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Annual Report

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Ethiopian Wolf Conservation Programme

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.

HIGHLIGHTS

The wolves of the Bale Mountains, the world's largest population, continued their pathway to recovery after a serious outbreak of canine distemper virus in 2016. Backed-up by a strong breeding outcome and EWCP's vaccination campaigns this population is filling up! We are also keeping an eye on smaller wolf populations elsewhere, where emerging threats pose other conservation challenges. *Pages 6-7*

Long-term *Monitoring & Research* pays. We discovered wolves dispersing further than expected and, using our unparalleled monitoring data, we are building high-resolution models that can recreate disease outbreaks with high accuracy and help us find suitable solutions. *Pages 8-9*

Our *One Health* project maintains a buffer of vaccinated domestic dogs around the core wolf population in Bale and, in a ground-breaking move, EWCP is now implementing preventive oral vaccination of wolves against rabies. We built Disease Alert Networks in new regions, triggering more local engagement and allowing for a rapid intervention to save a small wolf population hit by rabies in North Ethiopia. *Pages 10-11*

When nature is valued, conservation follows suit. As part of our *Biodiversity Friendly Futures* we promoted traditional natural resource management systems and sustainable livelihoods in two new protected areas, leading to the formal adoption of co-management for one of them. *Pages 12-13*

A vision for the future: linking habitat restoration with conservation translocations and behavioural change, we aim to go one step further up the ladder. *Page 17*

With ever-mounting pressure on wild spaces and species, Ethiopia's highland endemics are facing new threats. In response, EWCP is striving to grow, with more staff and training. *Pages 20-21*



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A letter from our Founder & Director

The challenges to wildlife conservation are many and diverse. Success relies on working together.

The more we learn about Ethiopian wolves and the causes of their endangerment, the more evident it is the need for holistic solutions. The challenges posed by land use conversion and infectious diseases in the highlands of Ethiopia affect people, domestic and wild animals, and cannot be dealt with by EWCP and the Ethiopian Wildlife Conservation Authority in isolation.

Proof of our principle of cooperation are two of this year's major achievements, which bring optimism to our common cause of protecting nature for the benefit of all.

The first involved the promotion of alternative livelihoods and microenterprises, seeking to harmonise uses of natural resources with conservation, integrating local livelihoods into new protected areas. Success depended largely on engagement and active participation of community leaders, protected area managers, local and regional governments, using existing communication channels and cultural traditions. Read more about our Biodiversity Friendly Futures project achievements in page 12.

The second success brought change and hope for the plight posed by rabies. Networks of veterinarians, health centres and local communities, with support from EWCP for training and awareness, self-organised to vaccinate domestic dogs around two small wolf populations, with positive cascading effects on humans and wolves. EWCP has secured fresh international support for an integrated approach to reduce the risk of infectious diseases. Read more about our One Health project in page 10.

By combining international support with a strong team of over 60 nationals, we are beginning to see the fruits from good conservation practices that rely on people and institutions working together to save an endangered species.

The world will be a better place with Ethiopian wolves roaming free in the highlands of Ethiopia, next to the people that rely on the precious natural resources the highlands of Ethiopia provide.

This annual report hopes to bring optimism to our partners, collaborators, supporters and friends, because we are convinced that with your participation, encouragement and support win-win solutions are possible.

Prof Claudio Sillero
Founder and Director

The Ethiopian Wolf Conservation Programme (EWCP) is a partnership between the University of Oxford's Wildlife Conservation Research Unit (WildCRU) and the Born Free Foundation.

EWCP operates under agreements between the WildCRU and the Ethiopian Wildlife Conservation Authority (EWCA), Oromia Forest and Wildlife Enterprise (OFWE) and Amhara's Environment, Forest and Wildlife Protection and Development Authority (EFPDA), 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.

Taking the pulse of populations: the good, the bad and the challenges ahead

More than half of the world's Ethiopian wolves live in the Bale Mountains. This is where our largest team regularly monitors over thirty wolf families. This year they located 18 dens, counting a total of 68 pups. The two core wolf populations in Bale, in the outstandingly beautiful Web Valley and Sanetti Plateau, are now filling up (Figure 1).

Canid populations, particularly those of a social disposition, are renowned for their capacity to bounce back, but there is a nuance to this story. Twenty wolves vaccinated in three packs in September 2017 also contributed to building up population resilience, with one of them playing a key role in rescuing another pack. In November 2017 alarm bells rung when monitors visiting the Megity pack found a dead wolf and a sick wolf. This concern was amplified when Megity's dominant female disappeared, as such event would usually lead to the disruption of the entire social group, which might in turn take years to be replaced. Fortunately, vaccination contributed to keeping the outbreak small and a subordinate female from Alando, one of the packs vaccinated, took up the dominant place in Megity. This pack still reigns supreme in the surroundings of our Sodota field camp. In social animals such as the Ethiopian wolf, and particularly in one so rare, every individual animal counts not just on its own but also as part of a family, the building block of the survival puzzle faced by this species.

Although it would seem like a contradiction, seeing the Bale wolves close to reaching their carrying capacity brought restlessness to the team, as history has shown that it is at their highest density when the wolves are at highest risk from disease. The monitors kept their eyes wide open, while the vet team kept busy with the vaccination campaigns (see page 10).

Team:

Monitoring Officers Alo Hussein and Getachew Assefa, 14 Monitors and 13 Wolf Ambassadors deployed across Ethiopia.

