

EWCP Annual report

Prepared by Anne-Marie Stewart, Chris Gordon, Jorgelina Marino and Claudio Sillero



► Ethiopian wolf, © Will Burrard-Lucas

April 2012

Contents

Introduction _____	2
Ethiopian Wolf National Action Plan _____	3
Monitoring _____	4
Disease Control & Prevention _____	7
Education & Outreach _____	8
Research & Capacity Building _____	14
Recent Publications _____	20
Project Administration _____	21

Executive Summary

In February 2011 the IUCN/SSC Canid Specialist Group, EWCP and EWCA hosted the Strategic Planning for Ethiopian Wolf Conservation workshop in Lalibela, which led to the formulation of a National Action Plan – a blueprint for Ethiopian wolf conservation over the next ten years. EWCP is working closely with other stakeholders to implement this plan and deliver long term protection to the wolves and the Afroalpine ecosystem.

EWCP's activities this past year were closely linked to the NAP objectives.

New initiatives included the identification and training of community scouts in North Ethiopia, to assist with the collection of opportunistic wolf sightings and potential threats to the wolves. Teacher training workshops were held in Bale and the North to reinforce partnerships and strengthen conservation efforts in schools and local government, while new education pamphlets outlining the benefits of sustainable resource use were distributed to farmers within wolf range.

After a canine distemper outbreak that swept through Bale's wolf population last year, EWCP was anxious that the surviving wolf packs would have a good breeding season. After intensive monitoring of the focal packs, EWCP can report on the formation of two new wolf packs in the Web Valley, an area hard hit by the consecutive rabies and CDV outbreaks. The Bowman pack and McKenna pack have been named in appreciation of two of EWCP's most generous supporters.

Disease continues to be the most immediate threat to the survival of Ethiopian wolves. The use of an oral rabies vaccine may provide the most realistic, cost-effective and non-invasive approach to effectively protect the wolf population against this lethal virus. EWCP and its federal partners, the Ethiopian Wildlife Conservation Authority (EWCA) recently undertook the first ever oral rabies vaccine trial on an Ethiopian wolf pack in the Web Valley which yielded encouraging results; the trial will be expanded this year to include more packs, leading to an eventual disease management strategy.

Introduction

EWCP has been working for the conservation of Ethiopian wolves (*Canis simensis*) and the Afroalpine habitat since 1987, with the programme officially established in 1995. The Ethiopian wolf is found only in Ethiopia and its survival is closely linked to the persistence of healthy Afroalpine ecosystems of huge economic value to Ethiopia. The wolf is listed by the IUCN as *Endangered*, with some 420 adults left in the wild distributed in six isolated populations in the Ethiopian highlands. There are no captive wolves anywhere in the world and the wolves live only on mountain enclaves 3,000m above sea level in Ethiopia.

Ethiopian wolves are also known as ky kebero, jedalaa fardaa, Simien fox, red fox, Simien jackal and Abyssinian wolf. They have rich rufous, black and white markings and live in packs as large as 18 individuals. The wolves are well known to Ethiopians and to the international community through many TV documentaries, publications and frequent media coverage. The Ethiopian wolf is ranked as one of the world's rarest carnivore species, and the most endangered in Africa. As such it has the potential of generating significant incomes for rural people through tourism and, as an icon of the Afroalpine biodiversity hotspot, serves as an umbrella and flagship species for this precious ecosystem. In turn, the Afroalpine ecosystem regulates water flow from the vital catchments of the Ethiopian highlands. This regulation buffers millions of downstream users from the intensity of the montane wet seasons providing steady flows throughout the year. Along with the gelada (*Theropithecus gelada*), walia ibex (*Capra ibex walie*) and mountain nyala (*Tragelaphus buxtoni*), the wolves' future is tied to that of their Afroalpine habitats and linked with development plans for the highlands.

The wolves are unique among canids (members of the wolf, jackal, dog and fox family) for specialising on rodents and living in stable social groups. Their breeding system is unusual, with males remaining in natal territories and females

dispersing. The Ethiopian wolf is a cooperative breeder with a dominant pair producing one litter of pups per year. All adults and sub-adults in the pack assist with the process of raising the pups, be it through guarding the den, feeding the pups, or even allo-suckling. Breeding begins in August in Bale with pups born between October and December. Pup mortality is relatively low in the first six months with higher mortality rates occurring between six months and one year as pups become more independent. While endangered, the Ethiopian wolf can occur at high densities in suitable habitat and viewing them is therefore easy in places such as Sanetti and the Web Valley in the Bale Mountains National Park. In the other four populations, wolves occur at much lower densities but still provide for a unique ecotourism experience.

Wolves are threatened both by processes that threaten the entire Afroalpine ecosystem and those specific to the species. The expansion of the agriculture frontier higher up mountain slopes, and increased livestock grazing continue to convert and modify the Afroalpine ecosystem and pose the most serious long-term threat to the persistence of wolves. More immediately, wolf populations are threatened by disease outbreaks, particularly rabies and canine distemper virus. Domestic dogs, kept to herd and protect livestock in the highlands, serve as disease reservoirs which periodically spill out into the wolf population. Although rare in recent years, hybridisation with domestic dogs can occur, and has been reported in west Bale; its effects on the genetic diversity of the Ethiopian wolf populations remain a concern.

While human persecution is infrequent in Bale there are recent indications from our monitoring activities in Arsi that the wolf populations in this area are subjected to greater levels of ill will from local communities than those in Bale. In Simien, and elsewhere in North Ethiopia, human disturbance seems to be affecting the foraging behaviour of the wolves, and might also hamper their foraging efficiency.

A 10-year National Action Plan for Ethiopian wolf conservation

With only 420 adult Ethiopian wolves surviving today, conservation actions to ensure the persistence of this species are crucial. EWCP and its partners, the Ethiopian Wildlife Conservation Authority (EWCA) and the IUCN/SSC Canid Specialist Group, are very happy to announce the publication of the *Strategic Planning for Ethiopian Wolf Conservation*. This status review and national action plan for the wolves was produced at the Strategic Planning for Ethiopian Wolf Conservation Meeting in Lalibela in February 2011, with input from the many stakeholders involved in conservation in Ethiopia. It provides a blueprint for Ethiopian wolf conservation over the next ten years. The plan can be accessed on the EWCP website at following the link:
<http://www.ethiopianwolf.org/SPEWC.pdf>

EWCP Monitoring Team

Objective: To monitor and assess Ethiopian wolf demographic trends with a focus on the Bale Mountains and other selected critical populations, as well as measuring levels of livestock (grazing stock and domestic dogs), persecution and habitat loss affecting wolf status. The team also records all new settlements and crop planting in protected areas.

This report gives an overview of the monitoring results from each Ethiopian wolf population at the end of the past year (April 2011 - March 2012), and also summarizes the known status of all wolf populations, stressing the need for increased knowledge in several areas. Overall, more Afroalpine habitat is now formally protected across Ethiopia, potentially improving the conservation prognosis for the species in the long run. A more detailed demographic report for 2011-2012 is also available.



EWCP has been monitoring the status and dynamics of Ethiopian wolf populations throughout their range since its inception in 1995. EWCP employs seven full-time monitors, six of whom are based in Dinsho, Bale Mountains. This team concentrates their efforts for most of the year in the Bale Mountains National Park (BMNP), with a minimum of one annual visit to the Arsi Mountains and to West Bale. EWCP employs one additional full-time wolf monitor in the North of Ethiopia, through our partnership with the Frankfurt Zoological Society (FZS). This monitor spends the majority of his time in the Simien Mountains National Park, with supplementary monitoring trips to the other four North Ethiopia wolf populations throughout the year.



► The BBC pack reinforce group bonds © Will Burrard-Lucas

Monitoring of Focal Packs in the Bale Mountains

EWCP saw the formation of two new focal packs in the Web Valley this year, so that once again we have 18 focal packs in the BMNP. These new packs are called Bowman and McKenna, in recognition of EWCP's long-standing and dedicated donors, and cover the territories previously held by Kotera and Muluma packs. The Web Valley was heavily affected by the rabies outbreak in 2008 and the CDV outbreak in 2010, when four packs were lost entirely. On average, the monitoring team completed 17.3 visits to each focal area, spending 33.1 days (160 hours) searching for or observing each focal pack. The intensity of this monitoring effort, consisting of repeated visits throughout the breeding season, enabled EWCP to establish total composition figures for the current 18 focal packs. At least 37 individual wolves currently monitored in BMNP have ear-tags, which helps the monitors with the compilation of accurate pack composition tallies, particularly for the focal packs.

