Introduction

The Malilangwe Course on Chemical and Physical Restraint of Wildlife, hosted by The Malilangwe Trust with co-organisation from the Zimbabwe Wildlife Veterinary Trust is a course approved by the Zimbabwe Veterinary Association wildlife group (ZVA-WG) committee for the purposes of training Zimbabweans who wish to apply for Dangerous Drugs Licenses (DDL) in terms of the Dangerous Drugs Act Chapter 15:02. The week-long 2013 edition of the course was convened on Friday 8th February 2013, culminating in examinations for candidates being conducted the following Saturday 17th February 2013.

In testament to its ever expanding international reputation, the course, instructed by a group of the most experienced and knowledgeable wildlife veterinarians in Africa, superbly backed up and supported by hosts Malilangwe, attracted a wide array of candidates from 13 foreign countries including China, UK, Australia, USA and India.
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## Course participants

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<thead>
<tr>
<th>#</th>
<th>SURNAME</th>
<th>1ST NAME</th>
<th>2ND NAME</th>
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<td>3</td>
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<td>Makwehe</td>
<td>Ray</td>
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<td>12</td>
<td>Whittall</td>
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<tr>
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<tr>
<td>17</td>
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<td>18</td>
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<td>“&amp;-Beyond” India</td>
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<td>Kilner</td>
<td>Chris</td>
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<td>Mkulumadzi, Majete National Park</td>
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<td>Pacheco</td>
<td>Maria</td>
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<td>25</td>
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<td>Mark</td>
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<td>26</td>
<td>Gupta</td>
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<td>27</td>
<td>Herbert</td>
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<td>28</td>
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<tr>
<td>29</td>
<td>Salb</td>
<td>Amanda</td>
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<tr>
<td>30</td>
<td>Cresswell</td>
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<td>31</td>
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<td>Joelene</td>
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<td>Researcher - Oxford University</td>
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<td>32</td>
<td>Jun</td>
<td>Wang</td>
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<td>33</td>
<td>Riordan</td>
<td>Philip</td>
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<td>YES</td>
<td>Non-vet</td>
<td>Senior researcher – Oxford University</td>
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</table>

As can be seen from the list of attendees above, all five Zimbabwean “first timers” were veterinarians. There were 12 Zimbabweans undergoing their 5 year mandatory refresher course- with 4 veterinarians, 7 non-vet refreshers and 1 vet student refresher being trained.

Of the international contingent there were 9 veterinarians, 1 vet student and 5 non-vets all with legitimate need for training.
## Course lecturers & organisers

<table>
<thead>
<tr>
<th>No.</th>
<th>Lecturers &amp; Organisers</th>
<th>Title</th>
<th>Institution</th>
<th>Country</th>
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<tbody>
<tr>
<td>1</td>
<td>York Lorna</td>
<td>Course convenor</td>
<td></td>
<td></td>
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<td>2</td>
<td>Foggin Chris</td>
<td>Wild Horizons Trust</td>
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<td>3</td>
<td>Atkinson Mark</td>
<td>WCS AHEAD</td>
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<td>Botswana</td>
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<td>4</td>
<td>Buss Pete</td>
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<td>5</td>
<td>Chaitezvi Columbus</td>
<td>Wildlife Veterinary Unit</td>
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<tr>
<td>6</td>
<td>Cooper Dave</td>
<td>KZN-Ezemvelo</td>
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<td>7</td>
<td>Hofmeyer Markus</td>
<td>RSA National Parks Vet Unit</td>
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<tr>
<td>8</td>
<td>Kock Mike</td>
<td>University of Pretoria, Vet Science</td>
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<tr>
<td>9</td>
<td>La Grange Mike</td>
<td>African Wildlife Management Consultants</td>
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<td>La Grange Nick</td>
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<td>Masterson Chap</td>
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<td>12</td>
<td>McTaggart John</td>
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<td>Miller Michele</td>
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<td>16</td>
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<td>Foggin Greg</td>
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As usual, the course benefitted massively through the participation of hugely experienced and internationally recognised wildlife veterinarians and game capture experts. The willingness of the course instructors to freely share their vast collective experience, knowledge and insights continues to be the foundation upon which the course has deservedly earned a reputation as being the pre-eminent course for the chemical and physical restraint of African Wildlife anywhere in the world.
**Sponsorships**

The 2013 course was fortunate to attract a number of sponsorships for the attendance of veterinarians from various countries.

I. Dr Idrissa Chuma from the Tanzania National Parks Authority (TANAPA) was kindly sponsored by Dr Richard Hoare of the Meserli Foundation based in Tanzania.

