

GAYLE PEDERSEN

CAN YOU HEAR ME NOW?



'The restrictions and discomfort with sharing firsthand experiences with peers on other reserves and parks are shortfalls in our industry, particularly when they are not positive experiences and hence interpreted as failures.'

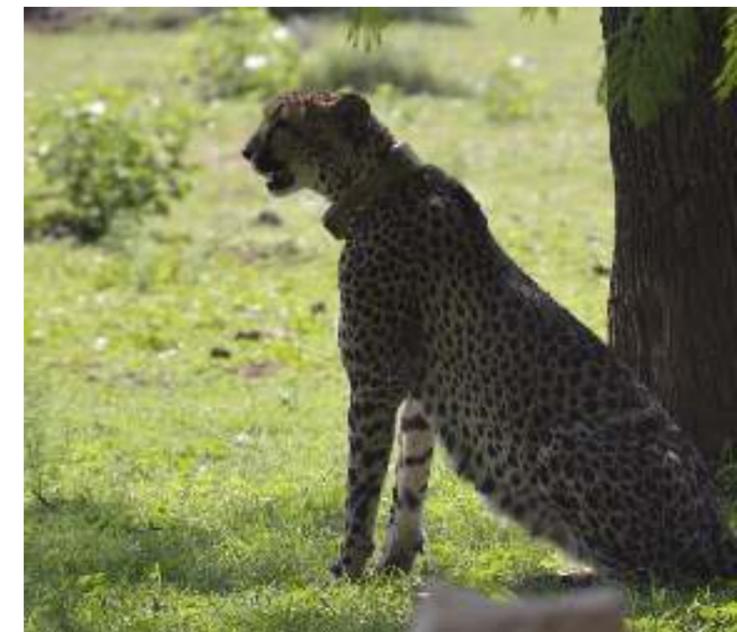
Gayle Pedersen

Gayle Pedersen discusses how the failure of underlying infrastructure can complicate conservation technology work, and how the culture of avoiding failure publicly prevents conservationists from avoiding the same challenges.

As the WILDLABS community knows, technology has substantially grown as a tool in conservation and wildlife management, becoming an integral part of our work over the years. Common tools like camera traps and GPS collars allow busy researchers to passively and continuously gather data, allowing consistent monitoring and study. But despite how ubiquitous conservation technology has become in our work, it can make or break projects dependent on budgets and field conditions, meaning the success of our tools and project plans are critical.

And while there are so many reserves and parks utilising technology in their daily operations, many of the people working with technology day in and day out never get around to publishing their trials and tribulations, or sharing their experiences with others if there are no conferences or workshops on the topic. Because of this ongoing culture of avoiding public failure, even navigating fairly basic struggles without the guidance of others who have already dealt with such issues can become a challenge in itself.

In remote locations, even in regions and countries that are otherwise technologically advanced, the most fundamental of technological infrastructure frequently fails field ecologists and researchers. Despite the frequency of these issues, its impacts



Our collared mother cheetah, whose data allowed us to locate the young injured cheetah.

on our work are not discussed nearly as much as you'd expect.

For years, South Africa's only energy supplier, Eskom, has been undergoing periods of 'loadshedding' where the national power grid is overloaded so electricity provision is suspended around the country on a rolling, daily basis for 2.5 to 5 hours, sometimes more. If you're fortunate enough to be based in rural areas, as most game reserves are, these power cuts can also lead to cell phone tower blackouts for the duration.

On one such occasion, I just happened to be on a mission with my team to locate a young cheetah and assess a wound she sustained a week prior. Ahead of the long weekend, we needed to report back our observations to decide whether veterinary attention was necessary again. The cheetah in question was still travelling with her mother and siblings (the suspected instigators of the injury), and the mother was equipped with a GPS collar that provided location uplinks in the morning and afternoon. Between those uplinks, the VHF (very high frequency) radio telemetry function was used for pinpointing their location whenever necessary.

It is always preferable to locate a targeted animal as early in the day as possible, in order to allow for time-consuming eventualities and to carry out

TECHNICAL DIFFICULTIES

operations before the peak heat of the day. On this particular morning, I was able to detect the VHF signal on a mountainside. I pulled my vehicle off the road and we proceeded uphill on foot to assess the injury and accessibility. The feline family was fairly easy to locate, resting in dense bush approximately 90% of the way up the mountain. I was able to get some photographs of the wound in question to confirm the plan of action with superiors. It was also necessary to be able to contact the vet and request that a colleague escort them to my location from the reserve entrance, ensuring the cheetah received timely treatment.

What should have been a straightforward process became a stumbling block as technology failed me.

In the time it took me to locate the cheetahs, scheduled loadshedding had commenced, and the tower for my cellular network provider was down. Though I'd located the cheetahs, I was not able to send photos of the cheetah's injury or communicate with the office. And while two-way radio communications can often serve as a backup in situations like this, I also just happened

to be in a bit of a black hole for that method of communication as well.

