August 2023

ewcp

Conserving Ethiopian Wolves

Annual Report

Prepared by Claudio Sillero, Jorgelina Marino, Girma Eshete, Sandra Lai and EWCP Team

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Securing a future for Ethiopian wolves and the Afroalpine ecosystem for everyone and for generations to come

Our vision is to secure Ethiopian wolf populations and habitats across their present distribution, and to extend the species range, stressing its role as a flagship for the conservation of the Afroalpine ecosystem on which present and future generations of Ethiopians also depend.

HARDSHIPS ARE JUST STEPPING STONES TO SOMETHING BETTER

As we wrap up another annual report, we are proud of what we have achieved together in a recent period of upheaval and conflict. Our work protecting Ethiopian wolves spans five decades (I was a young man when I saw my first wolf in 1987…), and in that long journey we have had our ups and our lows. The last three years have been some of our most challenging. Yet, I am convinced that we will come out stronger at the other end of this impasse, more determined than ever in our efforts to protect Ethiopia's wildlife. There is so much to do, so much at stake.

After nearly 10 years working as EWCP Field Director, our good friend Eric Bedin is moving on, and I expect he will soon be contributing his calm and insightful approach to tackle a new wildlife conservation challenge. Edriss Ebu, who joined me as a very young field assistant in 1988 and has worked with EWCP ever since, is now overseeing all EWCP's work, leading a team of 50 colleagues working across the highlands where the wolves live.

In conservation there are no quick fixes - we play the long game. Thus, in order to build up the sustainability of our programme, and thinking of passing over a sound institutional structure to the next generation of Ethiopian wolf guardians, we have established Dinkenesh Ethiopia, an NGO whose mission is to safeguard Ethiopia's unique wildlife for the benefit of current and future generations. We have also invested in renewing some of the infrastructure of EWCP HQ and field camps in Bale, and completed the construction of a field camp in Simien. Alongside, significant investment is going into training and building the capacity of our staff and partners, so that we get better results.

Like the wolves, we are survivors, and we extend a heartfelt thanks to all of you who with your support and encouragement have kept us going through these hard times. Our love for the wolves and the people and nature of the Ethiopian highlands will prevail.

Prof Claudio Sillero
Founder and Director

▶ Edriss and Claudio at EWCP's HQ in Dinsho in the 1990s.

The Ethiopian Wolf Conservation Programme (EWCP) is a partnership between the Wildlife Conservation Research Unit (WildCRU) and the Ethiopian Wildlife Conservation Authority (EWCA), in collaboration with the Oromia Forest and Wildlife Enterprise (OFWE) and Amhara's Environment, Forest and Wildlife Protection and Development Authority (EFWPDA), and with the support and cooperation of local authorities across Ethiopia.

MONITORING & RESEARCH

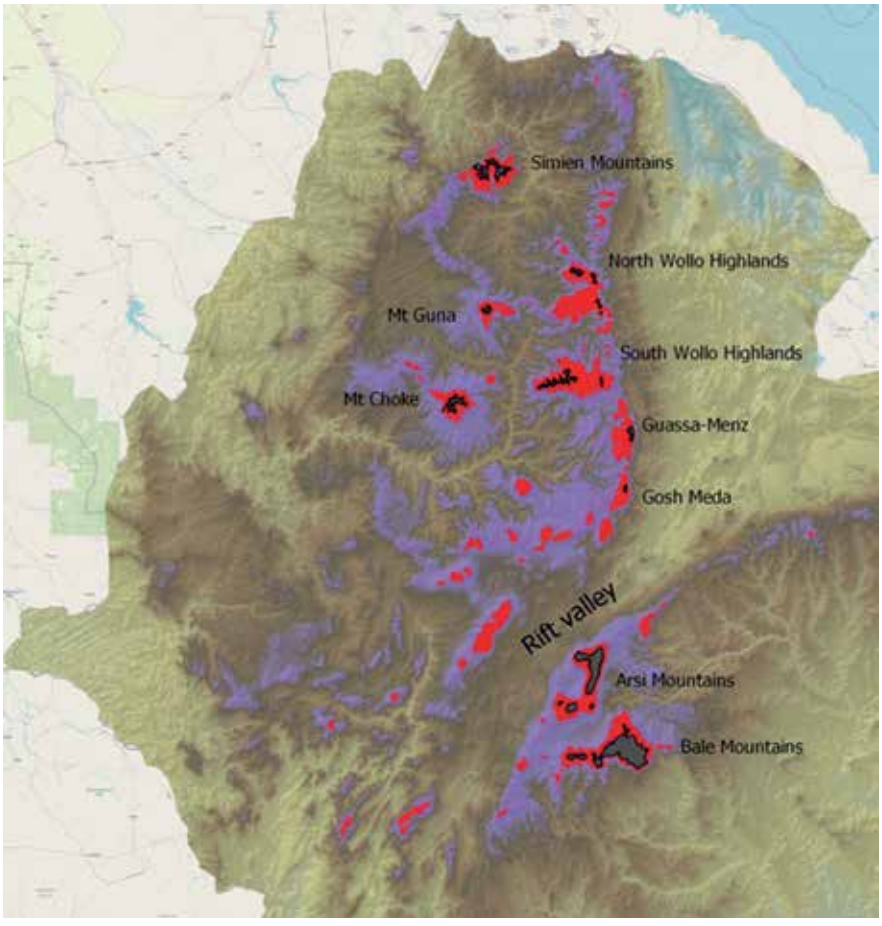
Understanding animal behaviour and what makes populations tick is a cornerstone for the successful conservation of endangered species.