II. Dr Stephen Ngulu of Kenyan Wildlife Services (KWS) was sponsored by the Ol Jogi Private Conservancy, Kenya.

III. Dr Harvey Kamboi, of the Zambian Wildlife Authority (ZAWA), although unable to attend in the end, was kindly sponsored by Rachel McNabb of the South Luangwa Predator Project, Zambia.

IV. Sponsorships for three Zimbabwean veterinarians, all from the Division of Veterinary Field Services, Department of Veterinary & Livestock Services, were organised by the Zimbabwe Wildlife Veterinary Trust. The sponsored government veterinarians included:
   i. Dr Tapiwanashe Hanyire of the Wildlife Veterinary Unit, who was trained in the spirit of capacity building as part of the on-going collaborative relationship between the WVU and the Zimbabwe Wildlife Veterinary Trust.
   ii. Dr Wilmot Chikurune, PVO of Mashonaland Central, and
   iii. Dr Mike Nare, DVO of Beitbridge District Veterinary Office.

The latter two candidates were selected according to the fact that their geographic areas of responsibility encompassed designated buffalo reserves so necessitating the training of these officials to be able to cope with emergency situations occasioned by the ‘break-out’ of buffalo from designated fenced areas.

The Zimbabwe Wildlife Veterinary Trust would like to thank various stakeholders and benefactors for their very generous contribution towards sponsorship of these three veterinarians including:

- Mr Blondie Leathem of Bubye Valley Conservancy, Beitbridge District
- Mr Hamish Rudland of Umfurudzi Game Reserve, Mashonaland Central
- Mr Robert Park, Bishoistone Estates, Beitbridge District
- Mr Digby Bristow, Sentinel Ranch, Beitbridge District
- Dr Michael Kock for his very kind allocation of funds from the proceeds of the sale of the Course Manual towards full sponsorship of a candidate.

As per normal policy, all sponsored candidates were required to sit the examination as a demonstration to their benefactors that sponsorships were taken seriously and monies paid on their behalf were well spent.

The organisers would like to extend our most sincere gratitude to all sponsors for their support and are happy to report that not only did all sponsored candidates pass the examination but so too did they apply themselves and participate in all aspects of the course in the most positive manner.
**Course Programme**

As usual the course included a series of theoretical lecture presentations on relevant physiology, pharmacology and species considerations pertaining to physical and chemical restraint of an array of African Wildlife presented by highly experienced and internationally recognised experts. In addition, relevant legal, ethical and regulatory obligations and considerations as well as safety, first aid and procedural best practice were all presented and highlighted.

Theory lectures were augmented and reinforced by a strong practical instruction component. As usual, course attendees were split into 4 groups, each group being led by 2 team lecturers supported by hand-picked team captains experienced in chemical and physical restraint of wildlife. Practical instruction in smaller groups ensures that course attendees receive one-on-one instruction and on-going evaluation throughout the week and the system enables instructors to identify and actively assist those candidates that might be lagging in certain aspects.

Teams were assigned an array of practical tasks which they were expected to complete during general and specific practical sessions. Practical tasks included:

- Instruction in handling and operation of dart guns, firearm safety, handling of dangerous drugs, identification of drug vials, loading and handling of darts, use of ancillary capture equipment, etc.
- Donkey immobilisation. All groups immobilised a donkey- which is a very useful practical for the purposes of teaching anaesthetic monitoring and appropriate response to physiological changes under anaesthesia.
- Immobilisation of wild animals at the Malilangwe Game Pens. Teams were afforded the opportunity to immobilise buffalo, kudu and water-buck for various management procedures ranging from ear-tagging and identification to hoof trimming, routine treatments and sampling.
- Animal handling and immobilisation in mass capture situations- Zebra in a plastic boma and impala in a net boma.
- Iconic species immobilisation. Each group was assigned a different large animal to immobilise in the field. These field practicals, although each being performed by a single team, were conducted as demonstration exercises for the benefit of the entire student group.
- A hippo was also immobilised as an additional practical for demonstration to the entire group of a novel darting and chemical immobilisation technique that is emerging as a useful management tool for this species.

<table>
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<tr>
<th>Practical</th>
<th>TEAM A GIRAFFE</th>
<th>TEAM B RHINO</th>
<th>TEAM C LION</th>
<th>TEAM D ELEPHANT</th>
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<td>Team Lecturer 1</td>
<td>Dr P. Morkel</td>
<td>Dr M. Miller</td>
<td>Dr. D. Cooper</td>
<td>Dr. M. Kock</td>
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<td>Team Lecturer 2</td>
<td>Dr C. Masterson</td>
<td>Dr P. Buss</td>
<td>Dr M. Hofmeyer</td>
<td>Dr M. Atkinson</td>
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<tr>
<td>Team Captain</td>
<td>R. Parry</td>
<td>Dr R. Hoare</td>
<td>Dr K. Doutlow</td>
<td>Dr C. Chaitezvi</td>
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<tr>
<td>Team Captain</td>
<td>B. Stapelkamp</td>
<td>Dr A Heulin</td>
<td>Dr L. Marabini</td>
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<td>Firearm safety officer</td>
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<td>M. la Grange</td>
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<td>J. Mostert</td>
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</table>
| | * Firearms safety  
| | * Handling and operation of darts and dart guns  
| | * Best practice for drugs handling and safety  
| | * Use of ancillary capture equipment  
| Additional Practical | Hippo immobilisation in field- demonstration to entire student group  
| |  