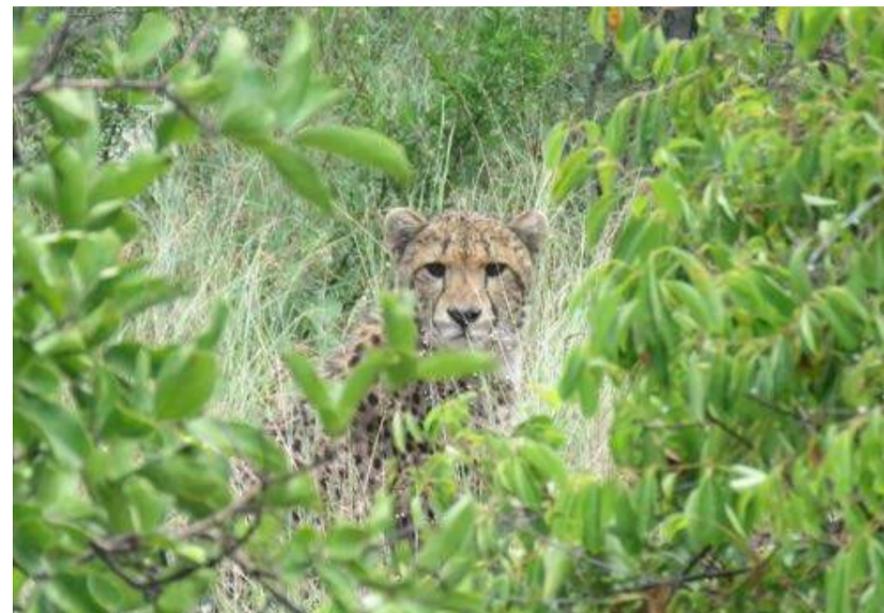
When communications fail, it is risky to leave the animal in need of care, as there is a chance they will move in your absence. I asked one of my team to quickly go and fetch my vehicle to bring it up to the closer access point at the top of the hill while I continued attempting to make contact. With no other choice, I drove to the office to access the WiFi (courtesy of a generator), confirm the operation is a go, and make arrangements with the vet and his chaperone through the reserve.

Luckily, this situation was not so urgent that such a delay would put the animal at immediate risk, but that is not always the case. Imagine finding wildlife grievously wounded by snares or poachers and you'll understand just how easily a simple technological failure with communications systems could turn catastrophic. And beyond that, having a team in the field with no available methods of communications could put team members in a dangerous situation with no way to reach others for help, a challenge none of us want to face.

The vast landscapes we work in with conservation technology can pose challenges when basic communications infrastructure fails



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Our patient awaiting treatment in the field.

In my case, I swiftly returned to the field site to find the cheetahs still relaxing in the shade. But the environment offered us one last reminder of the constant threats of technological failure constantly awaiting us; just as the vet pulled up, a cloudburst arrived out of nowhere, despite the previously blue sky with with 0mm of rain in the forecast. The unexpected turn of the weather soaked myself and two team members as we frantically placed the camera and telemetry radio in plastic bags to keep the valuable equipment dry and functional.

Less than 10 minutes later, the rain cleared up, and the wound treatment was a quick and efficient success. But despite the success of this mission, consider how dependent we were on technology to get us to that point, and how the delays caused by technological failure led to us still being out in the field when the weather changed, further risking our equipment.

Experiences like this are a valuable reminder of the importance of underlying infrastructure and technological basics that we often take for granted.

And furthermore, consider how, on this occasion, the GPS/VHF collar and radio telemetry - conservation technologies that are still developing and advancing - were far more reliable and effective than the age-old technology of electricity, cell phones, and two-way radios. We may expect our high-tech tools to have a higher capacity for failure than the tried-and-true everyday methods, but experiences like this are a valuable reminder of the importance of underlying infrastructure and technological basics that we often take for granted.

Without ensuring that basic technological needs are met, even the most cutting-edge, top-of-the-line, otherwise effective technologies will also be at risk for failure. This perspective is especially important for those working in protected spaces with rangers and teams on-the-ground. Their long-term ability to deploy, use, and maintain new technological tools in their work may be severely impacted by such simple issues as connectivity infrastructure in the region, a factor over which they have no control.

The restrictions and discomfort with sharing firsthand experiences with peers on other reserves and parks are shortfalls in our industry, particularly when they are not positive experiences and hence interpreted as failures. It's actually one of the biggest problems in wildlife management and conservation, that the politics and secrecy at the



Our patient recovers after communications failures led to a brief delay in treatment.

top of some of these critical parks and reserves prevent operators from openly discussing their successes and challenges so others can learn from them.

As it is, many of my personal stories about overcoming or dealing with what others may view as failure may only be shared with others in my network on a one-on-one basis, and this experience is not unusual for those working in protected spaces. Just as some scientists and reviewers don't like papers reporting the acceptance of the null hypothesis, few want to publicly discuss management failures or oversights, even if

withholding those stories dooms someone else to encounter the same problems.

But all of these experiences teach us what works, what should not be repeated, and where we can improve. It could save an ecologist or researcher on another reserve having to tackle the same process of trial and error, saving funds and time. While improving basic infrastructure and technological tools can make a huge difference to our work, changing our culture surrounding experiences with failures also has enormous potential to change the way we do conservation work for the better.

ABOUT THE AUTHOR



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Gayle Pedersen is a South African large mammal ecologist who specialises in rhinos and has over 20 years of research, field and laboratory experience spanning 4 continents. Her primary interests lie in wildlife management, illegal wildlife trade, and conservation genetics, with a focus on building collaborations, developing innovative and community-based approaches in response to evolving conservation challenges, and changing the mindset of otherwise disenfranchised stakeholders.