The focal packs of BMNP increased by 32.7% (adults and sub-adults only) over the course of the year. Of the 77 adults and sub-adults, 33 (42.8%) were ear-tagged during prior rabies interventions. Of all 18 focal packs monitored, 94.4% have raised at least one pup to emergence from the

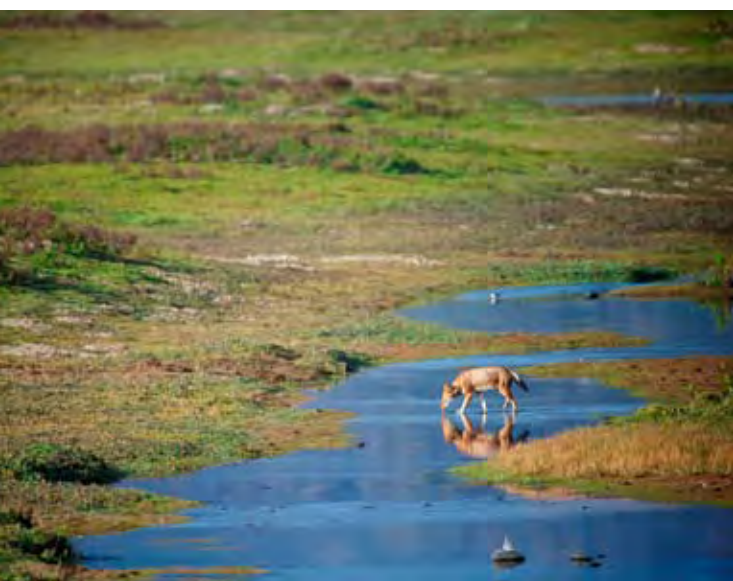
den this year. The total number of pups still alive after six months is relatively high (59) compared to most years, although further mortality is expected during the difficult six-month to one-year independence period. No packs lost all their pups this year, although three of the packs had lost one or two pups after emergence. 19 out of 26 wolves born in the 2010/11 breeding season survived to sub-adult status. This mortality rate of 26.9% is lower than usually observed. Two carcasses were recovered throughout the year from focal pack territories, one an adult male wolf in Batu territory, and the other a pup that was observed being killed by a domestic dog at the den. Unfortunately, the wolf monitor was too late to prevent the dog from killing the pup.

Central Sanetti

EWCP monitored seven focal packs in Central Sanetti. The total number of adults and sub-adults decreased by 2.8% from last year. There are still 19 individuals ear-tagged from the seven focal packs. The Sanetti packs struggled during the previous two breeding seasons, but this season saw six out of seven packs give birth. All 26 juveniles that were seen at emergence have now reached independence. We hope to see high survival rates of these juveniles over the coming six months. Only four of last year's nine juveniles were recruited to sub-adult status (55.5% mortality rate in 2011/12 compared to 66.6% in 2010/11).

Web Valley

The Web Valley was reduced to just three packs during 2010/11, but thankfully 2011/12 saw the formation of two new packs, Bowman (BOW) and McKenna (MCK). Numbers of adults and sub-adults increased by 130% over the past year, as a result of these two new packs forming. All five packs bred during this season, with 16 out of 18 juveniles still alive at the onset of independence. All ten of last year's juveniles were recruited to sub-adult status (0% mortality rate in 2011/12 compared to 92.3% in 2010/11). Such an impressively low mortality rate has helped with the large increase of wolves in this area over the past 12 months. The monitoring team benefitted from having eight remaining ear-tagged animals, assisting with the accurate tallying of pack compositions. Five of these individuals were



► The Web Valley © Rebecca Jackrel

tagged from Tarura pack during the captures in November 2011, for the oral rabies vaccine trial.

East Morebawa

The number of adult and sub-adult wolves in East Morebawa increased by 72.7% in the past 12 months. All six packs bred during this breeding season, with 17 out of 19 juveniles still alive at the onset of independence. Five of last year's seven juveniles were recruited to sub-adult status (28.6% mortality rate in 2011/12, when compared to 100% mortality rate in 2010/11). A significant reduction in this mortality rate has helped with the large increase of wolves in this area over the past 12 months. The monitoring team benefitted from having six remaining ear-tagged animals.

Bale Mountains Non-Focal Packs

These non-focal areas of BMNP are often remote and difficult to access, and are thus visited less often, sometimes only once, over the course of the rainy season. Figures obtained for the non-focal packs monitored in these areas (i.e. minimum number of wolves seen in a given pack's known territory) are conservative estimates. These packs receive little attention during the breeding season, when the team is focusing on the focal areas, and as such few data on reproduction is available. Monitoring figures for these packs are less accurate than those for focal packs, but contribute to our understanding of the structure and conservative population estimate for the entire Bale population.

The monitoring team located 38 of the known 45 non-focal packs during the 2010/11 monitoring year. Non-focal areas were visited 2.1 times on average throughout the year, spending 3 days (15.5 hours) searching for or observing each pack. At least 11 of the 38 (28.9%) non-focal packs that were found during the 2011/12 monitoring year had pups in the 2010/11 breeding season. Of these, there were at least 19 sub-adults remaining. Four individuals that were vaccinated and ear-tagged in prior rabies interventions were still alive in the non-focal packs of Sanetti. A late monitoring trip to West



► Young wolf pups at play in BBC pack on the Sanetti Plateau © Will Burrard-Lucas

Morebawa found that at least six out of nine packs had pups during the 2011/12 breeding season, with a total of 16 pups seen from these packs during the field trip.

Bale Mountains Overview

Owing to the relatively large size of the Ethiopian wolf population of the Bale Mountains (over half of the global population), as well as the increasing disease threat it faces, this population receives the most monitoring attention throughout the year. During the course of the year, EWCP conducted 62 monitoring trips within wolf range in the BMNP, totalling 732 days (3,620 hours) spent in the field actively searching for or watching wolves. EWCP has seen an 8.8% decrease on last year's population estimate, probably as a result of a large decrease in monitoring efforts in non-focal areas during the year, due to a reduction in the size of the BMNP monitoring team. Thus, the true reflection on wolf population trends should be assessed by investigating focal pack numbers. In this respect, there has been a 32.7% increase in adult and sub-adult wolves in focal packs.

Additionally, there was higher recruitment of juveniles into sub-adult status (26.9% mortality rate) compared to the previous monitoring year, when the mortality rate was 88% in focal packs. Furthermore, 17 of the 18 focal packs in BMNP bred successfully during this breeding season. At the end of the reporting window (31 March 2012), 59 out of the 63 pups seen at emergence in these packs were still alive, and approaching the

onset of independence. The above figures suggest a crucial recovery period ahead for the focal areas of the Bale Mountains, when we would hope to see wolf numbers recover to levels last seen in early 2008, prior to the multiple disease outbreaks.

Arsi Mountains

EWCP continues with annual intensive surveys of the Arsi Mountains. While it would be desirable to increase EWCP presence in the Arsi Mountains, this is not possible due to financial limitations. However, EWCP recognises the importance of the Arsi Mountains as the second largest Afroalpine area in Ethiopia, and the third largest wolf population. The monitoring team spent 35 days (191 hours) observing in the Arsi Mountains during May 2011, an increase on the 129 hours of effort in July 2010. Monitoring figures are not 100% accurate but act as an indicator of the size and structure of this population. Wolves were seen in nine out of ten packs in Arsi. Plans are afoot to increase monitoring effort in Arsi in collaboration with the Oromia Forest and Wildlife Enterprises (OFWE). OFWE are in the process of forming the Arsi Mountains National Park, which will include the majority of wolf range in these mountains.

North Ethiopia

EWCP works in North Ethiopia through our partnership with FZS, where we employ a full-time wolf monitor and education officer. In the Simien Mountains, the wolf monitor intensively monitors four focal packs across the breeding season (October-March), with the objective of obtaining reliable information on pack composition for at least one core area in this important population. In the other North Ethiopia populations, sightings of wolves are recorded during annual monitoring trips (including data on the composition of the group, their behaviour and habitat) with additional information gathered from discussions with local people. EWCP recently launched the Wolf Ambassador initiative in North Wollo; three ambassadors were recruited from among candidates selected by the communities to assist with wolf surveillance in their local areas.

Guassa-Menz

Monitoring intensity is high through permanent

monitoring by FZS and the community scouts. In 2011 the EWCP North Ethiopia Wolf Monitor visited the area to coordinate and fine-tune wolf monitoring activities. The area is nominally protected as the Guassa Community Conservation Area (GCCA). Monitoring indicates a possible nine wolf packs in this area.

