

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

**IS COMMERCIAL LIVESTOCK FARMING ENVIRONMENTALLY VIABLE  
WITHIN THE ORANGE AND FISH RIVER CATCHMENT AREA (OFCA) OF  
SOUTHERN NAMIBIA?**

**Prepared by:** Schalk van der Merwe

**Prepared for:** The Department of Environmental and Geographical Science, University of Cape Town, in partial fulfilment of the requirements for obtaining an M.Phil degree in Environmental Science.

**Promotor:** Professor Mike Meadows.

**February 2001.**

## ABSTRACT

Commercial livestock farming has been identified as traditionally and spatially the most dominant land-use type in the Orange and Fish River Catchment Area (OFCA) region of southern Namibia. Recent studies suggest that the commercial stockfarming sector is facing a crisis, as evidenced by many farms having become abandoned from productive utilisation, and by a widespread lack of operational capital within the sector. There are neither historical nor current baseline information relating to the productivity of the OFCA veld and a definite link between the current crisis and the possibility that it is suffering from the effects of having farmed the OFCA veld into a state of durable sub-optimal productivity remains to be conclusively established.

This current study has been undertaken in order to investigate such a possible link, and to reach a more definite conclusion with regards to the contribution of negative environmental feedback which may have arisen from commercial farming. Specifically, the study investigates the relationship between commercial livestock grazing regimes, possible associated resource degradation (losses in veld productivity and adverse structuring of botanical communities due to livestock grazing effects), and the current productive crisis within the sector.

In as far as no assessments of stocking rates during pre-commercial livestock farming are available or may be arrived at, comparison with figures available for the commercial sector is not possible. An indirect method of generating commensurable historical points of reference has been developed in order to assess the possibility and portent of any associated environmental change. Working from the basic assumptions that natural environments tend towards the most efficiently possible trophic-cycling, that indigenous biota co-evolve in complex relationships of vital interdependence, and that processes in natural environments are *per se* sustainable, this study then set out to investigate the factors which define OFCA veld productivity, the patterns in which veld is being produced in spatio-temporal terms, and ultimately patterns of fodder-use in the OFCA in pre-commercial times.

From a review of current literature, climatic factors are found to characterise the OFCA as an arid to hyperarid environment, with low, highly variable and unpredictable rainfall, with a pronounced drought-frequency, and a general lack of natural surface water sources. Fodder production was therefore found to be low in terms of biomass-production, and, due to rainfall patterning, highly variable and unpredictable in interannual terms. The occurrence of widely-interspersed and unpredictable exceptional rainfall seasons was found to have the effect of significantly raising fodder-production values, and of making available some fodder species which otherwise do not significantly occur within the OFCA veld.

In order to infer patterns of pre-commercial fodder-use, the historic regimes of fodder-use by indigenous game and traditional Nama pastoralists have been reconstructed in terms of structural aspects. To a large extent, reconstruction here is based on information contained in the accounts of historical observers of the OFCA during the period 1760 – ca. 1840.

As a first step towards identifying fodder-use patterns in natural herbivory, the historical game suite has been reconstructed. From this reconstruction, eight species – two wild equines and six species of medium ( $\geq$  Springbok) to large ( $\leq$  Buffalo) bovids – are identified as having historically been direct niche-competitors with domestic livestock, and to have largely disappeared as competitors from OFCA commercial lands. From what is currently known of these species – characteristics such as water-dependency, herd dis/ aggregation mechanisms, migratory behaviour, feeding requirements, ranging habit – probable patterns of fodder-use are then inferred. These patterns are found to closely reflect rainfall-driven patterns of utilisable fodder availability, with a characteristic tendency towards spatio-temporal flexibility in feeding movement and concentration, and with de/stocking closely mirroring *de facto* availabilities in viable fodder-stocks. On the assumption of co-evolution, it was further found that the OFCA would have evolved in response to these utilisation patterns, and that these patterns would represent the most optimally sustainable regime of veld-use, in so far as allowing optimal conditions of fodder-productivity, and leaving the evolved veld-structure intact.

Drawing on a scant supply of available literature in addition to historical accounts, a description of traditional (pre-Oorlam) Nama pastoral livelihoods is made. Nama population numbers were probably never high. Traditional Nama livelihoods are found to have rested on the principle of the production of sufficiency as opposed to (marketable) surplus. Access to pasture and surface water by various Nama groups was governed by an inclusive spatial framework. Two of the identified dominant livelihood strategies – stock breeding and hunting – are of direct relevance for this study. Low levels of technological intervention characterised both strategies. This ensured that Nama pastoralism had to adapt to natural patterns of fodder availability (correlated to rainfall incidence and the general accessibility of surface water sources), and aspects of de/stocking, migrational movements and drought responses were largely continuous with those of indigenous game. In terms of hunting, the weapons and techniques which were employed likely caused little durable impact on indigenous game stocks, and the broad OFCA veld – including areas which probably never used by Nama pastoralist – continued to be utilised under the evolved indigenous regime of herbivory.

By further analysing the structural elements represented by the current regime of livestock farming, associated patterns of land (fodder) use are identified. The sector is characterised by spatially extensive use of the OFCA, sedentarised operations within a framework of private property-rights, and continuous inter-annual production in order to maintain necessary financial equity. Fundamental technological interventions in the landscape – the extensive erection of perimeter and internal fencing, and the installation of artificial borehole-driven watering points – have the effect of disrupting the evolved migrational flows of indigenous game. Subsequently this opens up OFCA veld for the more or less exclusive use by livestock and releases pastures far from natural sources of surface water for use by livestock. From these findings, it is concluded that current land use is structurally discontinuous with evolved patterns of natural and traditional veld-use. Furthermore, almost exclusive veld-utilisation by typically monoculture livestock have replaced complimentary herbivory over a wide feeding spectrum of plants. All of these findings seem to point towards the conclusion that current commercial livestock farming activities may be structurally pre-disposed towards farming against the evolved grain of the environment, that damage to the veld-resource may have occurred, and

that the sector is currently suffering from associated structurally-generated decreased fodder-production.

Nevertheless, in the aftermath of a recent exceptional rainfall season, there was little observable evidence indicating significant adverse changes to the veld on commercial lands. This raises the question as to whether losses in productivity and structure have taken place; the finding reached in this current study is one of "inconclusive". While on the one hand this may indicate some efficacy in stock-management techniques, it is more likely the result of the inherent robustness of the native Karoo veld, and of the veld's tendency to respond intimately to rainfall patterns, above all other environmental determinants. In this analysis, current commercial livestock farming may structurally not be ideally suited to sustainably utilise OFCA pastures, but at any rate it does not seem to have pushed the veld beyond the brink of massive natural recuperation under suitable rainfall conditions.

This study then investigates further determining factors to commercial stockfarming in the OFCA, and finds that the sector has suffered from some serious setbacks during the past two decades. Whereas the sector traditionally benefited from generous state subsidy, privileged access to South African markets, and a stable and lucrative karakul-pelt market, conditions have radically changed since the beginning of the 1980's. Specifically, commercial farmers are now largely responsible for providing their own operational capital. Dorper carcass-production within fairly stable market-conditions has not been able to compensate for the losses suffered during the collapse of the karakul market at the beginning of the 1980's and the sector is unilaterally highly dependent on South African agricultural inputs and markets. On top of this, the sector has been plagued by recurrent droughts during the past two decades.

It may now be asked to which extent the current crisis experienced by the commercial sector is related to adverse environmental effects sustained from the way in which it utilises the land. In the final analysis, the inherent unsuitedness of the OFCA environment to sustain widespread, sedentarised, and interannually continuous productive utilisation by livestock *per se* - an effect of stochastic factors (most notably, high variability and unpredictability in rainfall) - means that the sector is inherently farming in opposition to the environmental constraints. The consequent inherent vulnerability of the sector is clearly demonstrated by its vulnerability with regards to the accessibility of cheap operational capital, and to (fickle) market-factors. In conclusion, it seems valid to pose the question whether extensive commercial stockfarming in the southern Namibia - in its current geographical extent - would have been possible at all without a history of generous subsidisation and integration into the South African economy, and furthermore, whether the sector is not now by and large suffering the effects of this unnatural bottom falling out, and it having to face more realistic conditions of production within the sparse and unpredictable OFCA environment which had always been using against the grain.

## TABLE OF CONTENTS

|   |     |
|---|-----|
| <b>CHAPTER 1: INTRODUCTION.</b>   | 1.  |
| 1.1. Background to the study  | 1.  |
| 1.2. Aims and objectives  | 7.  |
| 1.3. Research methodology   | 8.  |
| 1.4. Assumptions and limitations  | 10. |
| 1.5. Structure of presentation  | 12. |
| <br>  |     |
| <b>CHAPTER 2: NATURAL PATTERNS OF FODDER PRODUCTION</b>                         | 15. |
| 2.1. Introduction   | 15. |
| 2.2. An arid environment with poorly developed soils                            | 15. |
| 2.2.1. Low rainfall and high temperatures                                       | 15. |
| 2.2.2. Unpredictable and discontinuous rainfall incidence                       | 17. |
| 2.2.3. Droughts and drought probability   | 17. |
| 2.2.4. Abnormally good rainfall years   | 18. |
| 2.2.5. Soils  | 18. |
| 2.3. Effects of climatic features and soils on vegetation and fodder production | 20. |
| 2.3. 1. Low rainfall and high temperatures                                      | 20. |
| 2.3.2. Unpredictable and discontinuous rainfall incidence                       | 21. |
| 2.3.3. Droughts and drought probability   | 21. |
| 2.3.4. Exceptional rainfall years   | 22. |
| 2.3.5. Available soils  | 22. |
| 2.4. Scarce surface water sources   | 23. |
| 2.5. Conclusions  | 24. |
| <br>  |     |
| <b>CHAPTER 3: THE HISTORICAL GAME SUITE AND PATTERNS OF NATURAL FODDER USE</b>  | 25. |
| 3.1. Introduction   | 25. |
| 3.2. The historical record of game incidence in the OFCA                        | 25. |
| 3.3.1. The reconstructed game suite   | 27. |
| 3.3.2. Current status of relevant species                                       | 27. |
| 3.3.3. Focus on large and medium antelope and wild equinines                    | 29. |
| 3.4. Patterns of spatio-temporal distribution                                   | 32. |
| 3.4.1. Water dependency   | 32. |
| 3.4.2. Categories of historical spatio-temporal incidence                       | 34. |
| 3.4.2.1. Typically resident species   | 35. |
| 3.4.2.2. Water-dependent resident species                                       | 36. |
| 3.4.2.3. Typically incursive species  | 37. |

|  |            |
|--|------------|
| 3.5. Structural aspects and associated implications of probable herbivory patterns         | 38.        |
| 3.5.1. Nomadic, rainfall-triggered movements to pastures under typical rainfall conditions | 38.        |
| 3.5.2. Intra-annual migrations and mixed feeding capacity                                  | 39.        |
| 3.5.3. Feeding over a wide spectrum of plants  | 40.        |
| 3.5.4. Complementarity in grazing  | 40.        |
| 3.5.5. Veld conditions-driven incidence and stocking rates                                 | 42.        |
| 3.6. Conclusion  | 44.        |
| <br>   |            |
| <b>CHAPTER 4: PRE-COLONIAL PASTORALISM IN NAMALAND</b>                                     | <b>45.</b> |
| 4.1. Introduction  | 45.        |
| 4.2. Traditional settlement in the OFCA  | 45.        |
| 4.3. Traditional Nama livelihoods  | 47.        |
| 4.4. Aspects and implications of traditional Nama pastoralism                              | 50.        |
| 4.4.1. Epicyclical migration   | 51.        |
| 4.4.2. Adapted stock types   | 51.        |
| 4.4.3. Likely impacts of droughts  | 52.        |
| 4.4.4. Focus on production of sufficiency  | 52.        |
| 4.4.5. Minimal technological interventions in the landscape                                | 53.        |
| 4.5. The impacts of traditional hunting on OFCA game                                       | 54.        |
| 4.6. Conclusion  | 57.        |
| <br>   |            |
| <b>CHAPTER 5: THE COMMERCIAL STOCKFARMING REGIME</b>                                       | <b>59.</b> |
| 5.1. The commercial stockfarming sector within the OFCA                                    | 59.        |
| 5.2. Historical context until ca. 1980   | 61.        |
| 5.3. Structural aspects of current commercial stockfarming                                 | 64.        |
| 5.3.1. Sedentarisation   | 64.        |
| 5.3.2. Specific stock types and livestock grazing  | 64.        |
| 5.3.3. Stocking rates and management tools   | 65.        |
| 5.3.4. Extensive settlement  | 66.        |
| 5.3.5. Extensive borehole-provided artificial watering point-based veld utilisation        | 66.        |
| 5.3.6. Drought responses   | 67.        |
| 5.3.7. Market-driven farming   | 68.        |
| 5.3.8. Probable effects of identified structural aspects                                   | 68.        |
| 5.4. Current state of the OFCA commercial veld   | 69.        |
| 5.4.1. Contextualisation of current veld conditions  | 70.        |
| 5.4.2. Concluding assessment of current veld conditions                                    | 71.        |
| 5.5. Productive constraints since ca. 1980   | 72.        |
| 5.5.1. Background  | 72.        |
| 5.5.2. The situation during the 1980's   | 73.        |
| 5.5.3. Deterioration of the situation in the 1990's  | 74.        |

|  |     |
|--|-----|
| 5.5.3.1. Loss of traditional access to subsidisation and the onus of financial self-reliance | 74. |
| 5.5.3.2. Current adverse market conditions   | 75. |
| 5.5.3.3. Dependency on South African agricultural inputs                                     | 75. |
| 5.5.4. Current effects of deteriorated productive conditions                                 | 75. |
| 5.6. Conclusion  | 76. |
| <b>CHAPTER 6. CONCLUSION</b>   | 77. |
| 6.1. Introduction  | 77. |
| 6.2. Discussion of major findings  | 77. |
| 6.3. Beyond the current regime of commercial livestock farming                               | 81. |
| <b>BIBLIOGRAPHY OF SOURCES</b>   | 83. |
| <b>TABLES OF CONTENT: APPENDIXES</b>   | 87. |

University of Cape Town

**LIST OF FIGURES**

|   |            |
|---|------------|
| <b>Figure 1. The Orange and Fish River Catchment Area, Namibia</b>            | <b>2.</b>  |
| <b>Figure 2. Land Uses within the Orange and Fish River Catchment Area</b>    | <b>4.</b>  |
| <b>Figure 3. Rainfall Range in the Orange and Fish River Catchment Area</b>   | <b>16.</b> |
| <b>Figure 4. Vegetation Types of the Orange and Fish River Catchment Area</b> | <b>19.</b> |
| <b>Figure 5. Livestock Carrying Capacity on Commercial Land in the OFCA</b>   | <b>60.</b> |

University of Cape Town

**LIST OF TABLES**

|   |     |
|---|-----|
| <b>Table 3.1. Water dependency of OFCA game under various veld conditions</b> | 32. |
| <b>Table 3.2. Herbivory preference and habit of OFCA game</b>                 | 38. |

University of Cape Town

## **LIST OF APPENDIXES**

**APPENDIX 1. ATTRIBUTES OF THE ORANGE AND FISH RIVER CATCHMENT AREA, NAMIBIA**

**APPENDIX 2. VEGETATION TYPES AND PLANT BIOTA OF THE OFCA, WITH SPECIAL EMPHASIS ON THE NAMA KAROO BIOME**

**APPENDIX 3. HISTORICAL MAMMAL INCIDENCE IN THE OFCA**

**APPENDIX 4. BACKGROUND TO THE TRIPS AND RECONSTRUCTION OF THE ROUTES TAKEN BY HISTORICAL OBSERVERS**

University of Cape Town

**ACRONYMS AND ABBREVIATIONS**

|                    |  |
|--------------------|--|
| AEP                | Agricultural Extension Personnel             |
| B.P.               | Before Present                               |
| DEIC               | Dutch East India Company                     |
| MET<br>(Namibia)   | Ministry of Environment and Tourism          |
| m.y.B.P.           | Million Years Before Present                 |
| NBRI<br>(Windhoek) | National Botanical Research Institute        |
| OFCA<br>(Namibia)  | Orange and Fish River Catchment Area         |
| P/PET              | Precipitation/ Potential Evapo-transpiration |
| Spp.               | Species                                      |
| SSU/ ha            | Small Stock Unit per hectare                 |
| UCT                | University of Cape Town (RSA)                |

## **ACKNOWLEDGEMENT**

This study was largely made possible by the research which had been undertaken for the report "Environmental Situation Analysis with Regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA)", which was prepared for the Directorate of Environmental Affairs: Namibian Ministry of Environment and Tourism during the first six months of 2000.

University of Cape Town

## CHAPTER 1. INTRODUCTION

### 1.1. BACKGROUND TO THE STUDY

Until about a hundred and fifty years ago, the veld of the Orange and Fish River Catchment Area (OFCA), Namibia<sup>1</sup>, was mainly utilised by indigenous game and widely scattered migrational pastoralists. By the early decades of the 20<sup>th</sup> century, much of the original game suite had disappeared, and by mid-century the OFCA had become extensively settled by livestock farmers. The legacy of German dispossession of Nama lands was largely upheld during the long period of South African administration (1915-1989), and much of the OFCA territory was politically reserved for white settlement and land use. The result was the establishment of an extensive commercial farming sector, with farming activities almost exclusively based on the production of livestock, and especially smallstock. Currently livestock farming on lands under commercial tenure is spatially the most dominant category of land-use in the OFCA<sup>2</sup>.

During the first six months of 2000, a group of M-Phil students from the University of Cape Town prepared a report for the Directorate of Environmental Affairs (within the Ministry of Environment and Tourism (MET) of Namibia), in which a situation analysis of the OFCA was carried out, and matters relating to resource use/ degradation were assessed<sup>3</sup>. From this study, it became apparent that the commercial stockfarming sector in the south of Namibia is currently facing a crisis. This was inferred from the abandonment of many farms from productive tenure, and from many farms lying unoccupied. An analysis of stocking trends for the southern areas since independence further makes plain massively reduced stocking over this decade<sup>4</sup>. Many farmers and resource managers which had been interviewed during the early months of 2000 have also expressed the opinion that it is virtually impossible for new farmers to establish themselves in the sector without having inherited land and/ or infrastructure, substantial capital, or starting production without accumulated debts<sup>5</sup>.

In the face of the current crisis, an impetus towards diversification was also noted by the UCT study. Intra-sectorally this includes an emergent ostrich-industry and stud-farming (over carcass-production). Extra-sectorally, this entails moves towards the establishment of conservancies, game-farms and eco-tourism.

---

<sup>1</sup> See: Appendix 1: "Attributes of the Orange and Fish River Catchment Area, Namibia" for a description of the geographical delimitation of the the area, and for an overview of relevant biophysical, historical and land-use aspects.

<sup>2</sup> See: Figure 2: "Land Uses within the Orange and Fish River Catchment Area".

<sup>3</sup> UCT; 2000.

Appendixes were published in a separate document, which is referred to as UCT; 2000a in this study.

<sup>4</sup> See: UCT; 2000a: Appendix I 11 "Livestock Trends in the Study Area", pp. 16-19.

<sup>5</sup> UCT; 2000: 156-7.

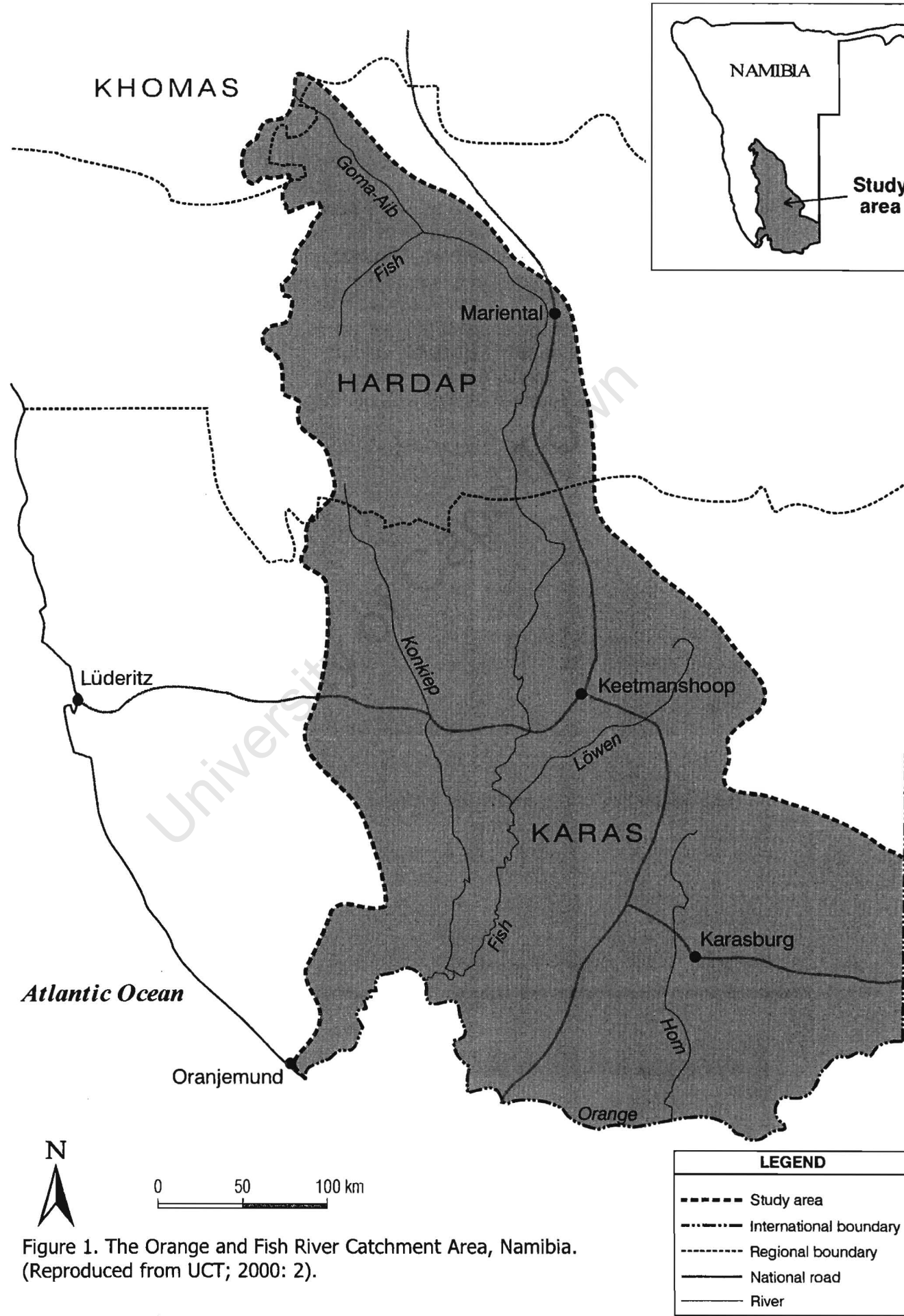


Figure 1. The Orange and Fish River Catchment Area, Namibia. (Reproduced from UCT; 2000: 2).

The current crisis in traditional livestock farming raises the question as to the current state of the productive veld. Specifically, it may be asked whether accumulated livestock grazing has been responsible for some gradual decline in veld productivity over the course of most of the 20<sup>th</sup> century, and may currently be a contributing factor to the sector's apparent productive crisis.

Veld degradation on lands under commercial stockfarming tenure was also assessed in the above-mentioned report. For the sector as a whole, no apparent overgrazing, bush encroachment or the increase of toxic or otherwise unpalatable plants was observed, and very good general veld regeneration was witnessed in the aftermath of the best rainfall season since ca. 1974. Nevertheless, it should be noted that such assessment - in so far as the UCT study also found historical and current baseline information on the OFCA veld to be generally lacking<sup>6</sup> - was based largely on information gathered during interviews with selected resource managers and farmers, and supplemented by such impressionistic evidence as could be gained from personal observation by study-group members. In other words, no systematic assessment was made, and in any case, the absence of historical baseline information means that such assessment as was made lacked a firm point of comparative reference.

The question raised above gains pertinence in the light of a study which was done in the USA some time ago<sup>7</sup>, in which it was found that the carrying capacity of a specific tract of land had probably decreased by 250% during the course of two centuries in the transition of land use from indigenous herbivores to utilisation by livestock. Of interest, the study found that such a decrease was not primarily the result of overgrazing, but rather related to structural differences in veld-use patterns between indigenous herbivores and livestock - such as, for instance, plant selection by the respective grazers, and patterns of migratory use as against patterns of continuous use<sup>8</sup>. Is it possible that something similar may have occurred in the OFCA - albeit then over a shorter historical period?

Despite the absence of current baseline studies related to productive aspects and the specific localised composition of the OFCA veld, estimated stock carrying capacities for the area(s) under consideration are available<sup>9</sup>. In principle it may then be possible to answer our question if comparative carrying capacities for the same area(s) could be reconstructed for the time when the land was still largely utilised by indigenous game. This would entail referring to such historical accounts as may be available for the relevant period, and scrutinising these for descriptions of then current veld conditions, as well as for the incidence and concentration of indigenous herbivores for specific areas

---

<sup>6</sup> UCT; 2000a: Appendix I 3: "Status of grazing resources in the OFCA", pp. 13-4.

<sup>7</sup> Referred to, and discussed by Shearing; 1994: 13.

<sup>8</sup> See: Shearing; 1994: 13.

<sup>9</sup> See: Figure 5: "Carrying Capacity on Commercial Lands in the OFCA".

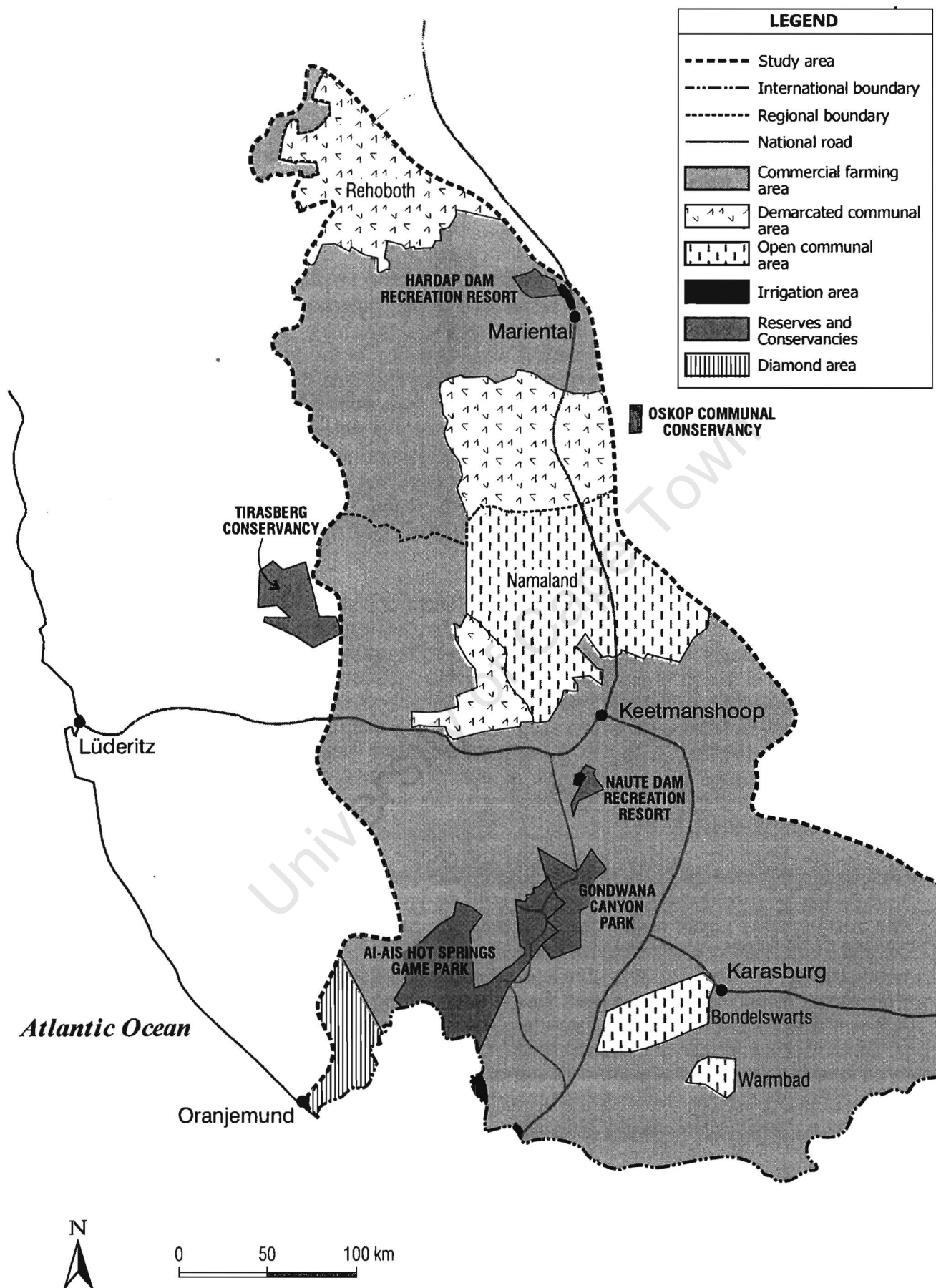


Figure 2. Land Uses within the Orange and Fish River Catchment Area. (Reproduced from UCT; 2000: 65).

at the time. The composite picture which might then emerge may enable some indication of historical carrying capacities under natural conditions, and may then be compared to available current estimates of carrying capacities for the same areas in question in order to determine the probability of change. Such an approach is however unfortunately unfeasible in the case of the OFCA, and mainly on account of the restrictions imposed by the available historical record.

Written accounts of the OFCA date back to 1760<sup>10</sup>. By that time the OFCA veld had been used – albeit not spatially extensively – by Nama and Damara pastoralists for some centuries, and *de facto* “natural” veld use no longer existed in the OFCA. While this difficulty may be circumvented to some extent by reference to the fact that such historical pastoralism relied on little technological intervention in the landscape, was migrational by nature, and probably allowed the natural co-existence of indigenous game and associated patterns of veld-use<sup>11</sup>, other difficulties appear more conclusive.

First of all, the usable historical record spans a relatively short period of time, for in the aftermath of the Oorlam migrations into southern Namibia, by around the 1840’s, pronounced hunting pressures were drastically changing natural game incidence in the OFCA, and some local extinctions – such as of Elephant – were already taking place<sup>12</sup>. With Namibia still being fairly inaccessible at that time to European travelers, this had the most important implication of reducing the number of accounts which had become available during the odd 80 years in question, with less than ten reliable and useful accounts being available.

Secondly - with the possible exceptions of the accounts left by Paterson (1778/9), Gordon (1778/9) and Alexander (1836/7) – observations on the environment from the available accounts tend to be incidental to more general aims of describing trade possibilities, peoples encountered, etc.

Thirdly, a bias towards the new and exotic for the benefits of a readership had resulted in observations to local veld conditions for various parts of the OFCA visited mainly being restricted to occasional observations on the occurrence of interesting or exotic plant taxa, to specific kinds of trees which the traveler may frequently encounter (and especially on the banks of the Orange River), or at best to scattered observations on the general aspect of the landscape (e.g. “plains of grass”) or to fodder-scarcities which were from time to time encountered for the parties’ trek-oxen.

---

<sup>10</sup> Namely to the account related to the Dutch East India Company (DEIC) authorities in Cape Town by the elephant hunter Jacobus Coetsé (Janszoon). Coetsé crossed the Orange River with formal permission in 1760, and travelled as far into Namibian territory as the present-day Warmbad (see: Appendix 4: “Background to the trips and reconstruction of the trips taken by historical observers”).

<sup>11</sup> See: Chapter 4.

<sup>12</sup> See: Chapter 3.

Fourthly – and most importantly – the historical record is fragmentary and unsystematic with regards to game incidence. Typically travelers were only passing through the lands they visited, did not spend protracted periods of time at any given location, and seldomly visited the same location more than once. Observations of herbivorous mammals were done mostly by chance, and typically while on the move. No specific tract of land was systematically surveyed for game, and no indication of the actual local residence-periods of the animals in question may be gained from such observations. With the exception of smaller parties or herds of herbivores, actual counts for larger herds are not available – with descriptions such as “plains bounding with Springbok” being more typical. The further absence of a framework of current rainfall conditions experienced by the relevant travelers makes deductions about the significance of game and game concentrations observed with regards to natural carrying capacities impossible<sup>13</sup>.

The scant, fragmented and unsystematic nature of the historical record relating to game incidence makes it impossible to estimate historically supported biomass in comparison to that currently supported by the stockfarming industry for any given localised area within the OFCA. As would be discussed later, the large variability of natural fodder production on a localised scale<sup>14</sup>, and natural migratory movements of indigenous game<sup>15</sup> furthermore makes such estimation impossible in geographically localised terms. For these reasons, the approach sketched out above is not feasible with regards to the OFCA.

While specific or comparative baseline data may not be available, and historically supported biomass may not be estimated, an indirect approach may nevertheless be followed in order to assess the likelihood of changes in veld fodder production and of resulting environmental change. Thus, an eco-systemic approach to the OFCA veld may provide some insight into principles of evolved fodder production under natural conditions. Specifically, where fairly constant climatological and soil conditions into the present are assumed, it seems possible to infer growing conditions thus imposed, and from that to infer specific features of natural veld regeneration and fodder production in spatial and temporal terms. This inferred baseline set of productive features – structural features - may then be used to further extrapolate natural potential users and principles of fodder utilisation. In so far as indigenous veld and herbivores are further assumed to have historically evolved under the same environmental stresses and in response to one another, it seems valid to posit that natural patterns of herbivory would be most likely to represent a broadly sustainable state of land use, and intimately correspond to natural

---

<sup>13</sup> While some travellers did remark on the onset of the rainy season, and others referred to local droughts, it is impossible to quantify these observations. Even in comparative terms quantification is impossible as these travellers almost invariably visited the OFCA for the first time in their lives, and had no point of reference as to what more typical conditions would have entailed.

