

Humanitarian Rats

Rodents used to detect land mines in Africa.

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Giant African pouched rats used by APOPO are trained to sniff out land mines in Tanzania, Mozambique and Angola. Courtesy of APOPO

In American culture, the rat musters up all sorts of negative connotations. The pack rats who collect life's unwanted junk. The rat race that gives us no time to rest. Not to mention the frightening thought of a dirty vermin digging its way through our garbage.

Rats have been seen as despicable creatures, but a rat characterized as a savior or hero – that is out of the question.

Well, not quite. Rats in APOPO, also known as the HeroRAT program, in Africa can put our negative associations to shame. Developed by Belgian engineer Bart Weetjens, at the Sokoine University of Agriculture in Morogoro, Tanzania, APOPO trains giant African pouched rats to detect the remnants of land mines and other explosive weaponry littering the war-torn countries of the continent.

Using vapor detection methods, APOPO builds on the rat's incredible sense of smell and ability to perform repetitive tasks for humanitarian mine clearance.

Unlike manual methods, which would take a day to clear an area the size of a double-car garage (50 square meters of land), the rats can clear the same size area in 15 to 30 minutes. Although the rats can only work in the morning, Weetjens said this method still saves time and resources. Since the inception of his work, roughly 540,000 square meters of land have been cleared.

"It has been rewarding to see that this thing has really taken off," Weetjens said. "To see that we have villagers who can hardly read and write but can train rats up to international land mine detection standards."

Weetjens and his team began developing the program in 1999. In 2004, his first set of rats certified according to International Mine Action Standards (IMAS) took to the mine field. Currently, 240 accredited rats in Tanzania and 36 in Mozambique are being used to detect land mines. Thirty more are trained and waiting to be sent to Angola.

Being too small and light to activate a mine, no rats have been harmed since the start of the project, Weetjens said.

The organization is also developing methods for rats to sniff out tuberculosis. For every 200 to 300 people who attend TB centers, the rats sniff out 8 patients not diagnosed through a lab test.

Although he held an interest in providing technologies to be used in the Third World, Weetjens didn't think his work would take him in this direction.

"As a boy I had all kinds of rodents. At that point I was not interested in detection technologies," he said. "But at the age of 20, I started discussing the land mine program and that's when I began seeing the dogs working in Africa."

He saw the health needs of the dogs and dependence on foreign trainers hurt the effectiveness of the dog's work.

"I always had a strong affection for Africa, and I wanted to do something for the real world," he said. "When I started de-mining, I wanted to find something manageable in the environment, independent from foreign input."

Although he didn't immediately link the situation to rats, he read an article about gerbils used for similar purposes. By domesticating the native giant African pouched rat, which is already acclimated to the conditions in the areas where they work, he believes he has found a more efficient method of mine detection.

However, there are still some bumps that APOPO must cross.



If the program continues to operate on its annual 1.2 million euro budget, Weetjens said that the mine detection process will continue for 500 years.

“The problem with humanitarian mine clearance is that we are victims of our own rigor,” he said.

Governments in southern Africa require full clearance of the land before allowing refugees to resettle the land, but Weetjens believes that this system of risk management is too strict.

However, the APOPO program is expanding. Soon the 11 countries of the African Great Lakes region will adopt HeroRAT technology and Weetjens anticipates moving into countries outside Africa as well.