South Wollo

Monitoring intensity has been low previously, but now Kewa and Gugufu are priority areas for EWCP/FZS monitoring and education work. In early March 2012, EWCP surveyed all Afroalpine ranges and evaluated habitat condition, fragmentation, and wolf distribution. Discussions are ongoing to establish the Wolf Ambassador program in this range. The Denkoro State Forest in South Wollo has now been appointed as the Borena-Sayint National Park. A major development of relevance for Ethiopian wolf conservation is the ongoing expansion of the Park boundary to include most other Afroalpine ranges in South Wollo. EWCP is currently strengthening collaborations with Park authorities, and has provided equipment and training to park scouts.

North Wollo

Aboi Gara and Gubalaftu-Delanta are now EWCP priority monitoring areas. Two community Wolf Ambassadors were recruited in Gubalaftu and one in Aboi Gara to help monitor wolves. After a 3-month pilot trial, the initiative was extended for one more year. The Wolf Ambassadors are working closely with government officers and community scouts. In Abuna Yoseph, the largest Afroalpine patch, EWCP collaborates with FZS par-ecologists and contributes to their training. FZS and partners are working towards the creation of the Abuna Yoseph Community Conservation Area, which would include around a third of the wolf range in North Wollo. Monitoring indicates that there are a possible eight wolf packs in this area.

Mount Guna

Monitoring intensity here is now low as we believe this population to be extinct. However, EWCP is supporting habitat monitoring activities led by the ORDA Biodiversity Conservation project. In April 2011, EWCP trained a local person on monitoring techniques.

Simien Mountains National Park

Monitoring intensity is high in the Simien Mountains as this is a priority area for EWCP and FZS. The Simien Mountains has the largest population of Ethiopian wolves after the Bale Mountains. This year EWCP focussed monitoring efforts on a new set of focal packs in the Ras Dejen area on the eastern side of SMNP. Ras Dejen sustains a core wolf population at high density, that are more sociable and easier to watch than those in the previous set of focal packs in Gich, further to the west, where human disturbance is high. Three out of seven focal packs bred successfully in Ras Dejen this year.

Disease control and prevention

Objectives: a multi-pronged approach to reduce the threat that diseases pose to the survival of the Ethiopian wolf, with the following objectives: i) assess the prevalence and threat of canid pathogens to wolves, ii) gather information on health status, diseases and causes of mortality; iii) investigate a vaccination scheme to protect Ethiopian wolves; iv) prevent disease transmission from domestic dogs

The EWCP vaccination team vaccinates domestic dogs in and around the Bale Mountains National Park against rabies, with the objective of decreasing the threat of rabies to Ethiopian wolves. Throughout the year, the team visits as many villages as possible, educating villagers and encouraging them to have their domestic dogs vaccinated. A recent study (Abera Yilma, Mekelle University) showed that vaccinated kebeles (villages) had far fewer cases of rabies in people, dogs and livestock than unvaccinated kebeles.

While EWCP is currently limited by budget constraints to vaccinating domestic dogs within and around the BMNP, the programme has donated 300 vaccines and dog-catching equipment to FZS and the Lalibela Woreda, in order that they are able to vaccinate dogs in wolf range in Abune Yoseph. However, it is hoped that the use of oral rabies vaccines on the wolves and the domestic dogs will allow for a more proactive approach to fighting this disease, thereby affording much greater protection to wolf populations throughout Ethiopia.

The team started their efforts this year in the Dinsho Woreda, and between March and June 2011 they visited numerous villages including Zallo Ababa, Ayida, Gojera, Karari and Mi' o. 892 dogs were vaccinated- a figure that is made up of both new vaccinations and repeat vaccinations of dogs who need a booster shot. The team leader, Muktar Abute, estimates that they have vaccinated approximately 80% of the dog population in these villages, with 20% remaining unvaccinated. This is due to the fact that the dogs are very



► The vaccination team - Abubaker Hussein, Muktar Abute and Kebede Wolde - as they featured in a recent article in the *EWCP Jeedala Gazette*.

difficult to catch and run away from the team, or that the dogs are not in the villages when the team arrives. This is worrying, as it only takes one unvaccinated dog to start a rabies outbreak in a village. Muktar reports that the communities in Dinsho are generally very supportive of the EWCP vaccination programme and have a good understanding about the risks that rabies poses. However, disease will continue to be a threat to the wolves unless legislation is in place to reduce dog numbers within protected areas.

The team spent their time in Web Valley and West Morebawa during July and August, working in the Adaba Woreda and concentrating on the dogs belonging to the seasonal herders moving into the Park. They visited seven villages, where over 500 dogs were vaccinated against both rabies and canine distemper. They received very positive feedback from the community, who reported that there had

been fewer cases of rabies in their area since EWCP had been vaccinating their dogs. The vaccination team headed to East Morebawa in mid-August and September, working in Dabisha, Goda Sanga, Ganale, Kore, Bisile and Hora bo and vaccinating a further 252 dogs against rabies and CDV. The team then spent the remainder of the month concentrating in Tarbo, and vaccinated 180 dogs.

Between October and December, the vaccination team spent one week vaccinating 55 dogs in Gurati, Katarra, Duna and Chalalaka villages in Web Valley. The team then spent two weeks in Hora Soba vaccinating dogs in this area, and then moved on to Garamba Dima. A total of 278 dogs were vaccinated in Hora Soba, with 22 dogs remaining unvaccinated. In Garamba, 192 dogs were vaccinated. In both villages, the community expressed their gratitude for the vaccinations. They then worked in the villages in the Gaysay area, and vaccinated a total of 144 domestic dogs against rabies, with 27 remaining unvaccinated in these villages.



► Muktar Abute, head of the EWCP vet team, fills out a new dog vaccination certificate for the owners.



► Wolves share their habitat with cattle in the Web Valley of Bale Mountains National Park.

From January to March 2012, the team again worked in the Adaba *Woreda*, visiting the villages of Busofto, Sire wege, Sire hoje, Hawatu, Bucha, Chumlgso, Koma Witicho and Washa Lencha. They managed to vaccinate 859 dogs, with 16 dogs remaining unvaccinated in these kebeles.

In total, an impressive 3244 domestic dogs were vaccinated against rabies between April 2011 and the 31st of March 2012, at a cost of approximately ETB 150 (US\$ 8) per dog. In addition, 702 dogs in Web Valley and Morebawa were vaccinated against CDV. A major concern this past year is the higher number of seasonal farmers moving into the BMNP during the rainy season than in previous years, with an average of three dogs per household. Uncontrolled human expansion into wolf range is putting escalating pressure on these wolf populations, hampering an increase in their numbers.

Education and Community outreach

Objective: The EWCP education campaign seeks to involve local communities in the protection of Afroalpine natural resources; continue with the development of a conservation education and extension campaign at school and community levels in Bale and other critical wolf areas.

EWCP has a full-time Education Officer based in Bale, one in Arsi and a third covering the four



► A painting within the Dinsho School grounds shows their appreciation of the Ethiopian wolf.

► School children take their places for a presentation by the EWCP education officer.

northern populations. The Education Officers work with local communities and particularly with the local schools surrounding the wolf populations. The school education campaign focuses on environmental awareness, appreciation of natural resources, the importance of conserving the Ethiopian wolf, disease awareness, and the establishment of nature clubs.

Bale education programme

The Bale Education Officer, Zegeye Kibret, regularly visits 11 schools within the Bale area, including the Dinsho Primary and Secondary Schools, Soba School, Zallo Ababa, Abakara, Hersho, Karari, Gofingira, Sanetti Primary and Junior School and Gaysay Primary. He works with the teachers to develop annual plans for lessons that teach the children about conservation and the wolves, and activities that involve improving their environment, such as tree planting and water conservation.



In Bale, EWCP works to involve not only school children in our education campaign, but also to increase awareness and cooperation amongst students at University level. Students from the local Madawalabu University, as well as representatives from the federal and regional government, visited the BMNP in July as part of the University's graduation proceedings. During their visit they were given a talk by the EWCP Education Officer about the importance of afroalpine conservation and the work of EWCP, and were accompanied on a drive to the Sanetti plateau to see the wolves. EWCP's involvement with this University, which borders on the National Park, includes giving lectures to the ecotourism students as well as assisting them with various projects.

During the past year, the EWCP education officer also met with over 200 students and lecturers from the Enat Medical and Business College in Goba, the Chano Nature Club in Arba Minch, and the Natural Resource Management class from Wondo Genet University, who came to visit the Park on separate occasions. Teachers and pupils from the International Community School in Addis spent three days with Zegeye at the end of November during their annual visit to BMNP. In October, 14 people from the Asella Forum for the Environment visited the park, and Zegeye talked to them about the conservation of the highlands and the wolves. EWCP works with the Forum for the Environment to achieve conservation objectives in the Arsi mountain range.