This year:

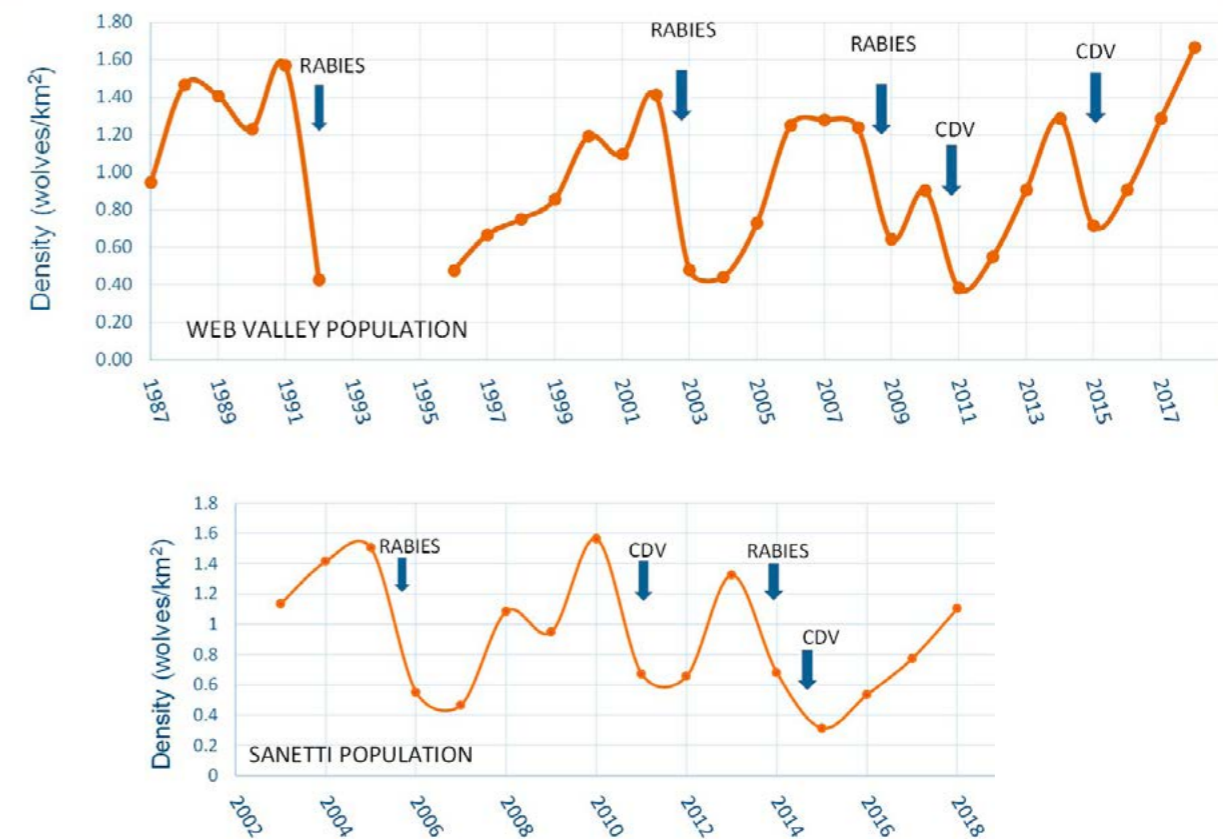
All six wolf populations monitored, including over 40 wolf packs; 70 scouts and 42 community guards trained in two protected areas, including training and development of two SMART databases; four Ethiopian MSc students supported; 13 publications.



Elsewhere, wolves are holding on. Good news came from Guassa-Menz and Abuna Yosef Community Conservation Areas, where monitors reported healthy populations following small disease outbreaks in 2018. In the Simien Mountains National Park, wolves are very elusive; monitors were therefore delighted to find seven well-camouflaged dens this year, confirming that wolf families were breeding in spite of growing concerns from increasing tourism pressure and livestock encroachment in some areas of the park. Also, social and ethnic tensions in North Ethiopia are exacerbating some of the threats that the wolves face, such as widespread wild fires in Simien and Arsi Mountains. Together with our assembly of Wolf Ambassadors we are working with local communities and partners to alleviate these threats, as part of our Biodiversity Friendly Futures project (see page 12).

Bale "focal packs": breeding season 2018 - 2019						
Web Valley						
pack	group size	adult males	adult females	subadult males	subadult females	pups
Alando	5	3	2			3
Bowman	13	3	6	3	1	5
Mckenna	12	4	5	1	2	
Habele	10	5	2	2	1	3
Megity	9	3	3	2	1	3
Megity 3	11	4	3	2	2	5
Tarura	13	6	3	1	3	5
Total	73					24
Sanetti Plateau						
Pack	group size	adult males	adult females	subadult males	subadult females	pups
Bagadasa	11	4	2	3	2	1
Garba Gurracha	11	4	3	2	2	
Batu	7	2	2	2	1	3
BBC	9	3	3	2	1	
BBC2	4	2	2			4
Nyala	6	2	2	1	1	3
Total	48					11
East Morabawa						
pack	group size	adult males	adult females	subadult males	subadult females	pups
Genale	9	2	4	1	2	3
Gatta	11	3	4	1	3	4
Osole	8	2	3	2	1	
Huke	9	3	3	2	1	4
Weshema	9	3	2	2	2	5
Fulbana	4	2	2			
Total	50					16

► Table 1 By monitoring wolves closely we can learn how each family pack is composed and their success breeding and raising pups.



► Figure 1: Long-term time series provide a clear picture of successive population peaks and troughs. Both core populations in Bale have now recovered almost fully.

Exceptional data and clever models help us assess alternative vaccination interventions.

