



INTERVIEW WITH PAUL BUNKER

In Texas, the official State Reptile, the horned lizard (*Phrynosoma cornutum*), is literally losing ground. Habitat destruction resulting from human encroachment into grasslands and desert is the main driver behind a sharp decline in the numbers of this fierce-looking but harmless lizard. Other factors include over-collecting for the pet and curio trades, competition from invasive species, and pollution. Once abundant throughout the state, horned lizards have virtually disappeared east of a line stretching from Fort Worth through Austin and San Antonio to Corpus Christi. The species is currently listed as “threatened” in Texas. In 2017, San Antonio Zoo established a program to help horned lizard populations recover. They began captive-breeding horned lizards to reintroduce into the wild. But knowing where to safely release them and then monitor their survival presented challenges for researchers because this well-camouflaged, three-to-four-inch long reptile is hard to spot on the ground. So, they enlisted the help of conservation detection dog trainer, Paul Bunker. We were curious about how dogs can be taught to find lizards and called up Bunker to find out how he does it.



Wild Hope: How are dogs being used in the Horned Lizard Reintroduction Program?

Paul Bunker: There are three ways canines are being integrated. [The Program] is trying to establish horned lizards in areas where they have died out or moved on for whatever reason. So, the dogs are initially used to survey an area and determine there are no lizards present, therefore, it's viable for reintroduction. One of the concerns is that if

you reintroduce 60 to 100 or so of these young lizards into a location, you're going to imbalance the resources that are currently there. Any established lizard colony could suffer because you're suddenly depleting resources.

Then some months after the lizards have been released, the dogs will go through the area again looking for signs that those reintroduced lizards are thriving. If there's fresh scat, there are lizards. And then the final use will be for

the dogs to locate lizards for rotating into the breeding stock.

WH: Do the researchers capture lizards the dogs find and then take them back to the breeding laboratory to diversify the gene pool?

PB: Correct. Also, the lizards vary greatly in their color, depending on the terrain they live in. Some are a deep clay-red and some are a white-beige. They take on the color of the environment where they live for camouflage and protection. [The researchers] may need to collect lizards of a particular coloring to promote a viable breeding stock that can be released into a particular area.

WH: Why are dogs good at tracking horned lizards?

PB: Dogs don't see the world in sight, they see the world in smells. A dog's [olfactory] sensory capability is many times greater than a human's. So, we train dogs by pairing that ability to smell minute traces of a target odor with a reward. To them, it's a big game. They want to find the scat and tell you where it is so they can get their reward. They can find tiny pieces of scat or lizards in thick vegetation that a human would walk right by.

They can cover more ground more easily than humans, and that makes them a lot more efficient, a lot more effective.

WH: How do the dogs differentiate horned lizard scat from that of other reptile species?

PB: It's the volatile organic compounds (VOCs) that are given off by the scat. In a desert environment like Texas, moisture within the scat assists that process greatly. The moisture evaporates from the scat due to the sun or the heat, taking the VOCs with it and distributing them into the air. So, that's what the dogs are looking for. The actual smell of the scat depends on the lizard's diet and the environment. The scat of a lizard eating purely ants is going to smell different than a lizard that's eating termites.

WH: How do you train dogs to not chase after a lizard?

PB: We use a technique called “passive response.” We teach the dogs through behaviour modification that when it locates the odor, to be passive. It can stand and stare, it can sit, or it can lie down. If it does any of those behaviours without touching the target, it gets its reward. Through the process, the dog learns, “If I touch this item, I get nothing. If I don't touch it, I get my jackpot.”

WH: People can order a horned lizard scat collection kit on your website. What's that used for?

PB: We need the dogs to understand that horned lizard scat has a broad spectrum of smells. There's a baseline smell, and there are variances. We need lots of different samples for the dog to understand that this is horned lizard scat, not San Antonio Zoo horned lizard scat. So, we need as many people to submit as many variations of odor as possible.

WH: How many dogs are being trained to do this work?

PB: There's currently one with San Antonio Zoo that did its proof of concept late last year. Because of the current [social distancing] restrictions, we're just starting to get back together to resume training of the dog, and we're arranging our first surveys for later this year. The hope was to expand the program this year with more dogs. I have been working

with a couple of volunteers who already do sea turtle nest detection with their dogs, helping them to transfer their dogs to horned lizards, so when the program expands, those dogs will be ready.

WH: Does it take a particular breed of dog to do this work?

PB: No, but it does take a dog with certain characteristics. You can train a stray to do this, if they have the right characteristics. You need a dog with a high drive for a reward. The motivation to do this work comes from the desire for a reward. So, the dog must have that desire for treats or a toy, preferably both.

It must also have the physical ability to actually conduct surveys. They cover three to five miles a day, sniffing all the time and searching. So, they can't be short breeds that would struggle in thick vegetation and couldn't cope with the harsh Texas terrain, heat and cacti.

And the dog has to accept training, because the dogs are worked off leash. They need to be able to accept directions from the handler to do as they're told. They have to be the type that will listen. There are breeds that just wouldn't accept that level of control. And they can't be distracted by wildlife because we encounter deer, rabbit and other wildlife as part of the survey.

Now, some breeds hold these characteristics innately—Labradors, spaniels, hunt-type breeds—because that's what they've been bred to do over centuries. But there are other dogs that have those traits and could have a useful life supporting conservation work.

WH: You had a long career in training dogs in explosives detection for the British Army and US military and then oil spill detection for a private company in North Carolina. How did you get into training conservation detection dogs?

PB: While I was Director of the Canine Training Centre and Project Manager of the Oil Spill Canine program at the North Carolina company, I went to Canada for four months to lead a team surveying 600 km of a riverbank where there had been an oil spill. I was out six days a week with my dog, just surveying, encountering moose and bear and other

wildlife. I loved it. It made me realize what I had been missing by being in management. When I returned to North Carolina, I resigned from that company. I wanted to get back to dogs and start my own company. The experience of being in Canada with the wildlife and supporting the oil spill response focused where I wanted the company to go. I also knew that my specialization in training canines could be applied to conservation. You know, most people in the conservation canine community are environmentalists or conservationists who came into the canine world. I've done it the other way around—I'm a canine guy who has come into the conservation world.

WH: When you started your company, Chiron K9, you moved to Texas. How did you connect with the Horned Lizard Reintroduction Project?

PB: I Googled “endangered species,” and horned lizards was on the list. I sent an email to the Horned Lizard Conservation Society, and [they] introduced me to Andy Gluesenkamp, director of conservation at San Antonio Zoo. Andy and I had a meeting, and he was keen to get canines involved in the project. Basically, that's how it all came about. It was because Andy really wanted to try canines and saw the value in using them. I was in the right place, at the right time.

WH: Now that you're collaborating on the Project, how do you feel about the horned lizard's future?

PB: We have an opportunity to preserve or even save a species. It is important to me that I can contribute to the lizards' survival so that they don't become one of the [extinction] statistics. When you consider that between 200 and 2000 species go extinct each year, you can see the importance of conservation projects. Canines can play a huge role in conservation and increasingly are doing so. Additionally, being able to promote the use of canines in conservation, especially rescue and pet dogs, means people, hopefully, will realize just how beneficial these canines can be. **WH**

To learn more about conservation detection dogs, visit chiron-k9.com.