

Department for Environment, Food and Rural Affairs**Application form for Illegal Wildlife Trade Challenge Fund Round 3****Stage Two****July 2016**

Please read the [guidance notes](#) before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required. The guidance notes are available at:

<https://www.gov.uk/government/collections/illegal-wildlife-trade-iwt-challenge-fund>

1. Name and address of lead organisation

Notification of results will be by email to the Project Leader

Applicant Organisation Name:	The Endangered Wildlife Trust
Address:	
City and Postcode:	
Country:	
Project Leader name:	Kirsty Brebner
Email:	
Phone:	

2. Stage 1 reference and project title

Stage 1 Ref:	Title (max 10 words): A novel system to detect illegal wildlife in shipping containers
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3. Project dates, and budget summary

Start date: 01 April 2017		End date: 31 March 2019		Duration: 24 months
2017/18 £ 53,360	2018/19 £ 71,798	2019/20 £ 0	2020/21 £ 0	Total request £ 125,157
Proposed (confirmed and unconfirmed) co-financing as % of total Project cost				%

4. Summary of Project

Please provide a brief summary of your project, its aims, and the key activities you plan on undertaking.

Shipping containers are moved in large numbers through busy international sea ports. From seizure information, ports are a known route for smuggling large volumes of wildlife illegally. They represent a particularly challenging environment for law enforcement officials as current methods of screening shipping containers are expensive, time consuming and potentially disruptive to port operations. The aim of our project is to test a novel detection system suitable for the port environment – using African giant pouched rats (*Cricetomys ansorgei*) to detect pangolins (skin and scales) in shipping containers. Our project follows a four-phase approach:

1. Proof of concept, for which we have received matched funding from the United States Fish and Wildlife Service (USFWS), to test if the rats can discriminate between target (pangolins¹) and non-target scents;
2. Training on complex scent mixtures, including commonly used masking agents used by smugglers;
3. In-depth psychometric analysis of the rats' sensitivity and specificity in detection of target samples, including identification of the minimum concentration of target among masking agents; and
4. Simulation of an operational environment to monitor and evaluate typical work place based performance of the giant pouched rats.

5. What will be the outcome of the project?

(See Guidance Notes 3.1 and 4, and Annex B - guidance on developing a log frame)

This should be an action orientated statement e.g. training provided to the judiciary results in increased successful prosecutions of poaching. **This should be the same as the outcome statement given in Question 24.**

(max 50 words) Rats are successfully trained to detect pangolins among common masking materials, with an assessment of pre-implementation feasibility of the deployment strategy. If the results of this project suggest feasibility, future deployment of rats to shipping ports should increase smuggling detection and consequent arrests, deterring and ultimately reducing poaching.

6. Which of the three key IWT Challenge Fund objectives will your project address?

6.a Put an X in all that apply

(See Guidance Note 3.1)

¹ Also hardwoods, though this does not form part of the scope of the IWT Challenge.

1. Developing sustainable livelihoods for communities affected by illegal wildlife trade	
2. Strengthening law enforcement and the role of the criminal justice system	x
3. Reducing demand for the products of the illegal wildlife trade	

6b. Which of the commitments made in the London Conference Declaration and / or the Kasane Statement does this project support? Please provide the number(s) of the relevant commitments: there is no need to include the text from the relevant commitment.

(See Guidance Notes 4.1 and Annex A)

London: xiii, xv

Kasane: 8

7. Country(ies)

(See Guidance Notes 3.4 and 4.4)

Which eligible country(ies) will your project be working in? You may copy and paste this table if you need to provide details of more than four countries.

Country 1: Tanzania	Country 2:
Country 3:	Country 4:

8. About the lead organisation:

What year was your organisation established/ incorporated/ registered?	1973
What is the legal status of your organisation?	South African registered Non-Profit Organisation (015-502 NPO) and Public Benefit Organisation (930 001 777).
How is your organisation currently funded?	As an NGO, the EWT is funded through donations and sponsorships from individuals, corporates, bilaterals, governmental aid agencies, governmental departments, special events, bequests, trusts and foundations.
Have you provided the requested signed audited/independently examined accounts? Note that this is not required from Government Agencies	Yes

8b. Provide detail of 3 contracts/projects previously undertaken by the lead organisation that demonstrate your credibility as an organisation and provide track record relevant to the project proposed. These contacts should have been held in the last 5 years and be of a similar size to the grant requested in your IWT Challenge Fund application.