THIS YEAR:

34 wolf packs monitored; over **3,600** man-days observing wolves across **6** wolf populations in **28** sites; more than **4,000** sightings of wolves or groups of wolves; **190** records of threats (fire, new crops, new settlements, harvesting, livestock predation)

TEAM:

Monitoring Officers Alo Hussein, Getachew Assefa and Mengistu Birhan, 14 Monitors and 16 Wolf Ambassadors deployed across Ethiopia; Amhara Coordinator Dr Girma Eshete



▶ Today, Ethiopian wolves survive in 7 isolated mountain ranges. Most of the habitat that was once suitable for the wolves (shown in red) has been lost to agriculture

THE BIG PICTURE: WOLF NEWS FROM ACROSS THEIR RANGE

Last year, EWCP teams monitored **34** Ethiopian wolf packs in **6** populations across Ethiopia. A total of 205 individual wolves were counted during the breeding season 2022-2023. In the Bale Mountains, wolf litters were recorded in **12** packs out of **19,** totaling **43** pups. Due to civil unrest there was less monitoring activity in East Morabawa (where some pups were seen in July 2023), and no monitoring in West Morabawa. High wolf densities usually come with higher risks of disease, but perhaps not this time when no disease-related mortality was reported following a rabies outbreak in late 2021-early 2022, despite a growing population. With some packs becoming relatively large but no evidence of epizootics, it might be an indication that immunity provided by past vaccinations led by EWCP are effectively protecting wolves. However, dispersal is still limited and the fate of wolves in packs like Meggity, which now has grown to 19 individuals including yearlings, remains uncertain.

In the northern populations of Amhara, breeding was much less successful, with only 4 packs out of 15 having pups in Menz-Guassa, Delanta, North Wollo and Simien Mountains. There is still a need to understand the reasons why packs in the northern highlands are not doing as well as in their southern counterparts.

Bale Mountains 2022-2023

pack	group size	adults	subadults	pups
Web Valley				
Alando	7	4	3	
Bowman	13	7	6	4
Fatime	3	3		
Habale	3	3		
Hangafo	5	5		4
Mckenna	13	8	5	6
Meggity	12	6	6	7
Tarura	6	6		4
	62			*25*
Sanetti Plateau				
Bagadasa	6	5	1	3
Batu	7	4	3	3
BBC	10	6	4	4
BBC2	2	2		
Garba Guracha	9	6	3	2
	34			*12*
East Morabawa				
Fulbana	7	5	2	
Gata	8	4	4	
Genale	6	4	2	3
Huke	5	5		2
Osole	7	4	3	1
Weshema	3	3		
	36			*6*
TOTAL	132			43

Northern populations 2022-2023

pack	group size	adults	subadults	pups
Menz-Guasa				
Regreg	5	2	3	
Sefed meda	5	2	3	
Chichira meda	5	2	3	
Berie ginbar	6	4	2	3
Atse wuha	2	2		
	23			*3*
Delanta				
Addis Tesfa	9	9		3
	9			*3*
North Wollo				
Rim Gedel	4	3	1	
Qey Gedel	6	6		
Atimata	3	3		
	13			
Simien Mountains				
Gich	8	6	2	3
Ayenameda	4	4		
Chenek	5	5		
Kechemo Buhait	5	5		2
Sebat Minch	3	3		
Terefe	3	3		
	28			*5*
TOTAL	73			11

▶ EWCP monitors in the Bale Mountains, stronghold of the species, watch closely 19 focal packs, allowing a tracking of pack composition and breeding activities that help us understand wolf population dynamics.

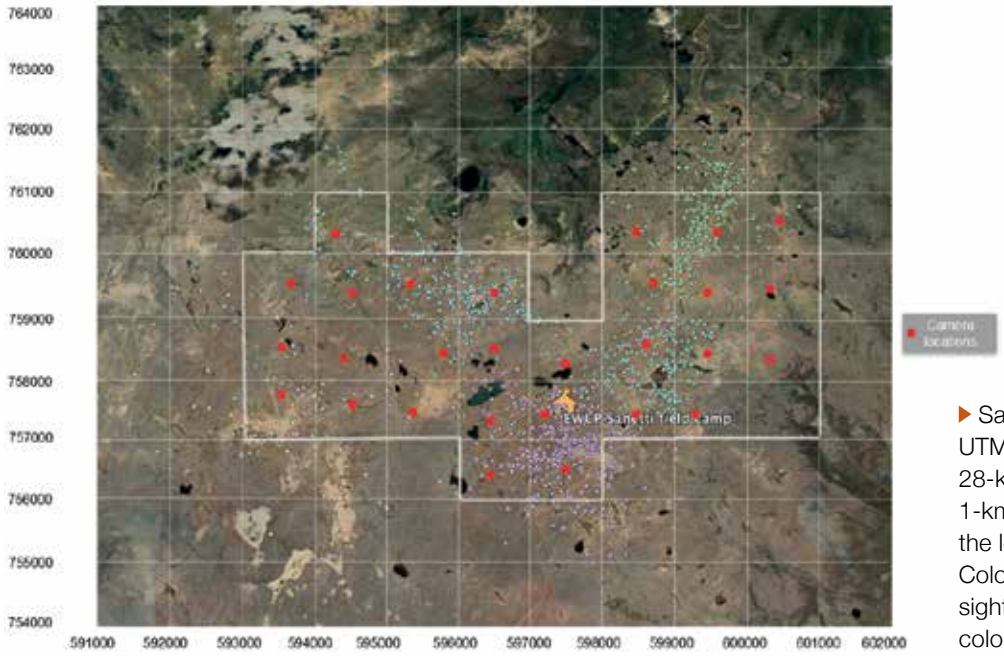
▶ Despite recurring armed conflicts in northern Ethiopia, EWCP monitors also follow closely 15 focal packs in the Amhara region, where breeding seems less successful than in the Bale Mountains.

▸ Elderly female TAR02, sitting next to her mate, 3-legs. They both retired from the dominant pair position, but still remain in the Tarura pack and help raise the new litter of pups.

AN UNUSUAL BUT HAPPY TURNOVER IN THE TARURA PACK

In the Web Valley, one wolf pack that we have been following for two decades is one of the most beloved. The Tarura pack, led by the female known as TAR02, was featured in our two past annual reports because of its exceptional history. After a severe disease outbreak swept through the Web Valley in 2009, TAR02, then a young wolf, was the only surviving female in the Tarura pack. While she is easily recognized by a red tag on her right ear, acquired after she was captured and vaccinated against rabies and canine distemper virus, her companion also has a very distinguishing feature: his left hind leg is missing. Also ear-tagged (TAR23 - Green & Light Green), but affectionately nicknamed "3-legs" or "Tuktuk" by wolf monitors and tour guides, he was badly injured on his hind leg after a fight with a neighbouring pack and was rescued by the EWCP team. Since founding her pack, TAR02 made it through four more outbreaks (she was vaccinated twice by EWCP) and gave birth every year, raising a total of at least 51 pups from 2010 to 2021. Her dynasty grew further when some of her progeny split from the Tarura pack in 2017 to create the Hangafo pack, and again in 2020 to form the Fatime pack. In 2020, one of her sons also became the dominant male in the neighbouring Meggity pack. During the 2021-2022 breeding season, with TAR02 being at least 14 years old, it was the first time no pups emerged from the den. Wolf monitors started to expect that a new female would take over her position, since it is usually what happens when a dominant individual gets too old… Indeed, as the next breeding season started, one of her adult daughters, TAR30, was seen mating with a new male in the pack.

