

Rise of the guardians

Dog breeds that once protected livestock are now being used to conserve predators too. Can it work, wonders **Isabelle Groc**



ISABELLE GROC



Livestock guardian dogs in Portugal tending their flock

WOLVES were once common in Portugal. As in other parts of Europe, they have been persecuted almost out of existence, with their range reduced by 80 per cent and numbers down to just 300 or so. Even now, when it is illegal to kill wolves, farmers still poison or shoot them to protect livestock.

Biologist Silvia Ribeiro is on a mission to change that. To help farmers coexist peacefully with wolves, she uses an ally from the past: livestock guardian dogs. For millennia, these dogs worked alongside shepherds to protect herds against wolves and bears that roamed in many regions of Europe and Asia. But in the 19th and 20th centuries, when such predators were largely exterminated, most guardian dogs lost their jobs and the breeds nearly went extinct. In the past 25 years, Ribeiro brought back four of them, placing 675 pups with herds of goats, sheep and cattle. The aim isn't simply to protect livestock, but to conserve wolves too.

Ribeiro's work is part of a much bigger trend. Around the world, as the rewilding movement grows and predators return to or expand their ranges, guardian dogs are enjoying an unexpected revival. They are even being put to new uses, such as guarding penguins and marsupials in Australia. To increase the success of this venture, Ribeiro and other scientists are rediscovering what it takes to make a good guardian dog. But they also want to know whether they really can change how farmers perceive predators, reducing livestock deaths and averting revenge killings – and whether using them is a viable strategy to conserve threatened and endangered species.

Today, there are around 50 breeds of guardian dogs on duty in various parts of the world. In the US, ranchers first used them in the 1970s when the government banned compound 1080, a powerful poison that had been favoured to kill coyotes, the species responsible for most livestock losses. The dogs have also proved their mettle in Canada, South America, Africa, Asia and Australia, protecting animals against all sorts of predators – wolves, coyotes, bears, cougars, lynxes, bobcats, wolverines, dingoes, cheetahs, leopards, hyenas and even stray dogs.

In many regions where predators were absent from the landscape for a long time, the traditional knowledge of how to work with guardian dogs wasn't passed on to younger generations of herders. In Portugal, Ribeiro, who is at the University of Porto, is providing that knowledge. Working with Grupo Lobo,

an organisation focused on wolf conservation, she has placed dogs with 389 herders so far. The puppies arrive when they are 2 months old and Ribeiro provides veterinary care and food until they reach adulthood. Thereafter, she visits farmers monthly, giving extensive training and technical support.

Although protecting livestock is part of their instinct, training can make or break a guardian dog. They are raised from an early age with the animals they will be watching. They learn to identify with their smell, and eventually the goats, sheep or cattle become the dog's family. "Their initial training is to understand that livestock is going to be their life," says Dan Macon, a shepherd with three guardian dogs who is also the livestock and natural resources advisor for the University of California Cooperative Extension. "A big fuzzy white puppy is fun to be around, but too much human affection makes it a great dog for guarding the front porch, rather than a great livestock guardian dog," he says.

Top dogs

Although they vary in colour, all breeds of guardian dog have some qualities in common. In addition to their large size, which is meant to intimidate predators, they are trustworthy and protective of their herd. They will place themselves between livestock and any threat, barking loudly. If necessary, they will chase away predators, but often their mere presence is sufficient. Of course, some individual dogs make more successful guardians than others. The first study to explore the characteristics involved was published this year. Researchers identified five personality traits – playfulness, trainability, independence, reactivity (a dog's tendency to overreact to some situations) and sociability with people. Three were linked to performance. Guardian dogs with higher trainability and lower reactivity were rated as more effective by owners. However, dogs that scored higher for playfulness were judged more likely to harass livestock.