<sup>14</sup> See: Chapter 2.

<sup>15</sup> See: Chapter 3.

rhythms of fodder production and the specific requirements of veld regeneration. This may then be used as normative reference point to which current aspects of livestock veld-utilisation may be compared, and relevant conclusions as to probable environmental change be drawn.

## **1.2. AIMS AND OBJECTIVES**

The main aims of this study are to investigate whether possible losses in veld productivity due to commercial stockfarming have taken place in the OFCA, and if so, to which extent such losses may currently be responsible for the crisis in which the sector seems to find itself. As had been indicated in the introductory section of this chapter, this would entail a structural approach, which in turn implies further research objectives. Specifically, it is hoped that major structural differences between patterns of natural indigenous herbivory and traditional pre-colonial fodder use on the one hand, and current patterns of veld use on the other may be demonstrated. In as far as natural patterns of fodder use are assumed to have evolved within the given constraints of the OFCA environment, such demonstration may suggest the possibility of sub-optimal productivity of fodder-production under the current stockfarming regime. Inferred patterns of natural fodder production and evolved fodder use may ultimately also be used as a normative point of reference in order to suggest possible avenues which may be explored to reverse or mitigate any current such sub-optimal productive utilisation – through, for instance, the application of more environmentally appropriate farming techniques, or diversifications towards more suitable land uses.

The specific objectives of this study are then to:

- Identify patterns of natural veld-fodder production based on currently known factors of climate and available soils;
- Reconstruct the historical large mammal suite of the OFCA, and specifically the herbivorous game suite;
- Infer likely patterns of natural fodder-use by the indigenous herbivorous game suite – and specifically such game as may be described as niche-competitors to livestock in terms of feeding habits and social (herding) behavior;
- Reconstruct patterns of historical (migratory) pastoralist veld utilisation and to demonstrate the essential sustainability of such;
- Identify major structural aspects of current fodder-use by the commercial livestock sector, and demonstrate in which ways these are likely at odds with both natural patterns of climate and soil-driven fodder production and inferred patterns of natural herbivory;
- Reach some conclusion as to the probability of current veld degradation, and assess to which extent the current general crisis in the livestock sector is linked to structural aspects of veld-use.

A systematic investigation into more environmentally appropriate farming practices as to those currently being used by the commercial livestock sector, and of more environmentally suitable land use alternatives to livestock farming, does not form part of

the objectives of this study, and will only be briefly considered in the concluding chapter to this study.

### 1.3. RESEARCH METHODOLOGY

In the absence of comparative baseline information on which to base an assessment of degradation or change in the OFCA veld, an indirect approach may be followed in order to evaluate factors such as may be a result of accumulated current livestock farming. Such factors may be inferred from known structural aspects of current commercial stockfarming, and interpreted against earlier inferred natural fodder regeneration patterns in the OFCA, and compared to reconstructed patterns of utilisation by indigenous game and traditional migratory pastoralists. In so far as natural and traditional herbivory have been assumed to have perforce co-evolved along with natural fodder productivity, they are assumed to have been sustainable. Hereby (i.e. "sustainability") is implied the long-term maintenance of local veld composition, as well as the intact survival of mechanisms whereby the OFCA veld regenerates, rejuvenates and recovers itself<sup>16</sup>.

This indirect, structurally-orientated approach entails the following methodology:

By referring to currently available information from sources of published literature on aspects of general climate and soils, general growing conditions and associated patterns of natural fodder production for the OFCA can be inferred. This provides a set of patterns with associated structural limitations to natural fodder use – such as carrying capacities, and spatio-temporal aspects of fodder availability.

Available primary historical accounts from the period 1760 – 1840 can be consulted in order to reconstruct historical mammal incidence in the OFCA. The journeys into the

---

<sup>16</sup> While biotic evolution is dynamic (and often not linearly so), on a human timescale it is nevertheless possible to define states of environmental equilibrium for given ecosystems where major trophic and habitat determinants remain roughly equal in an environment over a period of time, and where no drastic changes occur with regard to the biotic suite in terms of composition or concentration. Significant environmental change (disequilibrium) would then result where drastic sudden changes occur in terms of primary factors such as climate, or in the composition and concentration of the biotic suite. Because of the intimate interrelationships obtaining between ecosystemic processes, specific changes are not contained, but have ripple-effects throughout the environment, necessitating adaptations and the re-establishment of new interrelationships. Human technology is one of the most significant agents of environmental change. While not all technological intervention may be unsustainable, sustainability is conditional on positive reference to the (pre-technologically established) major ecosystemic processes of any given ecosystem, such as for instance trophic cycling. In so far as durable, equilibrium in pre-technological environments apodictically translate into (operational) sustainability.

Of course all environments are actually "open systems" – a fact perhaps most apparent from the difficulties in delimiting distinct "environments" in any absolute sense, but of course also related to the fact that all primary inputs of energy are derived from extra-systemic (solar, geothermal) sources – and any assumption of strict equilibrium is therefore epistemologically untenable. At most, the delimitation of environments and the assumption of systemic equilibrium are operational means to facilitate scientific investigation.

OFCA which are described in these accounts can be re-traced on a 1: 1 000 000 map of Namibia in so far as possible, and records extracted from these accounts can be geographically situated by means of this framework in so far as possible.

In order to infer comparable patterns of fodder use to current livestock farming, focus is placed on such patterns as may be inferred for medium-large antelope and wild equines. In terms of social behaviour (herd-forming) and fodder use, these relevant species represent the closest (replaced) niche competitors to livestock. By reference to available literature on known aspects of water-requirements and general habit of these relevant species, categories of conditional incidence and distribution of these species may be inferred, and the species accordingly categorised.

On the basis of inferred incidence-categorisation – resident, conditionally resident, opportunistic incursors – likely structural aspects of historical fodder use may be inferred. This is done by referring to what is known of the general behaviour of the relevant species from published literature, to previously inferred patterns of OFCA veld fodder-production – on the assumption that environmental availability would perforce dictate use in accordance with the general preferences and habitat tolerance factors of the relevant species. The structural aspects inferred specifically refer to veld use under variable rainfall conditions, the frequent occurrence of droughts and the occasional occurrence of exceptional rainfall years. The most important implications for veld-use and vegetation regeneration may then be drawn out on the basis of such.

The nature and patterns of traditional (Nama) migratory pastoralism are reconstructed from available published primary and secondary historical sources. In the first instance, this entails using the same narratives which are used to reconstruct the historical mammal suite, and in the second, to literature on aspects of Nama culture and history. Very little literature on traditional Nama pastoralism is currently available, with Lau's work (1983; 1987) forming the bulk of what is available. Nevertheless, even Lau's work merely discusses traditional pastoralism in more or less incidental terms to her main focus of investigation<sup>17</sup>, and no systematic and detailed account of traditional Nama pastoralism is presented in her work. Reconstruction here therefore relies on a large degree of coherence<sup>18</sup> between observations taken from historical sources, relevant

---

<sup>17</sup> Namely, the late pre-colonial period of Namaland history during and after the Oorlam invasions.

<sup>18</sup> Coherence theories of expressing (scientific) truth - as opposed to correspondance theories more favoured by the natural sciences - are commonly used in the humanitarian disciplines. Developed by Hegel in his "Phänomenologie des Geistes" in order to investigate and express historical truth, the correspondance theory holds that the validity ("truth") of specific assumptions, propositions and inferences hold in as far as they are not logically contradicted by the broader corpus of (established and unfolding) "knowledge", assumptions and inferences. While it may be objected that such theories engender a certain circularity in scientific discourse, it should be noted that, since the "linguistic turn" (Rorty) in mainstream epistemological theory, a strict positivist position of scientific investigation and truth is no longer possible. In short, it is now recognised that all scientific discourse (as inescapably products of anthropogenic logic, language and mind – basic structures of intellegibilisation and investigation) share a basic circularity in movement on an ontological level.

facts from available studies, and a broader understanding of the environmental context as facilitated by an understanding of environmental constraints of climate, available vegetation, water and game. From such reconstruction, aspects of traditional land use may then be identified, and some assessment made as to the probable impacts such had on fodder use, and on the co-existence of the indigenous game suite.

Information gathered and conclusions reached in the UCT report "Environmental Situation Analysis with regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA)"<sup>19</sup> is used as the basis on which to describe the current livestock farming regime and to infer structural aspects of land use. Focus is on reconstructing general structural aspects of veld use in the commercial livestock sectors. The general likely implications of these structural aspects are then drawn out in terms of possible and probable disparities between such resulting veld use and naturally evolved patterns of fodder generation.

With further reference to the UCT study, current findings relating to veld conditions in the commercial districts are discussed in juxtaposition to the structural probability of losses to veld productivity. Further reference is made to research contained in some documents appended to the report and to information gained from personal interviews in order to sketch out the evolution of current constraints and economic factors influencing production in the sector. In a discussion drawing on all the previous, assessments are then made relating to the main study objectives.

#### **1.4. ASSUMPTIONS AND LIMITATIONS**

For the purpose of this study, the geographical unit of the OFCA has been chosen. This was motivated by the fact that the present study follows on a previous study done for the MET on issues of land degradation and resource use in the OFCA<sup>20</sup>. Much of available data and information is therefore correlated to the OFCA unit, which was thus chosen as a matter of convenience. The term however essentially refers to a catchment-based approach – which is only indirectly the case in this study, in as far as drainage patterns influence vegetation growth.

Within the OFCA, attention is focused on the spatially dominant Nama-Karoo biome. This is done in so far as the associated veld type carries most of the stockfarming activities of the OFCA, as traditional pastoral settlement was concentrated within it (the OFCA largely corresponds with the historical term "Namaland"<sup>21</sup>), and in so far as early European observers almost all travelled exclusively within the Nama Karoo biome.

Focus in this study is on commercial livestock farming, as opposed to communal livestock farming. While many similarities obtain between the two sectors – for instance, sedentarised farming, with broadly similar stock-types, under market-driven productive

---

<sup>19</sup> UCT; 2000.

<sup>20</sup> See: UCT; 2000.

<sup>21</sup> See: Footnote 133 for a definition of the term "Namaland".

conditions – significant differences nevertheless makes impossible a common discursive treatment. While much of an analysis of the structural aspects of commercial farming may thus be applied to the communal sector, issues of access to resources, ownership, the effects of a legacy of dispossession, the general lack of developed infrastructure, the recent availability of agricultural extension and credit facilities together with other factors, necessitate specific discussion and analysis of the communal sector<sup>22</sup>. On account of the restricted scope of this study, such additional specific discussion is not possible, and direct focus will be exclusively on the traditionally socio-economic and spatially dominant commercial sector.

Climatic factors and soils in the OFCA are assumed to have remained fairly constant over the last few centuries to millennia: an arid area with pronounced water and heat stresses, and shallow and deficient soils.

In inferring the original game suite and natural incidence, historical records may be assembled from original texts only up to ca. the 1840's. Hereafter the historical picture becomes blurred due to changed settlement patterns, and the widespread use of horses and firearms. The comprehensive work of Shortridge (1934) may be consulted in order to gain some idea of how game incidence and distribution had changed by a time when the OFCA was in the process of becoming extensively settled by commercial farmers.

In inferring the original game suite and natural incidence, it should be taken into consideration that the OFCA is a human concept, which for all purposes is meaningless when applied to animal movements and incidence. Specifically, home ranges, territories, patterns of seasonal migration, concentration of individuals or opportunistic movements do not clearly correlate with the geographical constructs of humans. Thus, for instance, the Orange River may form an obstacle to game movements, but it forms no barrier or "border". The presentation of reconstructed patterns of incidence and distribution therefore entails more an indication of possible conditional species incidence rather than the actual incidence of discrete animal herds or individuals over a period of time.

In comparing natural patterns of game herbivory to structural aspects of anthropogenic pastoral regimes, focus is placed on a reconstruction of the herbivory patterns of such game as would have been direct niche competitors of domestic livestock. As such, focus is on herd-forming species such as medium and larger antelope, and on the wild equinines. This has the obvious effect of disregarding the effects of the locally extinct large herbivores such as Elephant, Black Rhinoceros and Giraffe, as well of those of smaller herbivores such as small antelope, Hares, Mice, Porcupine, etc. which still occur naturally to some extent on OFCA farms. For purposes of comparison, the extraction of fodder biomass by termites and locusts is assumed constant from historical to present times.

While most of the indigenous mammals have been historically hunted out or have severely declined in numbers, basically the same plant species are assumed to still occur today – even if specific veld composition (in terms of relative occurrence of different

---

<sup>22</sup> See: UCT; 2000: 92 – 106 for an overview of the two subsectors. Similarities and differences are clear from this overview.

species) on a localised scale may have changed during the same period, and even if the specific delimitations of given veld types may not have remained static as a result of either anthropogenic or stochastic factors.

In reconstructing traditional livelihoods in southern Namibia, focus in this study is on the Nama. While Damara and San elements were also present in Namaland, until the Oorlam invasions in the early decades of the 19<sup>th</sup> century, the various Nama groups were the *de facto* masters of Southern Namibia. Thereafter, and until German colonisation towards the end of the 19<sup>th</sup> century, the amalgamated Nama/ Oorlam continued to dominate southern and central Namibia, and to act as the main agents of political power and environmental change. Attention in this study is therefore focused on the Nama, but, in so far as many common characteristics obtained between Damara and Nama livelihoods, the discussion of Nama pastoralism may be held as applicable to the Damara to a large extent.

In so far as historically there seems to have been few distinct cultural differences between the Nama and Namaqua, examples from Namaqualand and the peoples living along the lower reaches of the Orange River are used in this study in order to illustrate certain aspects of traditional Nama land-use and inhabitation. Apart from having settled on different sides of the Orange River, all the various groups and sub-groups of these peoples shared a common language and mythology, and common aspects of custom, dress, patterns of inhabitation and livelihood strategies<sup>23</sup>. The similarity of the environments on both sides of the Orange River, together with the relative historical isolation and sparse inhabitation of these areas must have reinforced cultural continuity based on common origins. In this regard, the evolved terms Nama and Namaqua probably reflect European conceptual notions of territorial identity within an evolving colonial geopolitical context, rather than intrinsic ethnical differences as historically perceived by these peoples themselves<sup>24</sup>.

## 1.5. STRUCTURE OF PRESENTATION

**Chapter 1** deals with a discussion of the study topic, the presentation of research aims and objectives, a discussion of the methodology which is followed, and a listing of

---

<sup>23</sup> Early European travellers employing Namaqua and Cape Khoi interpreters were able to communicate effortlessly with the Nama – and Damara – exactly because of these similarities. Many of them also stressed the overwhelming similarities between cultural aspects and habit of these peoples. Thus Alexander – writing with hindsight in 1838 – did not find it necessary to describe such in relation to the Nama, merely remarking: “I have already noticed the dress, arms, and ornaments of the Little Namaqua (= Namaqua) (cf. 1838: 96), which resemble those of the Great Namaqua (= Nama)” (Alexander; 1838: 196).

<sup>24</sup> From the time of initial contact, and until the 20<sup>th</sup> century, Europeans referred to these peoples on different sides of the Orange River as the “Little Namaqua” (= Namaqua) and “Great Namaqua” (= Nama). The distinction seems to have been one of European convenience, with the different qualifying adjectives denoting geographical rather than cultural difference. In all probability, the Nama and Namaqua themselves never thought of the Orange River as an absolute “border” in the European sense of the word.

relevant assumptions and limitations to the study. Further relevant background information to the study are presented as Appendices 1 and 2<sup>25</sup>.

**Chapter 2** deals with the description of currently known climatic factors and soil conditions in the OFCA. From this, likely growing patterns and associated patterns of natural fodder-production are inferred. The implications of rainfall patterns in terms of surface-water availability to mammals is also discussed.

**Chapter 3** deals with the reconstruction of historical game incidence in the OFCA under natural conditions. Reconstruction here relies on inferences made from records which have been extracted from historical sources<sup>26</sup>. Relevant species larger than small antelope are listed and an assessment of relevant historical extinctions is presented. Discussion on the limitation of further scope to medium to large antelope and wild equines is presented. From the basic established incidence of relevant medium to large antelope and wild equines conditional categories of typical probable incidence (e.g. annually resident, opportunistic incursors) are inferred with reference to known water-dependency and other essential habitat and feeding requirements of the relevant species. Structural aspects of probable spatio-temporal natural fodder use by the relevant species are further inferred with reference to known aspects of general behaviour of the species in question along with inferred patterns of natural (rainfall-dependent) fodder-production in the Nama Karoo biome. Implications for general veld use and natural regeneration are presented.

**Chapter 4** presents a discursive reconstruction of pastoralism in pre-colonial times. Focus is on traditional Nama pastoralism (until ca 1830/ 1840), and it is demonstrated how such migratory pastoralism, based on minimal technological interventions in the landscape and on the economic principle of sufficiency-production enabled a fairly sustainable practice of fodder utilisation, and how typical hunting methods enabled the enduring co-existence of the natural game suite.

**Chapter 5** deals with the current regime of commercial stockfarming. The history and current features of the sector are briefly discussed. This is followed by a more detailed discussion of the structural aspects of such tenure as may be inferred from the general nature of current commercial stockfarming enterprises. Specific focus here is on delineating to which extent structural constraints and relevant considerations may result in veld use which is at odds with inferred natural patterns of fodder production and use by indigenous herbivores. Such delineation does not enable the conclusion of actual degradation or diminished fodder production, but merely suggests the structural potential thereof *qua* significant discontinuities with natural herbivory and traditional pastoralist herbivory. This structural potential is then discussed within the context of current findings related to the state of the OFCA veld under commercial tenure. Further discussion here takes into consideration the evolvement of productive conditions in the

---

<sup>25</sup> Namely, "Attributes of the Orange and Fish River Catchment Area" (Appendix 1) and "Vegetation Types And Plant Biota Of The Ofca, With Special Emphasis On The Nama Karoo Biome" (Appendix 2).

<sup>26</sup> Due to the length of the total extracts, these have not been presented in the body text, but appear separately in appended form (Appendix 3: "Historical Mammal Incidence in the OFCA").

sector since the early 1980's. From this discussion it would appear as if adverse economic conditions are first and foremost responsible for the current crisis. Nevertheless, it will be suggested that current adverse economic factors represent a more realistic productive environment, and thus serve to point out that despite the apparent resilience of the veld, some structural aspects of commercial stockfarming are responsible for predisposing it towards economic crisis under these more realistic productive conditions.

**Chapter 6** presents the conclusions of this study regarding possible losses in veld productivity due to commercial livestock utilisation, and the extent to which the current productive ability of the veld may be a contributing factor to the general crisis the sector is currently facing. Some possible environmentally more suitable alternatives to current farming practices and land use are briefly discussed in conclusion to this chapter.

University of Cape Town

## CHAPTER 2. NATURAL PATTERNS OF FODDER PRODUCTION

### 2. 1. INTRODUCTION

Water and heat stresses are pronounced over most of the OFCA, and the area may be described as arid to hyperarid. This has necessitated evolutionary adaptations in indigenous flora and fauna, and, together with available soils, constitute the main environmental limitations and determinants to natural vegetation growth and specifically to rhythms of fodder production. In turn they limit potential herbivore incidence and concentration in space and over time<sup>27</sup>.

### 2. 2. AN ARID ENVIRONMENT WITH POORLY DEVELOPED SOILS

#### 2.2.1. Low rainfall and high temperatures

As may be observed from figure 3, rainfall is generally scarce throughout the OFCA, and mean annual values range from below 50 mm in the southwestern parts, to 200 mm in the northeastern parts of the area<sup>28</sup>. Evaporation rates for the whole area are extremely high, with values of  $P/PET = - 2.5-3.7$  m/a being typical<sup>29</sup>. It has further been estimated for Namibia as a whole that 83% of precipitation immediately evaporates after a rainfall incident<sup>30</sup>.

Insolation values are typically high, and mean maximum day temperatures for January in the OFCA range between 32.5°C to 35°C, with the eastern portion of the OFCA generally constituting the hottest part of the Southern African subcontinent during that

---

<sup>27</sup> Environmental stresses and limitations to fauna and flora (soils, climate, heat-stresses) are assumed to have remained more or less constant over the past few million years. Paleobotanical evidence suggests that the broad Karoo region has been constantly aridifying since at least the end of the Miocene (ca. 24 m.y.B.P.) (Meadows and Watkeys; 1999: 35). This does not preclude fluctuations in precipitation and temperature on a smaller timescale into the present.

Current predictions indicate that a trend of – possibly anthropogenically induced - global warming will serve to reinforce all of these physical constraints – with expected temperature increases, decreased rainfall, higher evaporation (and as knock-on effect: greater veld denudation, and consequently an expected worsening of biotic soil conditions) (cf. UCT; 2000: 18).

<sup>28</sup> Cf. Barnard et al; 1998: 17: Map 1.1: "Mean annual rainfall in Namibia".

<sup>29</sup> Cf. Barnard et al; 1998: 18: Map 1.2. "Mean water deficit in Namibia".

Here a deficit-range of between minus 2400 – 3800 mm./p.a. is represented for the OFCA, with the area around Keetmanshoop and toward the north and east of it, falling in the highest value category.

<sup>30</sup> Fry; 1995: 160.

The scant vegetation cover of the OFCA, the impermeability of some of its soils and pronounced insolation rates may mean that such evaporation may even be higher in the OFCA.

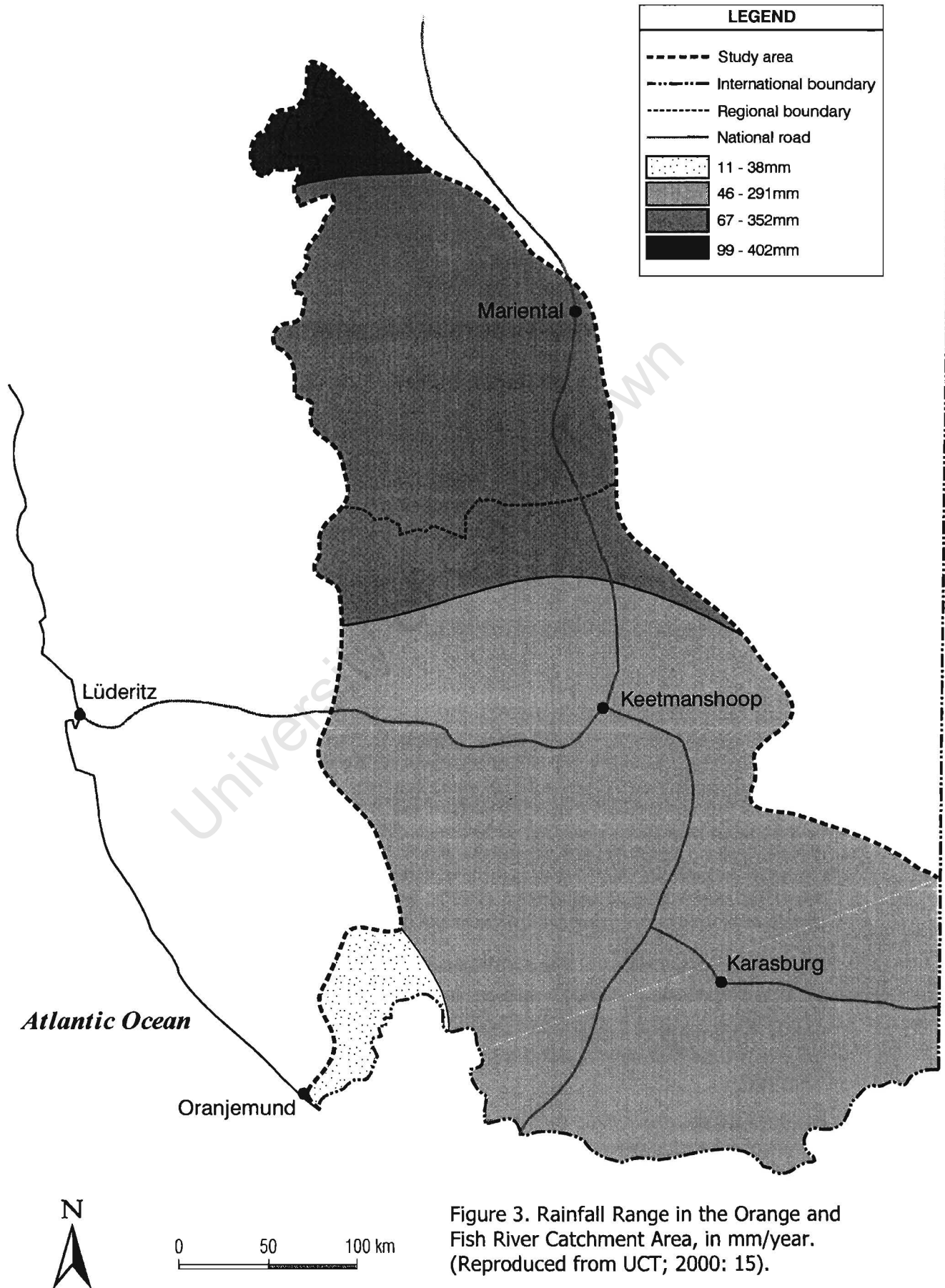


Figure 3. Rainfall Range in the Orange and Fish River Catchment Area, in mm/year. (Reproduced from UCT; 2000: 15).

time of the year<sup>31</sup>. At the same time, mean annual temperature fluctuations are also pronounced – ranging in value from 16-12 °C<sup>32</sup> - again some of the highest in the subcontinent.

### **2.2.2. Unpredictable and discontinuous rainfall incidence**

The rainfall season for the Nama Karoo-biome component of the OFCA is summer. It is situated at the most extreme reach of the Zaire belt and Indian Ocean moisture systems during this time of year<sup>33</sup>. The most important result of this is that rainfall events are typically in the form of scattered thundershowers over a wide and discontinuous rainfall front. There appears to be no clear spatio-temporal patterning to rainfall events, and high variability is the most constant feature<sup>34</sup>. Each shower will rarely extend across a front of more than one km, and a highly irregular distribution of rainfall is usual<sup>35</sup>. Geographical distances between actual showers may be extensive. At the end of the rainfall season, rainfall becomes even more patchy, with intensities diminishing from south to north<sup>36</sup>.

### **2.2.3. Droughts and drought probability**

Long periods of abnormally dry years are common in the OFCA, and it has been shown that within any given eleven year cycle, above average rainfall will occur only for four of the years<sup>37</sup>. Droughts are recurrent on a (bi)decadal scale, and drought probability for the OFCA may be more pronounced than the 30-50% probability (of less than 60% of mean annual precipitation) given for the arid Karoo area as a whole<sup>38</sup>. Recent general droughts in the OFCA occurred during most of the early years of the 1980's decade, as well as in 1992-3<sup>39</sup>. In conclusion, the occurrence of (localised and regional) droughts are more of the rule than an exception within the OFCA.

---

<sup>31</sup> Liversidge and Berry; 1996a: 584: Figure 155: "Mean daily maximum temperature for January in Southern Africa".

<sup>32</sup> Liversidge and Berry; 1996a: 584: Figure 156: "Mean annual temperature fluctuations in Southern Africa".

<sup>33</sup> Hutchinson; 1995: 17-8.

<sup>34</sup> UCT; 2000: 13.

<sup>35</sup> Olszewski and Moorsom; 1995: 48.

<sup>36</sup> Hutchinson; 1995: 20.

<sup>37</sup> UCT; 2000: 16.

<sup>38</sup> Shearing; 1994: 15.

<sup>39</sup> Adams and Werner; 1990: 48; 65; Devereux and Tapscott; 1995: 128 – 130.

#### 2.2.4. Abnormally good rainfall years

It is not unusual for extended dry periods or droughts in the OFCA to be followed by abnormally wet years, although no absolute correlation has been established<sup>40</sup>. Regionally, 1999/2000 was an exceptional rainfall season, with the most rainfall recorded since the 1973/4 rainfall season. Such extraordinary high rainfall years as experienced in 2000 suffice to raise the mean rainfall value for the last 30 years by 10%<sup>41</sup>. The incidence of exceptional rainfall years is, however, unpredictable<sup>42</sup>.

#### 2.2.5. Soils

OFCA soils for the most part are comprised of sandstone and shale-derived lithosols and arenosols, and tend to be poorly developed and shallow<sup>43</sup>. Low rainfall and high temperatures have resulted in humically-deficient soils, putting a further constraint on natural plant growth. Over parts of the Central Plateau area especially, brackish soils and associated groundwater may occur, limiting growth in terms of potential cover and species<sup>44</sup>. Soils derived from the geographically dominant Nama Shale group<sup>45</sup> have the additional problem of tending to become impermeable under these arid and sunbaked conditions. With such low penetration of rainfall, and the soils difficult to break by roots, vegetation cover is generally limited by the incidence of these soils<sup>46</sup>. The general paucity of OFCA soils naturally limits vegetational occurrence productivity and structure.

---

<sup>40</sup> UCT; 2000: 16.

<sup>41</sup> UCT; 2000: 16.

<sup>42</sup> UCT; 2000: 16.

<sup>43</sup> Cf. UCT; 2000: Figure 2.5: "Simplified Soil Types within the Orange/ Fish Catchment Area".

<sup>44</sup> Boois – pers. comm.

<sup>45</sup> The Nama Group shales and sandstones are geologically dominant within the OFCA, and comprise at least 50% of the total area (cf. UCT; 2000: Figure 2.4: "Geological overview of the Orange/ Fish Catchment Area").

<sup>46</sup> Steyn – pers. comm.

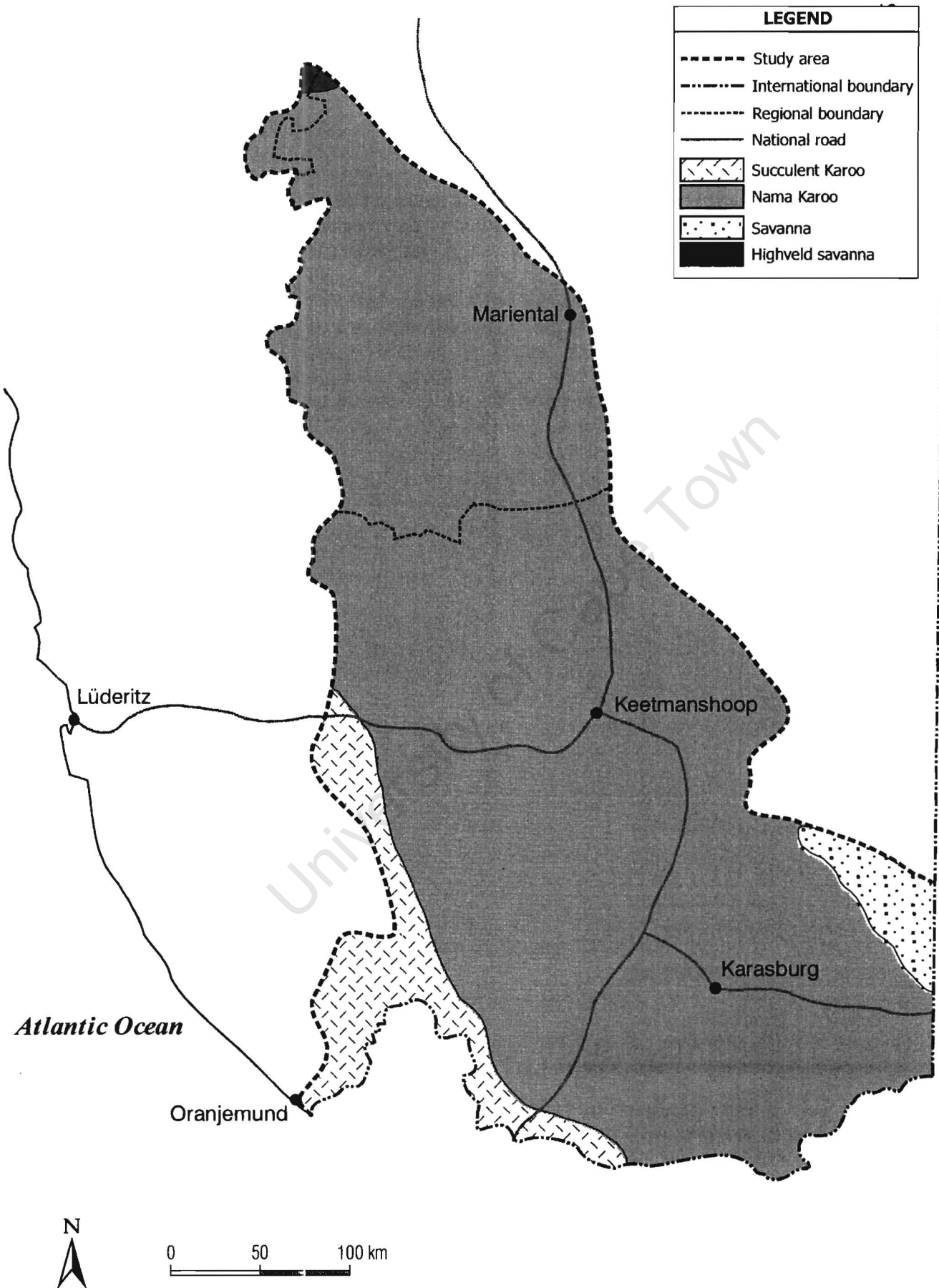


Figure 4. Vegetation Types of the Orange and Fish River Catchment Area (Reproduced from UCT; 2000: 40).

