

How a little herd of docile little impala can test you....

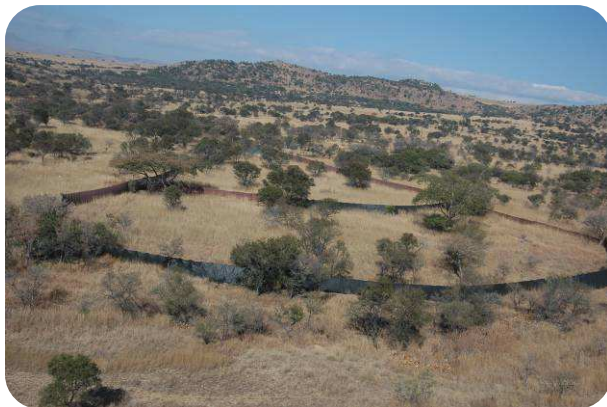
Written by John Bassi, as published in the SAFlyer magazine, October 2006

The demands on a pilot to accomplish a successful Impala capture is in my opinion one of the ultimate challenges that requires total focus for as long as it takes. The flying is hectic, the amount of maneuvering and the concentration required is totally draining and while the feeling of achievement when you manage to outwit and actually capture them is pure adrenalin, the low if you fail after hours of hard work can be devastating!

Step back all humans who think that those innocent looking little Bambi-like creatures are gentle and harmless. An Impala, for the unacquainted, and for those who prefer "die taal", is also referred to as the "rooibok". It is a common, mid-sized buck, not quite an antelope but also not quite a gazelle. Before we go any further, they also have a monetary value, one female Impala sells for an average of R500.00 whilst a good breeding ram goes for around R800.00. Those in the hunting business can expect to pay R1 750.00 for a descent trophy ram, which, incidentally would weigh around 60 kilograms and have a lethal pair of curled back, outward then upward pointing horns measuring up to 0.85 meters. Impala live in social groups so if you manage to sell a typical herd of 100 Impala they will bring in around R50 000.00 +.

Impala are also are darted from the ground, all year round and on an ongoing basis, by State Veterinarians taking blood samples to test for foot and mouth disease. As susceptible carriers, they act as a good benchmark to monitor the general stability of the disease, which may give a warning of a new outbreak that could spread to cattle.

Carnivorous human bakkie-vreeters know that Impala make great biltong, stew and roasts, while predators like hyena can't resist snacking on Impala lambs that weigh about 5 kilograms at birth. To a lion they make a great starter. My point is that besides watching them twitch, flitter and gaze aimlessly at far away nothingness whilst on a game drive, impala have a value and a demand, which means that humans like trading money for Impala, and/or Impala for money. This can be bad news for the Impala but good news for farmers and helicopter pilots.



Of all the bushveld animals, no other species has such an astute, tuned in, weary, hyper-alert, built in danger-detecting radar system that borders on positively psychic. Impala live in scrub with short grass, they love thickets of thornveld with interwoven tangled pathways between them and they detest to the point of phobia, moving into open spaces. Like all creatures, Impala have many idiosyncrasies unique to themselves and that is where the fun comes into the mix for any unsuspecting pilot hoping to just simply capture a group of them. Like all animals, and humans on occasion too as I have witnessed, Impala will behave and

react differently to stress when being harassed by a helicopter compared to stress of a natural nature, like predator stress. Individuals within a group have their own personalities, males, females, adults and juveniles each behave in their own way, different herds behave differently to each other and vary depending on locality as well. Pity anyone who tries to make them do what they want them to do if they have not read them properly from the start.

To give you an idea of how these animals think, imagine for a moment that you are going into a shopping mall to buy your favorite aviation magazine in your local bookstore. You don't really need to think any more about how to get there and you automatically walk right up to the shelf holding the S.A.Flyers, but, OH MY GOSH! You look up reaching out and suddenly realize that they have

changed the shop around and that's now where all the porn is kept! (You retreat hastily, looking over your shoulder in awkwardness - I hope?) Well, Impala in the bush are even more familiar with their surroundings and any change in their shopping mall will be detected immediately - but with the added advantage of their superior vision, smell and hearing, as well as some *other 6th* sense.

To accomplish a successful capture one must build a nylon sheet structure in the shape of a funnel, around 150 to 200 meters long and about 50 meters wide at the mouth, tapering down to 1.5 meters or so at the loading ramp. The goal is to hide this boma sufficiently in bush and when the wind is blowing nicely into the open mouth of this big funnel, (so that any impala standing at the mouth can't smell what's there since the wind would be blowing away from them and not toward them.) You then need to go off and locate a suitable herd. This herd is then guided along by the helicopter in a way similar to the way a sheep dog would herd sheep, and brought into the mouth of the boma. They are then pushed until they enter the funnel and are trapped by people bursting out of hiding places, running and closing curtains behind them when the pilot gives a signal. Sounds easy enough!

The best helicopter to use for Impala capture is the R22 or a H30, due to the agile maneuvering required. Both helicopters are light, small and having piston engines, provide a rapid response to engine output when the pilot needs it. There is no doubt in my mind that this type of work in relation to all other types of flying is actually insane and needs to be seriously thought out. It's just one of those facts that if your goal is to capture a herd of impala then you have to make peace with and accept that for the entire duration of the exercise, you and the machine will be exposed to the maximum risk possible with zero margins for a failure or misjudgment. Throw away the height velocity graph because it won't be of any use here. This may sound like a "wind gat" remark, it's not meant to be, it simply means that if you are really serious about efficiently capturing a group of Impala in the bush then accept that you can't do it and still fly according to the manual, any more so than a crop duster can while dive bombing mielies.