Contract/ Project 1 Title	Improving South African Transnational Organized Wildlife Crime Investigations by strengthening enforcement and judicial capacity
Contract Value/ Project budget	US
Duration	01 October 2014 – 30 June 2017
Role of organisation in project	Project Lead
Brief summary of the aims, objectives and outcomes of the project.	<p>To prevent the unlawful trafficking of wildlife products in South Africa by improving Transnational Organized Wildlife Crime Investigations within South Africa and the networks to regional countries, while increasing the number and severity of sentences for perpetrators.</p> <p>The specific objectives of the proposed project include:</p> <p>(1) Assist South African law enforcement with the provision of the necessary skills and knowledge to identify flagship species in trade;</p> <p>(2) Provision of wildlife trade enforcement skills, tools and resources – starting at a crime scene, through case management, and ending with prosecutors and judges, with the aim of tougher sentences and increased prosecutions of those higher up in the syndicates; and</p> <p>(3) Analyze wildlife policy and legal frameworks and wildlife crime cases and arrests in neighboring countries relevant for successful interventions in South Africa.</p>
Client contact details (Name, e-mail, address, phone number).	Bureau of International Narcotics and Law Enforcement (INL) – United States of America. Hagen Maroney

Contract/ Project 2 Title	South African Law Enforcement Investigations for Wildlife Crime
Contract Value/ Project budget	US\$
Duration	01 October 2015 – 30 September 2017
Role of organisation in project	Project Lead
Brief summary of the aims, objectives and outcomes of the project.	The project will enhance the current practices that are used by authorities to collect wildlife crime data, using industry-standard CyberTracker technology. Attention will focus on those areas most severely impacted by poaching – hotspots

	<p>– in South Africa that are under immense pressure. These will include both state-owned protected areas and private wildlife reserves that are home to rhinos and other threatened species. Priority will be given to protected areas that have received relatively little financial assistance, but are strategically important (which therefore excludes the Kruger National Park (Kruger) for now. The project's activities will be realized through three main tiers: (1) the implementation of expert training to support in-situ data collection and cutting-edge data analysis; (2) building institutional capacity, for sustainability, within the Southern African Wildlife College (SAWC); and, (3) piloting the ground-breaking Anti-Poaching Engine (APE), a predictive modelling approach developed by the Institute for Advanced Computer Studies, University of Maryland.</p>
Client contact details (Name, e-mail, address, phone number).	Bureau of International Narcotics and Law Enforcement (INL) – United States of America.

Contract/ Project 3 Title	Increasing the capacity of specialised dog trainers for canines deployed in the fight against illegal ivory and other wildlife trafficking in southern Africa.
Contract Value/ Project budget	US\$
Duration	01 October 2016 – 30 September 2018
Role of organisation in project	Project Lead
Brief summary of the aims, objectives and outcomes of the project.	<p>The goal of the project is to develop and implement an internationally certified training plan for southern African dog handlers and trainers, as well as to increase the current training capacity, to combat the illegal trade in ivory, and to the benefit of elephants. Two trainers will be trained in order to increase canine training capacity in the region, as well as to evaluate and certify current training programs and institutions in line with internationally recognized standards. The two trainee dog trainers will then be responsible for training handlers and dogs, and particularly the all-important follow up training for dog/handler teams that are already deployed in the field. The project represents a cooperative venture between specialists in this field. The anticipated output of this project will be a sustainable increase in capacity of specialist dog trainers which will in turn have considerable impact not only on the number of dogs trained, but also on ensuring that training levels of dogs in the field are maintained. Ultimately, the aim is to be able to deploy more and better trained dogs and handlers, to effectively tackle elephant poaching and the illegal trade in ivory and other wildlife contraband.</p>

Client contact details (Name, e-mail, address, phone number).	Michelle Gadd, Ph.D. Program Officer, African Elephant and African Rhino Programs
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9. Project partners

Please list all the partners involved (including the Lead Organisation) and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of partners to be involved in the project, and how local institutions, local communities, and technical specialists are involved as appropriate. Please provide written evidence of partnerships. Please copy/delete boxes for more or fewer partnerships. **Details on roles and responsibilities in this project must be given for the Lead Organisation and all project partners.**

Lead Organisation name:	THE ENDANGERED WILDLIFE TRUST
Website address:	www.ewt.org.za
Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)	<p>The Endangered Wildlife Trust (EWT) is a South African non-governmental, non-profit, citizen organization dedicated to conserving threatened species and ecosystems in southern and East Africa to the benefit of all people. The EWT Rhino Project Manager, Kirsty Brebner, will be the lead contact person on this project. Adam Pires will be the overall project manager responsible for strategic direction of the project. and will manage the project.</p> <p>The EWT's Wildlife in Trade Programme works to reduce the illegal trade in wildlife and wildlife products through various initiatives including capacity building among law enforcement agencies and the judiciary, cooperation and strategy development with other conservation NGOs, commenting on proposed legislation, and support for various rhino conservation initiatives. Our programme is very well positioned to engage with this project.</p>

Partner Name:	APOPO
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Website address:	www.apopo.org
Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)	APOPO is a social enterprise that researches, develops and implements detection technology, using rats, for humanitarian purposes such as land mine action and tuberculosis detection. APOPO is a Belgian NGO, with headquarters in Tanzania and operations in Mozambique, Thailand, Angola and Cambodia. The results of this ground-breaking and innovative work speak for themselves, including the destruction of 69,269 landmines and unexploded ordinances as well as the more than 10,000 additional tuberculosis cases the rats have detected to date. APOPO will be the partner responsible for housing, training and testing the rats for this project.
Have you included a Letter of Support from this organisation?	Yes

10. Project staff

Please identify the core staff on this project, their role and what % of their time they will be working on the project. Please provide 1 page CVs for these staff. Please include more rows where necessary.