## 2. 3. EFFECTS OF CLIMATIC FEATURES AND SOILS ON VEGETATION AND FODDER PRODUCTION

### 2.3.1. Low rainfall and high temperatures

The availability of water – or soil moisture – is generally considered as the greatest limitation of general plant growth and distribution<sup>47</sup>. Soil moisture is dependent both on factors of precipitation (received) and (evaporative) temperature.

The Nama Karoo has been described as one of the harshest living environments in the broader (and per definition harsh) Karoo<sup>48</sup>. The extremely low rainfall and high summer temperatures of the OFCA mean that vegetation incidence is sparse and plant biomass production is naturally very low. Most of the biomass is concentrated in dwarf shrubs and grasses rather than arborescent species. Generally speaking, trees are limited to ephemeral watercourses and drainage lines, and to the banks of perennial Orange River. Fodder production values are typically low. In the relatively higher potential area around Gibeon for instance, typical productivity values are in the range of 1 t/ ha/ a<sup>49</sup>. Although fodder productivity may be low, the quality of fodder is nevertheless relatively good. This is the result of the "sweetveld" type characteristic of lower rainfall areas in southern Africa<sup>50</sup>.

As a result of the scarcity of perennial surface water sources, the OFCA environment naturally places a constraint on highly water-dependent or aquatic mammal species in terms of distribution and incidence. The general absence and specific incidence of trees means that little cover is available to larger animals, and that such as is available, is concentrated along the narrow confines of watercourses and drainage lines. This not only limits the potential incidence and concentration of cover-dependent species, but also on tree-browsing species. In summary, the typically low fodder productivity of the veld in general translates into naturally low carrying capacities under normal rainfall conditions and temperature regimes. The high palatability and nutritious status of sweetveld vegetation however means that it offers attractive grazing to animals.

---

<sup>47</sup> Desmet and Cowling; 1999: 12.

<sup>48</sup> Desmet and Cowling; 1999: 16.

<sup>49</sup> Neumann – pers. comm.

Compare this with productive values of up to 12 t./ha/a for sourveld in higher rainfall areas of Southern Africa (Neumann – pers. comm).

<sup>50</sup> "Sweetveld" characteristically occurs in areas with low rainfall (< 500 mm.a) and mild winters. Little leaching of inorganic nutrients occurs under low rainfall conditions, and associated soils have a relatively high fertility status in this regard. This is reflected in vegetation which tends to be palatable, and which has high nutritional levels per unit plant biomass. Mild winters have the effect of causing the vegetation to retract little of their nutrients to root-level during the dry season, and the vegetation remains relatively palatable throughout the year (Van Oudshoorn; 1999: 28; Van Rooyen, Bredenkamp and Theron; 1996: 546).

### 2.3.2. Unpredictable and discontinuous rainfall incidence

In Namibia, during the growing season – summer - at least an initial 8-10 mm of precipitation is needed in order to refresh perennial grasses and to initiate the growth-cycle in annuals. Thereafter, a shower of at least 10 mm ca. every 80 days is needed in order to keep the veld alive and to maintain a continuity of grass cover. Depending on the incidence of late rains, perennial grasses will remain alive (if dormant) and nutritious throughout the winter, but not into early summer in the absence of rainfall. If no rain has fallen 2-4 months into summer, these grasses may be put under such severe stress that they may die off and lose all palatability and much nutritional value. Under such stressed conditions, continued grazing will be a further stress, and may significantly lower the veld's ability for survival and recovery<sup>51</sup>.

The inherently high unpredictability, variability and discontinuity of rainfall has the effect that veld regeneration and fodder production in the OFCA are typically interannually geographically discontinuous, even on a localised scale. Thus, particular tracts of veld may not receive timeous or sufficient rain during a particular growing season, and may die off. Typically, pasture regeneration and actual fodder production may be expected to occur in a random "checkerboard" fashion – with regenerated patches typically small in extent, and often distant from each other.

Low and typically irregular rainfall, coupled with high temperatures, may result in the desiccation of fodder plants even under non-drought conditions. In such a state, plants have lost much of their nutritious value, or may otherwise be too dry for animals to utilise without the input of external moisture<sup>52</sup>.

### 2.3.3. Droughts and drought probability

During droughts there is little or no precipitation received. This has results in the massive die-off of vegetation. Unregenerated or moribund vegetation is relatively unpalatable and has lost much of its nutritional value to domestic livestock and indigenous game<sup>53</sup>. Unregenerated or dead vegetation will not produce new growth, and fodder production is thereby halted. Of specific importance, drought-stressed vegetation is most sensitive to grazing pressures, and may rapidly succumb or become severely disturbed<sup>54</sup>. Thus, the pronounced drought frequency of the OFCA serves to reinforce the principle of heterogeneity/ discontinuity of fodder production in inter-annual terms initially derived from the unpredictability and geographical discontinuity of rainfall events under typical (i.e. non-drought) rainfall conditions.

During general drought conditions, pasture becomes unutilisable on a regional scale. While much pasture dies off and disappears, available pasture may become too

<sup>51</sup> Olszewski and Moorsom; 1996: 43-4.

<sup>52</sup> See: Chapter 3.

<sup>53</sup> Olszewski and Moorsom; 1995: 44.

<sup>54</sup> Liversidge and Berry; 1996c: 591.

desiccated to utilise in the simultaneous absence of available surface water. Pronounced drought frequency has the effect of rendering potential pasture principally less utilisable to animals, or severely decreasing productivity for a substantial part of any given period in the OFCA.

#### **2.3.4. Exceptional rainfall years**

During exceptional rainfall years the vegetation benefits from advantageous growing conditions. Biomass production will be significantly higher<sup>55</sup> than under normal rainfall conditions, and grass growth is more vigorous and tall. Thorough wetting of the soils serves to reduce impermeabilities, and allows for the recolonisation of denuded areas by pioneers. Seeds lying dormant in the soil seedbed are activated to massive sprouting. Some plants which are not normally observed in the veld now seem to make their appearance<sup>56</sup>. In short, not only is biomass production exceptional during these years, they also offer a chance for vegetation to repair the effects of drought-mortalities and associated denuded tracts of pasture.

The most immediate effect on potential pasture utilisation is a large increase in carrying capacity. In the case of regionally good rainfall years, veld regeneration and increased fodder availability become more geographically continuous. The availability of taller, more luxuriant grass growth and of specific plants not otherwise in the veld makes possible the sustenance of animals with different feeding requirements to the more resident species. The temporarily greater availability and more extensive distribution of surface water – which collects in pans and smaller depressions – opens up larger parts of the landscape to more water-dependent indigenous game species.

#### **2.3.5. Available soils**

The general absence of deep, mature and rich soils reinforces the limits placed on vegetational growth and fodder production imposed by harsh climatic factors. Generally speaking, soils deep enough to support tree growth are only available on the banks or along the beds of ephemeral watercourses, around fountains, or on the banks of the perennial Orange River, restricting the availability of tree growth as specific habitat and animal-fodder source in the OFCA. Furthermore, soils poor in humic content reinforce the low carrying capacities of the veld primarily caused by low and unpredictable rainfall and high temperatures.

---

<sup>55</sup> In the immediate aftermath of the good rainfall received in 2000 for instance, pastures around Mariental which have a normal assessed carrying capacity of 1SSU/ 15ha, were reported to have produced plant biomass translatable to 1SSU/ 5ha – a threefold increase in biomass production (De Lange – pers. comm.)

<sup>56</sup> At the beginning of 2000, many AEP and farmers reported seeing plants – especially creepers and annuals – for the first time ever in local veld (cf. De Lange – pers. comm.; Pretorius – pers. comm.).

## 2.4. SCARCE SURFACE WATER SOURCES

In addition to the habitat and food provided by vegetation, mammals are also dependent – if to a varying degree from species to species - on the intake of (non-dietary) water for the maintenance of essential metabolic functions. The availability of such water therefore imposes a further determinant to the potential incidence and concentration of mammals in any given environment. Furthermore, the availability of sufficiently substantial and numerous bodies of surface water will determine the incidence and concentration of aquatic terrestrial mammals, or such mammals as otherwise depend on vegetation cover associated with surface water sources.

Due to generally low and variable rainfall, the OFCA contains very few sources of surface water. Perennial surface water sources are limited to the Orange River, pools in the Fish River, and to widely scattered artesian fountains, pools and seeps over the area<sup>57</sup>.

Under suitable rainfall conditions, ephemeral rivers and streams may flow for some distance of their course. Rainfall is however normally too scant to support the flowing of these for any lengthy period of time, and actual flow tends to be limited to days or weeks. In the aftermath of good and closely repeated rainfall events, temporary stagnant pools or wet areas may form in depressions dotted over the generally flat landscape. Given pronounced evaporation rates, such pools tend to be of a very temporary nature. The temporary saturation of soils and some recharge of alluvial aquifers in ephemeral watercourses mean that water may be dug for here for some time after it had physically evaporated from the surface.

During exceptional rainfall years, ephemeral watercourses hold flow for longer periods of time, and flow longer stretches of their courses. In addition to smaller stagnant pools, large shallow pans may also form. Under prolonged good rainfall conditions - such as had been witnessed at the beginning of 2000 – such pools, wet areas and pans may be in existence at various places at different times in the broad landscape over the course of weeks or even one or two months or longer. Proportionally, the higher rainfall northern parts of the OFCA would hold more of these features. During exceptional and protracted rainfall seasons, soil saturation and aquifer recharge would be correspondingly greater, and thus also the window-periods during which water can be dug for. In the light of high evaporation rates, this may however mean nothing more than a few days gained.

The most important implications of these patterns of surface water availability to game are the following:

- Surface water is generally scarce for much of the year, and widely scattered over the area;
- During the wet season, temporary surface water sources may become available for relatively short periods of time;
- During exceptional rainfall years, temporary surface water sources become more widely available over the landscape and may provide water for longer.

---

<sup>57</sup> UCT; 2000: 25.

## 2.5. CONCLUSIONS

Limited and highly variable spatio-temporal distribution patterns in rainfall, the frequent occurrence of droughts and poorly developed soils make the OFCA a very harsh growing environment. The implications for natural fodder production are:

- Generally low biomass and fodder production during typical rainfall conditions;
- Spatially fragmentary regeneration of pastures under typical rainfall conditions;
- Variable and unpredictable fodder production for any given tract of pasture on an inter-annual scale;
- The regular desiccation of vegetation, coupled to possible plant mortalities during fairly frequent drought conditions, with which may be associated greatly diminished carrying capacities;
- During prolonged localised or regional drought conditions, sustained diminished carrying capacities;
- Pasture which needs to be rested from grazing during drought-stressed conditions.

The irregular occurrence of exceptional rainfall years results in the abundant production of fodder and greatly increased carrying capacities. The occurrence of such conditions is typically restricted to specific years, and in the aftermath of these "boom" conditions carrying capacities return to more typical (relatively low) values.

Low and variable rainfall patterns have resulted in the general scarcity of available surface water sources in the OFCA. This naturally places a limit on the occurrence of aquatic terrestrial mammals, and such mammals as are highly water-dependent. During the wet season, or during exceptional rainfall years, ephemeral rivers may flow, and temporary pools and pans may form in the veld, increasing the potential distribution of water-dependent (if not necessarily aquatic) mammals.

In the next chapter, these environmental constraints will be used as a general framework for interpreting historical records of (relevant) mammal incidence in the OFCA in order to reconstruct probable spatio-temporal patterns of natural historical mammal distribution and associated fodder-use.

## CHAPTER 3. THE HISTORICAL GAME SUITE AND PATTERNS OF NATURAL FODDER USE

### 3.1. INTRODUCTION

Historically, the original game suite of the OFCA Nama Karoo biome had been hunted out to a large extent, and during the 20<sup>th</sup> century, extensive livestock farming largely displaced game from the veld. In the first section of this chapter, factors relevant to the reconstruction of the original game suite from available historical accounts are discussed. In the second part of this chapter, a presentation is given of the relevant species which are indicated by the record. Specifically the species of antelope, wild equinines and very large herbivorous animals (that is, larger than Giraffe) are identified.

In the third part of this chapter, spatio-temporal patterns of likely historical incidence and distribution of the relevant antelope and wild equinines are discussed. The aim here is to establish which species were typically resident and conditionally resident in the OFCA, as this may give some clue to likely patterns of fodder use. Firstly, the water requirements of the relevant species are discussed. This is supplemented by a further discussion of essential habitat requirements. From this discussion, three categories of probable incidence are then deduced, and associated species are identified.

In the fourth part, the general feeding preferences and the social behaviour of the relevant species are discussed. Specifically, structural elements of natural herbivory are inferred following from previously inferred spatio-temporal patterns of distribution and incidence, as well as with reference to currently known facts of feeding and social behaviour of the relevant species against inferred patterns of fodder-production and surface water availability in the OFCA (see: Chapter 2). General implications for veld use and regeneration are discussed together with each identified structural aspect.

### 3.2. The historical record of game incidence in the OFCA

Of the whole of Namibia, the south – Namaland – has historically suffered the largest proportional amount of mammal extinctions<sup>58</sup>. Due to historical reasons – specifically the incursion of European influences into Namibia from the Cape and across the Orange River by the latter decades of the 18<sup>th</sup> century – southern Namibia also experienced the earliest extinctions.

Traditional Nama, Damara and San hunting practices and technology probably had very little impact on game numbers in the OFCA, and traditional pastoral regimes by and large allowed the co-existence of indigenous herbivores<sup>59</sup>. By the mid-19<sup>th</sup> century however, the introduction of fire-arms and horses had become widespread, and commercial hunting of wildlife resources was becoming a major aspect of the Namaland

---

<sup>58</sup> UCT; 2000: 47.

<sup>59</sup> See: Chapter 4.

economy as it became firmly locked into trade dependency on the Cape. By this time, many of the larger mammals were becoming locally extinct, or were in the process of serious decline. Moreover, as game-stocks became locally depleted, Namaland hunters started venturing into adjacent parts of Namibia, exerting similar pressures there<sup>60</sup>.

In the colonial period, further significant developments considerably altered the Namaland environment. Productive human settlement became more or less contiguous, and the landscape fragmented by physical barriers in the form of perimeter fencing. Extensive commercial pastoralism in the 20<sup>th</sup> century meant that much of the fodder potential of the OFCA became unavailable to game as this was now used by domestic livestock. Furthermore, hunting continued unabated, and many further game mammals became locally extinct or severely reduced in numbers. Remnants of herds survived on OFCA commercial farms, and in time game from elsewhere may have become reintroduced onto some OFCA farms.

In order to gain some understanding of the characteristics of the original game suite, it is necessary to refer to such historical records as may be available for the period before the severe disruption and decline of OFCA game. The historical record is very limited, and spans the relatively short period from 1760 to the 1840's, whereafter the game suite was in a process of severe decline.

The historical sources from which extracts have been assembled include:

- The narrative of the elephant hunter Coetsé Jansz: (1760)
- Brink's journal of Captain Hop's expedition (1761/2)
- The account of the DEIC deserter Hendrik Wikar (1778/9)
- The journal of Lieutenant William Paterson (1778/9)
- The account of Sebastiaan van Reenen (1792)
- The journals of the explorer Captain Alexander (1836/7)

With the exception of Alexander, all these early travellers travelled either along the banks of the Orange River, to the Orange River mouth, or in the Nama Karoo portion of the OFCA and Namaqualand and Bushmanland in South Africa. While considerable overlap occurs between the parts of the OFCA visited by early travellers, large tracts of the OFCA were neither visited nor described<sup>61</sup>.

---

<sup>60</sup> This will be further discussed in Chapter 4 when the import of the Oorlam migrations into Namaland is briefly under discussion.

<sup>61</sup> See: Appendix 4 "Background to the trips and reconstruction of the routes taken by historical observers", for some background information on these sources, and for descriptions of the reconstructed routes presumably taken by them.

### 3.3.1. The reconstructed game suite.

From the historical record<sup>62</sup>, the following relevant large herbivorous mammals have been found to have occurred in the OFCA:

Of the very large herbivores, African Elephant, Black Rhino, Hippopotamus and Giraffe appear to have definitely occurred in the OFCA. The historical occurrence of White Rhino has not been conclusively established, but the species may have occurred opportunistically under suitable rainfall conditions<sup>63</sup>.

Of the small antelope, records have been found for Steenbok, Common Duiker and Klipspringer. No records could be found for Grey Rhebuck, but this species may also have occurred within a very restricted range<sup>64</sup>.

Of the medium and large antelope, records have been found for Buffalo, Eland, Kudu, Gemsbok, Red Hartebeest, Blue Wildebeest and Springbok.

Two species of wild equines have been found to have historically occurred in the OFCA: Burchell's Zebra, and Hartmann's Mountain Zebra.

### 3.3.2. Current status of relevant species

All three confirmed species of small antelope still exist in a natural state on OFCA lands – if probably in smaller numbers than during historical times. The survival of these species may be explained by their smaller size, ability to move through fences, lower visibility and the fact that they do not occur in large and conspicuous herds<sup>65</sup>.

---

<sup>62</sup> See: Appendix 3 "Historical Mammal Incidence in the OFCA" for a complete presentation of relevant extracts from sources.

<sup>63</sup> The species prefers short grass. Access to thick bush for shade, water for wallowing and daily drinking are essential requirements (cf. Stuart and Stuart; 1997: 80). These factors may have limited occurrence in the OFCA to the occurrence of good or exceptional rainfall years.

<sup>64</sup> By 1934 Shortridge could find no confirmation of the species' historical or current occurrence in Namibia (Shortridge; 1934a: 519), but in 1936 found evidence of the occurrence of a few individuals in Namaqualand in the ranges of the Richtersveld (Skead; 1980: 480). Possible historical distribution in is Namibia likely confined to mountainous areas in the extreme Southwest.

<sup>65</sup> Steenbok and Common Duiker typically occur solitary, or in pairs (Stuart and Stuart; 1988: 216; 222), and Klipspringer in pairs or small family groups (Stuart and Stuart; 1988: 214). All species are unconstricted by fencing, and generally able to move through them (Van Rooyen, Du Toit, Van Rooyen; 1996: 78).

Of the medium and large antelope, Buffalo may have become locally extinct well before the close of the 19<sup>th</sup> century<sup>66</sup>, and Eland not long thereafter<sup>67</sup>.

With the exception of Kudu, all the large and medium antelope have ceased to exist in a truly wild state in OFCA stockfarming areas<sup>68</sup>. Such animals as do still exist either represent the remnants of original herds<sup>69</sup>, or have been subsequently reintroduced from outside the OFCA. The fencing-in of such animals under current property regimes has put a stop to natural patterns of herbivory in these cases, and the animals are essentially "farmed" along with stock<sup>70</sup>.

Of the wild equines, Burchell's Zebra became extinct in the OFCA sometime before 1934<sup>71</sup>. As with the medium and large antelope, the wild equines as do still exist on

---

<sup>66</sup> By 1934 Shortridge found Buffalo in Namibia restricted to the Caprivi. Nama and Bushman lore indicated that the species may have occurred in the Gobabis district within living memory of the older generation, but Shortridge did not find this in the case of traditional Namaland (cf. Shortridge; 1934a: 440-2).

<sup>67</sup> By 1934 Shortridge found the species to no longer occur in the OFCA anymore (Shortridge; 1934a: 608-9).

<sup>68</sup> Kudu are prolific jumpers, and able to clear jackal-proof fencing with considerable ease (Liversidge and Berry; 1996d: 599). This would enable the species to continue moving more or less freely after the general introduction of perimeter fencing. The fact that the species is less conspicuous in habit than plains game may have served to enable it to hold its own in the wild to some extent despite hunting pressures (cf. Bigalke; 1958: 495).

<sup>69</sup> Extensive hunting with firearms and horses from the 1840's onwards appear to have seriously decimated numbers of all local game. Hunting was both for subsistence and commercial purposes (cf. Lau; 1987: 45-6). Within the 1850's for instance, much of the large game in settled Namaland had become wiped-out, and by the late 1850's the Bethany people already had to travel as far as the Kalahari to hunt for food supplies (Lau; 1987: 56). Extensive settlement of the OFCA during the first half of the 20<sup>th</sup> century, coupled to the use of more sophisticated rifles would have added to these hunting pressures. The naturally low carrying capacity of the OFCA would have meant that the effects of hunting could become significant within a scale of decades.

<sup>70</sup> Before the southern stockfarming districts became extensively fenced in, game movements – albeit by seriously decimated populations – were still possible. Thus, by 1934, Shortridge could still confirm migratory movements of Gemsbok, Red Hartebeest, Blue Wildebeest and Springbok for at least some parts of the OFCA (Shortridge; 1934a: 450-1; 468-9; 541; 561-2). With the exception of Springbok, Shortridge found numbers of all species in the OFCA to have become very limited, and in the case of Red Hartebeest and Blue Wildebeest, with only occasional incursions along the extreme easternmost part of the OFCA.

None of these species are able to clear jackal-proof fencing (Liversidge and Berry; 1996d: 599), although Blue Wildebeest bulls may occasionally break through fences (Van Rooyen, Du Toit, Van Rooyen; 1996: 78).

<sup>71</sup> It seems fair to assume that the wild equines may have been subjected to severe commercial hunting for their skins by the time hunting articles (ivory, ostrich feathers and exotic skins) started replacing cattle as main articles for trading within the Cape trade network – by ca. the 1860's (cf. Lau; 1987: 58; 94).

stockfarming lands in the OFCA either represent the remnants of original herds, or have been subsequently reintroduced from outside the OFCA. Similarly, the fencing-in of such animals has put a stop to natural patterns of herbivory in these cases, and the animals are essentially "farmed" along with stock<sup>72</sup>.

All of the large herbivores have become extinct in the OFCA. With the exception of Hippopotami, all the species appear to have become locally extinct before the end of the 19<sup>th</sup> century<sup>73</sup>. Thus, for much of the 20<sup>th</sup> century – and especially after the widespread erection of fences – the OFCA veld has not been utilised under naturally evolved patterns of herbivory, but rather under a regime of dominant livestock farming.

### 3.3.3. Focus on large and medium antelope and wild equinines

In order to reconstruct a comparative set of natural herbivory patterns, the focus here is on relevant medium and large antelope and on the wild equinines. In social behaviour, these species most closely resemble current pasture utilisation by flocks of smallstock and herds of domestic cattle<sup>74</sup>. As such, some comparison between direct feeding-niche competitors is vouched<sup>75</sup>. Furthermore, all of these species have ceased to exist in

---

At any rate, by 1934 Shortridge found Burchell's Zebra extinct in the OFCA, and Hartmann's Mountain Zebra the only wild equinine to still occur in some of the districts south of the Ugab River (Damaraland) in Namibia (Shortridge; 1934: 390-1).

<sup>72</sup> Neither of these species are prolific jumpers, and are generally contained by jackal-proof fencing.

<sup>73</sup> In Skead's assessment, the last Hippopotami on the Lower Orange became extinct sometime between 1925 and 1930 (Skead; 1980: 419).

Exact determination for the other relevant species is somewhat more difficult and imprecise: Based on observations by Alexander (1836/7), it appears as if Elephant was becoming scarce by the late 1830's, and may have become locally extinct within the same or following decade (cf. Alexander; 1838: 191) – as would tally with Lau's reconstruction of hunting patterns in the OFCA after the Oorlam conquest of Namaland (cf. Lau; 1987: 45-6).

By the late 1920's and early 1930's, Shortridge found Black Rhino extinct in the OFCA, but to have occurred there within living memory of old Nama and Bushmen (Shortridge; 1934: 415). That would suggest incidence until sometime around the 1860's or 1870's.

No indication could be found when Giraffe had become extinct, but by 1934 Shortridge found the species extinct south of 22° S in Namibia (Shortridge; 1934a: 620-1). Naturally low concentrations on the sparse and generally treeless OFCA veld, and the zeal with which the species was hunted probably means that it had become locally extinct in the OFCA well before the close of the 19<sup>th</sup> century.

<sup>74</sup> The relevant medium and larger antelope are typically gregarious, and occur in fairly large herds under at least some conditions. Both species of wild equinines essentially associate in family or breeding herds, but readily congregate into larger herds under specific veld conditions (cf. Stuart and Stuart; 1988).

<sup>75</sup> Direct niche competition varies between species. In the case of Springbok, it has been found that the species directly competes with dorper-type sheep for typically ca. 60% of available fodder resources (Liversidge and Berry; 1996d: 598).

significant numbers on OFCA stockfarming lands, and most importantly, existing animals do so under fenced-in conditions where they are no longer able to follow natural patterns of veld use.

Kudu have been excluded from the discussion on account of the fact that the species seldomly occurs in large congregations<sup>76</sup>, and that it to some extent still occurs wild and relatively unrestricted in the OFCA – if probably in much smaller numbers than had historically been the case due to herbivory competition, out hunting and other anthropogenic pressures.

Small antelope have similarly been excluded from consideration here due to their social behaviour and the fact that they still to occur to some extent in a "wild state" on OFCA stockfarming lands. While their numbers may have become reduced in historical times, veld use patterns are assumed to have remained fairly constant.

Fodder utilisation by Black Rhino, Elephant and Giraffe would have been relatively extensive per animal due to large body-sizes<sup>77</sup>. Considerable body sizes together with the specific feeding behaviour of Elephant<sup>78</sup> - would have served a structural function within the OFCA vegetation in breaking mature, senescent or dead shrub and tree growth, and thus opening up space for the rejuvenation of growth. If White Rhino had historically occurred in the OFCA, its habit of seeking shelter in dense thicket and scrub would have had a similar action. Giraffe would have occupied a specific feeding-niche, namely that of (tree) crown feeding<sup>79</sup>. Elephants, due to their high dietary intake of fruit and seed-pods fulfil an important ecological function in the dispersal of the seeds of arborescent species<sup>80</sup>. The fact that all of these species have become extinct within the OFCA, and have not been replaced by livestock able to fulfil the same environmental functions, clearly has implications for veld regeneration patterns. Nevertheless, these species have been omitted from the reconstruction of historical veld use patterns. This has been done primarily in order to simplify comparison within the restricted scope of this investigation. Further motivating factors include the following:

- Fodder, water and shade requirements would have naturally limited historical Elephant population numbers, and probably have restricted continuous incidence to the Orange River and pools of the Fish River<sup>81</sup>, with possible incidence in the

<sup>76</sup> Although some larger groups are occasionally seen, Kudu typically occur in small family groups of 3-10 (Stuart and Stuart; 1988: 186).

<sup>77</sup> Daily fodder intake for mature Elephant is between 150-300 kg; for Giraffe 60-70 kg (cf. Stuart and Stuart; 1997: 98; 222).

<sup>78</sup> Especially during the dry season, Elephants tend to strip trees of their bark, or to use their trunks in order to push over trees or break off branches (cf. Stuart and Stuart; 1997: 222).

<sup>79</sup> Cf. Stuart and Stuart; 1988: 180.

<sup>80</sup> Cf. Stuart and Stuart; 1997: 222.

<sup>81</sup> These are essential habitat requirements for the species (cf. Stuart and Stuart; 1988: 164). Long-distance migrational movements to surface water sources have been recorded in the case

proximity of ephemeral watercourses during good rainfall years. Elephant would thus have been absent from most of the flat and generally treeless expanses of the OFCA stockfarming lands;

- Black Rhinos are typically solitary on large home ranges (in arid areas), and require surface water sources for drinking and wallowing on a fairly frequent basis<sup>82</sup>. Browsing habit, and the essential habitat requirement of dense thickets for shade during diurnal resting<sup>83</sup> would have restricted this species to the vicinity of ephemeral watercourses in OFCA stockfarming lands. Solitary behaviour, low concentrations and restricted incidence have led to omission of this species from the reconstruction of natural fodder utilisation patterns;
- Giraffe may go for long periods without water, but are nevertheless water-dependent. Furthermore, the species appears to be restricted to the proximity of Acacia forest - even if they may feed over a wide spectrum of plants<sup>84</sup>. These factors would have naturally limited incidence and concentration in the historical OFCA to the vicinities of watering holes and the arborescent vegetation associated with ephemeral watercourses;
- The historical incidence of White Rhino has proved to be inconclusive from the available record.

Hippopotami have been excluded on the grounds that they have historically been limited to the aquatic habitat of the Orange River, and as "azonal" species would not have had much impact on veld use on stockfarming lands as such.

Veld use by non-antelope mammal species – hares, rodents, primates, suids, etc. – and by other animals such as Ostrich<sup>85</sup> have not been considered here. In the case of

---

of arid-area populations in the Kaokoveld (cf. Skead; 1980: 286), but the co-incidence of essential habitat requirements in the OFCA would have naturally limited numbers even under good rainfall conditions.

<sup>82</sup> In arid areas, home ranges for individuals (and in the case of females, sometimes accompanied by calves) may be in the extent of 500 km<sup>2</sup> (Stuart and Stuart; 1997: 78). In these areas, individuals may go for periods of up to 5 days without visiting surface water sources (Stuart and Stuart; 1997: 78). As the species is unable to metabolise body water from fodder, regular drinking is nevertheless an essential requirement.

<sup>83</sup> According to Stuart and Stuart (1988: 172) even arid-area populations in the Kaokoveld require thickets of up to 4 m for shade when resting.

<sup>84</sup> Cf. Shortridge; 1934a: 623-4.

<sup>85</sup> Alexander frequently met with Ostrich throughout the OFCA during his travels in 1836/7 – at Warmbad (Alexander; 1838: 178; 198); SE of the Great Karas mountains (Alexander; 1838: 214); near the Gurib river ca. 30-40 km ESE of Bethany (Alexander; 1838: 248); near Helmeringhausen (Alexander; 1838: 269); near the Huns mountains (Alexander; 1838a: 238; 240). By the 1870's hunting pressures in the OFCA had similarly decimated Ostrich populations – around Bethany for instance, they were virtually extinct by this date (Lau; 1987: 58).

termites and outbreaks of brown locusts<sup>86</sup>, continuous and occasional fodder use may have been – and still is – extensive. For the sake of comparing herbivory patterns however, these factors have been assumed here to have remained constant into the present, and have been excluded from consideration.

### 3.4. PATTERNS OF SPATIO-TEMPORAL DISTRIBUTION

#### 3.4.1. Water dependency

The specific surface water dependency of relevant game would naturally dictate their incidence, distribution, and concentration within the OFCA at various times, and thus influence patterns of fodder use. The water requirements of the relevant historical game suite are therefore now considered.

The following table represents (daily) surface water dependency for relevant OFCA game. Moist veld conditions here refer to such conditions where typical fodder species have not become desiccated as a result of localised or regional droughts, and where plants with a high moisture content like succulents and wild cucumbers are still relatively available within the veld.

Table 3.1.<sup>87</sup>: Water dependency of OFCA game under various veld conditions

| Species                   | Independent under moist veld conditions | Dependent under moist veld conditions | Independent under desiccated veld conditions | Dependent under desiccated veld conditions |
|---------------------------|---|---------------------------------------|--|--|
| Burchell's Zebra          |   | √                                     |  | √  |
| Hartmann's Mountain Zebra |   | √                                     |  | √  |
| Buffalo                   |   | √                                     |  | √  |
| Eland                     | √                                       |                                       |  | √  |
| Gemsbok                   | √                                       |                                       |  | √  |
| Blue Wildebeest           |   | √                                     |  | √  |
| Red Hartebeest            | √                                       |                                       |  | √  |
| Springbok                 | √                                       |                                       |  | √  |

Under moist veld conditions, the wild equinines are water dependent. Of the antelope, only Buffalo and Blue Wildebeest are water dependent.

<sup>86</sup> Both Wikar (1778) and Alexander (1837) experienced the outbreaks of Brown Locusts – Wikar in Northern Bushmanland, and Alexander on his way to the Bullsport in the Naukluft mountains (cf. Alexander; 1838: 296-7; 300; 1838a: 24).

<sup>87</sup> Table compiled from: Bothma, Van Rooyen and Du Toit; 1996: 144-5; Liversidge and Berry; 1996a: 581-2.

Water requirements here differ from species to species, and water dependency may not actually necessitate strictly daily drinking, but fairly frequent drinking is nevertheless a prerequisite for survival. Where no actual surface water is available, some species may dig for water<sup>88</sup>, but such reserves will tend to be short-lived.

Water-dependent species are only able to utilise available fodder within fairly accessible reach of surface water sources, even under conditions where the fodder itself may still hold significant levels of plant-moisture, such as during the wet season. Under typical (non-drought) OFCA rainfall conditions, continuous veld use of these species would have been limited to the vicinity of perennial surface water sources. During the wet season, after good localised rainfall, or during exceptional rainfall years, broader incursions into the OFCA veld would have been possible for as long as temporary sources of surface water – stagnant pools, pans and seeps – lasted. Such incursions may not have been limited to populations normally resident in the OFCA, and may well have included substantial in-migrations from adjacent areas, especially in the case of exceptional rainfall years<sup>89</sup>.

Under moist veld conditions, most of the antelope may survive considerable periods of time without surface water by being able to metabolise body water from plant moisture in their diet<sup>90</sup>. For all of these species it has been found that typical fodder selection favors factors of moisture content over energy and protein requirements<sup>91</sup>.

Of these species, Gemsbok is probably the least dependent on surface water. In the (previous) Kalahari Gemsbok Park of the RSA for instance, it has been found that even when surface water is readily available, Gemsbok will only very infrequently tend to drink. The other relevant species on the other hand, would all drink regularly<sup>92</sup>.

During the wet season the range and distribution of water-independent species are determined more by the availability of regenerated fodder than by the availability of surface water. Good rainfall events on a localised scale or exceptional rainfall years would have primarily benefited these species in terms of fodder production.

