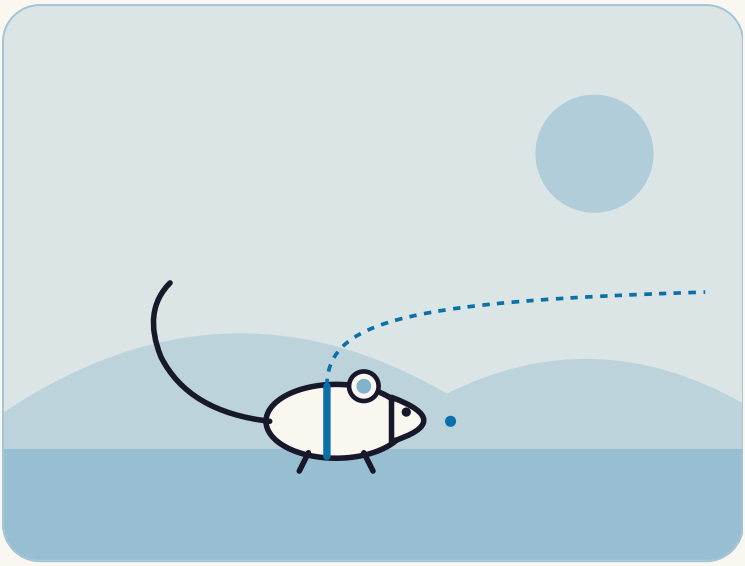

TANZANIA

The rats that walk on landmines

Most people see rats as pests. Bart Weetjens saw lifesavers. He trained them to smell buried landmines and make safe paths for families.

WHERE	Morogoro
WHO	Bart Weetjens and the HeroRATs
WHEN	1995 to today

4 min read

CHAPTER ONE

The story

Wars end, but hidden weapons stay behind in the soil. Across many countries, landmines remain active for decades. Farmers cannot plow their fields. Children cannot walk to school. A single step on the grass can change a life forever.

Clearing these weapons is slow and dangerous. Human teams use handheld metal detectors. But metal detectors beep for every rusty nail, tin can, and wire. Workers spend hours digging up harmless scrap metal. In some fields, they dig up hundreds of false alarms for every real mine.

In Belgium, a young product designer named Bart Weetjens watched this tragedy on the news. As a boy, Bart had kept pet rats, hamsters, and mice. He knew rodents had an extraordinary sense of smell. In 1995, he read a scientific paper about gerbils detecting scents. A wild question entered his mind. Could rats be trained to smell the explosives inside landmines?

The search for the right animal

Many people laughed when Bart shared his idea. Most people see rats as dirty pests. But Bart saw practical science. Dogs can smell explosives, but dogs are expensive to feed and train. Dogs also bond with only one handler. If that person leaves, the dog may refuse to work with anyone else.

More importantly, dogs are heavy. Most anti-personnel landmines explode when something weighs five kilograms or more. A large dog walking across a field can trigger a blast.

Bart needed an animal with a sharp nose that was very light. He consulted rodent scientists in Belgium. They pointed him toward the African giant pouched rat. This species lives across sub-Saharan Africa. It can grow as long as a cat, yet it weighs only about one kilogram. It is far too light to set off a mine.

The African giant pouched rat also lives for six to eight years. That gives it a long working life. It is calm, friendly, and immune to local tropical diseases. In 1997, Bart created a group called APOPO to test his dream. In 2000, he moved his headquarters to Morogoro in Tanzania. He partnered with a local university and set up a training ground.

Bananas, clicks and dirt

The team called their new recruits HeroRATs. Training began when rat pups were four weeks old. Handlers held them gently, spoke softly, and introduced them to people. This early care made the rats trust human touch.

At ten weeks old, the real training started. The trainers used a metal clicker. When a rat sniffed a hole containing TNT explosive powder, the handler clicked

the device. The click told the rat that good food was coming. The rat received a bite of mashed banana mixed with peanuts.

The rats quickly connected the smell of explosives with a delicious reward. They learned to ignore rusty metal, old cans, and insects. They only cared about the scent of real danger.