Name (First name, Surname)	Role	% time on project	1 page CV attached?
Kirsty Brebner	Project Leader	15%	Yes
Cindy Fast, Ph.D.	Head of Training & Behavioural Research, APOPO	50%	Yes
Adam Pires	Wildlife in Trade Programme Manager	5%	Yes
M&E Manager	M&E Manager	10%	Yes (ToRs)

11. Species project is focusing on

(See Guidance Note 4.2)

Where there are more than 4 species that will benefit from the project's work, please add more boxes.

Temminck's Ground Pangolin (<i>Smutsia temminckii</i>)	Giant Ground Pangolin (<i>Smutsia gigantea</i>)
White-bellied Pangolin (<i>Phataginus tricuspis</i>)	Black-bellied Pangolin (<i>Phataginus tetradactyla</i>)

12. Problem the project is trying to address

What specific aspect(s) of the illegal trade in wildlife will your project address? Please describe the level of threat to the species concerned. Please also explain which communities are affected by this issue, and how this aspect of the illegal trade in wildlife relates to poverty or efforts of people and/or states to alleviate poverty.

(Max 300 words)

Our project focuses on detecting smuggled wildlife products in shipping containers, which is a popular modus operandi used by wildlife traffickers – particularly when smuggled in large volumes, as is evident from global seizure data. Ports provide a challenging environment for law enforcement officials given the sheer volume of cargo going through them and the large size of shipping containers. Effective screening by X-ray (if any) is virtually impossible, and interferes with port operations. As reported by the CITES secretariat during the CITES CoP17, the pangolin is the most illegally traded mammal in the world. Information on seizures gives an indication of the scale of the poaching threat. One seizure in 2014 contained more than three tons of pangolin scales, equivalent to the deaths of more than 8,000 animals². In 2016, in the biggest case in five years, four tons of pangolin scales were seized in Hong Kong³. The illegal trade in pangolins has become a significant activity within organised crime worldwide and sub-Saharan Africa has not escaped the attention of these crime syndicates. Lastly it is well documented that wildlife trafficking can have a direct impact on communities and poverty⁴. While the poachers themselves receive some benefit from poaching, it is the organised crime syndicates that derive the real benefits from poaching. Criminal elements that are attracted to wildlife crime in local communities actually promote social decay and poor governance, which exasperate the poverty line.

² <http://www.scmp.com/news/hong-kong/article/1534140/pangolin-scales-worth-hk17m-found-hidden-shipments-africa>. Accessed November 16 2016

³ <http://hongkong.coconuts.co/2016/06/30/4-tonnes-pangolin-scales-seized-shipping-container-biggest-case-5-years>. Accessed November 16 2016

⁴ Duffy, R.; St John, F.A.V. Poverty, poaching and trafficking: what are the links? Evidence on Demand, UK (2013) 24 pp. [DOI: http://dx.doi.org/10.12774/eod_hd059.jun2013.duffy. Accessed November 16 2016

13. Methodology

Describe the methods and approach you will use to achieve your intended outcomes and impact. Provide information on:

- How you have analysed historical and existing initiatives and are building on or taking work already done into account in project design
- How you will undertake the work (materials and methods)
- How you will manage the work (roles and responsibilities, project management tools etc.).

Please make sure you read the Guidance Notes, particularly Section 3, before answering this question.

Max 750 words - this may be a repeat from Stage 1, but you should update or refine as necessary. Tracked changes are **not** required.)

The EWT has a growing track record with respect to combatting illegal wildlife crime and is currently implementing several projects in the region with funding from the US government. The EWT is at the forefront of dealing with current wildlife trafficking threats, and has a large wildlife trafficking detection work portfolio with 24 sniffer dogs in our programme. APOPO has a proven track record of developing and implementing rat detection technology. To date, APOPO's rats have detected more than 104,000 landmines and unexploded ordinances leading to over 20,000,000 m² of land released to local communities in Mozambique, Angola, and Cambodia. Applying similar training strategies, APOPO's rats have learned to detect tuberculosis (TB) in human sputum samples, leading to the detection of over 10,000 additional cases of TB that were originally missed by local clinics. We are confident that with only minor modifications to APOPO's proven training procedures that our rats can be trained to detect illegal wildlife products.

Materials:

Working at APOPO's Tanzanian laboratories, to initially train our rats to detect the target substances, we will utilize custom designed semi-automated line cage equipped with 10 holes for presentation of odour samples, infrared photo beams and detectors to unambiguously monitor rat indication behaviour, and a food pellet magazine to deliver rewards. The use of a photoionization detector (PID) will enable close and accurate monitoring and control over the relative "stinkiness" of each odour sample presented to the rat. We will use a custom-engineered apparatus to mimic real-life shipping containers and cargo areas during the final stages.