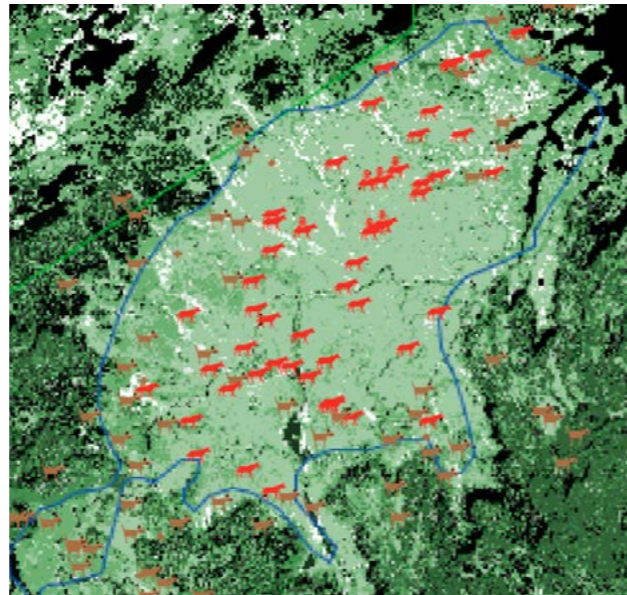
Every time we capture wolves to vaccinate them, we put coloured ear-tags so that we can identify them wherever they go. In reality, Ethiopian wolves are not very adventurous, preferring the safety of their family territory, which they communally protect against expansionist neighbours. Sometimes, however, subordinate females raise the stakes and leave home, searching for breeding opportunities elsewhere (with only the dominant female breeding in the pack, there are no opportunities for these youngsters at home). Such dispersal events are difficult to track, so we were pleasantly surprised when, healthy 'Agicho 10', a female with pink and red ear-tags, turned up over 40km away from where she had been vaccinated in March 2017. We thought she was dead, but instead she had settled in a nice patch of habitat with the pack that adopted her. Moreover, she is now the proud holder of the Ethiopian wolf long-distance dispersal record!



► Field director Eric Bedin fitting ear-tags to a wolf trapped to measure immune response after oral vaccination. Tagged animals are making it possible to track long-distance disperses, mostly females looking for a breeding opportunity, like 'red-pink'

We are always learning something new about the wolves, adding to the large body of demographic and behavioural information built up over the years. We also need to understand the behavioural traits of local dogs who venture out from their villages into wolf habitat. Doctoral student James Foley deployed GPS collars with miniature accelerometers on several village dogs in the Web Valley, Bale Mountains, and applied Artificial Intelligence to process the huge datasets generated. He described and mapped the movements and behaviours of these free-roaming

dogs, and combined them with the wolf data into a high resolution Agent Base Model. Using Bale's real landscape as a background, he modelled disease transmission from dogs to wolves and between wolves, and replicated past outbreaks with high accuracy (Figure 2). Satisfied with this validation, he will next model scenarios representing future vaccination interventions and predict their relative efficacy in reducing epizootics and the risk of Ethiopian wolves going extinct. These models provide visual representations that anyone can understand, and so are powerful tools for EWCP to disseminate knowledge of the threats facing the wolves and raise awareness of their plight.



► Figure 2: Virtual dogs and wolves in this model are born, die, move, and meet with each other, helping us understand the impacts of different vaccination interventions to control the risk of outbreaks.

What land uses are compatible with Ethiopian wolf conservation?

We live in a rapidly changing world. For biodiversity any change is mostly perceived as negative, but not all impacts are evident or well understood. We should strive to understand them better, because land use changes are the driving force behind contemporary species extinctions, a force stronger (and irremediable!) than climate change itself.

Afroalpine grasslands, wetlands and moorlands at the top of mountains are among the few remnant natural habitats in the highlands of Ethiopia. This is the land of the Ethiopian wolf and many other endemic species. These mountain enclaves are also the origin of all rivers, and the source of pastures and firewood for many people depending on subsistence agriculture and small flocks of sheep and goats. Where these natural resources are overexploited, natural areas degrade, with impacts upon local livelihoods, wildlife and water availability further downstream.

But is over-exploitation unavoidable? What alternatives exist? How do these threats impact biodiversity and the wolves? EWCP is helping to build up evidence-based notions on the sustainability of various land uses in the highlands of Ethiopia, including traditional systems, while supporting national graduate students.

Research led by **Antenna Tesfaye** showed that while the world is always changing, sometimes it goes full circle. In the highlands of South Wollo many local 'kebeles' (peasant associations) returned to a version of a traditional management of the native *Festuca* grass, known as 'guassa', by which harvest is communally regulated with a long-term view for the benefits of all. Guassa is an important local material, used to make strong ropes, thatching, as fodder; and is commercialised in local markets at a good price. In March 2019 an EWCP team surveyed the entire massif, and we could not believe our eyes: the slopes were virtually free of livestock, guassa grasslands were growing tall and Erica bushes were regenerating in amongst the tussocks. **Dr Girma Eshete** had already demonstrated in his doctoral research, that this management system favoured rodent populations, the dominant herbivores in the system and the wolves' main prey. Not surprisingly, we sighted a good number of healthy wolves across the landscape in areas previously degraded. On these bases, EWCP supported the integration of traditional practices into protected area management plans (see page 12).

The Simien Mountains National Park is also implementing habitat protection by setting aside some livestock-free and guassa areas. When graduate student **Derbe Deksios** compared the condition of vegetation and rodent populations under various land uses, he discovered some complex interactions. For example, some rodents were more resilient than others to varying levels of grazing, and full-protection did not necessarily provide the best conditions for rodents. He concluded that some level of resource extraction would be advisable, comparable to the traditional rotational harvest of guassa implemented by communities in South Wollo.



► Science Director Jorgelina Marino and graduate student Derbe Deksios selecting study sites for his comparison of the effects vegetation condition on the wolves' rodent prey; he recorded good recovery in this area, where all livestock grazing was removed.