Next came field practice. Trainers placed a soft red harness on each rat. Two handlers held a rope stretched across a marked lane. The rat ran back and forth along the rope, sniffing the grass. When it smelled a buried mine, it stopped. It scratched at the dirt with its front paws.

> **They are literally working for peanuts.**
>
> BART WEETJENS, ON TRAINING THE RATS WITH FOOD REWARDS

The handlers marked the exact spot on a map. Then, trained human experts safely removed the mine. The rat received its treat and trotted onward.

0	20 min	2015
rats harmed in minefields	to search a tennis court	Mozambique declared landmine-free

Clearing nations and saving lives

The speed of the rats astonished observers. A human deminer needs four days to search the area of a tennis court. A single rat can search that same space in twenty minutes. Because the rat ignores scrap metal, it never stops for false alarms.

In 2006, APOPO sent its first teams into Mozambique. Decades of civil war had left thousands of hidden landmines across farms and roads. Over the years, the rats sniffed out thousands of buried weapons without a single accident. In September 2015, Mozambique made history. The government declared the country free of all known landmines.

The project soon expanded to Angola, Zimbabwe, and Cambodia. One famous rat was named Magawa. Magawa was born in Morogoro in 2013 and went to work in Cambodia. Over five years, Magawa found 71 landmines and 38 unexploded bombs. He cleared more than 225,000 square meters of land.

In 2020, a British charity awarded Magawa a gold medal for animal bravery. He was the first rat in history to win that honor. Magawa retired in 2021 and passed away peacefully at age eight.

APOPO also trained rats to smell tuberculosis in clinic samples. A single rat can screen one hundred samples in twenty minutes. In clinics across Tanzania and Mozambique, they have found sickness in thousands of patients whom standard tests missed.

In more than twenty-five years of field work, not a single HeroRAT has ever died in a minefield. Today in Morogoro, young rats still practice on grassy fields. They do not know they are heroes. They only know that when they help humans, sweet fruit follows. Because of them, millions of people walk in peace.

How it unfolded

- **1995** Bart Weetjens begins testing whether rats can detect the scent of landmines.
- **1997** Weetjens founds APOPO in Belgium to develop scent-detecting rats.
- **2000** APOPO establishes its main training headquarters in Morogoro, Tanzania.
- **2006** The first HeroRAT teams begin clearing minefields in Mozambique.
- **2015** Mozambique is officially declared free of all known landmines.
- **2020** Magawa the HeroRAT is awarded the PDSA gold medal for animal bravery.

CHAPTER TWO

What makes it special

Most people run away from rats. Society treats them as pests and carriers of disease. This project turned an animal people fear into a hero that saves human lives. Because the rats are so light, they can walk directly over buried explosives without triggering them. In over two decades, zero rats have died in mine action.

OUR TAKE

We often search for complex machines to solve global crises. Bart looked at a humble creature living right beside us. When we understand nature instead of fighting it, simple solutions can change our world.

CHAPTER THREE

What we can learn

1 Look for overlooked tools

Bart did not build an expensive robot. He noticed that rodents already had the sharpest noses in nature.

Try this: Look at a stubborn problem you face at work. List two simple, existing tools you have ignored.

2 Turn a weakness into strength

Rats are tiny and fragile. That small body weight became their greatest protection in a minefield.

Try this: Write down one personal trait you view as a weakness. Ask how it could help in a different role.

3 Rely on small, steady rewards

Trainers never punished the rats for mistakes. They offered a click and a bite of banana each time a rat succeeded.

Try this: Pick a new habit you want to build. Give yourself a small, positive reward immediately after each practice.

4 Never rush safety

Deminers never send an animal to a real minefield until it achieves a perfect score on test grounds.

Try this: Before delivering your next major project, run one complete test with no shortcuts.

ONE THOUGHT TO TAKE AWAY

The greatest protection sometimes arrives in the creature we least expect.

Sources

APOPO
HeroRAT Magawa Receives PDSA Gold Medal

The Guardian
Magawa the Landmine Detection Rat Given Gold Medal

PDSA
PDSA Gold Medal: Magawa

Fact-check note: Sources give different figures for the land area cleared by Magawa, ranging from 141,000 to over 225,000 square meters as his career advanced. Lines marked "Our take" are interpretation. Everything else comes from the sources above.