While fodder may become desiccated during the dry season – now containing a high proportion of cellulose and lignin – the availability of succulent plants, subterranean plant structures – roots and tubers – and the high moisture-content fruit of indigenous wild cucumbers (*Citrullus* spp.; *Acanthosycos naudinianus* - Gemsbokkomkommer) will

---

<sup>88</sup> Under natural conditions, Steinhardt has recorded Harmann's Mountain Zebra digging pits (up to half a meter in width) in sandy riverbeds for water (Shortridge; 1934: 392), and Shortridge Blue Wildebeest to dig for water and keep open pits for several weeks after surface water had practically dried up (Shortridge; 1934a: 471).

<sup>89</sup> This will be further discussed later when migratory behaviour, feeding habit and other habitat requirements are under discussion.

<sup>90</sup> Liversidge and Berry; 1996a: 582.

<sup>91</sup> Liversidge and Berry; 1996a: 581.

<sup>92</sup> See: Johns; 1993: 81; 87.

still provide sufficient dietary moisture to Eland, Red Hartebeest, Gemsbok and Springbok in order to initiate the metabolic utilisation of otherwise too dry fodder<sup>93</sup>. If conditions are not too dry yet, some water may also be accessed by digging with hooves in the beds of ephemeral watercourses. Given the ability of Gemsbok, Red Hartebeest, Eland and Springbok, to draw sufficient moisture from moisture-rich plants during dry-veld conditions, these species would still be able to survive without surface water without any further restrictions to range or distribution.

In the absence of moist fodder or moisture rich plants, water-independent antelope become dependent on surface water in order to be able utilise the dry fodder<sup>94</sup>. In the absence of water under these conditions – even when relatively abundant desiccated fodder is still available – these species will die of hunger if they do not out-migrate. Severely desiccated veld conditions coincide with drought conditions. Accordingly, surface water sources also become scarce, and progressively so as drought conditions continue. Prolonged drought conditions reinforce the unavailability of moisture-rich plants. Not only would these plants progressively become less available due to herbivory pressures, in the absence of rainfall, annual fruit production of the wild cucumbers would cease.

During desiccated veld conditions all indigenous game thus become dependent on surface water, and will only be able to utilise fodder within accessible reach thereof.

As surface water sources grow scarcer or disappear during (prolonged) droughts, the veld become unable to support any (significant) numbers of game, irrespective of the availability of (desiccated) fodder.

#### **3.4.2. Categories of historical spatio-temporal incidence**

In the arid and surface-water-scarce environment, the water-requirements of game would more than any factor have determined the occurrence and distribution of different species in time and over space. This however still does not give any indication as to which species would have been resident in smaller numbers throughout the year – even when dependent on surface water – and which would have been present only seasonally or during exceptional rainfall years. In order to determine this, further essential aspects of habitat and feeding requirement need to be taken into account. Taking these factors into consideration along with the assessed water-dependency, and furthermore known facts about the typical social behaviour of the relevant species, the following categories of typical incidence-patterns and associated veld use may be reconstructed.

---

<sup>93</sup> Liversidge and Berry; 1996b: 586.

<sup>94</sup> Liversidge and Berry; 1996a: 582.

### 3.4.2.1. Typically resident species

The relative water-independence of Eland, Gemsbok, Red Hartebeest and Springbok would appear to qualify these species as most likely to have been resident in the OFCA under normal rainfall conditions. All of these species are able to metabolise their own body-water from dietary moisture intake – whether directly from fodder plants during the wet season, or by supplementing dietary intake of more desiccated fodder by moisture-rich plants, subterranean plant parts or fruits when the veld has become dry. Under normal rainfall conditions, some tracts of pasture within the broad OFCA would become regenerated to produce moist fodder, and fruit of wild cucurbits would be available until the onset of the next wet season<sup>95</sup>. While most of these species – with the possible exception of Gemsbok – will drink regularly when surface water should be available, they may nevertheless be able to survive throughout the year by only drinking very irregularly, or even not at all. For these species it would then appear as if the availability of sufficient fodder and suitable moisture plants, rather than water-availability, would determine typical incidence. Under normal rainfall conditions, some year-round residency within the broad OFCA may therefore be assumed. As water-dependency changes under drought conditions, this would no longer hold.

While the Eland appears to be a candidate for typical residency, other factors militate against it. Specifically, while none of the other identified species has a need for available cover, the Eland needs some tree or shrub cover to shelter from the midday heat<sup>96</sup>. The low incidence of suitable cover for this large animal over much of the OFCA, together with typical gregarious behaviour<sup>97</sup> and large biomass consumption, makes it unlikely that this species would have been resident to any significant extent in the broad area, where the regeneration of pasture is variable, unpredictable and not necessarily correlated with cover. More likely, significant incidence would have been limited to exceptional veld conditions - where for a relatively short period the abundant availability of fodder would have overridden considerations of suitable cover, and a more homogeneously regenerated veld would have enabled the species to find sustaining pasture while trekking between locations with suitable cover.

---

<sup>95</sup> The creeping annual herb *Citrullus lanatus* – Tsamma Melon – produces fruit in summer after rain had fallen. The plants produce prolifically, and the fruit are long-lasting, and some fruit may be available during the nine dry months of the year (cf. van Wyk and Gericke; 2000: 38).

<sup>96</sup> Shortridge; 1934a: 611; Liversidge and Berry; 1996e: 603.

The Colour patterning of Springbok, along with its relatively thin skin enable it to reduce heat stresses (Liversidge and Berry; 1996a: 581-2).

The Gemsbok provides a remarkable example of adaptive heterothermy: its body temperature fluctuates in response to ambient temperatures (any time of night or day), and furthermore no moisture is lost by sweating. It can thus tolerate temperatures of 45 °C for up to eight hours. Overheating of the brain is countered by circulating arterial blood through a fine network of vessels in the nasal area, with the blood being cooled through panting (Johns; 1993: 84).

<sup>97</sup> Under natural conditions, typical herd sizes are in the region of 60 individuals (Stuart and Stuart; 1988: 184).

### 3.4.2.2. Water-dependent resident species

While both Burchell's Zebra and Hartmann's Mountain Zebra are water-dependent species, typical behaviour patterns of these species may have meant that at least some groups of both species were resident under typical rainfall conditions.

Under natural conditions, the movements of Burchell's Zebra are dictated by obtaining veld conditions and the availability of surface water. The species does not require cover, and typically occurs in small family groups of 4-6 individuals<sup>98</sup>, with larger congregations only occurring under suitable veld conditions, or while migrating to such<sup>99</sup>. The species is able to trek over considerable distances fairly rapidly, and may cover much ground between available sources of fodder and surface water. While predominantly grazers, they will also browse when grazing is limited<sup>100</sup>. Such factors would have enabled the species to be flexible enough to survive in scattered herds throughout much of the more level terrain of the OFCA during typical annual conditions.

Similarly, Hartmann's Mountain Zebra is not territorial under natural conditions, and individuals tend to wander widely<sup>101</sup>. While the species has a preference for broken, mountainous or rocky terrain, it has no absolute requirement for vegetation cover<sup>102</sup>. The species typically occurs in small harem or bachelor groups. Larger temporary congregations of up to 50 individuals may occur, when migrating, at available water sources during the dry season, or when pasture is abundant<sup>103</sup>. Like Burchell's Zebra, the species is predominantly a grazer, but will also browse when insufficient grazing is available<sup>104</sup>. Unlike Burchell's Zebra, the species has a distinct preference for arid environments throughout its (current) distribution range<sup>105</sup>.

While similar factors of flexibility would potentially indicate the occurrence of at least some groups of Hartmann's Mountain Zebra in the OFCA throughout the year, the species' preference for mountainous habitat would have restricted typical occurrence to

---

<sup>98</sup> Stuart and Stuart; 1988: 170; Stuart and Stuart; 1997: 74).

Family groups are formed around a dominant stallion, and small independent bachelor herds also occur.

<sup>99</sup> Migratory congregation has the advantage of predator protection gained from the security of numbers.

<sup>100</sup> Stuart and Stuart; 1988: 170.

<sup>101</sup> Stuart and Stuart; 1997: 70.

<sup>102</sup> Cf. Shortridge; 1934: 392.

<sup>103</sup> Stuart and Stuart; 1997: 70; Shortridge; 1934: 392.

<sup>104</sup> Stuart and Stuart; 1997: 70.

<sup>105</sup> Cf. Shortridge; 1934: 392. Also compare current distribution in Stuart and Stuart; 1997: 70; 74.

the extreme western parts of the OFCA along the Schwarzrand, the broken terrain along the Orange River valley, and the vicinity of the Karas mountains.

### 3.4.2.3. Typically incursive species

Of the relevant game species, only Buffalo and Blue Wildebeest still remain to be discussed. Both of these species – along with the Eland, as discussed above - appear to have occurred within the broad OFCA only under specific conditions.

Buffalo are highly gregarious animals, with herds sometimes numbering up to several thousand individuals. Herds define clear home ranges under typical rainfall conditions near abundant supplies of water, fodder and cover. Cover is an essential requirement, and the species only makes use of open grassland when access to cover is available<sup>106</sup>. After good rains, however, Buffalo may wander far afield – drinking from pans and vleis – and then returning to their home territories when temporary water dries up<sup>107</sup>. The species has a distinct feeding preference for dense swards of grass, but may feed on reeds and aquatic plants associated with perennial surface water sources during the dry months<sup>108</sup>. In the OFCA, Buffalo, therefore, probably only occurred in the Orange River valley throughout the year. After good rainfall or during exceptional years, they would have been able to make incursions into the broader OFCA veld, in all probability sticking to the vicinity of cover provided by the arborescent vegetation associated with ephemeral watercourses.

Access to drinking water and arborescent shade during the hot hours of the day are essential requirements of Blue Wildebeest<sup>109</sup>. The species is gregarious, typically occurring in herds of up to 30 individuals, but may congregate into extremely large herds during migratory events<sup>110</sup>. Blue Wildebeests are essentially grazers, with browse forming almost no part of their feeding. This, together with the species preference for short green grass, mean that the species is typically highly migratory<sup>111</sup> – with migrations being typical for large numbers of animals, as opposed to smaller, stable individual herds<sup>112</sup>. Smaller herd sizes, smaller individual sizes, a preference for short grass and the fact that the species will to some extent consume moisture-rich wild

---

<sup>106</sup> Stuart and Stuart; 1988: 182.

<sup>107</sup> Shortridge, after Wilhelm; 1934a: 445.

<sup>108</sup> Stuart and Stuart; 1988: 182.

<sup>109</sup> Stuart and Stuart; 1988: 204; Liversidge and Berry; 1996e: 602.

<sup>110</sup> In the Serengeti ecosystem, the seasonal migratory events which still occur probably involve the largest existing terrestrial migration events on the planet (Stuart and Stuart; 1997: 158).

<sup>111</sup> Stuart and Stuart; 1988: 204.

<sup>112</sup> Predation pressures from especially (typically sedentary) lions provide the primary motivation for such mass-migration movements.

cucurbits<sup>113</sup> and artificially keep temporary watering-holes open by digging with their feet mean that Blue Wildebeest will be able to inhabit the broad OFCA environment for longer periods of time than Buffalo. The species probably occurred in the OFCA only during the wet season or in good rainfall years, with extensive out-migrations towards the onset of dry veld conditions and the disappearance of temporary sources of surface water.

### 3.5. STRUCTURAL ASPECTS AND ASSOCIATED IMPLICATIONS OF PROBABLE HERBIVORY PATTERNS

On the basis of inferred typical occurrence, some likely structural elements of typical herbivory patterns may now be reconstructed. First of all however, a closer look will be taken at some further aspects of feeding preference, habit and migrational behaviour in the relevant species.

The following table summarises feeding preferences and habits in the relevant game species. This table is intended as a point of reference in the discussion below, and is not discussed separately.

Table 3.2.<sup>114</sup>: Herbivory preference and habit of OFCA game

| Species                   | Grazing preference | Browsing preference | Browse and graze | Grass length specific |
|---------------------------|--------------------|---------------------|------------------|-----------------------|
| Burchell's Zebra          | √                  |                     | √ (Occasional)   |                       |
| Hartmann's Mountain Zebra | √                  |                     | √ (Occasional)   |                       |
| Buffalo                   | √                  |                     |                  | √ (Tall)              |
| Eland                     |                    | √                   | √                |                       |
| Gemsbok                   | √                  |                     | √                | √ (Short)             |
| Blue Wildebeest           | √                  |                     |                  | √ (Short)             |
| Red Hartebeest            | √                  |                     | √                | √ (Short)             |
| Springbok                 | √                  |                     | √                | √ (Short)             |

#### 3.5.1. Nomadic, rainfall-triggered movements to grazing pastures under typical rainfall conditions

From the table above, it is clear that, with the exception of Eland, all the relevant species have a grazing preference. Focus in the following discussion is on inferred resident species only.

<sup>113</sup> In the Kalahari for instance, such intake has been found to sometimes consist of up to 10% of total dietary intake (Liversidge and Berry; 1996: 602).

<sup>114</sup> Table compiled from: Bothma, Van Rooyen and Du Toit; 1996: 146-7; Liversidge and Berry; 1996: 601-5; Stuart and Stuart; 1988: 170; Stuart and Stuart; 1997: 70.

Grass typically regenerates during summer, in the aftermath of rainfall events. In the OFCA during typical rainfall years, variable rainfall and typical rainfall incidence over a widely fragmented rainfall front means that grass regeneration occurs in a random "checkerboard" fashion. To this, the general behaviour of the resident OFCA grazers is suitably adapted. Of the antelope, Gemsbok, Red Hartebeest and Springbok are highly nomadic in behaviour, with movements typically dictated by the availability of preferred regenerated pasture more than anything else<sup>115</sup>. Under typical rainfall conditions, these species may be inferred to have trekked to, and moved freely between, regenerated pasture – wherever such may have occurred at any specific time.

The wild equinines are similarly adapted, with both species being highly nomadic under arid environmental conditions. For both species, general movements are dictated by obtaining veld conditions<sup>116</sup>. Thus, movements of both species may be inferred to have similarly been triggered by rainfall events and associated regenerated pasture.

The most important implication of the above is that resident game may be inferred to have historically moved between actually available pastures, instead of having remained sedentary within relatively small and circumscribed territories. Thus, herbivory pressure would have been flexible and concentrated by factors of *de facto* availability.

### **3.5.2. Inter-annual migrations and mixed feeding capacity**

From the above table, it is apparent that, with the exception of Buffalo and Blue Wildebeest, all of the relevant species are able to switch to browsing to some extent, depending on conditions of seasonality and fodder availability. Not all species are equally adapted to browsing, and the spectrum stretches from highly adapted mixed feeders like Springbok to occasional browsers like the wild equinines<sup>117</sup>.

Mixed feeding capacity means that all the relevant species are able to make use of Karoo shrubs and bushes in the absence of available grass. During the dry season, many OFCA grasses lose some of their palatability and nutritious value. Moreover, grazing during the wet season would have depleted regenerated grass stocks. The relevant species tend to be migratory in this regard. In the (previous) Kalahari Gemsbok National Park for instance, it has been found that intra-annual migrations to areas with a high proportion of scrub and perennial grasses follow that of initial migration to grassy pastures which have been regenerated by rainfall events<sup>118</sup>. Moreover, with the general

---

<sup>115</sup> Cf. Stuart and Stuart; 1997: 128; 180; 206; Liversidge and Berry; 1996e: 602.

In the (previous) Kalahari Gemsbok National Park, it has been found that migratory behaviour in all these species is unaffected by the closing-off of watering-holes, but that large migrational movements are triggered by distant rainfall events – and thus by the associated occurrence of rainfall-regenerated pasture (Johns; 1993: 87).

<sup>116</sup> Cf. Stuart and Stuart; 1997: 70; 74.

<sup>117</sup> Cf. Stuart and Stuart; 1988: 170; 212.

desiccation of fodder during the dry season, the relevant species have also been found to migrate to areas with good availability of moisture-rich wild cucumber fruits<sup>119</sup>.

The most important implication of all this is that feeding is temporally distributed over a wide range of pasture during any given year, and that grazing pressures on the same pasture are not constant. Moreover, focus on grassland pasture during the growing season affords Karoo shrubs an essential regeneration period before the general onset of herbivory pressures. Migration to areas with good availability of wild cucumbers and other moisture-rich plants would have had the effect of optimising available fodder use in the absence of moist pasture, as well as distributing grazing pressures over the broad environment more evenly over the course of the year.

### 3.5.3. Feeding over a wide spectrum of plants

Arid environment game generally tend to feed over a very wide spectrum of plants<sup>120</sup>. Thus, game will utilise plant species which are considered toxic, unpalatable or with a low nutritional value for domestic livestock<sup>121</sup>.

The most important implications of feeding over such a broad spectrum of plants are the following: Firstly, totally available fodder is used optimally, corresponding to a more productive use of the veld as would typically be the case with well-managed livestock. Secondly, because of more evenly spread herbivory pressures over the available spectrum of plants, evolved veld species-composition is likely to undergo little change in any given area – as is otherwise typically associated with highly selective feeding over a narrow spectrum by livestock. Thirdly, the ability of relevant game species to utilise plant species which are unpalatable or toxic to stock, means that certain areas which may not be suitable for livestock farming may nevertheless be productively utilised by (suitable) game.

### 3.5.4. Complementarity in grazing

During the wet season when grass growth is rapid, considerable overlap occurs between relevant grazing species. During the dry season however, when less green fodder is available, these species tend to be more selective in their feeding, and less overlap

<sup>118</sup> Johns; 1993: 84.

Of the relevant OFCA species, only Hartmann's Mountain Zebra does not occur here – in the now Kgalagadi Transfrontier Park.

<sup>119</sup> Cf. Johns; 1993: 84.

<sup>120</sup> Liversidge and Berry; 1996d: 598.

<sup>121</sup> Liversidge and Berry; 1996d: 598.

Out of a list of 9 poisonous plants compiled in the Karoo area of Olifantshoek, Northern Cape (RSA), game was found to freely take of 7 of the species; up to 30% of the stomach content of such game may contain plants such as *Geigeria ornativa* ("Vermeerbos") and *Tribulus spp.* ("Duuweltjies") (Liversidge and Berry; 1996b: 587).

occurs in terms of plants (and plant parts) taken<sup>122</sup>. This ensures vital complementarity during conditions of lesser fodder availability.

Competition is also avoided in other ways. Specifically, the size of relevant animals and other morphological differences such as mouth width, tend to cause complementarity in feeding - as opposed to competition. Because of their relatively smaller size, Springbok will tend to concentrate on young or short grass, or on coppice - while larger Buffalo are able to concentrate on tall and thick swards of grass. In terms of mouth size, Blue Wildebeest have broader mouths than Gemsbok, and will eat different species of grass<sup>123</sup>. In terms of plant parts, complementarity also exists: while Gemsbok will eat young grass seed-heads and concentrate on grass leaves, Red Hartebeest and Blue Wildebeest will concentrate on stalks<sup>124</sup>.

During good rainfall years, the incursions of opportunistic ungulates serve to complement the feeding requirements of some resident species. Thus, for instance the incursion of Buffalo - with a feeding preference for tall grass - serves to open up the veld to animals such as Springbok and Red Hartebeest which prefer to feed on short grass<sup>125</sup>.

The implications of all the above are fourfold. Firstly, evolved complementary feeding habits are inclusive, and enable the co-existence of a number of different species on the same piece of veld. In other regards, complementary feeding is even necessary in order to allow certain species a chance to make use of available fodder - as by cropping it to suitable lengths by species with a taller grazing preference. Secondly, feeding over a wide spectrum is reinforced over the course of any given year, and grazing pressures more evenly distributed over available vegetation. As concentration on specific plant species is avoided, the likelihood of certain plant species which are palatable to only specific species - or concentrations thereof - is avoided, and veld balance is essentially maintained. Thirdly, complementary feeding makes optimal use of available fodder resources, utilising a broad range of plant species and parts which would not have been the case under single-species (or livestock monoculture) conditions. A more optimal conversion of plant biomass into animal biomass is thereby ensured. Forthly, complementary feeding by numerous species also ensures suitable grazing stimulation to a wide range of grasses and shrubs<sup>126</sup>, ensuring the regeneration of rejuvenated

---

<sup>122</sup> Liversidge and Berry; 1996b: 586-7.

<sup>123</sup> Liversidge and Berry; 1996b: 586.

<sup>124</sup> Liversidge and Berry; 1996b: 587.

<sup>125</sup> See: Table 3.2.: "Herbivory preference and habit of OFCA game".

<sup>126</sup> When not suitably defoliated, grasses tend to accumulate moribund or dead plant material from the inner areas of the tuft. Such tufts may suffocate and eventually die-off entirely (Van Oudshoorn; 1999: 18).

growth over a wide spectrum of plant species, and thus ensuring the maintenance of healthy and balanced veld.

### **3.5.5. Veld conditions-driven incidence and stocking rates**

While the historical record is too fragmentary in order to be able to assess game stocking densities under typical rainfall conditions, the generally low rainfall would have served to ensure such. Thus, under typical conditions, populations of the relevant species were likely much smaller than for similar other game species or populations in higher-rainfall areas. This assumption seems borne out by the fairly rapid decline of game numbers in the OFCA (historical Namaland) after the widespread introduction of primitive fire-arms and horses within a relatively sparse indigenous population during the period ca. 1840 – 1860/70<sup>127</sup>. Under typical rainfall conditions, aggregations of resident antelope appear to have typically occurred after good rainfall events. In the aftermath of such, and the establishment of drier-veld conditions, herds would typically disperse into smaller groups in order to make use of less concentrated available fodder<sup>128</sup>.

In the section dealing with inhabitation patterns, Buffalo, Eland and Blue Wildebeest were found to have occurred within the broad OFCA only under suitable veld conditions as in-migrators. Such conditions were found to have been seasonal in the case of Blue Wildebeest, and coupled to good or exceptional rainfall years in the case of the other two species.

For the other relevant (resident) OFCA species, some evidence exists of opportunistic herd-forming, in-migration and breeding during good or exceptional rainfall conditions. Thus, for instance, Hartmann's Mountain Zebra have been found to have historically made use of grassy plains-territory in the aftermath of good rains<sup>129</sup>, and Burchell's Zebra have been found to invade more mountainous areas under similar conditions<sup>130</sup>. In the case of both species, it seems fair to assume that such incursions may not have been limited to normally resident populations, but to the effect of in-migrating herds. In as far as the distribution of relevant antelope was historically continuous outside the OFCA, it may be assumed that optimal fodder conditions during exceptional rainfall years would also have attracted opportunistic incursions and temporary higher stocking rates.

Both in the case of opportunistic incursions by non-resident species and resident species, actual stocking would remain balanced by obtaining veld conditions. In the case of in-migrating species, the drying-up of available surface water sources would perforce

---

<sup>127</sup> Cf. Lau; 1987: 45; 56.

<sup>128</sup> Cf. Shortridge; 1934a: 566; Stuart and Stuart; 1988: 206.

<sup>129</sup> Stuart and Stuart' 1997: 70.

<sup>130</sup> Shortridge, after Blaine; 1934: 393.

dictate out-migration; in that of resident species, the continuous availability of fodder would naturally serve as a dispersal (and partial out-migration) mechanism.

During lasting drought conditions, succulents and plants with moist subterraneous structures may suffer from severe pressures from game, and may become relatively unavailable for utilisation. Because the important wild cucumbers are annuals, the absence of rainfall during the wet season would result in the absence of fruiting. Under such severe conditions, the local or regional veld becomes unable to sustain any fodder use by both water-dependent and independent species. In the case of the latter, these now also become water-dependent. As surface water sources grow scarcer or disappear during (prolonged) droughts, the veld becomes unable to support any (significant) numbers of game, irrespective of the availability of (desiccated) fodder. Game will then have to either out-migrate<sup>131</sup>, or die from starvation<sup>132</sup>.

Under natural conditions, it may be assumed that drought resulted in both extensive out-migration as well as massive mortalities. The long distances involved in reaching suitable conditions would have been responsible for the fact that many of the individuals participating in migratory events would have perished before reaching areas with suitable veld conditions.

The most important implications of the above are the following: Firstly, under typical rainfall conditions, stocking rates of the relevant resident OFCA game species were probably low. This would have been perforce the case due to naturally low levels of fodder productivity. Secondly, massive stocking and opportunistic-incursions of non-resident species during exceptional rainfall (and veld regeneration) conditions would have depended entirely on such conditions actually obtaining. Additional herbivory pressures would thus be supported by actually obtaining fodder, and destocking would have happened naturally in accordance with the cessation of such conditions – with either fodder or surface water becoming scarce or unavailable. Thirdly, during drought conditions, out-migrations did not depend on actual (desiccated) fodder availability, but on the availability of surface water. Thus, with the disappearance of sufficient surface water, grazing ceased, and drought-stressed vegetation was not put under additional herbivory pressures. Fourthly, population decreases due to drought-mortalities could

---

<sup>131</sup> The best example of this is the notorious historical incursions of "trekbokken" into the Karoo areas of the RSA from Botswana and Namibia. This entailed the incursion of thousands of Springbok into these areas as a result of droughts in their regions of normal residency (cf. Skead; 1980: 497; 502-3).

During the drought of 1932, some stray Hartmann's Mountain Zebra were recorded as far south as Steinkopf (Namaqualand) (Skead; 1980: 334). During the same drought-period, Shortridge also documented the extensive migration of Gemsbok through the OFCA (cf. Shortridge; 1934a: 561-2).

Large-scale out-migrations from drought stricken areas were recorded for Eland in Botswana as late as 1985 (Liversidge and Berry; 1996e: 603).

<sup>132</sup> During the 1982/3 droughts in the RSA, massive mortalities of Springbok were recorded on an arid-area game ranch, despite the abundant availability of (desiccated) fodder (Liversidge and Berry; 1996b: 587).

In the case of hardy Gemsbok, drought mortalities of up to 73% of the population have been recorded for the Etosha National Park (Liversidge and Berry; 1996b: 587).

only be recuperated by natural breeding. Such breeding was dependent on the number of surviving animals as well as on obtaining veld conditions. For most of the relevant game, gestation periods are extensive, and females typically drop single offspring. Thus, both the rate and extent of natural population increases will tend to be in balance with the regeneration of veld conditions in the aftermaths of droughts. This would have ensured that post-drought vegetation was not subjected to excessive herbivory pressures, and would have had a chance to recuperate, and get restored to more typical conditions.

### **3.6. CONCLUSION**

Natural ecosystems have a tendency to function optimally in the use and cycling of nutrients. This assertion seems borne out by the findings of natural herbivory patterns in the OFCA which closely correspond to patterns of climate-driven fodder availability.

- Naturally low population numbers over most of the time under normal veld conditions;
- Flexibility in herd-formation, correlated to (unpredictable) obtaining veld conditions;
- Flexibility in movement, correlated with where regenerated pasture actually occurs on a localized or regional scale;
- General ability of indigenous species to make use of browse and graze fodder – flexibility in diet;
- Out-migration of resident species during times of regional and prolonged droughts;
- Opportunistic in-migration of species which are otherwise not resident during exceptional rainfall years;
- It may also be assumed that during prolonged regional droughts outmigrations may have been combined with massive mortalities in resident species, as well as birth-suppression;
- Natural recuperation of stocking levels after droughts would be the result of breeding, and thus in pace with such fodder as is naturally available.

In summary, the inferred patterns of fodder-use appear well-suited to the highly variable spatio-temporal patterns of rainfall and fodder regeneration as had been inferred in Chapter 2.

In the next chapter traditional (pre-European) pastoralism and human livelihoods in the OFCA will be discussed in order to gain some understanding of how available environmental resources were being used and which impacts such had on natural fodder production and game incidence.

## CHAPTER 4. PRE-COLONIAL PASTORALISM IN NAMALAND

### 4.1. INTRODUCTION

Livestock husbandry and a pastoral use of the OFCA environment substantially predate the establishment of a commercial livestock sector during the colonial era. For centuries prior to colonisation, and up until the Oorlam invasions of southern Namibia at the beginning of the 19<sup>th</sup> century, Nama and, to a lesser extent Damara, pastoralists inhabited the OFCA with their flocks, and based their cultural existence largely on the communal breeding and utilisation of livestock. The utilisation of indigenous game probably played a significant, if culturally less important role in the livelihoods of these peoples. In this chapter, the extent to which traditional pastoralist living was continuous to evolved patterns of natural fodder use by resident game, and furthermore allowed the continuation of natural herbivory, is thematised. In so far as significant continuities may be demonstrated, such may be used as points of comparison when the structural aspects of commercial stockfarming are discussed in chapter 5.

### 4.2. TRADITIONAL SETTLEMENT IN THE OFCA

Namaland<sup>133</sup> has been inhabited by humans for at least 45 000 years – until ca. 2000 years ago, apparently predominantly by San hunter-gatherers. By the time the first Europeans started crossing the Orange river from the Cape in the 18<sup>th</sup> century, Namaland was inhabited by Khoisan-speaking peoples which are today known by the names Nama, Damara and San.

The hunter-gatherer San peoples sparsely inhabited the land in small groups<sup>134</sup>, subsisting on veldfood and such game as could be taken by low-impact hunting methods such as trapping, the poisoning of wells and by using bows and arrows over short distances. The San were directly dependent on the environment for subsistence, and their environmental footprint was light in the light of a numerically low and scattered population, and their minimal technical intervention in the landscape.

---

<sup>133</sup> The historical term Namaland refers to the southern to south-central part of Namibia - bordered in the south by the Orange River, in the west by the Atlantic Ocean, in the north by the Swakop/ Khuseb Rivers, and in the east by the Kalahari Desert (Lau; 1987: 3). This historical term largely corresponds with the defined OFCA, and – with the exception of the coastal Topnaar - historical settlement in Namaland largely corresponds with the Nama Karoo biome part of the OFCA. The historical term is used here, as the discussion will be focused on cultural and historic aspects of land use, rather than the geographical aspect thereof.

<sup>134</sup> Estimates for San numbers during the 18<sup>th</sup> and 19<sup>th</sup> centuries in Namibia are not available. The first census in 1910 recorded their total number as 4858 for the whole of the Police Zone (Helbig and Helbig; 1983: 30). According to Davenport and Saunders (2000: 6) total San numbers in the South-African subcontinent may never have exceeded 20 000 in number.

The earliest pastoralist records for southern and central Namibia seem to date to ca. 2000 B.P., but the exact dates of incursions by all traditional Damara and Nama groups into Namibian territory are unknown<sup>135</sup>. The Nama and Damara were both Khoi peoples, and basically spoke the same language. They were nevertheless culturally distinct, and by the mid-18<sup>th</sup> century, the Nama – a collection of at least six clans, and further subdivided into smaller groups – were culturally dominant within inhabited Namaland, with Damara and San elements often in their service, or as their slaves<sup>136</sup>. Namaland population numbers were relatively low<sup>137</sup>, and in the case of the dominant Nama, inhabitation of the landscape was mainly restricted to pastures around the Orange River, ephemeral tributaries of the Fish River system, and around perennial fountains<sup>138</sup>. Social organisation was intimately found on values of kinship-networks, on communality, and on the sexual division of labour. Settlement patterns were not based around territorial exclusivity. At most, groups claimed access-rights to specific pastures or watering-points, but even then claims were not excluding of other groups<sup>139</sup>.

Geographical location – framed by the Kalahari Desert, the barren plains of Bushmanland and Namaqualand and by the Namib Desert – served to isolate Namaland from regular outside inland influences<sup>140</sup>. Although the Nama and Damara conducted trade with other peoples, such was historically limited. Regular contact with other Namibian peoples such as the Bantu Herero, seems to only date from as late as the 18<sup>th</sup> century - when the Herero started moving southwards into the pastures between the Swakop and Kuiseb Rivers<sup>141</sup>.

From the early decades of the 19<sup>th</sup> century onwards, Namaland was gradually settled by Oorlam<sup>142</sup> migrants from the Cape. By ca. 1840 the Oorlam had managed to establish

---

<sup>135</sup> Lau; 1987: 3.

<sup>136</sup> Lau; 1987: 3-6; Helbig and Helbig; 1983: 30.

<sup>137</sup> By the time of Dutch settlement of the Cape (1652), an estimated 100 000 people of the Khoikhoi supergroup – of which the Nama was part - were living in present RSA and Namibia. Most of them were living along the Orange River and on the coastal belt stretching from southern Namibia to the trans-Kei (Davenport and Saunders; 2000: 8). Historically, Nama population numbers could never have been high. Estimates for before the mid-19<sup>th</sup> century are unavailable, but by that time it was estimated to have been around 10 000 people (Lau; 1987: 8).

<sup>138</sup> see: Lau; 1987: Map 1.

In the words of Alexander: "The Great Namaquas may be said to extend along the 'Oup or Great Fish river, on both sides of it, and to occupy at different seasons its banks and those of the numerous streams which fall into it" (Alexander; 1838: 190).

<sup>139</sup> Lau; 1987: 7 – 10.

<sup>140</sup> Helbig and Helbig; 1983: 30.

<sup>141</sup> Helbig and Helbig; 1983: 34.

<sup>142</sup> Oorlam groups originated within the Cape frontier society during the latter part of the 18<sup>th</sup> century. These groups were not ethnically homogeneous, and consisted of runaway slaves, Cape Basters, and uprooted Khoi. Through service to Cape hunters and farmers, they had managed to

themselves as masters of Namaland and parts of central Namibia. Amalgamation with the Nama during this time re-established traditional Nama pastoralism along the lines of principles of private property, the production of tradable surplus with Cape traders, and effectively led to the transformation of economic focus to activities of cattle-raiding and commercial hunting over traditional cattle breeding<sup>143</sup>. Thus, the period up to ca. 1840 also delimits the historical extent of traditional Nama pastoralism<sup>144</sup>.