Education efforts extend to EWCP's regional and federal partners, with whom we work closely to ensure the effectiveness of our conservation efforts. 20 visitors from the Oromia regional government, the local Dinsho *Woreda* (administration), and members of the BMNP staff held a meeting in the park, which EWCP attended in order to answer questions about the programme and the wolves.

Due to EWCP's good relationship with the local *kebeles*, the Dinsho *Woreda* staff asked Zegeye to help them organise an Environmental Education workshop in Gojera and Abakara villages at the end of December. After the workshop, EWCP received very positive feedback from the *Woreda*, who conveyed that the communities were very happy with EWCP's work in their area. EWCP was also approached by the Dinsho *Woreda* to request that

Zegeye help with training of their tourism officers, who have been instructed to give community education in the area.

EWCP continues with their voluntary training of the Nyala Guiding Association, with Zegeye giving an ornithology presentation and conducting field training sessions with six new Nyala Guides. Zegeye also assisted with the BMNP World Tourism Day celebrations held on the 23rd of October by giving a presentation to the invited guests about the Bale Mountains and the Ethiopian wolf, and their value to tourism. The BMNP sociologist, Addisu Tsegaye, has also approached EWCP to work together with Zegeye to develop a plan for visiting the schools. Addisu will accompany Zegeye on school visits so that he can learn about the programmes and how he should approach the schools.

His Excellency Mr. Aman Abdulkedir, the Minister of Culture and Tourism in Ethiopia, visited the BMNP towards the end of 2011, accompanied by members of EWCA. The visit provided EWCP with a good opportunity to meet with the enthusiastic Minister, who showed a great interest in wildlife and the Park. The Minister encouraged the team to keep up their good work, stating that conservation of Ethiopia's wildlife is important for Ethiopia's natural heritage and to promote tourism in the country.

EWCP continues to promote the cause of the Ethiopian wolf through the use of local media in Ethiopia. Zegeye has been interviewed by the national ETV channel, as well as by local and national radio stations, informing viewers and listeners about the plight of the wolves. On an international scale, EWCP has given interviews to China Central TV and National Geographic this year, and has featured in magazine articles in Switzerland, Germany, and Holland. EWCP also produces the biannual *Jeedala Gazette* newsletter in English; Oromifaa and Amharic. The *Gazette* is distributed to schools, government offices, local communities and interested parties throughout the country.

The EWCP team are always on the lookout for opportunities to spread the conservation message to the general public. This was nicely demonstrated when Zegeye and Edriss took the opportunity while renewing a motorbike license

in a local town in Bale, to talk to a large group of drivers about road safety and avoiding wildlife road kills. They got very positive feedback from the drivers, who were interested to learn about the wolves and the other endemic species in Bale.

In October, EWCP celebrated World Rabies Day 2011. For this year's festivities it was decided to work with the schools in Goba, as the previous four years have concentrated in Dinsho. Goba is an important area to increase rabies awareness, as many people living in Goba also have houses, cattle and dogs within the BMNP. The day was hosted at the Sanetti Primary School, with the support of the Goba town office and *woreda* education office, and the help of the Bale Beauty Nature Club. After marching through the town, waving posters about the dangers of rabies and handing out brochures to market-goers, everyone returned to the school for poetry and drama presentations by the pupils, dealing with rabies issues. The day was also covered by a local radio station in Goba.

At the end of February, EWCP was invited to a fundraising and awareness-raising event held by



► Pupils from Sanetti Primary School march through Goba during World Rabies Day 2011 celebrations.

the ICS in Addis, which highlights conservation or humanitarian work done by various organisations in Ethiopia. Zegeye represented EWCP at the event, and gave a talk to the school pupils, their families and friends about the importance of conservation and saving species in Ethiopia, and how to follow a career in conservation.

Over a two-day period in March, EWCP held a local teachers' training workshop in Bale, inviting teachers from various schools within wolf range in the Bale Mountains. A total of 32 teachers and *kebele* chairmen from six villages attended the workshop, as well as local *Woreda* representatives and staff from both EWCP and BMNP. Participants received presentations from Zegeye and the EWCP Programme Manager, Edriss Ebu, about EWCP's work and the need for conservation of the highlands, as well hearing from the EWCP vet officer, Muktar Abute, about the dangers of rabies to both wildlife and people and the importance of vaccinating domestic dogs. The participants discussed amongst themselves why they felt it was important to protect the wolves and their environment, and what the benefits were to them as inhabitants of the highlands. They then undertook a number of brainstorming sessions to identify activities they could carry out with their schools to support the work of EWCP and its partners. The feedback received was very positive, with the participants stating that they had gained new insight into the wolves, and that they were more determined than ever to assist with the conservation of this species. Zegeye



► A young EWCP supporter!

will be conducting follow up visits to all of the participating schools to further encourage their involvement in conservation activities.

The end of March saw EWCP celebrating the 14th annual Wolf Day with the Bale community, with the usual assortment of games, songs, quizzes and poems keeping the 1000-strong crowd entertained throughout the day. The Dinsho *Woreda* administration, and particularly the sports office, assisted EWCP in holding the various volleyball and football matches, where the Garamba Dima and Dinsho High Schools came out tops. The day was covered by both local and national TV, which gave EWCP the opportunity to spread our conservation message to an even greater audience.



► Girls' 100m race winner receiving her medal from EWCP Technical Coordinator, Chris Gordon.

Community Outreach in Bale

Mustafa Dule is the EWCP community outreach officer, as well as assisting the monitoring team with their field work and data collection. For the majority of the last year, Mustafa mainly focused on his monitoring role in Bale, as we needed to collect all the information we could about wolf numbers post-CDV outbreak. In addition, Mustafa accompanied the monitors to the Arsi Mountains where he not only undertook monitoring duties but also spoke to communities throughout the wolf range about natural resource use, and Afroalpine and Ethiopian wolf conservation.

When Mustafa has not been with the monitors, he has accompanied the vet team in his role as community outreach officer to the various villages where they have been vaccinating, to teach people about the dangers of rabies not only to wildlife, but to themselves and their livestock, and to encourage them to bring their dogs to be vaccinated by our vet team. Mustafa not only conducts house to house visits in the mountains, he also concentrates his efforts on the seasonal herders that move into the BMNP during the rainy season from the Adaba and Goba *Woredas*. Mustafa also approaches the religious leaders at the mosques and Madrassa schools, garnering their support for dog vaccinations and enlisting their help to talk to their congregations about the importance of preventing rabies. We have had a lot of success with this approach and have seen an increase in the number of people getting their dogs vaccinated.

Arsi Programme

In the Arsi mountains, EWCP works closely with the regional authorities, Oromia Forest and Wildlife Enterprise (OFWE), to implement conservation initiatives and strengthen the protection of this mountain range. Our outreach officer provided valuable support to OFWE in the demarcation process for the new Arsi Mountains National Park, which will encompass vital wolf habitat. EWCP will continue its support of this new park by assisting with the training of park scouts in wolf monitoring and habitat survey techniques, while maintaining our education and outreach programme in the area.

EWCP has recently employed a new education officer in Arsi, Habtamu Mulugeta. Habtamu joins EWCP from his post as a young teacher at a secondary school in the Arsi region, and we are looking forward to working with him to strengthen our education efforts in the schools and nature clubs of Arsi.

During his first few months on the job, Habtamu spent time with the EWCP team in Bale, learning more about the work of the monitoring and vet teams, as well as accompanying Zegeye to various schools in the area, and assisting with the planning and festivities at Bale Wolf Day. Currently, Habtamu works in eight secondary schools in the local towns in Arsi, involving the teachers

and pupils in environmental activities and natural resource conservation. However, we are hoping to shift our focus slightly to include more of the rural schools in our education programme, as these children are the ones sharing their highland homes with the Ethiopian wolf.

Our Arsi community officer, Asheber Anbessa, works in the 12 woredas surrounding wolf populations in the Kaka and Chilalo-Galama ranges. In the first half of the year he worked in 16 kebeles near the Chilalo, Marare, Shameta, Kaka and Heregehe Valley wolf packs, including Jitu Tena, Akiya Tena, Akiya Misa, Bekoji Negeso and Lemu Dima. He spoke to the shepherds and farmers about afroalpine and wolf conservation, and reports that their attitude to the wolves is generally positive and they seem receptive to the idea of wolf conservation. However, unsustainable harvesting, large-scale cattle grazing and burning of Erica still seem to be an issue in these areas. It is hoped that the new national park will help to alleviate some of these pressures from the wolves.