Methods:

After young rats are socialized to not fear various stimuli, including humans, they will learn to associate the sound of a clicker with delivery of a food reward by pairing these two events repeatedly. Next, rats will be trained to place their nose in one hole of the training cage where a target odour will be presented. We will shape this behaviour until the rat reliably holds its nose in the hole for a minimum of 3 seconds to receive a food reward. Following initial training, we will begin the proof of concept stage to gradually introduce non-target masking odours which the rat must learn to ignore (sniff the sample then promptly proceed to the next hole). After 9 months of training, our rats should be capable of accurately screening 100 odour samples within 20 minutes. Once

rats have demonstrated proof of concept by successfully discriminating between target and non-target odours, we will begin training on complex mixtures of these odours by adding tightly controlled ratios of targets to some of the non-target masking odours. Arbitrary odour intensity across all samples will be tightly controlled with the use of PID positioned equidistant over each sample prior to daily training sessions. This will ensure that the rats' discrimination behaviour is guided by the odour content itself rather than relative differences in overall odour intensity across the different sample mixtures. This phase of the project will serve as a critical step towards real-life application of the rat's detection abilities because the rat must learn to identify targets that are hidden among other contaminating smells as they would be encountered in shipping containers.

By recording and analysing the rats' discrimination accuracy among a variety of tightly controlled target-and-non-target-mixtures, we will be able to identify the psychometric properties of our rats' threshold for target odour detection and potential weaknesses with regards to masking odour efficacy. This information will be crucial in evaluation of the potential scale-up to real-life assessments of shipping containers to improve border control.

Finally, our rats will be trialled with a variety of equipment and apparatus designed to enable detection of illegal wildlife in shipping containers.

Roles & Responsibilities:

APOPO's Head of Training & Behavioural Research, Dr Cindy Fast, is based in Tanzania and will be the primary party responsible for training and monitoring rat performance. She will closely supervise two student researchers responsible for conducting daily training sessions (with the assistance of two local staff trainers), collecting, compiling, and analysing data, modifying SOPs (where necessary), and managing sample preparation. Cindy will also be responsible for ensuring animal welfare by confirming strict adherence to protocols and through routine inspections and contact with a local veterinarian.

Cindy will serve as the liaison to EWT who will provide strategic direction and monitor the project's progress by assessing adherence to identified key performance indicators at regularly scheduled intervals and recommend amendments to the timeline as necessary. A robust M&E is planned for the project.

14. Beneficiaries

Who will benefit from the work outlined above, and in what ways? How will this contribute to sustainable development for the reduction of poverty? Is it possible to quantify how many people are likely to benefit from this intervention e.g. number of households, and how do you intend to monitor the benefits they accrue?

If your project is working in an Upper Middle Income Country, please explain how benefits will be delivered to people living in poverty in Low and/or Low Middle Income countries. Include, where possible, information on whether and how there are ways to support the most vulnerable communities, including women.

If your project is focused on demand reduction, it can be harder to make a direct link between your project and beneficiaries in low income countries. Demand reduction projects should clearly demonstrate their indirect links to poverty reduction, for example, by identifying the source countries for the products concerned.

(Max 750 words)

A key finding in Duffy and St John's report "Poverty, Poaching and trafficking: What are the Links?"⁵ demonstrates that wildlife poaching and trafficking can increase poverty by removing animals and plants as assets from local communities, with only a handful of community members benefiting from these illicit activities, while the community at large derives no benefit at all. As such, the community runs the risk of increased conflict with law enforcement officials, social decay by harbouring criminal elements, notwithstanding the risk of community members losing their lives – either as poachers or rangers. Lack of governance in these communities further aggravates efforts to reduce poverty and inadvertently removes incentives to conserve wildlife.

To prevent this social decay in communities, illegal wildlife trade must be addressed at all levels along the supply chain. By tackling smuggling of wildlife through projects such as ours – at strategic points along the trade chain – it should be possible to apprehend the so-called "level three" criminals who provide links between local communities and organised crime syndicates. Ultimately, the syndicates are the main drivers of poaching. They capitalise on and take advantage of poor community members to do their dirty work, bring criminal elements into communities and generally destabilise communities. This in turn negatively affects issues around sustainable development, which can only take place in stable communities with good governance.

More directly, our project will play a role in employee income stability, in-house training, empowerment and job creation. As this is a new area of work, we envisage a large capacity building element to the project for current and new staff members from both the EWT and APOPO. Depending on our project's results, there is huge scope and potential to expand this work portfolio into different countries and with other illegally traded species, providing further jobs and work opportunities ultimately contributing to poverty alleviation in these countries.

Our project location is Tanzania, classified as a Least Developed Country (LDC), with high levels of poverty and unemployment. Tanzania's tourism industry is critical to the economy. Tanzania attracts about one million tourists a year, and is the main foreign exchange earner for the country⁶. While Tanzania is an important source and transit country for pangolins, this proposal would also potentially impact on communities in other source countries in sub-Saharan Africa, which use Tanzanian

⁵ Duffy, R.; St John, F.A.V. Poverty, poaching and trafficking: what are the links? Evidence on Demand, UK (2013) 24 pp. [DOI: http://dx.doi.org/10.12774/eod_hd059.jun2013.duffy. Accessed November 16 2016

⁶ <http://allafrica.com/stories/201606210657.html>. Accessed November 23 2016.

ports to smuggle pangolins.