The challenge of success after a long and hard drive to the boma, to actually out-whit their sixth-sense, the planning and solid focus and constant observing it takes to stay ahead of the machine and the impala, is what makes this flying so rewarding. Typically I would arrive on the farm with the 22 on a trailer to help keep costs down by avoiding unnecessary ferrying. I prefer to park the trailer on level ground and into wind with a clear open space around it since ground effect is diminished from the height of the trailer. My worst is not being able to find level ground to park on, in which case I opt to rather take off and land down wind than have the left side of the trailer higher than the right. The R22 flies left skid low and landing to the cm on a slanting trailer always results in a bumpy slipping touch down. After an extensively thorough pre-flight it is always nice to lift off the trailer and move into a ground effect hover for a while until satisfied that everything is happy after exposing the helicopter to hours of stresses from our lovely, well maintained, pot holed highways.

As a result of the bumps and holes that are encountered on our tar roads, it often happens that the fuel sender unit in the fuel tank gets damaged and sticks. I have adopted the habit of measuring my fuel with a dip stick and automatically starting a stop watch as soon as the engine fires up. I feel it is much easier and safer to glance at the accumulated time including all the idling on the ground, with a stop watch, than to try and calculate the hobs time. This is especially so in helicopters where the hobs runs off the collective. In game work it's common to sit for extended periods on the ground with the engine running and to lose track of time. With all the hovering checks done, I then fly to the mouth of the boma orientating myself and to get a feel for the most likely entrance. I always hover a few inches above and then move slowly along the length of the front curtain cable, moving to the right keeping my tail rotor moving into my visual area. This helps in blowing up as much dust as possible to try and mask all the human smells and to blow away footprints and unnatural tracks. During this dusting I'm on the lookout for any obvious problems like a freshly cut tree with the new white wood exposed and shining or any other unnatural thing that will spook animals. When satisfied I move 20 to 30 meters away from the mouth and hover again, as low as possible to try and look back at the entrance, looking

from an Impala's perspective and deciding on my route. I like to fly a short mock chase, up to the mouth to see if my planning is right and to get a feel of the wind conditions operating down wind. Then it's time to check the radio comms with the ground crew making sure that everyone is ready. My next step is to fly out, away from the boma mouth, searching the vicinity directly in front, flying progressively wider arcs to look for potential problems like, for example, a female ostrich sitting on her nest. If you didn't see her while inspecting the boma, she'd then suddenly leap up as you're coming along with your merry little group of Impala, scattering far and wide your last hours' worth of hard work! As such, any game in the front is chased away. Climbing to around 150 feet I head off to likely Impala habitat, looking for their dung middens and other tell-tale signs.

Impala are territorial and don't want to leave home. They live in scattered bachelor herds, which are your worst nightmare to capture, or they live in breeding family groups, which are the ideal. They also live in nursery groups after the lambing seasons in May as well as in November, and you also get solitary rams. Rams are always a problem; they are glued to their territory and refuse to cooperate and will often ignore the worst kamikaze efforts from a pilot. They are also preoccupied with sex, or fighting, mostly in September and April, which is the rutting season. Impala can be found in herds up to 200 or more, but most often the herds consist of 30 to 40 animals. They behave well in that they like to stay together following the leader in single file, which is an adult female, or ewe. Given half a chance Impala become like glass marbles spilt on a mirror surface. It's the pilot's job to keep all the marbles together by scooping them back all the time while simultaneously putting sufficient pressure onto the rear of the group to encourage them to move forward. The moment you are scooping up the left flank to stay together, you can be sure that the right, rear and front animals will be starting to roll away, which means you have to try and appear as if you are everywhere at the same time to keep the group intact. This is done by maximizing the use of blade slapping, the rotor downwash to blow up leaves and dust and to make the helicopter look as aggressive as possible. The rules are simple, never get ahead of the group, never allow any of them to run under the helicopter, never block the leader's flight, never split the herd up, and never allow one of them to find a gap and take it. Always watch the leader and guide the rest of the herd according to what the leader is doing. Let the leader run, never, ever try and go near her when she is moving, and push the rest of them as hard as you want so that they follow her. If the leader has gone off bounding in the wrong direction then let her go. When she eventually stops, fly wide and approach her slowly, coming into the hover in front of her to make her re-trace her steps back to her herd, and start scooping again.

While hovering and diving down to push them, it is important to be watching closely all the time, looking for individuals that stand on the outside edge with that far away staring expression. The moment you see one you must fly immediately in front of her to block her gaze, or she will take the gap and go bounding off forever, taking most of the group with her. It is vital to make all turns to the right, not with rudder input, but with the cyclic since this demands less power. The helicopter must be kept moving all the time, momentum keeps kinetic energy harnessed which can be used to get out the dwang. All turns must be made and completed quickly in order to keep the group tightly bunched and to not lose sight of them. The tail must be kept high during all turns and flares, and keeping on the move makes this easier and requires less power. I fly one up, always, and use a manifold pressure of 21 inches as my maximum limit on any maneuver, lowering the lever as soon as I go past 21 inches. I also ignore the governor - during this type of flying I aim to keep the RPM at the top end of the green by overriding the throttle. It's vital to plan ahead, just as a chameleon plans where it's going to snatch prey with just the tip of its tongue, so too must you plan where to dart in and out of gaps in the trees. If you are moving you can keep the aircraft flying but if you stop, that's when you run out of power or start getting into settling with power. The biggest danger is loss of tail rotor control, when low, avoided by keeping a little height to fly out of LTE, use of gentle power and left rudder inputs, keeping the tail rotor flying in clean air by avoiding sideways flight to the right with a wind blowing from the 11 a clock. It sounds worse than it is but like anything there are rules and carefully thought out procedures, it just all happens fast. Needless to say, I have learned a lot about Impala and thanks to them, even more about flying.

