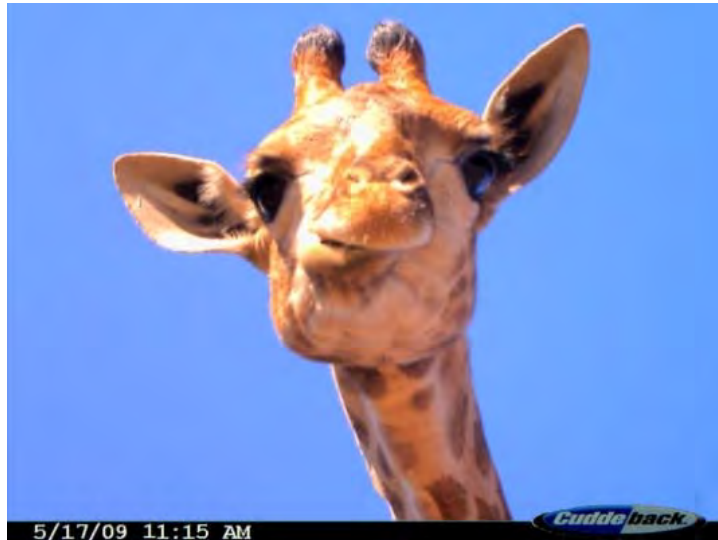


Est. 2007



YOUR PATIENT WITNESS

BUYER'S GUIDE for CAMERA TRAPS



HOW TO CHOOSE CAMERA TRAPS FOR YOUR SPECIFIC NEEDS...?

The Camera Trap industry offers a lot of cheap cameras traps and unfortunately, they are not all reliable or quality products. Because CAMERA TRAPS cc is the largest distributor of cameras traps / trail cameras / game cameras and accessories in Africa, we only offer proven and reliable products.

Below you will find the explanations of a number of important camera trap features that we feel will greatly assist you in choosing the correct camera trap for your specific needs. You may even discover a feature you didn't even know existed. If nothing else, it will make you more knowledgeable on camera traps.

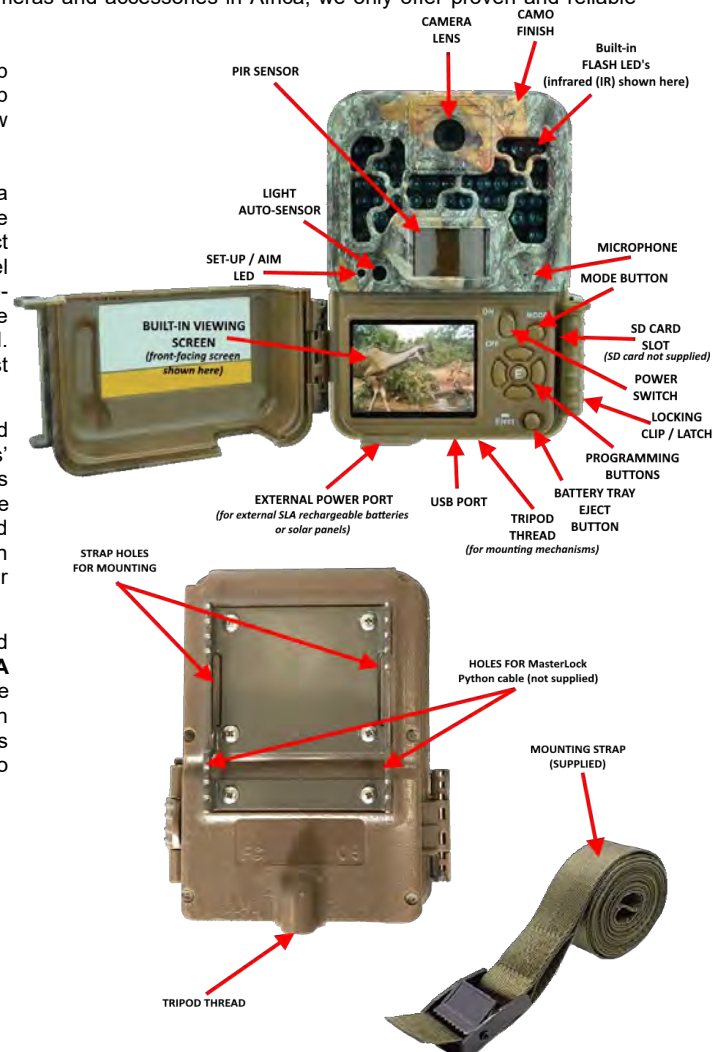
Some of these features are as easy as black and white. For example: a camera trap either comes with a built-in viewing screen to view recorder footage in the field - or it doesn't. However, some are much harder to evaluate. A perfect example is resolution. Many manufacturers will list a camera traps' mega pixel rating, but will not disclose if this is achieved through software-aided interpolation. If you purchase a camera trap based only on the manufacturer's claimed mega pixel rating there's a good chance you'll be misled. You might also miss out on a great camera trap whose manufacturer was honest about the true resolution of their product.

