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PROTIS ENVIRONNEMENT**



**apopo**

**WE TRAIN RATS TO SAVE LIVES**



FOR YOUR EYES ONLY!



Operative:

**Magawa** the Mine Detection HeroRAT

Location:

Siem Reap, Cambodia

Mission:

Clear Cambodia of all landmines



**Magawa** the Mine Detection HeroRAT



**Magawa** is part of an elite squad of HeroRATs

Mission Brief:

Magawa the HeroRAT is part of an elite squad who are taking on the challenge of clearing Cambodia of landmines and explosive remnants of war. With Magawa's help, APOPO will enable local communities to live, work, and play without fear.

**With your support,** Magawa will use his exceptional sense of smell to sniff out terrible dangers lurking just beneath the surface of the earth.

Mission Status:

**-ACTIVE-**

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# THANK YOU

FOR SUPPORTING APOPO TO DETECT LANDMINES AND SAVE LIVES  
BY ADOPTING MAGAWA.

Magawa is a highly trained Detection Rat or HeroRAT for short. HeroRATs like Magawa use their remarkable sense of smell to safely sniff out explosives faster and more accurately than existing methods.

As a HeroRAT adopter you are a part of a remarkable community of people who are supporting APOPO and the HeroRATs to save lives. This information pack will introduce you to Magawa's world and show you how to follow his life-saving adventure.

**THANKS FOR  
BEING PART OF  
OUR LIFE-SAVING  
TEAM.**



**APOPO  
HeroRATs**



**Magawa** on his way to work

Full Name	Magawa
Gender	Male
Scientific Name	Cricetomys Ansoergei
Date of Birth of Rat	25 November 2013
Birthplace	Morogoro, Tanzania
Job Title	Mine Detection Rat
Location	Siem Reap, Cambodia
Favourite Food	Bananas and peanuts
Measurements	The body is big and the length from tail to nose is 70 cm
Weight	1230 grams
Personality	A determined worker and always friendly

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### 1 Mine Detection Rat Fact 1

HeroRATs can check an area of **200 square meters in 20 minutes**; this would take a technician with a metal detector up to four days.

### Mine Detection Rat Facts

### 2 Mine Detection Rat Fact 2

Mine Detection HeroRATs detect **only explosives** and ignore the scrap metal.

### 3 Mine Detection Rat Fact 3

Mine Detection HeroRATs are at least as **accurate** as any other mine detection method, and much faster.

### 4 Mine Detection Rat Fact 4

**Not** a single HeroRAT has ever been **harmed** during APOPO's detection activities.

### 5 Mine Detection Rat Fact 5

Mine Detection HeroRATs must pass stringent **accreditation tests** before being deployed.



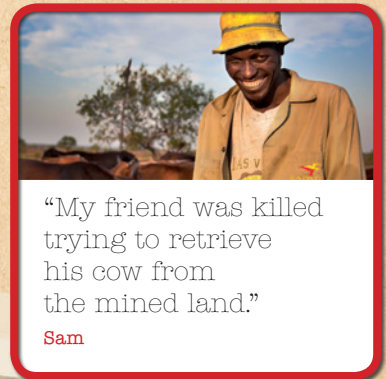
"My children can now play without fear."

Abu



"Thanks to APOPO my family is now safe."

Gloria



"My friend was killed trying to retrieve his cow from the mined land."

Sam



Landmines and explosives wreak havoc and prevent development



APOPO helps people to live, work, and play without fear

Read our success stories at [www.apopo.org/en/what-we-do/detecting-landmines-and-explosives/success-stories](http://www.apopo.org/en/what-we-do/detecting-landmines-and-explosives/success-stories)

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## Top Ten Facts About Landmines