### 4.3. TRADITIONAL NAMA LIVELIHOODS

Traditional Nama production was mainly focused on the provision of self-sufficiency, and largely attuned to utilising naturally available resources and to environmental rhythms of availability<sup>145</sup>.

Stock-breeding represented the major activity of social and cultural organisation. Stock was seldomly slaughtered, and derived milk-products, veld-foods and game formed the staff of life<sup>146</sup>. Some further relevant aspects of Nama pastoralism are later discussed in this chapter.

Sources of veld-food included ostrich eggs<sup>147</sup> and wild honey<sup>148</sup>, but mainly consisted of vegetable substances such as *Acacia* gum, and the roots, tubers, fruits and seeds of

---

acquire their own guns and horses, and this then enabled them to regain economic independence through hunting and raiding. The main vehicle for the pursuit of these activities was the commando-group (Lau; 1983: 25-6).

<sup>143</sup> Lau; 1983: 28 ff.

<sup>144</sup> The establishment of Oorlam supremacy in Namaland had definite environmental implications. Most seriously, the widespread introduction of firearms, horses and wagons – and the necessity to provide tradable articles such as ivory and hides – resulted in extreme hunting pressures becoming exerted on Namaland game. The scope of this study does not allow for further discussion here, and the reader is referred to Lau; 1987: 45-6; 56-8; 91-4.

<sup>145</sup> Lau; 1987: 11.

<sup>146</sup> Lau; 1987: 8.

When amongst the Bondelswarts at Warmbad in 1836, Alexander found milk (from goats, sheep and cattle) to be the staff of life, with veld food (honey, *Acacia* gum, etc.) also important; meat was obtained from hunting where possible, and stock only slaughtered when injured, or for ceremonial occasions (cf. Alexander; 1838: 170; 181; 197).

<sup>147</sup> In September 1778 – when near the near confluence of Little Hartebeest and Orange Rivers – Wikar reported that many local "Samgomomkoa" (group not identified) had moved to the plains south of the Orange River in order to collect ostrich eggs at this time of year (Wikar; in Mossop; 1935: 33) – suggesting a distinct and established seasonality in the harvesting of this food source.

<sup>148</sup> Both Paterson and Alexander remarked on the abundance of wild honey when they were in the vicinity of Warmbad (Paterson; 1790: 124, and Alexander; 1838: 163). The Nama

various plants<sup>149</sup>. The local vegetation furthermore provided fibres for cordage, material for the manufacture of implements<sup>150</sup> and for construction – poles, and reeds for matting. In addition, it also provided essential firewood and a store of medicines and animal poisons<sup>151</sup>.

Hunting and trapping formed an essential component of Nama pastoralist subsistence – providing meat, skins and furs, and other articles such as water-holders (fashioned from bladders)<sup>152</sup>. The aim of hunting was apparently for own consumption, and not aimed at acquiring articles of trade such as ivory or skins<sup>153</sup>. In some instances troublesomely

---

traditionally used this as a source of food – often mixed with milk – but some of it was also used to brew mead.

<sup>149</sup> Thus when Wikar was on the Orange river near Augrabies Falls in 1778 he recorded the local people to partially subsist on the fruit from "raisin trees" and "Hottentot beans" (Wikar, in Mossop; 1935: 117) – the former probably referring to plants of the genus *Grewia*, and the latter to the nutritious (roasted and mealed) seeds of *Schotia afra angustifolia* (Small-leaved Karoo bean).

When near Aluriesfontein in 1779 Paterson found the Nama he met there to eat the "gum of Mimosa" (presumably that of *Acacia karoo* – Sweet Thorn), "on which indeed a great part of these people subsist" (Paterson; 1790: 125).

Outside the OFCA, Alexander documented the collection of !nara (*Acanthosicyos horridus*) fruit by the Topnaar Nama he encountered on the Khuseb river in 1837 (Alexander; 1938a: 69; 72; 74).

<sup>150</sup> Wikar (1778) for instance recorded the use of the flexible stems of karee (*Rhus* spp.) by people on the Orange River near the Augrabies Falls in order to construct fish-traps (Wikar, in Mossop; 1935: 115).

<sup>151</sup> Paterson (1778) - when on the southern bank of the Orange River, near Goodhouse – reported that the "Hottentots" made use of "branches of Euphorbia" in order to poison diverted portions of fountains in order to kill game. He also recorded the same plant - mixed with "a kind of caterpillar" – as arrow poison (Paterson; 1790: 60). - The *Euphorbia* in question may have been *E. virosa* ("Boesmansgif"); the "caterpillar" in question is still a classical ingredient of Kalahari San poison: the grubs of *Diamphidia* beetle, which are collected from the rootlayer of trees of the genus *Commiphora*. (see: Gericke and van Wyk; 2000: 237 – 241).

<sup>152</sup> Lau has speculated that hunting may only have played a secondary role in terms of subsistence and trade for the Nama (Lau; 1987: 10), but from a review of historical sources it appears as if hunting provided the main source of meat and an important source of skins for clothing to the Nama and Namaqua.

<sup>153</sup> The early Khoi peoples certainly knew the value of ivory, and wore articles made from ivory as ornamentation. For Namaland, the missionary Shaw in 1821 recorded the traditional dress of the Nama he met with to include "ornaments of ivory" (Shaw, quoted in Lau; 1987: 11).

For the Cape Khoi, Skead (1980: 197) is of the opinion that the acquisition of ivory may have been opportunistic – collected from carcasses in the veld, rather than having been obtained through specific hunting. In support of this inference, he mentions the case of DEIC governor van Riebeeck, who in October 1652 managed to barter 2 small tusks (for sheep, copper wire and tobacco) with the local Khoi, but who - upon his request to deliver more in 1658 - informed him that Elephants were considered too formidable to attack (Skead; 1980: 197). By 1705 however, Starrenburg (travelling north of the Piketberg district) reported that many Khoi had fallen into destitution, and were now actively hunting Elephant (still by groups with arrows and assegai)

dangerous animals – for instance Elephant and Lion – were killed<sup>154</sup>, but in such instances the scale was localised and there seems little evidence of general, systematic persecution of these animals. Evidence suggests that animals which had been killed – even predators – were utilised maximally: skins and furs were used, meat and entrails was eaten, and in some instances even the pounded and roasted hides<sup>155</sup>. In the instances of medium and larger game mammals, hunting was apparently typically a communal affair, and local chiefs were entitled to a part of every animal which had been killed by the members of his group. In principle, these parts were for further distribution within the broader group – to dependents and the socially needy<sup>156</sup>. The likely impacts of traditional hunting on the indigenous game suite will be discussed later in this chapter.

Unlike the Cape Khoi, the Nama never seemed to have extensively valued or utilized the available fish resources of the Fish and Orange Rivers<sup>157</sup>.

---

for trading with the Dutch, and that Elephant had become very scarce close to the Cape (Skead; 1980: 207).

From the above it would appear that ivory only became an article systematically sought after – through hunting – within the established context of a European economy at the Cape. Specifically, ivory became an article of trade because it had such value in to Europeans. A similar pattern seems likely for the case of southern Namibia – where historical records of systematic ivory hunting before trading with the Cape could be found, but where Elephant was to completely disappear within less than a century of the first Europeans crossing the Orange River.

<sup>154</sup> Alexander remarked on the fact that, unless troublesome, Lion are generally left alone by the Nama and Namaqua. When a particular lion does become troublesome, the onus was on the local Nama chief to personally organise, and parttake in its hunt (Alexander; 1838: 171; 204).

<sup>155</sup> Various records of hunger-stressed Nama/ Namaqua have been found where these consumed pounded and roasted animal skins – e.g. in 1823 Thompson recorded that the people he encountered near Pella prepared a dish of Zebra skin (Skead; 1980: 332). Similar records are from Alexander - for the skin of a bullock - (1838a: 64) and Tindall – for the skin of a Black Rhino (Tindall; 1959: 93). Paterson – when near the Orange river mouth in 1779 - even recorded that the "Shore Boshmen" (not identified, but apparently Nama) ate old shoes which had been given to them by the Khoi in his party (Paterson; 1790: 117).

Killed predators such as Jackal and Lion were also eaten. Thus, when near Rehoboth in 1837, Alexander observed Jonker Afrikaner's Damara dependents eat a troublesome lion which had been hunted earlier during the day. Alexander also tasted the flesh, and found it "coarse and rank" (Alexander; 1838a: 180).

<sup>156</sup> Lau; 1987: 13.

<sup>157</sup> Alexander found it remarkable that his Nama and Namaqua companions refused the fish – Barbel and Carp - which other members of his party had caught in the Orange River, on the grounds that they suspect fish to be poisonous (Alexander; 1838: 152). Nevertheless, Wikar - when near the Augrabies Falls in October 1778 - found the local Khoi to know how to fish with hooks, but that they more customarily employed cages made of karee-wood (Wikar, in Mossop; 1935: 115). Similarly, Paterson met with Nama ("Shore Boshmen") on the north bank of the Orange River near the mouth in 1779, for which fish was apparently an important part of the diet (cf. Paterson; 1790: 115). Alexander also found fish a main staple amongst the Topnaar he encountered when he was near Walfish Bay in 1837 (see: Alexander; 1838a: 84). In the last two instances, it would appear as if the fish in question were of marine origin.

Trade with other peoples – for instance the BaThlaping (Tswana) – was relatively limited and specific: mostly for iron<sup>158</sup> and ornaments such as beads<sup>159</sup>. After the arrival of Europeans in the subcontinent and the introduction of the plant, tobacco became a further esteemed article of trade<sup>160</sup>.

Agriculture played a small and insignificant role amongst the Nama, and was apparently mostly restricted to growing cucurbits, "dagga" (*Cannabis sativa* subsp. *indica*), and later tobacco<sup>161</sup>.

#### 4.4. ASPECTS AND IMPLICATIONS OF TRADITIONAL NAMA PASTORALISM

Very little information on traditional Nama pastoralism has been published to date. The discussion presented below therefore relies less on a synthesis of available literature, than on the creative interpretation of such available facts - as for instance have been presented earlier in this chapter - within the broader framework of an understanding of the environmental context as is presented in Chapters 2 and 3 of this study. As a result, much of the presentation below is based on expressing probability rather than recorded

---

<sup>158</sup> Not all iron was however acquired by trade, and the Nama seems to have mined iron from meteorites in their own environment as well (Lau; 1983: 12).

<sup>159</sup> Thus in 1761 Brink related (from information received by a scouting party) that the Nama which had been encountered on the Fish river (presumably somewhere near Seeheim) wore blue glass beads, which they said had been traded from the "Briquas" (= BaThlaping) (Brink, in Mossop; 1947: 50). Later - in describing the Nama as a whole - he related: "Their wealth consists only in stock, which they have in abundance; and iron and beads are what they most long for" (Brink, in Mossop; 1947: 56/57).

<sup>160</sup> Tobacco (genus *Nicotiana*) is native to the Americas, and this study was unable to ascertain when the plant was first introduced into Namibia. The earliest record which was found of the introduction of tobacco (the commodity) into Namibia, is for 1677 – as part of the "goodwill" cargo of the Dutch exploratory vessel *Bode* which travelled along the Namibian coast as far north as southern Angola (cf. Vedder; 1937: 10-13). Other early records include that of a party of Cape burrgers from the Piketberg region illegally travelling to the Orange river in 1738 to trade (i.a.) tobacco for cattle with the Nama (Mossop; 1947: 94-5). Early European travellers to Namibia – such as Hop and Paterson – often carried tobacco as article of exchange with them. Already in 1761 the Damaras ("Damroquas") were reported by Brink as cultivators of tobacco – albeit from reports gained from the Nama living on the Fish river (Brink, in Mossop; 1947: 50). By the time Alexander was travelling through southern Namibia (1836/7), he frequently came to settlements where tobacco was being grown on a small scale.

<sup>161</sup> Thus, when Alexander was in Warmbad in 1836/7, he was told by the Bondels elders that gardening was not a traditional feature of Nama existence, and that the missionaries had introduced the practice of gardening. He later found the Bondels and Oorlam Afrikaner settlements he visited near Warmbad commonly growing tobacco, melons and also maize or pumpkins on a small scale (Alexander; 1838: 170; 181; 197).

facts. Scattered and unsystematic observations from historical accounts will be used to buttress the narrative, and to provide pointers in the process of interpretation.

#### 4.4.1. Epicyclical migration

Namaland pastoralism was based on seasonal and epicyclical migration between rainfed pastures<sup>162</sup>. Evidence of a seasonal element in migration and temporary settlement has been documented by early observers<sup>163</sup>. Settlements were thus not permanent in the European sense, and anthropogenic impacts were thus probably minimal in extent and duration on a localised scale. Because utilisation of any given area was never constant, and the broad circle tended to encompass a large area, the same physical areas – pastures – could be used by various tribes or peoples on a differential timescale without serious conflict of resource interests. Furthermore, the soils and vegetation of any piece of pasture would probably have had some resting period after grazing, and use of any specific watering point would similarly not have been continuous, and little soil trampling is therefore likely to have occurred. With the pastoralist groups moving around with their stock, other anthropogenic impacts were thus similarly distributed over time on a localised level.

#### 4.4.2. Adapted stock types

Through relative historical isolation of Namaland, stock-types – cattle, sheep and goats<sup>164</sup> – may be deduced to have perforce been adapted to local conditions. Given the long time during which Nama pastoralists could continue productivity with the same

---

<sup>162</sup> Adams and Werner; 1990: 9.

Epicyclical patterns describe smaller circles of grazing (short term) along the circumference of a larger circle (longer term) – the latter broadly describing the “home range”, extent or grazing territory of the group.

<sup>163</sup> Evidence is for the Namaqua, but similar patterns may be expected for the culturally similar Nama living in a similar environment. Thus in October 1778 Paterson encountered Namaqua (“Hottentot”) at their summer encampment at the Kamiesberg (Paterson; 1790: 69), and in October 1836 Alexander – on his way to the Orange River mouth – found the Namaqua he encountered in northwestern Namaqualand to migrate between pasture between the Orange and Buffels Rivers from July to October, and to spend the rest of the year grazing their flocks on the Orange River (Alexander; 1838: 100).

<sup>164</sup> Stock types appear to have been mainly longhorn cattle (as opposed to Nguni Sanga type) and fat-tailed sheep of ultimately “Persian” origin (Davenport and Saunders; 2000: 8). It is unclear to which extent cattle farming was actually dominant, and historical accounts are indeterminate on this point, with Coetsé (1760) reporting of “the Great Nimiquas” (he met with the Bondelswarts) – “unusually populous, and provided in abundance with cattle (“Rundvee”) and sheep (Coetsé, in Mossop; 1935: 284-5), and Alexander (1836/7) remarking of the Bondelswarts he met with at Warmbad: “Abraham’s (= Abraham Bondel) people had plenty of cattle, sheep, and goats among them” (Alexander; 1838: 195).

stock types – ca. 1800 years<sup>165</sup> - a functional degree of sustainability may be inferred in this regard.

It should be noted that all these livestock types are water-dependent, with the result that pasture use would have been limited to the availability of water. This restriction would have meant that large tracts of land would not have been utilised, and would have existed to support less water-dependent game. The further implications of this are discussed below.

#### **4.4.3. Likely impacts of droughts**

Typically non-territorial settlement and migrational patterns (discussed earlier in this chapter) seem to warrant a deduction that Nama pastoralists would have had a high degree of flexibility in the face of local droughts. This would have ensured that grazing pressures would have been shifted to where best pasture and surface water were actually available, and that drought-stressed pastures would not have been burdened by additional herbivory pressures.

In the absence of boreholes, general droughts would have had the effect of naturally lowering stocking rates through massive mortality, for while some fodder may have been available, it would have been too dry to utilise in the absence of water. In the movement between distant pastures during localised droughts, stock mortalities would similarly have been likely. A natural balance between available grazing and livestock numbers would therefore likely have resulted, and the veld would probably not have been grazed to the point of collapse.

The relative isolation of Namaland pastoralists would have ensured that such stock-losses could not be rapidly replaced in the aftermath of droughts from outside sources. Lessened herbivory pressures would have given the drought-stricken vegetation some chance to recuperate after droughts. Increased stocking would perforce have been the result of subsequent breeding, and that would have been dependent on obtaining veld conditions and water availability during ensuing years. Thus a principle of natural balance between stocking and available vegetational resources would probably have obtained.

#### **4.4.4. Focus on production of sufficiency**

Traditional Namaland pastoralism was primarily based on the production of sufficiency, and not on surplus for outside marketing<sup>166</sup>.

---

<sup>165</sup> Thus for instance, the same fat-tailed "Persian" sheep which the Khoi-khoi supergroup is believed to have received from northerly neighbours before their migration from central Botswana ca. 2000 B.P. (Davenport and Saunders; 2000: 8) was still the dominant sheep-type owned by the Nama when Alexander visited Namibia in the 1830's - as is clear from the manifold uses recorded for the tail-fat of sheep amongst the Bondelswarts (1838: 168-195).

<sup>166</sup> Lau; 1987: 11.

In Lau's analysis of the social and environmental impacts of the establishment of Oorlam dominance in southern and central Namibia (Lau; 1983 and 1987), the transition from a

While drought mortalities would have affected the well-being of these peoples on a nutritional level, such losses would not have carried further implications in terms of maintaining financial equity. Pastoralism was a way of life and not a business: there were no running debts to settle, and it was not necessary to borrow more resources in order to keep the business operational. Apart from the difficulty of recuperating stock losses from outside sources, there was furthermore no pressing financial need to do so in order to keep the business running – although of course significant losses would have had severe cultural and nutritional repercussions.

#### 4.4.5. Minimal technological interventions in the landscape

One of the most important pastoralist tasks was the watering of stock during the dry parts of the year. Not always in the vicinity of available surface water, wells were dug in the beds and on the banks of periodic rivers, and stock watered using skin-covered troughs into which the water was poured<sup>167</sup>.

By digging wells, surrounding pasture could be opened up to stock, and grazing pressures more evenly distributed. In this respect Nama pastoralism was not merely a passive migration between available pasturage and water, but entailed an active – if limited – opening up and implicit management of resources. Nevertheless, the Nama were essentially restricted to pastures in the vicinity of available surface water, or where near-surface water could be dug for. This effectively restricted range and inhabitation over the wide expanse of Namaland to the vicinity of the perennial Orange River, the seasonal waters of ephemeral rivers, perennial pools in the Fish River, fountains, and – in the case of artificial pits – the alluvial beds of ephemeral rivers during the dry season.

The most important implication of the above is that pastoral pressures were not geographically extensive. Specifically, sub-marginal lands, or lands otherwise far removed from accessible water are unlikely to have been utilised.

Apart from the digging of wells, the only other technical pastoralist interventions in the landscape entailed the erection of protected enclosures for the nightly kraaling of stock against predators<sup>168</sup>. Such structures were however localised and not extensive in scale. This contrasts sharply with the fragmentation of the landscape by perimeter fencing.

---

sufficiency-producing economy to one of tradeable surplus-production is identified by her as one of the most significant (negative) causal factors.

<sup>167</sup> In 1761 (Dec) Brink - recording the information brought back by a scouting party to the Fish River (possibly near Seeheim) - described the Nama ("Hottentot") there as "rich in stock" (type indeterminate: "vee"), and that they had to water their stock by digging pits and transferring water into troughs (Brink, in Mossop; 1947: 48/49). Lau (1987: 14) quotes a similar account by the missionaries Albrechts for 1809.

<sup>168</sup> No direct evidence could be found for Namaland, but such is documented for the Cape Khoi, and the same would probably have been the case with the Nama. The lighting of fires at kraals seems to have been a further deterrent. This has been documented by some of the earliest travellers to the Cape, such as Thomas Best in 1627 (cf. Skead; 1980: 148). The German

The low level of technological intervention not only resulted in patterns of fodder use based on the actual availability of suitable pasture, but moreover made possible the co-existence of indigenous game. Specifically, this was made possible by the non-extensive use of the total geographical area, and by the fact that no structures were erected to interrupt natural patterns of game migration. The co-existence of indigenous game in turn meant that open pastures were shared by stock and game alike, and would be grazed over a broad spectrum. This would have ensured the maintenance of balanced veld conditions, as is associated with broad-spectrum herbivory.

#### 4. 5. THE IMPACTS OF TRADITIONAL HUNTING ON OFCA GAME

As had been discussed earlier in this chapter, hunting appears to have formed a significant component of traditional Nama livelihood strategies. Below, the questions of which animals were hunted, by what means they were hunted, and what the probable impacts of traditional hunting may have been, are investigated.

The nature of the species taken seem to reflect considerations of opportunity and local/seasonal availability rather than mere preference – with even predators and reptiles having been recorded as food-animals<sup>169</sup>. To this extent it is probably futile to attempt a tabulation of the various species of animals – mammals as well as birds and reptiles – which were hunted or trapped. Size does not seem to have been a limitation, and even the largest of game species – especially Rhinoceros and Hippopotamus, but on occasion also Elephant – were hunted, mostly by trapping them in concealed pits on game-paths. In all probability all antelope were keenly hunted when and where available; in addition

---

observer Mentzel – resident at the Cape in the 1730's and 1740's – found the same measures still in practice more than a century later (Skead; 1980: 123).

<sup>169</sup> A good illustration of this is found where Wikar in 1778 – when near Skuitdrift Oost, and ca. 10 km south of the Orange River in Bushmanland – reported the food of local people (Namaqua) to have consisted of "hyrax, jackals, wild cats, snakes and the pupae of termites" (Wikar, in Mossop; 1935: 55).

Against the background of this otherwise dietary promiscuity, hares (and possibly rabbits) appear to have been the only taboo animals – specifically, married/ initiated Nama and Namaqua men considered it improper to eat the flesh of this mythological trickster of Khoi lore, and generally abstained from it (cf. Wikar, in Mossop; 1935: 139; Alexander; 1838: 169).

also Zebra and Rhinoceri<sup>170</sup>. Along the Orange river Hippopotami appear to have been a favorite target<sup>171</sup>.

Recorded hunting methods include entrapment in concealed pits<sup>172</sup>, the use of dogs<sup>173</sup>, the poisoning of wells<sup>174</sup>, and probably most common, the use of bows and poisoned

---

<sup>170</sup> For the Cape Khoi, Dapper in 1659 described the Sonquas (then inhabiting Hottentots-Holland mountains and regions to the northwest of it) as expert hunters, of "especially wild horses and mules" (presumably Mountain Zebra and Cape Quagga) (Skead; 1980: 318). In Namaland, Burchell's Zebra and Hartmann's Mountain Zebra may have been similarly favoured targets. From Alexander's description of his journey through Namaland in 1836/7 (Black) Rhinoceri appear as probably the most sought after and keenly hunted game by the Nama accompanying him (Alexander; 1838 and 1838a).

<sup>171</sup> The hunting of Hippopotami by indigenous peoples along the Orange River was recorded by Paterson, Wikar and Alexander (see: Paterson; 1790: 64-5; Wikar, in Mossop; 1935: 43; Alexander; 1838: 110).

<sup>172</sup> For instance: In 1778 (Sept): Paterson - when encamped there for ca. 3 weeks along the Orange river somewhere near Goodhouse - reported observing pits dug on Hippo paths by the (Namaqua) to trap Hippopotami (Paterson; 1790: 64-5);  
 1778 (Sept): Wikar - on the Orange River near Beenbreek, in Northern Bushmanland - observed pitfalls set for "hippo, hartebeest and other game", later (east of the Augrabies Falls), he actually observed such kills of Hippo and Hartebeest (Wikar, in Mossop; 1935: 49);  
 1837 (March): Alexander; presumably on the present farm Grootfontein on the river Haseweb, SW of Maltahöhe - encountered old pitfalls for trapping Rhino and other game (Alexander; 1838: 291); 1837 (May): Alexander; somewhere SW of the Gams mountain - observed pitfalls set for "rhinoceros and other game" - the pitfalls having been placed strategically within artificial hedges (Alexander; 1838a: 125);  
 1838: Alexander; writing of the Orange River in general - relates of pits dug by natives along the banks in Hippo-paths to trap them (Alexander; 1838: 110).  
 The Damara were known to construct elaborate game-trapping devices - herding fences made from *Acacia* branches were constructed to funnel game into pits on valley-plains (Lau; 1983: 4-5).

<sup>173</sup> For instance: In 1778 (Sept) Wikar - between the Orange/ Kaboop confluence and Onseep on the south bank of the Orange River ("Kalagas") - reported that local "Nanningai" (not identified) hunt the calves of Hartebeest and Gemsbok with dogs, and also commonly catch Aardwolf in this way (Wikar, in Mossop; 1935: 47); in October of the same year - when in northern Bushmanland, near Daberas, and a few km south of the Orange River - he recorded that the dogs of the local Namaqua had caught a Gemsbok calf and an Aardwolf " (Wikar, in Mossop; 1935: 75).

<sup>174</sup> In 1837 (June) Alexander - when somewhere between the Tsub and Kuteb Rivers, well west of Gibeon, and northeast of the Schwarzrand - came across a pool which had been poisoned by *Euphorbia* branches by Bushmen which intended to kill Zebra in this way (Alexander; 1838a: 223). It is not clear to which extent this practice was customary among the Nama - as opposed to the Bushmen.

arrows<sup>175</sup>. Assegaais and knobkierries were also used to kill animals<sup>176</sup> - in some instances after having been driven together and surrounded by hunters on foot<sup>177</sup>. When hunting with assegaais, the physical danger which this exposed the hunters to in the case of animals such as Elephant, Rhino, Hippo, Lions and Leopard would have moderated the extent to which such were hunted. Wikar also recorded the use of fire to herd Elephant during a hunt, and to force the Elephant onto broken territory where the tendons of individuals could be cut and they then be dispatched by using assegaais<sup>178</sup>. The naturally sparse vegetation would have limited such practice.

By and large, hunting was probably based on localised and low-impact methods. Lacking horses and long-range weapons such as fire-arms<sup>179</sup> hunters were restricted to targets such as which could be approached at a short distance and pursued on foot. In the case of herding antelope, this probably meant that only a few individuals could be taken at any given time before the herds would have taken to their heels. Furthermore, the lack

<sup>175</sup> In 1778 (Sept): Wikar - near the confluence of the Little Hartebeest and Orange Rivers - reported shooting a Hartebeest which had previously been wounded with a poisoned arrow (Wikar; in Mossop; 1935: 33).

Traditional San and Khoi bows and arrows were not designed to kill through the shattering transfer of energy at impact. The bows were short - Alexander described bows "about three feet long" (Alexander; 1838: 96) - and often made of the long flexible stems of shrubs from the genus *Grewia*; strings were made from woven sinew, or the rolled fibres of *Sanseveria*. The arrows were short and composite - bone or metal arrowheads attached to a short wooden foreshaft, and attached to a straight wooden (35-50 cm) shaft by means of a grass or reed linkshaft. The arrows lacked stabilising fins, which, together with the small size of the bows gave a clear indication of effective range. The designs reflected constraints to materials imposed by the environment, and also the smaller size of the hunters. The sparse environment, providing little cover, made it imperative to make every shot count, so the Khoisan developed hunting along stealth, and combined stealth with poison in order to maximise every shot, even grazes or nicks. The poisons were generally heart glycosides, and most enabled hunters to take such large prey as Giraffe and Eland. Poisons were prepared from various sources, with crushed *Diamphidia* beetle grubs still forming a classical ingredient in the poisons of the Kalahari San. Latex from various *Euphorbia* were often mixed together with crushed grubs - as adhesive agent and as additional source of toxicity. Poisons varied in toxicity and effect, and in some cases (e.g. poison prepared from *Boopane disticha* (Amaryllidaceae - "Gifbol"), it is recorded that prey may only succumb on the day after having been shot, necessitating tracking in the meantime. Common poison plants which have been recorded for southern Namibia include *B. disticha*, *Euphorbia virosa* ("Boesmansgif") and *Adenium oleifolium* (see: Gericke and van Wyk; 2000: 237-241).

<sup>176</sup> In 1836/7 Alexander was told by the Bondels elders at Warmbad that they traditionally killed lions with assegaais (Alexander; 1838: 174). Writing of the Orange river in general, he recorded that the "natives" hunt ("with javelins") hippopotami which had been washed down by floods towards the mouth (Alexander; 1838: 110).

<sup>177</sup> See: Lau; 1987: 10-11

<sup>178</sup> Wikar in Mossop; 1935: 45.

<sup>179</sup> Even before the Oorlam migrations, some Nama seem to have acquired firearms and gunpowder through contact and trade with burgers from the Cape colony and whalers along the Namibian coast. The extent thereof however appears to have been very limited.

of physical means – such as waggons - with which to transport large numbers of killed game over any distance would have obviated the need to attempt to kill such large numbers in any systematic way in the first place. Essentially pastoralist, the range of Nama and Damara hunters would have been largely limited to the proximity of their herds and flocks. The fragmentary and scattered inhabitation of Namaland would have meant that large tracts of land would have been available to game where they would not have been molested at any given time, and to which they could take refuge.

Perhaps most important within the context of veld-regeneration patterns in southern Namibia – typically fragmentary in space and time, fed by fragmented rainfall and with widely interspersed lush years – Nama and Damara settlement patterns and the absence of erected physical barriers in the landscape allowed indigenous herds of game to migrate freely in response to changing veld conditions. These patterns were to become severely disrupted within the context of the contiguous settlement of Namaland – and later the erection of fences – during the first half of the 20<sup>th</sup> century.

#### 4.6. CONCLUSION

From the above, it is apparent that traditional Nama pastoralist existence was largely tied to the natural productive rhythms of the land. The following aspects are relevant here:

- Epicyclical migration minimised the potential for localised overgrazing.
- Within a flexible system of tenure/ ownership, grazing pressures were directed at *de facto* available – rainfall regenerated – pasture under typical rainfall conditions.
- Dependency on natural watering holes or such places as where near-surface water could be dug for, left large tracts of pasture outside the range of effective utilization, and meant that marginal and marginal lands were not subjected to grazing pressures.
- During droughts stock had to be moved as far as where pasture and surface water could be obtained. This had the effect of saving drought-stricken pastures from additional herbivory pressures.
- Droughts had the further likely effect of causing stock-mortalities. Such losses could not be easily recuperated after droughts by the import of stock, but had to rely on natural increases in breeding. The result was the maintenance of parity between stocking rates and actually obtaining veld conditions.
- The low level of technological intervention in the landscape did not disrupt the natural migration patterns of indigenous game.
- The co-existence of game on pastures enabled continuing utilisation of the pastures over a broad grazing spectrum. This would have served towards maintaining the evolved veld balance.

Similarly, it would appear as if the indigenous game suite would have been able to co-exist durably along with traditional (low-impact) hunting and pastoral competition for fodder.

In the next chapter the evolution, structural aspects and current operations of the commercial stockfarming sector are discussed with reference to patterns of apparently equilibrrious fodder-use by indegenous game and traditional pastoralism. It is hoped that any observed significant differences may shed some light on the question whether adverse environmental changes – specifically to productive pasture – may have taken place under the commercial regime.

## CHAPTER 5. THE COMMERCIAL STOCKFARMING REGIME

### 5.1. THE COMMERCIAL STOCKFARMING SECTOR WITHIN THE OFCA

The activities of the commercial livestock-farming sector are spatially the most distributed of all economic sectors or subsectors in the OFCA. Virtually the whole OFCA not specifically demarcated as communal area, proclaimed state land, or otherwise designated for settlement or spatially contained economic activities such as mining and irrigation may be taken to comprise the spatial domain of this sector. As a rough estimate, this sector may be said to comprise ca. 60-70% of the OFCA<sup>180</sup>.

While no specific information for the OFCA is available, it has been estimated that within the combined Karas and Hardap regions around 2500 farmers utilise around 17 000 000 ha<sup>181</sup>. This entails a rough average of 6800 ha per farmer<sup>182</sup>.

The leading commercial districts in the OFCA are: 1). Mariental; 2). Keetmanshoop; 3). Karasburg (where assessment is based on stocking figures over the period December 1988 – 1999). Despite the productive pre-eminence of Mariental, the Karas region has consistently held significantly more stock than Hardap (1988 – 1999)<sup>183</sup>.

Sheep farming – and especially karakul farming – had become the major economic focus of commercial production by the 1950's, and would continue to be so until the pelt-market crashed spectacularly in 1982. Since the collapse of the karakul-pelt market in the early 1980's, commercial production has firmly shifted in the direction of producing low-fat dorper carcasses for, mainly, the South African market. To some extent, goats and cattle are also currently farmed<sup>184</sup>.

---

<sup>180</sup> See: Figure 2 "Land Uses within the OFCA"

<sup>181</sup> UCT; 2000: 92.

<sup>182</sup> While this average may be used as some measure of indication, it should be noted that in practice farm sizes would tend to be smaller in higher potential areas, and larger in lower potential areas. Furthermore, some farmers may be owning/ renting more than one farm, causing further *de facto* discrepancies in actual tenure.

<sup>183</sup> See: UCT; 2000a: Appendix I 11: "Livestock Trends in the Study Area". This document is based on an analysis of stock census figures from 1988 – 1999, as had been made available by the Directory Veterinary Services (Windhoek).

<sup>184</sup> See: UCT; 2000a: Appendix I 4: "Livestock Types in the Study Area".