The Malilangwe Trust
Total hours of instruction

In total course participants received:
- 32 hours of theoretical lecture instruction
- 36 hours of practical instruction

**COMMENT** on CPD allocation from Council of Veterinary Surgeons of Zimbabwe (CSVZ):
CSVZ has allocated 10 CPD points for veterinarians attending the course, plus an additional 4 points for those writing the examination. It is submitted that such an allocation is somewhat on the low side given:

i. The high number of hours of quality theoretical and practical instruction by world-renowned experts in the field of wildlife veterinary practice

ii. The need to promote and develop wildlife veterinary capacity within the veterinary fraternity in the country

iii. An absolute lack of alternative CPD instruction in wildlife veterinary practice in Zimbabwe which means that for those vets involved predominantly in wildlife veterinary practice, the course is the main source of CPD instruction available

iv. Requirement for course participants to refresh every 5 years

As ever, the course programme was subject to a number of last minute adjustments and changes to accommodate various practical and logistical limitations and opportunities.

*Please see annexure A for detailed course programme*

**Wednesday 6th & Thursday 7th February 2013**

All relevant permits including darting permits from National Parks and Wildlife Management Authority (ZNPWMA) were organised ahead of time by the Malilangwe Trust and air-force clearance for both the fixed wing spotter plane and helicopter were organised with the very kind assistance of Mr Lovemore Mangwashu of the Lowveld Rhino Trust.

Equipment and consumables were assembled from three main sources being:

i. Equipment paid for by and belonging to the course itself

ii. Equipment and consumables sourced by, or on loan from, the Zimbabwe Wildlife Veterinary Trust

iii. Equipment on loan from, and consumables and drugs purchased from, the Wildlife Veterinary Unit (WVU), Division of Veterinary Field Services. The course organisers are greatly indebted to the WVU for their generous assistance in this regard as well as for their participation in the course itself.

All equipment was checked, serviced and packed ahead of time through the generous input and work of both Jaelle Claypole and Gregory Foggin who also travelled to the venue ahead of time to assist with the setup prior to the start of the course itself.

The organising team (Dr C. Foggin, Ms Jaelle Claypole, Mr G. Foggin, Mrs Lorna York and Dr C. Masterson) travelled from Harare on the 6th Feb 2013 and began setting up & preparing equipment, darting-ranges, notes, lecture theatre, store-room, etc. in anticipation of arrival of the course participants on Friday the 8th.

On Thursday 7th, Mr Collin Wenham, having previously arranged the delivery of the course donkeys and having made arrangements for their watering, feeding and housing, gave Drs Foggin & Masterson a tour and briefing on the darting work needing doing in the Malilangwe Game Pens – including immobilisation of several buffalo (for purposes of individual identification and routine treatments), kudu and water-buck (both for the purpose of identification, hoof trimming and routine treatments).

**Friday 8th February 2013 - Day 0**

After final preparations in the morning, course participants and instructors began arriving and registering from midday onwards.
Dr Chaitezvi of the Wildlife Veterinary Unit, who had travelled to Beitbridge on the previous day, was extremely helpful in personally assisting and expediting the border clearance of South African instructors travelling into Zimbabwe through the dreaded portal and his efficient assistance in this matter is greatly appreciated.

With most participants having arrived and registered by supper time a session of personal introductions was conducted at the dinner table with all candidates and instructors giving a short introduction as to who they were, where they were from, their relevant experience and why they were attending. Course attendees were then introduced to their respective team members and instructors before final announcements for the next morning’s programme were made.

**Saturday 9th February 2013 – Day 1**

After an introductory talk by Dr Chris Foggin at 07hr00, introducing the course, its origins, background and substance an official welcome was extended to all participants by Mr Mark Saunders, CEO of the Malilangwe Trust, who also outlined the various facets and objects of the Malilangwe Trust and its participation in conservation and philanthropic community development not only within the delimitations of the Malilangwe Game Reserve *per se* but also in the surrounding districts within the Greater Limpopo Trans-Frontier Conservation Area and more broadly within Zimbabwe.

