It's a dog. It's a cat. No, it's HeroRAT!

Apopo, a non-profit humanitarian organisation, has been deploying african giant pouched rats in mine detection operations since 2014. These trained rodents – dubbed HeroRATS – are cheaper and much more adept at sniffing out TNT than dogs or humans armed with metal detectors. Mine-free land equates to peace of mind to people in countries such as Cambodia who depend on it for sustenance.

'MINE-BOGGLING' FACTS

About 60 countries
in the world are still plagued by landmines and other residual explosives.

More than 105,000
landmines and unexploded ordnance cleared in Tanzania, Mozambique, Angola, Cambodia and Thailand since Apopo's founding in 1997.

THE MINE SQUAD

Length of a rat (includes its tail, which makes up half its length) **Up to 90cm long**

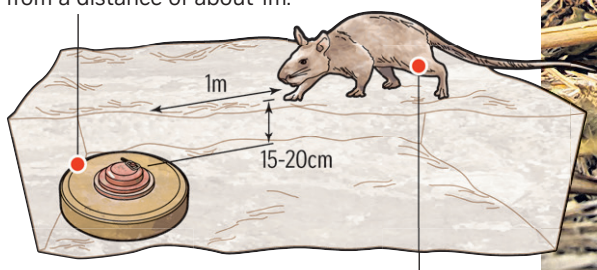
Training commences when they are **around 5 weeks old**

Duration of training: **About 9 months**

All in a day's work

The rats are able to detect:

- Both metal and plastic-cased landmines
- Landmines buried 15cm to 20cm underground.
- TNT in low concentrations and the smell of it from a distance of about 1m.



- Rats will scratch on the ground.
- Mines will then be checked and cleared by a manual demining team.

NOTE: Drawing is not to scale.

WHY THE GIANT AFRICAN POUCHED RAT (CRICETOMYS GAMBIANUS)

No humans, or rats, working with Apopo have lost their lives on the job.

- At about 0.9kg to 1.4kg, it's light enough to scamper over buried mines without setting them off.
- Intelligent and has an acute sense of smell to rival that of dogs.
- Calm and docile temperament.
- Cheap and easy to breed and maintain.
- Can work in the field for up to five years.

THE MAKING OF A HERO RAT

How the rats are trained to detect mines over a nine-month period.

1 Socialisation
The rats interact with people and are exposed to various stimuli within the first few weeks of birth.

2 Scent conditioning
- Trainee rats are conditioned to relate click sounds with food rewards.
- They are then drilled to pick up TNT scents – only then will they get a food reward.

3 Scent discrimination
- Various scents are placed under three sniffer holes.
- A click sound, as well as food incentive, will be issued only when it stops at the hole with the target scent. Repeat training reinforces the correlation.

4 Soil floor search
- The training extends to locating the hidden target scent in a sandbox.
- The tethered rat learns to walk in marked lanes and return to its trainer for food reward after each successful search.

5 On-the-job training
- The rats are released into a field with de-activated landmines.
- Training steps up from detecting surface-laid mines in small areas to mines buried deep underground in larger land plots.

6 Final test and accreditation
The rats are put through a test with standards surpassing those in the International Mine Action Standards.

■ = 20 minutes

20 minutes
The time taken for a rat to search over an area of up to 200 sq m

Up to 4 days*
The time needed for a technician with a metal detector to comb the same area

NOTE: *Depending on the amount of scrap metal lying around.

■ = One month

About 9 months
to train and certify a rat to detect landmines.

About 2 years
to train a mine-detecting dog and **costs 10 times as much**

SOURCES: APOPO, NATIONAL GEOGRAPHIC, NEW YORK POST
PHOTO: APOPO STRAITS TIMES GRAPHICS: LIM YONG