ETHIOPIAN WOLF

Conservation Strategy Workshop

18 – 21 November 1999

Dinsho Lodge
Bale Mountains National Park

FINAL REPORT

CANID TAG

WILD CRU WILDLIFE CONSERVATION RESEARCH UNIT

BORN FREE

IUCN/SSC Canid Specialist Group

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SECTION 1

INTRODUCTION AND OVERVIEW

Ethiopian Wolf Conservation Strategy Workshop Introduction and Overview

INTRODUCTION

Reduction and fragmentation of wildlife populations and habitat are occurring at an accelerating rate worldwide. For an increasing number of taxa, these factors result in small and isolated populations that are at risk of extinction. The Earth's rapidly expanding human population reached 6 billion people in October 1999, and is expected to increase to 8.5 billion by the year 2025. This expansion and the resulting utilisation of resources are resulting in a decreased capacity for all other species to exist simultaneously on the planet.

In eastern Africa, as in the rest of the world, human activities increasingly threaten the survival of natural environments and wildlife populations. As these populations are diminished, their ecological roles in ensuring a well-balanced, regulated, and sustainable ecosystem also are reduced. Still, most conservation actions are directed toward habitat and reserve protection, rather than the conservation and management of individual wildlife species that are critical to the long-term survival of individual ecosystems.

In combination with conservation activities focusing on habitat and reserve protection, actions also may be focused on developing management strategies to address the risk of extinction for individual species. These strategies will include increased communication and collaboration in: habitat preservation; intensified information gathering in the field; investigating the ecological roles of key species; improving biological monitoring techniques; and, occasionally, scientifically managing captive populations that can be reintroduced and/or interact genetically and demographically with wild counterparts. Successful conservation of ecosystems and wild species necessitates developing and implementing active management programmes by people, governments, and non-governmental organisations (NGOs) that live alongside, and are responsible for, that ecosystem.

THE ETHIOPIAN WOLF

Ethiopia is a large and ecologically diverse country blessed with extensive and unique environmental conditions. More than 80% of the land above 3,000m above sea level in Africa is found in Ethiopia, as two vast highland massifs lie north and south of the Ethiopian Rift Valley. These mountains are isolated from the rest of East Africa's highlands by broad lowlands, a process that has resulted in the evolution of an abundance of endemic animal and plant species

confined to the Afroalpine ecosystem. The future of several of these wildlife species is in question because of the continuing pressures on the habitat and on the species themselves. The Ethiopian wolf (*Canis simensis*), also known as the Simien fox or Simien jackal, is one of the many endemic species of the Ethiopian highlands, and is uniquely specialised to prey on the abundant rodent biomass of the Ethiopian plateaux. With fewer than 500 adult individuals surviving, it is most likely the rarest Canid in the world and is listed by the IUCN as *Critically Endangered* (Sillero-Zubiri and Macdonald, 1997). The Ethiopian wolf has been rare since it was first described in 1835 and as early as 1945 it was listed as requiring protection. It survives in only a handful of mountain pockets; the largest population is found in the Bale Mountains National Park, with smaller populations in Arsi, Menz, Wollo, and Gondar.

Ethiopian wolves live in discrete and cohesive social packs that share and defend an exclusive territory. In optimal habitat, pack size ranges from three to 13 animals. The average pack size is 6 animals, containing between three and eight related adult males, one to three adult females, between one and six yearlings, and one to six pups (Sillero-Zubiri and Gottelli, 1995). Wolves congregate for social greetings and border patrols at dawn, noon and evenings, and rest together at night. Although packs are close-knit, individuals forage and feed alone on small prey, mostly rodents, in the morning and early afternoon (Sillero-Zubiri and Macdonald, 1997). They rest in dens at night; during the breeding season, only pups and nursing females use the den.

Annual home ranges of eight packs in optimal habitat monitored for four years averaged 6.4 km^2, with some overlap between home ranges. Pack home ranges are stable in time, drifting only during major pack readjustment after the disappearance of a pack or significant demographic changes (Sillero-Zubiri and Gottelli, 1995). Aggressive interactions with neighbouring packs are common and generally are highly vocal, ending with the smaller group fleeing from the larger group. Home range and aggressive encounters between packs are highest during the mating season (Sillero-Zubiri and Macdonald, 1997).

Dispersal is highly constrained by a scarcity of suitable habitat. Males do not disperse and are recruited into multi-male philopatric packs; two-thirds of the females disperse at 2 years of age and become “floaters,” occupying narrow ranges between pack territories until a breeding vacancy becomes available. Breeding females typically are replaced after death by a resident daughter, resulting in a high potential for inbreeding (see genetics discussion below). Extra-pack copulations and resultant multiple paternity may be the mechanism through which this problem is circumvented among Ethiopian wolves (Sillero-Zubiri and Macdonald, 1997).

In the Bale Mountains National Park, most matings occur between August and November, with females’ oestrus synchronised to less than 2 weeks. Courtship may take place between adult members of a pack or with members of neighbouring packs. Mate preference is shown, with the female discouraging attempts from all but the pack’s dominant male. In contrast, females are receptive to visits from males from visiting packs; up to 70% (n=30) of matings observed in one study involved males from outside the pack (Sillero-Zubiri *et al.,* 1996).

Following a ~60-day gestation, the dominant female of each pack may give birth once per year between October and December, with about 60% of dominant females breeding successfully each year (Sillero-Zubiri et al., 1996). Pups are born in a den dug by the female in the open ground, under a boulder or inside a rocky crevice. Two to six pups emerge from the den after 3 weeks. Pups are regularly shifted between dens, up to 1,300-m apart (Sillero-Zubiri and Gottelli, 1995). All pack members guard the den, chase potential predators and regurgitate or carry rodent prey to feed the pups; subordinate females (which may have lost or deserted their

own offspring) may assist the dominant female in suckling the young. Pups subsist on food brought by adults for the first six months of their lives; adulthood is attained during the second year (Sillero-Zubiri and Macdonald, 1997).

The Ethiopian wolf is officially protected in Ethiopia; the country's Regulations 1974, Schedule VI states that the species "may only be hunted with special permit for scientific purposes – only to be issued by the Ministry of Agriculture" (Negarit Gazetta, 1974). No such permits have been granted in the last 15 years.

Until recently, the plight of the Ethiopian wolf was little known outside Ethiopia. A long-term study carried out in the Bale Mountains between 1988-1992 (Gotelli and Sillero-Zubiri, 1992) highlighted the threats faced by these threatened species and triggered plans to protect them and their habitat. In 1997 the IUCN Canid Specialist Group edited a detailed Action Plan for the conservation of the Ethiopian wolf (Sillero-Zubiri and Macdonald, 1997). As a result the *Ethiopian Wolf Conservation Programme* (EWCP) was established with funding from the Born Free Foundation, UK, and a pool of other sponsors. The overall objective of the EWCP is to ensure the long-term survival of the Ethiopian wolf, through the implementation of as many of the proposed Action Plan projects as it is possible. Current conservation action includes a detailed survey of all remaining populations, field monitoring of Bale's wolf population and support of park patrols within wolf range. The associated Bale Rabies Control Project regularly visits villages to vaccinate domestic dogs against rabies and canine distemper, and sterilises dog-wolf hybrids and unwanted dogs. Additionally, the EWCP implements a community conservation education campaign, aimed at improving dog husbandry in the park and surroundings, visits local primary schools and is seeking ways to improve ecotourism in the Bale Mountains. This programme will soon be expanded to other wolf populations in northern Ethiopia. The EWCP hopes that the activities its team is currently carrying out highlight the plight of the Ethiopian wolf, and eventually will raise the profile of Ethiopian wolves as one of the country's most distinct wildlife species and a *flagship* for the Afroalpine ecosystem.

THREATS TO THE ETHIOPIAN WOLF -- Karen Laurenson, Jorgelina Marino, Claudio Sillero-Zubiri

The remaining Ethiopian wolf populations in Ethiopia are all small, with only one estimated to contain more than 100 wolves. Such small populations are intrinsically vulnerable. Because of this, factors which might cause a slight perturbation in a large population can have catastrophic effects on the persistence of small populations. Current threats to Ethiopian wolf persistence are all human-induced. The relative importance of these threats has been assessed in each wolf population through a combination of observations, questionnaires and, in the case of disease, through blood sampling of dogs (Table 1). The main threats in each area are summarised below.

Afroalpine habitat loss attributable to human population expansion and agriculture has occurred over the last few thousand years and is continuing today. This currently is the most important medium-term threat to the Ethiopian wolf. The lower limit of current wolf ranges may reflect current human densities, with northern populations generally remaining only at higher altitudes whereas in Bale and Arsi, Afroalpine habitat extends to its natural limits at some 3200m above sea level. Areas below the upper limit of agriculture practices (extending to 3700m in some places) are particularly vulnerable, especially if they are flat rather than steeply sloping, such as the Gosh Meda area in Menz, Guguftu and Denkoro in South Wollo, and Delamta in North Wollo. Unfortunately, such areas are prime wolf habitat..

The most important immediate threat to Ethiopian wolf populations comes from dogs, particularly the diseases, such as rabies, that they transmit. Dogs are a reservoir for rabies, which, as humans and dog populations increase across Africa, is an escalating problem. This disease dramatically affected the Bale Mountains wolf population in the early 1990s, reducing it by two-thirds. Dogs also threaten wolves through harassment and fighting, through competition for resources and through hybridisation. Disease and dogs are the greatest problems in the Bale Mountains, North Wollo and probably South Wollo. Although rabies was very common in the Arsi area, contact between wolves and dogs is unlikely. However, these diseases occur in all wolf areas and could affect any population.

Table 1. Summary of threats to current Ethiopian wolf populations

Area	Habitat vulnerability	Predation on livestock	Direct Persecution	Disease Risk
Menz	High	Low	Low	Medium/Low
Mt. Guna	Medium	Low	Low	?
North Wollo	Medium (Some high)	High	High	Medium/High
Simien	Low	Low	?	Medium/Low
South Wollo	Medium (Some high)	Low	Medium (dec)	Medium/High
Arsi	Low	Absent	Low (dec)	Medium
Bale	Low	Very low	Low	Highest

Persecution of wolves by humans, which may occur because of livestock predation, civil unrest or through traffic accidents, has undoubtedly occurred in the past although these activities may now be declining. Although the killing of individual wolves may have little effect at the population level, it may be of more significance in small populations. People in North Wollo exhibit the most negative attitude to wolves, but in other areas such as Arsi and Bale there is very little conflict between humans and wolves.

DISTRIBUTION OF THE ETHIOPIAN WOLF – Jorgelina Marino

The Ethiopian wolf is only found in a few isolated pockets of Afroalpine habitats across the Ethiopian highlands. During the Pleistocene, when Afroalpine grasslands and heathlands were extensive across Ethiopia, wolves became specialised at preying upon the abundant Afroalpine rodent fauna. By the end of the Pleistocene some 10,000 years ago, however, Afroalpine ranges in Ethiopia began to shrink as the earth warmed. Now, Afroalpine habitats occupy less than 10% of their original area.

More recently, high-altitude grazing and agriculture are further reducing this already restricted Afroalpine habitat. As mentioned above, this habitat loss is increasingly fragmenting the remaining wolf habitat. Today, no more than 500 Ethiopian wolves survive in Ethiopia, with up to half of them found in the Bale Mountains. There, wolf ecology and behaviour has been studied in detail, but only two other populations in Simien (North Gondar) and Menz (North Shoa) have received any attention. Clearly, assessing the distribution, abundance and threats to the remaining populations of this critically endangered species is essential, in order to develop and implement conservation measures to ensure the long-term survival of the species.

With little known about most potential wolf habitat, the EWCP carried out a complete Ethiopian wolf survey. This section summarises the results of expeditions carried out in Gondar, Wollo, Shoa, Arsi and Bale regions during 1998 and 1999, and provides a general description of each Afroalpine range visited. We also present a comparative assessment of the quality and extent of the Ethiopian wolf habitats and populations across the country.

An 'Afroalpine unit' is defined as an area or group of areas that are within theoretical wolf dispersal distance, and unambiguously isolated from other area/group of areas. Each Afroalpine unit is thought to contain a single wolf population or metapopulation (populations connected by dispersal) and thus is used as the habitat unit for analysis.

Each expedition consisted of a short (2-7 day) visit to an Afroalpine unit, where the presence of wolves, the availability and distribution of suitable habitat, as well the degree of conflict between wolves and humans, dogs and livestock was determined. During field visits, the availability of suitable habitat was mapped and classified as optimal, good or poor quality type, following baseline data from a previous study in the Bale Mountains (Sillero-Zubiri, 1994). Wolf searches were carried out on foot or horseback whilst travelling in suitable Afroalpine areas. Individual wolf sightings, and wolf signs such as dig-outs and droppings were counted along transects. Total areas of suitable habitat were estimated from maps and from these, carrying capacities were calculated using known wolf densities for each habitat class in Bale (Sillero-Zubiri *et al*., 1997).

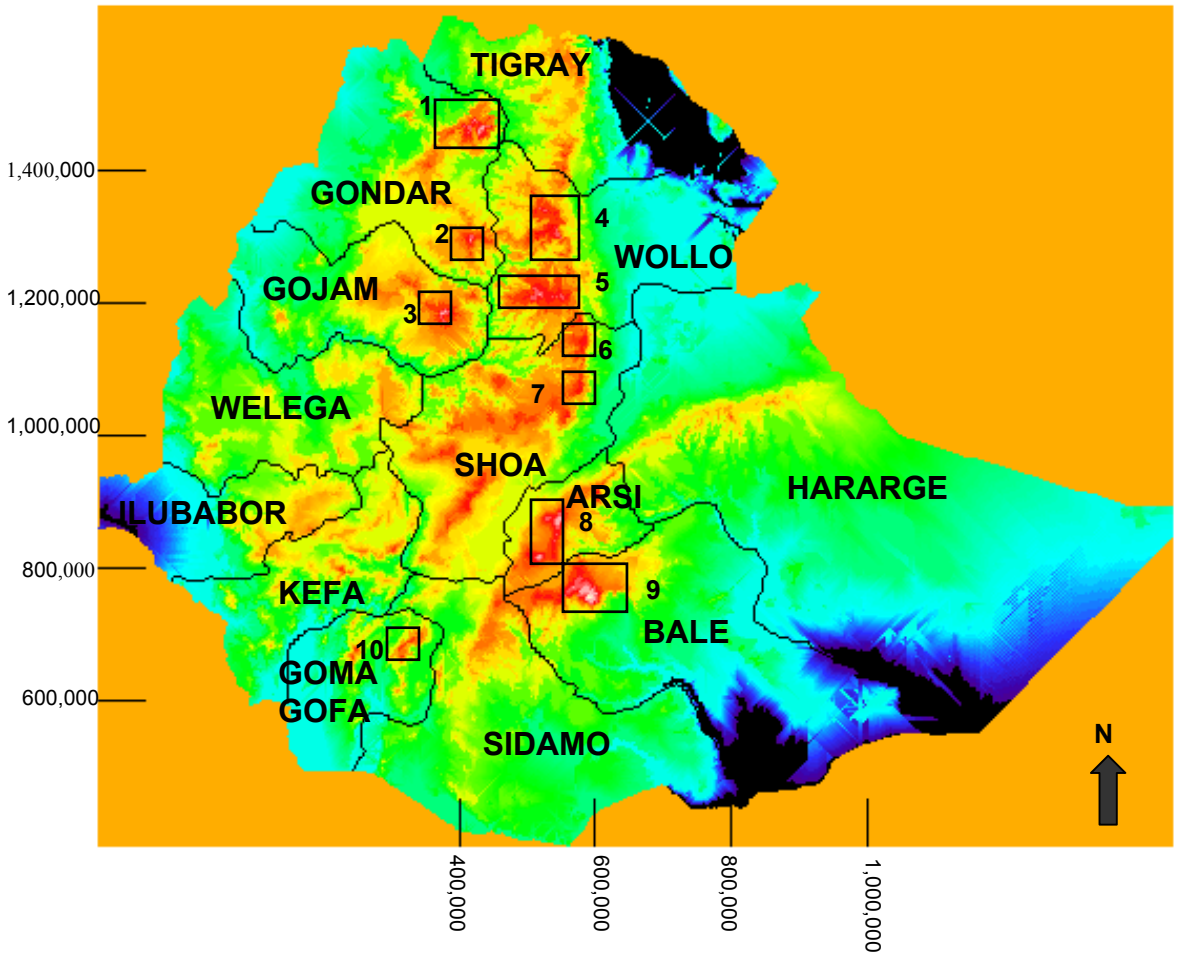
Population size was estimated for each Afroalpine unit by modifying the calculated carrying capacities for each area with additional information gathered in each area. People living inside or in the close vicinity of Afroalpine ranges were interviewed following a standard questionnaire, to obtain information on historical wolf presence and population trends and to determine the occurrence of dog-related diseases and the level of conflict with humans. Finally, the surveyed areas were ranked according to their importance for wolf conservation.

