

The Invisible Camera

by IAWF member **Mateo Willis**

EXT. THE HIMALAYAS IN WINTER - MOUNTAIN RIDGE - DAY

An empty landscape. Wind-blown snow.

A time-code counter in the corner of the screen reads Clip 28: 00.02.56.00...00.02.59.00. End.

3 minutes of nothing.

CUT TO: A cameraman shivers against the slight windbreak of a small boulder, his snow-encrusted face watching playback on a DSLR cradled in gloved hands. Clip 29, clip 30, clip 31. Nothing.

Days of effort and months of waiting have preceded this moment.

Clip 32. A shadow appears around a distant corner.

Silently, with purpose, a snow leopard pads into view and stops. It sniffs the air. Three paces forward - directly towards camera. Uncertain but curious. Even on the small screen of the DSLR its scarred face is clearly visible. A male patrolling his territory.

The snow leopard sniffs the camera like a house cat investigating a new piece of furniture. It rubs against the lens with its cheek, completely obscuring the frame. Covering it in its scent.

The large cat resumes its lonely journey along the mountain ridge and out of sight.

Relief.



Scenes like the script on the left have occurred frequently in my career as a wildlife cameraman, working for the BBC's Natural History Unit, National Geographic, Discovery and Netflix. I film with a range of tools: from long lenses to Steadicams to helicopter-mounted Cineflexes. But I started out in the business with camera traps and often return to them. At times they have felt like the proverbial albatross around my neck, at others a unique privilege.

Camera traps

A camera trap is any camera activated by its subject without the presence of an operator. This category includes a large range of systems of varying complexity. At one end of the spectrum are motion-activated security cameras with both day and night vision, face detection software and robotic motion-tracking capabilities. At the other end are the smaller, simpler units often used by biologists conducting field research. These are robust, easy to install, relatively cheap and can run for months unattended.

However, there are no commercially available products suitable for blue-chip wildlife filming, so the systems I use are custom-made by specialist engineers. I have found DSLRs to be the most suitable image-capturing devices - a trade-off between quality, cost and durability. Timers, motion sensors and long-term power supplies are then added to complete the system.

Given the high cost of camera traps and the long period of time they need to be on location - often months or years - there are frequently cheaper and more suitable options to film a subject. But sometimes camera traps are the only viable method particularly for large, endangered carnivores. Hundreds of years of persecution have meant these animals have adapted their behaviour to become as invisible as possible: mostly nocturnal, seeking cover when possible and avoiding all contact with humans. This is particularly true of leopards, an animal I have filmed for over a quarter of a century. They are generalists, able to tolerate a wide variety of habitats and food sources. Smart, cautious and adaptable, they can live in very remote, inhospitable parts of the planet. Consequently they are often very hard to film.

Photographing leopards as a teenager

I first started filming leopards with camera traps when I was a teenager as my father is a keen amateur wildlife photographer. As a boy I would spend my holidays helping him set up homemade camera traps to capture still images of the Arabian leopard in the mountains of Arabia, where we lived.

As you can imagine, those early efforts were relatively basic. There were no camera traps commercially available and so my father made a system based around a Nikon F2 stills camera. The triggers were pressure plates made by sandwiching a contact switch between two sheets of plywood. However, these proved less than ideal. A wandering camel could easily crush the switch and termites often found the plywood a tasty addition to their sparse, desert diet.

Passive infrared (IR) triggers developed for biological research proved more practical. An IR transmitter and a receiver would be placed across a trail. Any animal breaking the invisible beam would activate the camera. It took a long time to work out the ideal sensitivity to set the triggers: too high and even dust in the air could cause a false trigger, too low and the only animals captured were camels. Herds of grazing camels presented one of our largest problems - 60 pairs of legs would burn through a roll of film in no time! The only reward for my father's months of effort would be an archive of knobby knees.

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Camera traps can often reveal completely natural behaviour, unaffected by human presence - the holy grail of wildlife filming.

Top: Arabian leopard sniffs pressure plate
Bottom: Camels investigating the camera traps