However, as the breeding season unfolded, we witnessed something amazing! When the pups came out of the den, it was clear that TAR30 was their mother and the one nursing them, making her the new breeding female. However, both TAR02 and "3-legs" were still regularly observed within the territory. In an unexpected turn of events, whenever elderly TAR02 came to the den, we saw that the pups were running to her, greeting her excitedly! Then, their mother would leave the den while the new grandmother would babysit them. This was the first time we observed that a previous dominant female still remained in the pack despite the presence of a new breeding female. Even more surprising, other pack members still showed submissive gestures towards TAR02, as if she was still the most dominant individual in the pack. TAR02 and "3-legs" apparently retired from the dominant pair position, but it is not unusual to see both of them cuddling, sleeping together and interacting normally with other pack members. And under their careful watch, the Tarura pack continues to thrive with the addition of four new pups this year.

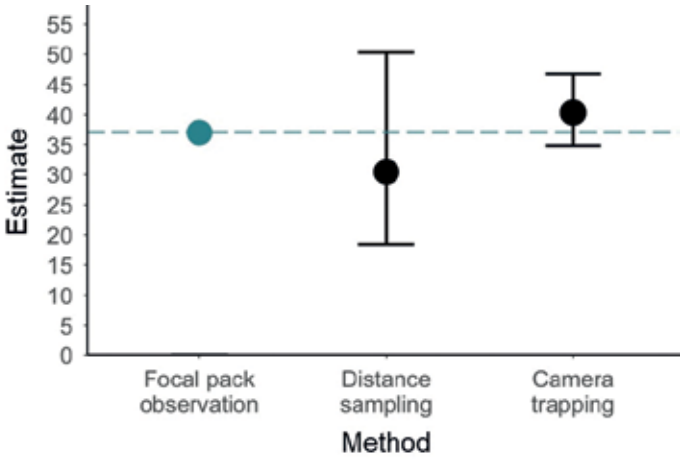


▶ Satellite map of Sanetti with UTM coordinates showing our 28-km2 study area split into 1-km2 cells. Red points show the locations of camera traps. Coloured dots represent wolf sightings, with each different colour indicating one focal pack.

ASSESSING THE USE OF CAMERA TRAPPING FOR ESTIMATING ETHIOPIAN WOLF ABUNDANCE

Synopsis of Arda Kabatepe's work

Estimating population abundance is key to the conservation of a threatened species, as it enables us to assess the species' status, track changes in abundance over time and implement targeted management strategies. Motion-triggered camera traps have become a reliable monitoring method in recent years and are increasingly being used for estimating the abundance of wild populations. To evaluate their performance and sensitivity in monitoring Ethiopian wolf abundance, we conducted a pilot study using the population on the Sanetti Plateau, Bale Mountains. There, using a method called "focal pack observations", wolf monitors count the number of individuals in every sighting for each focal pack year-round, which produces precise and reliable wolf estimates but is extremely time- and labour-intensive. For the camera trap study, we set up 28 Browning camera traps in 1-km2 grid cells covering five focal packs during 80 days. To analyse the data, we used TrapTagger, an AI-driven tool which detects, counts and identifies species on camera trap pictures. When compared with focal pack observations (our reference method) and distance sampling, which is another method relying on transect counts commonly used to determine abundance, we found that camera trapping performed well and considerably better than distance sampling, with twice as much accuracy and over three times as much precision. However, even without taking into account the cost of purchasing camera traps, field costs remained relatively high due to continuous replacement of batteries, SD cards, and cameras lost or damaged. Nevertheless, in the Amhara region where wolf populations are less accessible and therefore less easy to monitor year-round, camera trapping surveys could represent a good population estimate alternative.



▶ Estimates from focal pack observation, distance sampling and camera trapping methods with 95% confidence intervals. Dotted line at y = 37 represents the wolf abundance estimated using focal pack observations (reference method).

▶ Screenshot from TrapTagger AI programme showing detection of an Ethiopian wolf.

ONE HEALTH

Managing diseases, with benefits for people, domestic animals and wildlife

THIS YEAR:

44 communities reached by disease awareness campaigns in and around Bale Mountains National park, where **3,200** dogs were vaccinated (reaching 93% coverage); **17** packs vaccinated against rabies orally, **558** vaccines delivered, **85%** consumed; **4** packs vaccinated against CDV; **32** wolves captured in **4** packs to measure immune response.

TEAM:

Vet Team Leader Muktar Abute and Vet Team Officer Haji Usman, Community Team Leader Mustafa Dule, Vet Officers Kebede Wolde and Abubaker Hussein, Vet Assistants Kassim Kedir and Mama Abdi

▶ Our field lab-wildlife clinic, customized out of a shipping container, may be a modest facility, but it is a most useful resource for EWCP and Bale Mountains National Park. ©Eric Bedin

▶ One Health workshop organised by EWCP in Goba.

EWCP FIELD LAB

Under the care of EWCP's vet team leader, Muktar Abute, the field lab is improving prevention, disease surveillance and reactivity in case of outbreaks. Muktar has 15 years of experience to share on vaccination and effective handling of not-so-friendly dogs and can provide training for new personnel. The brand new EWCP field lab is fully equipped for animal examinations, post-mortems, first test screening of rabies and vaccine cold storage.

In 2022 Muktar traveled to Zambia, where he shadowed the Zambia Carnivore Programme field vets for two weeks and participated in captures of lions and African wild dogs. This was an opportunity for Muktar to learn about other wildlife conservation practices and to experience African wildlife very different to what he is accustomed to in the Ethiopian highlands! Thanks to ZCP for hosting Muktar and to WCN for funding the experience-sharing trip.