Habitat availability and wolf presence

Suitable Afroalpine habitat currently available to wolves is distributed in at least ten main areas or *'Afroalpine units'*: in Ethiopia, namely the Simien Massif (North Gondar); Mt. Guna (South Gondar); Mt Choke (Gojjam); the North Wollo Highlands (North Wollo); the South Wollo Highlands (South Wollo); Gosh Meda and Menz (North Shoa); Arsi Mountains (Arsi); Bale Mountains (Bale) and Mt. Gugue (Goma Gofa) (see map below).

The surveys conducted by EWCP during 1998 and 1999 covered almost all potential Afroalpine wolf habitats in the country, with the exception of Mt. Guge in Goma-Gofa and Arba Gugu in Hararge, where wolf presence is unlikely. Expeditions to Mt Guna in South Gondar and Mt Choke in Gojjam were carried out in September 1999, and results are in a preliminary stage of analysis.

The presence of a resident wolf population was confirmed for all visited Afroalpine units with the exception of Gosh Meda in North Shoa and Mt Choke in Gojjam. The most important 'discoveries' were the South Wollo and North Wollo populations, for which no previous information was available. Additionally, an important wolf population was confirmed for the Arsi Mountains, whose status was previously thought to be critical (Malcolm and Sillero-Zubiri, 1997).



AFROALPINE AREAS

1 Simien Massif
2 Mt Guna
3 Mt Choke
4 North Wollo Highlands
5 South Wollo Highlands
6 Gosh Meda Range
7 Menz Range
8 Arsi Mountains
9 Bale Mountains
10 Mt Guge

Altitude (m above sea level)

yellow	over 1,900
orange	over 2,200
red	over 2,500
pink	over 4,000

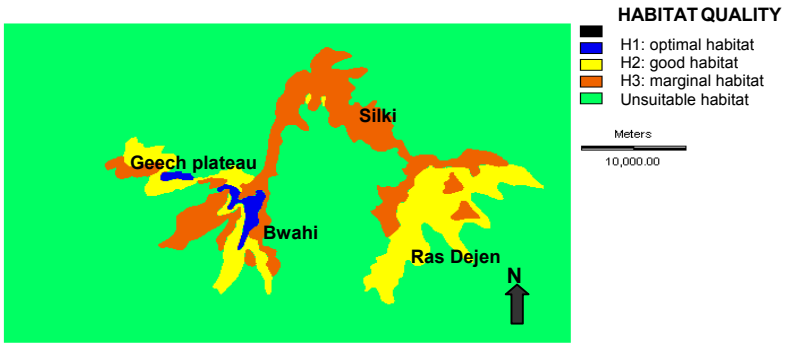
Squares represent approximately the areas *Coordinates: UTM positions (meters)

Afroalpine units and wolf populations' status

Simien Massif (North Gondar)

Suitable habitat: The Simien Massif in Northeast Gondar is the third largest extension of wolf habitat with 273 km^2. Wolf habitat is distributed in four main areas interconnected by corridors of suitable habitat. ***Geech plateau,*** is the only area included within the Simien Mountains National Park, while most wolf habitat lies outside the park. ***Bwahit*** range, to the east, is connected to the north with the ***Silki*** range through a low strip of habitat at 3,600m. Continuous suitable habitat extends from the highlands of Silki along the ridge tops eastwards up to ***Ras Dejen.*** A deep valley of unsuitable habitat below 2,000m above sea level separates Bwahit and Ras Dejen ranges. Suitable habitat extends from 3,700 to 4,300m, above the limit of human encroachment and cultivation, which reaches high altitudes even inside the park.

The ratio of good to poor habitats in the massif was high (0.9), indicating a reasonable proportion of good and optimal habitat. Optimal wolf habitat is mostly limited to the Geech Plateau and the Bwahit range, whereas most of Ras Dejen range is covered by good habitat. Heavily grazed, degraded grasslands on the Silki range are of marginal value for wolves.



Wolf presence and abundance: During census transects wolves were encountered once in the Geech plateau, twice in Ras Dejen and once in Silki, but droppings and dig-outs where found in all areas of the Simien Massif. Overall, wolves are at relatively low density in the massif, although both transect data and local knowledge suggest they are locally abundant in Bwahit and the Geech plateau. The largest group size reported was of five wolves in Ras Dejen. Silki was likely to support the lowest wolf density in this Afroalpine unit.

Wolf carrying capacity: 48-76

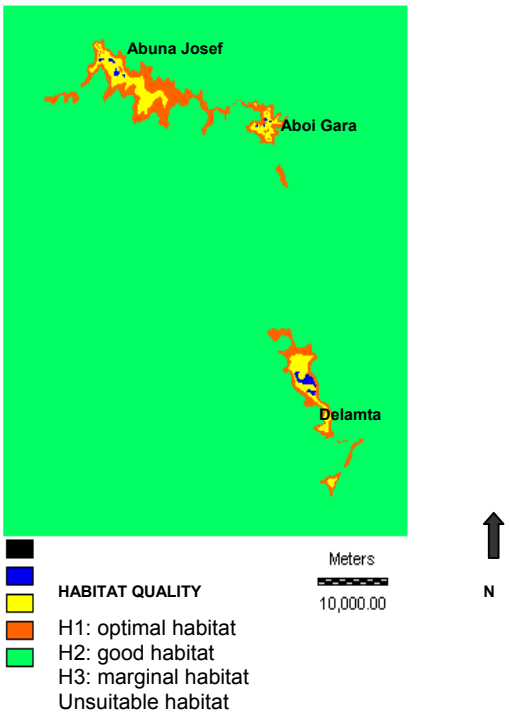
Current wolf population estimate: 50. The wolf population in Simien would be the third in importance for Ethiopia. This estimate corresponds to the minimum of the carrying capacity since wolf abundance appears relatively low compared to other areas.

North Wollo Highlands (North Wollo)

Suitable habitat: The North Wollo highlands encompass 140 km^2 of suitable wolf habitat in the northwestern part of Wollo. This is the fifth largest extension of Afroalpine habitat in Ethiopia.

Wolf habitat is largely discontinuous in this area. The ***Abuna Josef*** massif, near Lalibela, is the main area, intermittently connected with the smaller ***Aboi Gara*** area to the east by a series of narrow ridges and small habitat patches. To the south and separated by approximately 10 kilometres, lies the ***Delamta*** range, a relatively vast and flat afroalpine area.

Suitable habitat extends from 3500 to 4,100m. In the Abuna Josef massif high-altitude agriculture has pushed up the wolf habitat limits to over 3,700-3,800m, whilst Aboi Gara and particularly Delamta, still support suitable ranges at lower altitude.



The ratio of good to poor habitats is relatively low (0.5), indicating a high proportion of marginal areas. Most optimal habitat occurred in the high plateaux of Abuna Josef and in the central meadows and slopes of Delamta. Good habitat usually contains patchy vegetation with 'charranfe' bushes, on gentle and moderate slopes. Marginal areas were identified in the escarpments, moorlands and some overgrazed areas.

Wolf presence and abundance: During 38.1km of census transects in wolf habitat, three wolf sightings were recorded in Aboi Gara and three in Delamta (where a group of six adult wolves were seen scent-marking territory), at times very close to cattle and houses. Signs of wolf presence, dig-outs and droppings, were observed in all areas. Wolves are found at relatively high density on these highlands, particularly in Aboi Gara and Delamta, as supported by interviews and frequency of wolf signs encountered along transects. In addition, interviewees often reported large wolf groups of up to 9 to 15 individuals.

Population trends: The local perception is that local wolf populations are increasing since they reproduce each year and people no longer kill them.

Wolf carrying capacity: 23-35

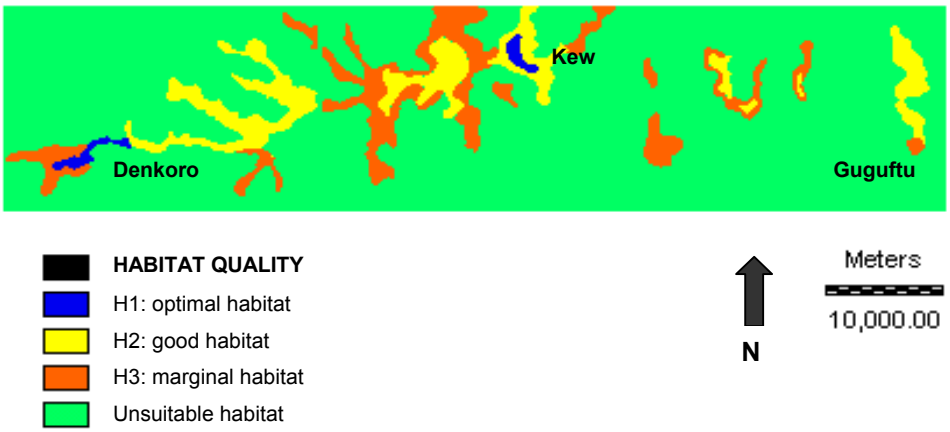
Current wolf population estimate: 35 subadult/adult wolves. This estimate is close to the maximum carrying capacity, as wolf abundance appeared relatively high.

South Wollo Highlands (South Wollo)

Suitable habitat: The South Wollo Highlands harbour 244 km^2 of suitable habitat for wolves, the fourth most important area in Ethiopia. Suitable habitat consisted of a main central plateau with narrow ridges extending in several directions and a series of small afroalpine patches to the east. On the southern extreme of the plateau is the ***Denkoro*** range and on the opposite extreme, the highlands of ***Kewa***. ***Guguftu*** is the furthermost habitat patch to the east of the plateau.

In Kewa and most of the central plateau, wolf habitat is limited by high-altitude agriculture over 3,700-3800m. In Guguftu, agriculture has recently and rapidly expanded leaving only a small habitat patch. Denkoro supports wolf habitats as low as 3,200m above sea level as a consequence of active protection in the Denkoro Forest Reserve.

The ratio of good to poor habitat is high (1.0). Optimal habitat occurs along ridge-tops in Kewa and the 'guassa' grasslands in Denkoro. Short grasslands on the high plateau are mostly good habitats, when not overgrazed, but are marginal when grazing is intensive.



Wolf presence and abundance: Wolves were encountered only once during 24km of census transects. A single wolf was seen in Kewa, but droppings and dig-outs where found in all areas visited. Overall, both transect data and interviews suggest that wolves are relatively low densities in South Wollo, although at Denkoro and Kewa, densities may be locally higher with group sizes of 4 and 6 individuals reported.

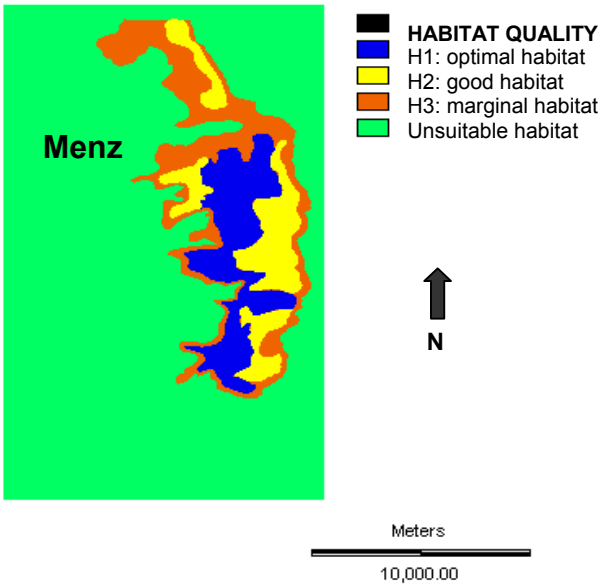
Population trends: Local people believed that wolf numbers were declining in all areas due to increased grazing on afroalpine ranges, implying that human activities are expanding into wolf habitat. In Guguftu wolves may now be locally extinct (all but one sighted was 5 to 10 years old).

Maximum carrying capacity: 43-68

Current wolf population estimate: 40 South Wollo appears to be the fourth largest wolf population. This estimate is close to the minimum carrying capacity, as wolf abundance appeared to relatively low in these highlands.

Menz (North Shoa)

Suitable habitat: Menz is one of the smallest afroalpine units in Ethiopia, with 111 km^2 of suitable habitat for wolves in a continuous single area ranging north-south along the border of the Rift Valley. Wolf habitat ranges between 3,400-3,550m above sea level, limited on the east by the Rift Valley wall escarpment and on the west by recently expanding agricultural activity. The ratio of good to poor habitat is the highest of all study areas (1.4), showing the absence of peripheral marginal habitats and the high proportion of good quality habitats. Optimal habitats occupied in Menz and consist mainly a mixture of vegetation types, namely 'charranfe' (*Euryops* spp)/short *Festuca* grasslands and swamps areas. Most of marginal areas are Erica moorlands.



Wolf presence and abundance: The Menz area has been surveyed in detail by the Darwin Initiative's Guassa Biodiversity Project between 1997-1999 and data are currently being analysed. Wolves may be present throughout this area at high density, although the northern end has been studied in most detail.

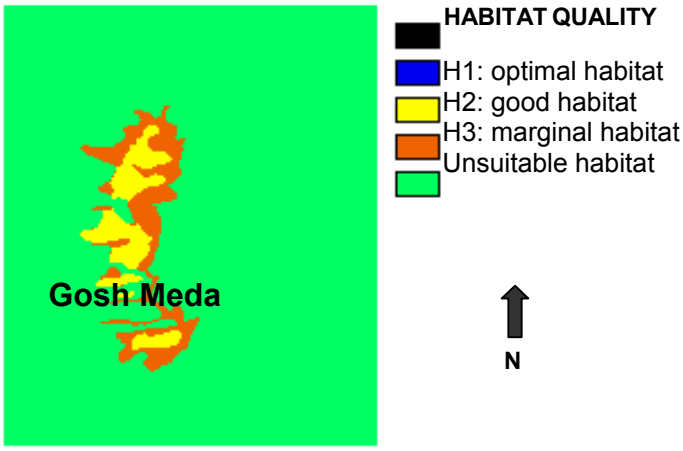
Population trends: Wolf numbers in Menz are stable, if not decreasing

Maximum carrying capacity: 24-35

Current wolf population estimate: 25. This estimate is close to the lowest carrying capacity, based on preliminary results of the Guassa Biodiversity Project, which estimated 17 to 26 wolves using transect data (Zelealem Tefera, pers. comm.).

Gosh Meda (North Shoa)

Suitable habitat: Gosh Meda is the smallest afroalpine unit in Ethiopia, with suitable habitat reduced to only 20 km^2 due to the expansion of agriculture in recent years. Remnant habitat lies between 3,550-3,650m above sea level and is highly fragmented.



Wolf presence and abundance: No wolves or wolf signs were recorded in Gosh Meda during the visit in April 1999. Information collected from interviews with local people confirmed the local extinction. All people interviewed had seen wolves in the past, but none had seen wolves within the last 5 years.

