

## SHORT NOTE

## The use of a laser sight for the nocturnal immobilization of free-ranging Lions

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### INTRODUCTION

The immobilization of free-ranging lions *Panthera leo* forms part of various research and management projects in the Etosha National Park, Namibia. Stock-raiding lions are captured by immobilization on private farmland and released in the Park (Stander 1990) while genetic studies and the markings and monitoring of lion numbers necessitate frequent immobilizations.

The accurate placing of darts is important in order to minimize time to recumbency and to prevent excessive tissue damage (Kock 1987). Inaccurate darting is also costly as it results in poor dart recovery and wasted man hours. Problem lions and lions outside tourist areas are usually wary. The use of a spotlight for darting at night often elicits a flight response, resulting in unsuccessful darting or badly placed darts.

In order to increase accuracy and maximize darting success, a compact laser sight was tested for the field immobilization of lions in Etosha N. P.

### MATERIALS AND METHODS

Lions were attracted to a gutted carcass or natural kill and immobilized at night from a vehicle (Van Wyk & Berry 1986; Smuts 1977). Standard darting equipment included 2 ml Palmer Cap-Chur aluminium syringes (Palmer Chemical and Equipment Co., Georgia, U.S.A.) fitted with plastic tail flights (Zoolu Arms of Omaha, 10315 Wright Street, Omaha, Nebraska 68124, U.S.A.). Reflective tape was fitted to the tail flights in order to increase the probability of recovery of projectiles (McKenzie 1989). For long distance darting, 2 ml disposable darts (Pneu-Dart, Williamsport, PA 17703, U.S.A.) were used. A 32-gauge Palmer Cap-Chur rifle fitted with a .22 adaptor was used to project darts over distances ranging from 20 to 50 m. Depending on the darting distance, green or yellow "Stun Load" .22 blanks (Swartklip Products (Pty) Ltd., P.O. Box 977, Cape Town, R.S.A.) were used.

A compact laser sight (Laser Aim, Little Rock, Arkansas, U.S.A.) was fitted under the rifle barrel to keep the sights

clear for daytime immobilizations (Fig. 1). The beam was zeroed at 30 m. The laser beam shows up as a bright red spot of high resolution on the target area and is clearly visible from an hour after sunset to just before sunrise (Fig. 2).

On moonless nights when the target animal could not be seen with the naked eye, an assistant with binoculars was needed to help position the laser beam on the shoulder of the target animal. A 4X telescopic sight fitted to a Model 171 Pneu-Dart rifle solved this problem, and immobilizations could be performed by a single person.



FIGURE 1: Immobilization equipment. 1. Model 171C Pneu-Dart rifle. 2. Laser Aim laser sight. 3. Charging cord for the laser sight. 4. 2 ml Palmer syringe. 5. 2 ml Pneu-Dart disposable syringe. 6. Syringe with reflective tape on the flight.



FIGURE 2: The laser beam shows up as a bright red spot on the target area.

## RESULTS AND DISCUSSION

Thirty seven lions were successfully immobilized at night using the laser sight. Darting distances varied from 25 meters to 50 meters. The lions were completely unaware of the laser beam directed at them and calmed down seconds after being hit. All darts fired hit their targets and resulted in successful immobilization and dart recovery.

Some advantages of using the laser beam method of immobilization over conventional methods are that aiming requires a steady hand to keep the laser spot steady on the target area rather than good marksmanship. Darts are placed accurately at zeroed distances and only slight compensation has to be made at shorter or longer distances. Because no spotlight is required, wary lions are dealt with effectively.

The disadvantage of a laser sight is that it is limited to immobilizations at night. The Laser Aim laser sight had the disadvantage of large mountings which resulted in more compensation to be made outside the zeroed distance compared to the Tasco Laser Point (P.O. Box 520080, Miami, Florida) which fits closer to the gun barrel.

Although relatively expensive, the laser sight was found to be robust provided it was properly secured.

Care should be taken not to point the laser beam at the eyes of animals for long periods, as it may cause irreversible damage to the retina.

## CONCLUSION

The use of a laser sight reduces problems associated with immobilizing lions at night. The method has considerable potential and is recommended where nocturnal remote injection is contemplated.

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## REFERENCES:

- KOCK, R.A. 1987. Remote injection systems: Science and art. *Vet. Rec.* 121: 76-80.
- MCKENZIE, A.A. 1989. Increasing the rate of recovery of projectile syringes and of animals darted at night. *S.A. J. Wildl. Res.* 19: 53-56.
- SMUTS, G.L. 1977. A mass capture technique for lions. *E. Afr. Wildl. J.* 15: 81-87.
- STANDER, P.E. 1990. A suggested strategy for stock-raiding lions in Namibia. *S.A. J. Wildl. Res.* 20: 37-43.
- VAN WYK, T.C. & BERRY, H.H. 1986. Tolazulene as an antagonist in free-living lions immobilized with a ketamine-xylazine combination. *J. S.A. Vet. Ass.* 54: 221-224.