ONE HEALTH

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

Moving forward with One Health plans and partnerships

Five years after the National Action Plan for Ethiopian wolf conservation was signed, stakeholders gathered again in Adama in June 2017 to review progress and update plans. A thorough revision revealed that over 70% all medium and high priority actions were completed or started, with significant contributions from EWCP. This included the first field test of an oral vaccine in Ethiopian wolves, demonstrating that the vaccine was safe and effective. The revised Action Plan now includes preventive oral vaccination against rabies as a measure to avoid outbreaks among wolves. This is part of an integrated disease management plan that relies on the active involvement of many stakeholders.

With key partners aligned and new funding available, this ambitious plan is now coming into place. EWCP started widespread oral vaccination campaigns, thanks to a generous donation of 3,200 oral vaccines by Virbac and a IUCN SOS African Wildlife Initiative grant supported by the European Union, which will support the One Health project over three years, including:

- oral vaccinations against rabies in all Ethiopian wolf populations by Year 1
- field testing of a canine distemper vaccine in wolves
- building up in-country capacity for diagnoses, including a field lab in Bale
- creating networks across stakeholders to monitor disease, prompting local action for dog vaccinations
- research on the strains of viruses and their phylogeny.

A recent success story illustrates well our integrated approach. Information campaigns, training of vets, and the establishment of Disease Alert Networks by EWCP around two protected areas, Borena-Sayint Worrehimenu and Arsi Mountains National Parks, mobilised local communities and governments to take initiative to control of rabies. With government providing vaccines and human resources, and EWCP technical and financial support, these communities vaccinated more than 2,000 domestic dogs living close to Ethiopian wolf habitat. As a result of the awareness campaigns some communities also agreed to keep their dogs at home.

Team:

Vet Team Leader Muktar Abute,
Community Team Leader Mustafa Dule, Vet Officers Kebede Wolde and Abubaker Hussein, Amhara Region collaborator Dr Alemayehu Bitewa.

This year:

Over 3,500 dogs vaccinated in 34 villages; seven packs vaccinated orally over (300 oral vaccines delivered, 80% consumed); post- vaccination captures in 7 packs; 40 communities reached by rabies awareness campaigns and 20 vets trained and 70 stakeholders involved in Disease Alert Networks.

National Action Plan for the conservation of the Ethiopian wolf
Revised version 2017



Revised National Action Plan
Based on mid-term review workshop held in Adama in 22-24 June 2017
Published by EWCA, September 2017

Oral vaccines can change Ethiopian wolf conservation forever

It is extremely sad to witness Ethiopian wolves die recurrently from diseases that could be prevented. So much of our efforts go into protecting these rare wolves from fatal diseases, that at times we disregard or are unable to address other pervasive threats such as habitat loss, degradation and persecution. We are approaching these challenges in two ways: engaging in habitat protection with our Biodiversity Friendly Futures project and, crucially, persuasively advancing a rational approach to disease control.

We can and should be more pragmatic, and oral vaccination may be the key. This is why we think so:

- **Prevention is better than reaction:** no matter how many monitors are deployed in the field, how fast samples are processed and tested, permissions requested and granted, by the time intervention takes place to contain an outbreak, many wolves have already died. Following best practice in human health, we should act as we do with our children, we should vaccinate the wolves to stop them from being infected in the first place.
- **Oral vaccination is cheaper and less distressing** to the animal than parenteral vaccination: we now know which type of bait the wolves are attracted to, how and when to distribute them, how to target a particular pack; most important, we know (from camera trap evidence) that the wolves are indeed consuming most of the baits.

With this evidence in hand, when it comes to protecting wolves against rabies effectively and efficiently, we will no longer need trapping expeditions, no more expensive capture drugs, no more cold and sleepless nights, and no more stress for the wolves.

- **Swifter interventions:** Any decision to vaccinate wolves orally as a response to an emergency will be also less conflictive, and will count with wide support. In November 2018 two wolf carcasses were found in Abuna Yosef, a small wolf population just above the world famous rock-hewn churches of Lalibela. A rapid response followed suit: within 15 days after the first carcass was found, an EWCP team from Bale travelled and swiftly reached the mountains, and was delivering oral rabies vaccines to the four wolf packs living there. Our local monitor has detected no further wolf mortality since the intervention. We were very proud and most impressed by the collaborative and coordinated nature of this response, involving local, regional and federal authorities.

Still, there are several questions for which we need answers: What vaccination coverage are we achieving? Will this coverage vary across populations? How long does vaccine protection last? How often should we vaccinate? Monitoring and research is core to our work and we are already monitoring response in some of the vaccinated packs. Soon, we trust, we will have the answers to these questions.



► Camera traps confirmed that we are hitting the target: with the rare exception of some raptors and the odd domestic dog, the oral vaccine sachets wrapped up in a meat bait are mostly consumed by wolves. In the background, EWCP team camping during a vaccination campaign in Abuna Yosef.

BIODIVERSITY FRIENDLY FUTURES

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

Afroalpine gold: Festuca grasses drive grass-roots conservation

In conservation there are possibly as many proposed solutions as types of problems, but it is also generally accepted that bottom-up approaches are particularly effective and also more equitable. Indeed, the 2019 Global Assessment Report on Biodiversity and Ecosystem Services, by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), revealed that trends in habitat loss and deterioration have been less severe, or avoided in areas held or managed by indigenous peoples and local communities. In total they owned, managed, used or occupied at least a quarter of the global land area, including approximately 35% of all protected areas. This is a message not to be overlooked.

When it comes to the conservation of Ethiopian wolves, EWCP can also vouch for the power of local communities and traditional knowledge to conserve natural resources, with benefits to people and to biodiversity in the Highlands of Ethiopia.