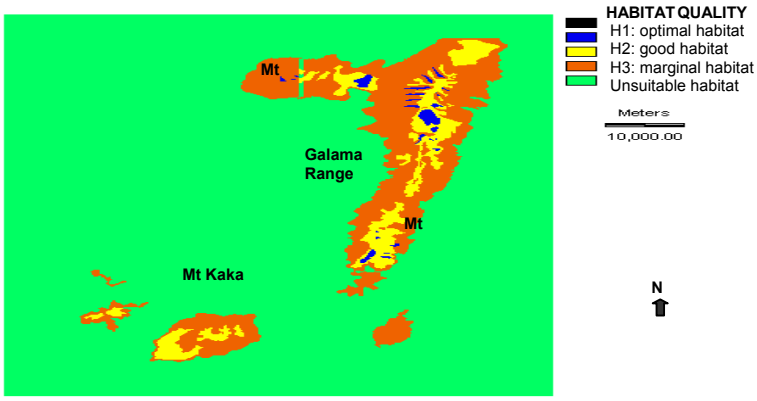
Population trends: The population appears recently extinct. Persecution was reported as the primary reason for this extinction. However, this may only be one of the consequences of recent agriculture expansion, which reduced the suitable habitat available to a small, isolated patch.

Maximum carrying capacity: 3-5 adult wolves

Current wolf population estimate: Population extinct.

Arsi Mountains (Arsi)

Suitable habitat: The Arsi mountain complex harbours a total of 870 km^2 of suitable wolf habitat on the western part of the region, the second largest extension after the Bale Mountains.



Suitable habitat is distributed on the north-south running range of ***Galama,*** connected to the west with ***Mount Chilalo*** by a broad saddle of suitable habitat at 3,300-3,400m. South of this mainland, ***Mt. Kaka*** and ***Mt. Hunkolo*** are additional patches of suitable habitat.

In most of the range agriculture fields extend up to 3,200m-3,400m, with wolf habitats extending in a continuous distribution through vast erica moorlands up to 4,100m.

The ratio of good to poor habitats is the lowest of all study areas (0.3), stressing the huge extent of the erica moorlands. Optimal and good habitats occupy the central flat areas of Galama and valleys and swamps. The broad saddle between Galama and Chilalo harbours good quality habitat with good meadows for livestock. Mt Hunkolo presents only steep slopes with erica moorlands of poor quality for wolves.

Wolf presence and abundance: Four opportunistic wolf sightings were recorded during 60.2km of census transects, all of them in the Galama range. An adult female was seen in southern Galama, an adult wolf East of Bora Luku, and a group of four wolves (two adult males with two juveniles) and two juveniles near Bora Luku. Droppings and dig-outs were found throughout the areas censused in Galama range and Mt Chilalo, where the presence of wolves was also confirmed with local people's reports. Wolf may be absent in Hunkolo. A previous expedition in 1997 confirmed the presence of wolves on Mt Kaka.

Both transect counts of wolf signs and sightings and local reports suggest that wolves are at fairly high density, particularly in the Galama range.

Population trends: The local people perceived wolf numbers to be increasing in the Galama range as wolf killings have reportedly stopped.

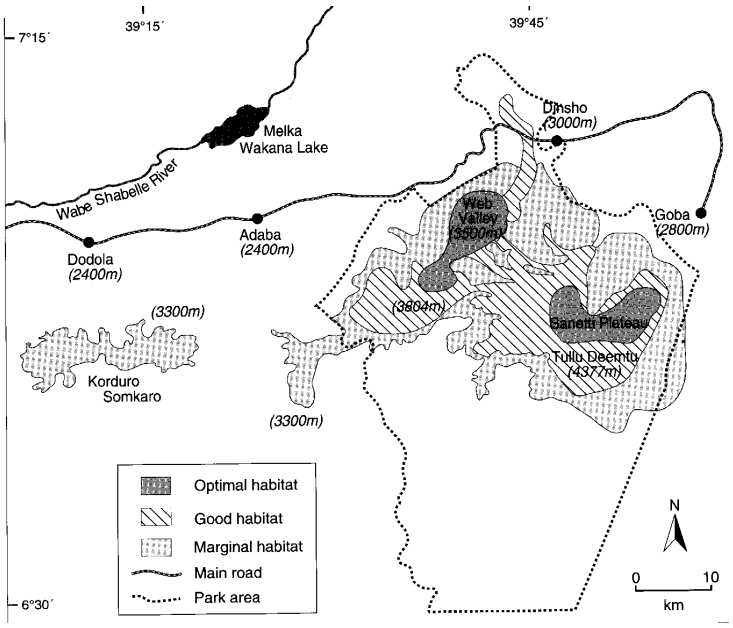
Maximum carrying capacity: 123-211

Current wolf population estimate: 80. Arsi is the second largest population in Ethiopia. The estimate is below the minimum carrying capacity since it is unlikely that resident wolf packs occupy all the vast ericaceous marginal areas. Wolves also appear to be absent from Hunkolo.

Bale Mountains (Bale)

Suitable habitat: The Bale Mountains comprise the largest area of continuous afroalpine habitat in Ethiopia, with more than 1,000 km^2 of suitable habitat for wolves.

The Bale complex includes ***Sanneti Plateau***, the largest high altitude plateau in Africa (3,900-4,000m); the flat valley bottom of the ***Web Valley*** (3,400-3,500m); and the remaining lowest wolf habitat in Ethiopia, the montane grasslands of ***Gaysay*** (3,000m). West of this main range lies the smaller ***Somkeru-Korduro*** mountain range.



(From Sillero-Zubiri and Macdonald, 1997)

Wolf habitats form a major land unit, although Gaysay is partially isolated, due to recent human encroachment along the habitat corridor to the Web Valley. Detailed description of wolf habitat quality and distribution is available from several publications, resulting from several years' study of Ethiopian wolf ecology (Sillero-Zubiri).

Wolf presence and abundance: Wolves occur at the highest known density in the Bale Mountains**.**

Population trends: Wolf numbers are only recently recovering from the population die off in the early 1990's, when rabies epidemics decimated the population. Both the number of wolves and the number of packs were reduced by two-thirds. Recently, new packs have been forming through large group fission.

Maximum carrying capacity: 205-319

Current wolf population estimate: Bale stands as the largest wolf population, estimated at **250** adult individuals, around half of the total global population

Habitat Conclusions

The recent surveys of suitable wolf habitat across Ethiopia confirms previous estimates of around 500 subadult and adult individuals for this species and that the biggest population, half of the total number, is found in the Bale Mountains. The survey has also revealed the presence of several other wolf populations in afroalpine habitat north of The Rift Valley. These areas had not been surveyed before and were thought to be unoccupied. These new populations in Wollo are all very small in size (between 25 and 50 wolves), although, surprisingly, wolves occupy almost every small habitat patch in the afroalpine units. However, the very small and isolated habitat patch (reduced to 20 km^2) in Gosh Meda in North Shoa no longer supports the species.

With the exception of Bale, and possibly Arsi, all wolf populations are extremely vulnerable to extinction due to their small size and the limited availability of habitat. However, the continued persistence of wolves in small populations suggests the species may be relatively resilient and may be able to recolonise and recover rapidly after local extinctions.

Protection of wolf populations across Ethiopia needs to consider the regional differences in habitat distribution and threats so that conservation measures are appropriately applied in each area. North Wollo has the greatest potential for the creation of a new conservation area, due to its size, density of wolves and the degree of threat it faces.

WOLF GENETICS -- Dada Gottelli

The Ethiopian wolf is a close relative of the grey wolves and coyotes, and is clearly phylogenetically distinct from other African canids. The unique attributes of the Ethiopian wolf and its distinct evolutionary history highlight the urgent need for its conservation.

The Ethiopian wolf had a historic distribution throughout the Ethiopian highlands and, given the presence of topographical barriers to dispersal, some populations may have acquired important genetic differences that should be preserved. A study of the remaining domain of the mitochondrial control region sequence of 22 Ethiopian wolves from six populations has shown that Ethiopian wolves are genetically very poor, as only three haplotypes were found, all closely related. Apparently, Ethiopian wolves belong to a single mitochondrial lineage of very recent common ancestry. The different haplotypes differed by only a few substitutions. Only 27 variable sites were found to be parsimony-informative. The ratio between transitions to transversions was 6 (26 to 6) and this high value probably indicates that Ethiopian wolves went through a small population bottleneck in the late Pleistocene, when the optimal habitat became fragmented due to climatic changes. A distant matrix analysis also shows that individuals from the Menz population are clustered together with only one haplotype.

Under these demographic conditions, even control region sequences will not be useful in supplying genetic markers for detecting population structure and phylogenetic breaks in gene trees that are indicative of subspecies. Levels of mtDNA variation are more severely affected than nuclear loci by changes in population size and phylogenetic trees based on mtDNA sequence data record the history of only a single linked set of genes.

Under these circumstances it may be possible to track population histories with even faster evolving microsatellite loci, but the number of loci required to do this will be large, at around 20.

In summary, the analysis of the Ethiopian wolf control region mtDNA sequence has not revealed genetic population differences and intermixing may be advised as fertility barriers and subtle adaptive differences are unlikely to exist

INITIATION OF THE ETHIOPIAN WOLF CONSERVATION STRATEGY WORKSHOP

To address the complex problems outlined above as well as others facing the Ethiopian wolf, a Conservation Strategy Workshop was held at the Dinsho Lodge in the Bale Mountains National Park from 18-21 November 1999. Sixty-eight people from eight countries attended the workshop (Appendix I), which was a collaborative effort between the Ethiopian Wolf Conservation Programme, the Canid Specialist Group of the IUCN Species Survival Commission (SSC), the Wildlife Conservation Research Unit (WildCRU), with generous support from the Born Free Foundation (UK) and the Zoological Society of San Diego and the Cincinnati Zoo through the Canid TAG of the American Zoo and Aquarium Association (USA). The Workshop was facilitated by the IUCN/SSC Conservation Breeding Specialist Group (CBSG). The primary aim of the workshop was to develop a national conservation strategy to improve the status of the remaining wolf populations.

THE WORKSHOP PROCESS

At the beginning of the workshop, participants agreed that the workshop would focus on preventing the extinction of the Ethiopian wolf. The workshop began with several presentations discussing the species' life history, population history, status, habitat assessments, genetics, local community interactions, as well as the various threats putting the Ethiopian wolf at risk.

One crucial by-product of this kind of workshop is that an enormous amount of information can be gathered and considered, that, to date, may not have been published. This information can be from many sources; the contributions of all people with a stake in the future of the species are considered. Therefore, in the present workshop, information contributed by farmers, game wardens, local citizens, scientists, and field biologists all carried equal weight.

Key to the CBSG workshop process is a communication process, or deliberation, that takes place. Participants work together to identify the key issues affecting the conservation of the species. Each working group produces a brief report on their topic, which is included in the document resulting from the meeting. A successful workshop depends on determining an outcome where all participants, coming to the workshop with different interests and needs, "win" in developing a management strategy for the species in question. Local solutions take priority. Workshop report recommendations are developed by, and are the property of, the local participants.

At the beginning of the workshop, the 68 participants worked together in plenary to identify the major issues and concerns affecting the conservation of the Ethiopian wolf (Appendix II). These identified issues centred around five main topics, which then became the focus of five working groups: Population Management; Community Conservation, Habitat Management, Public Awareness and Policy Change/Law.

Each working group was asked to:

- Examine the list of problems and issues affecting the conservation of the species as they fell out under each working group topic, and expand upon that list, if needed.
- Prioritise the most important issues under the group's topic and amplify the 3-5 most important issues.
- Develop, elaborate and prioritise goals that could improve each issue.
- Develop and amplify action steps to address the identified goals, assigning timelines and groups or individuals to take responsibility, whether to carry out the steps personally or to recruit others to help.
- If there are special projects (e.g., research or education) recommended by the group, prioritise and specify/describe the most important projects in text.

Each group presented the results of their work in three plenary sessions to make sure that everyone had an opportunity to contribute to the work of the other groups and to assure that issues were carefully reviewed and discussed by all workshop participants. The recommendations coming from the workshop were accepted by all participants, thus representing a consensus. Working group reports can be found in Section 2 of this document.

WORKING GROUP REPORT SUMMARIES

For each issue identified by the various working groups, several goals related to each of these problems were identified – these goals are summarised below. Additionally, action steps were recommended, along with organisations or individuals responsible for their implementation. The latter can be found in Section 2 of this report, in the full Working Group reports.

Population Management Working Group

The Population Management Working Group identified the most severe risks to Ethiopian wolf populations as: habitat loss and fragmentation (due to primarily to subsistence agricultural expansion but also commercial farming, grazing pressure and burning from increased pastoralism, the growth of urban centres and economic development such as mineral extraction) and the transmission of disease, mainly rabies, from domestic dogs living in or around wolf populations.

Other risks included human persecution (through road traffic accidents, revenge killings after livestock Predation, and intentional killings due to political instability, or delinquency), problems associated with dogs such as hybridisation, direct harassment or fighting and competition for resources, loss of genetic diversity and problems associated with inbreeding, and finally, risks associated with conservation infrastructure failure of inadequacy.

The group developed a set of goals to address the above:
Goal 1a. Monitor the demographic structure and dynamics and threats to all Ethiopian wolf populations.
Goal 1b. Assess which wolf populations are most at risk, their relative likelihood of persistence and prioritise conservation action between and within each area.
Goal 1c. Assess whether the oral vaccination of wolves against rabies is safe, effective and feasible.
Goal 2a. Cost benefit analysis of wolf versus dog vaccination
Goal 2b. Quantify and monitor the impact of humans on each population

Goal 2c. Monitor the genetic status and level of inbreeding of Ethiopian wolf populations

The Group concluded that their recommendations require the extension of the EWCP into the Amhara Region.

Other actions required for Ethiopian wolf population management, of importance but of lower priority, also were identified. These can be found in the Workshop Report.

In addition to identifying goals and action steps, the group also identified six indicators of risk to assess the relative risk to each population. These were population size, the severity of disease in dogs in the area, the degree of contact between humans and wolves (buffer extent), an overall assessment of habitat vulnerability, human attitudes to wolves and the amount of edge in relation to the habitat area which indicates the potential influence of humans on wolves.

Each area was assigned a score of 1 to 3 for each indicator, with a low score indicating a lower risk. A matrix was constructed so that different areas could be compared. Overall, the populations in North and South Wollo appeared at greatest risk, with those in Arsi and Bale south of the Rift Valley, at lowest risk.

Area	***No. wolves***	***Buffer/ Wolf-human contact***	**Disease**	***Habitat vulnerability***	***Human attitude***	***Edge: area ratio***	***Total score***
North Wollo	3	2	2	3	3	3	16
South Wollo	3	2	2	3	2	3	15
Menz	3	3	1	3	2	1	13
Guna	3	3	2	2	2	1	13
Simien	3	2	1	2	2	2	12
Bale	2	3	3	1	1	1	10
Arsi	1	1	3	1	1	2	10

Community Conservation Working Group

In return for some benefits, the group believed that the Ethiopian wolf and its habitat could be conserved, despite the compromises that this would (or could) entail. They believed that this could be done through the creation of a community-based – and decided – structure. The responsibilities of such a structure would include:

- The examination of existing community-based natural resource management systems which could form the basis for drafting the by-laws necessary to manage and protect the Ethiopian wolf and its habitat. This may include the drafting of punitive actions for offenders or abusers of the system.
- To enforce the steps necessary to protect the Ethiopian wolf and its habitat. These steps would be in constant review as the systems are dynamic: population pressures, the influence of stochastic factors such as the climate, etc., mean that the situation requires long-term and ongoing monitoring. This, as agreed, would probably be the EWCP employee in each of the wolf range areas. S/he would need to work closely with the CBCS

(Community Based Conservation Structure) to determine the steps that will be necessary to conserve the wolves and their habitats. Once agreed upon, these steps would be the responsibility of the CBCS.
- Maintenance of a sufficiently good security situation in the region.
- Ensuring sustainable use of natural resources, both within and without the wolf habitat. In order to confirm that the harvesting is sustainable, the resources being exploited should be monitored over time.
- Facilitating all processes to ensure that the community benefits from the conservation of the Ethiopian wolf and its habitat. This would include: training of people; setting up of necessary infrastructure; raising funding from donor agencies, the private sector and/or industry when necessary; seeking permission and reporting to the Woreda councils; and working together with the facilitators (e.g., EWCP, EWCO and the agricultural representative from the relevant Woreda council).
- Ensuring that the benefits of the conservation of the Ethiopian wolf and its habitat are shared fairly among the community.
- Ensuring that the people that take part in the activities of the community-based conservation program are fairly selected.