The remainder of the morning session was dedicated to instruction in the basic physiology of the nervous, cardiovascular, respiratory and digestive systems relevant to chemical immobilisation of wild animals. Clear and concise physiology lectures were presented by the very experienced Dr Michele Miller and Dr Peter Buss.

After an introductory lecture on basic pharmaco-dynamics and pharmaco-kinetics, presented by Dr Buss, the most salient anatomical and physiological principals were underscored and demonstrated during an impala post mortem conducted by Dr Chris Foggin who provided commentary on pathological considerations with commentaries on physiological and functional anatomical aspects provided by Drs Miller and Buss.

![Image of impala post mortem demonstration lecture, highlighting anatomical, physiological and pathological considerations. Photos courtesy Mrs Lorna York.](image)

The afternoon session of the first day was dedicated to practical instruction in firearm and dart-gun operation and safety introduced and led by an informative lecture from Mr Mike la Grange before participants were banded into their respective teams for practical training on this all important aspect of instruction.

Formal instruction was adjourned at 17hr30 whereupon all instructors and candidates met at the old airfield for a team-building and ice-breaking exercise in the form of a round-robin soccer tournament between the four teams with Team A taking top honours in a hard-fought tournament.
Sunday 10th February 2013 – Day 2

After coffee at 05hr00, the second day of the course proper kicked off with a 05hr30 start for early morning practicals. Teams B & C spent the 2 hour practical session darting yearling buffalo for purposes of individual ear-tagging and routine treatments at the Malilangwe Game Pens while Teams A & D underwent practical instruction and practice in the use of darting and ancillary capture equipment.

The morning lecture session, instructed by Dr Pete Morkel, provided more detailed pharmacological instruction on the various drug classes and individual drugs routinely used in chemical restraint of wildlife. This was followed by introductory lectures on the main principles of chemical capture and restraint presented by Dr Mark Atkinson.

A schedule change necessitated bringing the lectures on specific considerations, drugs and methods for the capture/immobilisation of predators, primates and reptiles forward by one day and these lectures were delivered by Drs Hofmeyer & Masterson (predators) and Dr Michele Miller (primates and reptiles) either side of the lunch break.

The afternoon session, dedicated to principles and methods of physiological and anaesthetic monitoring (and appropriate remedial actions), was introduced in a formal lecture presented by Dr Michele Miller followed by a 3 hour practical session during which teams each darted a donkey at the Malilangwe Game Pens to provide practical anaesthetic and physiological monitoring exposure to the students under controlled captive conditions. As ever this practical was noted by the students to be hugely beneficial in preparing individuals and improving team coordination ahead of other team practicals under less controlled field conditions.

An hour-long evening laboratory session was conducted for Teams A and B during which teams were given basic instruction by Dr Michele Miller and Jaelle Claypole as to appropriate choice, preliminary processing, preliminary assessment, labelling, recording, storage, transport and submission of various clinical samples which students might have occasion to collect during the course of their work. During this session, samples obtained from all the animals immobilised over the course of the day during team practicals were processed and used for demonstration purposes before being appropriately stored and recorded for future reference.

Monday 11th February 2013 – Day 3

Day 3 of the course got off to another 05hr30 start with Teams A & D deploying to dart buffalo in the paddock adjacent to the Malilangwe Game Pens while Teams B & C underwent practical instruction and practice with darting and ancillary capture equipment on the darting ranges. Unfortunately, the buffalo, some of which had been darted the previous day by Teams B & C, were a lot more wary and after several brief darting chances went begging the herd kept to the...
thickets and offered no more darting opportunities for the student shottists. The practical was repeated successfully on Friday 15th.

The bulk of the morning lecturing session, commencing at 07Hr30, covered species-specific considerations, drugs and capture methods for a variety of animal species commonly immobilised for various reasons. Species-specific discussions were covered by various different instructors each with considerable experience in dealing with their respective species and the variety of instructors certainly brought a welcome blend of fresh perspectives and experience to this important session.

After the species-specific lectures, the pre-lunch session was concluded by Dr Masterson with a lecture on safe handling of immobilising drugs and appropriate drug-specific responses to accidental human intoxication. This was followed up in the next session with a very informative practical demonstration in CPR and emergency first aid presented by Mrs Ruth Dabbs - Malilangwe’s resident qualified nursing sister and paramedic – who imparted a wealth of the most up-to-date CPR techniques and guidelines.

Figure 3: Nursing Sister Ruth Dabbs demonstrating CPR and first aid technique (photo courtesy Mrs Lorna York)

The remainder of the day was dedicated to field practicals undertaken by Teams D and C who captured an elephant and two lionesses respectively- see below.
Elephant immobilisation; Team D: afternoon of day 3

After afternoon tea all teams deployed into the field for a practical immobilisation of a free-ranging elephant bull, with the practical being conducted by Team D and observed by the other teams.