In September and October, Asheber worked in the Hetosa and Lode Hetosa *Woredas* that fall within Chilalo wolf range, as well as visiting the seasonal farmers in the Kaka mountains and Hererge valley. He reached more than 200 community members with his meetings and visits, talking about wolf and afroalpine conservation. He then ran an awareness workshop for 150 farmers in Dankaka, Konnichia, Beriti, Jemo, D.Bora and Ciba Mekael sites, talking about the impact of seasonal farmers on wolves and their habitat.

In November, Asheber worked in Shirka *Woreda* with three *kebeles*, Sole Negele, Lemuu Galama and Waji Kone, where he spoke to 40 farmers about EWCP and afroalpine conservation. He spread the same message to 30 farmers at meetings he held while working in Bore and Shala in the Tiyo *Woreda*. During his talks with farmers, Asheber distributes EWCP educational materials, including awareness pamphlets and stickers. Asheber then assisted government vets to vaccinate over 100 dogs in Tiyo against rabies.

Between December and March, Asheber visited 12 *kebeles* in Lode Hetosa and Diksis *Woredas*, as well as Tiyo and Tena *Woredas*, speaking to people about the importance of sustainable resource use and conserving the afroalpine.

Unfortunately in mid-February and early March, fires were started in the Erica forests in Bora luku, Chalelaka, Galama and Chilalo, and then again in Galama and Kaka mountains. EWCP gave immediate assistance to the local authorities to help them combat these fires, but unfortunately large tracts of Erica were burnt – areas that are very important as wolf habitat. EWCP has met with the regional government about these fires and Asheber is now working with the zonal administration to organise a meeting to talk to the people about the seriousness of the fires and the impact they have had on the mountains. The EWCP wolf monitors will be visiting the area shortly to assess the extent of the damage and to conduct their annual survey of the wolves in this mountain range.

North Ethiopia Programme

EWCP works alongside the Frankfurt Zoological Society (FZS) in North Ethiopia to educate local communities about the wolves and the importance of Afroalpine conservation. EWCP employs an Education Officer in the North, Fekadu Lema, and collaborates with FZS on the production of education material and with community training programmes. The education programme covers the areas hosting the four northern wolf populations, working with established nature clubs in schools, training and supporting teachers and evaluating club outputs. The emphasis of the programme is on coexistence with wolves and sustainable resource use in the Afroalpine highlands.

During the past year, the education officer visited nature clubs in Simien, North Wollo and South Wollo, and also accompanied the EWCP wolf monitor to talk to communities living within wolf range. EWCP designed pamphlets in Amharic, informing villagers of the benefits of conserving the highlands and the steps they can take to protect their natural resources, which were distributed to the communities, as was the *Jeedala Gazette*. Fekadu also held meetings with local stakeholders and EWCP partners to strengthen cooperation and reinforce efforts towards conserving the Afroalpine.

World Tourism Day 2011 was celebrated in Abune Yoseph by FZS and more than 300 local community members. Fekadu took the

opportunity to promote environmental awareness and highlight the link between the successful protection of the highlands and the benefits derived from tourism.

Fekadu also assisted with World Environment Day celebrations and in 2012, will be organising EWCP's first Wolf Day in North Ethiopia.

In December, both the EWCP North Ethiopia education officer and wolf monitor participated in a one week teacher training workshop held in Dessie. The 50 participants, from Gidan, Menz, Lasta, Lalibela, Borena and Gubalafto *woredas*, included teachers, *woreda* environmental and tourism representatives, and Park experts. The aim of the workshop was to increase awareness amongst the primary school nature club coordinators and *woreda* environmental education experts on the tangible and intangible benefits of biodiversity conservation. Activities incorporated brain-storming sessions, group discussions and SWOT analyses. Significant outputs of the workshop included an increase in awareness amongst teachers and administrators in terms of the significance and values of protecting the environment and wildlife resources; a better understanding amongst *Woreda* staff on the value of environmental education and the impact education can have in protecting the environment; and a renewed commitment from those involved in the workshop to work towards protection of the Afroalpine.

Fekadu has also assisted with the EWCP wolf ambassador initiative. There are four wolf populations in North Ethiopia that are all very small and vulnerable to extinction. In order to improve EWCP's monitoring presence there,

EWCP recruited three community monitors in November last year, in core wolf areas of the Wollo highlands – two in Gubalaftu and one in Aboi Gara. These 'Wolf Ambassadors' represent EWCP in their local areas and monitor the wolf packs there. They have been trained to use GPS's and compasses, and to record data in the field. The ambassadors gather information on the wolves and are alert to problems such as disease or persecution. In addition, they help to raise awareness in their communities of the need to protect the wolves and all other natural resources in the highlands. They report monthly back to their local government offices, with whom the EWCP Wolf Monitor and Education Officer are in close contact.



► The Aboi Gara wolf ambassador with the EWCP North Ethiopia Wolf Monitor, Gebeyehu Rskay

Research and Capacity Building

Objective: EWCP relies on strong science to inform and develop conservation actions towards the completion of its main objective: to assess, address and counteract threats to the survival of Ethiopian wolves and their Afroalpine ecosystem. EWCP is committed to building capacity in Ethiopia in the ecology and biodiversity conservation field, both within our organisation and the Ethiopian conservation community in general.

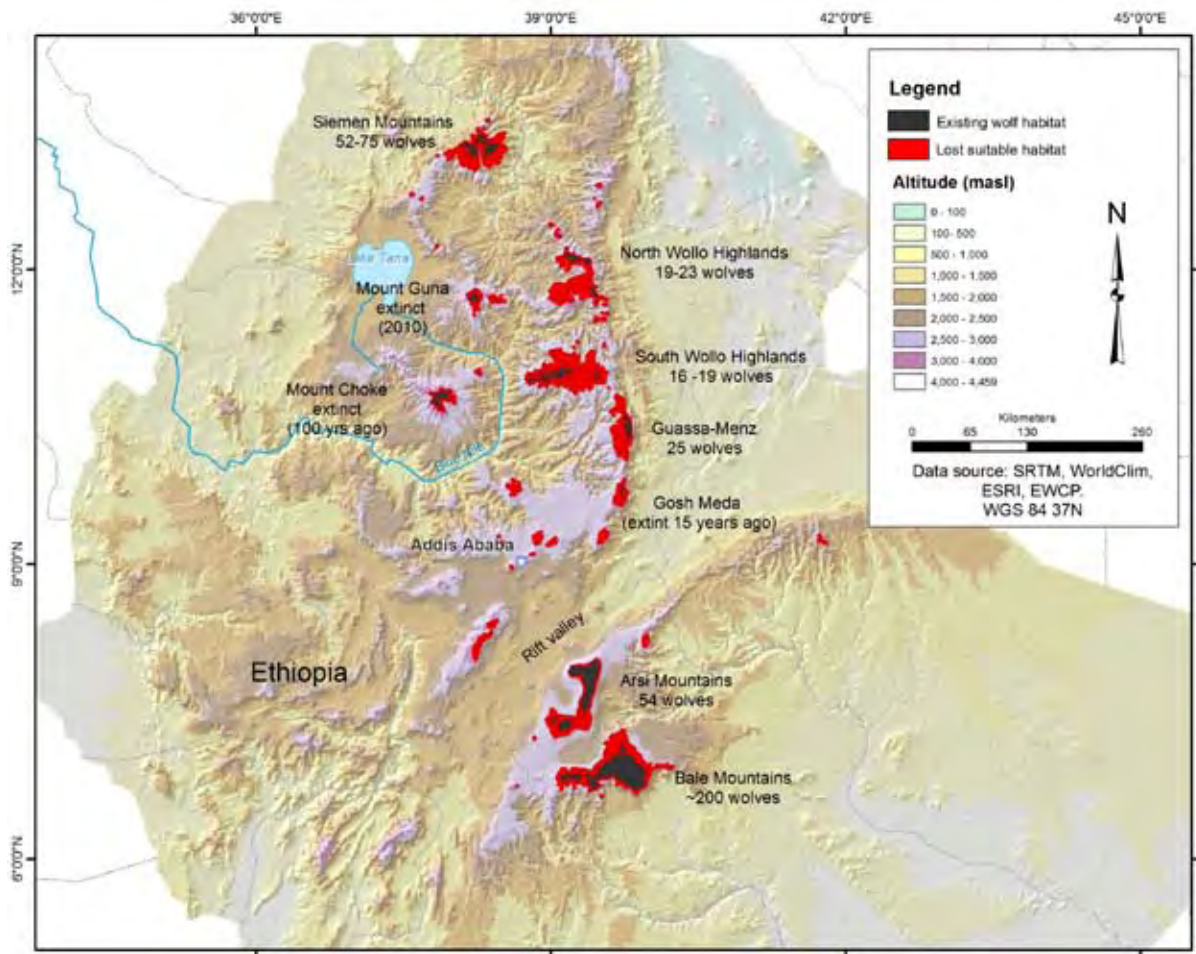
Summary of Research Projects

Habitat Change Project **Jorgelina Marino**

The Habitat Change Project seeks to understand the major drivers of habitat change in the



► World Tourism Day celebrations in the Abune Yoseph mountains.