Habitat Protection and Management Group

The Habitat Protection and Management Group identified five priority problems:

1. Settlement of people in protected areas – reduction of habitat.
2. Lack of protection of prime wolf habitat outside currently protected areas.
3. Lack of respect of the official boundaries by the local people as well as lack of demarcated boundaries.
4. Lack of priority in entertaining the natural resource section by the government.
    - Institutional arrangement.
    - Lack of co-ordination among authorities, professionals and local people.
5. Lack of participation of local communities settled in or near the habitat.

ISSUE 1. SETTLEMENT OF PEOPLE IN PROTECTED AREAS – REDUCTION OF HABITAT.
Goal 1. Strengthening the delivery of agricultural delivery packages to areas around Protected Areas.
Goal 2. Initiate or promote tree planting in homesteads/woodlots.
Goal 3. Develop and implement land-use policy/plans to prevent further agricultural expansion into protected areas.
Goal 4. Promote family planning to help stabilise population increment.
Goal 5. Carry out censuses, monitoring and socio-economic surveys of the human population in and around areas of wolf habitat. Establish/estimate past, present and future population growth rates in these areas.

ISSUE 2. LACK OF RESPECT OF THE OFFICIAL BOUNDARIES BY THE LOCAL PEOPLE AND ALSO A LACK OF DEMARCATED BOUNDARIES.
Goal 1. Delineate mutually agreed boundaries and erect signs at strategic points, and develop maps.
Goal 2. Encourage regular patrolling and promote law enforcement.
Goal 3. Promote revenue sharing mechanisms to encourage the people living around Protected Areas to respect their boundaries.

ISSUE 3. LACK OF PROTECTION OF PRIME WOLF HABITAT OUTSIDE CURRENTLY PROTECTED AREAS.
Goal 1. Upgrading the status of the wolf habitats.
Goal 2. Establish buffer zones around wolf habitats.

ISSUE 4. LACK OF PRIORITY IN ENTERTAINING THE NATURAL RESOURCE SECTION BY THE GOVERNMENT; INSTITUTIONAL ARRANGEMENT; CO-ORDINATION AT ALL LEVELS.
Goal 1. Enhance awareness of authorities on the fate of the Ethiopian wolf.
Goal 2. Create an autonomous body for forest, wildlife and related renewable natural resources.
Goal 3. Enhance capacity building for people involved in Protected Areas.

Public Awareness Working Group

The Public Awareness Working Group identified five main problems:

1. Lack of awareness among the public about Ethiopian wolves.
2. Lack of knowledge on the distribution and status of the Ethiopian wolf.
3. Lack of attention by government and NGOs.
4. Lack of communication between people who conserve the wolf and the general public.
5. Lack of evaluation of efforts that are made for the conservation of the Ethiopian wolf.

General solutions to these problems were proposed, along with proposals for organisations that should be responsible for carrying out creation of an awareness program.

1. Increase awareness among the general public.
2. Including the conservation education program into the formal and informal sectors of the national education curriculum.
3. Concerned conservation organisation should put much effort to increase public awareness.
4. Evaluation of the on going awareness creation programs.

The group recommended that the following organisations should be responsible for carrying out the awareness creation program:

1. The Ethiopian Wolf Conservation Program
2. The Ethiopian Wildlife Conservation Organisation
3. The Ministry of Agriculture offices
4. The Ethiopian Wildlife and Natural History Society
5. Other Governmental and non-Governmental Organisation.

Policy Change/Law Working Group

The Policy Change/Law Working Group identified the following issues and goals. Expanded strategies and action steps can be found in the draft workshop report.

ISSUE 1. CONSERVATION POLICY
There is a national conservation strategy for Ethiopia that is quite broad. Likewise there is a broad environmental policy. Over time, the conservation strategies have changed from being centralised to decentralised. Thus, strategies, for the most part, have been relegated to 11

regions within Ethiopia, some of which have developed strategies and others that have not. Meanwhile, the central government still manages two national parks and three sanctuaries. Problem: There are general, but no specific, sector policies at the national level for the following: wildlife (including for individual species); forestry; land-use (including livestock); fisheries.

The problem is that the national parks have been decentralised to the regions that do not have adequate capacity in terms of: a well-developed plan; motivation; commitment; attention training; funding. Thus, there is no linkage between the federal and regional plans.

The problem is that the importance of the broad sector and national policies are not well understood by federal authorities or national communities. Additionally, regional and national sector policies are not in conformation with each other. Furthermore, there is no incentive to standardise these policies.

Goal 1. Create a centralised policy for wildlife management and conservation, especially for endemics and national parks.
Goal 2. Set specific sector policies for wildlife, especially endangered species. This includes setting clear policy for wildlife management, which also involves non-endemics in reserves, sanctuaries, hunting areas and open areas.
Goal 3. Build conservation / management capacity at both the federal and regional levels.

ISSUE 2. LAW ENFORCEMENT
The problem is that enforcement of existing wildlife policies generally does not have the attention of the appropriate officials, a situation that is area-specific. (For example, some persecution of wildlife crimes does occur in national parks, but not in local, non-reserve areas).

The problem is that existing species protection laws are outdated and checkpoints (at park, reserve, community exits, etc.) for protecting wildlife have been abolished. Prosecutions of criminals often are done in local courts where there are inordinate delays and only small penalties or fines. A change in the national government resulted in the abolishment of many traditional laws that protected local wildlife and natural resources. (This problem largely is area-specific, in Menza). There are no laws for implementing most policies pertaining to Ethiopian environmental issues. It was noted that these problems pertain to many rare Ethiopian species (beyond the Ethiopian wolf).

Goal 1. Enforce existing laws.
Goal 2. Develop new laws that will effectively protect Ethiopian wildlife.
Goal 3. Developing an environmental legislation framework (that addresses issues of degradation, pollution, etc.).

ISSUE 3. CONSERVATION AREAS (OLD AND NEW)
The problem is that local communities do not respect national park boundaries. There is excessive encroachment into wildlife habitat for agricultural purposes and there are not sufficient protected areas for the Ethiopian wolf. Poor park management system that excludes the community.

Goal 1. Demarcate park boundaries with involvement of local communities.
Goal 2. Introduce improved wildlife management system for protected areas.
Goal 3. Develop new protected areas for threatened wildlife of Ethiopia.

ISSUE 4. NATURAL RESOURCES
Government officials underrate the importance of sector issues associated with wildlife, forests, land-use and fisheries. The government puts inordinate attention on agricultural production at the cost of wildlife. Most attention is on enhancing agricultural production, and there is concern that resources for this purpose sometimes are not used on the basis of science (e.g., adding fertiliser without adequate soil testing). The problem is that there is an unbalanced use of resources in favour of agriculture at the expense of conserving national resources, including wildlife.

Goal 1. Develop a national land use policy that will result in more balanced use of resources that will improve both agriculture and wildlife conservation/management.

ISSUE 5. DISEASE
The problem is that there is no limit on the number of dogs owned in or near protected areas, and that laws requiring vaccination against rabies are not enforced.

Goal 1. Strict enforcement on current national policy on vaccinating domestic dogs against rabies.
Goal 2. Limit dogs to two per household in the areas of Ethiopian wolf populations.

The group also recommended two workshops:

Workshop #1. Ethiopian Wildlife Assessment Workshop

Purpose: A co-ordinated series of steps to determine the status of all endemic/threatened and non-endemic wildlife species. Information will allow developing specific assessment techniques and subsequent conservation and management plans at the federal and regional levels to determine (1) assessment criteria, (2) elements of each action plan, 3) approaches for field assessment and (4) dates and venues for regional workshops.

See the working group report in Section 2 for more detail.

Workshop #2. Ethiopian Workshop to Assess Capacity Needs to Enhance Conservation Management

Purpose: A series of workshops to determine needs for improving conservation and management of Ethiopian wildlife. Subjects will include needs assessment for wildlife and park management, leadership and financial management, among many others. Results will result in organised training programs to increase overall manpower for conservation.

Workshop #2: During discussion, it was realised that this concept was similar to a series of workshops being planned by EWCO and already funded by GEF. Therefore, there is a need to merge this workshop concept with ongoing approved GEF project through EWCO scheduled to occur within the next year.

See the working group report in Section 2 for more detail.

AFTERWORD

This document is an important starting point that can be used by managers and scientists in Ethiopia, setting directions and priorities for management and research, catalysing further conservation actions, and assisting with funding endeavours. It also perhaps will serve as a model for similar processes for other threatened endemic species in the region. The recommendations contained in this document were reached by consensus of the workshop participants as a whole and reflect their wide-ranging perspectives and opinions concerning the conservation of the Ethiopian wolf. They do not necessarily reflect the opinions or agendas of individual organisation, including the Ethiopian Wolf Conservation Programme, the Ethiopian Wildlife Conservation Organisation, or other organisations present.

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ETHIOPIAN WOLF

Conservation Strategy Workshop

18-21 November 1999

Dinsho Lodge
Bale Mountains National Park

FINAL REPORT

SECTION 2

WORKING GROUP REPORTS

Population Management Working Group Report

Participants: Dada Gotelli, Alison Hood, Hana Kifle, Karen Laurenson, Jorgelina Marino, Gus Mills, Zealalem Tefera
Facilitator: David Macdonald

The population management working group discussed the actions that should be taken to reduce the risks that faced both Ethiopian wolves as a species and also each isolated population. To reach that stage, it was first necessary to identify the risks and whether they were common to all or only some areas, before identifying and prioritising potential solutions to these problems. Finally, the implementation of these solutions could be planned.

Ethiopian wolves now exist in a series of small populations, which are inherently vulnerable. The most severe risks to Ethiopian wolf populations were identified as habitat loss and fragmentation (due to primarily to subsistence agricultural expansion but also commercial farming, grazing pressure and burning from increased pastoralism, the growth of urban centres and economic development such as mineral extraction) and the transmission of disease, mainly rabies, from domestic dogs living in or around wolf populations

Other risks included human persecution (through road traffic accidents, revenge killings after livestock predation, and intentional killings due to political instability, or delinquency), problems associated with dogs such as hybridisation, direct harassment or fighting and competition for resources, loss of genetic diversity and problems associated with inbreeding, and finally, risks associated with conservation infrastructure failure of inadequacy. This last topic was extensively discussed by another working group and was thus not considered further by this group.

ISSUE 1. DISEASE
Disease, particularly rabies and to a lesser extent canine distemper, was acknowledged to be a serious risk to the species as it can cause dramatic population crashes, which could lead ultimately to local extinctions. As human and dog populations (the probable reservoir for rabies) continue to increase in Ethiopia, this risk will not diminish over time and is a long-term problem.

A number of actions could be taken to decrease the risk of disease outbreaks in wolf populations. Direct methods include the vaccination of dogs in and around wolf populations and the vaccination of individual wolves through the oral route to avoid handling. Less direct action include reducing dog densities and movements through legislation, education and sterilisation programmes, which would also decrease other dog-wolf conflict, such as wolf harassment by dogs, hybridisation or competition for resources. These options and their advantages and disadvantages are discussed in more detail in the *Ethiopian Wolf Action Plan.*

In the short term, when action is required, the most (or only) effective method of disease control is through dog vaccination, which is currently being carried out in the Bale Mountains. However, wolf vaccination might provide a cost-effective method of wolf protection, but we do not know at present whether this method is feasible, effective or cost-effective compared to dog vaccination.

ISSUE 2. HABITAT LOSS AND FRAGMENTATION

Habitat loss and fragmentation is the factor that underpins Ethiopian wolf survival in the medium and long term. This issue is being considered in detail by another working group, and thus this group considered it only in the context of its effect on population management and the prioritisation of conservation action. Several gaps in our knowledge were apparent, such as what impact grazing and burning had on rodent and thus wolf population dynamics, how human activities impacted on each population, how wolf population size, structure and dispersal patterns affected the likelihood of persistence.

Metapopulation management, that is the management of the entire wolf population in Ethiopia as a whole, through manipulating its constituent isolated populations, was discussed. In this context, metapopulation management includes captive breeding, translocation of individual wolves to maintain genetic diversity or to restock after population crashes, reintroduction after local extinction. During discussion, the group agreed that whilst captive breeding was a good idea in principle, it was not currently of the utmost priority, particularly considering funding constraints and that more than one captive population would have to be set up and maintained. Similarly, as we have insufficient genetic or demographic evidence to determine whether inbreeding is currently a problem, particularly in the small northern populations, translocation could not be prioritised.

Priority Action List

Suggested actions that the group considered to be important for the improvement of Ethiopian wolf population management were identified and then prioritised. Time constraints determined that only the two groups considered to be of higher priority could be considered in detail, but the suggested goals in the lower priority groups are outlined below.

Goal 1a. Monitor the demographic structure and dynamics and threats to all Ethiopian wolf populations.

Population monitoring underpins all population management by determining the pattern and causes of wolf population dynamics so that conservation priorities can be drawn up and then reassessed in the light of future changes in risk factors, problems detected at the earliest possible stage.

Action Steps:

1. Obtain permits; obtain assistance of regional and national wildlife officers
2. Formulate strategy; EWCP co-ordinator and EWCP advisors
3. Revise budget if necessary (with BFF)
4. Assemble team
5. Implement

Person Responsible: EWCP co-ordinator
Timeline: 12 months to initiate but duration indefinite

Goal 1b. To assess which wolf populations are most at risk, their relative likelihood of persistence and prioritise conservation action between and within each area.

For the effective population management and conservation of Ethiopian wolves, resources must be targeted in those areas most at risk, but also where the risks can feasibly be reduced. For example, some populations may be too small to be viable and thus any conservation activities there may not be cost effective. In contrast, large populations, which are of considerable importance to the species, may be likely to persist whether or not additional conservation

activities are implemented. Thus resources may be best targeted where they can make a currently non-viable population become viable.

Action steps:
1. Evaluate existing data and carry out preliminary assessment
2. Identify and fill gaps
3. Integrate with monitoring programme for additional data collection

Organisation/group responsible: Ethiopian wolf working party (CSG/EWCP-Lena to be the motivator)
Timeline: Immediate (for inclusion in workshop report) and reconsider annually
Duration: Long term

Goal 1c. To assess whether the oral vaccination of wolves against rabies is safe, effective and feasible.

The direct vaccination of Ethiopian wolves through the ingestion of oral vaccines may be the most cost-effective way of reducing the threat that rabies poses to Ethiopian wolves. However, this method may not be feasible for a number of reasons, for example wolves may not eat oral baits, the recombinant vaccine developed for foxes may not be effective in wolves or it may be difficult to protect an adequate proportion of wolves in a population.

Phase 1. Preparation
Action steps:
1. Evaluate available information on vaccine suitability, particularly the use of a recombinant vaccine
2. Seek permission for vaccine use in Ethiopia

Organisation Responsible: EWCP, CSG, EWCO
Timeline: 6 months

Phase 2. Feasibility Research
Action steps:
1. New research on efficacy (seroconversion of wolves after ingestion of baits; handling required. Challenge experiments presently unfeasible and may be unacceptable)
2. Research on bait acceptability and distribution techniques

Organisation Responsible: CSG to work with institutions on proposal
Timetable: 2 years

Phase 3. Implementation if feasible

Organisation Responsible: EWCP
Timeline: Long-term

Goal 2a. Cost benefit analysis of wolf versus dog vaccination.

Vaccination of dogs or wolves (if feasible) is the most direct method of reducing the risk that rabies and other diseases pose to Ethiopian wolves. However, we have not assessed the costs, their effectiveness, nor the benefits of each strategy. For example, from a community perspective, economic and public health accrue from vaccination of dogs.

Action steps:
1. Evaluate data

Person Responsible: Karen Laurenson
Timeline: 6 months and revise after Phase 2 of 1c.

Goal 2b. Quantify and monitor the impact of humans on each population.

A preliminary assessment of the influence of humans on wolf populations and their habitat, with particular reference to agricultural expansion, grazing and burning pressure, disease incidence and wolf-livestock conflict has been carried out by the EWCP team, however this information could be further refined and changes needed to be monitored.