Since 2005, we have been constantly testing and adding new models / and discontinuing unreliable ones that do not meet our own strict, or our clients' expectations. With so many makes and models to choose from worldwide, it's comforting to know that the ones we offer are the better of the bunch and have been tested by us and our clients in our harsh conditions. We are Authorized Agents for these makes and models and we can also be certain that what's on offer will suite your specific needs. If not, we will happily source it for you from our extensive range of overseas based suppliers.

All units carry the manufacturer's warranty and each camera traps' detailed features are listed under the product description for each model (**CAMERA TRAP INFORMATION SHEET**). We also encourage you to closely examine and compare the actual photos taken by each camera trap provided on our website (www.cameratraps.co.za) in our **ANNUAL Photo Contest** Entries which are also displayed on our website. Finally, we are always available to provide any additional information or expert advice.

Have fun choosing your camera trap,

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1. FLASH TYPE

This has emerged as the biggest debate in the industry. Some models now even have Dual or interchangeable flash types but the **4 MAIN types** of flashes are;

1. **STROBE Flash** – colour images during the day & night
2. **WHITE LED Flash** – colour images during the day & night
3. **INFRARED or RED (LOW) GLOW** – colour images during the day and black & white images at night
4. **BLACK FLASH or NO GLOW** – colour images during the day and black & white images at night

This is a good place to start when deciding on a camera trap for your needs as the flash type will determine the type of night-time footage recorded (everything recorded during the day will be in colour). The camera trap's built-in flash is only activated when the trap senses there is insufficient light to record an image / video clip – e.g. at night or in a dark wooded / forest environment. During the daytime, sunlight usually provides sufficient light so the flash will be rarely used (except in very overcast conditions).

Before we get much further, let's highlight some of the key points about each type of flash. When contemplating what type of flash you think you may need, you might like consider the following:

- **Infrared / Black Flash** and **White LED** flashes use considerably less battery power than **strobe** flashes.
- **Infrared / Black Flash** and **White LED** flashes are able to recover and trigger again much quicker in burst mode than **strobe** flashes.
- **Infrared** flashes themselves are invisible and don't spook animals / criminals and can't be seen unless looking directly at the flash emitters as they do glow slightly red when the flash is activated (**Black Flash** models are however completely invisible meaning that the emitters do not glow slightly red at all).
- **Infrared / Black & White LED** flash units can be prone to image **'motion blur'**



MOTION BLUR – In low light conditions (mostly at night), if a subject is moving briskly past a camera trap is the flash gets activated, the images are often blurred.

TIP: Rather use VIDEO MODE as this shines a constant 'light' on the target area greatly reducing motion blur. Also try position the unit where the subjects may be more stationary, like at a watering hole or a fence crossing. Newer models also have features built in to minimize motion blur.



- The picture quality of **strobe** and **White LED** is far superior to **infrared / Black Flash**. Manufacturers have been hard at work addressing the clarity and resolution of black & white **infrared / Black Flash** images and as a result have brought out **HD (High Definition)** models that take excellent quality, clear night-time black & white pics / video clips.

Infrared or **Black Flash** models are recommended in areas where there is hunting / poaching as game tends to be more skittish here and the flash is invisible to wildlife (and humans). If there is a lot of foot traffic / trespassers that occurs in the area that you want to set up a camera trap, then **infrared** or **Black Flash** models are also recommended as a bright **strobe** or **White LED** flash may give the traps position away and bring unnecessary attention to it. If this is not an issue for you and you are looking for good colour picture quality day & night then we would recommend a **strobe** or **White LED** flash model.