1. Over 110 million land-mines remain hidden around the world. At least 68 countries are affected.
2. Africa is the most mine-plagued continent, with an estimated 37 million mines buried in the soil of at least 19 countries. Landmines kill or injure more than 4000 people every year... often decades after the conflicts when they were placed.
3. Three countries - Afghanistan, Angola and Cambodia - have suffered 85 percent of the world's land-mine casualties.
4. Children are particularly endangered. Naturally curious... they stray from paths and pick up strange objects.
5. Anti-personnel mines are often designed to injure rather than kill to slow down enemy movements or make areas off limits due to fear. Survivors are extensively disfigured and disabled.
6. Conventional mine removal is expensive. A mine costing as little as \$3 can cost up to \$1,000 to remove.
7. Mine clearing is slow. It can take an expert a whole day to clear 20-50 square meters of mined land by hand.
8. Mines can remain active for 50 years... even the oldest minefields have to be cleared with great caution.
9. Half the people who stand on anti-personnel mine die from their injuries before they are found or taken to hospital.
10. Clearing mines is very dangerous work. For every 5,000 mines that are removed, one person is killed and two people are injured.



Over 110 million land-mines remain hidden around the world.



## THE CAMBODIAN LANDMINE ISSUE

Cambodia is one of the most landmine-affected countries in the world, the result of 3 decades of conflict which persisted until the late 1990's.

### > 25,000

With over 25,000 amputees, Cambodia has the highest ratio of mine amputees per capita in the world.

### > 64,000

Over 64,000 landmine / ERW casualties have been recorded since 1979.

### 2,400 MINES/KM<sup>2</sup>

The K5 mine belt in Cambodia ranks among the densest contamination in the world with up to 2,400 mines per linear kilometer.

### >100 KM<sup>2</sup>

Over 100 km<sup>2</sup> are still estimated to be contaminated with landmines and UXO.

### 2ND PLACE

Cambodia is the second most mine affected country in the world, after Afghanistan.

### > 1,000,000 TONS

Over a million tons of bombs were dropped in Cambodia during the Vietnam war.

The impact of these weapons is long lasting and devastating. Landmines keep people poor and their presence stands in the way of socio-economic growth for communities living in contaminated environments. Mines prevent access to land for agriculture, resettlement and other infrastructure developments such as roads, schools and water catchment ponds.

Removing mines is therefore essential for the lives and livelihoods of the Cambodian population.

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## About APOPO

APOPO is a Belgian NGO that has developed an innovative system deploying African giant pouched rats, 'HeroRATS', to detect landmines or tuberculosis using their sensitive sense of smell.

APOPO and the HeroRATS have cleared thousands of landmines globally thereby helping hundreds of thousands of people back on their land, and they have saved thousands of lives by detecting Tuberculosis.



Rats are among the most sensitive animals when it comes to smell.

## GLOBAL IMPACT

Find out how many other people the HeroRATS have helped.

Check out [www.apopo.org/en/what-we-do/detecting-landmines-and-explosives/our-impact](http://www.apopo.org/en/what-we-do/detecting-landmines-and-explosives/our-impact)

## Why Rats?

### 1. Exceptional sense of smell

Rats are among the most sensitive animals when it comes to smell. They can sense where a landmine is buried or if a human sputum sample contains TB. Moreover, their sensitivity for a specific scent increases with training.

### 2. Intelligent and trainable

The African Giant Pouched Rat (*Cricetomys gambianus*) is an intelligent animal, relatively calm and trainable. They have a long lifespan of up to eight years.

### 3. Too light to set off mines

On average APOPO rats weigh just over a kilogram, which is not enough to set off a landmine. To indicate the location of a landmine they are trained to pause and scratch on the ground surface.

### 4. Locally sourced and widely available

The "Cricetomys Gambianus" or "African Giant Pouched Rat" is native to most of Sub-Saharan Africa, adapted to the local environment and widely available.

### 5. Easily transferable between trainers

Though social animals, rats do not bond closely to their trainers. This means that the rats are unfazed when being transferred between trainers or sent abroad for operations.

### 6. Low maintenance cost

Rats are cost-effective to source, feed, breed and maintain. Their small size makes them cheap and easy to transport both locally and internationally.

### 7. Resistant species

Endemic to Sub-Saharan Africa, the African Pouched rats are well adapted to the environment. APOPO's rats are in excellent condition and live long healthy lives.