ONE HEALTH WORKSHOP IN GOBA ORGANISED BY EWCP

"We are all responsible. Together, we can do it."
Dr Wubishet Zewdie, *Ministry of Agriculture, Animal Health and Veterinary Public Health Executive lead*

Rabies is a major public health concern in Ethiopia and kills > 2700 people annually, mainly in rural areas, with 99% of cases caused by a rabid dog bite. Livestock and wildlife are also affected by disease outbreaks, making it crucial to adopt a One Health approach to tackle this deadly virus. With the principal reservoir of rabies being domestic dogs, mass vaccination of dogs is one of the key actions undertaken by the federal government.

In 2018, Ethiopia launched a National Rabies Control and Elimination Programme with the aim of eradicating rabies in the country by 2030. Now in Phase 2 (2021-2023), it aims to implement dog mass vaccination campaigns in 13 selected towns in 9 regions.

Rabies, in conjunction with canine distemper virus, pose the main threat for the persistence of Ethiopian wolves. Recurrent outbreaks have been detected in wolf populations over the last 30 years, notably in the Bale Mountains National Park. A single dog carrying the virus entering wolf habitat can devastate an entire wolf population. EWCP has been vaccinating dogs village by village, door-to-door, and also vaccinates the wolves in case of outbreaks. Despite our efforts, the task is colossal: more than 20,000 dogs roam freely in Bale's Afroalpine range where the wolves live. Creating a larger buffer zone around wolf populations will undoubtedly allow a better protection for the wolves, as well as for the people and livestock.

In February 2023, EWCP organised a workshop in Goba to facilitate and develop partnerships to eradicate rabies in Bale Mountains. The Ministry of Agriculture, which is overseeing the National Rabies Control and Elimination Programme, agreed to send a vet team for a first dog vaccination campaign around Bale Mountains. EWCP will support the actions locally, from technical support for dog vaccination to increasing awareness about the disease, improving dog population management and case reporting. By bringing people together, collaborations and partnerships were strengthened and we saw the promise to work together towards a common goal: decrease the prevalence of rabies in the Bale Mountains, with benefits for people, livestock and the wolves.

BIODIVERSITY FRIENDLY FUTURES

Building a future where wolves and people in the Afroalpine highlands coexist

THIS YEAR:

175 households benefitted financially from alternative livelihoods and reduced pressure on natural resources. **"Highland Honey": 104** honey producers produced **676** kg, out of this **48** kg used for household consumption, and **628** kg sold for over **293,350** ETB. **"Guassa Gardens": 71** households harvested **258** grass bundles, out of this they used **86** bundles of guassa for their consumption and sold **172** for **77,400** ETB. **Community-based management**: 5 *kebeles* in 16 community groups continued managing guassa grasslands on marginal lands around a protected area.

TEAM:

Team Leader Dr Girma Eshete, Community officers Fekadu Lema and Misrak Seyoum

▶ The festuca grass known as "guassa" has multiple uses and fetches a high value in the local markets.

Farmes in South Wollo plant the valuable native "guassa", restoring grassland between agriculture and wolf land.

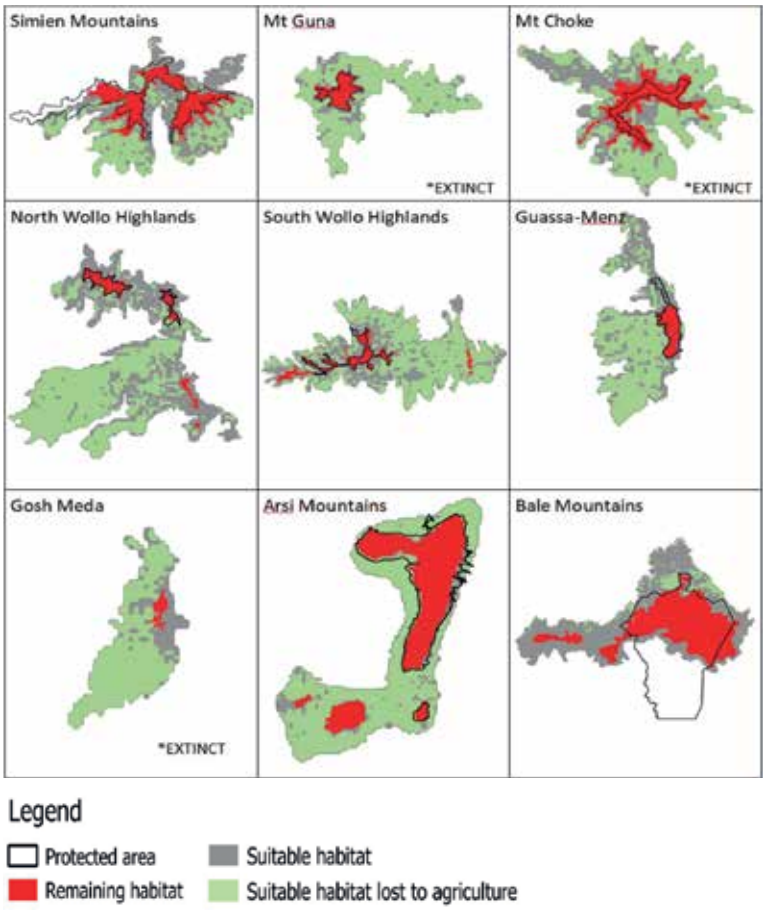
ESTIMATING HABITAT LOSS OF ETHIOPIAN WOLVES ACROSS THEIR RANGE

Synopsis of Lindsey Thompson's work

Species of highland ecosystems such as the Ethiopian wolf are particularly vulnerable to habitat loss due to their restricted range and specific adaptations. Afroalpine habitat loss related to the expansion of subsistence agriculture is a major threat to the Ethiopian wolf, including in protected areas.