STROBE vs. WHITE LED vs. INFRARED vs. BLACK FLASH

1. Strobe Flash model

- Captures colour images / videos during the day & **ONLY** colour IMAGES at night
- Night-time resolution & quality are excellent (colour images)
- Uses more battery power than **infrared / Black Flash** and **White LED**
- Recovery time for next activation is slower than **infrared / Black Flash** and **White LED**
- Can spook some game
- Can deter some animals from entering camera trap area (this has been shown to be non-permanent however)
- Can attract attention of other humans to camera trap's location when activated at night



2. **White LED Flash model**

- Captures colour images / videos during the day & colour images & Colour VIDEOS at night
- Can be prone to slight image **'motion blur'** (if subject is moving fast)
- Resolution & quality are generally better
- Night images / video clips may be prone to **'motion blur'** (if subject is moving fast)
- Uses the same energy as **infrared / Black Flash** units
- Battery life is better than **strobe** flash models and comparable to **infrared / Black Flash** models
- Recovery time for next activation is the same as **infrared / Black Flash** models
- Can spook some game
- Can deter some animals from entering camera trap area (this has been shown to be non-permanent however)
- Can attract attention of other humans to camera trap's location



Infrared or Red Glow Flash model

- Captures colour images / videos during the day & black and white images / videos at night
- Can be prone to **'motion blur'** (if subject is moving fast)
- **Infrared** flash will not draw the attention to the camera trap unless one were looking directly at the flash emitters as they do glow slightly red only when the flash is activated at night.
- Nighttime resolution and quality generally less than **strobe / White LED** but new **HD (High Definition)** models have improved this resolution
- Requires very little power to operate therefore battery life is increased compared to strobe flash units
- Recovery time is generally faster than strobe
- **Infrared** flash doesn't spook game
- **Infrared** flash doesn't deter animals from entering a camera trap area

Black Flash or No Glow model

- Captures colour images / videos during the day & black and white images / videos at night
- Can be prone to **'motion blur'** (if subject is moving fast)
- **Black Flash** will not draw the attention to the camera trap at all as the flash emitters **DO NOT** glow slightly red when the flash is activated at night.
- Nighttime resolution and quality generally less than **strobe / White LED** but new **HD (High Definition)** models have much improved this resolution
- Requires very little power and no surge
- Battery life is increased compared to incandescent (strobe)
- Trigger time is faster than incandescent (strobe)
- **Black Flash** doesn't spook game
- **Black Flash** doesn't deter animals from entering a camera trap area



Do Standard Strobe or White LED flashes spook game?

After testing dozens of different camera traps in every setting imaginable, it showed us that in some cases, standard **Strobe** and **White LED** flashes did spook some animals. Having said this, it also showed that after time these same animals returned to the area and seemed accustomed to the bright flash. It also showed that some animals were completely unaffected by the bright flash. In fact, we have seen numerous animals visit a **Strobe** and **White LED** camera trap site repeatedly and behave as if they were posing for the camera (the animals may associate a bright flash with lightning). However, the fact remains that **Strobe** and **White LED** flashes do spook some animals.



2. IMAGE / VIDEO QUALITY (LENS)

Firstly, don't be fooled by high megapixel (MP) numbers that brands display. Many will try and convince you that the higher the MP – the better quality the image / video. In truth, it's got to do more with the quality of the camera traps' lens and image sensor.

The best way to judge the picture quality from a camera is to look at the sample photos from our **ANNUAL Photo Contest** Entries. We judge pictures by their clarity, colour, contrast and resolution.

These two pictures (taken during the day by Black Flash / No Glow models) have excellent clarity (and colour for that matter).



Night photos can be more complicated due to the different flash types that affect the night pictures (explained above – [strobe flash](#) / [white LED flash](#) infrared (red glow) / Black Flash (No glow). Infrared & Black Flash cameras produce black and white night-time footage like the picture below left, while strobe or white LED cameras produce colour night footage like the one below right.



3. DETECTION CIRCUIT (PIR)

The detection circuit of a camera trap is what will actually detect the animal / subject. Camera traps are triggered, based on a combination of heat and motion detected by the built in Passive Infrared (PIR) sensor.

The quality of a camera traps' Detection circuits consist of a combination of:

- Detection Zone
- Trigger Speed
- Recovery Time

Detection Zone

Every camera trap PIR sensor has a Detection Zone. A Detection Zone is the area in front of the camera that the PIR sensor is "seeing" or "monitoring." The two factors that determine this detection zone are Detection Range and Detection Width.

Detection Range

It is important to keep the detection range (distance from the camera trap) in mind when buying and using your camera trap. Most camera traps have a maximum detection distance of about 20-30m.