Action steps:
1. Identify priority questions
2. Develop protocol (questionnaires, fieldwork, satellite imagery)
3. Implement
4. Evaluate and formulate actions

Organisation Responsible: EWWP (Motivators, Lena and Stuart)
Timeline: #1 -- 3 months
#2 -- 3-6 months
#3 -- 6 months +
#4 -- 2 years
Duration: Ongoing

Goal 2c. Monitor the genetic status and level of inbreeding of Ethiopian wolf populations.

Although studies to date have revealed little genetic variation within or between wolf populations, more sensitive molecular techniques might be used to refine this study and detect genetic loss or inbreeding depression. Such an eventuality would prioritise translocation as a management strategy.

Action steps:
1. Establish molecular techniques and create a protocol for sample collection
2. Obtain samples, conduct laboratory work and evaluate results
3. Long term monitoring

Person Responsible: Dada Gottelli and EWCP
Timeline: #1 -- 3 months
#2 --initial results 12 months
Duration: Long term if feasible

Other actions required for Ethiopian wolf population management also were identified. These are important, but of lower priority.

Intermediate lower priority actions

1. Limit dogs in and around wolf habitat through legislation, education and dog sterilisation.
2. Remove dogs from wolf habitat through resettlement, legislation, education or humane destruction.
3. Initiate research to establish the impact of grazing and fire on rodent population dynamics and therefore on wolf populations dynamics.
4. Develop predictive model of wolf conservation that can be used to examine minimum viable population sizes, the effect of disease, population structure, habitat loss and fragmentation and the effect of alternative conservation actions on population persistence
5. Maintain preparedness for construction a captive breeding facility if it became a higher priority.
6. Assess whether existing areas of Afroalpine habitat where wolves are not found meet the IUCN criteria for reintroductions (Mt. Choke).

Lowest priority actions

1. Evaluation of current data to support or refute the assumption that dogs are the reservoir for rabies. Carry out a large-scale definitive experiment to test this assumption.
2. Translocation of wolves between areas to maintain genetic diversity and avoid inbreeding depression
3. Carry out further driver education to reduce road kills
4. Quantify livestock losses to wolves where this is apparently a problem and attempt to resolve this conflict

Preliminary conclusion

Our recommendations require the extension of the EWCP into the Amhara Region.

Task: Relative Risk Assessment for Ethiopian Wolf populations

The Working Group also chose six indicators of risk to assess the relative risk to each population. These were population size, the severity of disease in dogs in the area, the degree of contact between humans and wolves (buffer extent), an overall assessment of habitat vulnerability, human attitudes to wolves and the amount of edge in relation to the habitat area which indicates the potential influence of humans on wolves.

Each area was assigned a score of 1 to 3 for each indicator, with a low score indicating a lower risk. A matrix was constructed so that different areas could be compared. Overall, the populations in North and South Wollo appeared at greatest risk, with those in Arsi and Bale south of the Rift Valley, at lowest risk.

Area	*No. wolves*	*Buffer/ Wolf-human Contact*	Disease	*Habitat vulnerability*	*Human attitude*	*Edge: area ratio*	*Total score*
North Wollo	3	2	2	3	3	3	16
South Wollo	3	2	2	3	2	3	15
Menz	3	3	1	3	2	1	13
Guna	3	3	2	2	2	1	13
Simien	3	2	1	2	2	2	12
Bale	2	3	3	1	1	1	10
Arsi	1	1	3	1	1	2	10

Community Conservation Working Group Report

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Introduction

When all the participants of the workshop were asked to indicate the area of greatest concern to them in the conservation of the Ethiopian wolf, more than 12 raised an issue related to community involvement. The issues raised ranged from strengthening indigenous conservation management to community awareness. Because of the strength of this response, a working group was formed to discuss these combined topics.

In the initial discussions, the problems that were introduced in the first meeting were refined and then expanded. There were certain themes that recurred. These included the way revenues could be generated and provided to the local people, the employment of local people, tourism, the need for education and awareness, the need for alternative sources of income and a direct suggestion the there be at least one person employed to run the wolf conservation program in each wolf area. Although we did not formally rank the diverse list, three major themes emerged:

- Community based management
- Income generation and indirect benefits among the communities that live adjacent to and overlap with wolf habitat
- Education and awareness

ISSUE 1. COMMUNITY-BASED MANAGEMENT

The group considered that the communities that live in the areas adjacent to and that overlap with the range of the Ethiopian wolf should participate in the management and benefit from (see below) the conservation of the Ethiopian wolf. It was agreed that a structure should be formed from the grassroots levels among these communities. There was an extensive discussion on how this structure should be formed which included the following questions:

- How to formulate the powers and sphere of influence of any community conservation committee?
- Who should be on the committee?
- To whom does the committee report?
- Who employs the people who monitor the wolves?
- Who should liase with the outside including EWCP?
- How can the committee promote and support tourism?

From the workgroup discussions, the structural "blueprint" for a community conservation programme in Ethiopia was drawn up.

The "structure"

It was agreed that the institution (hereafter term "structure") that should manage the conservation of the Ethiopian wolf and its habitat – at the level of the local communities – should come from the communities themselves. Therefore, the management should be from the bottom up – thus the grassroots levels – and not top down management. The structure of the group of people that would be involved in this management should be decided by the local communities. Where possible this should be based on already existing (possibly traditional), community-based management structures.

An example of such a structure exists in Menz and North Wollo. It may be useful to examine and describe these structures here. In North Wollo, the community manages the harvesting of *guwassa* (thatch grass from the montane habitats that include those of the Ethiopian wolf). The church has ownership of the harvest, and when harvested the church claims half the harvest. The other half of the harvest is distributed among the local community. In order to ensure that there is no overexploitation or other abuse of the *guwassa*, a single individual is nominated by the community. The individual is responsible for the sustainable management of the *guwassa*, including harvests and ensuring no abuse. The individual benefits from this role through increased status: he is allowed first choice at feasts, he sits with the priests at feasts, etc. Abusers of the system are given punitive fines that are small but significant. In some areas such as Menz, such community-based management of natural resources has been operational for over four hundred years.

As a result, no structure would necessarily be the same in any two areas. Indeed, there would be no constraints placed on the composition of the structure. This would be left entirely to the community to decide.

The initial responsibilities of the structure would be to establish policies (in consultation with the facilitator group) and rules that would be used to enforce the protection of the wolf and its habitat. Again, if possible, these may be based on already existing or traditional means of natural resource management.

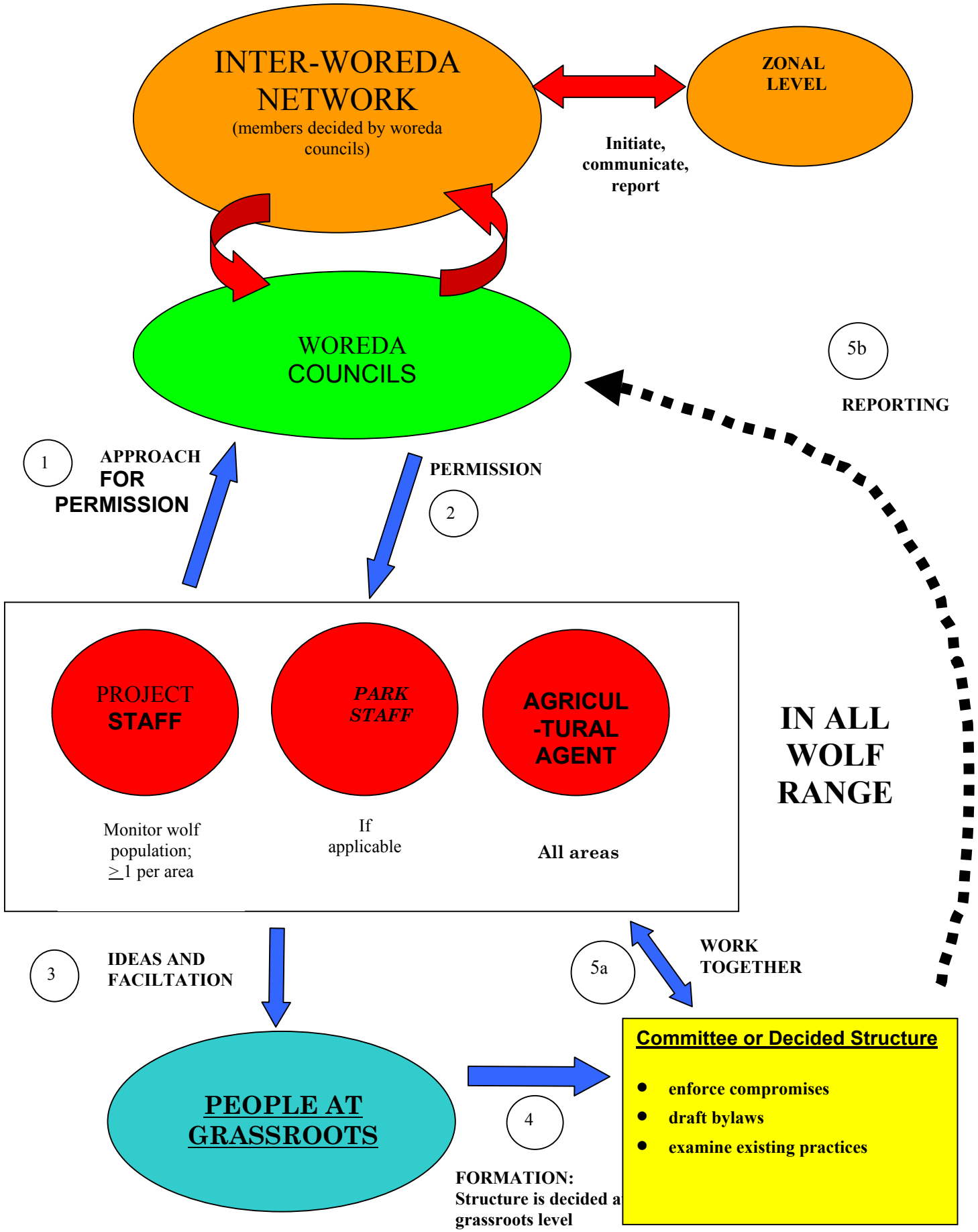
The other responsibilities of the people within the community-based conservation structure are discussed below.

The initiation, input and facilitation

It was obvious to the working group that that idea of community-based conservation would have to be injected into the communities from outside. Indeed, many of the participants of the workgroup said they would be returning to their own communities with the idea.

A three-way group would be formed to inject the idea of community conservation among the implicated communities. This would be comprised of an employee from the Ethiopian Wolf Conservation Programme (EWCP), the agricultural representative from the local *woreda* council, and (if applicable) a representative from the national park staff (EWCO). The function

Figure 1. Series of steps envisioned to empower community-based management.



of this group would not simply be to inject ideas into the local community but also to facilitate each step of the process (see below and Figure 1). They would work closely with the structure that the local community has created to manage the wolf range, providing input, technical assistance, advice on funding, advice on the pathways to achieve the benefits of wolf conservation (e.g., how to set up the tourist operation), etc..

One underlying assumption and recommendation from the workgroup was that the EWCP would have a suitably qualified employee in each of the wolf range areas.

Setting-up the system

The process to empower the community-based management structure was examined in detail and the workgroup came up with a series of steps that would need to be followed. This is set out in Figure 1. In brief, this would entail the people involved in the structure (and where necessary, the facilitators) to approach the local *woreda* councils to seek permission and/or to inform them of the processes under way. The *woreda* council could, in turn, also act in an advisory capacity but should not dictate to the structure that had been agreed by the local communities.

As many of the areas would involve more than one *woreda* council, an inter-*woreda* network should be established. Such a network had been shown to work in the community-based management of *guwassa* in Menz. Because this network will help co-ordinate the activities of the community-based conservation, it was concluded that the *woreda* councils should appoint its members. However, it may be suggested that representatives from each of the communities and the group of facilitators should be included.

The inter-*woreda* network, in turn, would inform the authorities at the zonal, regional and higher governmental level of the activities.

Monitoring the situation

It was agreed that there should be (a) person(s) that would monitor the habitat and the wolf population. Because of their technical ability in this area, it may be advantageous if that person would have close ties (if not employment) with the EWCP. Such a person could also survey the people living in the community for their views and other such pertinent information gathering. This person would gather the data on which the community based management would be based

ISSUE 2. BENEFITS AND INCOME GENERATION

The principle that local communities would have to benefit from the Ethiopian wolf (and/or their habitat) in order to work to for its conservation was confirmed by the participants. The harvesting of the *guwassa* harvesting was held up as an example: the community benefits from its harvest (for thatch for houses) and hence they are willing to set up a system to ensure its protection.

It was agreed that the benefits may come in various forms and should not be confined to monetary benefits. However, because the lack of experience in many of the areas, the setting-up of a tourist operation was examined.

Tourism

Initially, the working group discussed whether they would, in principle, like tourism in their respective areas. In order to make this decision, the pros and cons of tourism were pointed out

by members of the group that were familiar with tourist operations. Despite the negative aspects of tourism, all participants of the group (which included representatives from many of the wolf range areas) concluded that these were outweighed by the benefits.

It was noted by the working group that the communities in the areas surrounding already existing protected areas including national parks should benefit from the parks by a revenue sharing scheme. It was noted that this could only come through a change in policy at the national and/or regional level. Consequently, there was little that this workgroup could suggest, particularly as there was another workgroup working specifically in the field of policy change and law.

The group developed a model for tourism. This forced the group to answer some of the questions about the nature of the community conservation committee, and the distribution of revenues.

In order to initiate a tourist operation in a given area, the community-based conservation structure would draft a tourism plan to be approved at the *woreda* level. Such a plan would show how the community is prepared for tourism.

The pre-requisites for a tourist operation were discussed. These included the following:

- A suitable infrastructure (including access roads for the area, means of accessing the wolf areas such as paths, accommodation for visitors such as hotels or campsites with necessary facilities, restaurants)
- A publicity campaign that will inform tour operators, tourists, and tourist guidebooks of the existence of the operation
- The security situation in the region should be sufficiently good so that there is no threat to tourists visiting the area: the lack of a good security situation is an absolute tourist deterrent.
- A group of sufficiently trained personnel to carry out all the necessary tasks involved in any tourist operation. These would include: guides, cooks, administrators, horse/mule handlers, porters, etc.
- Some system – agreed by the community – of financial accountability.

In order to achieve the two main prerequisites faced by the community – training and infrastructure building, the community will have to seek financial support. The sources of support were discussed by the workgroup and two sources were identified, each with different implications for the community:

1. *Donor agencies, private sector support or industrial sector support*

The support of this type would be financial support that would help cover the costs of the personnel training and infrastructure building. Occasionally this may require the community to match the donated funds to some extent (say, 15 - 25% of the required funds), but may come in kind such as personnel to carry out the labour. If funding comes from the private sector, they might expect some revenue returned from that generated through the tourism once operational.

2. *Tourist company investment*

Support of this type may mean that the community may not have to contribute financially to the scheme – particularly if the company is given a concession to the area. This may be advantageous if the community has little capital to cover these initial costs. The disadvantage is that the concessionaire will remove a large percentage of the revenue generated from the tourism.

Financial planning must include rules on how the revenues are shared. For example, the financial benefits of the tourism may then be divided among the community in the following ways:

1. The income generated among individuals for services such as guiding, horse/mule loan, selling of handicrafts, cooking, portering and the sale of local produce (foodstuffs) would be retained by those individuals.
2. The community in general would benefit financially by charging an entrance fee (equivalent to a national park's entrance fee) and bed-night fees. This would be distributed among the community in a way determined by the community themselves.
3. If a tourism company or the private sector was involved then some of the revenue that is generated through tourism may be retained.

It was suggested that the training of personnel could be conducted by a number of organisations. Those suggested included: the EWCP, EWCO, the Bureau of Tourism and Culture (at the regional level), the Biological Society of Ethiopia, and/or the Ethiopian Wildlife and Natural History Society.