Another study has compared the effectiveness of different breeds. In the US, European "white dog" breeds such as the Maremma sheepdog and great Pyrenees have been used for decades to protect livestock from coyotes. But ranchers had become concerned that crosses of these breeds weren't a match for larger carnivores. To test this idea, Julie Young and Daniel Kinka at Utah State University imported three other European breeds

historically used in areas inhabited by wolves and brown bears – Turkish Kangal, Bulgarian karakachan and Portuguese cão de gado transmontano – and placed them with sheep herds. Comparing their behaviour and performance with those of dogs commonly used in the US, the study found that the more assertive European dogs performed better. “Sheep survival was higher using any of these three breeds than using white dogs,” says Young.

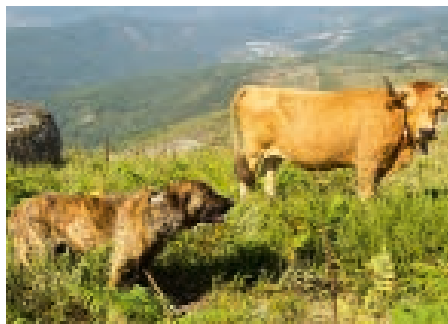
It might seem paradoxical that a domesticated wolf can protect livestock against wild wolves and other predators, but the evidence indicates that guardian dogs are highly effective. For example, in Australia, more than 65 per cent of herders reported that predation stopped after they got the dogs and almost all the rest saw a decrease in attacks. The study, by Linda van Bommel and Chris Johnson at the University of Tasmania, Australia, also showed that the cost of obtaining and caring for a livestock guardian dog was recouped within one to three years of it starting work. Researchers in other countries have reported similar results. A recent study in Mongolia found that bankhar dogs used to protect livestock from wolves effectively decreased predation after one year of placement. In Portugal, Ribeiro has found that more than 90 per cent of the farmers participating in her programme rate the performance of their dogs as very good or excellent.

“If they are managed and used properly, livestock guardian dogs are the most efficient control method that we have in terms of the amount of livestock that they save from predation,” says van Bommel. That is how they have traditionally been employed, of course, so it perhaps isn’t surprising. But today’s guardian dogs often have a new role – to help preserve wild predators. Conservation organisations that encourage their use assume that reductions in livestock losses can increase farmer tolerance of predators on their land, resulting in fewer retaliatory carnivore killings. Is that really the case?

In Namibia, the Cheetah Conservation Fund (CCF) set out to answer this question. There, more than 90 per cent of cheetahs live outside protected areas, close to humans raising livestock. As a result, they are often held responsible for animal losses, and the CCF estimates that between 1980 and 1990, farmers killed more than 7000 cheetahs to protect their herds. So the organisation turned to guardian dogs, placing 700 Kangal dogs on

“The dogs are being put to new uses, such as guarding penguins”

There are some 50 breeds of livestock guardian dogs, all large, protective and trustworthy



ISABELLE GROC



In Australia, dogs shield little penguins from fox attacks

farms across the country since 1994. In a study published last year, it found that more than 90 per cent of farmers reported little to no livestock losses after getting a dog and said they were less likely to resort to killing predators as a result.

Young believes this result applies widely. “There is common ground from the livestock perspective and from the conservation perspective,” she says. “If ranchers don’t have a dead cow, they will not make a call to apply for a permit to kill a wolf.” Nevertheless, this doesn’t necessarily change how farmers perceive predators. Young and Kinka found that the use of livestock guardian dogs in the northern Rocky mountains of the US didn’t result in more positive attitudes about wolves and grizzly bears among pastoralists, even though they felt that the dogs were very effective. “People live with the predators, but it doesn’t mean they have to like them,” she says.

Protecting predators

Looking at all the published evidence, Bethany Smith at Nottingham Trent University in the UK and her colleagues found that up to 88 per cent of farmers said they no longer killed predators after using dogs – but they warned that such self-reported results must be taken with a pinch of salt. What’s more, it is possible that livestock guardian dogs merely displace carnivores to unprotected neighbouring properties, where their fate isn’t recorded.

“In some regions, we work with almost every farmer, but in others only one or two have dogs,” says Ribeiro. “If we are not working with everybody, we are transferring the wolf pressure to the neighbour’s herd and they can use poison and kill an entire pack of wolves.”