The elephant was darted from the helicopter by the Team D Team-Captain – Dr Columbas Chaitezvi. Other than a matter of a minor spillage of immobilising drugs – fortunately mitigated by proper use of a cover while pressurising the dart and which was easily and harmlessly remedied – and the fact that the first dart seemed to have minimal effect on the animal, necessitating a second dart after some delay, the elephant immobilisation itself was very stable and smoothly run.

Figure 4: Left-to-right from top left – i) the elephant bull unaffected by the first dart; ii) Team D advances as the drugs take effect and the bull is in the process of going down; iii) student instruction (all teams) and sampling next to immobilised elephant; iv) following administration of antidote the elephant bull gets to his feet and walks off into the bush (photos courtesy Mrs Lorna York)

While the elephant was down all teams were afforded the opportunity to get up close to the animal and get exposure to the clinical sampling and physiological monitoring procedures being undertaken by Team D. At this stage, students had the opportunity to ask questions on any aspect of the exercise.

At the end of the exercise, and after the animal had been given the antidote and had wondered off into the bush, the most important species-specific considerations were reiterated along with a discussion specifically dissecting the sequence of events in this particular exercise during a group debrief with participation of all instructors and students from all teams.
**Lion immobilisation & VHF collar change; Team C: evening of Day 3.**

During the course of the day members of the Malilangwe management team including Wildlife Manager, Colin Wenham, and Chief Ecologist Dr Bruce Clegg had gone out in search of a specific pride of lions that needed to have one VHF collar removed and another collar to be replaced. They located the animals quite far south in the reserve and got them onto bait at about midday after which Dr Clegg very kindly and very patiently sat and monitored the bait so that the animals did not consume it prematurely.

Having been informed that the lions were “on bait”, all teams deployed directly from the elephant immobilisation practical to the bait site. Team C went in on the lead vehicle and within minutes they had darted the two target lionesses. Inductions were smooth and uneventful and as soon as the darted animals were fully "down" they were loaded onto vehicles and moved a short distance away from the bait to enable the team to work on the immobilised animals without interference from the rest of the pride which was focused on finishing off the bait.

One VHF collar was removed and the other was removed and replaced, clinical samples were collected, physiological monitoring was well coordinated and smooth and all teams had the opportunity to get up close to the animals, ask questions, take photos, etc.

On completion of the exercise the animals were given antidote and both made smooth and rapid recovery, being joined by the rest of their pride as soon as the last vehicle had moved out. The lion immobilisation practical was one of the smoothest and most well organised practicals of the entire course and Team C and their Team Leaders/Captains are to be commended on a job very well done.

![Figure 5: Lion immobilisation practical - Team C: left–to-right from top left i) team captain Dr Keith Dutlow giving instruction while course participant, Dr Wilmot Chikurune loads a dart; ii) one of the lionesses is "down" while the rest of the pride looks to the bait; iii) removing the dart and applying a blindfold to one of the two immobilised lionesses; iv) member of Team C, Dr Amanda Salb working on a lioness. (photos courtesy Mrs Lorna York)
**Tuesday 12th February 2013 – Day 4**

Day 4 saw an extra early start as participants deployed to the field at 05Hr00 for a 05Hr45 start of the giraffe capture conducted by Team A.

**Giraffe immobilisation; A Team: early morning Day 4**

Due to the specialised nature of giraffe capture which requires a carefully coordinated team effort to rope the animal and bring it down before it goes down of its own accord after darting, Team A had been practicing their team giraffe roping skills during every spare moment during the preceding 3 days. All team members were allocated specific tasks and were well drilled and rehearsed by team lecturer Dr Pete Morkel with support from practical expert Josh Mostert and team captains Roger Parry and Brent Stapelkamp.

Figure 6: Team A practicing their giraffe roping skills on Team A leader Dr Pete Morkel in the days leading up to the real-deal (photos courtesy Mrs Lorna York)

On the morning of the practical it was fortunate that a suitable group of animals was soon found close to an open area which lent itself to darting and roping of the animal. The animal was darted from the helicopter and after a slightly premature failed roping attempt the animal was successfully roped and brought down within 5 minutes of “dart-in”. The animal was immediately given the antidote before being blind-folded, ear-plugged, haltered and harnessed in preparation for “walking”. A battery of serial physiological samples were obtained and analysed to assess the effect of chemical immobilisation on a variety of blood chemistry parameters including oxygenation, PCO2, lactate, pH, etc.

Once all ropes and head-gear were satisfactorily fitted and checked the animal was allowed to get to its feet and the Team walked the animal a short distance- so demonstrating the normal method of loading such an animal for transport after chemical immobilisation.