► Figure 1: Location of Ethiopian wolf populations over a habitat suitability model, derived from wolf sightings and global climatic databases with the Maxent algorithm.

highlands of Ethiopia, namely land conversion to agriculture, natural resource use and climate change. Its ultimate objective is to predict the risk of extinction of wolf populations in the near future to inform conservation actions and priorities. The Ethiopian wolf offers a valuable case study for endangered populations of highland specialists that lack ecological flexibility to adapt to changes in land use and climate.

• **Climate change**

Our capacity to predict the response of Ethiopian wolves to climate change is limited by the lack of reliable climate forecasts for highland regions of the world. To address this knowledge gap for the tropical mountains of Africa, we revised the existing literature on Ethiopia’s highland climate and analyzed time series of temperature data from 14 weather stations above 1,200m. We found few studies in Ethiopia investigating changes in temperature and the effects of topography, and climatic records from elevations above 3,000m were notably rare. The weather

station showed increasing temperatures over the last three decades but this tendency was not consistent across the highlands. The estimated rate of warming was 0.6 to 0.9 degrees per decade (above current predictions from global circulation models). We identified effects of topography, mainly elevation, upon temperature that we are working to incorporate into regional climatic models with our collaborators in the Oxford University Centre for the Environment.

Increasing temperatures in the highlands of Ethiopia may open up higher areas to agriculture. This is bound to be the most imminent impact of climate change upon Ethiopian wolf populations and other Afroalpine biodiversity. In order to assess the distribution of habitats climatically suitable for Ethiopian wolves, we built up a species distribution model with 10,000 wolf locations collected between 2000 and 2010 (Fig 1). The model indicated a strong dependence of Ethiopian wolf distribution upon temperature, alerting of the species’ potential sensitivity to global warming, and

revealed which populations are most vulnerable to further land conversion (i.e. low-lying Afroalpine patches in the Northern Highlands).

Suitable areas not occupied by Ethiopian wolves fell into two categories: a) small and isolated peaks, not higher than 3,600m; and b) one empty Afroalpine remnant, Mt Choke, large enough to sustain wolves. Historical records indicate that Mt Choke was occupied by wolves 100 years ago, but re-colonization may have been prevented by the barrier effect of the Blue Nile Gorge (Fig. 1). The occurrence of climatically suitable habitats in Mt Choke is a precondition for any initiative to reintroduce wolves there. Candidate areas for habitat restoration are some ridges connecting populations in North and South Wollo.

• **Habitat loss**

To assess the future impacts of habitat loss upon Ethiopian wolf populations we analyzed patterns of land conversion in the North Wollo Highlands, combining satellite images from 1985 and 2003 with extensive field work. We recorded a loss of 34% or 215km² of Afroalpine habitats in this region, mainly due to grasslands converted into small barley plots, at around 3,500-3,700m. One implication of these land use changes in the highlands is communal pastures in the lower ranges are disappearing and more pressure is exerted upon the remaining pastures higher up. As a result natural areas are becoming very fragmented. Our surveys also revealed that land ownership and administrative boundaries affect agriculture expansion.

• **Natural resource uses**

The livelihoods of the highland people of Ethiopia are a mixture of small-scale subsistence agriculture and pastoralism, with strong dependence on Afroalpine habitats for firewood, pastures, construction materials and water. The ecological and sociological data collected in 2011 in Abune Yosef, an open resource use area in North Wollo allowed us to measure the extent of this dependence, and to evaluate people's attitudes towards Afroalpine conservation. This year we conducted a similar case study in Aboi Gara, an Afroalpine range protected by the local community since 2005 (analysis ongoing), including a field study to assess the restoration capacity of Afroalpine habitats. In Abune Yosef,

emerging community-based tourist operations are benefiting around a third of the local households, but people's attitudes towards Afroalpine conservation remain diverse and complex. For example, people value the highland pastures as fodder reservoirs in dry years, but also perceive wildlife as a problem due to livestock predation. Overall, negative perceptions are more acute among people living closer to Afroalpine areas, for fear of losing access to natural resources, and among landless families who aspire to own land.

Marino, J. EWCP Habitat Change Project, Annual Report. April 2012
http://www.ethiopianwolf.org/publications/EWCP_Habitat_Change_Report_2012.pdf

Trial of Oral Rabies Vaccination in Ethiopian Wolves

Chris Gordon

Background

The greatest threat facing the Ethiopian wolf is disease, particularly rabies and canine distemper virus (CDV), which are usually transmitted from domestic dogs. Periodic rabies outbreaks have resulted in high mortality of up to 75% in the affected population. In 2003 and 2008-09, rabies outbreaks in Ethiopian wolves were contained by parenteral vaccination. Proactive vaccination would provide a better tool to manage viral disease in Ethiopian wolves, and would help reduce abrupt population changes. Oral rabies vaccines have been extensively trialled, and utilised to eradicate rabies in several carnivore species in Europe and North America. In order to test their usefulness in Ethiopian wolves, EWCP and EWCA undertook a preliminary delivery of oral rabies vaccines to one pack of Ethiopian wolves in the Bale Mountains during 2011-2012. The pilot study was conducted using a modified live (attenuated) rabies virus vaccine (Rabigen® SAG2Dog), manufactured by Virbac in France.

Oral Vaccine Delivery

The oral rabies vaccine was tested on Tarura pack in the Web Valley of the Bale Mountains National Park during November 2011. Goat/sheep meat was chosen as the preferred medium for delivering the baits, after a small-scale trial on bait preference. A serum biomarker (iophenoxic acid)

was injected into the meat surrounding the bait, in order to confirm bait consumption. Vaccines were delivered successfully to five out of eight adult and sub-adult wolves during this period.

Wolf Trapping

Blood samples were drawn to test the effectiveness of the vaccine, with Tarura wolves captured between 21st–24th November 2011 following detailed standard trapping protocols, and using rubber-lined Soft Catch™ leg-hold traps. Once sedated, 5–10ml of blood was taken from each individual. Overall, one adult female, three sub-adult males and a sub-adult female were captured. All individuals were ear-tagged to ensure we knew which wolves had been previously caught. As the sub-adult female had not consumed the oral vaccine, she was innoculated with a 2ml dose of Nobivac rabies vaccine to provide rabies protection.

Blood Analysis

Blood and serum samples were shipped to the United Kingdom for analysis at the Animal Health and Veterinary Laboratories Agency (AHVLA). Samples were tested for presence of rabies virus neutralising titres, and levels of iophenoxic acid (IPA) to confirm ingestion of the bait. Additionally, samples were analysed for the presence of canine parvo virus (CPV) and canine distemper virus (CDV) antibodies. Four of the five individuals sampled were seen to consume at least one bait during the delivery of the oral rabies vaccine. The sub-adult female (TAR 04) served as a control sample.

Positive levels of IPA in all four individuals that consumed baits during the oral vaccine delivery confirmed bait uptake; TAR 04 tested negative as expected. IPA levels in one of the sub-adult males (TAR 05) were lower than in the other three wolves. All wolves that consumed the oral vaccine



► Wolf captures in the Web Valley to take blood samples for testing.

SAG-2 baits, and were subsequently captured, were alive and healthy more than three months after consuming the vaccine.

Discussion

The threshold for adequate response to rabies vaccination in companion animals is internationally recognised to be 0.5 IU/ml (OIE, 2011). Three individuals had titres below this threshold: TAR 04 (as expected) and TAR 05 both had titres of effectively zero. TAR 05 also returned low levels of iophenoxic acid, suggesting that he did not consume much bait, and therefore potentially did not pierce the oral SAG-2 sachet during consumption. TAR 02 had a rabies antibody titre of 0.29 IU/ml. Although lower than the conservative 0.5 IU/ml threshold, this could represent a response to the vaccine. TAR 03 and TAR 07 both returned positive rabies antibody levels above the threshold level. In conclusion, at least two wolves were successfully vaccinated against rabies by the oral rabies vaccine, SAG-2, and a third showed a detectable but lower response.