15. Gender

(See Guidance Note 3.5)

Under the International Development (Gender Equality) Act 2014, all applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain how your project will collect gender disaggregated data and what impact your project will have in promoting gender equality.

(Max 300 words) Gender disaggregated data will be collected first by human resources employment register and then by gender and terms of reference associated with this project. Female staff at both organisations will be the preferred candidates recruited for the project, and will receive the same remuneration as their equivalent male counterparts. The EWT and APOPO actively improves the status of its female staff by empowering them in our operations and promoting their activities and successes in our media campaigns. These women act as models within their community, demonstrating that, given the same amount of education and training as a man, there is no job success that is not achievable by a woman. Through inclusion in our internal and external communications, The EWT and APOPO expects its entire workforce to live by this affirmative message and encourage positive social change in all layers of society. Moreover, among international expat personnel positioned at the head office in Tanzania, APOPO has maintained a 50-50 ratio of males to females, therefore ensuring equal participation of women and men in decision-making positions and safeguarding the benefits that equal gender participation brings.

Furthermore, gender equality is an important consideration at the EWT where 56% of employees are female, and within the EWT Wildlife in Trade Programme, the programme responsible for this project implementation, there is already a ratio of two females to every male.

16. Impact on species in focus

How will the species named in Question 11 above benefit from the work outlined above? What do you expect the long-term impact on the species concerned to be?

(Max 200 words)

As pangolins are the most traded mammal on earth, any intervention that acts as a deterrent should benefit these species.

It is proposed that, should the rats be successful in detecting pangolins in shipping containers, there would be more arrests of smugglers – as well as convictions – with a concurrent loss of income to smugglers and organised crime syndicates. This should discourage syndicates from targeting pangolins for profit and using shipping containers as a relatively easy way of smuggling their body parts out of Africa in large volumes.

Thus, this intervention would hopefully ease the pressure on pangolin populations from poaching, and allow populations to recover.

As shipping containers are the only transcontinental route for transporting large volumes of goods, having an effective detection system in place will help to disrupt this route for the organised crime syndicates, who struggle to find an alternative for the volumes shipped by sea (should our work prove successful the same principles apply to other illegally traded species).

17. Exit strategy

State how the project will reach a stable and sustainable end point, and explain how the outcomes will be sustained, either through a continuation of activities, funding and support from other sources or because the activities will be mainstreamed in to “business as usual”. Where individuals receive advanced training, for example, what will happen should that individual leave?

(Max 200 words)

Funding from the IWT Challenge Fund will ensure that the project moves from the proof of concept phase – currently funded by the USFWS – to the next stage of assessing pre-implementation feasibility and deployment strategy. Should this ‘proof of concept’ prove successful, it would have a major impact on illegal wildlife trafficking, and is expected to be rolled out operationally moving forward.

The project dovetails with various strategies and policies to tackle illegal wildlife crime both at national and regional level. We are certain that governments in the region will support future implementation of our initiative (they do already for APOPO’s mine detection and TB projects).

The target species range for the rats should also be expanded to include other widely trafficked species such as elephants (ivory) and rhinos (horn) – there is clear scope to work with a wide range of target species – making the project hugely expandable. Additional funding as necessary will be sought from shipping companies, freight companies and other stakeholders who either have a vested interest in stopping the smuggling illegal wildlife products or are required to by law. In addition, this could lead to sustainable business opportunities for individuals, leading to job creation.

18. Funding

18a) Is this a new initiative or a development of existing work (funded through any source)? Please give details

(Max 200 words):

The first phase of this initiative, which is to prove if the rats are able to discriminate pangolin (and hardwood scents) from other background scents, is being funded by the USFWS. This USFWS funding was only granted subsequent to submitting our stage one application to the UK IWT Challenge. This phase, and its funding, will run through till Oct 2017.

The funding requested from the UK IWT Challenge would cover the development of the **subsequent** phases of the project i.e. the feasibility and deployment strategy of this initiative in its entirety. We also suggest that funding for these phases could only be made available through the UK IWT Challenge contingent to the successful completion to the USFWS-funded phase of the project. This would be six months in to the Defra funding cycle (though given the performance of our rats in detecting other odours, we are very confident they will successfully train onto pangolin scents). Our project is a completely new and novel approach to tackling illegal wildlife trade and the only work to date is currently being funded as described above.

18b) Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work?

No

18c) Are you applying for funding relating to the proposed project from other sources?

No

Funding and budget

Please complete the separate Excel spreadsheet which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet.

<https://www.gov.uk/government/collections/illegal-wildlife-trade-iwt-challenge-fund>

Please refer to the Finance Information document for more information.

NB: Please state all costs by financial year (1 April to 31 March) and in GBP. Budgets submitted in other currencies will not be accepted. Use current prices – and include anticipated inflation, as appropriate, up to 3% per annum. The IWT Challenge Fund cannot agree any increase in grants once awarded.

19. Co-financing

19a) Secured

Provide details of all funding successfully levered (and identified in the Budget) towards the costs of the project, including any income from other public bodies,

private sponsorship, donations, trusts, fees or trading activity, as well as any your own organisation(s) will be committing.