As well as the standard opioid drugs, the drug cocktail used included a small dose of Zoletil®, included on an experimental basis to assess whether it smoothed anaesthesia at all. It was estimated by those experienced in giraffe capture that the inclusion of the Zoletil® by making the animal less responsive after reversal of the primary opiate immobilising agents, would perhaps be suitable for short-duration treatment procedures such as wire-snare removal in which the animal would be released back into the veld, but rendered the animal less inclined to move purposefully while “walking” it to a transport crate.

Overall the giraffe capture went as smoothly and without incident as could be hoped and was immediately followed by a full and detailed debrief discussion involving all course participants and instructors.
As yet another testament to the awesome back-up and support provided by the extremely professional Malilangwe management team, no sooner had the giraffe been released than the Malilangwe Field Rangers reported a sighting of a juvenile White Rhino calf that required darting and ear notching. Accordingly, all necessary equipment, drugs and consumables were handed over from the giraffe team to the rhino team - Team B - and the entire group of course participants deployed further south to the general area in which the animal and his group had been sighted.
Rhino capture and ear-notching - Team B: morning of Day 4

In Zimbabwe, all rhino of the two native species (Black and White Rhinoceros), are allocated an individual national identity number that individually identifies each animal for monitoring and management purposes. The individual identity number is marked as a series of small notches in the animal’s ear margins enabling field rangers to accurately identify individuals in the wild. At the same time as the animal is notched the individual is given an RFID microchip and is sampled for a variety of clinical parameters as well as having a DNA sample banked for genetic analysis and meta-population management purposes. This identification ear-notching and genetic sampling was the primary reason for the immobilisation of this individual rhino on this course.

The rhino - a juvenile white rhino male - was darted by Team B Lecturer Dr Peter Buss and after a slightly protracted induction period the animal went down in an area that was accessible to the entire course group who were able to get up close to an immobilised rhino while the important management and biological procedures were conducted by the responsible team. Overall the procedure went well and without any untoward incident.

After the first rhino immobilisation there were no other target animals that needed darting that were immediately available so the course participants returned to camp for a late breakfast while the Malilangwe Field Rangers - ably and kindly supported by fixed-wing “eye-in-the-sky” aerial support provided by Mr Raoul du Toit, Director of the Lowveld Rhino Trust - continued the search for possible candidates. Although a number of rhino were in fact located none of those found needed notching and the exercise was overtaken by the build-up of significant midday heat which precluded further rhino operations for that day.

After breakfast and while waiting for the possible location of potential rhino needing routine ear notching and DNA banking the opportunity was taken to proceed with theoretical and practical instruction in helicopter darting and safety. The topic was introduced in a formal lecture by helicopter pilot John McTaggart before the participants were disbanded into their Teams for team-based practical instruction on helicopter darting by team lecturers and captains according to a predetermined protocol for the practical to follow.

After theoretical and practical instruction on helicopter darting, two teams at a time were deployed to the nearby old airstrip where all course participants were given the opportunity to fire an empty dart from the airborne helicopter at a moving target towed on a trailer behind a moving vehicle to give students as realistic a simulation of live helicopter darting as possible. In accordance with the natural tendency towards competition in these situations, students marked their darts with their names and teams competed for the highest aggregate score in the helicopter darting practical – with Team A naturally taking top honours.
Due to the heat, the Malilangwe Field Rangers searching for rhino were stood down late morning and the course participants spent the afternoon practicing in their teams in the use of darting and ancillary capture equipment after receiving a single lecture, delivered by Dr Columbas Chaitezvi of the State Wildlife Veterinary Unit, on Controlled Animal Disease Considerations relevant to the translocation and management of wildlife in Zimbabwe.

**Wednesday 13th February 2013- Day 5**

Day 5 was marked with a relatively late 06Hr00 start at a mass-capture plastic boma site set up by African Wildlife Management Consultants (AWMC- including Mike la Grange, NJ la Grange, Dr Jacqui Mostert, Josh Mostert and their capture team) who very kindly, and for barely cost price, brought their capture trucks, mass capture equipment and capture team half way across Zimbabwe to very kindly and very professionally provide the students with practical experience of the two most commonly used mass capture techniques employed for the capture and translocation of a wide array of African wildlife species over several decades.

The basic “plastic boma” consists of a wide-mouthed funnel of rugged woven sheeting suspended from taught cables, camouflaged in the bush. Animals are herded and chased by helicopter into the boma, which has a series of “gates” that can be successively drawn closed behind the animals as they are chased deeper into the funnel towards the crush and ramp used for loading them into trucks for transport. This particular boma had been constructed for the capture of Zebra with a team of course participants manning the internal boma gates and Team D preparing darts and darting two individuals in the crush area.