All five wolves returned positive results for CPV antibodies, values greater than 5 IgG being

ID	Age/Sex	Rabies FAVN (IU/ml)	IPA (ug/ml)	Canine Parvo Virus (IgG)*	Canine Distemper Virus (IgG)*
TAR 02	AF	0.29	61.2	S>5	S4
TAR 03	SAM	1.14	43	S>5	S1
TAR 05	SAM	0.06	17.7	S>5	S1
TAR 07	SAM	0.87	75.4	S>5	S1
TAR 04	SAF	0.06	0.2	S>5	S1

*ELISA results represented as S value by comparison to a control (where S value \geq 3 is positive)

considered a high positive. This suggests a higher rate of CPV exposure in Ethiopian wolves than initially described by Laurenson et al. (1998). One wolf (TAR 02) returned positive results for CDV, while the other four wolves had inconclusive (low but detectable) levels of CDV antibodies. She was the only individual of the five that was alive during the CDV outbreak in 2010, and this result suggests that she was exposed to the virus at this time.

Conclusions and Recommendations

At least two out of those four wolves (50%) successfully sero-converted with a third showing a lower titre level, suggesting it might have consumed lower levels of vaccine or had a reduced response to the vaccine. It is worth noting that in similar trials in domestic dogs with SAG-2 oral rabies vaccines, some animals that had consumed bait but had titres below the 0.5 IU/ml threshold were still protected against a rabies challenge (Cliquet et al., 2007). The hard plastic vaccine sachet and its placement within the bait may have affected the delivery of the vaccine, and some animals were observed spitting the sachet out during bait consumption. The delivery of the oral vaccine could be improved by further securing the sachets within the meat bait medium.

In conclusion, these results confirmed the potential of SAG-2 as a successful vaccination method against rabies for the Ethiopian wolf. These promising results and the lack of any apparent negative impact of vaccine bait consumption open the way for an extended trial in ten to fourteen additional packs. This second

phase will establish relevant demographic and epidemiological parameters, as well as financial considerations, for future population-level inoculation against rabies. Protocols are also being prepared for a parallel trial of this vaccine in domestic dogs in Ethiopia.

Capacity Building and Support

Zegeye Kibret, the EWCP Bale Education Officer, was selected by an international committee to take part in the Emerging Wildlife Conservation Leaders programme, held at the White Oak Conservation Centre in Florida, USA. This biannual course is sponsored by a wide variety of conservation minded groups, including US Fish & Wildlife Service, Howard Gilman Foundation, Wildlife Conservation Network, Bat Conservation International, and the International Fund for Animal Welfare. Zegeye has attended the course twice over the past two years, and will be graduating this December after receiving training in successful wildlife campaigning and leadership skills. The course has been extremely beneficial to Zegeye, who has met many like-minded conservationists from both North America and further afield, allowing him to share ideas, and discuss relevant conservation issues.

Edriss Ebu has been involved with Ethiopian wolf conservation since the late 1980's, from his days as a teenager helping as a camp assistant to Claudio and the Bale Mountains Research Project,



► A tired and happy EWCP and EWCA wolf capture team



► Edriss Ebu - EWCP's programme manager and Disney Conservation Hero



then working his way through the organisation to become the EWCP Programme Manager in the Bale Mountains. Edriss's contribution to EWCP, and his dedication and passion for its cause, are exceptional. His tireless efforts to ensure a future for the Ethiopian wolf are an example to all that work alongside him. And recently Edriss was rewarded for his hard work by receiving the prestigious **Disney Conservation Hero Award**. The whole team is incredibly proud of Edriss.

At the request of BMNP and EWCA, EWCP made a contribution towards the costs associated with the visit of the Tourism Minister to the Bale Mountains. In addition, the EWCP education officer accompanied the tour party to Sanetti, as well as giving a presentation to the guests.

EWCP has also financed and supervised work to improve the road to Web Valley within the Bale Mountains National Park, employing a local crew to improve drainage in the worst sections of the road.

EWCP contributed ETB 8000 to the printing of a special edition of *Walia*, the journal of the Ethiopian Wildlife and Natural History Society, which will include papers relevant to Ethiopian wildlife and conservation in the Bale Mountains National Park. The publication of this special edition was organised by FZS.

Through funding from our major donors, the Born Free Foundation UK, EWCP was able to assist the Dinsho Preparatory School with purchasing much-needed school books as well as fencing for the school tree nursery. EWCP also organised the construction of over 60 desks for the school through a local carpenter's

► A freshly painted fence at the Dinsho School, and some of the pupils with their new text books, donated by EWCP through the Born Free Foundation

association, thereby benefitting both the school children and the carpenter's.

EWCP also received a donation of sports equipment through the International Community School in Addis, which was handed to the Dinsho Woreda Sports Administration.

During the past year, EWCP sponsored a Master's student at the request of Addis Ababa University, Mignot Zerihun, who studied the Menelik's bushbuck in Bale. Her studies questioned the activity patterns, diet and preferred habitats of the Menelik's Bushbuck during the wet and dry season.

In addition, EWCP is sponsoring and co-supervising a student from Gonder University, Addis Yimer, who is undertaking a Master's study on the effect of human disturbance on the wolves in Simien Mountains National Park. Addis will be interviewing local villagers as well as conducting transects within the park to investigate the levels of human disturbance.

EWCP put forward a student for the University of Oxford's post-graduate Diploma in Wildlife Management, a course held over a period of eight months at WildCRU's facilities in Oxford, UK. Girma Eshete, who completed his Masters degree in Ethiopia with EWCP's supervision and sponsorship, is undertaking the course along with seven other students involved in conservation projects, from countries as diverse as Belize, Bolivia, China, Laos, and Zimbabwe.

Recent Publications (2011 - 2012)

- Banyard AC, Gordon CH, Fooks AR, Sillero-Zubiri C and Johnson N. 2011. *Conservation of Canids: The Impact of Infectious Viral Disease*. In Maia AP and Crussi HF (Eds.). *Wolves: Biology, Behavior and Conservation*. Nova Science Publishers, New York, USA.
- EWCA. 2011. *National Action Plan for the conservation of the Ethiopian wolf In: Strategic Planning for Ethiopian Wolf Conservation*. IUCN/SSC Canid Specialist Group, Oxford, United Kingdom.
- Gordon CH, Horton D, Edea L, Ebu E, Hussein A, Abute M, Regassa F, Almaraw R, Tsegaye A, Stewart AE, Fooks AR and Sillero-Zubiri C. 2012. *Trial of Oral Rabies Vaccination in Ethiopian Wolves - Progress Report, 20th February 2012*. Ethiopian Wolf Conservation Programme, Dinsho Bale, Ethiopia.
- Gordon CH, Marino J, Stewart AE and Sillero-Zubiri C. 2011. *EWCP Annual Wolf Monitoring Report 2010-2011, April 2011*. Ethiopian Wolf Conservation Programme, Dinsho Bale, Ethiopia.
- Gottelli D, Wang J, Marino J, Sillero-Zubiri C and Funk SM. In press. Integrating molecular genetic structure to the restoration process of the Endangered Ethiopian wolf. *Molecular Ecology*.
- IUCN/SSC Canid Specialist Group. 2011. *Strategic Planning for Ethiopian Wolf Conservation*. IUCN/SSC Canid Specialist Group, Oxford, United Kingdom.
- Kennedy LJ, Randall DA, Knobel D, Brown JJ, Fooks AR, Argaw K, Shiferaw F, Ollier WER, Sillero-Zubiri C, Macdonald DW and Laurenson MK. 2011. Major histocompatibility complex diversity in the endangered Ethiopian wolf (*Canis simensis*). *Tissue Antigens* 77:118-125
- Malcolm JR and Evangelista P. 2011. Observations on the status of the Mountain Nyala: 2000-2005. *Walia: Special Edition on the Bale Mountains* 39-52.
- Marino, J. 2012. EWCP Habitat Change Project, Annual Report. April 2012. http://www.ethiopianwolf.org/publications/EWCP_Habitat_Change_Report_2012.pdf
- Marino J and Sillero-Zubiri C. 2011. *Canis simensis*. In: IUCN 2011. *IUCN Red List of Threatened Species*. Version 2011.1. <www.iucnredlist.org>
- Marino J, Sillero-Zubiri C, Johnson, PJ and Macdonald DW. 2012. Ecological bases of philopatry and cooperation in Ethiopian wolves. *Behavioural Ecology and Sociobiology* DOI 10.1007/s00265-012-1348-x
- Marino J, Stewart AE., Gordon CH, Gottelli D, Tefera Z., Laurenson MK and Sillero-Zubiri C. 2011. Status review of the Ethiopian wolf. In IUCN/SSC Canid Specialist Group. 2011. Strategic plan for Ethiopian wolf conservation. IUCN/SSC Canid Specialist Group, Oxford, United Kingdom. <http://www.ethiopianwolf.org/SPEWC.pdf>
- Mekonnen T, Bekele A and Malcolm JR. 2011. Population estimates and diets of Stark's hare (*Lepus starcki* Petter, 1963) in the Bale Mountains National Park, Ethiopia. *Walia: Special Edition on the Bale Mountains* 53-60.
- Randall DA, Tallents LA, Williams SD and Sillero-Zubiri C. 2011. Ethiopian wolf monitoring in the Bale Mountains from 2001-2004. *Walia: Special Edition on the Bale Mountains* 28-38.
- Rueness, E.K., Gulbrandsen Asmyhr, M., Sillero-Zubiri, C., Macdonald, D.W., Bekele, A., Atickem, A., and Stenseth, N.C. 2011. The cryptic African wolf: *Canis aureus lupaster* is not a golden jackal. *PLoS ONE* 6(1): e16385. DOI:10.1371/journal.pone.0016385 <http://www.plosone.org/article/info:doi/10.1371/journal.pone.0016385>
- Sillero-Zubiri C, Gottelli D, Marino J, Randall DA, Tallents LA and Macdonald DW. 2011. Ecology and reproductive strategy of an Afroalpine specialist: Ethiopian wolves in the Bale Mountains. *Walia: Special Edition on the Bale Mountains* 61-79.
- Stewart AE, Gordon CH and Sillero-Zubiri C. 2011. *EWCP Annual Report, April 2011*. Ethiopian Wolf Conservation Programme, Dinsho, Bale, Ethiopia. <http://www.ethiopianwolf.org/publications/EWCP%20Annual%20Report%20April11.pdf>
- Tallents LA and Macdonald DW. 2011. Mapping high-altitude vegetation in the Bale Mountains, Ethiopia. *Walia: Special Edition on the Bale Mountains* 97-119.
- Tallents LA, Randall DA, Williams SD and Macdonald DW. 2012. Territory quality determines social group composition in Ethiopian wolves *Canis simensis*. *Journal of Animal Ecology* 81: 24-35. doi: 10.1111/j.1365-2565.2011.01911.x
- van Kesteren, F. 2011. Reproductive physiology of Ethiopian wolves, *Canis simensis*. M.Sc. dissertation, University of Oxford, UK.
- Vial F, Macdonald DW and Haydon DT. 2011. Livestock grazing in Bale Mountains, Ethiopia: Past, present and future. *Walia: Special Edition on the Bale Mountains* 197-207.