[Note: *A detailed cost-benefit (economic) assessment of each of the wolf range areas may first be necessary. The outcome of such an assessment would be to conclude which benefit systems (e.g., tourism vs. traditional exploitation) would be optimal for a given area. If, however, the conclusion of such an analysis is that an area's inaccessibility means that there any activities would result in deficit, alternative incentives may have to be provided to communities to ensure the protection of the wolf and its habitat. The assessment of the form of such incentives will have to be included in such an analysis.*]

Alternative means of generating income

It was acknowledged that because the ever-increasing number of people that surround wolf ranges could not be sustainably supported by the present means of survival (principally agriculture and livestock management) particularly if the wolf and its habitat were to be conserved. Consequently, alternative means for employing people and/or generating income were discussed. These were listed:

- Bee-keeping for honey and wax production
- Harvesting honey and wax from natural bee populations
- Weaving for carpets and rugs (though it was noted that this requires sheep which require area on which to graze)
- Forest plots – thus the planting and harvesting of trees for use for construction and fuel
- Vegetable and fruit production (horticulture)
- Handicrafts not requiring raw materials from wolf habitat

It should be noted that these activities should be confined to areas surrounding but **not within** wolf habitat. In addition, it was noted that all such activities should be conducted on a sustainable basis particularly when they involve harvesting natural resources. Finally, it was noted that there may be some costs such as training and acquiring seeds and/or seedlings.

Income generating activities that promote the conservation of wolf habitat

It was noted that there were a number of ways in which the local communities benefit from the conservation of wolf habitat – because of resources that the people use **within** wolf habitat. Again, these resources and benefits were simply listed:

- *Tossigne* (*Thymus* spp.) harvesting
- *Guwassa* (thatch grass) harvesting
- Medicinal plants – for example, *kosso* (*Hagenia* spp.), St. John's Wort, giant lobelia among many others

- Basket making from reeds, etc harvesting from wolf habitat
- *Hora* (mineral springs) for domestic livestock
- Water – the protection of wolf habitat would ensure clean drinking water for the people
- No pollution, particularly of air
- Aesthetic value of the areas

It was noted and stressed that all activities in the wolf habitat should not only be sustainable but they should be conducted without impinging on the survival of the wolf.

Increased productivity of present activities in the communities

It was noted that if the productivity of the livelihoods among the communities was improved, then the pressure on the land would decrease. A simple example to illustrate this was given: if an acre of land that presently produces five bags of crop were improved to produce twenty bags of crop then the community would not need to extend the agriculture into other areas to feed the increasing human population. Other ways of increasing the standard of living among the communities were also discussed. These included:

- Increased agricultural production (known as the agricultural extension programme), which could include: use of fertilisers, agro-forestry technology, small-scale irrigation, using improved seeds, apiculture, introducing improved breeds of livestock, cross-breeding to improve present livestock.
- Improved human health care. This could take the form of vaccination programmes, health education, family planning clinics, and medical clinics. An example of this was given: once it was known that the clinic in Dinsho was provided by the park – and therefore as a result of the wolf – the community perceived that there was a value to the conservation of the wolf.
- Improved veterinary care. This could take the form of vaccination programmes, education, mineral supplement and veterinary clinics. It was noted by the group that the vaccination programmes for dogs in the vicinity of wolf habitat that occur as a direct result of the presence of wolves meant that the community were benefiting from the Ethiopian wolf.

However, it was noted that there was a potentially confounding factor to such programmes: if the livelihoods of the people surrounding the wolf habitats was improved but not in the areas further away, then such improvement programme would act as a magnet for more people. This would therefore exacerbate the problems.

ISSUE 3. EDUCATION AND AWARENESS

Throughout all the discussions by the group it was concluded that there was a need for a programme of education and awareness among all the communities that are adjacent to or share wolf habitat. It was noted that such programmes should reach all members of the society and would therefore have to be carefully planned and include aspects relevant to the different groups. The education and awareness would not only target the reasons why the Ethiopian wolf should be conserved but should also include other aspects of environmental education (e.g., sustainable use of natural resources).

It was also noted that there would be a need for training of various people for community-based conservation programme to be successful (e.g., as noted for the implementation of a tourist operation).

Because education and awareness were the specific tasks of another workgroup, this group did not focus directly on these issues.

Compromises

Finally, it was noted that community conservation requires sacrifices by the communities. A community's activities in the wolf habitat will have to be curtailed to the extent that they threaten the survival of the wolf.

Such activities include:
- Grazing by livestock
- Use of *hora* (mineral springs for livestock)
- Agricultural cultivation
- Wood collection
- Collection of medicinal plants
- Reduction of burning habitat to improve it for grazing
- Honey gathering

This list is specifically ranked in the order in which the group believed they would be least willing to give up (and thus enforce), with those most difficult listed higher up (i.e., the communities would be most willing to give up honey gathering and least willing to give up grazing their livestock). It was noted that *guwassa* was one of the activities that may have to be curtailed or controlled. However, given that it is restricted only to certain areas (Menz and North Wollo), it could not be included in this ranking.

Conclusions

In return for some benefits, the group believed that they would be willing to conserve the Ethiopian wolf and its habitat despite the compromises that this would (or could) entail. They believed that this could be done through the creation of a community-based – and decided – structure. The responsibilities of such a structure would include:

- The examination of existing community-based natural resource management systems which could form the basis for drafting the by-laws necessary to manage and protect the Ethiopian wolf and its habitat. This may include the drafting of punitive actions for offenders or abusers of the system.
- To enforce the steps necessary to protect the Ethiopian wolf and its habitat. These steps would be in constant review as the systems are dynamic: population pressures, the influence of stochastic factors such as the climate, etc., mean that the situation requires long-term and ongoing monitoring. This, as agreed, would probably be the EWCP employee in each of the wolf range areas. S/he would need to work closely with the CBCS (Community Based Conservation Structure) to determine the steps that will be necessary to conserve the wolves and their habitats. Once agreed upon, these steps would be the responsibility of the CBCS.
- Maintenance of a sufficiently good security situation in the region.
- Ensuring sustainable use of natural resources, both within and without the wolf habitat. In order to confirm that the harvesting is sustainable, the resources being exploited should be monitored over time.
- Facilitating all processes to ensure that the community benefits from the conservation of the Ethiopian wolf and its habitat. This would include: training of people; setting up of necessary infrastructure; raising funding from donor agencies, the private sector and/or industry when necessary; seeking permission and reporting to the *woreda* councils; and working together with the

facilitators (e.g., EWCP, EWCO and the agricultural representative from the relevant *woreda* council).

- Ensuring that the benefits of the conservation of the Ethiopian wolf and its habitat are shared fairly among the community.
- Ensuring that the people that take part in the activities of the community-based conservation programme are fairly selected.

Habitat Protection and Management Working Group Report

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Facilitator: Ermias Bekele

The issues identified under habitat protection and management in plenary session were discussed, and the group agreed that the following were the discussion points that they should address:

- Identify the habitats
- Types of habitat
- How they are protected
- What problems are faced
- How do we solve the problems
- Definition – of the habitat and its management.
- Relate the definition with the wolf habitat.

The working group first expanded the issues identified in plenary under the topic of habitat protection management. These general problem areas then were ranked by the eight group members using a voting system that involved placing dots on the most important areas. The group identified 13 different problems under this topic.

1. Settlement of people in protected areas, i.e., expanded settlement for grazing, living, construction, etc.

2. Reduction of habitat due to other human influence, e.g., deforestation.

3. Low agricultural production in and around the wolf areas. Increase of the population of livestock near or in the wolf habitat. There are many harmful traditions, such as owning many livestock as a status symbol).

4. Lack of protection of prime wolf habitat.

5. Lack of participation in discussion of the local people settled in or near the habitat and lack of awareness.

6. Lack of management of the habitat and lack of enforcement of the rules.

7. Lack of revenue (benefit) sharing mechanisms from tourism.

8. Weak institutional arrangement.

9. Lack of clear and defined policy and legislation.

10. Lack of co-ordination from the decision-makers to the local people and the professionals, as well as between organisations like EWCO and the Agricultural Bureau.

11. Lack of priority in entertaining the wildlife section by the Government at Federal and Regional level.

12. Lack of respect of the official boundaries by the local people and also lack of demarcated boundaries.

13. Fragmentation of the wolf habitats.

From these, the group identified the five most important issues, which are listed below in order of importance, along with explicit solutions, and action steps developed for each of the five issues.

Priorities

6. Settlement of people in protected areas – reduction of habitat.
7. Lack of protection of prime wolf habitat outside currently protected areas.
8. Lack of respect of the official boundaries by the local people as well as lack of demarcated boundaries.
9. Lack of priority in entertaining the natural resource section by the government.
   - Institutional arrangement.
   - Lack of co-ordination among authorities, professionals and local people.
10. Lack of participation of local communities settled in or near the habitat.

Note: The group discussed action plans for a limited number of goals for each problem due to time constraints. Some priority goals, which were to be extensively dealt with by other groups, were excluded.

ISSUE 1. SETTLEMENT OF PEOPLE IN PROTECTED AREAS – REDUCTION OF HABITAT

Goals

1. Enhance conservation education/awareness.
2. Strengthening the delivery of agricultural extension packages for communities in areas surrounding protected areas.
3. Promote improved livestock production.
4. Initiate/Promote tree planting in homesteads/woodlots.
5. Development and implement land use policies/plans to prevent further agricultural expansion near and into protected areas and other areas of wolf habitat.
6. Promoting family planning programs to help stabilise population increment.
7. Carry out censuses, monitoring and socio-economic surveys of the human population in and around areas of wolf habitat. Establish/estimate past, present and future population growth rates in these areas.
8. Rehabilitation of wolf habitat if, where and when possible.

9. Relocate new settlers who have moved into protected areas, e.g., Bale Mountains National Park. *****Important note: This was a controversial point, with which a large proportion of the group did not agree.*****

NOTE: The group did not address each issue's goals in the order listed, specifically those entailing public and community education because these were discussed in another group.

Goal 2. Strengthening the delivery of agricultural delivery packages to areas around Protected Areas.

Action 1. Socio-economic survey of the area around the PA.
Organisation Responsible: Regional Agricultural. Bureau, EWCP.

Action 2. Strengthening the Woreda Agricultural Office near the Protected Areas for the extension program to be effective.
Organisation Responsible: Agricultural Bureau.

Action 3. Educate the farmers about the extension packages and deliver the packages.
Organisation Responsible: Agricultural Bureau.

Action 4. Monitor and follow up of packages.
Organisation Responsible: Development agents

Goal 4. Initiate or promote tree planting in homesteads/woodlots.

Action 1. Develop tree nurseries for free supply of seedlings to local communities around Protected Areas.
Organisation Responsible: Agricultural Bureau

Goal 5. Develop and implement land-use policy/plans to prevent further agricultural expansion into protected areas.

Action 1. The local communities wi8th the help of the Agricultural. Bureau develop land use plans around protected areas.
Organisation Responsible: Communities and Agricultural. Bureau.

Action 2. Redistribution of land among farmers living around Protected Areas.
Organisation Responsible: Regional Administration and Agricultural. Bureau.

Action 3. Promote vegetable, honey, poultry, handicraft production.
Organisation Responsible: Communities and Agricultural Bureau.

Goal 6. Promote family planning to help stabilise population increment.

Action 1. Encourage and strengthen education for local communities on family planning.
Organisation Responsible: Ministry of Health, Family Planning and Guidance Association.

Action 2. Encourage and strengthen the free supply of contraceptives.

Organisation Responsible: Ministry of Health, Family Planning and Guidance Association.

Goal 7. Carry out censuses, monitoring and socio-economic surveys of the human population in and around areas of wolf habitat. Establish/estimate past, present and future population growth rates in these areas.

Action 1. Carry out Census in and around areas of wolf habitat.
Organisation Responsible: Kebele Administration, Development Agency, Central Statistics Office.

Action 2. Monitor the population growth.
Organisation Responsible: Kebele administration, Development Agency, Central Statistics Office.

ISSUE 2. – LACK OF RESPECT OF THE OFFICIAL BOUNDARIES BY THE LOCAL PEOPLE AND ALSO A LACK OF DEMARCATED BOUNDARIES.

Goals

1. Education of the local communities around the wolf habitat on the conservation of the Ethiopian Wolf.
2. Delineate mutually agreed boundaries and erect signs at strategic points and develop maps of Protected Areas and their boundaries.
3. Revision of boundaries where the need arises.
4. Encourage regular patrolling of the wolf habitat (in and outside Protected Areas) and promote law enforcement.
5. Promote revenue sharing mechanisms in an effort to encourage people to respect the boundaries of protected areas.
6. Devise alternative income generation sharing mechanisms for the people, so they will be encouraged to respect the boundaries.
7. Initiate World Food Programme interventions where appropriate to support the local people in areas adjacent to wolf habitat.

Goal 2. Delineate mutually agreed boundaries and erect signs at strategic points, and develop maps.

Action 1. Initiate the need for demarcation.
Organisation Responsible: Regional Agricultural Bureau, EWCO, and EWCP.

Action 2. Refer to past and present documents on wolf habitats and carry out further studies if needed.
Organisation Responsible: Regional Agricultural Bureau, EWCO, EWCP, MEDAC and Federal Ministry of Agriculture.

Action 3. Carry out the delineation/demarcation activity.
Organisation Responsible: Regional Agricultural Bureau, EWCO, EWCP, Natural Resource Regulation and Development Department and local administrations.

Goal 4. **Encourage regular patrolling and promote law enforcement.**

Action 1. Recruit, train, equip scouts/guards and replace retirees.

Organisation Responsible: Reg. Agricultural Bureau, private safari/hunting companies.

Action 2. Enforce existing laws on offenders.
Organisation Responsible: Regional Agricultural Bureau, local administration, police.

Goal 5. Promote revenue sharing mechanisms to encourage the people living around Protected Areas to respect their boundaries.

Action 1. Identify sources of revenue.
Organisation Responsible: Zonal Agricultural Office.

Action 2. Identify a priority list of needs.
Organisation Responsible: Agricultural Bureau, Regional Finance Bureau, and other stakeholders.

ISSUE 3. - LACK OF PROTECTION OF PRIME WOLF HABITAT OUTSIDE CURRENTLY PROTECTED AREAS.

Goals

1. Thorough research should be conducted in these wolf habitats and the threats that may endanger the habitat.
2. Awareness creation and build-up of the concerned authorities and the communities on the need for protection of wolves and their habitat.
3. The regional governments and the EWCP should take the responsibility for assigning guards/scouts to patrol the habitat.
4. Upgrading the status of the areas of wolf habitat.
5. Establishing buffer zones around wolf habitat.
6. Establish outposts at key sites in wolf habitat.
7. Laws should be enforced on those who commit illegal hunting, tree cutting, and burning.
8. Reactive checkpoints for forest and wildlife products, e.g. before heather *Erica* burning takes place.
9. Encourage construction of firebreaks around the wolf habitat.

Goal 4. Upgrading the status of the wolf habitats.

Action 1. Legalisation of those areas which have no legal entity, e.g. Bale National Park.
Organisation Responsible: Government.

Action 2. Carry out studies to help in giving status to unprotected areas, according to IUCN criteria.
Organisation Responsible: Agricultural Bureau, EWCO, EWCP and local communities.

Action 3. Assign appropriate status.
Organisation Responsible: Federal and Regional Government.

Goal 5. Establish buffer zones around wolf habitats.

Action 1. Carry out studies on the potential buffer zone areas.
Organisation Responsible: Agricultural Bureau, EWCO, EWCP, and local communities.

Action 2. Negotiate with the members of local communities on the issue of boundaries.

Organisation Responsible: Agricultural Bureau, local communities.

Action 3. Demarcate the agreed upon buffer zone boundaries.
Organisation Responsible: Agricultural Bureau, local communities, EWCO.

ISSUE 4. - LACK OF PRIORITY IN ENTERTAINING THE NATURAL RESOURCE SECTION BY THE GOVERNMENT; INSTITUTIONAL ARRANGEMENT; CO-ORDINATION AT ALL LEVELS.

