



Zambian

CARNIVORE PROGRAMME

Welcome to The Conservation Science Spotlight



Wild Dogs hunting in the Luangwa Valley. Where prey is depleted dogs expend more energy, travel further, and are less successful in acquiring food.

The high costs of hunting resulting from human impacts on prey populations are creating starkly different landscapes, challenges, and future prospects for Africa's endangered wild dog populations

In Zambia's South Luangwa Valley, Wild Dog-1189 and his thirteen fellow hunters in the Manzi Pack were finishing their second impala of the evening. As usual, the African wild dogs finished eating quickly before returning to their den, where the alpha female and her ten pups waited in safety. After a quick trot of two kilometres, 1189 and the others regurgitated several kilograms of fresh meat to the hungry mother and her pups before settling to keep guard through the night.

Several hundred kilometres to the west in the Greater Kafue Ecosystem, Wild Dog-1872 and her three fellow hunters in the Tushonto Pack were having a difficult time. After leaving their three pups unattended at their den, as they needed all the pack to hunt, they had searched for six kilometres with few opportunities and no success. After killing a small duiker, it was time to return to the den with their stomachs half full.

African wild dogs are one of the world's most endangered large carnivores, with only about 6000 remaining. Millions of years before humans created the domestic dog from the wolf, the African wild dog had diverged onto its own unique path, becoming the only species in the genus *Lycaon*. Their scientific name *Lycaon pictus* means 'painted wolf', a good description of these formidable hunters with their patchwork coats of brown, black and white.

For 3 million years, wild dogs like 1189 and 1872 have persisted by finding prey while avoiding their dominant competitors the lion and spotted hyena. At 20-25 kilograms, a wild dog is less than half the size of a spotted hyena and only a fifth the size of a lioness. Wild dogs often lose meals to hyenas and are commonly killed by lions. Because of this, wild dog numbers are normally low where lion and hyena numbers are high, even though these places have abundant prey. In Tanzania's famed Serengeti Plain, wild dogs went locally extinct while lions and hyenas thrived on the ecosystem's abundant wildebeest and gazelles.

Under the ecological conditions of the past, wild dogs were limited by their dominant competitors and not by the availability of prey, but the world is changing quickly, and large herbivores are declining across Africa due to bushmeat poaching. Our new research, in collaboration with Montana State University, Swansea University, and the Zambia Department of National Parks and Wildlife shows that this prey depletion has fundamentally shifted the problems that African wild dogs must overcome to persist.

In places like the Greater Kafue Ecosystem, decades of heavy bushmeat poaching have reduced prey species like impala and puku to a fraction of their former numbers (however, recent increases in efforts to control poaching, driven by the signing of a 20- year, USD 10 million per year management agreement with African Parks and the Zambian Government, are beginning to reverse this pattern). South Luangwa National Park is better protected, and prey remain abundant. Even though wild dogs in Kafue face fewer lions and hyenas, their survival rate is lower, and they produce fewer offspring. The researchers suspected these patterns could be explained by changes in the costs and benefits of hunting. Where prey have been depleted, it is logical to expect that wild dogs might have to cover more ground when hunting and might be forced to accept smaller meals.



The study tested this idea by attaching small, high-frequency accelerometers to the radio collars that are often used to monitor wild dogs and other species. Weighing only a few grams, these devices recorded the accelerations created by the dog's movement 40 times per second. That information allowed the researchers to identify every step taken, and measure how far the dogs went, how fast they ran, and how often they made a kill.

They put these accelerometers on wild dogs in 16 packs in two ecosystems, some hunting in territories with lots of prey and others with little prey, to examine how this affected the energetic costs and benefits. For animals like wild dogs, energy translates directly into survival and reproduction. The results were clear – where prey was depleted, wild dogs were forced to travel farther each day and burned more energy, but still obtained smaller meals. The researchers concluded that correlations between prey depletion, low survival and poor reproduction are caused by changes to the 'landscape of energy' that wild dogs are now facing.

The research has obvious implications for strategies to conserve the few remaining wild dogs. Conservation efforts should focus on restoring prey populations by controlling illegal bushmeat poaching – but poaching is a complex and difficult problem. Bushmeat is a source of food and income for people living under difficult conditions. Controlling the illegal bushmeat trade will require a combination of law enforcement and programs to provide incentives and alternatives. Nevertheless, this new research reveals an unusual opportunity for a win-win-win for wildlife: better protection of places like Kafue is likely to increase the number of endangered wild dogs, their prey, and their competitors - the lion and hyena.

Access the study here:

[Read the study](#)

The Conservation Science Spotlight is an initiative aimed at sharing clear and concise summaries of recent scientific studies conducted by ZCP and partners. Its purpose is to make technical research more accessible to the public and stakeholders, emphasising the studies' relevance to conservation efforts in Zambia and beyond.

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For wild dogs less energy spent hunting translates into better survival and reproduction

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