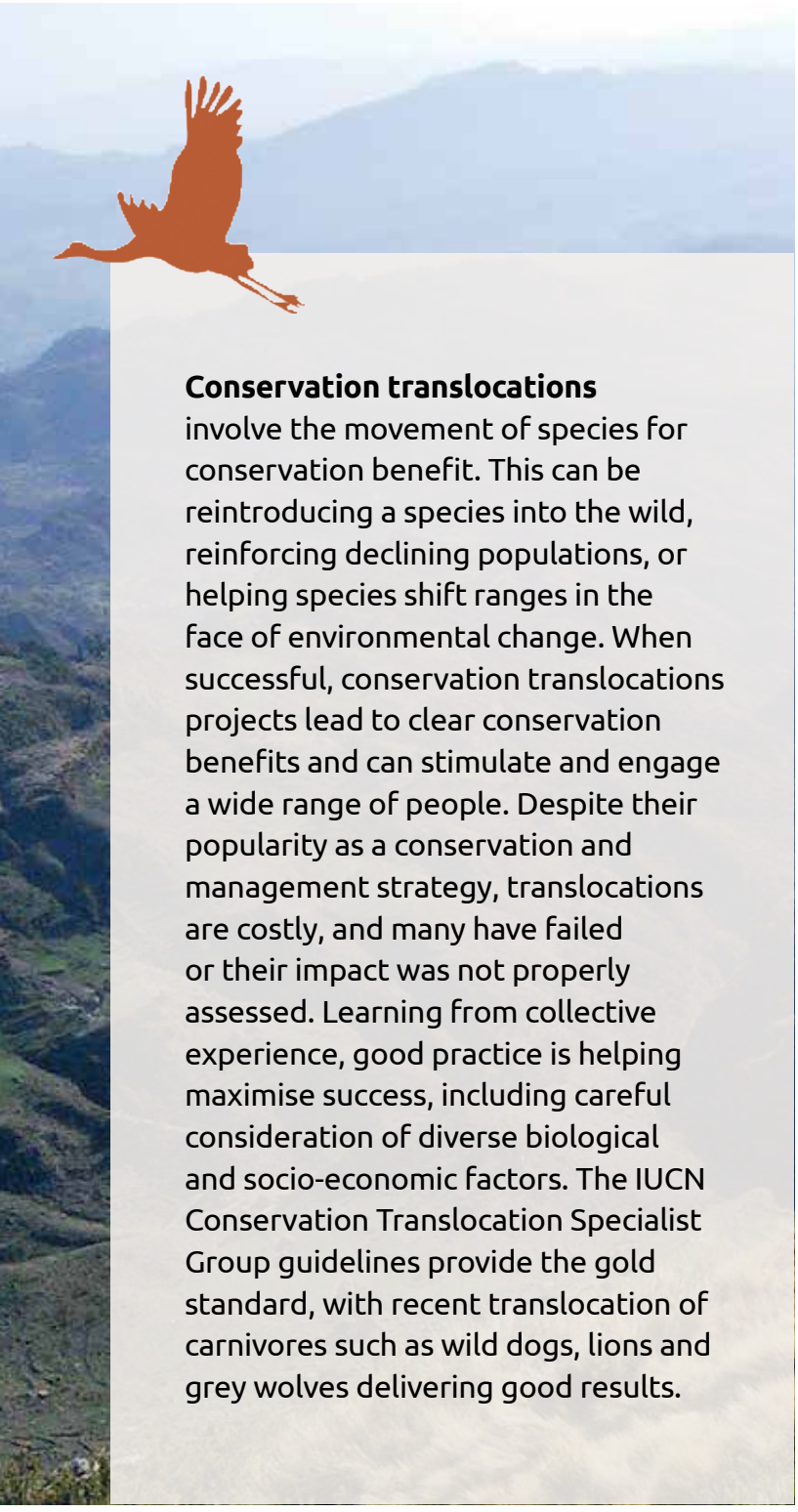
To estimate rates of habitat loss in Afroalpine habitats, we modelled habitat suitability for the Ethiopian wolf using elevation and bioclimatic variables in the software MaxEnt, and compared this model with the currently available Afroalpine wolf habitats. Out of the predicted potentially suitable habitat across all of Ethiopia, only 26.5% of Afroalpine habitat currently remained. Despite 75% of these Afroalpine units being under some level of environmental protection (as a national park or community conservation area), high rates of habitat loss were found in each region, from 53% up to 95%, notably in Northern highlands.

This highlights Afroalpine habitat loss and fragmentation as major threats to wolves' long-term conservation, and our Biodiversity Friendly Futures projects are therefore crucial for halting and reversing habitat degradation.



CONSERVATION TRANSLOCATIONS

Assisting movement of wolves to boost declining populations and recreate old ones



Conservation translocations involve the movement of species for conservation benefit. This can be reintroducing a species into the wild, reinforcing declining populations, or helping species shift ranges in the face of environmental change. When successful, conservation translocations projects lead to clear conservation benefits and can stimulate and engage a wide range of people. Despite their popularity as a conservation and management strategy, translocations are costly, and many have failed or their impact was not properly assessed. Learning from collective experience, good practice is helping maximise success, including careful consideration of diverse biological and socio-economic factors. The IUCN Conservation Translocation Specialist Group guidelines provide the gold standard, with recent translocation of carnivores such as wild dogs, lions and grey wolves delivering good results.

Ethiopian wolf populations, trapped in mountain enclaves by shrinking habitats, are peeking over the edge of extinction. While the largest wolf population in the Bale Mountains is currently close to full capacity, with little room to expand, northern populations are losing a battle against fragmentation, with wolf families surrounded by hostile farmland from every direction, or suffering the accumulation of small unfortunate events – a wolf killed during armed conflict, another succumbing to disease; a litter failing due to drought. Conservation translocations emerge as a promising tool to link these contrasting challenges to help wolf populations sustain over time. Why do we think so?

First, Bale offers a safe source of wolves for translocation, as many have little prospects due to the high wolf density there. Young animals risk dropping off the map if they disperse –the next suitable habitat patch is far and lost in a sea of agriculture fields. Disease would take a toll in crowded populations, whipping many out in a brushstroke, but with more wolves protected through our oral vaccination campaigns, the Bale population keeps filling up.

Second, wolf populations have shown great capacity to recover, with larger litters following population crashes. A wolf pair can establish a new population, as we witnessed in Delanta over the past three years. In Simien the celebrated Terefe, cared for life-threatening injuries in captivity, found a territory and a mate upon release and had pups. These wolf biology vignettes bring hope for future translocations.

While taking into consideration this complexity, we are rolling out our conservation translocation plans, ably supported by decision-makers, government agencies and experts from the IUCN Canid and Conservation Translocation Specialist Groups Strategic. And this is built upon our comprehensive understanding of wolf status, threats and behaviour. We are developing protocols for wolf handling, health care and rehabilitation. We will identify suitable areas for wolf translocations and use modelling to identify the source and suitable individuals for translocation, and will build from a pilot translocation planned for the Gaysay grasslands in Bale which takes into account local social and ecological risks.