Goals

1. Enhance awareness of the authorities at all levels the fate of the Ethiopian wolf and its habitat.
2. Creation of an autonomous body regarding natural resources like wildlife and forestry.
3. The Ministry of Agriculture should work in conjunction with the proposed autonomous body natural resources to prevent further expansion of cultivation into protected areas.
4. Enhance capacity building programs for people involved in Protected Areas and other areas of wolf habitat.
5. Encourage studies dealing with the broadening of our knowledge base on the Ethiopian Wolf and its habitat, particularly in currently unprotected areas.
6. Improve the network between the government at all levels and other concerned agencies and interested parties.
7. Professional associations, community based organisations and NGOs should be encouraged to assist in the conservation and management of the Ethiopian Wolf and its habitat.

Goal 1. Enhance awareness of authorities on the fate of the Ethiopian wolf.

Action 1. Identify target groups.
Organisation Responsible: EWCO, EWCP, Agricultural Bureau, and EPA.

Action 2. Carry out seminars, workshops, symposia, study tours, local visits.
Organisation Responsible: EWCO, EWCP, Agricultural Bureau, and EPA.

Goal 2. Create an autonomous body for forest, wildlife and related renewable natural resources.

Action 1. Organise a committee to analytically study the merits and demerits of the problem.
Organisation Responsible: EWCO, EWCP, and Agricultural Bureau.

Action 2. Lobby the concerned officials including parliamentarians (particularly those form areas containing wolf habitat) on the need to establish an autonomous body.
Organisation Responsible: The above organising committee.

Goal 4. Enhance capacity building for people involved in Protected Areas.

Action 1. Carry out a study to identify the gaps in current training and human capacity.
Organisation Responsible: EWCO, Regional Agricultural Bureau and other relevant projects e.g. WWF Bale Forest project.

Action 2. Organise short-term courses, field visits, study tours, workshops, long-term courses, scholarships.

Organisation Responsible: EWCO, Regional Agricultural Bureau and other relevant projects e.g. WWF Bale Forest project.

ISSUE 5. – LACK OF PARTICIPATION OF LOCAL COMMUNITIES IN OR NEAR WOLF HABITAT.

Goals

1. Enhance awareness creation efforts at local community level about the continued encroachment into wolf habitat and the overall threat to the Ethiopian Wolf.
2. Encourage pro-active local community participation in the management of protected areas and other areas of wolf habitat.
3. Promote and implement revenue sharing mechanisms.
4. Create income generating mechanisms in areas of wolf habitat e.g. fishing, horse-riding, hiking, handicrafts, and direct employment.
5. Formation of a committee from *woredas* (districts), Kebeles (local community committees), and Farmer associations to help co-ordinate activities on the conservation and management of the Ethiopian Wolf and its habitat, for each of the areas of wolf habitat.
6. Organise an annual 'Wolf Day' to be celebrated in all wolf habitat areas with the help of EWCP.

Public Awareness Working Group Report

Participants: Gosaye Alemu, Solomon Dejene, Demerew Hailu, Ibsa Haile Meskal, Neyash Haile, Memire Kassye Abibe, Mohammed Ibrahim, Zegeye Kibrit, Abdurahiman Ombe, Fayisho Safiso, Bedasso Ufo
Facilitator: Milion Alemayehu

The working group identified the following problems with respect to public awareness.

1. Lack of awareness among the public about Ethiopian wolves.
2. Lack of knowledge on the distribution and status of the EW
3. Lack of attention by government and NGOs.
4. Lack of communication between people who conserve the wolf and the general public.
5. Lack of evaluation of efforts that are made for the conservation of the EW.

Possible solutions discussed included:
1. Increasing awareness among the general public.
2. Including the conservation education program into the formal and informal sectors of the national education curriculum.
3. Concerned conservation organisation should put much effort to increase public awareness.
4. Evaluation of the ongoing awareness creation programs.

It was suggested that the following organisations should carry out the awareness creation programmes:

1. The Ethiopian Wolf Conservation Program
2. The Ethiopian Wildlife Conservation Organisation
3. The Ministry of Agriculture offices
4. The Ethiopian Wildlife and Natural History Society
5. Other Governmental and non Governmental Organisation.

The group suggested that awareness programmes could be carried out using the following methods:

1. Posters, brochures, magazines and films.
Timeline: December 1999 to March 2000
Estimated Budget: Approximately 200,000 Birr

2. By conducting different workshops for the community at all levels.

3. By conducting training workshops.

4. Radio and TV programs.

Audiences for awareness include:

1. The general public around the wolf habitat.
2. Governmental and Non Governmental bodies.
3. The International Community.
4. Schools, through the formal and informal curriculum
5. Strong networks among the people concerned in the conservation of wolf.
6. Preparing and conducting regular monitoring.

-

Action plan

1. Environmental Education
Organisations Responsible: EWCP, EWCO, Ministry of agriculture Forestry and wildlife experts.

2. Workshops with participation by:
- **Elders, women groups, family heads, youth groups, etc.**
- **Administrative and decision making bodies**
- **Governmental and non-governmental organisations.**

Workshops should be of 3-4 days duration, once per year sometime between January and March. Participants should not exceed 70 people.

Estimated cost: 100,000 Birr

3. Short-term training targeting people selected from the community.
Workshops should be of approximately 15 days duration and be held sometime between December and March, once annually.

4. Training of Trainees
Workshops should include participants from Zonal and District Agriculture Departments
Workshops should be of approximately 15 days duration and be held in November.
Estimated Cost: 80,000 Birr

5. International Community workshops with participation by ~200 people including:
- **Concerned international organisation and institutions**
- **Ethiopian wildlife Conservation Organisations**
- **Ministry of Agriculture**
- **Ministry of Education**
- **Administrative bodies**
- **Farmers Representatives**

Potential convenors: EWCP, EWCO, Ministry of Agriculture
Workshops should be held in December 2000 or 2001.

Policy Change/Law Working Group Report

Participants: Leykun Abunie, Ababu Anage, Muluneh Dabessa, Qasim Dullacho, Gobeze Wolle, Getachew Worash, Mailemariam Melanu, Demisse Degefu
Facilitator: David Wildt

The working group first expanded the issues identified in plenary under the topic of policy change / law. These general problem areas then were ranked by the eight group members using a voting system that involved placing dots on the most important areas. These areas are listed below in order of importance, along with explicit solutions, and action steps developed for each of the five topic areas.

ISSUE 1. CONSERVATION POLICY (9 votes)

There is a national conservation strategy for Ethiopia that is quite broad. Likewise there is a broad environmental policy. Over time, the conservation strategies have changed from being centralised to decentralised. Thus, strategies, for the most part, have been relegated to 11 regions within Ethiopia, some of which have developed strategies and others that have not. Meanwhile, the central government still manages two national parks and three sanctuaries.

Problem: There are general, but no specific, sector policies at the national level for the following:

- wildlife (including for individual species)
- forestry
- land-use (including livestock)
- fisheries

The problem is that the national parks have been decentralised to the regions that do not have adequate capacity in terms of:

- a well developed plan
- motivation
- commitment
- attention
- training
- funding

Thus, there is no linkage between the federal and regional plans.

The problem is that the importance of the broad sector, national policies are not well understood by federal authorities or national communities.

The problem is that regional and national sector policies are not in conformation with each other. Furthermore, there is no incentive to standardise these policies.

Goal 1. Create a centralised policy for wildlife management and conservation, especially for endemics and national parks.

Solution:
Formulate new policy at the federal level for the management of protected areas by the federal and regional governments. It is essential to differentiate responsible areas to be managed at the federal versus regional levels.

Action 1. Immediately meet with the media to be an advocate (use the press release for this conference).
Person responsible: Leykun Abunie to work this important information into the press release being prepared by Claudio Sillero today. Leykun Abunie to find assistance in Addis Ababa to distribute.
Timeline: Within the next week.

Action 2. Establish an ad hoc advocacy committee at the federal level to promote this solution.
Person responsible: Dr. Ermias Bekele, Ababu Anage, Dereje G/Michael, Yermede Demeke and Leykun Abunie to take the lead on establishing this committee.
Timeline: As soon as possible.

Goal 2. Set specific sector policies for wildlife, especially endangered species. This includes setting clear policy for wildlife management, which also involves non-endemics in reserves, sanctuaries, hunting areas and open areas.

Solutions:
1. Develop a specific action plan at the federal level for endemic/threatened species.

2. Develop a specific action plan at the regional level for non-endemics in the reserves, sanctuaries, hunting areas and open areas.

Action 1. Federal and regional authorities should collaborate to assess the status of endemic/threatened and non-endemic wildlife species. This information will allow achieving solutions #1 and #2 above.

Action 2. Conduct a series of Ethiopian wildlife conservation assessment workshops beginning at the federal level to determine the assessment criteria and what should be contained in the action plan. The first workshop will be followed by regional workshops to do actual assessments. All of the information from the regional workshops should be brought to a final federal workshop that will be responsible for creating the actual action plans.

Note: See the end of this report on more details for the development and funding of this workshop.

Goal 3. Build conservation / management capacity at both the federal and regional levels.

Solution*:*
1. Assess capacity needs for conservation/management of wildlife for Ethiopia. We expect that there are strong needs for skilled staffing, leadership training, wildlife management training, park management training, and the handling of budgets (i.e., financial management).

Action 1. Organise a series of workshops to assess capacity needs at the federal, regional, and community levels. This information will allow the eventual increase of skilled staff and incentives to hopefully

increase overall wildlife budgets, allowing higher salaries and more wildlife positions as well as other necessities (field equipment, field guides, etc.) to be acquired.

Note: See the end of this report on more details for the development and funding of this workshop.

ISSUE 2. LAW ENFORCEMENT (7 votes)

The problem is that enforcement of existing wildlife policies generally does not have the attention of the appropriate officials, a situation that is area-specific. (For example, some persecution of wildlife crimes does occur in national parks, but not in local, non-reserve areas).

The problem is that existing species protection laws are outdated and checkpoints (at park, reserve, community exits, etc.) for protecting wildlife have been abolished.

The problem is that prosecutions of criminals often is done in local courts where there are inordinate delays and only small penalties or fines.

The problem is that a change in the national government resulted in the abolishment of many traditional laws that protected local wildlife and natural resources. (This problem largely is area-specific, in Menz).

The problem is that there are no laws for implementing most policies pertaining to Ethiopian environmental issues.

It was noted that these problems pertain to many rare Ethiopian species (beyond the Ethiopian wolf).

Goal 1. Enforce existing laws.

Solutions:

1. Make existing laws clear to the community and to the courts.

2. Review existing laws to determine gaps and problems.

3. Increase the penalty for killing / offending wildlife.

Action 1. Review laws and identify gaps.

Action 2: Review laws and create a simple.
   a) brochure for widespread distribution
   b) seminar for local communities, including courts.

These two actions are to be carried out at the federal and regional level, led by Leykun Abunie and the EWCO. Perhaps a contract staff person could be hired to do this..

Action 3. Provide incentives for reporting offenders of wildlife (for example a reward might be 250 Ethiopian Birr).

Action 4. Faster trials for offenders (recommended court appearance, no later than 30 days of event).

Action 5. Much more severe penalties (for example, authorities might consider enacting penalties such as killing an Ethiopian wolf resulting in not less than 10 years imprisonment or not less than 10,000 Ethiopian Birr). For accomplices (those who cooperate with the killer), authorities might consider prison terms of not less than 5 years or not less than 5,000 Ethiopian Birr.

Action 6. Re-establish checkpoints against illegal trafficking in wildlife at the entrances/exits of all previous points (parks, reserves, areas, towns).

4. Enhance law enforcement personnel.

Action. Identify methods to increase numbers of qualified wildlife personnel (e.g., rangers, scouts) in protected areas and to provide them with adequate salary and equipment (i.e., vehicles, guns, radios, binoculars, uniforms, etc.). This should be a federal/regional action and incorporated into the annual July – June budget.
Person responsible: Leykun Abunie will be responsible for carrying this recommendation to the federal level. Mohammed Ibrahim (Amhara) and Hana Kifle (Oromia) will be responsible for carrying this recommendation to two of the regions.

Goal 2. Develop new laws that will effectively protect Ethiopian wildlife.

Solutions:
1. The working group reviewed the legal status of the Ethiopian wolf and realised that the current law is strong (e.g., the species can only be hunted with a special permit for scientific purposes, and then only issued by the Ministry of Agriculture). No such permits have been granted in more than 15 years. Thus, the group agreed that new laws are not required, only more strict enforcement of existing law.

2. Adhere to more strict laws and penalties as described under Goal 1, Actions 3-6.

Goal 3.
Developing an environmental legislation framework (that addresses issues of degradation, pollution, etc.).

Solution:
The Environmental Protection Authority has conducted a series of workshops to develop environmental legislation for Ethiopia. The present working group strongly endorses the need for an environmental legislation framework that will protect all Ethiopian wildlife, including the Ethiopian wolf.

Action: Ababu Anage will present this report to the appropriate authority (Environmental Protection Authority).

ISSUE 3. CONSERVATION AREAS (OLD AND NEW) (7 votes)

The problem is that local communities do not respect national park boundaries.

The problem is that there is excessive encroachment into wildlife habitat for agricultural purposes.

The problem is that there are not sufficient protected areas for the Ethiopian wolf.

The problem is that there is a poor park management system that excludes the community.

Goal 1. Demarcate park boundaries with involvement of local communities.

Solutions:

1. Re-define all national parks, using a "zoning" process to identify the core, buffer, and development zones.
   a) a core zone is that area that is purely protected for wildlife with no human interference;
   b) a buffer zone is defined as a transition zone with controlled use involving humans;
   c) a development zone is a settled area used for human development activities, including agriculture.

Action 1a. Conduct socio-economic surveys to determine land use patterns, human occupation, the number of households in parks, etc.

Action 1b. Conduct wildlife/habitat surveys/censuses to determine species presence and demographics.
Note: it is realised that both types of surveys will require highly-trained professionals, therefore, we recommend that the federal and regional governments should consider a request for applications for a contract.

Step 1. EWCO, in collaboration with regional government authorities, will secure funds from donor agencies for the two types of surveys and mapping activities. This requires a written proposal to be prepared and submitted to WWF, GEF, USAID, UNDP, the Dutch government, NORAD, and Born Free.
Person responsible: Leykun Abunie will distribute the workshop report to EWCO colleagues to implement action.
Step 2. Generate a request for applications for consulting firms to conduct the activities and generate the necessary scientific data. Contractors may be domestic or international experts.

Action 2. Based on the above information, clearly mark boundaries of each zone with stone markers.

Goal 2. Introduce improved wildlife management system for protected areas.

Solutions:

1. Create new policies that provoke ownership by the proper authorities.

2. Change attitudes of high level decision-makers that believe that the current management systems actually are working (but in reality are not).

Action. Form an ad hoc committee to address this issue by writing a convincing document to be provided to high level decisions-makers at federal and regional levels. EWCO and EPA and appropriate representatives from the Council of Ministers and the Minister of Agriculture and MEDAC should carry this out.
People responsible: Ababu Anage and Leykun Abunie will be responsible for taking this idea forward immediately.

3. Involvement of local communities in enhanced wildlife management system.

Action: The document prepared by the ad hoc committee must emphasise that the new policy involves appropriate local people.

Goal 3. Develop new protected areas for threatened wildlife of Ethiopia.

Solution:

1. Assess status of all potential wildlife areas, especially those where endemic and threatened species are present, to be designated as new protected areas.

2. New protected areas to be designated by federal government in collaboration with respective regional governments.

Action 1. Assign a task force to carry out the assessments and to designate the protected areas, comprised of regional and federal experts and local community representatives..

Action 2. Results then approved by federal and regional decision-makers.
People responsible: Leykun Abunie (EWCO) will lead the development of this task force, with the assistance of regional wildlife experts and the Bureau of Agriculture.

ISSUE 4. NATURAL RESOURCES (2 votes)

Government officials underrate the importance of sector issues associated with wildlife, forests, land-use and fisheries. The government puts inordinate attention on agricultural production at the cost of wildlife. Most attention is on enhancing agricultural production, and there is concern that resources for this purpose sometimes are not used on the basis of science (e.g., adding fertiliser without adequate soil testing).

Problem is that there is an unbalanced use of resources in favour of agriculture at the expense of conserving national resources, including wildlife.

Goal 1. Develop a national land use policy that will result in more balanced use of resources that will improve both agriculture and wildlife conservation/management.