(See "Financial Information for IWT" and Guidance Note 3.4)

Confirmed:

\$ from the USFWS | International Affairs | Combating Wildlife Trafficking

19b) Unsecured

Provide details of any co-financing where an application has been submitted, or that you intend applying for during the course of the project. This could include co-financing from the private sector, charitable organisations or other public sector schemes.

Date applied for	Donor organisation	Amount	Comments

19c) Justification

If you are not proposing co-financing, please explain why.

(max 150 words)

20. Capital items

If you plan to purchase capital items with IWT funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.

(max 150 words)

We plan to purchase a Photoionization Detector (PID) to calibrate sample odour mixtures used to train the rats and ensure that the basis of their discrimination is the content of the odour mixture (i.e., detection of the target among the masking odours), rather than relative variance in odour intensity across the different mixtures. Proof of this performance would be next to impossible without the PID. Following project end, APOPO will continue to use the PID to further develop operational use of the rats.

We also propose to purchase/build an apparatus that will allow the rats to directly sample shipping containers. This apparatus will serve as a prototype for future operational use.

21. Value for money

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.

(Max 250 words)

Despite years of development of electronic noses and chemical compound detectors, animal scent detection remains the most sensitive technology when detecting complex but unique scents like pangolin scales. This is why, despite many millions of dollars of research, scent detection dogs are so widespread.

Dogs are the status quo in animal detection because of their long history as “man’s best friend.” However, rats are far more cost effective when mobility is severely restricted or non-existent, such as in port environments. Rats are more scalable and cost effective because:

- Rat training requires less time (9 months compared to average 2 years with dogs). APOPO can train a rat for, using primarily local middle school graduates. Dogs are typically trained by high-priced western specialists and cost \$;
- Rats do not form bonds and work for multiple trainers. A dog, however, only works well with specific trainers who need considerable skill. This is a huge practical problem in sub-Saharan Africa where dog ownership and training culture is not well established;
- Rats are far cheaper to house, feed, and provide veterinary care for and their welfare will be monitored during the project by the ethic committee;
- Using a rat in the restricted spaces of shipping ports is far less complex than a dog, including reduced time taken to react to suspicious cargo;
- African Giant Rats can work up to seven years, which is similar to detection dogs; and
- A rat’s sense of smell is, at the very least, as good as a dog’s sense of smell.

22. Ethics and human rights

Outline your approach to meeting the IWT’s key principles for ethics as outlined in the guidance notes. Additionally, if there are any human rights and/or international humanitarian law risks in relation to your project? If there are, have you carried out an assessment of the impact of those risks, and of measures that may be taken in order to mitigate them?

(See Guidance Notes 5.4 and 6.1)

(Max 250 words)

The EWT and APOPO follow strict internal HR Policies that adhere to all legal and ethical obligations of the UK, Tanzania and South Africa, which firmly protects the health and safety of full- and part-time staff. This is over and above animal welfare and ethical policies that both the EWT and APOPO are governed by.

The EWT and APOPO employs more than 400 staff members of which approximately 300 are Tanzanian Nationals. The proposed project includes key local staff members including: animal welfare officers, two skilled animal handlers/trainers, a training supervisor responsible for sample integrity, and a certified veterinarian, in addition to financial and information technology officers and custodial staff. In this way, APOPO clearly meets the objective to build leadership capacity in developing countries.

No foreseeable risks to human rights and/or international humanitarian laws exist in connection to this project.

23. Outputs of the project and Open Access

Please describe the project's open access plan and detail any specific costs you are seeking from the IWT Challenge Fund to fund this.

(See Guidance Note 5.5)

(Max 250 words)

The EWT has their own dedicated communications department which will be tasked with any communications in close collaboration with the EWT science department which is responsible for the integrity and sharing of data. Internal procedures govern the sharing of data through an application process, and our default position is to share information as much as possible, within the bounds of protecting sensitive information (which obviously apply to issues related to crime investigation, such as the details of this project).

24. Project monitoring and evaluation

Logical framework

IWT Challenge Fund projects will be required to monitor (and report against) their progress towards their expected outputs and outcomes. This section sets out the expected outputs and outcomes of your project, how you expect to measure progress against these and how we can verify this.

Annex B and Annex C in the Guidance Notes provides helpful guidance on completing a logical framework.

Project summary	Measurable Indicators ⁷	Means of Verification	Important Assumptions
Impact: (Max 30 words) A reduction in the illegal wildlife trade in pangolins, which would impact positively on poverty in communities affected by wildlife trafficking.			
Outcome: The feasibility of a cost-effective, reliable and efficient screening method to detect illegal pangolin in shipping containers is assessed. (Max 30 words)	0.1 A minimum of 8 rats reliably detect pangolin (and hardwood ⁸) products mixed among other masking odours. 0.2 The rats can be shown to be more cost effective than other methods such as detection dogs.	0.1 Rats demonstrate high sensitivity (indicate even at low concentrations) and specificity (minimal to no false alarm indications) in detecting target items known to be hidden among masking agents. 0.2 Rats demonstrate equivalent accuracy (sensitivity and specificity) when the presence of targets are unknown (blind performance). 0.3 Time to evaluate a set	Successful proof of concept phase.