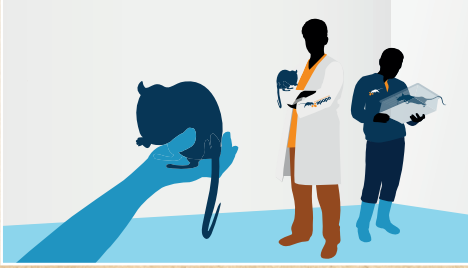
The rats can search 200 square meters an hour. This could take me eight days.

Margarida Siteo,  
APOPO Deminer



# MINE DETECTION TRAINING

## 1 SOCIALIZATION



At four-weeks old the rats begin to be regularly handled by trained staff and introduced to everyday sounds and smells. In a short time they are at ease in their surroundings and with people.

## 2 CLICK TRAINING AND SCENT TRAINING



The rats are trained to associate the sound of a click with food. When they near a tea egg containing the scent of explosives (TNT) they will hear a click and receive a food reward.

## 3 SCENT DISCRIMINATION TRAINING



They now learn to distinguish between TNT-positive and TNT-negative tea eggs. The rats will only hear a click and receive a reward if they interact with the TNT positive tea-eggs.

## 4 SOIL FLOOR TRAINING



The rats learn to work in soil trays placed outdoors in different environmental conditions. They wear a rat-sized harness and the tea-eggs are buried in soil.

## 5 FIELD TRAINING



For the first time, the rats enter a field with real, deactivated landmines. They will first detect surface laid mines in a small area, and move gradually to deeper mines in larger areas.

## 6 BLIND TEST



Before being deployed to a real minefield, the rats must pass a blind test where only the head supervisor knows where the mines are. To pass they have to find all target landmines in a 400m<sup>2</sup> area, making no more than one false indication.

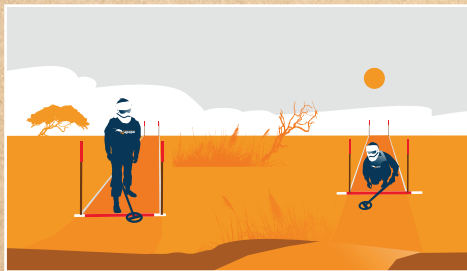
# MINE CLEARANCE

## 1 GROUND PREPARATION



As minefields have not been touched for decades, they are often overgrown and inaccessible. Ground preparation machines improve mine clearance by softening the soil, neutralizing tripwires and clearing small trees, bush, shrubs and grass.

## 2 CLEARING SAFE LANES



Safe lanes provide safe access to minefields. They are one or two metres wide and are prepared by deminers with metal detectors.

## 3 INSPECTION BY RATS



APOPO HeroRATs only detect the scent of explosives and ignore scrap metal. One rat can systematically check an area of 200m<sup>2</sup> in twenty minutes. A deminer with a metal detector would take between one and four days to check the same area.

## 4 LANDMINE VERIFICATION



When a HeroRAT indicates the presence of explosive, a deminer with a metal detector arrives to gently excavate the marked position and confirm if a landmine is present.

## 5 SAFE DISPOSAL OF LANDMINES



If a landmine exists, it is safely demolished on the spot.

## 6 RETURN OF LAND



After the landmines and other explosives are cleared, APOPO returns safe land to communities to use productively and without further fear of injury.

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## Animal Welfare

Animal Welfare is a top priority for everyone at APOPO. We work in partnership with these wonderful animals and do everything we can to ensure that they are treated like the heroes they are. All of our animals receive a nutritious diet, a specially designed living space with a friend that they can call their own, bi-weekly health checks by a vet, a stimulating environment, and mandatory petting and cuddles every day from APOPO staff.

## Flying rats

Mine Detection HeroRATs are all bred and trained at APOPO HQ in Morogoro, Tanzania. Our newly trained recruits took on an epic journey as they became the first ever HeroRATs to leave Africa. Magawa and his fifteen HeroRAT brothers and sisters flew nearly 20,000 miles around the world to help save lives in Cambodia.



We train rats to save lives.  
**Find out: [www.apopo.org](http://www.apopo.org)**

Read more about how we take care of the HeroRATs.

**[www.apopo.org/en/about/our-work/faq/all](http://www.apopo.org/en/about/our-work/faq/all)**

## Learn more

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