Guassa, a native Festuca grass from the Ethiopian highlands, is highly appreciated for its qualities for weaving, rope-making, as thatching material and fodder, with a strong local market. Over the last few years, local communities in South Wollo started implementing a management system for guassa that is rooted in old traditions (Figure 3). To allow the grasslands to grow, livestock is excluded from the highlands and harvest is regulated, including rotation and special allowances to assist people in need, during droughts or to compensate for the work of the community guards. The communities involved belong to 18 kebeles (peasant associations), and each kebele regulates its own resources with their own mechanisms, institutions and by-laws.

Team:

Team Leaders Dr Girma Eshete, Umer Ibrahim and Fekadu Lema; Community officers Mengistu Birhan, Ashebir Ambessa and Habtamu Mulugeta

This year:

Alternative livelihoods included three fuel-saving stove cooperatives (40 stoves sold); 75 families with modern beehives (producing in total 518 kg of honey) and 70 guassa growers (all harvesting this year for the first time); over 30 meetings supported including Fire Committees and Community-Park Council meetings.



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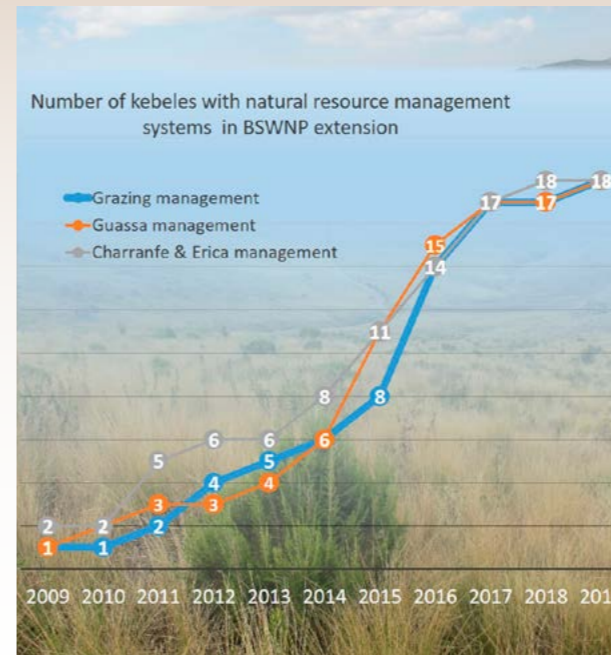


Figure 3: We asked communities about local management systems in Borena-Sayint Worehimeno National Park new extension: with traditional practices back in place, an unprecedented recovery of native guassa grasslands has been recorded over the past few years, for the benefit of people and Ethiopian wolves.

Aware of the importance of what was happening in these mountains, as well as of the benefits for the local Ethiopian wolf population (see page 9), the EWCP team compiled this information and conveyed a panel of experts to showcase this conservation story at a crucial time. Being recently included as an extension of the Borena-Sayint Worrehimenu National Park, future management of these guassa grasslands had to be decided as part of the General Management Plan for the extended park. The best outcome was achieved: A form of co-management will now be implemented, respecting the management systems implemented by local communities. A win-win situation we are particularly proud of.

Bees and efficient stoves help save Ethiopian wolves

Highland honey is a traditional produce from the Ethiopian highlands. This rich honey owes its peculiar taste and aroma to the Erica flowers upon which bees forage. Erica moorlands and forests are key components of the Afroalpine ecosystems. They sustain high diversity and habitats for endemic fauna such as Ethiopian wolves and Melenik bushbuck. They are also important sources of firewood and experiencing a serious decline. People living up in the mountains depend on natural firewood for heating cooking and lighting and also start wildfires to open up moorlands for grazing.

EWCP promotes bee keeping as a sustainable livelihood compatible with conservation. In two protected areas with wolf populations, 72 beneficiaries selected by their communities received modern beehives, accessories, training and founder bee colonies. By March 2019, all had operational beehives, strategically located near Erica forests in wolf habitat, and most harvested honey this year, used for own consumption or to sell in local markets. There is as a result a growing interest in protecting the remaining Erica forests. Under their leadership, honey producers are organising communities to patrols Eric stands against illegal users.

Another approach to reduce pressure upon natural resources is the use of fuel-saving stoves, adapted to the specific needs of the Ethiopian cuisine, which consume around half of the firewood needed in open fires, and release less smoke. These benefit women in particular, who are also largely responsible for the collection of firewood. This year, fifteen women organized in three cooperatives produced and commercialized some 40 fuel-saving stoves locally. EWCP provided them with training, materials for a production shed and for the first batches, and publicised fuel-saving stoves at local markets.

We aspire to scaling up these initiatives, with new funding and also by supporting governments and NGOs willing to replicate the model. To share our best practices, we combined them into practical protocols. Our success depended on the early and continued involvement of local authorities and communities, including Livelihood Steering Committees and with our Wolf Ambassadors.



► One of the producers demonstrates how fuel-saving stoves work at a local market.



► Shed protecting beehives belonging to a cooperative of honey producers supported by EWCP in Arsi Mountains National Park.

OUTPUTS & PRODUCTS

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



► Children attending Wolf Day in the Simien Mountains, a day of sports, poetry, singing and dancing to celebrate Ethiopian wolves.



► Community guards are safe keepers of natural resources in their localities; EWCP provides practical training in wildlife monitoring. They became proud ambassadors for Ethiopian wolf conservation.



► Leaflet with information on the environmental consequences of wildfires and how to avoid them; designed for local communities in the Arsi Mountains.