Solutions:

1. Enhance sustainable agricultural production to reduce incentives for converting more wildlife habitat. Begin to use scientific approaches for fertiliser application and other agricultural inputs (e.g., pesticides, insecticides).

2. Convince policy and decision-makers to give equal attention to wildlife issues.

Action 1. Ensure completion of land use policy that currently is being drafted. Everyone should advocate completion as soon as possible.

Action 2. Use mass media and any means to ensure that decision-makers give more attention to wildlife and other natural resource issues.

Action 3. Make sure that the report from this workshop gets distributed at the highest federal and regional levels.

Person responsible: Claudio Sillero
Timeline: As soon as the final report is completed and translated into Amharic.

ISSUE 5. DISEASE

Problem is that there is no limit on the number of dogs owned in or near protected areas, and that laws requiring vaccination against rabies are not enforced.

Goal 1. Strict enforcement on current national policy on vaccinating domestic dogs against rabies.

Solution:
1. Create a national campaign to increase awareness of the problem and the importance to human health, domestic animals and the national flagship species, the Ethiopian wolf.

Action 1. The Ministry of Agriculture and Ministry of Health should be encouraged to develop a mass media approach immediately.
Persons responsible: Claudio Sillero and Karen Laurenson responsible for document distribution to appropriate Ministries.

Action 2. Explore whether the Ministry of Agriculture (that currently has a vaccination program for domestic dogs) can expand efforts to the rural areas.
People responsible: Muluneh Dabessa will explore for his area and to report results to Claudio Sillero. If Mohammed Ibrahim approves, then Getachew Worash will explore for his region and also report to Claudio Sillero.
Timeline: to be completed by March 1, 2000.

Goal 2. Limit dogs to two per household in the areas of Ethiopian wolf populations.

Solutions:
1. Rather than a law limiting households to only two dogs each, created a "dis-incentive", for example, a tax of 50 Birr per extra dog per year might be charged, or the owner might have to pay for vaccine of dog number three, or the dog must be killed.

2. Create incentives such as free rabies vaccine for households with only one or two dogs. The incentive will be paid for from the Protected Area budget (Ethiopian wolf project).

3. Euthanise dogs without owners (feral dogs).

4. Ideally, no unvaccinated dogs are to be allowed within 20 km of the Protected Area boundary.

5. Dogs (even vaccinated dogs) should be prohibited in national parks and/or wolf range areas because of problems with hybridisation with wolves, predation on young wolves, and harassment of other wildlife..

Action 1. Promote a new policy by distributing the Ethiopian wolf document (the report from this workshop) to local authorities, the Ministry of Agriculture, and the Ministry of Health.
Person responsible: Karen Laurenson
Timeline: As soon as possible

Action 2. If it is cost-effective according to the cost-benefit analysis prepared by the Habitat working group, arrange and ensure a supply of vaccine for use, including dealing with budget issues.
Person responsible: Karen Laurenson
Timeline: As soon as possible

The group then discussed the proposed workshops emanating from earlier discussions. Further details for the proposed workshops and responsibilities are as follows:

Workshop #1. Ethiopian Wildlife Assessment Workshop

Purpose: A co-ordinated series of steps to determine the status of all endemic/threatened and non-endemic wildlife species. Information will allow developing specific assessment techniques and subsequent conservation and management plans at the federal and regional levels.

Workshop #1. Federal level to determine (1) assessment criteria, (2) elements of each action plan, 3) approaches for field assessment and (4) dates and venues for regional workshops.

Person/agency: Leykun Abunie (EWCO) and Ababu Anage (EPA) will write a proposal and forward to funding sources (see below, including CBSG through Susie Ellis).

Venue: Addis Ababa

Timeline: mid-2000

Estimated budget: US $12,000-15,000 for 40 people to work for 3 days in working groups and with professional facilitation.

Potential sources of funding: WWF, GEF, USAID, UNDP, Dutch Government, UN Foundation (Turner Endangered Species Funds), NORAD, US Zoos, Born Free

Workshop #2. Ethiopian Workshop to Assess Capacity Needs to Enhance Conservation Management

Purpose: A series of workshops to determine needs for improving conservation and management of Ethiopian wildlife. Subjects will include needs assessment for wildlife and park management, leadership, financial management, among many others. Results will result in organised training programs to increase overall manpower for conservation.

Workshop #2: During discussion, it was realised that this concept was similar to a series of workshops being planned by EWCO and already funded by GEF. Therefore, there is a need to merge this workshop concept with ongoing approved GEF project through EWCO scheduled to occur within the next year.

Person/agency: Leykun Abunie will explore whether the two concepts can be merged.

Venue: Addis Ababa

Timeline: In 2000 – this will be an 8-month project. Workshop will be about 3 days.

Estimated budget: 350,000 Birr (total cost of project – about half is for workshops)

ETHIOPIAN WOLF

Conservation Strategy Workshop

18-21 November 1999

Dinsho Lodge
Bale Mountains National Park

FINAL REPORT

SECTION 3

APPENDICES

Appendix I. List of Workshop Participants

Name	Institution	Address/ PO Box	Town	Region	Code	Country	E-mail
Ababu Anage	Environmental Protection Authority	EPA, PO Box 12760	Addis Ababa			Ethiopia	
Abdurro Abuba	Karrare Kebele, Bale	Postal Agent Dinsho	Dinsho	Bale		Ethiopia	
Abiot Lemma	EWCP, Technician	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Abul Kadir Nure	Chairman, Dinsho Kebele, Bale	Postal Agent Dinsho	Dinsho	Bale		Ethiopia	
Adburahman Ombe	Digalu-Bora Kebele, Arsi	Postal Agent Sagure	Digalu	Arsi		Ethiopia	
Akalle Work	Bugna W (Abuna Josef), N Wollo	N. Wollo Agriculture Dept., PO Box 45	Woldiya	N Wollo		Ethiopia	
Alison Hood	Born Free Foundation/EWCP Project Manager	BFF, 3 Grove House, Foundry Lane	Horsham	W Sussex	RH13 5PL	UK	alison@bornfree.org.uk
Alo Abda	Sinana-Dinsho Woreda	Postal Agent Dinsho	Dinsho	Bale		Ethiopia	
Alo Hussein	EWCP, Field Assistant	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Aman Abdella	Meskel Darkeena Kebele, Bale	Postal Office Adaba	Adaba	Bale		Ethiopia	
Bedasso Ufo	Ethiopia Rift Valley Safaris, Galama	PO Box 23658, AA/ Post Office Sagure	Sagure	Arsi		Ethiopia	
Claudio Sillero (Dr)	EWCP, Coordinator & IUCN/CSG	EWCP, PO Box 215	Robe	Bale		Ethiopia	claudio.sillero@zoo.ox.ac.uk
Dada Gottelli	Zoological Society of London	Institute of Zoology, Regent's Park	London		NW1 4RY	UK	dgottelli@ioz.ac.uk
Dave Wildt (Dr)	IUCN/CBSG (Smithsonian Institution)	Conservation & Research Center, 1500 Remount Rd,	Front Royal	Virginia	22630	USA	dewildt@shentel.net
David Macdonald (Dr)	IUCN/CSG Chairman (Oxford, UK)	WildCRU, Zoology Dept., South Parks Rd	Oxford		OX1 3PS	UK	david.macdonald@zoo.ox.ac.uk
David Switzer	EWCP, Field Assistant	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Demerew Hailu	S Wollo Zone Agricultural Dept., Wildlife Expert	PO Box 80	Dessie	S Wollo		Ethiopia	
Demisse Degefa	Kay-Gera Woreda, North Shoa	PO Box 13	Mehal Meda	Amhara		Ethiopia	
Dereje G/Michael	Biological Soc. of Ethiopia, Program Coor	PO Box 31819	Addis Ababa			Ethiopia	

Name	Institution	Address/ PO Box	Town	Region	Code	Country	E-mail
Desalegn W/Yared	Arkwasiye Kebele, Simen, N Gondar	c/o SMNP	Debark	N Gondar		Ethiopia	
Dinku Dagu	EWCP, Vet Assistant	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Edriss Ebu	EWCP, Field Officer	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Ermias Bekele (Dr)	WWF Forest Conservation in High Priority Areas	P.O.Box 13113	Addis Ababa			Ethiopia	Wwfethio@ telecom.net.et
Faje Tasemma	Bokoji, Arsi, South Galama PA	Dept Agric., PO Box 3	Bekoji	Arsi		Ethiopia	
Fayissu Safisu	Ethiopia Rift Valley Safaris, Galama	PO Box 23658, AA/ Post Office Sagure	Sagure	Arsi		Ethiopia	
Gitachew Mekonnen	Digalu-Bora Kabele, Arsi	Postal Agent Sagure	Sagure	Arsi		Ethiopia	
Getachew Worash	S Gondar Zone Agricultural Dept., D Tabor	PO Box 13	Debre Tabor	S Gondar		Ethiopia	
Gobeze Wolle	N Wollo Zone Agricultural Dept, Woldiya	PO Box 45	Woldiya	N Wollo		Ethiopia	
Gosaye Alemu	Digalu-Bora Kebele, Arsi	Post Office Sagure	Digalu Tijo	Arsi		Ethiopia	
Gus Mills (Dr)	IUCN/CSG (South African National Parks)	Private Bag X402	Skukuza		1350	South Africa	.
Haile Mariam Melaku	S Gondar Zone Agricultural dept., Moksh	S Gondar Dept Agric, PO Box 13	Debre Tabor	S Gondar		Ethiopia	
Hana Kifle	Bale Mountains NP, Warden	PO Box 107	Goba	Bale		Ethiopia	
Hussein Hiko	Sinana-Dinsho Woreda	Postal Agent Dinsho	Dinsho	Bale		Ethiopia	
Hussein Roba	Dodola Woreda		Dodola	Bale		Ethiopia	
Ibsa Haile Meskal	Digalu-Bora Kebele, Arsi	PO Box 23658, Addis Ababa	Sagure	Arsi		Ethiopia	
James Malcolm (Dr)	IUCN/CSG (Redlands University)	Dept. Biology, U. of Redlands, PO Box 3080	Redlands	California	CA 92373	USA	
Jemal Abdule Sado	Ayida Kebele, Bale	Postal Agent Dinsho	Dinsho	Bale		Ethiopia	
Jeylan Dalo	Gojera Kebele, Bale	Postal Agent Dinsho	Dinsho	Bale		Ethiopia	
Jorgelina Marino	EWCP, Ecologist	EWCP, PO Box 215	Robe	Bale		Ethiopia	

Name	Institution	Address/ PO Box	Town	Region	Code	Country	E-mail
Karen Laurenson (Dr)	EWCP, Epidemiologist & IUCN/CSG	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Kassim Biftu	EWCP, Vet Assistant	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Kebebew Mengistu	Sagure, Arsi, Agricultural Dept.	Post Office Sagure	Digalu Tijo	Arsi		Ethiopia	
Kes Tilahun Mola	Arkwasije, Simen, N Gondar	c/o SMNP	Debark	N Gondar		Ethiopia	
Korso Wakayo	Arsi			Arsi			
Leykun Abunie	Ethiopian Wildlife Conservation Organisation	PO Box 386	Addis Ababa			Ethiopia	
Memire Kassye Abibe	Delamta Woreda, N Wollo	c/o N. Wollo Agriculture Dept., PO Box 45	Woldiya	N Wollo		Ethiopia	
Million Alemayehu	N Shoa Zone Agriculture Dept., Debre Birhan	PO Box 12	Debre Birhan	Amhara		Ethiopia	
Minda Teshome	S Wollo Zone Agriculture Dept, Debre Sina	Postal Agent	Mekane Salam	S Wollo		Ethiopia	
Mohamed Ibrahim	Amhara Region Agricultural Bureau, Wildlife Expert	PO Box 437	Bahir Dar	Amhara		Ethiopia	
Muluneh Dabessa	Bokoji, Arsi, Env Prot	Bekoji Agric. Dept., PO Box 3	Bekoji	Arsi		Ethiopia	
Mustafa Dule	EWCP, Guard	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Negash Haile	Arsi						
Oumar Wabe	Bale Zone Agricultural Dept, Head		Goba	Bale		Ethiopia	
Qasim Dullacho	Qoma angara Kebele, Arsi (Kaka Mt)	c/o Bekoji Agric. Dept., PO Box 3	Bekoji	Arsi		Ethiopia	
Salomon Yirga	Addis Ababa University, Asst. Professor		Addis Ababa			Ethiopia	
Silvio Marconi	Ethio-Italian PADS/ABRDP, Sociologist		Asela	Arsi		Ethiopia	
Solomon Dejene	Chilalo-Galama Project, Arsi, Coordinator	PO Box 692	Asela	Arsi		Ethiopia	
Stuart Williams (Dr)	EWCP, Future Coordinator		Nairobi			Kenya	
Susie Ellis (Dr)	IUCN/CBSG, Senior Program Officer	138 Strasburg Reservoir Rd	Strasburg	Virginia	22657	USA	susieellis@ compuserve.com

	Institution	Address/ PO Box	Town	Region	Code	Country	E-mail
Tadesse Hailu	Ministry of Agriculture, Wildlife Expert	Min. Agriculture, PO Box 16696	Addis Ababa			Ethiopia	
Tesfaye Agazu	Gidan W (Aboi Gara), N Wollo	N. Wollo Agriculture Dept., PO Box 45	Woldiya	N Wollo		Ethiopia	
Tesfaye Dabele	Ethiopia Rift Valley Safaris, Galama	PO Box 23658, Addis Ababa	Sagure	Arsi		Ethiopia	
Tura Dube	Garamba Dima Kebele, Bale	Postal Agent Dinsho	Dinsho	Bale		Ethiopia	
Wegayu Worku	EWCP, Museum Keeper	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Wolde Gebre Kidan	Simen Mountains National Park, Warden	SMNP	Debark	N Gondar		Ethiopia	
Yirmed Demeke	EWNHS, Researcher	EWHNS, PO Box 13303	Addis Ababa			Ethiopia	
Zegeye Kibrit	EWCP, Education Officer	EWCP, PO Box 215	Robe	Bale		Ethiopia	
Zelealem Tefera	DICE, Canterbury University		Canterbury			UK	

Appendix II.

List of issues pertaining to the conservation of the Ethiopian wolf identified by workshop participants.

- policy changes regarding wildlife conservation
- centralization of wildlife monitoring (federal management)
- general and species-specific wildlife strategies
- increasing awareness
- lack of community involvement in designing and implementing conservation strategies
- reviewing existing strategies
- capacity building
- wildlife benefits to the local community to enhance community support
- public mobilization and participation
- resettlement of people from prime habitat areas
- capacity building for local communities
- reduction in habitat destruction
- improving livestock and agriculture practices in buffer regions to reduce pressure on wolf habitat
- developing alternative income generating mechanisms
- clear policy regarding wildlife
- integration of wildlife conservation efforts of diverse wildlife agencies, NGOs, etc.
- strengthening indigenous efforts
- increased awareness about the importance of the Ethiopian wolf
- disease control and eradication
- clear conservation policy for all Ethiopian wildlife
- protection of prime habitat
- policy for wildlife conservation
- increasing protection of Ethiopian wolf
- public mobilization in the conservation of endangered species
- resettlement of people in the area of wolf habitat
- education of local communities
- protection of habitat
- control of domestic dogs to prevent disease and hybridization
- species management program
- strict law enforcement
- establishment of a captive breeding program
- monitoring and evaluation of education program
- community based Ethiopian based conservation program
- complete protection of wolf habitat from grazing
- relation between the income generation and Ethiopian wolf strategies carried out in Bale by Ethiopian institutions and international NGOs and other agencies
- development of tourism to help the Ethiopian wolf leading to revenue sharing (wolf as the flagship)
- investigating incentives that would serve to motivate conservation by local communities
- desirability or feasibility of translocation
- critical evaluation of actions taken so far and prioritization of actions for the future
- critical evaluation of research done so far and prioritization for the future
- creation of new conservation areas
- habitat protection and international awareness to generate funds
- research and monitoring of conservation efforts
- seek genuine support from government agencies
- drafting sustainable conservation plans
- strategy for conservation of natural resources, not just wolves