Long detection ranges are beneficial if you want to cover larger areas but for smaller areas (less than 15m), then long detection ranges can be a limitation potentially causing false triggers from movement (like vegetation etc.) in the background. Some cameras have adjustable detection ranges which may be something to look for too.

Detection range can also be adversely affected by weather conditions (very hot, cold or rainy conditions) making it challenging for the camera trap to detect the animal's body heat or distinguish the body heat from the backgrounds.



Detection Zone Width

The detection zone width of the PIR sensor is one of the most important properties of a camera trap and plays a major role in how the camera can be used. There really isn't a perfect detection zone width but in general, wider detection zone widths reduce the chance of animals / subjects being missed. Narrow detection zone widths might miss a few animals / subjects, but those that are detected should be well placed in the center of the photograph. As a rule of thumb – A narrow detection zone width usually has a faster trigger speed (useful when camera trapping in dense vegetation or perpendicular to a game path etc.)

Trigger Speed

Trigger speed is the time delay the camera takes to trigger once an animal / subject has interrupted the infrared beam within the camera's detection zone. This delay varies between different models* but given the relatively narrow field of view of most camera trap lenses (45° - 60°), a slower trigger speed isn't really the best for photographing fast moving animals. Thus, depending on your goals and the target subject, this time delay could be a crucial characteristic to consider. For example, if a camera is set up at a random location for a wildlife survey, fast moving animals are likely to pass in front of the camera trap without stopping. In this case, a very reactive camera trap (with a fast trigger speed) would be necessary so it could shoot pictures of the detected animal before it left the camera's field of view. If the trigger speed is too slow, the camera may frame only a part of the animal or may even take empty pictures (pictures not showing what the beam has detected).

Units with slower trigger speeds can also be effective however for example, if a camera is installed in front of a bird nest, a bait, waterhole or a lure as visiting animals are more likely to stay longer (to either depredate / utilise the nest, drink, or interact with the bait) and to trigger more photographs - even if the camera has a relatively long time delay (low reactivity). Using lures to attract large carnivores can also allow a better identification of individuals. This risk of taking empty pictures does not only depend on the speed of the camera in taking a picture; the detection zone as well as the field of view are also primary criteria to consider.

(Use of camera traps for wildlife studies. A review - Franck Trollet (1), Marie-Claude Huynen (1), Cédric Vermeulen (2), Alain Hambuckers (1) - February 11, 2014)

*Most camera traps today have a trigger speed from 0.07 sec to 0.8 sec. Some also have adjustable trigger speeds.

Recovery Time

Recovery time is the amount of time necessary for the camera to prepare to shoot the next picture after the previous one has been recorded. Given the wide differences in recovery time for different models, this characteristic must be taken into account, as it can be a very important aspect depending on your camera trapping goals. A camera able to take numerous pictures within a few seconds (BURST MODE) is very useful when needing to record a complete sequence of a feeding behavior and to note the number of fruits manipulated etc. or for security purposes when more images is better than fewer. Also, having different views of a species of carnivore / criminal can greatly help in the process of identifying individuals. By contrast, when the aim is only to carry out a diversity census and only one picture per species is needed, a slow recovery time will be less problematic. (Use of camera traps for wildlife studies. A review - Franck Trollet (1), Marie-Claude Huynen (1), Cédric Vermeulen (2), Alain Hambuckers (1) - February 11, 2014)

The Field of View (FOV)

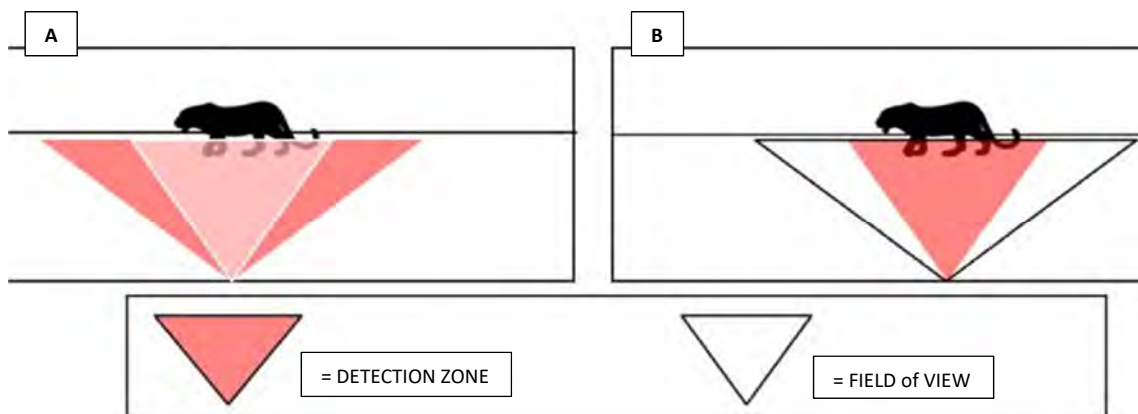
The field of view is the zone covered by the camera lens, and which appears on the pictures. The field of view is generally 45° - 60°. The detection zone can vary greatly according to the brand and the model. We thus find models with a detection zone wider than the field of view and models with the detection zone narrower than the field of view.