⁷ Please refer to the implementation timetable for the timescale for each of these indicators.

⁸ Funded through the USFWS only.

		number of samples will be measured to further assess efficiency. 0.4 Detailed cost-analysis of training and maintenance per rat in comparison to the costs of a dog to achieve the same result.	
Outputs: 1. Proof of concept that African Giant Pouched Rats can detect and discriminate pangolin scents.	1.1 The 8 rats have a 98% accuracy rate of indication on target species in <i>ex situ</i> conditions versus control samples by Month 6 of this proposal.	1.1 Number of accurate indication logged against non-target controls. 1.2 Log sheet recording hours of training. 1.3 Number of laboratory trials documented.	1.1 Rats have a sufficiently good sense of smell, and are trainable.
2. The African Giant Pouched Rats can detect pangolins and hardwoods masked in other scents.	2.1 The rats achieve an 85% success rate in detecting pangolin scent when mixed with at least one typical masking agent.	2.1 Tightly controlled variations of target to non-target ratio odour mixtures are developed with stable PID measurements. 2.2 Number of accurate indications logged against non-target containing samples and mixtures. 2.3 Log sheet recording hours of training. 2.4 Number of laboratory trials documented.	2.1 The proof of concept was successful. 2.2 Masking agent(s) used are synonymous with current smuggling trends including pangolins. 2.3 Masking agent(s) are equally inherently neutral odours to the rat as are pangolins.
3. Feasibility of future operational application is assessed through in-depth	3.1. A concentration gradient, which determines the lowest threshold of ratio of target	3.1. Rat accuracy is reliably predicted by target concentration.	3.1 Seizure data indicates range in ratio quantities of illicit material to masking material.

psychometric analysis of the rat's sensitivity in detection of target samples, including identification of the minimum concentration among masking agents.	among masking agents of the rats' scenting abilities, is established by month 15.	3.2 Number of accurate indications logged against non-target containing samples and mixtures.	3.2 The rats can detect target odours from pangolins when they are presented in a mixture with common masking agents.
4. An artificial system is developed to signal positive detection of pangolin to the rat handlers in a simulated operational environment (i.e. one that simulates conditions for screening containers in a seaport).	4.1 The rats are able to give their handlers an indication of a positive target scent.	4.1 Rat accuracy is equally reliable across the initial training cage and the simulated operational environment 4.2. Number of accurate indications logged against non-targets. 4.3. Detailed system documentation including apparatus design and indication standard operating procedures.	4.1. The rats are able to access the mock containers 4.2 The equipment allows the rats to access and give an indication on mock shipping containers.
Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)			
1.1. Appropriate training protocols are developed to train the rats to identify odours from target species; 1.2. Laboratory tests are conducted to test if the rats are able to discriminate between target species and control scents; and 1.3. The rats have a 98% accuracy rate of detection.			
2.1. Identification of the most common masking agents through a literature search of seizure data; 2.2. Procedures to tightly control sample mixture preparation and training procedures are developed; and 2.3. Training on complex scent mixtures, including target scents mixed with commonly used masking agents.			
3.1. Determining the concentration gradient for rat scent-detection limits for pangolins; 3.2. Identification and analysis of psychometric properties of rat's pangolin and hardwood scent detection abilities; and 3.3. Assessment of translational relevance to real-life port activity through comparison to seizure data concentrations of illicit material among masking agents.			

- 4.1. Habituation of the rats to a mock port environment;
- 4.2. Assessment of equipment needs to operate in a port environment;
- 4.3. Construction of the required equipment;
- 4.4. Assessment of indication system feasibility in a port environment; and
- 4.5. Determining other variables for successful detection by the rats, such as sample time in the container, container size, etc.

Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended work plan for your project. Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and fill/shade only the quarters in which an activity will be carried out. The work plan can span multiple pages if necessary.

	Activity	No of months	Year 1				Year 2			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1	Proof of concept that African Giant Pouched Rats can detect and discriminate pangolin scents.									
	1.1 Appropriate training protocols are developed to train the rats to identify odours from target species.	6								
	1.2 Laboratory tests are conducted to test if the rats are able to discriminate between target species and control scents.	6								
	1.3 The rats have a 98% accuracy rate of detection.	3								
Output 2	The African Giant Pouch Rats can detect pangolins and hardwood masked in other scents									
	2.1 Identification of the most common masking agents through a literature search of seizure data.	3								
	2.2 Procedures to tightly control sample mixture preparation and training procedures are developed.	3								
	2.3 Training on complex scent mixtures, including target scents mixed with commonly used masking agents.	6								