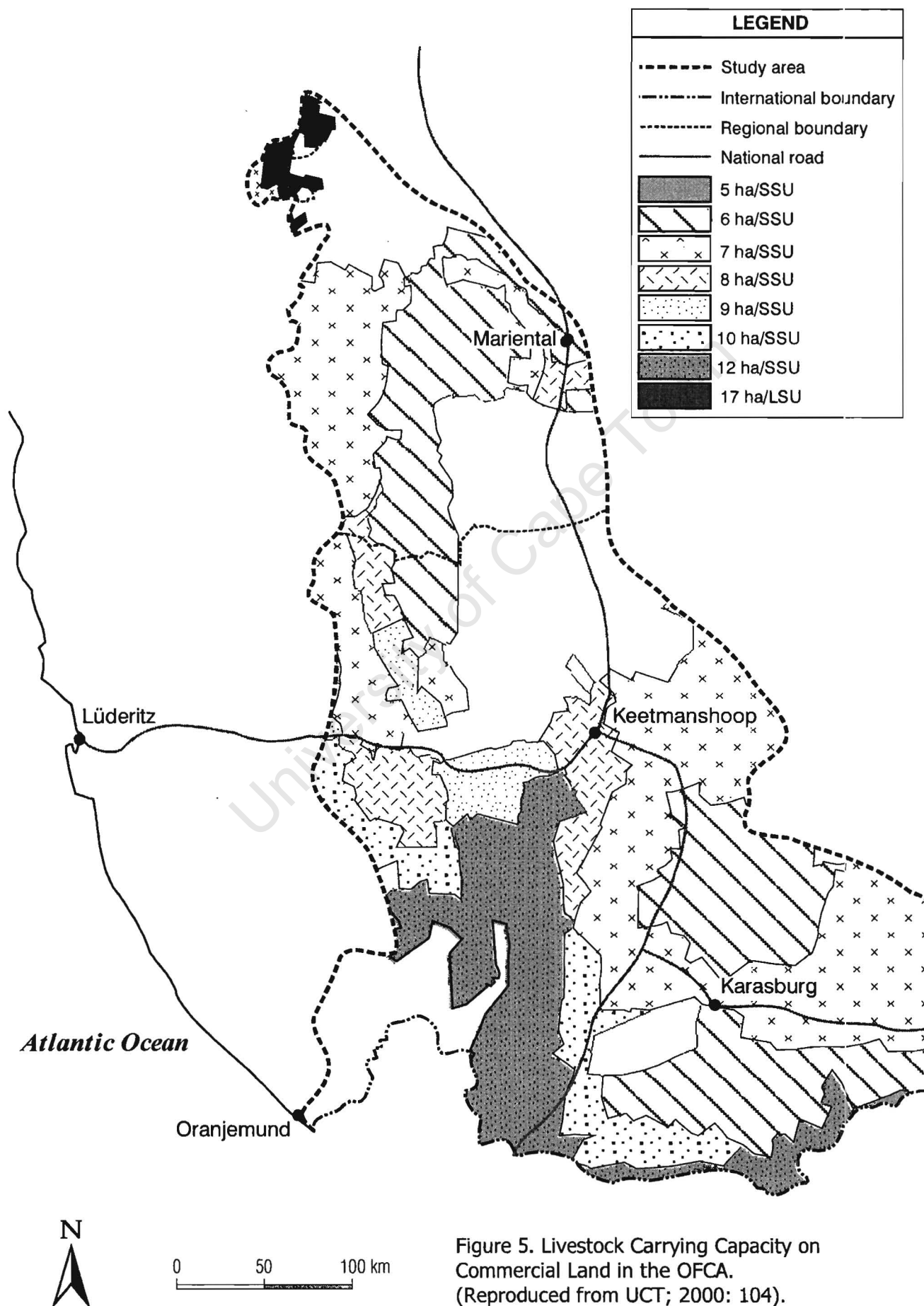


Figure 5. Livestock Carrying Capacity on Commercial Land in the OFCA.  
(Reproduced from UCT; 2000: 104).

## 5. 2. HISTORICAL CONTEXT UNTIL CA. 1980<sup>185</sup>

In the aftermath of the Oorlam migrations into Namibia in the 19<sup>th</sup> century, the indigenous game of the OFCA was placed under severe hunting pressures. These pressures were to continue and grow as ivory, skins and hides procured by commercial hunting displaced trade in cattle with Cape traders in the 1860's<sup>186</sup>. By this time game had become so scarce in Namaland that hunters were forced to direct their attention to the areas north of Windhoek<sup>187</sup>. By and large then, by the time of colonisation, the OFCA veld was no longer being utilised by indigenous herbivores as it had been under traditional Nama pastoralism. The introduction of high-powered and magazine-fed rifles in the colonial era likely exacerbated these hunting pressures, and the extensive productive settlement of the OFCA during the first half of 20<sup>th</sup> century (see below) had the result that the indigenous game suite largely become replaced by livestock.

German colonisation of Namibia became established during the last two decades of the 19<sup>th</sup> century. By the end of German rule in 1915, most lands of the Nama had been appropriated by the Crown, and German commercial farmers were farming on more allotted lands than the Nama – with Nama's now often employed as wage labourers. During this time, stockfarming with imported breeds was established in the OFCA, and most notably karakul sheep were introduced in 1908.

General European settlement patterns and land-use continued to develop in more or less linear fashion after the Union of South Africa took over administration of the territory in 1915. The South African colonial period lasted until 1989, shortly before Namibian national independence in 1990.

Of most importance here, firstly, Namibia was for most of the time administered as a virtual "Fifth Province" of South Africa – with the implications of racial segregation, disenfranchisement of non-European Namibians, and economic inequality that such carried, but also with the implication of firmly tying Namibia into the macro-economic framework of South Africa. Within this set-up, commercial (white) farmers benefited from both generous "state" subsidisation, as well as from protected access to South African markets. Today, Namibia is still firmly locked into the South African economy – dependent on the bulk of its needs for markets, agricultural inputs, fresh produce and staple foods, and foreign capital inflow from South Africa<sup>188</sup>.

---

<sup>185</sup> This section summarises the comprehensive overview of historical land-use in the OFCA presented as Appendix G in: UCT: 2000a: "Historical Overview of the Land-use Types in Southern Namibia until National Independence (1990)".

Further references here will only be to details not taken from this Appendix.

<sup>186</sup> Lau; 1987: 45; 88; 122.

<sup>187</sup> Lau; 1987: 58; 94.

<sup>188</sup> By 1997, imports from South Africa accounted for 90% of total national imports. (UCT; 2000a: Appendix I 2: "Economic Influences in the Stockfarming Sector").

Secondly, from the 1920's onwards, the Union would pursue a vigorous policy of subsidised resettlement of poor white and landless commercial farmers in Namibia. The bulk of such resettlement was carried by the South, and thus much of the OFCA. Racial land distribution patterns did not improve substantially during the South African administration. Until the 1940's farmers in the OFCA still migrated between pasture – in the case of the white commercial farmers, the so-called "trekboere" (= Afrikaans: migratory farmers). Now however the areas migrated between were distinctly allocated, fixed and legally demarcated tracts of pasture under the prevailing norm of private property. Within this territorial framework, "communal" Nama pastoralists were similarly constricted in migrational movement – in their case in what had been allotted by the State as "native areas".

Despite state support of white settlers, by the 1940's commercial farming conditions in the OFCA had deteriorated to such an extent – with practices of localised overgrazing rife – that a General Rehabilitation Commission was appointed. The recommendations of this Commission saw massive state intervention in the rehabilitation of degraded farms and the livelihoods of these farmers. The findings of this Commission had some very important results: firstly, it resulted in much of the held Crown Lands in southern Namibia becoming opened up to farming. In many cases this constituted previously assessed sub-marginal lands – including some land in the sub-Namib *Sperrgebiet*. By the 1950's southern Namibia had become extensively settled – overwhelmingly by commercial white settlers. Apparently the last parcel of farmable land had been allotted by this time, for hereafter all increases in farm numbers in Namibia were to have been the result of subdivision<sup>189</sup>. Secondly, generous state subsidisation structures were established in order to enable commercial farmers to farm in a more "modern" fashion. Massive state subsidisation of capital and grazing-management orientated improvements saw the large-scale erection of fencing infrastructure, boreholes, farm dams, etc. in the period ca. 1955 ff.<sup>190</sup>. The widespread installation of borehole-driven artificial watering-points, and of the general erection of perimeter – and later internal – fencing around private properties generally meant the complete sedentarisation of pastoralism<sup>191</sup>, and

<sup>189</sup> Adams and Werner; 1990: 23-4.

<sup>190</sup> Adams and Werner (1990): 20-2.

<sup>191</sup> Apart from interrupting evolved patterns of indigenous game migration, fencing also had negative implications for the attitude taken towards the persecution of predators. Whereas nightly herding and kraaling previously formed the main line of defence against predators, perimeter-fencing now allowed flocks to be left unattended in their pasture at night, provided that the *cordon-sanitaire* is preserved intact. Currently, fencing forms the first line of response against predators, and the communication of predator movements between individual farmers and the organisation of predator-hunts the second. The spatially extensive distribution of the commercial sector thus has the effect of aiming towards the exclusion of certain predator species from large parts of the OFCA – with consequent effects for the preservation of bio-diversity. However, not only predators such as Black-backed jackal (*Canis mesomelas*), Caracal (*Felis caracal*) and Leopard (*Panthera pardus*) are calculatedly being pushed aside on commercial OFCA lands, otherwise innocuous but burrowing species such as Aardvark (*Orycteropus afer*) are also commonly (if reluctantly) being persecuted on account of "undermining" fencing infrastructure (synthesis of interviews with various farmers and AEP: de Lange; Esterhuysen; Izko; Klein; Nolte; Pretorius; Steyn; Van Zyl).

with this opening up of various watering points, a more complete utilisation of the entire landscape, as opposed to traditional pastoralism which was confined to the vicinity of natural surface water sources, or places where ground-water was shallow enough to be dug for.

The establishment of a Soil Conservation Board, the continued inputs of Agricultural Extension Personnel (AEP), and, above all, the availability of state or private capital greatly benefited soil and veld conservation efforts in the commercial sector from the mid-fifties onwards<sup>192</sup>. By making state grants contingent on planning inputs by the Soil Conservation Board, the general inclusion of commercial farmers into the local veld conservation effort was achieved – by the 1960's, it was estimated that 90% of all commercial farms were being planned with inputs from this Board<sup>193</sup>.

In terms of veld management, suitable stocking rates were now being calculated in terms of assessing the productive capacity of given areas, and translating such into smallstock units per hectare (SSU/ ha). From the mid-fifties onwards, regimes of rotational grazing and the spreading of watering points over different discrete camps started evolving, and have become commonly established in Southern Namibia by the present date<sup>194</sup>. In theory then, any given land under commercial tenure was assured of some resting/ recovery period from grazing under normal rainfall conditions<sup>195</sup>.

In the dominant karakul producing stockfarming districts of southern Namibia, generally good market conditions in principle ensured the continued availability of capital for further investment in improvements, and – perhaps most importantly – the maintenance of that already erected<sup>196</sup>. Generally speaking, generous subsidisation of commercial agriculture and trade-protection under the South African administration was to last into the early 1980's<sup>197</sup>.

In summary, the general characteristics of commercial stockfarming related to land use by ca. 1980 may be identified as the following:

<sup>192</sup> Adams and Werner (1990): 25-6.

<sup>193</sup> Adams and Werner (1990): 26.

<sup>194</sup> Adams and Werner (1990): 25; and Visser – pers. comm.

<sup>195</sup> Currently, a 4-camp based system of rotational grazing – with built in resting periods for vegetation of one year - is mostly applied as major management technique (Bester – pers. comm.).

The introduction of a more flexible biomass-based stocking principle is currently being advocated, but still lacks widespread use, mainly due to the world of agro-finance still basing calculations on livestock units per hectare (De Lange – pers. comm.).

<sup>196</sup> De Lange – pers. comm.

<sup>197</sup> Davenport and Saunders; 2000: 550.

- Displacement of game-herbivory by livestock;
- The sedentarisation of productive operations under a regime of privately owned land;
- The extensive settlement of the OFCA, and even of assessed sub-marginal lands;
- The opening up of (sub)marginal pastures through networks of artificial watering points;
- The fragmentation of the landscape through the erection of (perimeter) fencing;
- Traditional reliance on generous subsidisation of operations by the South African administration;
- Traditional integration into the South African economy, with resultant trade-protection;
- Production based on imported stock-types, the types being dictated by factors of market-preferences more than environmental suitability/ adaptedness;
- Veld management based on the calculation of stocking rates in terms of SSU/ ha, and of applying rotational grazing regimes;
- Generally favourable market-conditions for the dominant karakul-pelt industry into the early 1980's.

### **5.3. STRUCTURAL ASPECTS OF CURRENT COMMERCIAL STOCKFARMING**

From the discussion above, some evolved characteristics of current commercial stockfarming can be identified. In this section, some of these characteristics are identified as structural aspects of land use, and the probable implications for veld-use are investigated against the background of inferred patterns of fodder-production and natural herbivory patterns (see: Chapters 2 and 3).

#### **5.3.1. Sedentarisation**

The most immediate implication of sedentarisation is that the farmer is forced to utilise available fodder within demarcated areas only. This probably entails a more constant and sustained pressure on palatable and nutritious plant species over the course of years.

Furthermore, with stock sedentarised, the distance to rainfall regenerated pasture on a property is relatively short. Unless the farmer intervenes by artificially keeping stock from such vegetation by camping, such may not receive a sufficient resting period within which to rejuvenate and regenerate. This is specifically pertinent after droughts where actual new plant growth has to supplant mortalities. During the aftermath of drought conditions, farmers may be likely to make use of any or the most available vegetation, and such resting periods may not be enforced.

#### **5.3.2. Specific stock types and livestock grazing.**

Commercial stockfarming is based on market-provision, and as such, enterprises which need to maintain inter-annual financial equity. With current production firmly orientated at marketing, outside market-preferences may determine stock-types more than the actual suitability of such types to the environment itself.

The dominant stock types are for the most part non-indigenous, and not necessarily optimally adapted to environmental conditions and contextually evolved vegetation. The most import productive stock type in the OFCA commercial subsector, the dorper sheep, is universally regarded as a very destructive grazer<sup>198</sup>.

Domestic livestock typically feeds on a narrower forage spectrum than indigenous game, and farming enterprises tend to be predominantly monoculture. This may have resulted in changes to veld balance, with typically more palatable plants becoming gradually outgrazed or less, and unpalatable or toxic plants increasing<sup>199</sup>. The dominant use of veld by monoculture grazers may result in the relative and long-term increase of shrubby growth or bushes, with converse increases in grass-content being the likely case under monoculture browsing.

The fairly overwhelming displacement of original game with livestock has certainly lead to the loss of a wide range of complementary feeders. This not only has possible implications for long-term changes in botanical composition, but also possibly in terms of veld structure. In terms of efficient resource use, it also means that some primary production is lost to animal consumption, and that the veld loses functional productivity.

Dominant production is geared towards the production of mature carcasses – as opposed to pelts or stud-animals. Production is therefore based on the intensive use of fodder-biomass.

### **5.3.3. Stocking rates and management tools.**

Stocking rates are currently being calculated on the basis of SSU/ha. This assumes an unrealistic homogeneity in local veld and, of more importance, of continuity in interannual veld productivity under the highly unpredictable and variable rainfall conditions of the OFCA. The use of this method is too inflexible to reliably calculate actually suitable stocking rates within the OFCA context on a continuous basis.

While rotational grazing does afford some control over grazing patterns, the unpredictable patterns of veld regeneration under normal rainfall conditions, along with the inherent unpredictability of annual rainfall occurrence may result in the breakdown of scheduled resting periods as farmers may be required to make use of all or any available fodder.

The biomass-principle of stocking-calculation<sup>200</sup> which is currently becoming widespread in use in the OFCA has the positive implication of establishing a closer link between

---

<sup>198</sup> De Lange – pers. comm.

<sup>199</sup> Liversidge and Berry; 1996b: 589; Liversidge and Berry; 1996d: 599.

<sup>200</sup> The biomass principle is based on research which was conducted at Omatjenne research station during the 1970's. In essence, the biomass concept departs from the observation that (under Namibian conditions) the (daily) fodder intake of free grazing animals is more or less a constant 3% of live body mass under normal conditions. From this then evolved the principle of

actual stocking rates and actually available fodder resources during any given time. Application of this principle however still lies with the farmer, and the veld may still be neglected under conditions where economic considerations outweigh veld conservation ones. This may be especially the case on rented properties where the farmer has little interest in the long-term preservation of the veld-resource, and may be more interested in acquiring maximal short-term gain<sup>201</sup>.

#### **5.3.4. Extensive settlement**

Extensive settlement of the OFCA firstly meant that now most of the area was brought under – arguably constant - sedentarised use. On the one hand this had the implication of utilising land which had historically never been used by pastoralists, but had traditionally been assessed as of submarginal value. These lands were typically more drought-prone and rainfall-stressed, and would naturally have produced relatively minimal and highly variable fodder. Larger commercial farm sizes in these more drought-prone areas may not have been sufficient to prevent an exacerbation of the general effects of sedentarised farming under rather less extreme conditions.

Extensive settlement also meant that most of the OFCA veld was being subjected to patterns of sedentarised fodder utilisation. The continuity of grazing over such a wide area is likely to have caused some instances of localised overgrazing. The maintained fragmentation of healthy and balanced veld may have increased pressures on surrounding tracts of healthy veld to recolonise degraded patches under suitable circumstances. This would translate into an arguably longer healing period for degraded lands and in the aftermath of serious droughts.

#### **5.3.5. Extensive borehole-provided artificial watering-point-based veld utilisation.**

Domestic stock is water dependent. Of greatest importance here, is that a network of artificial watering points makes possible pastoral use of the landscape as had never before been the case. Specifically, it makes possible sedentarised farming on lands without any natural sources of surface water. Furthermore, it makes possible sedentarised utilisation of lands with only seasonally available or otherwise unpredictable surface water sources. This had the result of facilitating settlement of submarginal land. Furthermore, it subjected pasture to more continuous grazing regimes than would have been the case with migratory game or water-dependent traditional Nama pastoralism. It seems reasonable to assume that the natural veld would not have

---

calculating grazing capacity with reference to combined factors of available fodder mass and live animal mass, rather than from pasture sizes and animal numbers. The application of the principle thus entails ongoing evaluation of *de facto* available fodder resources and animal nutritional requirements, and is therefore more flexible with regard to actually obtaining rainfall-driven conditions and fodder needs.

See: Bester; 1995: 95 and Bester; 1999: 10-2, for a discussion of the theoretical basis, evolution and application of the principle.

<sup>201</sup> De Lange – pers. comm; Klein – pers. comm.

evolved under such even and constant grazing pressures. Gradual overgrazing and losses associated with veld structure would be likely in the long term under these conditions.

Fixed paths to such watering points and stock concentrations around them may lead to localised soil denudation and extensive localised overgrazing. Game on the other hand tend not to walk the same paths, and effects of trampling and soil erosion are less than in the case of domestic livestock<sup>202</sup>.

The perennial availability of surface water makes possible the utilisation of desiccated or drought-stressed fodder. Such fodder may then be used to the point of absolute collapse. The aggressive grazing habit of the dorper type sheep may cause extensive plant mortalities during these times<sup>203</sup>. The frequent generality of droughts, the unpredictability of further rainfall, and financial costs may well force farmers to make use of such fodder as is available – including drought-stressed fodder.

### **5.3.6. Drought responses.**

The sedentarisation of farming entails a serious loss of flexibility in the face of regional droughts. Where droughts are frequent and rainfall highly unpredictable, this entails the loss of flexibility in significant terms for much of any given period of occupation. Whereas the desiccation of fodder coupled to the simultaneous lack of water would have likely caused the out-migration of indigenous game and traditional pastoralists, sedentarisation within a fixed property framework makes this in principle impossible. Furthermore, the artificial availability of surface water then makes possible the utilisation of vegetation under conditions which would not have been naturally the case. As droughts progress, farmers are likely to make use of any available fodder<sup>204</sup>.

During localised droughts farmers may be forced to translocate stock to distant pastures by motorised transport, to rent additional land, to provide additional commercial stockfeed, to sell their stock at low prices on flooded markets, or alternatively to face stock mortalities<sup>205</sup>. All of these strategies carry severe financial implications, and have the effect of necessitating capital deficit reversal in the aftermath of droughts. In practice this would probably often lead to increase stocking levels for short term goals – thus immediately putting recently drought and herbivory stressed vegetation under renewed pressures.

The fact that the OFCA is no longer isolated, as was the case under traditional pastoralism, means that renewed stocking after droughts need no longer be the product of natural breeding. Stock may now simply be bought-in from outside the OFCA, and

---

<sup>202</sup> Liversidge and Berry; 1996d: 599.

<sup>203</sup> De Lange – pers. comm.

<sup>204</sup> Izko – pers. comm.

<sup>205</sup> Izko – pers. comm.

actual stocking increases need not be tied to actually available long term veld conditions. The need to financially recover from the setbacks most likely suffered during drought conditions – poor market prices, the taking of loans – militate in favour of increasing stocking to financially viable productive levels as soon as possible after droughts. Economic considerations – especially where more money had been taken on loan in order to restock – rather than actually prevailing veld conditions may then dictate stocking and veld utilisation - to the obvious detriment of necessary resting and re-establishment periods.

### **5.3.7. Market-driven farming**

Unlike traditional pastoralism, current stockfarming is rather focused on the production of marketable surplus than local sufficiency. This is certainly overtly the case with commercial stockfarming. The most important consequence of such a productive regime is the necessity of maintaining inter-annual financial equity for each productive individual. With the broad economy generally indifferent to the vicissitudes of veld and rainfall conditions, farmers are thus forced to maintain productive continuity under highly variable conditions of environmental production.

With the losses of generous subsidies as had been enjoyed under the South African administration, commercial farmers are currently left at their own mercy for maintaining viable productive operations. Furthermore, the collapse of the lucrative karakul pelt market in the early 1980's, relatively stable produce prices over the past decade, the rising cost of agricultural inputs and constant national inflation since independence, have all contributed towards placing the sector under severe financial pressures<sup>206</sup>.

Both under normal and drought conditions, these financial pressures would likely add additional incentive to farmers to maximally – if unsustainably – use available fodder stocks in order to keep financially afloat. During exceptional rainfall conditions, there would also be more direct incentive for speculative opportunistic stocking<sup>207</sup>. The control of stocking levels and appropriate destocking may then in turn become more expressive of economic considerations than actually obtaining veld conditions.

### **5. 3.7. Probable effects of identified structural aspects**

From the above analysis of some structural aspects of current livestock farming, it seems reasonable to conclude that overall losses to veld productivity and localised veld resilience may have occurred under current conditions of tenure. This likelihood is based on factors of probability, where it has been shown that unlike under naturally evolved conditions, current herbivory has lost much flexibility in movement, and that the intimate connection between stocking rates and actually obtaining veld conditions has been broken by currently dominant economic considerations, along with the fact that the OFCA is no longer geographically isolated. Sedentarisation, the continuous opening up of pasture by artificial watering-points, and geographically extensive settlement may

---

<sup>206</sup> See: Section 5.4.

<sup>207</sup> Steyn – pers. comm.

all have contributed to counteract naturally evolved requirements for vegetational regeneration, rejuvenation and the recolonisation of the veld.

#### 5.4. CURRENT STATE OF THE OFCA COMMERCIAL VELD

The structural pre-disposition towards radically different patterns of veld use as had naturally evolved in the OFCA, would in principle suggest the probability of accumulated losses in veld productivity and changes in structure. This conclusion is supported by the experience of one botanical expert<sup>208</sup>, in whose opinion observational evidence suggests a definite deterioration of veld conditions in southern Namibia over the course of decades. Hereby is specifically meant that the accumulated impacts of more or less constant grazing (only mitigated by some rotation) over the course of the past few decades have rendered the veld considerably less diversly structured, with losses of local communities or taxa from specific portions of veld likely, and the general resilience of the veld to survive and recuperate from drought conditions greatly diminished<sup>209</sup>. This assessment was generally confirmed during interviews with third generation commercial farmers in the OFCA<sup>210</sup>.

Against this background, the following assessment of current veld conditions, as reached in the early months of 2000<sup>211</sup>, should be considered:

- Apparent good regeneration of veld cover during and in the aftermath of the exceptional rainfall conditions over 1999/ 2000 has generally been observed all over the OFCA commercial areas. While abundant herbaceous annual and pioneer growth (esp. Sourgrass – *Schmidtia kalahariensis*) was apparent in especially lower potential areas, massive stands of seeding staple-fodder grasses (mainly *Stipagrostis* spp.) were also commonly observed. Little evidence of denuded veld or pebble plains was apparant<sup>212</sup>.
- Typical features of unbalanced veld such as bush encroachment by *Rhigozum trichotomum* (Threethorn) or the encroachment of typical sweetveld increasers such

<sup>208</sup> Mr. Ben Strohbach, National Botanical Research Institute (NBRI), Windhoek.

<sup>209</sup> Strohbach – pers. comm.

<sup>210</sup> Izko – pers. comm.

<sup>211</sup> See: UCT; 2000a: Appendix I 3: "Status of Grazing Resources in the Orange and Fish River Catchments (OFCA)". It should be stressed here that these assessments were based on inputs from AEP, resource managers (veld, water, etc.) and farmers, and to some extent also personal observations by members of the UCT study group during two field trips during February and March/ April 2000. As such – and in the absence of comparative baseline studies – the assessments are perforce subjective and of coarse resolution.

<sup>212</sup> UCT; 2000a: Appendix I 3: "Status of Grazing Resources in the Orange and Fish River Catchments (OFCA)": 19.

as *Pentzia globosa* (vernacular: "Bitterbos") and *Chrysocoma ciliata* (vernacular: "Bitterbos") have been reported as unproblematic by various resource managers and farmers in the OFCA. The incidence of the toxic (to stock) plant *Geigeria ornativa* ("Vermeerbos") was reported by some rangeland experts, but was similarly regarded as insignificant in the OFCA commercial veld<sup>213</sup>.

- In the opinion of one prominent resource manager, gained during an interview in February - before veld conditions had actually started to improve – the general implementation of rotational grazing on OFCA commercial lands has had the effect that overgrazing is not currently a significant issue<sup>214</sup>.

From these findings, it appears that - while it may still be too soon to meaningfully assess coupled trends in stocking and veld succession patterns - for the time being the veld is still able to regenerate fairly successfully following good or exceptional rainfall years. Similarly, findings suggest that common indicators of seriously unbalanced veld are at present largely absent from veld under commercial tenure.

#### 5.4.1. Contextualisation of current veld conditions

While the findings above suggest a relatively healthy state of the current OFCA commercial veld, these findings need further contextualisation in order to gain a better understanding of the situation in more continuous terms.

First of all, it should be noted that the rainfall received over much of the OFCA during the wet season 1999/ 2000 is considered to be the best general rainfall received since the 1973/4 season<sup>215</sup>. While good general veld regeneration was thus observed, the following transcribed comments from prominent resource managers and observers should be borne in mind, and merit upfront presentation here:

*Southern Namibia is all about rainfall. Vegetation succession naturally depends on the spacing of rainy years - more than anything else*<sup>216</sup>.

*Degradation is a difficult concept to apply here (i.e. the OFCA): after good rainfall, there is a very small time lapse between pioneer and climax succession stages, with generally good grazable veld thus regenerating not long after good rainfall. Perhaps (over)grazing may have caused the more palatable climax grasses to have declined in overall frequency, but that would be very difficult to quantify*<sup>217</sup>.

---

<sup>213</sup> UCT; 2000a: Appendix I 3: "Status of Grazing Resources in the Orange and Fish River Catchments (OFCA)": 19-20.

<sup>214</sup> Bester – pers. comm.

<sup>215</sup> UCT; 2000: 16.

<sup>216</sup> Bester – pers. comm.

<sup>217</sup> Knoutz – pers. comm.

*It is important to bear in mind that any actual vegetation in the area (i.e. the South) is largely a product of rainfall (episodes). In other words, the extent and composition of vegetation cover often reflect no more than the extent to which good rains have fallen or not. More than anything else, rainfall is probably the greatest factor in determining inter-annual variability in veld cover<sup>218</sup>.*

In this analysis, *de facto* veld conditions in the OFCA are, by and large, the result of stochastic factors, and especially of rainfall deployment.

Furthermore, it should be noted that while sweetveld is sensitive to overgrazing (especially during the growing season), it also possess the ability to recover fairly rapidly from disturbances - more so than mixed veld or sourveld<sup>219</sup>. While it may be difficult to quantify the exact time needed for regeneration of balanced veld, the durable soil seedbanks of many Karoo bush species and the wind-dispersal of seed in the staple *Stipagrostis* grasses may play an important role in the relatively speedy recovery of overgrazed areas.

#### **5.4.2. Concluding assessment of current veld conditions**

The good regeneration of veld which was observed in the beginning of 2000 may actually be largely the result of the good rainfall which was received and the inherent resilience of the sweetveld type rather than the effect of fodder-utilisation patterns and veld management practices. The fact that good resurgence of palatable grass species and the absence of serious invasion by bush encroaching species as well as sweetveld increasers and toxic plant species was assessed, does however point in the direction of some efficacy in current veld-management practices.

It is difficult to assess the current state of the OFCA veld in absolute terms in the absence of any (historical) baseline information. The comparison between, on the one hand structural correspondences between (inferred) (stochastically determined) fodder production patterns, the patterns of fodder use by indigenous herbivores, and traditional Nama pastoralist veld utilisation, and on the other, structural differences of the commercial sector to these, would suggest some (at least) residual loss of veld productivity and structure over the course of some (ca. 7-8, if not more) decades. From some relevant impressionistic evidence, this does seem to be the case in interannual terms. While this fact was largely obscured from observation at the time an assessment of conditions was being carried out for the MET in 2000 by the exceptionally good general rainfall conditions, the veld conditions observed at the time are likely to occur only for a relatively short period of time (1-2 years) - against a more general deterioration of conditions to more typical productive values, or possibly even the onset of more durable drought conditions. In the end, the good regeneration of fodder may rather suggest a certain robustness to the native Karoo veld, and - as had been

---

<sup>218</sup> Strohbach - pers. comm.

<sup>219</sup> van Oudshoorn; 1999: 28.

suggested by the quotations above – a tendency to respond closely linked to rainfall patterns, above all other determinants.

While structural aspects suggest the probability that productivity and veld structure may have been lost over the past decades, it must be concluded here that it is not immediately apparent at present. In this regard, an answer of “inconclusive” must therefore be given to the question whether the productive potential of the veld has been lost.

## **5.5. PRODUCTIVE CONSTRAINTS SINCE CA. 1980**

### **5.5.1. Background**

While it does not seem possible to conclude that actual losses in productivity related to structural aspects of commercial fodder use have been incurred, this however does not mean that the environment is able to carry the demands currently being made on it indefinitely. From the early 1980's onwards, but specifically during the course of the 1990's, the prospects of the sector have been increasingly declining, up to a point where it seems to be in a crisis situation at present. While good rainfall received in 2000 may serve to cause some current optimism, the accumulated experiences of frequently recurrent drought years during the period – indicating the extreme variability and unpredictability of inter-annual fodder production conditions as had been inferred in Chapter 2 – coupled to the falling away of some significant privileges previously enjoyed by the sector seem to indicate two conclusions:

- The current crisis in the sector is first and foremost related to a “false bottom” falling out underneath production. Contributory to this, the sector is currently beset by unfavourable trade conditions in terms of inputs and products.
- The inherent instability of interannual veld productivity is structurally at odds with some structural aspects of commercial production – specifically the onus to produce surplus and inter-annual financial equity for sedentarised farmers on an extensive scale. It may thus well be that extensive commercial production in the OFCA had only been possible for as long as the sector was being artificially supported, and while conditions of trade were furthermore favourable. Lacking these conditions, the actual inherent variability in interannual and spatio-temporal productivity of the veld appears structurally unable to support the demands made by current productive reality.

In the following subsection, the deterioration of the productive situation of the sector since the early 1980's is discussed. Specifically, the interplay of factors such as the loss of traditional access to generous subsidy, adverse marketing conditions, and the instability of interannual fodder production will be discussed in order to demonstrate that under current productive conditions the OFCA veld is unable to support the demand for financial survival by the sector.

### 5.5.2. The situation during the 1980's

The 1980's generally witnessed an end to the era of general prosperity for the commercial sector in southern Namibia. On top of general drought conditions which developed from the 1970's onwards - peaking around 1982/1983 - the karakul pelt market entered a period of severe depression from 1982 onwards, only significantly recovering towards the end of the decade again. Furthermore, by 1984, the retreating South African administration was spending ca. 50% of the territorial budget on defense issues, and the territorial economy had sunk to a -7% growth rate for the year<sup>220</sup>.

While grazing management regimes and erected infrastructure were in theory left intact, market and drought pressures would put the land under commercial tenure under severe pressure from the early 1980's onwards. These included conditions of drought-stressed herbivory and continued pressure to keep farming operations financially feasible in the face of severely adverse economic circumstances. Moreover, capital available to improve farming operations and sufficiently maintain infrastructure became severely stressed as farmers increasingly had to focus on keeping operations afloat above all else<sup>221</sup>.

By the end of the decade, rainfall conditions had generally improved<sup>222</sup>. The karakul pelt market had restored somewhat (if still only at 21% of 1980 figures by 1988<sup>223</sup>). Much of the stockfarming sector seems to have moved towards carcass production, and were investing mainly in dorper sheep from now on. At this stage, meat prices were generally high, production costs were leveling off, unimpeded access was being enjoyed to South African markets, and steep rises in land prices around independence were contributing towards easing commercial debt burdens<sup>224</sup>.

