

Contents

<i>Declaration</i>	<i>I</i>
<i>Acknowledgements</i>	<i>III</i>
<i>Abstract</i>	<i>V</i>
<i>Contents</i>	<i>VII</i>
<i>List of tables</i>	<i>IX</i>
<i>List of figures</i>	<i>XIII</i>
<i>List of abbreviations</i>	<i>XV</i>
CHAPTER 1 – Introduction	1
1.1. General introduction	1
1.2. Aims of the thesis	3
1.3. Research questions	4
1.4. Chapter overview	4
CHAPTER 2 – Literature review	7
2.1. Eland as a model species for intensive game production	8
2.2. Significance and benefits of intensive breeding of common eland	10
2.3. Some challenges and requirements of intensive management of eland	11
2.3.1. Understanding eland behaviour and social structure for effective husbandry management	13
2.3.2. Understanding eland physiology and behaviour as a tool for stress and welfare assessment	16
2.3.3. Challenges during handling and restraining eland/bovid for examination	17

2.4. Some husbandry techniques to help improve the intensive management and welfare of eland	19
2.4.1. Improving temperament and habituation of animals to routine handling and management	19
2.4.2. Immunocastration as a husbandry technique in breeding and behaviour management towards an improved welfare	22
CHAPTER 3 – General materials and methods	27
3.1. Description of the study area	27
3.2. Management of the experimental animals	27
3.3. Experimental design and data collection	29
3.3.1. Biological sample collection	32
3.4. Sample processing and analysis	33
3.5. Data processing and statistical analysis	34
CHAPTER 4 – Activity and social behaviour of farmed common eland (<i>Taurotragus oryx</i>), and the effect of immunocastration thereon	35
4.1. Abstract	37
4.2. Introduction	39
4.3. Methods	40
4.3.1. Animal husbandry and experimental design	40
4.3.2. Behavioural observations	42
4.3.3. Behavioural data processing	43
4.3.4. Statistical analyses	44
4.4. Results	45
4.5. Discussion	49
4.6. Conclusion	53
4.7. References	54

CHAPTER 5 – Habituation of common eland (<i>Taurotragus oryx</i>) to intensive routine handling, and the effect of immunocastration thereon	61
5.1. Abstract	63
5.2. Introduction	65
5.3. Materials and methods	67
5.3.1. Animal husbandry and experimental design	67
5.3.2. The squeeze chute system and temperament scoring	68
5.3.3. Faecal steroid extraction	72
5.3.4. Faecal androgen metabolite enzyme immunoassay analysis	73
5.3.5. Statistical analyses	73
5.4. Results	74
5.5. Discussion	75
5.6. Conclusion	78
5.7. References	79
CHAPTER 6 – Effects of temperament during handling and social rank on the blood biochemical parameters of common eland (<i>Taurotragus oryx</i>)	85
6.1. Abstract	87
6.2. Introduction	89
6.3. Materials and methods	90
6.3.1. Experimental site and animal husbandry	90
6.3.2. Assessment of the stress during handling	90
6.3.3. Social interactions and social rank	91
6.3.4. Blood samples processing	91
6.3.5. Statistical analyses	92
6.4. Results	92
6.5. Discussion	94

6.6. References	98
7. General discussion	101
8. General conclusions	107
9. General references	109
10. Annexes	127
Annex 1. <i>Curriculum vitae</i> Abubakar Sadiq Musa	i