Output 3	Feasibility of future operational application is assessed through in-depth psychometric analysis of the rat's sensitivity in detection of target samples, including identification of the minimum concentration among masking agents									
	3.1 Determining the concentration gradient for rat scent-detection limits for pangolins.	3								
	3.2 Identification and analysis of psychometric properties of rat's pangolin scent detection abilities.	3								
	3.3 Assessment of translational relevance to real-life port activity through comparison to seizure data concentrations of illicit material among masking agents.	3								
Output 4	An artificial system is developed to signal positive detection of pangolin to the rat handlers in a simulated operational environment (i.e. one that simulates conditions for screening containers in a seaport)									
	4.1 Habituation of the rats to a mock port environment	1-2								
	4.2 Assessment of equipment needs to operate in a port environment	1-2								
	4.3 Construction of the required equipment	3								
	4.4 Assessment of the indication system feasibility in a port environment	3								
	4.5 Determining other variables for successful detection by the rats, such as sample time in the	1-3								

	container, container size, etc.										
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25. Monitoring and evaluation plan (M&E)

Describe, referring to the indicators above, how the progress of the project will be monitored and evaluated, making reference to who is responsible for the projects M&E.

IWT Challenge Fund projects will need to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E (see "Financial Information for IWT")

(Max 250 words)

An EWT M&E officer will be assigned to this project from the onset and will have already started collecting the necessary baseline data under 'phase 1' of the project (the EWT is currently in the process of recruiting an M&E officer to report on various aspects of our Wildlife in Trade Programme, as detailed in the attached Terms of Reference). The M&E officer will be responsible for establishing and utilising feedback mechanisms that support adaptive management throughout the implementation of the project, and according to our proposed indicators. The M&E officer will be part of the project steering committee. An M&E report will be generated after each stage of the project. The proof of concept stage report (for the UK IWT Challenge) would be the final report for the USFWS. Thereafter, our reports will detail the success rates of the rats in their mixed scent trials, as well as the concentration gradient for each of the target scents. Finally, we will monitor and report back on the success rate of the climbing apparatus, as well as relative successes of several indication systems, on mock cargo/port environment in developing the most effective field operations system.

Total project budget for M&E (this may include Staff and Travel and Subsistence Costs)	£
Number of days planned for M&E	48 days
Percentage of total project budget set aside for M&E	

26. FCO notifications

Please put an X in the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise the project's success in the IWT Fund in the host country.

Please indicate whether you have contacted your Foreign Ministry or the local embassy or High Commission (or equivalent) directly to discuss security issues (see Guidance Notes) and attach details of any advice you have received from them.

Yes (no written advice)

Yes, advice attached

No

27. Certification

On behalf of the trustees of the EWT.

I apply for a grant of £ 125,157 in respect of **all expenditure** to be incurred during the lifetime of this project based on the activities and dates specified in the above application.

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)

- I enclose CVs for project principals and letters of support.
- Our most recent signed audited/independently verified accounts and annual report are also enclosed.

Name (block capitals)	Ms. Yolán Friedmann
Position in the organisation	CEO

Signed

Date:

If this section is incomplete the entire application will be rejected. You must provide a real (not typed) signature. You may include a pdf of the signature page for security reasons if you wish. Please write PDF in the signature section above if you do so.

28. Checklist for submission

	Check
Have you read the Guidance Notes (guidance for applicants, financial information, schedule of terms and conditions)?	Yes
Have you read, and can you meet, the current Terms and Conditions for	Yes

this fund?	
Have you provided actual start and end dates for your project?	Yes
Have you provided your budget based on UK government financial years i.e. 1 April – 31 March and in GBP?	Yes
Have you checked that your budget is complete , correctly adds up and that you have included the correct final total on the top page of the application?	Yes
Has your application been signed by a suitably authorised individual? (clear electronic or scanned signatures are acceptable, but not the use of a script font)	Yes
Have you included a 1 page CV for all the Project Staff identified at Question 10, including the Project Leader?	Yes
Have you included a letter of support from the main partner(s) organisations identified at Question 9?	Yes
Have you included a signed copy of the last 2 years annual report and accounts for the lead organisation?	Yes
Have you checked the IWT website on GOV.UK immediately prior to submission to ensure there are no late updates?	Yes

Once you have answered the questions above, please submit the application, not later than midnight GMT on Monday 12 December 2016 to IWT-Fund@LTSI.co.uk using the first few words of the project title **as the subject of your email**. If you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (e.g. whether the e-mail is 1 of 2, 2 of 3 etc.). You are not required to send a hard copy.

DATA PROTECTION ACT 1998: Information supplied in the application form, including personal data, will be shared between the Department and LTS for administration, evaluation and monitoring purposes. Some information, but not personal data, may be used by the Department when publicising the IWT Challenge Fund including project details (usually title, lead organisation, location and total grant value) on the GOV.UK and other websites. Personal data may be used by the Department and/or LTS to maintain and update the IWT Challenge Fund mailing list and to provide information to British Embassies and High Commissions so they are aware of UK Government-funded projects being undertaken in the countries where they are located.

ENVIRONMENTAL INFORMATION REGULATIONS 2004 and the FREEDOM OF INFORMATION ACT 2000: Information (including personal data) relating to the project or its results may also be released on request, including under the Environmental Information Regulations 2004 and the Freedom of Information Act 2000. However, Defra will not permit any unwarranted breach of confidentiality nor will we act in contravention of our obligations under the Data Protection Act 1998.



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www.gov.uk/defra