LIVING WITH WOLVES

Building a future where wolves and people in the Afroalpine highlands coexist

Most threats facing Ethiopian wolves are driven by human behaviours. Behaviour-centred approaches to solve environmental challenges have strong potential for addressing some of these threats. After a three-day workshop, followed by visits to local communities, three target behaviours were identified for future EWCP campaigns, as well as barriers and motivations for changing these behaviours, and where the campaigns would be most effective.

"Grow your own!" Will encourage people to grow the native grass "guassa" in marginal agricultural areas and stop its unregulated harvesting from protected areas. We will target households living around wolf habitat where guassa over-harvesting is a problem. Activities: Experience-sharing workshops where growers share successes and benefits received from growing guassa; Practical Demonstrations, leading to local plans for cultivation.

"A dog at home means a safe and happy home!" Will stop people from allowing their dogs to roam, and instead keep them at home. We will target dog owners living near wolf habitat, with a particular focus on women, since they are often the main family member at home during the day. Activities: Posters to raise awareness and stimulate interpersonal communication; Coffee Ceremonies for women, with a selected community 'role model'; distributing dog collars and chains.

▶ Young sheperds coexist with wolves in their daily lives.

"The wolf, my friend" Will stop people chasing and harassing wolves. We will target young shepherds who bring livestock into wolf habitat, and their parents. Activities: Movie Nights to promote empathy and pride in Ethiopian wolves; Quizzes to help inform the impact of chasing wolves on their foraging behaviour; Conservation Game (obstacle course) to build an understanding of the impact on the wolves.

Monitoring wolf dens with camera traps

The dominant female usually digs a new den each year or refreshes an old den. Often, she moves den during the breeding season, ferrying her pups over between dens. The reasons for den-switching behaviour are not clear, but we have recorded cases of shepherds blocking dens with rocks, and domestic dogs and other carnivores visiting dens, and so we expect wolves might fear people and dogs. Disturbance is likely to affect the reproductive output of wolf packs. To capture in fine detail what it takes to successfully raise a litter, as well as the reasons why a mum might decide to move to a new den, we deployed camera traps at dens for the first time. Notably, it allowed us to record the first emergence of pups out of their den, nursing and interactions with other pack members. We will be 'spying' on other dens next year and fine-tune a method that may become part of our methodological repertoire to monitor and protect the wolves.

▶ Caught on camera! Three pups and babysitter on duty at the Batu pack den.

ewcp NEWS & OUTPUTS

©Thore Koppetsch

ERIC BEDIN MOVING ON

EWCP's field director for nearly 10 years, Eric is driven by his extraordinary dedication to wildlife conservation, Eric brought his expertise in fieldwork and research after working in the Iberian peninsula, Saudi Arabia and Mozambique and turned his attention to preventing the extinction of the rare Ethiopian wolves. He has been relentlessly working to protect fragile wolf populations across Ethiopia, coordinating the work of the monitoring team, the vet team and overseeing community projects with communities and local government. But Eric's heart is close to the destiny of each and every wolf he has encountered over the years. He has witnessed so many wolves die of rabies and canine distemper virus, small wolf populations go extinct locally, areas of wild prime wolf habitats being turned into crop fields… He led emergency wolf vaccinations during severe rabies epidemics, capturing and vaccinating wolves day and night without any rest. And when not in emergency mode, he coordinated domestic dog vaccination campaigns, trialled oral vaccines that would help protect the wolves, and helped start biodiversity-friendly projects aiming to prevent and restore wolf habitats. Thank you Eric, you will be missed.

Dessiew enrols in WCN conservation career program

WCN's Career Program supports the career growth of local conservationists by providing them with the necessary resources to succeed—multi-year flexible financial support, tailored access to training opportunities, facilitated peer learning, and mentorship. During his childhood, Dessiew Gelaw, an EWCP Wolf Monitor, saw wildlife negatively as they created problems for shepherds like himself. While at the career program, Dessiew hopes to influence policy and facilitate the implementation of wildlife technology in the field, to be an effective communicator with the authorities, and to help the locals benefit from the wildlife they live with.

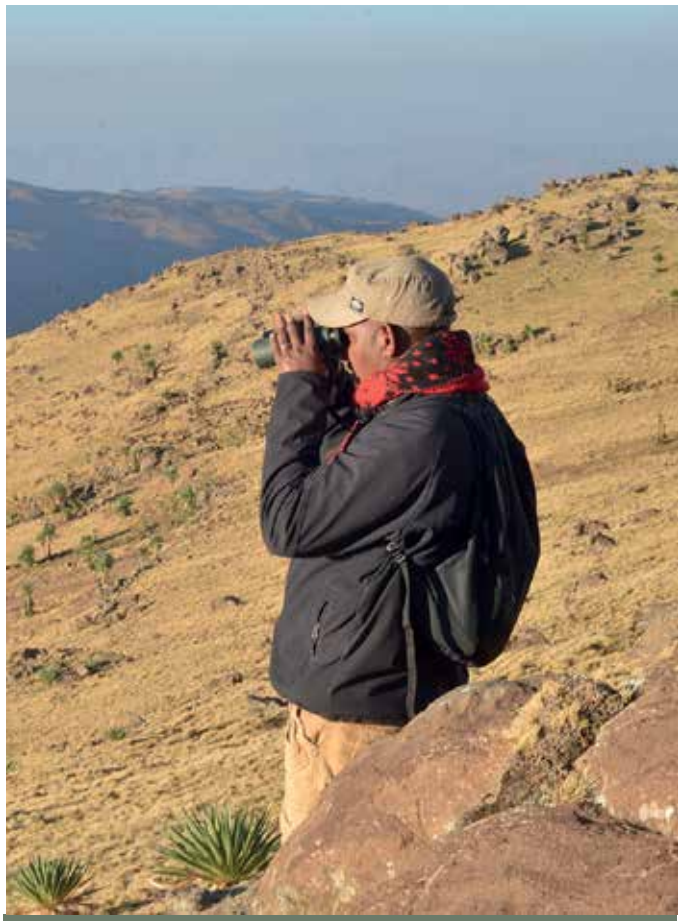
ewcp NEWS & OUTPUTS

Improving our facilities in Dinsho

Built in the 1980s, the Research Buildings in Dinsho Hill, Bale Mountains, were in need of some tender loving care. Supported by a grant from Dry Creek Foundation we have been able to do some refurbishment and improvements. A new roof has gone up, offices and residential space spruced up, with new stores, a new kitchen, furniture and computers now in place. There is more to be done, but the Bale team is already benefitting from this investment.