Where the detection zone is wider than the field of view (**Figure 1A**), the advantage lies in being better able to capture faster moving animals. The limitation in this case is that the camera is also likely to take more empty pictures when animals enter the detection zone (thus passing through the infrared beam and triggering the camera) but without making it into the field of view.

Where the detection zone is narrower than the field of view (**Figure 1B**), the detection zone is centered relative to the field of view of the camera, and so the advantage can be seen in gaining well centered pictures. These units usually have faster trigger speeds as well. This can be very useful for the identification of smaller subjects. However, the limitation in this case is that relatively fewer pictures per visit can be shot, as animals are likely to occupy the field of view without crossing the detection zone. The detection zone can be described with a given width (angle) and a given distance from the camera at which it will detect an animal. The detection distance of a camera is an important aspect to consider when focusing on animal species of either large or small body mass. Larger animals will be more easily detected at further distances than smaller animals. However, speed of movement seems to be less correlated with detection distance (Rowcliffe et al., 2011).

Figure 1 (below). Diagram of the field of view and of the detection zone for two types of camera trap

- A. Detection zone wider than the field of view
- B. Detection zone narrower than the field of view



4. BURST MODE / MULTIPLE TRIGGERS PER ACTIVATION

This tells you if certain camera trap models are capable of capturing multiple consecutive images / video clips (consecutively) in a short space of time. The purpose of this feature is to try to capture as much activity during a camera trap triggering. The classic example of this is the ram chasing a doe scenario. Please note that not all models use the same technology to achieve this. Some simply take three evenly spaced shots after the first triggering. Other models disable the time-out function and allow multiple triggers with no time out period.



5. VIDEO CLIPS

This describes whether or not the camera trap is capable of capturing video clips and if so lists day, night and video clip length. Note: some camera trap models only offer fixed-length settings, some offer user-programmable video length settings and some also have 'Smart' video which will keep recording the clip as long as the PIR sensor detects a subject (up to a max length however). **Strobe** flash models can only take colour video clips during the daytime. **Infrared & Black Flash** models will take colour video clips during the day and black & white clips at night-time. **White LED** flash models will take colour video clips during the day and ALSO [colour video clips at night](#).

6. BUILT-IN IMAGE VIEWING SCREEN

Some cameras have internal built-in viewing screens for proper camera setup and footage review in the field which for some is a great feature. Please note that for more accurate setups, cameras with front-facing built-in viewing screens will show you precisely where the lens is aiming in setup mode (see right).



Book style built-in viewing screen



front-facing built-in viewing screen

7. WHICH INTERNAL BATTERY TYPE TO USE...?

Always use the best batteries you can afford and we would recommend **Energizer** or **Duracell** brands.

Never mix battery brands, different types or new and old batteries.

[Please also read INTERNAL / EXTERNAL / RECHARGEABLE POWER SOURCE options document]

Alkaline (single-use)

- ✓ These are the normal batteries you can find at most shops.
- ✓ Always use a well-known brand like **Energizer** or **Duracell**.
- ✓ Not environmentally-friendly / last fairly long and are reasonably cheap - but they are single-use batteries so once depleted they will need to be replaced.



1.5V Lithium (single-use)

- ✓ More expensive than Alkaline batteries.
- ✓ Also not environmentally-friendly but have exceptional & constant power output and last much longer than Alkaline batteries.
- ✓ Are also single-use batteries so once depleted they will need to be replaced.



Rechargeable (1.2v) Nickel-Metal Hydride (NiMH)

- ✓ Are environmentally-friendly but are all only 1.2V whereas Alkaline and Lithium batteries are all 1.5V which provides the better / correct voltage to camera traps.
- ✓ Can be re-charged and re-used, but are more expensive to purchase & replace when the time arises.
- ✓ Make sure to use high quality NiMH batteries or you will run into issues with the batteries not generating enough voltage.
- ✓ NiMH batteries dis-charge faster than single-use Alkaline and Lithium batteries, even when they are not being used.
- ✓ Specialised NiMH chargers are required for these rechargeable (1.2v) NiMH batteries.