After some effort on the part of the helicopter a family group of five zebra were captured and chased to the reinforced crush area at the front apex of the boma. Two of the animals were selected and darted for teaching and clinical sampling purposes.

Once all procedures and sample collections had been completed the animals were given an IM shot of antidote (standard procedure in this species which tend to wake up explosively if the antidote is administered IV) and once they were comos mentis all animals were released.

Figure 11: helicopter darting practical - i) all students got the opportunity to dart the moving target towed behind the vehicle on the old airstrip; ii) the target- painted in the likeness of a rhino’s rump
Upon conclusion of the Zebra capture debrief the participants returned for breakfast at Hakamela following which Teams B and D completed their helicopter-darting practical.

The afternoon session was dedicated to practical instruction in team groupings.
**Thursday 14th February 2013 – Day 6**

Day 6 began at an 06hr00 start at a net-boma capture site again very kindly and efficiently constructed by AWMC. Net boma capture is another common mass capture technique commonly employed for smaller species such as Impala, Nyala, Blesbok, Springbok, etc. The helicopter was used to drive a herd of impala into the net boma. Initially there were too many animals for the number of animal handlers available and quick thinking and action on the part of the boma manager- Josh Mostert – who averted any potential problem by immediately opening a section of nets and letting the surplus animals out before they became enmeshed in the nets. The balance of the animals that were caught in the nets were handled and restrained by various teams and sampled for FMD-serology (Impala are an important potential “intermediate” incidental host for FMD albeit for very short periods) before being released.

Four medium-large females were selected for a blood-gas trial under a new drug combination comprising Thiafentanyl-Butorphanol and Azaperone. One female was released immediately on account of an unacceptably high rectal temperature. The results of the blood chemistry analysis of the remaining 3 animals that were chemically immobilised were very interesting and informative. Upon completion of the short 15 minute trial, antidote was administered to the 3 animals which were then released.

![Figure 13: Impala net-boma capture: i) Impala coming into the boma – just about to hit the nets; ii) releasing one of the animals at the end of the exercise (photos courtesy Mrs Lorna York)](image)

On the way back to breakfast, all teams stopped off at the old airstrip for a demonstration by Josh Mostert of AWMC on the use of a net-gun.

![Figure 14: Josh Mostert of AWMC demonstrating the firing of a net-gun from John McTaggart’s helicopter](image)

Back at camp, the post-breakfast session began with the balance of the lectures including “Complications during capture” presented by Dr Dave Cooper, “Post capture and veterinary care” presented by Dr Chap Masterson and finally a lecture on “Legal considerations and ethics” covering the legal framework governing the acquisition, possession and...
use of scheduled substances in Zimbabwe and RSA as well as some of the ethical considerations pertaining to their use – presented by Dr Chris Foggin.

Because the practicals earlier in the week had run on schedule, there was some spare practical time available – time usually reserved for catching-up of practicals that might not have been completed. It was therefore contemplated that perhaps the group could attempt to dart a hippo as an additional practical demonstration. This was communicated to the group only once confirmation had been received from Colin Wenham who had been scouting the dams in the morning in search of potential candidates.

The hippo capture commenced in the afternoon and after a futile wait for a darting opportunity from the bank a boat was launched in an attempt to get the darting party closer to the target animals. After a lengthy wait a darting opportunity was eventually successfully taken. The drug combination used was selected so as not to abolish the breathing and dive reflexes of the darted animal and after a protracted recovery operation from the middle of a deeper section of the dam the animal was towed to shore and given further sedation before being monitored and sampled. After about 80 minutes from “dart-in” the antidote was administered IM and the hippo made an uneventful recovery over about 15 minutes before moving back out into deeper water.

Overall, the practical was successful and was a good demonstration of an emerging technique that is very useful in management of this species which has hitherto been very problematic to capture and work with within its watery habitat.

After conclusion of the hippo capture at sundown, the course group returned to Hakamela Camp where a social braai had been organised as a thank-you to our Malilangwe hosts whose staff and management team had been as helpful and as supportive as ever. The occasion was used as an opportunity to make a vote of thanks to individual Malilangwe team members and various other people and contributors.

The Woody Meltzer Prize for best “first-timer” student was awarded to Dr Amanda Salb of Group C who was presented with an inscribed book prize and the opportunity to go with Dr Foggin and John Mctaggart to dart and collar a buffalo cow from the helicopter next morning. Dr Idrisa Chuma of Tanzania was a close runner-up.

The social was a typically convivial affair and happy to say the baobab tree climbing competition came to an early end when it was so easily scaled by a young lady so fore-stalling riskier attempts later in the evening.

