turbulences. 15-19 September, 2009. Assisi, Perugia, Italy.
- Hoole, A. and Berkes, F. 2010. Breaking down fences: recoupling social-ecological systems for biodiversity conservation in Namibia. *Geoforum* 41: 304-317.
- IUCN 1980. World conservation strategy: living resource conservation for sustainable development. IUCN-UNEP-WWF.
- Jacobs, M. J. and Schloeder, C.A. 1993. Awash National Park management plan: 1993–1997. EWCO, Addis Ababa, Ethiopia. 301 pp.
- Jacobs, M.J. and Schloeder, C.A. 2001. Impacts of conflict on biodiversity and protected areas in Ethiopia. Biodiversity Support Program, Washington, D.C.  
<http://www.worldwildlife.org/bsp/publications/africa/147/titlepage.htm> (accessed on 19/06/2011)
- Jepson, P. and Whittaker, R.J. 2002. Histories of protected areas: internationalisation of conservationist values and their adoption in the Netherlands Indies (Indonesia). *Environment and History* 8: 129-172.
- Kirubel Tesfaye 1985. Nechisar National Park preliminary report. Ethiopian Wildlife Conservation Organization (EWCO). Addis Ababa, Ethiopia. (unpublished)
- LEAD 2006. “Our land they took”: San land rights under threat in Namibia. Land, Environment and Development Project Legal Assistance Centre. Windhoek, Namibia.
- Lemlem Aregu and Fassil Demeke 2006. Socio-economic survey of Arba-Minch riverine forest and woodland. *Journal of the Drylands* 1(2): 194-205.
- Makin, M.J., Kingham, T.J., Waddams, A.E., Birchall, C.J. and Tamene Teferra 1974. Development prospects in the Southern Rift Valley, Ethiopia. Vol. 2, parts 4-7 and annexes. Draft Land Resources Study PR/25/74. Foreign and Commonwealth Office, Overseas Development Administration, Surrey, England.

Malthus, T. 1798. An essay on the principle of population: an essay on the principle of population, as it affects the future improvement of society with remarks on the speculations of Mr. Godwin, M. Condorcet, and other writers. Electronic Scholarly Publishing Project.

<http://129.237.201.53/books/malthus/population/malthus.pdf> (accessed on 08/05/2012)

Mamo, Y. and Bekele, A. 2011. Human and livestock encroachments into the habitat of Mountain Nyala (*Tragelaphus buxtoni*) in the Bale Mountains National Park, Ethiopia. *Tropical Ecology* 52(3): 265-273.

Mateos Ersado 2003. Inventory of woody species diversity in Arba Minch Forest. Technical Report No. 23. Institute of Biodiversity Conservation (IBCR). Addis Ababa, Ethiopia. 30pp.

MGM 1999. Evaluation of National Parks Rehabilitation in Southern Ethiopia Project (1995-1998). Project No. 7 ACP ET 068. Final Report. MGM Environmental Solutions Limited, Edinburgh, UK.

Millennium Ecosystem Assessment 2005. Ecosystems and human well-being: biodiversity synthesis. World Resources Institute, Washington, DC.

MoA 1972. A development plan for wildlife conservation. Forestry and Wildlife Conservation and Development Department, Ministry of Agriculture, Addis Ababa, Ethiopia. pp. 73-82.

Mora, C., Tittensor, D.P., Adl, S., Simpson, A.G.B., Worm, B. 2011. How Many Species Are There on Earth and in the Ocean? *PLoS Biol* 9(8): e1001127.doi:10.1371/journal.pbio.1001127

Nelson, F. and Makko, S.O. 2005. Communities, conservation, and conflicts in the Tanzanian Serengeti: preserving rights to get benefits. In: Child, B. and Lyman, M.W. (eds.). Natural resources as community assets: lessons from two continents. The Sand County Foundation and The Aspen Institute. Wisconsin and Washington, D.C., USA. pp. 121-145.

Pimbert, M.P. and Pretty, J.N. 1995. Parks, people and professionals: putting 'participation' into protected area management. Discussion Paper No 57. United Nations Research Institute for Social Development, International Institute for Environment and Development, World Wide Fund for Nature, UNRISD, Geneva, Switzerland.