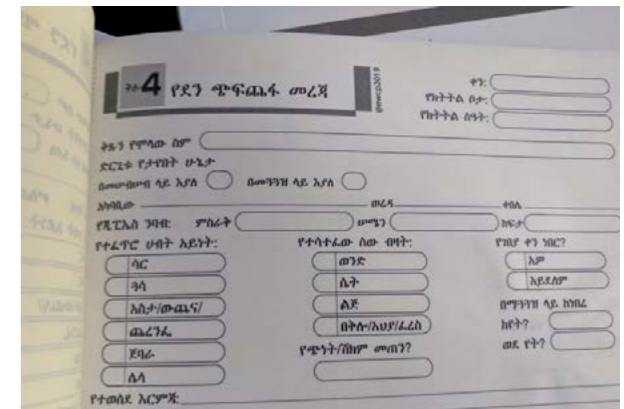


► Book for children in Afan Oromo, on the importance of mountains and the diversity of life that they sustain, including the endemic Ethiopian wolf.



► Lessons learnt since the pilots established five years ago are combined into these practical protocols with best practices from our sustainable livelihood initiatives.

► Field monitoring pads in Amharic language, designed to collect information on Afroalpine wildlife and threats by scouts, community guards and Wolf Ambassadors



► Leaflet on threats posed by rabies to Ethiopian wolves, also affecting people and domestic animals, with information on how to respond to a dog bite to avoid the dreadful consequences.



► We produced road signs to alert drivers of wildlife crossing the many new roads traversing high mountains in Ethiopia.

Popular articles & news

Science News, March 2018:

[How oral vaccines could save Ethiopian wolves from extinction](#)

[TV Programme “Tu Planeta”, HITN channel \(in Spanish\), April 2018, HITN](#)

A wolf in fox's clothing, 2017. *Biology News* 6: 4. www.biology.ox.ac.uk

[The Conversation, May 2017: Battling to save the Ethiopian wolf - Africa's rarest carnivore](#)

[Wolf Print \(UKWCT\). Issue 60 Spring 2017. Guardians of the Roof of Africa](#)

Scientific publications

Eshete G, Marino J and Sillero-Zubiri C. 2018. Ethiopian wolves conflict with pastoralists in small Afroalpine relicts. *African Journal of Ecology* 150: 368-374. doi.org/10.1111/aje.12465

Eshete G, Sillero-Zubiri C, Cieraad E, Musters CJM, de Snoo GR, de Jongh HH and Marino J. 2018. Does livestock predation justify local negative perceptions towards Ethiopian wolves in South Wollo? *Tropical Ecology* 59: 11-19.

Gutema TM, Atickem A, Bekele A, Sillero-Zubiri C, Kasso M, Tsegaye D, Venkataraman VV, Fashing PJ, Zinner D and Stenseth NC. 2018. Competition between sympatric wolf taxa: an example involving African and Ethiopian wolves. *Royal Society Open Science* 5: 172207. doi.org/10.1098/rsos.172207

Gutema TM, Atickem A, Lemma A, Bekele A, Sillero-Zubiri C, Zinner D, Farstad WK, Arnemo JM and Stenseth NC. 2018. Capture and immobilization of African wolves (*Canis lupaster*) in the Ethiopian Highlands. *Journal of Wildlife Diseases* 54: 175-179. doi.org/10.7589/2017-03-063

Marino J, Sillero-Zubiri C, Deressa A, Bedin E, Bitewa A, Lema F, Rskay G, Banyard A and Fooks AR. 2017. Rabies and distemper outbreaks in smallest Ethiopian wolf population. *Emerging Infectious Diseases* 23: 2102-2104. [dx.doi.org/10.3201/eid2312.170893](https://doi.org/10.3201/eid2312.170893)

Marston DA, Watson J, Wise EL, Ellis RJ, Bedin E, Ayalew G, Abute M, de Lamballerie X, Fooks AR, Sillero-Zubiri C and Banyard AC. 2017. Complete genomic sequence of canine distemper virus from an Ethiopian wolf. *Genome Announcements* 5:e00621-17. doi.org/10.1128/genomeA.00621-17

Perry L, Marino J and Sillero-Zubiri C. 2018. Going to the dogs: Free-ranging domestic dogs threaten an endangered wild canid through competitive interactions. *Journal of Biodiversity & Endangered Species* doi.org/10.4172/2332-2543.1000211

Šklíba J, Vlasatá T, Lövy M, Hrouzková E, Meheretu Y, Sillero-Zubiri C and Šumbera R. 2019. The giant that makes do with little: small and easy to leave home ranges found in the giant root rat. *Journal of Zoology* doi.org/10.1111/jzo.12729

Theses

Anteneh Tesfaye Mengesha. 2018. Implementation and effectiveness of different management systems upon Afroalpine natural resources: case study in Borena Sayint National Park, South Wollo, Ethiopia. MSc Thesis, Bahir Dar University, Ethiopia.

Derbe Deksis. 2019. Abundance of rodents under different land management system in Simien Mountains National Park, North Ethiopia. MSc Thesis, Addis Ababa University, Ethiopia.

Girma Ayalew. 2019. Surveillance for *Neospora caninum* and other endoparasites of Ethiopian wolf (*Canis simensis*) and domestic dogs (*Canis lupus familiaris*) in the Bale Mountains National Park, Ethiopia. MSc Thesis, Addis Ababa University, Ethiopia.

Sandoval-Serés, E. 2018. Time allocation in Ethiopian wolves. Thesis, Post-Graduate Diploma in International Conservation Practice, University of Oxford, UK.

Conferences

Eshete G, Marino J, Sillero-Zubiri C, Rskay G. January 2018. Coexistence between Ethiopian wolves and people at risk. Pathways Africa 2018 Conferene, Windhoek, Namibia.

Foley J, Marino J, Abute M, Bedin E, Sillero-Zubiri C. February 2019. Disease management in Ethiopian wolves, from camp to computer to conservation – Student Conference for Conservation Science, Cambridge, UK.