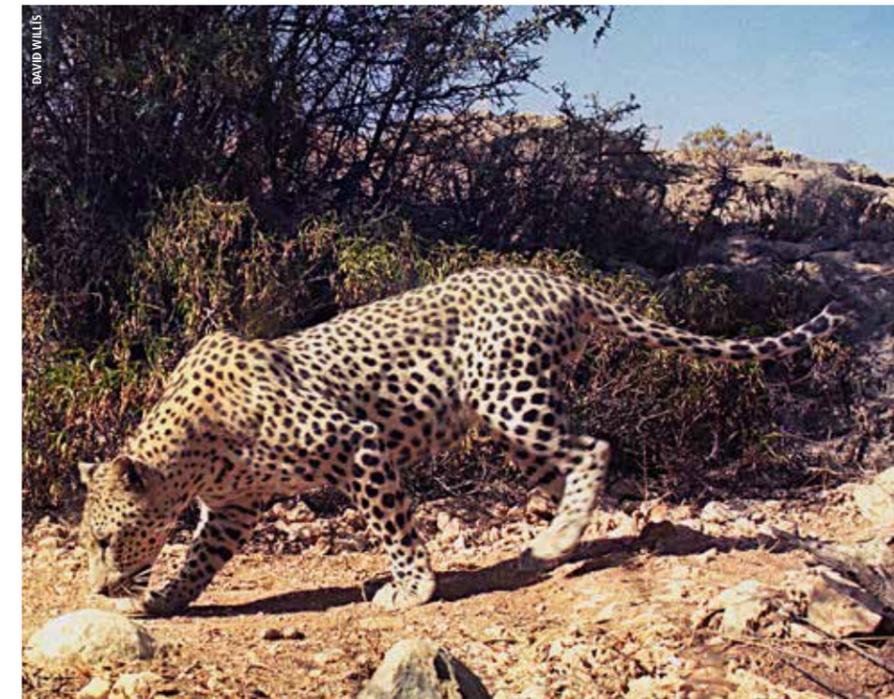
But slowly, after years of expeditions into an area of remote mountains, my father began to build up a collection of photos, and later video, that included the first shots of the Arabian leopards ever taken in the wild. In the initial images the animal would often appear surprised or curious about the cameras but would soon return to normal behaviour, quickly accepting these strange yet harmless objects in their landscape. The cameras also captured other secretive animals that used the same trails: striped hyena, the Arabian wolf, honey badgers, ibex, foxes... and more camels.

Choosing the best position

Over time we built up the experience that allowed us to visualise the complexities of the landscape over long periods of time. When setting up camera traps we had to take into consideration the position of the sun at all

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IMAGES:

- 1 Mateo and his father David Willis
- 2 Camera trap rigged on path
- 3 Bringing the traps in by camel
- 4 Mateo adjusting the cameras
- 5 An early model
- 6 An Arabian striped hyena is surprised

times of day, the most effective location for the solar panels to charge the batteries and the most likely path the animals would take. Also critical was whether the camera was in the optimum position to capture the animal and the background in a single shot, given the dynamic range of the camera, the exposure setting and the resulting depth of field.

An understanding of animal behaviour was also critical. Apex predators in particular will show a strong preference for nocturnal, diurnal or crepuscular (dawn and dusk) activity depending on seasonal temperatures. Individual animals will often travel in one direction only along a path – which is important to know in order to avoid a constant stream of back-end shots. We often used to seek out suitable overhanging rocks, which are great sites for camera traps as the leopards tend to use them as message boards for other leopards. Here they would often scent-mark, scrape, roll in the dust and even vocalise, advertising their dominance or reproductive status.

My specialisation in camera traps gave me an introduction into the wildlife filming business, which I then developed into a broader range of skills. This has provided opportunities to work on productions ranging from smaller three-part series produced by the BBC's Natural History Unit, such as *Wild Arabia* and *Atlantic* up to large blue-chip series such as *Human Planet*, *Frozen Planet*, *North America* and *Life Story*.

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These days the greatest challenge in capturing images of these rare and beautiful animals is not the sun, rain, dust, heat, cold, rodents, termites or camels... the animal most likely to be caught peering into my lens is a curious human being.

Highs and lows

Despite years of experience with camera traps, I frequently still find them frustrating contraptions and using them not without its challenges. I have cursed over rodent-gnawed cables in Brazil, found scorpions nesting under camera stands in the deserts of Arabia and endured frostnip in a Himalayan winter. Once, in Mexico, the perfect spot to film jaguars against a river setting turned out to reveal a hidden marijuana plantation with several menacing attendants who 'encouraged' us to leave!

However, the occasional successes more than make up for the hardships. Camera traps can often reveal completely natural behaviour, unaffected by human presence – the holy grail of wildlife filming. Key to this success is both involving and educating the people who live and work in the filming locations, often scientists and field researchers studying the subject animal. Their knowledge of its habitat, habits, behaviours and individual preferences make the difference between failure and success.

Thankfully, camera traps are improving all the time. The move to solid-state digital acquisition and the reduction in moving parts have made current systems more robust and reliable. Camera-based software, mobile phone network coverage and inbuilt Wi-Fi offer a range of possibilities waiting to be developed.

Unfortunately though, as technology improves, the opportunities to film the natural world undisturbed are steadily diminishing. Currently I am coming to the end of a three-year project filming snow leopards, I'm halfway through a film on jaguars and have just begun deploying camera traps to once again film the Arabian leopard. In each case, the greatest challenge in capturing images of these rare and beautiful animals is not the sun, rain, dust, heat, cold, rodents, termites or camels. The animal most likely to be caught peering into my lens is a curious human being.



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Fact File

Mateo Willis has worked as a cameraman on wildlife series such as *Frozen Planet*, *Life Story* and the upcoming *Our Planet*. He can be contacted at: mw@mateowillis.com