**Friday 15th February 2013 – Day 7**

Day 7 was dedicated for the students to study prior to the examinations on the following day. Nevertheless, Team D took the opportunity to go to the Malilangwe Game Pens to repeat their buffalo darting practical which had been unsuccessful on day 3.

Course instructors gathered for a mid-morning end of course debrief meeting to discuss various highlights, issues, problems and solutions noted during the course so as to refine the course in following years.
Students spent the day studying individually, in small groups or in teams according to their preference. Informal revision tuition groups were offered by several instructors and these revision sessions were as invaluable as for those struggling with certain concepts or information ahead of the examination.

**Saturday 16th February 2013- Exam Day**

After a light breakfast, those writing the exam, including all sponsored students, gathered in the lecture theatre for a 2-hour invigilated written examination. It was very gratifying that many of those individuals that were not actually required to write the examination did in fact elect to do so – with 20 of 32 students electing to write.

The written examination was followed by full breakfast which was in turn followed by oral examinations comprising 2 x 20 minute panels- the first being more theory-based with the second panel being more practical-based.

Exam papers were marked by the relevant lecturers during the course of the day and certificates presented to the students during the evening meal. It was a testament to the tutors and team captains as well as to the positive participation of the students themselves that all 20 candidates passed the examination this year.

**Sunday 17th February 2013**

All students and lecturers departed early in the morning. The organising team packed up all equipment and departed for Harare by mid-morning.

**Acknowledgements and thanks**

As ever on these courses the support from Malilangwe and her staff is absolutely monumental. Special thanks must go to Mark Saunders, CEO of Malilangwe, for his unwavering support and interest in this course - and to Colin Wenham, wildlife manager and field practical coordinator, for all his hard work behind the scenes lining up a never-ending procession of field practicals for the students- I don’t think that the course participants fully appreciate how much planning and work this takes or just how lucky they have been to have such a smoothly run practical itinerary. To Ruth Dabbs for taking time to present a very informative CPR and first aid demonstration lecture – thank you very much; to the field rangers for their support in following up and locating animals for practicals; to Dr Bruce Clegg for so patiently locating and monitoring the lions for the entire afternoon, waiting for the students to arrive- thank you; to Tracey Fouche and her hospitality team for the accommodation, house-keeping, laundry and the food (which was especially good this year); to Minkey Smithright for coordination of practicals at the Malilangwe Game pens; to Brad Fouche who kindly took some of our foreign participants on a much anticipated game drive and to all other Malilangwe staff for your kind and professional assistance – thank you all very much. The course is privileged to be held on such a beautiful reserve staffed by such committed and positive individuals.

Special thanks must also go to the Wildlife Veterinary Unit and in particular to Dr Chaitezvi for his on-going support and his participation as an instructor and as team captain for Team D, for the loan of equipment from the WVU and for his assistance in expediting the border crossing for our RSA colleagues crossing at Beitbridge – thank you very much.

To all members of African Wildlife Management Consultants (AWMC) – Mike & NJ la Grange, Josh & Jacqui Mostert and your team- thanks for your awesome contribution, equipment and efforts towards making the course a great success- not to mention a safer place for those in the vicinity of the darting ranges.

To all sponsors & supporters, thank you very much for your contributions – your support is greatly appreciated. To Raoul du Toit and the Lowveld Rhino Trust - thank you for your flying all the way down from Harare and providing aerial support for rhino captures on the course. It is much appreciated.

To the organising team- especially Jaelle Claypole and Greg Foggins who worked tirelessly to prepare, clean, pack, fix, organise and arrange all kit and consumables for the course – thank you very much.

To John McTaggart whose incredible support and unbelievable generosity are simply beyond words- thank you so much for all that you give to the course, for your time and for your material and personal inputs. Thank you.

To all the instructors who are so willing to share their immense collective knowledge and experience- you all make this course what it is and long may it grow from strength to strength. Thank you all so much for your time and travel and effort. Special thanks must go to Dr Chris Foggin, the course leader, but for whose leadership during years of severe
economic deprivation in Zimbabwe the course would long-since have disintegrated – your leadership and sagacity are a
great pillar of strength and guidance to us all.

To Lorna York for all your incredible and hassle-free "can do" attitude and for all your hard work and assistance in
organising and communicating throughout the year- thank you very much.

And finally to all the course students- we sincerely hope that you enjoyed and benefitted from the course. Thanks for
your positive participation and willingness to learn which makes it all worthwhile. We wish you all the very best in your
future endeavours and we hope that we will see you return soon – a few years wiser and still eager to learn. Thank you
all.

Course 2014 Details:

Dates: Friday 7th to Sunday 16th February, 2014
Venue: The Malilangwe Trust, Chiredzi, Zimbabwe