Foley J, Marino J, Sillero-Zubiri C. July 2018. Integrated disease management in Ethiopian wolves, Africa's most endangered carnivore – Mordecai Lab Seminar, Talk, Stanford University.

Marino J. July 2018. Research applied to conservation: Ethiopian wolves. Séminaire de Biologie, University of Lyon, France.

Meetings

Getachew Asefa. February 2018. Meeting to finalize the draft of Simien Mountains National Park's General Management Plan. Debarq, North Gondar, Debarq, Ethiopia.

Girma Eshete. December 2018. Ecology and conservation needs of the Ethiopian wolf” Consultation workshop General Management Plan on Borena-Sayint Worehimen National Park, Mekane Selam, South Wollo, Ethiopia.

Girma Eshete and Getachew Assefa. December 2018. Stakeholder consultation workshop to review and update the Simien Mountains National Park's General Management Plan. Debarq, North Gondar, Ethiopia.

Girma Eshete. January 2019. National Workshop on Wildlife Conservation in Ethiopia, Ghion Hotel, Addis Ababa, Ethiopia.

Girma Eshete. March 2019. Peculiarities, key species and ecological integrity of Borena-Sayint Worehimen National Park. Inauguration ceremony. Mekane Selam, South Wollo, Ethiopia.

Umer Ebrahim. September 2018. Promoting intervention areas of EWCP's Biodiversity Friendly Futures bee keeping activities near Galama sites”. Meeting of conservation stakeholders to establish Community Conservation Teams. Arsi, Assela, Ethiopia.

A VISION FOR THE FUTURE

The world is changing rapidly and conservationists are challenged to think big, to think outside the box, and predict what is coming. Mountains in particular require our attention: they could persist as refuges for nature if more sustainable land uses and climate change adaptation are supported.

It is not overstatement that to say that to save the Ethiopian wolf we need to save the Afroalpine ecosystem, and vice versa. Ambitious as it may sound, but we are on the right track! This report illustrates that conservationists working alongside governments and communities and with generous international support, can make a difference. When we look ahead, what should be EWCP next endeavour?

Protecting the habitat of the wolves can only be achieved if communities and governments work together. Co-management has emerged as a successful model for Afroalpine conservation and we will support this model elsewhere. We also tested alternative livelihoods that harmonise people's needs with those of conservation. The next target for Biodiversity Friendly Futures is to scale these up and engage more players, so that they become more impactful. We have a vision to promote guassa plantations to restore native grasslands in areas marginal for agriculture, securing the peripheral wolf habitat which is inherently at risk from further encroachment and degradation.

Still, because the wolves live in highland islands in a sea of people and fields, their last remaining populations

are at their own peril, disconnected from each other. To make the species more resilient, we need to assist the movement of wolves between populations, replicating patterns of dispersal that once maintained them interlinked as one metapopulation. With our new 'Conservation Translocations' project, rooted in the National Action Plan for Ethiopian wolf conservation, we are starting ecological and sociological surveys in potential translocation areas and research to model all alternative scenarios – to compensate for a lack of empirical evidence, as Ethiopian wolves have never been kept in captivity. In the near future we should be able to rescue small and declining populations and start new ones where conditions are right.

The One Health approach aims to reduce the impacts of zoonosis on people, domestic animals and wolves. The future looks bright with synergy being created by the Ethiopian government new focus on zoonosis, particularly rabies, and the arrival of new players (USAid, Rabies Mission). Preventive oral vaccination can be the key to keep wolves out of risk from serious outbreaks.

Ultimately, conservation depends on people changing perceptions and behaviours. We all need to listen, learn, understand, discuss, and sometimes compromise, but many times it is the people living next to wildlife and nature which are more directly affected and that needs more support. Over the coming years we will work to improve our communications strategy and to add innovative approaches to conservation marketing, as part of a new project 'Living With Wolves'.



► ©Jorgelina Marino

► Mt Choke was once inhabited by Ethiopian wolves. This vast and isolated massif, the source of the majestic Blue Nile, could become again a home to the wolves.

Lifetime Donations

Our Donors

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

Here we list our major donors since the Programme began, with current supporters **highlighted**:

Lifetime donations - Founder's Circle: \$100,000 and above

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The Born Free Foundation
Wildlife Conservation Network
The Tapeats Fund
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Donations 2016-2019

The following individuals and organizations contributed financially to the mission of EWCP in the last three years to 31st March 2019:

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Ulrich Wernery
Wolf Watchers

We thank all our anonymous donors, and those that gave less than \$500 over the last three years.

Other donors that have given generously in the past include:

BBC Wildlife Conservation Fund, Bern Thies Foundation, Bosack & Kruger Foundation, CEPA - Conservation des Espèces et des Populations Animales, Conservation International, Environmental Systems Research (ESRI), Ethiopian Wildlife & Natural History Society, IBREAM, IDEA WILD, IFMP-GTZ project in Adaba-Dodola, International Fund for Animal Welfare, John Aspinnall Foundation, Journeys by Design, Kuoni Travel, Morris Animal Foundation, National Geographic Film & Television, Richard Arthur, Rock & Blues, Stiftung Artenschutz, Stephen Gold, Taiwan Council of Agriculture and Forest Bureau, The Wellcome Trust, Wildlife Conservation Society, World Society for the Protection of Animals, Zoologische Gesellschaft für Arten-und Population.