MENGISTU STUDYING AT OXFORD

Mengistu Birhan grew up in the small village of Gugem near Yejubie. He joined EWCP in 2017 as Community Officer, conducting education and awareness activities in schools and villages near wolf range. Now a Research Leader, he collates and analyses wildlife monitoring data from EWCP teams across Ethiopia. Studying at the prestigious Postgraduate Diploma in International Wildlife Conservation Practice taught by WildCRU at the University of Oxford, Mengistu is learning cutting-edge analytical tools while part of a buoyant conservation community, that will empower him to contribute valuable wildlife conservation skills to EWCP and his country.



GETACHEW RECEIVES PRESTIGIOUS AWARD

Congratulations to Getachew Assefa Takele, winner of the 2022 People's Choice Award from the Born Free Foundation for his crucial work in fostering coexistence with Ethiopian wolves in the Simien Mountains. Getachew, known locally as 'the wolf man', has dedicated much of his life to working to protect Ethiopian wolves. With a team of Wolf Monitors and Ambassadors, he carefully watches over the wolves that roam Simien Mountains National Park, one of the most important protected areas in the Ethiopian highlands.

ewcp NEWS & OUTPUTS

SANDRA LAI JOINS THE PACK

Dr Sandra Lai joined WildCRU at Oxford and EWCP in September 2022 from Université du Québec, Rimouski, Canada. During her PhD and postdoc at the Canada Research Chair in Northern Biodiversity Sandra studied the behaviour and movement patterns of Arctic mammals, such as the Arctic fox and the Arctic hare. Benefitting from the similarities between the Arctic and Afroalpine ecosystems Sandra is using EWCP's long-term database on population demographics, social group dynamics, disease surveillance and vaccination effectiveness to inform EWCP conservation work. Working closely with EWCP field teams Sandra contributes to the running of EWCP's wolf monitoring and field research projects.

MUKTAR RESCUES NYALA CALF

One early morning last May, villagers from Dinsho found a very young mountain nyala calf that had been bitten on the back legs, likely by a dog, right outside the fence of Bale Mountains National Park. Park personnel was called to the rescue and they brought the female calf to the EWCP clinic, to be stitched up by our vet, Muktar Abute, and watched over by the staff. Although the injuries were not life threatening, a calf that young— less than 1 week old—would not make it without its mother… What to do? Luckily, in the late afternoon, Muktar spotted a lone female nyala cautiously walking nearby, with udders full of milk… She ran away when she saw Muktar, but as soon as he put the calf outside, she came back! She sniffed the calf once, and then immediately started licking her! It turned up that it was the mother! After a long cleaning and bonding session, the two of them left together. Both were re-sighted in the area in the next weeks, alive and well.

Veterinary training in Zambia

For a change from his usual vaccination trips to Ethiopia's mountaintops, EWCP's Muktar Abute headed south to Zambia where he joined the Zambian Carnivore Programme (ZCP), a field-based research and conservation organisation, for hands-on training in wildlife immobilisation and monitoring techniques. Muktar presented his work with EWCP before heading into the field to help track and dart lions and African wild dogs, fitting them with new radio collars. While Ethiopia has no shortage of diverse flora and fauna, it was a long way from the bushy lowlands of Zambia where Muktar was thrilled to see many new species he hadn't encountered before in the wild, including elephants!

Popular articles & news

Selamta, July-August 2023. Paw Patrol. Words and photos by Stuart Butler.

EWCP blog, March 2023. Towards eradicating rabies in Ethiopia – EWCP One Health workshop in Goba.

EWCP blog, January 2023. New documentary: dogs in the wild.

EWCP blog January 2023. Veterinary training in Zambia.

EWCP blog, November 2022. Up and running: a new field lab builds capacity.

EWCP blog, October 2022. Claudio reflects on 20 years of WCN.

EWCP blog, September 2022. Vaccination works: an outbreak contained.

WCN blog, September 2022. Protecting wolves and helping communities in Delanta.

Manuals

Guassa pre- and post- planting techniques (in Amharic). Biodiversity Friendly Futures project. Ethiopian Wolf Conservation Programme. By Misrak Seyoum, Community Officer. May 2022

Highland honey training manual (in Amharic). Biodiversity Friendly Futures project. Ethiopian Wolf Conservation Programme. April 2022

Guassa cultivation training manual (in Amharic). Biodiversity Friendly Futures project. Ethiopian Wolf Conservation Programme. April 2022

▶ Addis Ababa is the main air hub in Africa. Many will read Selamta, Ethiopian Airlines' on board magazine

Research Collaborations

Addis Ababa University – Genetics and carnivore interspecific competition
Animal & Plant Health Agency – GOV.UK - Immune response to CDV vaccine
Ethiopian Public Health Institute - Rabies diagnostics in wolves and dogs
Mekelle University - Large Carnivore Survey of Ethiopia
Hawassa University – Role of giant molerats as ecosystem engineers
Oslo University/Jimma University - African wolf ecology and competition
Phillip University Marburg, Germany - Climate monitoring in the Bale Mountains
Rollins College, USA - Measuring cortisol in claws and hair to assess stress in wolves
Royal Veterinary College, UK – Disease dynamics and vaccine testing
University of South Bohemia, Czech Republic - Giant molerat physiology and ecology

Scientific Publications

Lai, S., Bedin, E., Birhan, M., Lavril, C., Lesaffre, A., and Marino, J. 2023. Report of a case of progressive greying in the Moorland Chat *Pinarochroa sordida* in Bale Mountains National Park, Ethiopia. *Scopus: Journal of East African Ornithology* 43:1-4. https://www.ajol.info/index.php/scopus/article/view/240827

Martínez-Navarro, B., Gossa, T., Carotenuto, F., Bartolini-Lucenti, S., Palmqvist, P., Asrat, A., Figueirido, B., Rook, L., Niespolo, E.M., Renne, P.R., and Herzlinger, G. 2023. The earliest Ethiopian wolf: implications for the species evolution and its future survival. *Communications Biology* 6:530. https://www.nature.com/articles/s42003-023-04908-w