The generally favourable rainfall and economic and political environment translated into a general rise in stocking numbers in southern Namibia by the closing years of the 1980's. Generally more favorable economic conditions and the optimism surrounding national independence seem to have contributed to significant rises in stocking numbers in southern Namibia in the years immediately after independence, with stocking figures peaking in 1990, and being generally maintained at a high level over 1991<sup>225</sup>. From a scrutiny of stocking figures, it seems clear that much of stocking investment had been directed towards dorper sheep<sup>226</sup>.

<sup>220</sup> Davenport and Saunders (2000): 550.

<sup>221</sup> Styen – pers. comm.

<sup>222</sup> Adams and Werner (1990): 65.

<sup>223</sup> Cf. Adams and Werner (1990): 48-9: 3.5 million (1980): 0.75 million (1988).

<sup>224</sup> Adams and Werner (1990): 65.

<sup>225</sup> See: UCT; 2000a: Appendix I 11: "Livestock Trends in the Study Area".

<sup>226</sup> See: UCT; 2000a: Appendix I 11: "Livestock Trends in the Study Area".

### 5.5.3. Deterioration of the situation in the 1990's

From a generally clement situation in 1990, conditions rapidly and severely deteriorated over the course of the decade. Severe droughts from 1991 over 1992, and onwards, saw general rangeland conditions severely deteriorated. Stocking numbers for southern Namibia therefore plummeted from 1992 onwards, reaching the lowest overall stocking rates for the period (1988 ff.) in the closing years (1998 and 1999) of the decade. It would appear that the restoration of rangeland conditions following improved rainfall over 1996/7 was only momentarily able to support a recovery in stocking numbers in 1997, but the accumulation of grazing stresses from the 1980's onwards seem to have translated in even further deterioration, as rainfall conditions again worsened over 1997/8, and total stocking numbers significantly plummeted for all livestock types, with overall stocking levels (i.e. of all stock types combined) for southern Namibia falling to 59% of 1990 levels. The restoration of rangeland conditions following good rains early in the 1999 rainy season was probably mainly responsible for the significant rise of stocking figures for the Hardap region over 1998/ 1999. Nevertheless, Karas figures closed at the lowest number for the period from 1988<sup>227</sup>.

Other significant factors to consider here apart from rainfall-driven and grazing-pressure accumulated rangeland conditions include the following:

- Loss of traditional access to subsidisation and the onus of financial self-reliance
- Current adverse market conditions
- Dependency on South African agricultural inputs

Each of these factors will now be briefly discussed in turn:

#### 5.5.3.1. Loss of traditional access to subsidisation and the onus of financial self-reliance

Since national independence, the former privileged status of the sector has suffered a heavy blow – specifically in terms of generally decreased spending by the Namibian government, as compared to the previous South-African administration. This entails the decreased availability of (traditionally abundant) subsidisation capital<sup>228</sup>.

With the general loss of generous subsidisation as had been enjoyed under the South-African dispensation, Namibian farmers are now furthermore required to maintain financial self-sufficiency under conditions where meat prices have been remaining relatively stable for more than a decade, but where the costs of agro-inputs have risen dramatically along with annually escalating national inflation.

---

<sup>227</sup> See: UCT; 2000a: Appendix I 11: "Livestock Trends in the Study Area".

<sup>228</sup> UCT; 2000a: Appendix I 2: "Economic Influences in the Stockfarming Sector".

### 5.5.3.2. Current adverse market conditions

The bulk of OFCA mutton – ca. 80% - is for export to South-Africa. Total Namibian mutton contribution to the South African market however only accounts for ca. 16% of total South African consumption. On South African markets, Namibian mutton is generally sold undifferentiated from South African produce<sup>229</sup>.

The fundamental reliance on South African markets puts the commercial livestock sector in a precarious position. In the words of one resource manager: "If the border between South Africa and Namibia ever closes for any reason, it is quite possible that South Africa will not even feel it. We will definitely feel it"<sup>230</sup>. Mutton prices have generally remained stable through much of the 1990's after an initial high at the end of the 1980's<sup>231</sup>. At present the import of cheaper state-subsidised mutton from Australia and New Zealand is threatening the traditionally privileged position of Namibian imports into South Africa. Moreover, the dorper-type originated in South Africa, and Namibian stock is generally regarded as inferior<sup>232</sup>. This serves to reinforce the precarious situation in which the commercial livestock sector finds itself.

### 5.5.3.3. Dependency on South African agricultural inputs

In terms of agricultural inputs, the commercial sector is almost entirely dependent on South Africa. In the light of the weak performance of the Rand since the early 1990's, the current costs of agricultural inputs have been increasingly high. Against general national (Namibian) inflation of 8-18% since 1990, increases in costs of agricultural inputs are estimated to have been even higher during this period<sup>233</sup>.

### 5.5.4. Current effects of deteriorated productive conditions

In the opinion of various AEP interviewed, sustained current financial pressures have made necessary investment in infrastructure - along with the maintenance of existing infrastructure - virtually impossible<sup>234</sup>. Under these conditions, the practice of efficient grazing regimes and soil and veld conservation measures in general, become very difficult to maintain. Furthermore, the massive and dominant investment in destructive grazing sheep type like dorper put further stresses on veld utilisation, as effective grazing management of this type – and now more than ever – is of utmost importance in order to assure sustainable utilisation<sup>235</sup>.

---

<sup>229</sup> Knauts – pers. comm.

<sup>230</sup> De Lange – pers. comm.

<sup>231</sup> De Lange – pers. comm.; Knauts – pers. comm.

<sup>232</sup> Klein – pers. comm.

<sup>233</sup> Various farmers and Agricultural Extension Officers – pers. comm.

<sup>234</sup> De Lange; Steyn – pers. comm.

Against the background of prevailing depressed sectoral conditions – stable meat prices, rising input costs, national inflation, generally unfavorable marketing/ trading conditions – it seems as if any current benefits from improved veld conditions are only likely to be temporary.

Comparative evidence of trends from the early 1980's seem to reveal the inability of the sector (and veld resources) to maintain themselves in any significant terms over a decadal term. Collapses in veld conditions following the onset of drought conditions against the backdrop of prevailing economic conditions (typically within the next 5-10 years) may well again see such significant decreases in stocking rates as was witnessed during 1997/8.

Stocking in the Hardap region by December 1999 indicate massive utilisation of improved veld conditions following early good rains at the end of 1999. The possibility of speculative stocking should not be excluded. Prevailing economic pressures are likely to contribute to the veld resource not benefiting from the better rainfall conditions, as they may actually now become under greater short-term pressures in order to make up for historical operational capital deficits.

## **5.6. CONCLUSION**

The current crisis of the stockfarming industry may have less to do with the possible continuously suboptimal state of the OFCA veld than with combined environmental and economic factors. During the establishment and much of the history of the commercial stockfarming sector, generous state subsidies and complete economic integration within the South African economy have served to provide a "false bottom" to the development of the subsector. With this bottom falling away after independence - and coupled to the bust in the karakul pelt market, the experience of two dry decades, and fairly adverse market and economic conditions over the past decade – the salient truth about the OFCA now seems to become apparent: it is inherently unable to support the demands made on it by extensive stockfarming. Furthermore, patterns of herbivory use are structurally diametrically at odds with naturally evolved ones, and systemically entail that farmers to a large extent have been farming "against nature" – with negative implications for both parties involved.

In the next chapter some concluding thoughts to this study are presented, and the scope for mitigation and reversal is briefly investigated.

---

<sup>235</sup> Klein and Knauts - pers. comm.

## CHAPTER 6. CONCLUSION.

### 6.1. INTRODUCTION

In this chapter the principal findings of this study are reviewed, specifically with reference to the research aims and objectives which have been identified in Chapter 1<sup>236</sup>

In the final part of this chapter, a discussion of alternative land-use options (to commercial stockfarming) is presented. Land-use diversification and environmentally appropriate farming techniques are briefly discussed in the light of the understanding of the OFCA environment and the crisis within the commercial stockfarming sector, as was reached in this study.

### 6.2. DISCUSSION OF MAJOR FINDINGS

Based on an understanding of currently known factors of prevailing climate and available soils, the OFCA environment was found to constitute a very harsh growing climate for plants, with generally poorly-developed soils, very high year-round temperatures and a pronounced scarcity of moisture. All of these factors translate into naturally low primary (plant-biomass) production, and to the evolution of arid-adapted indigenous biota. Rainfall patterning was found to be the major determinant in actual fodder-production (regeneration) in continuous spatio-temporal terms. In temporal terms, annual rainfall is generally low and highly unpredictable. The (spatially and productively) dominant OFCA Nama Karoo veld therefore has a naturally low, and inter-annually unpredictable fodder-production potential. In spatial terms, rainfall is typically heavily fragmented over a wide rainfall front. The veld therefore typically tends to regenerate in a fragmented – “checkerboard” fashion, with regenerated patches often far apart and small in extent. Droughts are frequent on both a localised or regional scale, and may be of protracted duration - further reinforcing inter-annual unpredictability in the natural availability/accessibility of fodder. While droughts are the rule, the unpredictable occurrence of exceptional rainfall seasons on the bi/tri-decadal scale are the significant exception. During these seasons fodder-biomass production increases dramatically, and furthermore, the veld is given an opportunity to heal itself from possible effects of drought (or overgrazing). Highly erratic occurrence and low frequency means that fodder-production soon returns to more typical low values, or diminishes even further at the onset of drought-conditions.

The indigenous game suite was reconstructed with reference to relevant extracts compiled from the accounts of historical observers of the OFCA in the period before 1840. Apart from Giraffe, Black Rhino, Hippopotamus, and Elephant – whose feeding patterns were not considered in this study – two species of wild equines and seven species of medium ( $\geq$  Springbok) and large ( $\leq$  Buffalo) bovids were found to have historically occurred within the Nama Karoo OFCA veld. Of these species, only Kudu still

---

<sup>236</sup> See: section 1.2. “Aims and objectives”.

currently inhabit the OFCA in number and fashion comparable to historical times. In general, only scattered and small populations of certain species of indigenous game still occur in the OFCA, and by and large, game had become displaced by livestock in the utilisation of veld-fodder.

The two species of wild equinines, and six out of the seven bovids (excluding Kudu) may be described as direct niche-competitors to current fodder utilisation by livestock. Historical patterns of probable incidence and distribution were found to have varied between typically resident species such as for instance Springbok and Gemsbok, and incursive species such as for instance Blue Wildebeest – which probably migrated into the OFCA on a seasonal basis – and Buffalo – which probably visited the OFCA stockfarming areas only in the aftermath of exceptional rainfall. Although population numbers were not quantified in this study, given typically low fodder-biomass production, resident game probably never occurred in large numbers on a continuous basis. The resident game suite was found to have been largely water-independent, and adapted to making use of desiccated fodder. The actual spatio-temporal availability of fodder was found to have constituted the main determinant in herding behaviour and general movement of all indigenous game, where the extent to which fodder was abundant functioned as trigger in herd dis/ aggregation and migratory movements, and where all species were given to wander far afield between patches of regenerated or suitable fodder. The major result of this was that no tract of pasture was constantly grazed in inter-annual terms, and that at any time herbivory would have been concentrated on viable tracts of pasture. While in-migrations and numerical concentration would occur in the wake of infrequent rainfall seasons, numerical deconcentration and out-migrations (of ultimately resident and arid-adapted species) would characterise more frequent drought-conditions. Drought mortalities may have been significant, and may have had the effect of lowering herbivory-pressures on drought-stressed veld, giving it a chance to recuperate to productive values again. Thus, species-occurrence as well as numerical concentration were intimately linked with, and reflected, patterns of rainfall-occurrence and fodder-production. Furthermore, the evolved patterns of herbivory also ensured the efficient use of available fodder-resources through inter-species complimentary feeding. Veld structure was maintained through feeding habits over a broad spectrum, and through the ability of game to make use of plants which are toxic to livestock. While the indigenous game suite was adapted to make optimal use of available fodder, the veld was also adapted to produce optimally in the prevailing growing climate, and with regard to natural patterns of herbivory.

Pre-commercial, traditional Nama pastoralist livelihoods probably had a low environmental impact, and were likely sustainable. Direct factual evidence is scarce, but from what is known about Nama pastoralism, and interpreted within the context of what is known about the current OFCA environment, patterns of pastoral land-use simulated those of indigenous game to the extent that they were also extremely flexible in relation to the availability of fodder. Epicyclical migration between pastures within an inclusive framework of grazing and watering-rights characterised Nama pastoralism. Pastoralist technological interventions in the environment were few, and basically entailed the erection of kraals, and digging for shallow ground-water in the beds and on the banks of ephemeral watercourses. In so far as domestic livestock is water-dependent, large waterless tracts of the OFCA veld were thus probably scarcely used. Furthermore, the

absence of fencing-infrastructure left unimpaired the mechanism of unfettered migration, vital to indigenous game. Pastoralist production was based on the principle of providing self-sufficiency rather than on producing marketable surplus, stock-types were adapted to local environmental conditions, and general cultural isolation meant that the effects of droughts would naturally lead to mortality-induced destocking, and the gradual development of increased stocking in relation only to actually improving fodder-biomass production. Nama population numbers were never high, and inhabitation was geographically discontinuous - concentrated along the tributaries of the Orange and Fish River system, and with much trekking to and fro between distant pastures. The scope for anthropogenic impacts was thus naturally limited. While the hunting of indigenous game probably made a substantial contribution to livelihood-strategies, Nama pastoralist patterns by and large allowed the co-existence of natural game. Nama pastoralism did not displace the indigenous game suite, large tracts of land (distant from accessible surface water) were left to the almost exclusive use of game, and migration patterns were left intact. Primitive hunting technology - the absence of fire-arms, horses and wagons - ensured that Nama hunting made little impact on game numbers. In short, within the OFCA environment, both traditional pastoralism and hunting - the dominant land-use activities - were to all appearances sustainable.

The major structural aspects of commercial livestock farming form a distinct discontinuity in land-use with regards to indigenous game and traditional Nama pastoralism. The establishment of the commercial sector had as first and immediate result the general displacement of indigenous game by livestock within the OFCA. Not only was game extensively hunted-out, the general introduction of jackal-proof fencing infrastructure completely disrupted natural game migrational movements, and fragmented surviving populations into small groups of privately-owned game. In terms of fodder-use, while migratory movements between *de facto* available fodder resources characterised natural and traditional fodder-use, the current framework of property-rights serves to sedentarise fodder-utilisation. This is directly at odds with spatio-temporally unreliable and fragmented patterns of natural rainfall and, consequently, fodder-production. Furthermore, in so far as commercial production is ultimately situated within a market-driven framework, factors of maintaining interannual operational financial equity, and of gearing production towards perceived market-demands, dictate a continuous productive regime on circumscribed tracts of land, and investment in stock-types not necessarily ideally suited to environmental conditions. Surplus-driven or otherwise financially-motivated production predisposes the sector to utilise drought-stressed vegetation, to make optimal short-term use of rented pasture, and to speculative stocking in the wake of good rainfall seasons, further disrupting of the link between sustainably-utilisable fodder-biomass stocks and the concentration of livestock-biomass. Furthermore, technological intervention in terms of artificial watering-holes enabled the opening-up and continuous use of otherwise sub-marginal lands, and the continued use of drought-stressed pasture during drought-conditions. Commercial farming tends towards the breeding of monocultures, and fodder-utilisation thus takes place over a much smaller spectrum of plants. In addition, the dominantly farmed dorper sheep-type is universally regarded as potentially a highly destructive grazer. In the final analysis then, commercial livestock farming seems structurally ill-equipped to respond appropriately to interannual unpredictability in rainfall (and consequent fodder-

production), and diametrically discontinuous with naturally and traditionally evolved patterns and mechanisms of fodder-use.

In so far as the commercial livestock sector structurally seems directly at odds with naturally and traditionally evolved patterns of fodder-production and utilisation, it seems plausible to conclude that environmental change in terms of vegetation may have occurred within the OFCA since pre-commercial times. Such changes may include decreased (palatable) fodder-biomass production, losses of certain plant taxa from the floral suite, changes in relative occurrence of different constituent plant taxa (i.e. losses in veld structure), and a veld with diminished ability to recuperate from drought and herbivory-stresses. Despite the lack of baseline studies, one prominent botanist in Windhoek expressed the opinion that, in his experience, veld productivity and structure have definitely deteriorated steadily over the course of the last two to three decades. Nevertheless, in the aftermath of an exceptional rainfall season at the time during which this study was done, little observable evidence seemed to indicate significant adverse changes to the veld on commercial lands, and the question as to whether losses in productivity and structure have taken place, the finding reached in this study was one of "inconclusive". While on the one hand this may indicate some efficacy in stock-management techniques, in the end it is more likely the result of the inherent robustness of the native Karoo veld, and of the veld's tendency to respond intimately to rainfall patterns, above all other environmental determinants. In this analysis, current commercial livestock farming may structurally not be ideally suited to sustainably utilise OFCA pastures, but at any rate it does not seem to have pushed the veld beyond the brink of massive natural recuperation under suitable rainfall conditions.

It may now be asked to which extent the current crisis experienced by the commercial sector is related to adverse environmental effects sustained from the way in which it utilises the land. In the final analysis, the inherent unsuitability of the OFCA environment to sustain widespread, sedentarised, and interannually continuous productive utilisation by livestock *per se* - an effect of stochastic factors (most notably, high variability and unpredictability in rainfall) - means that the sector is inherently farming against the grain of the environment. The consequent inherent vulnerability of the sector is clearly demonstrated by its vulnerability with regards to the accessibility of cheap operational capital, and to (fickle) market-factors. In the first instance, over the past two decades the sector sustained vital losses of generous state establishment grants, operational subsidisation, and privileged access to South African markets. In the second instance, market conditions have generally deteriorated over the same period, with the karakul pelt-market disastrously and durably collapsing in the early 1980's, and with substitute dorper-carcass production struggling with stable produce prices during the course of the 1990's. Furthermore, while the sector no longer benefits from South African capital grants, and its position of privileged access to South African markets has become compromised, the sector had become unilaterally dependent on South African markets for agricultural inputs and the selling of products. Droughts at various times during the last two decades put production under further strain, as additional pastures had to be rented, transport paid, additional stock-fodder provided, and produce prices plummeted in the face of markets flushed through general forced-selling - against the backdrop of a greater onus on the commercial farmer to be financially more self-sustaining and to keep operations afloat in highly unfavorable productive conditions. In

conclusion, it seems valid to pose the question whether extensive commercial stockfarming in the southern Namibia – in its current geographical extent – would have been possible at all without a history of generous subsidisation and integration into the South African economy, and furthermore, whether the sector is not now by and large suffering the effects of this unnatural bottom falling out, and it having to face more realistic conditions of production within the sparse and unpredictable OFCA environment.

### 6.3. BEYOND THE CURRENT REGIME OF COMMERCIAL LIVESTOCK FARMING.

The UCT study from which this study evolved made two major recommendations regarding land-use alternatives to the current commercial livestock farming regime. Firstly, that stockfarming should be concentrated on high-potential areas only, and secondly, that diversification to game/ eco-tourism utilisation should be considered as a more broadly sustainable alternative to stockfarming in the OFCA<sup>237</sup>.

Concentrating stockfarming on high-potential areas is likely to enable a more efficient concentration of available (state and private) capital resources, and available agriculture extension human resources. Production would be inherently more viable (as agricultural potential is largely the product of rainfall frequency and occurrence) and stable. Further mitigatory measures may include basing production on the application of the flexible and realistic biomass-principle of stocking, investing in better quality dorper-stock, or abandoning animal-biomass intensive carcass production for the production of less biomass-intensive stud animals. A switch to farming ostrich – ideally under free-range conditions, whereby the effects of localised soil-trampling may be reduced and the range itself may play some part in general veld-conservation – may hold limited potential for diversification of production on lower-potential lands.

The switch away from farming with (mostly introduced) stock to farming with wildlife may potentially benefit the sustainable use of the veld fodder resource, in as far as game tend to be more drought adapted, are in principle less destructive herbivores, and make more efficient use of available fodder-biomass production. However, within the broad aims of combating desertification and promoting sustainable practices of resource utilisation, very little contribution is made if game is treated - *farmed* - along the same lines as was traditionally the case for the stockfarming sector. Within the context of the OFCA it therefore makes little sense to introduce alien (if more spectacular or huntable) animals – such as for instance Black Wildebeest (*Connochates gnou*) or Blesbok (*Damaliscus dorcas phillipsi*) into an area to which they are either not adapted - or animals which are no longer suitable due to current tenure (fencing, property sizes). Thus, for instance, the reintroduction of Buffalo (*Syncerus caffer*) may no longer be suitable, as it previously seemed to have occurred in the OFCA only on an opportunistic basis, i.e. following exceptional rainfall conditions.

Within the context of managing vegetational biodiversity and striving towards the optimal carrying capacity of the veld-resource, it seems logical that any meaningful

---

<sup>237</sup> UCT; 2000: 181.

transition to wildlife-orientated land-use should – in as far as possible – be based on natural patterns of fodder utilisation by indigenous game. In aligning natural patterns of fodder production with natural patterns of utilisation through management interventions may lie the key to the emergence of a truly sustainable productive sector. At the crux of this would lie the breaking down of fences and the opening up of access between discrete properties over sufficiently large areas. The creation of conservancies and tourism-based land-uses in the OFCA should be officially encouraged in so far as possible.

University of Cape Town

## BIBLIOGRAPHY OF SOURCES

- Adams F and Werner W (1990) *The Land Issue in Namibia – an Inquiry*, University of Namibia, Windhoek.
- Alexander J E (1838) *An Expedition of Discovery into the Interior of Africa, through the hitherto undescribed Countries of the Great Namaquas, Boschmans and Hill Damaras, Vol. 1*, Henry Colburn, London.
- Alexander J E (1838a) *An Expedition of Discovery into the Interior of Africa, through the hitherto undescribed Countries of the Great Namaquas, Boschmans and Hill Damaras, Vol. 2*, Henry Colburn, London.
- Barnard et al (1998) Overview of Namibia and its biological diversity, in Barnard P (ed.) *Biological Diversity in Namibia – a Country Study*, Namibian National Biodiversity Task Force, Windhoek, pp. 15-55.
- Bester F V (1995) Drought and Rangeland Management, in Moorsom R Franz J and Mupotola M (eds.) *Coping with Aridity*, Brandes & Apsel/ NEPRU, Frankfurt a. M./ Windhoek, pp. 91-104.
- Bester F V (1999) Grazing register: based on the biomass concept, *Agri-Info*, Vol. 5 No. 3, pp. 10-2.
- Bigalke R C (1958) On the Present Status of Ungulate Mammals in South West Africa, in *Mammalia*, nr. 22, pp. 478-497.
- Bothma J du P Van Rooyen N and Du Toit J G (1996) Suitable Game, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 143 - 159.
- Davenport R and Saunders C (2000) *South Africa – a Modern History*, MacMillan, London.
- Desmet P G and Cowling R M (1999) The climate of the Karoo – a functional approach, in Richard W Dean J and Milton S J (eds.) *The Karoo – Ecological Patterns and Processes*, Cambridge University Press, Cambridge, pp. 3- 16.
- Devereux S and Tapscott C (1995) Coping Mechanisms of Communal Farmers in Namibia in Response to Drought, in Moorsom R Franz J and Mupotola M (eds.) *Coping with Aridity*, Brandes & Apsel/ NEPRU, Frankfurt a. M./ Windhoek, pp. 125-146.
- Fry R C (1995) Strategies for Better Water Resource Management and Conservation: Implications for Industry, in Moorsom R Franz J and Mupotola M (eds.) *Coping with Aridity*, Brandes & Apsel/ NEPRU, Frankfurt a. M./ Windhoek, pp. 159 - 180.
- Helbig H and Helbig L (1983) *Mythos Deutsch-Südwest – Namibia und die Deutschen*, Beltz Verlag, Weinheim und Basel.

- Hutchinson P (1995) The Climatology of Namibia and its Relevance to the Drought Situation, in Moorsom R Franz J and Mupotola M (eds.) *Coping with Aridity*, Brandes & Apsel/ NEPRU, Frankfurt a. M./ Windhoek, pp. 17-37.
- Johns M (1993) Haunting Dryland Eden – The Kalahari Gemsbok National Park, in *Africa Environment and Wildlife*, vol 1, no 1, pp. 80-9.
- Lau B (1983) The Kommando in Southern Namibia 1800 – 1870, in Saunders C (ed). *Perspectives on Namibia, Past and Present*, Centre for African Studies, UCT, Cape Town, pp. 25-44.
- Lau B (1987) *Southern and Central Namibia in Jonker Afrikaner's Time*, Archeia, Windhoek.
- Liversidge R and Berry M P S (1996a) Physical factors, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 581 - 585.
- Liversidge R and Berry M P S (1996) Nutrition, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 586 - 590.
- Liversidge R and Berry M P S (1996c) Veld Management, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 591 – 593.
- Liversidge R and Berry M P S (1996d) Mixed ranching with Game and Domestic Livestock, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 598-599.
- Liversidge R and Berry M P S (1996e) Suitable game (Arid regions), in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 601- 605.
- Meadows M E and Watkeys M K (1999) Paleoenvironments, in Richard W Dean J and Milton S J (eds.) *The Karoo – Ecological Patterns and Processes*, Cambridge University Press, Cambridge, pp. 27 - 41.
- Mossop E E (1935) *The Journal of Hendrik Jacob Wikar (1779) with an English translation by A. W. van der Horst and the Journals of Jacobus Coetsé Jansz: (1760) and Willem van Reenen (1791) with an English Translation by Dr. E.E. Mossop*, V.R.S. publication no. 15, Van Riebeeck Society, Cape Town.
- Mossop E E (1947) *The Journals of Brink and Rhenius, being the Journal of Carel Frederik Brink of the Journey into Great Namaqualand (1761-2) made by Captain Hendrik Hop, and the Journal of Ensign Johannes Tobias Rhenius (1724), transcribed, translated and edited by Dr. E. E. Mossop*, V.R.S. publication no. 28, Van Riebeeck Society, Cape Town.

Olszewski J D S and Moorsom R (1995) Rainfall Records and the Analysis of Drought, in Moorsom R Franz J and Mupotola M (eds.) *Coping with Aridity*, Brandes & Apsel/ NEPRU, Frankfurt a. M./ Windhoek, pp. 39 - 49.

Paterson W (1790) *Narrative of Four Journeys into the Country of the Hottentots, and Caffraria, in the Years 1777, 1778, 1779*. J. Johnson, London.

Shearing D (1994) *Karoo – South African Wild Flower Guide 6*, Botanical Society of South Africa, Cape Town.

Shortridge G C (1934) *The Mammals of South West Africa, Vol. 1*, William Heineman Ltd., London.

Shortridge G C (1934a) *The Mammals of South West Africa, Vol. 2*, William Heineman Ltd., London.

Skead C J (1980) *Historical Mammal Incidence in the Cape Province, Vol. 1: The Western and Northern Cape*, Department of Nature and Environmental Conservation of the Provincial Administration of the Cape of Good Hope, Cape Town.

Stuart C and Stuart T (1988) *Field Guide to the Mammals of Southern Africa*, Struik, Cape Town.

Stuart C and Stuart T (1997) *Field Guide to the larger Mammals of Africa*, Struik, Cape Town.

UCT (2000) *Environmental Situation Analysis with regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA) - Main Report*, UCT Environmental Evaluation Unit, Cape Town.

UCT (2000a): *Environmental Situation Analysis with regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA) - Appendixes*, UCT Environmental Evaluation Unit, Cape Town.

Van Rooyen N and Du Toit J G and Van Rooyen J (1996) Game fences – wire fences, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 78-90.

Van Wyk B-E and Gericke N (2000) *People's Plants – a Guide to the Useful Plants of Southern Africa*, Briza, Pretoria.

Van Oudshoorn F (1999) *Guide to Grasses of Southern Africa*, Briza, Pretoria.

Van Rooyen N Bredenkamp J G and Theron G K (1996) Veld management, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 539 – 572.

Vedder H (1937) *Die Voorgeschiedenis van Suidwes-Afrika – Gebeurtenisse in Suidwes tot aan die dood van Maherero in 1890* (vertaling H Rooseboom). John Meinert Ltd., Windhoek.

## PERSONAL COMMENTS

Bester, Mr Bessie: Chief Pasture researcher, ARD: DA (MAWRD) – 18/02/ 2000.

Boois, Mr Salomon: GDZ/ SARDEP representative: Karas/ Hardap – 22/02/ 2000.

De Lange, Mr Danie: Chief agricultural extension officer – Hardap region – 21/02/2000;  
04/04/2000.

Esterhuyse, Mr. Coen: Rural Water, MAWRD, Keetmanshoop, and part-time farmer –  
30/03/2000

Hoffman, Tim: Researcher: National Botanical Institute, Kirstenbosch (Cape Town, RSA)  
- 26/04/2000.

Izko, Mr Wilfried: Chairman, Tiras-Berge Conservancy (Helmeringhausen) &  
Simmetaller/ Brahman stud farmer – 07/04/2000.

Klein, Mr Arnold: General Manager: Hardap Co-operative & dorper stud farmer –  
05/04/2000.

Knauts, Mr Hendrik: Chief agricultural extension officer – Karas region –30/03/2000.

Neumann, Mr Norbert: SARDEP (MAWRD) – 18/02/2000.

Nolte, Mr Ben: Farmer, "Nico's Hoek", Karasburg district – 28/03/2000.

Pretorius, Mr Nico: Farmer ("Vrede"), Warmbad (Karasburg) – 28/03/2000.

Steyn, Mr Kobus: AEP for Karasburg district – 28-9/02/2000.

Strohbach, Mr Ben: Researcher: National Botanical Research Institute (Windhoek) –  
15/02/ 2000.

Van Zyl, Mr Jan: Farmer, "Welkom", Warmbad (Karasburg) – 28/03/2000.

Visser, Mr Wessel: Researcher: Smallstock Research Unit (DARD: MAWRD) –  
17/02/2000.

## TABLES OF CONTENT: APPENDIXES 1-4.

**Appendixes 1-4 have been treated as individual documents. Page numbering is discontinuous between documents.**

### **APPENDIX 1. ATTRIBUTES OF THE ORANGE AND FISH RIVER CATCHMENT AREA, NAMIBIA**

|                            |    |
|----------------------------|----|
| 1. Geographical definition | 1. |
| 2. Biophysical attributes  | 1. |
| 3. Historical context      | 2. |
| 4. Current land use        | 4. |
| Bibliography of sources    | 5. |

### **APPENDIX 2. VEGETATION TYPES AND PLANT BIOTA OF THE OFCA, WITH SPECIAL EMPHASIS ON THE NAMA KAROO BIOME**

|   |    |
|---|----|
| 1. Biomes and veld types of the OFCA                            | 1. |
| 2. Geographical distribution of veld types and general features | 1. |
| 3. Features of OFCA aridity-adapted vegetation                  | 2. |
| 4. Nama Karoo Dwarf Scrub Savannah vegetation                   | 3. |
| Bibliography of sources   | 5. |

### **APPENDIX 3. HISTORICAL MAMMAL INCIDENCE IN THE OFCA**

|  |     |
|--|-----|
| 1. Introduction                        | 1.  |
| 2. The sources                         | 1.  |
| 3. Constraints to the available record | 2.  |
| 4. Structure of presentation           | 4.  |
| 5. Mammal records                      | 5.  |
| 5.1. Order Primates                    | 5.  |
| 5.2. Order Pholidota                   | 6.  |
| 5.3. Order Lagomorpha                  | 7.  |
| 5.4. Order Rodentia                    | 8.  |
| 5.5. Order Carnivora                   | 9.  |
| 5.6. Order Tubulidentata               | 22. |
| 5.7. Order Proboscidea                 | 23. |
| 5.8. Order Hyracoidea                  | 24. |
| 5.9. Order Perissodactyla              | 25. |
| 5.10. Order Artiodactyla               | 32. |

|                         |     |
|-------------------------|-----|
| Bibliography of sources | 49. |
|-------------------------|-----|

#### **APPENDIX 4. BACKGROUND TO THE TRIPS AND RECONSTRUCTION OF THE ROUTES TAKEN BY HISTORICAL OBSERVERS**

|   |     |
|---|-----|
| 1. Introduction   | 1.  |
| 2. (Sir) James Edward Alexander   | 1.  |
| 2.1. Background to Alexander's expedition to Walfish Bay (1836/7)   | 1.  |
| 2.2. Approximate description of Alexander's journey to Walfish Bay and back   | 2.  |
| 3. Brink and Hop  | 10. |
| 3.1. Background to the expedition of Captain Hop and his party to ca. Keetmanshoop (1761/2), as was recorded by C.F. Brink              | 10. |
| 3.2. Approximate description of the route taken by Hop's party  | 11. |
| 4. Jacobus Coetsé, Janszoon   | 12. |
| 4.1. Background to Coetsé's journey across the Orange River (1760)  | 12. |
| 4.2. Approximate description of Coetsé's journey (1760)   | 12. |
| 5. Lieutenant William Paterson  | 13. |
| 5.1. Background to Paterson's expeditions to the Orange River and across (1778/9)   | 13. |
| 4.2.1. Approximate description of Paterson's journey to the Orange river in 1778.   | 14. |
| 4.2.2. Approximate description of Paterson's journey to the Orange River and across in 1779.  | 14. |
| 5. Willem van Reenen  | 16. |
| 6.1. Background to van Reenen's expedition to Rehoboth (1791/2)   | 16. |
| 6.2. Approximate description of Willem van Reenen's trip  | 17. |
| 6. Hendrik Jacob Wikar  | 18. |
| 7.1. Background to Wikar's wanderings along the Lower Orange (1778/9)   | 18. |
| 6.2.1. Approximate description Wikar's wanderings along the lower and mid-stretches of the Orange River during 1778 (and possibly 1779) | 20. |
| 7.2.2. Further wanderings along the Orange River, to as far upriver as Koegas (South Africa) in 1779                                    | 21. |
| 7. Background to the work of Captain G.C. Shortridge  | 22. |
| 8. Short background to Rev. Joseph Tindall's years in Namibia (1839 – 1855)   | 22. |

Bibliography of Sources

24.