Vial F, Macdonald DW and Haydon DT. 2011. Limits to exploitation: dynamic food web models predict the impact of livestock grazing on Ethiopian wolves *Canis simensis* and their prey. *Journal of Applied Ecology* 48: 340-347. doi: 10.1111/j.1365-2664.2010.01943.x

Vial F, Sillero-Zubiri C, Marino J, Haydon DT and Macdonald DW. 2011. An analysis of long-term trends in the abundance of domestic livestock and free-roaming dogs in the Bale Mountains National Park, Ethiopia. *African Journal of Ecology* 49: 91-102. doi: 10.1111/j.1365-2028.2010.01233.x

For a complete list of publications see:
<http://www.ethiopianwolf.org/publications.shtml>

Project Administration

The Ethiopian Wolf Conservation Programme (EWCP) operates as a partnership between the University of Oxford's Wildlife Conservation Research Unit (WildCRU) and the Born Free Foundation, which provides an ideal platform from which to address wildlife conservation. The EWCP operates under the auspices of the IUCN/SSC Canid Specialist Group, and additionally collaborates with the Universities of Addis Ababa, Gonder and Mekele in Ethiopia, and Edinburgh, Glasgow and the Zoological Society of London, among others.

EWCP operates in Ethiopia under a tri-lateral Memorandum of Understanding agreement between the WildCRU, the Ethiopian Wildlife Conservation Authority (EWCA) at a federal level and the Oromia Forest and Wildlife Enterprise at a regional level. In addition, EWCP works closely with the Frankfurt Zoological Society (FZS) and the Born Free Foundation Ethiopia (BFFE). EWCP has long established and excellent working relationships with these organisations. In addition, the Programme seeks the support and cooperation of local authorities for all field activities in all areas.

EWCP has been and continues to be chiefly funded by the Born Free Foundation with generous donations from the Wildlife Conservation Network (WCN) and ongoing support from FZS.

During the past year, EWCP received significant donations from the National Geographic Society, the Bowman Foundation, the CGMK Foundation, Spencer Scott Travel, US Fish and Wildlife Service, BBC Wildlife Conservation Fund, and Sue McConnell & Richard Stellar.

EWCP also received generous donations during the last year from the UK Wolf Conservation Trust, Jon Vanini & India Sanjuan, Kent & Gloria Marshall, Science Agency and Network GmbH, Kris & Peter Norvig, Eloise & Asa Lanum, Ethiopian Wolf Project, ZGAP, Disney Wildlife Conservation Fund, Ten Dollar Club, Australian Dingo Foundation, and the International Community School in Addis Ababa.

EWCP has received generous support in the past from the Iris Darnton Trust, the People's Trust for Endangered Species, Mohammed bin Zayed Species Conservation Fund, Stiftung Artenschutz, St Louis Zoo, the Wellcome Trust, CEPA, Wildlife Conservation Society, Tusk Trust, Morris Animal Foundation, African Wildlife Foundation, John Aspinall Foundation, Ethiopian Wildlife & Natural History Society, IFMP-GTZ project in Adaba-Dodola, Conservation International, Bern Thies Foundation, World Society for the Protection of Animals, Fiona McKenzie, the Oppenheimers, ESRI, Giant Steps Foundation, Akiko Yamazaki & Jerry Yang, Beagle Foundation, Sidney Byers Charitable Trust, Mike Volpi & Toni Cupal, a few other organisations and a number of private donors.

EWCP would like to thank Virbac for generously donating the oral rabies vaccines (Rabigen® SAG2Dog) for the oral vaccination trials. The donation was organised by Philippe Mahl. Grateful thanks to Dan Horton and Tony Fooks at the Animal Health and Veterinary Laboratories Agency (AHVLA), and Janine Gielbert for undertaking the IPA analyses.

Intervet / Schering Plough Animal Health kindly donated Nobivac rabies vaccines for the ongoing domestic dog vaccinations by the EWCP vaccination team. This donation was organised by David Sutton and Jac Bergman.

EWCP Team

Claudio Sillero, Founder & Director
Anne-Marie Stewart, Field Director
Chris Gordon, Technical Coordinator
Jorgelina Marino, Programme Ecologist
Edriss Ebu, Programme Manager
Zegeye Kibret, Education Officer/Deputy Manager, Bale
Alo Hussein, Senior Wolf Monitoring Officer, Bale
Mustafa Dule, Community Liaison Officer, Bale
Habtamu Mulugeta, Education Officer, Arsi
Asheber Anbesa, Community Liaison Officer, Arsi
Fekadu Lema, Education Officer, North Ethiopia
Gebeyehu Rskay, Wolf Monitoring Officer, North Ethiopia
Muktar Abute, Veterinary Officer, Bale

Leta Edea, Veterinary Officer, Bale
Kebede Wolde, Veterinary Assistant, Bale
Abubakkir Hussein, Veterinary Assistant, Bale
Sultan Washo, Field Assistant, Bale
Ibrahim Muhammed, Field Assistant, Bale
Sultan Kedir, Field Assistant, Bale
Sileshi Haile, Administration Assistant, Addis
Fikre Getachew, Administration Assistant, Bale
Wagayehu Worku, Research Building Keeper, Bale
Kassim Biftu, Stable Manager, Bale
Research Building Guards/Store Keeper, Bale x 3
Research Camp Guards, Bale x 5
Horse Guards, Bale x3
Sports Centre Guards, Bale x2

Advisers

Dr Kifle Argaw
Director General, EWCA
Dr Karen Laurenson
Wildlife Epidemiologist, Programme Manager, FZS
Dr Zelealem Tefera
Community Conservation, In-country Director, FZS
Prof David Macdonald
Director of WildCRU
Ms Dada Gottelli
Geneticist, Institute of Zoology, London
Prof Dan Haydon
Modeller, Glasgow University
Mr Will Travers
CEO, Born Free Foundation
Mr Charles Knowles
Executive Director, Wildlife Conservation Network

EWCP