Rechargeable (1.5v) Lithium ion (Li-ion) - BEST

- ✓ Are environmentally-friendly and are all 1.5V which provides the better / correct voltage to camera traps.
- ✓ Can be re-charged and re-used, but are more expensive to purchase & replace when the time arises.
- ✓ Li-ion (1.5v) rechargeable batteries dis-charge much slower than NiMH (1.2v) rechargeable batteries.
- ✓ Specialised Li-ion chargers are required for these rechargeable (1.5v) Li-ion batteries.

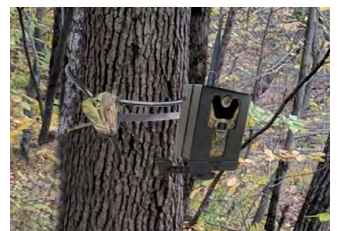
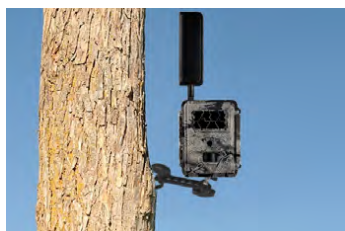


8. WHICH EXTERNAL BATTERY TYPE / POWER SOURCE TO USE...?

[Please read INTERNAL / EXTERNAL / RECHARGEABLE POWER SOURCE options document]

9. AIMING / MOUNTING...

Most (if not all) camera traps come standard with mounting device threads built into them and we have various aiming mounts available that, although not essential, certainly do assist in the more precise aiming / mounting of ones camera traps. Specially placed holes in the camera metal security cases also allow for these mounting devices and they are also most helpful when cameras are positioned in hard-to-access places like up trees etc.





10. DO I NEED CELLULAR CAPABILITIES...?

If you are looking for a camera trap that can instantly transmit triggered pictures / video clips of its activations, then a cellular camera trap may be worth spending that extra bit on.

Cellular camera traps have proved themselves in security and anti-poaching applications.

How Does a Cellular Camera Trap Work?

Each camera is different, however, once the camera is programmed and the correct cell network SIM card is activated, the camera will send you images or short 5sec / 10 sec video clips of what it has just. Most cameras send the footage in roughly 10-20 seconds (depending on the cell signal strength where the camera trap is located). It can be sent to email address' or online cloud hosting services which are linked to mobile App's.

Cellular camera traps will send footage to any phone, regardless of the network carrier. The camera will also need the correct programming to know where to send the footage. In order for the camera to work, you will need a minimum of 3 bars of service from the desired carrier. Booster antennas are also available to assist in gaining signal strength.

WHY USE A CAMERA TRAP...?

- **Satisfy your curiosity**

Since I was young, I have always wanted to know what runs around when I was not there – be it in the bush or even at home. I purchased my first camera trap and immediately set it up. When I went to retrieve it 3 days later – there were 63 photos on it. It was like opening a Christmas present to see what exactly passed by the trap over those 3 days. You can pick up a lot from spoor but a lot gets covered by fresh animal activity – and to get hard evidence of the subjects was like satisfying a curiosity that I had had since a very young age.

- **Discover illusive Animals**

It was my third setup however that got me hooked for life. I was standing in a dry riverbed in a game reserve in Limpopo. I had my laptop with me and saw that there were 27 photos on the camera trap's LCD display. My excitement mounted as I connected the USB cable into the camera trap to begin downloading the pics. This is the pic that got me hooked for life as it's my favorite animal species and no-one on the reserve had managed to get a picture of him – until now. Camera traps can also be used for monitoring the following;

- **Security / Anti-poaching & Trespassers**
- **Wildlife Research**
- **Recreation / Travel / Camping**
- **Measure Food Lots, Licks & Feeder Success**
- **Farm / Game Farm Management**
- **Track Specific Animals (wildlife management)**
- **Pattern Game Behavior**
- **Learn how to manage your property**



This topic is pretty self-explanatory. I have to mention that using camera traps for this purpose was useless until the advent of **Infrared & Black Flash** units. With today's camouflaged **Infrared & Black Flash** units it's possible to now place a camera trap without trespassers ever seeing it.

For more information, please feel free to contact us.

Regards,

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