Another concern is whether guardian dogs themselves harm predators. One study of dogs in Australia and South Africa found that they have considerable lethal and non-lethal welfare impacts on the animals they are there to guard against. This was contested by other researchers who claimed that the dogs rarely engage in direct and aggressive confrontations with wildlife. Nevertheless, work by Smith and her colleagues revealed that more than three-quarters of the 56 published studies on the ecological effects of guardian dogs reported them chasing and killing wildlife. Eighty species were affected, including 11 listed as “near threatened” or worse on the IUCN Red List. Most of these weren’t the predators from which the dogs were



The Cheetah Conservation Society has placed 700 Kangal dogs with herders across Namibia



ISABELLE GROG

supposedly protecting livestock, leading the researchers to conclude that there are “unintended ecological effects” of using guardian dogs.

The extent of this problem isn’t known, but the consequences are clear in Namibia. Cheetahs aren’t the only species that cause sheep and goat losses there: leopards, caracals and black-backed jackals also attack livestock. In 2015, researchers reported that although farmers ceased killing cheetahs and leopards after they obtained a guardian dog, the number of jackals killed by dogs and people combined actually increased. “It’s a philosophical question of whether you prioritise cheetah conservation over the killing of these other carnivores which have their own ecological knock-on effects,” says Smith.

Guardian dogs have other ecological impacts too. They have been implicated in the spread of diseases to wild animals, including endangered Ethiopian wolves. They may also compete with other carnivores for

food. And by creating a “landscape of fear”, their mere presence can influence the behaviour, distribution and interactions of prey animals. These wider ecological effects are complex and scientists are just beginning to understand them. “We are using dogs as biological control agents without thinking about the potential consequences on the environment,” says Smith.

The evidence so far, however, indicates that these consequences aren’t always negative. In the sheep-grazing lands of Chilean Patagonia, for instance, guardian dogs not only reduce livestock predation by foxes, but also scare away invasive European hares, which compete with sheep for forage. The mere scent of the dogs is sufficient to trigger fear in the hares. “Hares are avoiding places where the dog smell is present,” says Carolina Ugarte at the University of Chile in Santiago. Likewise, in Australia, van Bommel and Johnson found that herbivores such as wallabies, deer and kangaroos avoided areas where Maremma

sheepdogs – the most commonly used guardian dogs in the country – were present. These wild herbivores compete with livestock for pasture, so their absence provides an added benefit to farmers.

Guardian dogs can even deliver unexpected conservation benefits by protecting vulnerable or threatened wildlife from predators. Their presence has been found to increase the number of nests of ground-nesting birds in pastures where foxes, raccoons and skunks would normally raid them. Indeed, Australian researchers are now using dogs to enhance biodiversity and create refuges for species threatened by predation from foxes and cats. On Middle Island, a small island connected by a tidal sand bridge to Warrnambool in south-western Australia, a team of Maremma sheepdogs has been trained to guard a colony of little penguins from fox attacks. Meanwhile, researchers from Zoo Victoria and the University of Tasmania are conducting trials to see if Maremmas can protect a reintroduced population of endangered marsupials called eastern barred bandicoots. “If you reinstate a top-level predator like a livestock guardian dog on the landscape, they can have a role to play in protecting our native wildlife,” says van Bommel, who is involved in the trials.

For livestock guardian dogs to be truly beneficial for wildlife conservation, humans must play their part. For example, there is evidence that guardian dogs that aren’t well treated or properly fed are more likely to chase or kill wildlife. “You can’t just throw those dogs out there and expect them to do their thing,” says Young. Van Bommel agrees. “Guarding livestock is an instinct, but you still have to nurture that instinct and guide it in the right direction,” she says.

If we can get this right, van Bommel sees a bright future for guardian dogs in promoting harmonious coexistence between humans and wildlife. She points out that consumers are becoming ever more conscious of the environmental impacts of the food they eat. “This will put more pressure on farmers to manage their land and grow livestock in a more sustainable way,” she says. “If that trend continues, livestock guardian dogs will have a very big role to play.” ■



Isabelle Grog is a writer and photographer based in Vancouver, Canada, and author of *Conservation Canines: How dogs work for the environment*