The Team

Claudio Sillero, Founder & Executive Director, UK
 Jorgelina Marino, Science Director, UK
 Eric Bedin, Field Director, Bale

Operations

Edriss Ebu, Manager South, Bale
 Fekadu Lema, Manager Amhara, Bahir Dar
 Fikre Getachew, Administration Assistant, Bale

Vet Team

Muktar Abute, Vet Team Leader
 Mustafa Dule, Community Team Leader
 Kebede Wolde, Vet Officer, Bale
 Abubaker Hussein, Vet Officer, Bale

Monitoring Team

Alo Hussein, Monitoring Team Leader
 Sultan Washo, Monitor
 Ibrahim Muhammed, Monitor
 Sultan Kedir, Monitor
 Abdi Samune, Monitor
 Seid Naasiroo, Monitor
 Antennah Girma, Monitor
 Hamza Mohamed, Monitor

Arsi Team

Umer Ibrahim, Arsi Team Leader
 Ashebir Ambessa, Community Officer
 Habtamu Mulugeta, Education Officer

Wolf Ambassadors

Abduljeber Edo, Chalalaka, Arsi
 Adam Gudeta, Kaka, Arsi
 Dajaane Hirpha, Kaka, Arsi
 Aman Hussein, South Galama, Arsi
 Fayesa Gudeta, North Galama, Arsi
 Ayele Adino, Yibar, North Wollo
 Tesfa Milashu, Aboi Gara, North Wollo
 Abebaw Abiye, Belechuma, South Wollo
 Esubalew Milashu, Delanta, South Wollo
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 Wubye Dersse, Tinchel Mega, South Wollo
 Mebrat Mulu, Matba, Simien
 Melkamu Signa, Adilemlem, Simien
 Shewa Yirga, Kirkir, Menz
 Tsegaye Wolde Anaz, Menz

Amhara Team

Girma Eshete, Borena Team Leader
 Getachew Assefa, Simien Team Leader
 Mengistu Birhan, Community Officer, South Wollo
 Andualem Ambachew, Monitor, Simien
 Jejaw Mequanent, Monitor, Simien
 Talageta Wolde-Selassie, Monitor, Guassa-Menz

Bale Team

Wegayehu Worku, Museum & House Keeper
 Kamer Tura, Research Building Guard
 Nuru Burka, Research Building Guard
 Foziya Djemal, Guard & Store Keeper
 Hussein Wakayo, Sodota Camp Guard
 Adishu Sheyemo, Sodota Camp Guard
 Hussein Abdulmanan, Sanetti Camp Guard
 Gobe Ahamed, Sanetti Camp Guard
 Ibrahim Nure, Sanetti Guard
 Mohamed Abu Jaber, Sanetti Guard
 Awol Abubakkir, Sports Stadium Guard
 Umer Dalu, Sports Stadium Guard
 Kassim Biftu, Horse Manager
 Umer Wally, Horse Stables Guard
 Aklilu Getahun, Horse Stables Guard
 Jeber Turke, Horse Stables Guard



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 Dr Karen Laurenson, Frankfurt Zoological Society
 Prof David Macdonald, Director, WildCRU, University of Oxford
 Dr Zelealem Tefera, Ethiopian Wildlife Conservation Think Tank
 Prof Rosie Woodroffe, IUCN SSC Canid Specialist Group

Facing the challenge

EWCP has managed many important achievements in its three decades of life, but there is not room or time for complacency. Like other regions of the planet, the highlands of Ethiopia face mounting pressure from human activities, specifically agriculture encroachment, resource extraction, infrastructure development and climate change, in addition to ongoing social turmoil. To face these growing challenges, and responding to the need to enhance capacity in long-term conservation programmes, EWCP is also growing:

Over the last two years the Amhara region team expanded to attain a stronger presence across the Northern highlands, with permanent staff in every wolf range. This includes 14 Wolf Ambassadors from local communities and locally-based Wolf Monitors in the Guassa-Menz and Abuna Yosef Community Conservation Areas and in Borena-Sayint Worehimeno National Park.

With a larger team also comes the need for a more complex internal structure. Members of staff are raising from within the ranks to positions of more responsibility. Supported by the Wildlife Conservation Network we worked with WildTeam, an organisation based in the UK, to build the team's capacity and improve project management across the board. We received tailor-made courses on project management in conservation, best practices and tools. Together, we developed a system of online trackers, shared via Google Drive, to assist Team Leaders, Managers and Directors to plan activities, report, track equipment, record attendance and manage payroll.



© WildTeam

► Project management training with WildTeam in Dinsho, Bale, with participation of all EWCP senior staff. The training, customised for the needs of our programme, motivated interesting discussions and helped us focus on what is most important for the conservation of Ethiopian wolves.

Help EWCP

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 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:

Contact Us

Ethiopian Wolf Conservation Programme
PO Box 215, Robe, Bale, Ethiopia
Tel: +251 221 190923
info@ethiopianwolf.org
www.ethiopianwolf.org
@Kykebero
www.facebook.com/ewolves

Wildlife Conservation Research Unit
Tubney House, Tubney OX13 5QL, UK
Tel: +44 1865 611113
www.wildcru.org

How to Donate

In the United States

Online or cheque donations (tax deductible) may be sent via:
<https://donate.wildnet.org/>

Wildlife Conservation Network / EWCP
209 Mississippi Street
San Francisco, CA 94107 USA
Tel: +1 415 202 6380
donate@wildnet.org

Tax Exempt ID #30-0108469
Please specify the donation is for 'Ethiopian wolves' in the 'Designation' field.

In the United Kingdom

Online or cheque donations may be sent via:
www.bornfree.org.uk/adopt-a-wolf

The Born Free Foundation
Broadlands Business Campus
Langhurstwood Road
Horsham RH12 4QP, UK
Tel: +44 1403 240170
info@bornfree.org.uk

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We can also receive donations via Paypal
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No donation is too small!



ewcp

We work to save Ethiopian wolves from extinction and to protect the highlands that are their home. By protecting the Ethiopian wolf we protect many endemic species and natural resources from which millions of Ethiopians benefit.



▶ © Rebecca Jackrel
Grass rat, the wolves' main prey