SCBD 2000. Sustaining life on Earth. The Secretariat of the Convention on Biological Diversity. Montreal, Canada.

SCBD 2010. Global biodiversity outlook 3. The Secretariat of the Convention on Biological Diversity. Montreal, Canada. 94pp.

SNNPRS 2007. Southern Nations, Nationalities and Peoples' Regional State Payment Regulation for Visiting Tourist Attractions No. 65/2007. *Dehub Negarit Gazeta*. Awassa, Ethiopia.

Stellmacher, T. 2007a. The historical development of local forest governance in Ethiopia. *Afrika Spectrum*. German Institute of Global and Area Studies. 3: 519-531

Stellmacher, T. 2007b. Governing the Ethiopian coffee forests: a local level institutional analysis in Kaffa and Bale Mountains. Shaker Verlag, Aachen, Germany.

- Stellmacher, T. and Nolten, R. 2010. Forest resource use and local decision making in the Bale Mountains coffee forests, Ethiopia. In: I. Eguavoen & W. Laube (eds.). *Negotiating local governance. natural resources management at the interface of communities and the state*. Lit Publishing, Berlin.
- Stephens, P.A., d'Sa, C. A., Sillero-Zubiri, C. and Leader-Williams, N. 2001. Impact of livestock and settlement on the large mammalian wildlife of Bale Mountains National Park, southern Ethiopia. *Biological Conservation* 100(3): 307-322.
- Teklu Tesfaye Toli 2006. *Coffee forest conservation: local-level institutions influencing the conservation and use of coffee forests in Southwest Ethiopia*. Margraf Publishers, Weikersheim, Germany.
- Tenkir Bongor 1999. The CAMPFIRE programme in Zimbabwe: institutional innovation and implications for environmental governance. In: Okoth-Ogendo, H.W.O. and Tumushabe, G.W. (eds.). *Governing the environment: political change and natural resources management in Eastern and Southern Africa*. African Centre for Technology Studies (ACTS). Nairobi, Kenya. pp. 253-290.
- Tessema, Mekbeb E. , Lilieholm, Robert J. , Ashenafi, Zelealem T. and Leader-Williams, N. 2010. Community attitudes toward wildlife and protected areas in Ethiopia. *Society & Natural Resources* 23(6) 489 — 506. DOI: 10.1080/08941920903177867
- UNEP 2006. *Africa environment outlook 2: our environment, our wealth*. United Nations Environment Programme. Nairobi, Kenya. pp. 226-261.
- van der Werf, G.R., Morton, D.C., DeFries, R.S., Olivier, J.G.J., Kasibhatla, P.S., Jackson, R.B., Collatz, G.J. and Randerson, J.T. 2009. CO<sub>2</sub> emissions from forest loss. *Nature Geoscience* 2: 737-738.
- Vial, F. 2010. *Conservation science for common ground: developing the necessary tools to manage livestock grazing pressure in Bale Mountains National Park, Ethiopia*. PhD Thesis. University of Glasgow, UK.
- Vial, F., Macdonald, D.W., Haydon, D.T. 2011. Limits to exploitation: dynamic food web models predict the impact of livestock grazing on Ethiopian wolves *Canis simensis* and their prey. *Journal of Applied Ecology* 48(2): 340-347.
- Vié, J.-C., Hilton-Taylor, C. and Stuart, S.N. (eds.) 2009. *Wildlife in a Changing World – An Analysis of the 2008 IUCN Red List of Threatened Species*. IUCN, Gland, Switzerland. 180 pp.
- Wandesforde-Smith, G. 2004. The future of wildlife and the V<sup>th</sup> IUCN World Parks Congress. *Parks* 14(2): 13-17.
- WWF 2010. *Living Planet Report 2010: biodiversity, biocapacity and development*. World Wide Fund for Nature. Gland, Switzerland.
- Yisehak Doku, Afework Bekele and Balakrishnan, M. 2007. Population status of plains zebra (*Equus quagga*) in Nechisar plains, Nechisar National Park, Ethiopia. *Tropical Ecology* 48(1): 79-86.
- Zalasiewicz, J. et al. 2008. Are we now living in the Anthropocene? *GSA Today* 18(2): 4-8. doi: 10.1130/GSAT01802A.1.

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