Gutema T.M., Atickem, A., Tsegaye, D., Chala, D., Bekele, A., Sillero-Zubiri, C., Marino, J., Zinner, D., Venkataraman, V.V., Fashing, P.J., and Stenseth, N.C. 2022. Home range, habitat use, and activity patterns of African wolves (*Canis lupaster*) in the Ethiopian highlands. *Global Ecology and Conservation* 40, e02324. https://doi.org/10.1016/j.gecco.2022.e02324

Krofel, M., Hatlauf, J., Bogdanowicz, W., Campbell, L. A. D., Godinho, R., Jhala, Y. V., Kitchener, A. C., Koepfli, K.-P., Moehlman, P., Senn, H., Sillero-Zubiri, C., Viranta, S., Werhahn, G., and Alvares, F. 2022. Towards resolving taxonomic uncertainties in wolf, dog and jackal lineages of Africa, Eurasia and Australasia. *Journal of Zoology* 316: 155– 168. https://doi.org/10.1111/jzo.12946

Atickem, A. and Stenseth, N.C. 2022. The role of rodents in the conservation of endangered species in the Ethiopian highlands. *Therya* 13:73-77.

Theses

Arda Kabatepe. 2023. Assessing the accuracy, precision and robustness of camera trapping in estimating the abundance of endangered Ethiopian wolves. MBiol thesis. University of Oxford, Oxford, UK.

Ayesha Wijesekera. 2022. Evaluating the success of alternative livelihood programmes in conservation: A case study in the Highlands of Ethiopia. MBiol thesis. University of Oxford, Oxford, UK.

Jessica Chalkley. 2022. Investigating uptake of an oral rabies vaccine bait in endangered Ethiopian wolves Canis simensis. MBiol thesis. University of Oxford, Oxford, UK.

Karl Reimand. 2022. Links between climatic factors and population demography in the Ethiopian wolf, Canis simensis. MBiol thesis. University of Oxford, Oxford, UK.

Lindsey Thompson. 2022. Land management in high mountain ecosystems: Ethiopian wolf case study in Afroalpine habitat. MBiol thesis. University of Oxford, Oxford, UK.

Naomi Hawrylak. 2022. Interspecific interactions between Ethiopian wolves and free-roaming domestic dogs in Bale Mountains National Park (BMNP). MBiol thesis. University of Oxford, Oxford, UK.

Conferences attended

International Conference on Conservation Biology (ICCB) in Kigali, Rwanda. July 2023.

International Conference on Human-Wildlife Conflict and Co-existence (HWCC) in Oxford, UK. April 2023. Symposium: "One Health for Coexistence".

Conservation of Large Carnivores in Ethiopia Symposium. May 2022, Addis Ababa, Ethiopia. Presentations: "Carnivores of the Afroalpine ecosystem", "Monitoring & research inform Ethiopian wolf conservation".

Wolves Across Borders, May 2023, Stockholm, Sweden. Presentation: "Conservation with hard borders: wolves and people in the highlands of Ethiopia".

▶ Moorland chat displaying progressive greying, re-sighted in early 2023.

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THANK YOU

EWCP is deeply grateful for the support it has received over the programme's lifetime. We are thankful for every gift, since each contributes to the future of the Ethiopian wolf.

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African Wildlife Foundation, Akiko Yamazaki and Jerry Yang, Bill Miller, BBC Wildlife Conservation Fund, Bern Thies Foundation, Born Free USA, Bosack & Kruger Foundation, CEPA - Conservation des Espèces et des Populations Animales, Conservation International, Eloise and Asa Lanum, Environmental Systems Research (ESRI), Ethiopian Wildlife & Natural History Society, Florence and Steven Goldby, Fondation Segré, Giant Steps Foundation, IBREAM, IDEA WILD, IFMP-GTZ project in Adaba-Dodola, International Fund for Animal Welfare, Iris Darnton Trust, J.R.S. Biodiversity Foundation, John Aspinall Foundation, Houston Zoo, Journeys by Design, Kuoni Travel, The Lawrence Bowman Family Foundation, Mike Volpi and Toni Cupal, Mohamed Bin Zayed Species Conservation Fund, Morris Animal Foundation, National Geographic Film & Television, National Geographic Society, NHK Enterprises, The Oppenheimers, Richard Scheller and Susan McConnell, Shumaker Family Foundation, Sidney Byers Charitable Trust, Spencer Scott Travel, Rock & Blues, Stiftung Artenschutz, Saint Louis Zoo, Silverback Films, SSB Charitable Corporation, Stephen Gold, Taiwan Council of Agriculture and Forest Bureau, The Critical Ecosystem Partnership Fund, Viking Films, The Wellcome Trust, Wildlife Conservation Society, Whitley Fund for Nature, World Society for the Protection of Animals, The Walt Disney Company, Zoologische Gesellschaft für Arten-und Population, Zoological Society London, Zynga.

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Jara Kasim, Sanetti Guard
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Umer Wally, Horse Stables Guard
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The Ethiopian Wolf Conservation Programme is a WildCRU (University of Oxford) endeavour to help protect these endangered wolves and the Afroalpine habitats they inhabit. It works under an agreement with Ethiopia's Wildlife Conservation Authority and Regional Governments, with the aegis of the IUCN SSC Canid Specialist Group and Wildlife Health Working Group.

Ethiopian wolves are only found in a handful of scattered mountains in Ethiopia and are threatened by loss of highland habitats, disease and persecution. The most threatened carnivore in Africa, and the world's rarest canid, these long-legged charismatic animals need your help.

Informed by sound research, the Ethiopian Wolf Conservation Programme targets the greatest threats to the survival of Ethiopian wolves and their Afroalpine habitat. We promote this charismatic species as a flagship, thereby protecting many of the Ethiopia's highland endemics and natural resources.

If you or your organisation is interested in helping to fund our activities contact us. You can donate to EWCP specifically through the following organisations:

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"I am always pondering how even looking after a single wounded wolf in its natural habitat could bring a big change on the attitude of the local people to protect the wild animals in the park."

Getachew Assefa, on Terefe - the lucky survivor.

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