University of Cape Town

## **APPENDIX 1. ATTRIBUTES OF THE ORANGE AND FISH RIVER CATCHMENT AREA, NAMIBIA.**

### **1. GEOGRAPHICAL DEFINITION**

The study area is the same as had been defined in the report "Environmental Situation Analysis with Regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA)" which was prepared for the Namibian Ministry of the Environment and Tourism in July 2000<sup>1</sup>.

Geographically, the study area is defined by the Orange and Fish River catchment areas within (southern) Namibia. This area is dominated by the Fish River sub-catchment, which extends from the South African border into the central highlands of Namibia. As the east flowing rivers, such as the Auob and Nossob, do not actually produce runoff into the Orange River, this part of the Orange River sub-catchment has been excluded. Essentially the north-eastern part of southern Namibia – the Kalahari region – is thereby excluded from the study area. Similarly, the western parts of southern Namibia – the Namib Desert and western aspect of the escarpment – have also been excluded<sup>2</sup>.

The OFCA has a surface area of approximately 100 000 km<sup>2</sup>, is very sparsely populated, and spans three of Namibia's political regions – Karas, Hardap, and Khomas. Much of the Khomas region is excluded from the study area. The Hardap and Karas regions comprise one third and two thirds of the study area respectively<sup>3</sup>.

### **2. BIOPHYSICAL ATTRIBUTES**

The climate of the OFCA may be described as arid to hyperarid, with low and extremely variable rainfall. Rainfall in the OFCA typically ranges from 50 mm to 200 mm per annum, with values increasing from the southwest to the northeast of the area. Extended dry periods, interspersed with occasional wetter years are common. High daytime temperatures result in pronounced evaporation rates, which greatly exceed rainfall. Naturally occurring perennial surface water sources are scarce and limited to the Orange River, pools in the ephemeral Fish River, and widely scattered artesian fountains. The majority of the totally available water reserve is in the form of groundwater, although the extent of the reserve is currently unknown<sup>4</sup>.

---

<sup>1</sup> UCT; 2000.

<sup>2</sup> UCT; 2000: i.

<sup>3</sup> UCT; 2000: i.

<sup>4</sup> UCT; 2000: iv – vi.

OFCA soils are generally shallow, saprolitic, badly developed and dominated by lithosols<sup>5</sup>.

Topographically, the area reflects three dominant features: a coastal plain stretching over a portion of the Namib desert (0-500 m), a fragmented western escarpment (1500-2200 m), and an extensive interior plateau (~ 1000 m). The interior plateau is geographically dominant. The southern region contains several discrete mountain ranges along the Orange river. Two major ranges are also situated on the interior plateau; the Small and Large Karas Mountains<sup>6</sup>.

As a result of constraints imposed by limited soils and harsh climate, vegetation growth is naturally sparse, and biomass production low. The area spans three major biomes; Nama Karoo, Succulent Karoo and Savanna. The Nama Karoo biome is by far spatially dominant within the OFCA, and contains most of the productive veld. The veld type is Bushy Karoo Shrubland, and is a sweetveld type<sup>7</sup>.

### 3. HISTORICAL CONTEXT

The OFCA has been historically utilised by sparse populations of San hunter-gatherers and Nama and Damara pastoralists. No firm dates for inhabitation are available, but it appears as if the San have been in the area for at least 45000 years, while the pastoralist peoples may have entered the area sometime after 2000 BP<sup>8</sup>. The pastoralist peoples were culturally dominant, with especially the Nama exercising control over much of the OFCA. Nama pastoralism was based on the provision of sufficiency, and trade and contact with outside peoples was relatively limited. Historically, the OFCA largely coincided with what was known as Namaland<sup>9</sup>.

Due to its relative isolation, and by comparison with other parts of the continent with coastal access, interior Namibia was spared European interest until fairly late. While parts of the coast were known to Europeans from the 15<sup>th</sup> century onwards, and whalers had been active there since at least the 17<sup>th</sup> century, the general exploration of the interior was effectively precluded by the Namib desert stretching along the coastline<sup>10</sup>.

---

<sup>5</sup> UCT; 2000: iv – vi.

<sup>6</sup> UCT; 2000: iv – vi.

<sup>7</sup> See: Appendix 2: "Vegetation types and plant biota of the OFCA, with special emphasis on the Nama Karoo biome" for a description of the relevant biomes, and an overview of associated plant biota.

<sup>8</sup> Lau; 1987: 3.

<sup>9</sup> See: Chapter 4.

<sup>10</sup> Vedder; 1937: 19; 43-4.

The party of the Portuguese explorer Diego Cao appears to have made the first documented landing by Europeans along the Namibian coast - in 1485, near Cape Cross (Skead; 1980: 5).

The first incursions were therefore from the south - from the Dutch settled Cape, across the Orange River. The first Europeans may well have crossed the Orange River within the early decades of the 18<sup>th</sup> century, but the first official crossing which has been recorded dates from 1760. After this date the presence of European explorers, hunters, missionaries and traders gradually came to be more strongly felt, especially in the south of the country. In this regard, the lands of the OFCA became the historical portal into Namibia<sup>11</sup>.

During the early decades of the 19<sup>th</sup> century, the southern and central parts of Namibia – and centered on the lands of the OFCA – were settled by a wave of Oorlam immigrants from the Cape. The Oorlam were generally possessed of firearms and horses, and became the dominant force in Namaland by the 1830's. This had the further effect of the widespread introduction of firearms, horses and other Cape technology into traditional Namaland. An economy of sufficiency was replaced by one of trade dependence on the Cape, and the OFCA environment suffered from the collapse of traditional practices of pastoralism and the massive out-hunting of indigenous game<sup>12</sup>.

From 1883 onwards, Namibia was colonised by the German Empire. The Nama (and Herero) were dispossessed of much of their traditional lands by ca. 1907, and many lands in the OFCA were settled and farmed by German commercial farmers<sup>13</sup>. During this period, the karakul sheep – which was to become a mainstay of production in the South of Namibia for much of the 20<sup>th</sup> century – was introduced<sup>14</sup>.

In 1915 the Union of South Africa invaded Namibia, and subsequently gained a mandate over the territory after the First World War. The territory was administrated by South Africa until 1989, whereafter Namibia gained independence. During most of the South African colonial period Namibia was administered within the macro-economic and political framework of South-Africa<sup>15</sup>. From the 1920's onwards, a vigorous policy of settlement was pursued, with the OFCA receiving the bulk of white landless settlers from the Union. By ca. 1955 the OFCA had become extensively settled, and dominated by

---

By 1657, Janson's "Great Atlas" was already making reference to French and English whaling activity along the Namibian west coast (Vedder; 1937: 7).

<sup>11</sup> Vedder; 1937: 43-4.

Documentary evidence suggests that well before the first officially documented crossing of the Orange River – by the Cape elephant hunter Jacobus Coetsé (Janszoon) in 1760 – other unofficial parties may have done so. Thus, it now appears as if in 1738 a party of Cape burgers from the Piketberg region may have crossed the Orange River to trade illegally with the "Great Namaqua" (= Nama) – a fact which only came to the attention of the authorities at the Cape because of a murder which had taken place during the expedition (Mossop; 1947: 94-5).

<sup>12</sup> See: Lau; 1983 and 1987.

<sup>13</sup> Pool; 1979: 3-13.

<sup>14</sup> De Lange, Izko – pers. comm.

<sup>15</sup> Davenport and Saunders; 2000: 285; 288; 525-530.

white-owned commercial farming enterprises. Commercial farming was generously subsidised, and by mid-century much of the lands of the OFCA had become fenced-in by perimeter fencing and had been open-up for livestock use by borehole-fed artificial watering points<sup>16</sup>. Within the encompassing framework of Apartheid politics, Nama farmers were generally relegated to less productive lands over a relatively small part of the total OFCA area in Communal areas<sup>17</sup>. While the post-independence government has made a start in redressing past inequalities, the spatial and general land-use framework which is currently still in place dates from the South African colonial era.

#### **4. ASPECTS OF CURRENT LAND USE**

The major land use type in the OFCA is stockfarming. Major stock types include sheep, goats and cattle. The production of dorper carcasses and Boer goats are dominant, and mainly aimed at export to the South-African market. In terms of tenure, the sector may be divided into communal and commercial farmland. The commercial sector is substantially larger. Together both sectors occupy ca. 80% of the total area of the OFCA<sup>18</sup>.

Other land use types include formal conservation, mining and irrigated agriculture<sup>19</sup>.

Currently initiatives at diversification away from stockfarming are increasing in the OFCA. The main initiatives here are directed towards eco-tourism, game utilisation (ranching, conservancies) and small-scale mining<sup>20</sup>.

---

<sup>16</sup> Adams and Werner; 1990: 20-6.

<sup>17</sup> Adams and Werner; 1990: 90-4.

<sup>18</sup> See: UCT; 2000: 64-6.

<sup>19</sup> See: UCT; 2000: 64-6.

<sup>20</sup> See: UCT; 2000: 106-7; 118-20.

## BIBLIOGRAPHY OF SOURCES

Adams F and Werner W (1990) *The Land Issue in Namibia – an Inquiry*, University of Namibia, Windhoek.

Davenport R and Saunders C (2000) *South Africa – a Modern History*, MacMillan, London.

Lau B (1983) The Kommando in Southern Namibia 1800 – 1870, in Saunders C (ed). *Perspectives on Namibia, Past and Present*, Centre for African Studies, UCT, Cape Town: 25-44.

Lau B (1987) *Southern and Central Namibia in Jonker Afrikaner's Time*, Archeia, Windhoek.

Mossop E E (1947) *The Journals of Brink and Rhenius, being the Journal of Carel Frederik Brink of the Journey into Great Namaqualand (1761-2) made by Captain Hendrik Hop, and the Journal of Ensign Johannes Tobias Rhenius (1724), transcribed, translated and edited by Dr. E. E. Mossop*, V.R.S. publication no. 28, Van Riebeeck Society, Cape Town.

Pool G (1979) *Die Herero-Opstand 1904-1907*. HAUM, Pretoria.

Skead C J (1980) *Historical Mammal Incidence in the Cape Province, Vol. 1: The Western and Northern Cape*, Department of Nature and Environmental Conservation of the Provincial Administration of the Cape of Good Hope, Cape Town.

UCT (2000) *Environmental Situation Analysis with regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA) - Main Report*, UCT Environmental Evaluation Unit, Cape Town.

UCT (2000a): *Environmental Situation Analysis with regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA) - Appendixes*, UCT Environmental Evaluation Unit, Cape Town.

Vedder H (1937) *Die Voorgeskiedenis van Suidwes-Afrika – Gebeurtenisse in Suidwes tot aan die dood van Maherero in 1890* (vertaling H Rooseboom). John Meinert Ltd., Windhoek.

### Personal comments

De Lange, Mr Danie: Chief agricultural extension officer – Hardap region – 21/02/2000; 04/04/2000.

Izko, Mr Wilfried: Chairman, Tiras-Berge Conservancy (Helmeringhausen) & Simmetaller/ Brahman stud farmer – 07/04/2000.

## **APPENDIX 2. VEGETATION TYPES AND PLANT BIOTA OF THE OFCA, WITH SPECIAL EMPHASIS ON THE NAMA KAROO BIOME**

### **1. BIOMES AND VELD TYPES OF THE OFCA**

The demarcated OFCA straddles three biomes<sup>1</sup>. Each biome is associated with a particular veld type. The main biomes and associated veld types are<sup>2</sup>:

- a). Savanna                               - *Acacia* bushveld
- b). Nama Karoo                         - bushy Karoo shrubland
- c). Succulent Karoo                 - Succulent shrub

### **2. GEOGRAPHICAL DISTRIBUTION OF VELD TYPES AND GENERAL FEATURES**

Most of the study area (western, south-eastern and central parts) fall within the Nama Karoo biome, with savanna (extreme NE and parts of eastern central Karas) comprising most of the rest of the total area.

The succulent Karoo biome is generally restricted to the narrow valley and immediately surrounding land along the Orange valley westwards from Goodhouse<sup>3</sup>, and constitute a disproportionately small area relative to its botanical importance. The succulent Karoo region - along with the Cape Floristic Region and Maputuland-Pondoland region - constitute one of only three principal regions of plant diversity and endemism in Southern Africa. Most of it (except the Namib immediately south of Lüderitz) also constitutes one of 17 principle local endemism centres for the subregion, the Gariiep Centre<sup>4</sup>.

The other 2 biomes and associated vegetation types are well represented elsewhere. Nama Karoo bushy shrubland runs from RSA – including the easternmost portion of Namaqualand, Bushmanland and most of the lands flanking the Orange River as far as its confluence with the Vaal River - up into Angola; *Acacia* savanna extends over most of Kalahari and eastern portion of Namibia.

---

<sup>1</sup> See: Figure 4. "Vegetation Types of the Orange and Fish River Catchment Area".

<sup>2</sup> Van Wyk and van Wyk; 1997: 8.

Giess's 1971 preliminary vegetation map of Namibia does not include classification by biome. The veld types listed by him are respectively: a). Southern Kalahari Mixed tree and Shrub Savannah; b). Dwarf Shrub Savannah; c). Winterrainfall Desert and Succulent Steppe (Giess; 1971: Map insert). Geographically these veld types roughly correlate with those defined by van Wyk and van Wyk. As a result of being more recent, the classifications of van Wyk and van Wyk will be further used here.

<sup>3</sup> See: van Wyk and van Wyk; 1997: 8.

<sup>4</sup> See: van Wyk and van Wyk; 1997: 9.

Within the OFCA, most of current stockfarming activities are contained within the Nama Karoo biome – the productive centres of Mariental, Keetmanshoop, Soromaas (goat) and Karasburg being productively pre-eminent. The Succulent Karoo portion of the OFCA is generally too dry to support much stockfarming activity, and notable grazing is generally contained within the Orange River valley. The small inclusions of Kalahari thornveld (E Karas) and Highland savannah (Rehoboth) are significant in terms of agricultural potential, but almost negligible in terms of the geographical delimitation of this study<sup>5</sup>. For these reasons, focus in this discussion will be on the vegetation of the Nama Karoo.

### 3. FEATURES OF OFCA ARIDITY-ADAPTED VEGETATION

As is discussed in chapter 2 of this study, the OFCA environment provides very harsh growing conditions due to fairly constant water, heat and drought stresses. Local vegetation shows various signs of responsive adaptation.

Many botanical taxa show traits of succulence (such as the *Euphorbias*, or the Kapok bush *Eriocephalus ericoides*), have reduced or contracted leaves (e.g. Karoo bushes and *Acacia* trees), or have extensive taproot systems (such as the Shepherd's tree – *Boscia albitrunca* – or the Camel thorn - *Acacia erioloba*)<sup>6</sup>.

Indigenous grasses have evolved in such a way as to be able to initiate productive growth from a single sufficient (8-10 mm) thunderstorm, even though annual growing day values are often zero for the OFCA<sup>7</sup>.

On an individual scale, many plants have evolved the ability to retract growth to subterranean structures during droughts, or to otherwise sacrifice above ground-structures to desiccation or drought-pressed herbivory. During droughts, shrubs like *Rhigozum obovatum* (Wild Pomegranate) may for instance become browsed down to a few centimetres by goats – often to recover after the first good rains<sup>8</sup>.

On a generational scale, plants have also adapted to these stresses, with the development of durable seedbanks probably one of the most prominent features. Many of the Karoo bushes important to the stockfarming sector have evolved to produce

<sup>5</sup> UCT; 2000a: Appendix I 3 "Status of grazing resources in the Orange and Fish River Catchments (OFCA)", p.2.

<sup>6</sup> Liversidge and Berry; 1996a: 581.

<sup>7</sup> Hutchinson; 1995: 31.

Growing day values - as defined by the standard FAO (UN) method - entail the number of days per year in which actual precipitation exceeds half of PET (Hutchinson; 1995: 31).

<sup>8</sup> Shearing; 1994: 140.

durable seedbanks – in many taxa for instance, seed can survive a dormancy period of up to 70 years in the soil seedbed<sup>9</sup>; regenerating under suitable rainfall and soil conditions.

The important fodder grasses of the *Stipagrostis* genus have developed long-distance wind dispersal mechanisms and a trait of massive seeding, which means that after droughts such communities which had survived are able to recolonise and regenerate other areas where grasses have succumbed to drought (or herbivory pressures).

#### 4. NAMA KAROO DWARF SHRUB SAVANNA VEGETATION

The dwarf shrub savanna of the Nama Karoo biome is dominated by Karoo shrubs and grasses. Arborescent species e.g. *Acacia karoo* (Sweet thorn), *A. erioloba* (Camel thorn), *Tamarix usneoides* (Wild tamarisk), *Rhus lancea* (Common karee), *Euclea psuedoebenus* (Ebony tree) and others are typically only found along ephemeral watercourses and drainage lines. Of the shrubs and trees, *Rhigozum trichotomum* (Threethorn), *Boscia albitrunca* (Shepherd's tree), *B. foetida* (Stink-bush), *Acacia newbournii* (Waterthorn) and *Catophractes alexandrii* (Trumpet thorn) are characteristic of this veld type<sup>10</sup>.

In terms of grazing type, the OFCA veld type may generally be described as "sweetveld", and as such, palatable and nutritious to stock and game<sup>11</sup>.

The main fodder grasses of the Nama Karoo may be regarded as the grasses of the *Stipagrostis* genus – where some (e.g. *S. obtusa* ; *S. ciliata*) are considered very palatable, while others are "staples" in the true sense of the word (e.g. *S. uniplumis* – Silky bushman grass), and yet others only occasionally taken by herbivores (*S. hirtigluma* – Blue bushman grass<sup>12</sup>. Other important grazing grasses are Foxtail Buffalo Grass (*Cenchrus ciliaris*) and grasses of the genus *Panicum*<sup>13</sup>. Of the Karoo bushes and shrubs, members of the genera *Felicia* and *Pentzia*, Lye bush (*Salsola aphylla*), Ganna (*Salsola dealata*), and Cape Saltbush (*Atriplex vestita*) are considered examples of important grazing plants<sup>14</sup>.

Threethorn is currently considered to be the potentially most dangerous encroaching bush type<sup>15</sup>. Grasses of the genus *Aristida*, the annual Sourgrass (*Schmidtia*

<sup>9</sup> Shearing; 1994: 14.

<sup>10</sup> Giess; 1971: 12.

<sup>11</sup> See: footnote 47, Chapter 2 of this study for a definition of the term "sweetveld".

<sup>12</sup> van Oudshoorn; 1999 – 116; 117; 132; 161.

<sup>13</sup> Bester – pers. comm.

<sup>14</sup> Knauts – pers. comm.

<sup>15</sup> Strohbach – pers. comm.

*kalihariensis*) and Dubbeltjies (genus *Tribilus*) are regarded as good indicators of overgrazed veld<sup>16</sup>. Kraalbos (*Galenia africana* var. *africana*) is considered to be a good indicator of localised soil-trampling<sup>17</sup>. Bitterbos (*Chrysocoma ciliata*), Vermeerbos (*Geigeria filifolia*), Dubbeltjies, Gifbol (*Ammocharis coronica*) and Bloutulp (*Morea polystacha*) are examples of plants which are considered toxic to domestic livestock<sup>18</sup>.

University of Cape Town

---

<sup>16</sup> Knauts – pers. comm.; Shearing; 1994: 48.

<sup>17</sup> Styen – pers. comm.

<sup>18</sup> Bester – pers. comm.

## BIBLIOGRAPHY OF SOURCES

Giess W (1971) A Preliminary Vegetation Map of South West Africa, in *Dinteria* nr. 4; pp. 5 – 14.

Hutchinson P (1995) The Climatology of Namibia and its Relevance to the Drought Situation, in Moorsom R Franz J and Mupotola M (eds.) *Coping with Aridity*, Brandes & Apsel/ NEPRU, Frankfurt a. M./ Windhoek.

Liversidge R and Berry M P S (1996a) Physical factors, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 581 - 585.

Shearing D (1994) *Karoo – South African Wild Flower Guide 6*, Botanical Society of South Africa, Cape Town.

UCT (2000a): *Environmental Situation Analysis with regard to Land Degradation in the Orange and Fish River Catchment Area (OFCA) - Appendixes*, UCT Environmental Evaluation Unit, Cape Town.

Van Oudshoorn F (1999) *Guide to Grasses of Southern Africa*, Briza, Pretoria.

Van Wyk B and van Wyk P (1997) *Field Guide to the Trees of Southern Africa*, Struik, Cape Town.

### Personal comments

Bester, Mr Bessie: Chief Pasture researcher, ARD: DA (MAWRD) – 18/02/ 2000.

Knoutz, Mr Hendrik: Chief agricultural extension officer – Karas region –30/03/2000.

Steyn, Mr Kobus: AEP for Karasburg district – 28-9/02/2000.

Strohbach, Mr Ben: Researcher: National Botanical Research Institute (Windhoek) – 15/02/ 2000.

## APPENDIX 3. HISTORICAL MAMMAL INCIDENCE IN THE OFCA

### 1. INTRODUCTION

Current positive initiatives towards eco-tourism, game farming and the creation of conservancies in southern Namibia will need to take cognisance of original historical mammal incidence, as such would be able to provide some understanding of which game is suitable for reintroduction. A complete record of the historical incidence of terrestrial mammals of the same size (ca. 1.6 kg), and larger than the Cape Hare (*Lepus saxatilis*) has therefore been prepared along with records of historical herbivory incidence, and is presented below. Entries for each species has been concluded by an assessment of probable occurrence within specifically the Nama Karoo biome of the OFCA.

### 2. THE SOURCES

Records from original texts have been assembled for the period 1760 – 1838.

Primary sources consist of:

- The narrative of the elephant hunter Coetsé Jansz: (1760)
- Brink's journal of Captain Hop's expedition (1761/2)
- The account of the deserter Hendrik Wikar (1778/9)
- The journal of Lieutenant William Paterson (1778/9)
- The account of Sebastiaan van Reenen (1792)
- The journals of the explorer Captain Alexander (1836/7)

With the exception of Alexander, all these observers travelled either along the banks of the Orange River, to the Orange River mouth, or in the Nama Karoo portion of the OFCA and Namaqualand and Bushmanland in South Africa. While considerable overlap occurs between the parts of the OFCA visited by early travellers, large tracts of the OFCA were neither visited nor described<sup>1</sup>.

Gordon's account of his short trip north of the Orange River into Namibia – more or less as far north as Warmbad – is fairly uninformative (see: Gordon; 1988: 364-371), and has not been drawn upon in this study. Paterson's more informative account - for more or less the same area at more or less the same time - has been used instead.

Some additional material – records and explanatory notes - has been taken from Skead. Due to the untrustworthy nature of François le Vaillant as a source<sup>2</sup>, his historical texts have not been consulted, and extracts thereof in Skead have been omitted here.

<sup>1</sup>See: Appendix 4: "Background to the trips and reconstruction of the routes taken by historical observers".

<sup>2</sup> A French explorer who claimed to have travelled into various parts of the interior of Southern Africa during the years 1780-1785, and specifically to have crossed the Orange River during his

Records of Alexander's whole journey to Walfish Bay and back to the Orange River have been included here, thus including some Namibian records from outside the OFCA.

The journals of reverend Tindall (mainly 1840's and early 1850's) have also been consulted, but only records which could be geographically placed within the OFCA have been included here.

Findings of Shortridge's comprehensive study of Namibian mammal incidence by the early 1930's have been included for each species in order to illustrate status and incidence in the OFCA during this period when southern Namibia was becoming extensively settled by white commercial farmers.

Some historical records have also been assembled for northern Namaqualand, Bushmanland (South Africa) and the mid stretches of the Orange River valley. These areas all fall within the Nama Karoo biome, with similar Bushy Karoo Shrubland veld type as over much of the OFCA.

### 3. CONSTRAINTS TO THE AVAILABLE RECORD

The following constraints to historical observation and recording of mammal incidence should be taken into account:

- Recording was exclusively done by European travellers, and from a European perspective. Writing in pre-colonial times was essentially a European pursuit, sometimes relying on information from, and observation of the indigenous peoples, but essentially writing was done from a European perspective of interpretation, and for a European – often literally – readership. While some of the travellers were born and raised in the Cape Colony (e.g. Brink, Hop, Coetsé Jansz.), and other European travellers were seasoned by previous travels into the interior of the Cape Colony (e.g. Paterson, Alexander), none of these travellers were familiar with Namibia, and essentially entered *terra incognita*. As a result, the significance of their observations (e.g. relating to patterns of faunal distribution over space and seasonality) would not have necessarily been clear to the travellers themselves.
- The temporal recording-window is relatively small, stretching back only to ca. 1760/1 (when Coetsé Jansz, Hop and Brink crossed the Orange River into the present

---

Second Voyage (1783-1785), and to have gone as far north as the Tropic of Capricorn (= ca. Rehoboth). It has however come to light that le Vaillant already left Cape Town for France in June 1784, and some scrutiny of his Second Voyage seems to indicate that the substantial geographical references on his map all derive from Brink – with le Vaillant himself adding nothing of substance. He also made reference to *une Fleuve des Poissons* (= Fish River) in Namaland, where he claims to have travelled up and down the course for months – a River which, according to him flows parallel to the Orange River (i.e. E-W), and reaching the Atlantic at Angra Pequena (Vedder; 1937: 33-4). It seems questionable whether he actually ever crossed the Orange River into Namibia, and he may therefore be discounted as a serious and trustworthy observer.

Karasburg district). Due to ruthless hunting and progressive settlement, less than 150 years later, most of the larger faunal taxa (e.g. Elephant, Rhino, Buffalo, Lion, Giraffe) would have become locally extinct, and most others will be tottering on the brink of local extinction (e.g. Hippopotami, Red Hartebeest, Blue Wildebeest). Even before the general introduction of fences midway through the 20<sup>th</sup> century, most migratory herds seem to have been shot out entirely, or drastically reduced in numbers. In this light, the period of observation of more or less "natural faunal conditions" is restricted to a very short effective span, say from ca. 1760 to the latter decades of the 19<sup>th</sup> century. During this time, recording was undertaken only intermittently, and apparently not at the same pace as hunting.

- Recording was not undertaken systematically and exhaustively in spatial terms for any journey, but done *en passant*, typically as journal entries for specific localities, and then of aspects more or less immediately apparent and deemed worthy of recording to a specific (and mostly unscientific) readership.
- Exact geographical location of historical references is not always possible in the absence of distinct geographical features (e.g. plains country), and of discrete settlements during most of the pre-colonial period in Namibia.
- Standardised nomenclature and appreciation of true speciation only evolved gradually. While European incursions into the interior of Namibia could generally rely on accumulated knowledge of a preceding colonial period of ca. 100 years + at the Cape (say, 1652 – 1760), early records of the few species not common or encountered at the Cape refer to animals which eventually became known by other names, and can retrospectively only be determined contextually. Thus, for instance, Brink refers to encountering "buffalo and aurochs" south of Warmbad - where the last may then be interpreted as *Connochaetes taurinus taurinus* on account of the fact that the true Aurochs (*Bos primegenius*) never occurred in Africa, and had already become extinct by ca. 1627<sup>3</sup>, that the term is here used separately from Buffalo, and that no geographically approximate records for *C. gnou* (Black Wildebeest) have been found. In the instance of similar species which were only gradually separated during the course of the 19<sup>th</sup> century (as more travellers ventured into the interior of the subcontinent), early records tend to be indeterminate, and need to be interpreted contextually - or from chance observations on morphology, habitat and behaviour of observed species. In the case of southern Namibia, records not specifically distinguishing between Brown and Spotted Hyena, Hartmann's Mountain Zebra and Burchell's Zebra, and Black and White Rhino have been found, and interpreted accordingly.
- The record is temporally fragmented, reflecting no strict inter-seasonal or interannual continuation of observations for the same localities, with the results that recorded incidences cannot necessarily be taken to express "typical" conditions for the localities described, and that no clear idea can be formed as to whether

---

<sup>3</sup> National Geographic Society (1999).

observations relate to sedentary or migratory populations of animals, and especially plains-game.

- Exact quantification of numbers of animals observed is often lacking or of dubious status. Specifically in the case of herding animals, numbers given may be impressionistic, rather than based on actual counts. This is especially the case where large herds of migratory Springbok have been recorded, and numbers of "hundreds of thousands" had been given.

Furthermore, the following factors would have determined skews in the "historical visibility" of the indigenous faunal suite:

- Observation and recording would have favoured large over small spp.;
- Observation and recording would have favoured diurnal over nocturnal spp.;
- Observation and recording would have favoured herding over solitary spp.;
- Observation and recording would have favoured spectacular or rare over less spectacular or common spp.;
- Observation and recording would have favoured conspicuous over retiring or burrowing spp.;
- Observation and recording would have favoured economically relevant (i.e. as "pest/problem" animals or exploitable resources) over economically less relevant/irrelevant spp.;
- Observation and recording would have favoured spp. resident in accessible over inaccessible habitat.

#### **4. STRUCTURE OF PRESENTATION**

Entries have been organised in the following way:

- By (taxonomic) order, family, genus and species.
- Species names are first given in Latin, and then in English, Afrikaans and – where available - Nama between parenthesis.
- For each species, records have been assembled in strict chronological order.
- Each record entry has been done to give an indication of relevant season, geographical location, and where necessary, contextualising circumstances.
- Entries for each species are summarised in an assessment of probable historical incidence of such in the OFCA Namaland.

## 5. MAMMAL RECORDS

### 5.1.

### PRIMATES (ORDER PRIMATES)

#### Family Cercopithecidae:

1. *Cercopithecus aethiops* (Vervet monkey/ Blouaap/ //Oreb; //Oreda (Shortridge))
  - 1778 (Sept): Paterson, S. bank of Orange, near Goodhouse – “beheld wild apes” (Paterson; 1790: 62);
  - 1779 (Oct): Paterson; south bank of Orange E of Goodhouse - sees numbers of “monkies, which are exceedingly shy” (Paterson; 1779:123);
  - 1907: Cornell; near Sendelingsdrift – “monkeys galore” (Skead; 1980: 45);
  - 1934: Shortridge: species restricted to the Acacia-belt along the Orange River, but most numerous east of the Augrabies falls; Lower Orange probably the westernmost distribution S of the Zambesi; according to Nama, vervet monkeys still occasionally wandered up to 160 km or so up the Fish River (Shortridge; 1934: 2-3);
  - 1936: Shortridge: “In (Little) Namaqualand, vervet monkeys are restricted in range to the banks of the Orange River; they are not very plentiful near Goodhouse... They undoubtedly wander considerable distances along the banks of the Orange River” (quoted in: Skead; 1980: 45).

#### Assessment

Although only records for the Orange River could be found, vervet monkies may possibly have made occasional incursions into Namaland along the Fish River. Incursions along other tributaries of the Fish River system have not been confirmed. Arborescent growth is an essential habitat necessity, and in the OFCA and other arid environments, occurrence is typically restricted to riverine vegetation, or at least to wooded watercourses (cf. Stuart and Stuart; 1988: 76).

2. *Papio cynocephalus ursinus* (Chacma baboon/ Kaapse Bobbejaan/ /No:rab (Shortridge, after Krönlein))

- 1779 (August): Paterson; just E of Orange mouth on S bank – finds “numbers of Baboon bones” (Skead; 1980: 36);
- 1836 (Nov): Alexander; describing the banks of the Orange River, near Ramansdrift on the north bank at the time - “lions are to be met with, panthers (sic), and... baboons”. He provides a brief description of the Chacma Baboon, adding that “baboons are to be dreaded... (they) will not hesitate to attack a man if (found alone, to attempt violence to a female, or to carry off a child” (Alexander; 1838: 150);
- 1837 (March/ April): Alexander; Tsondeb valley in the Bullspoort pass, Naukluft mountains – party observed baboons both near the entrance and exit during their trek to Abbabis SE of Solitaire (Alexander; 1838a: 9; 17);
- 1837 (April): Alexander; dry course of the Kuiseb River, somewhere near Gobabab – Baboons made a noise from the rocks along the Kuiseb where the party was encamped at night (Alexander; 1838a: 61);
- 1837 (May): Alexander; somewhere on the Kuiseb River, and just E of presumably the Rostock and Sandsteen mountains: saw evidence of a lion which had chased baboons (Alexander; 1838a: 115);

- 1840 (Feb): Backhouse; crossing the Ham, S of Warmbad – found baboons to be numerous there (Skead; 1980: 38);
- 1907: Cornell; near Sendelingsdrift – “baboons galore” (Skead; 1980: 37);
- 1934: Shortridge found the Chacma Baboon widely distributed in rocky and mountainous parts of Namibia from the Orange to the Cunene Rivers; in Namaland he found them to inhabit the Karas mountains and many of the subcoastal ranges; local Nama reported occasional incidences on low hill ranges on either side of the Fish River, but that they rarely visit the isolated Mt. Brukkaros (Shortridge; 1934: 6).

### Assessment

Baboons seem to have historically occurred along the broken terrain of the Orange River valley, and in mountainous parts of Namaland. The actual record for interior Namaland is scant, but may reflect the fact that few early travelers traveled into the more mountainous parts of Namaland. Essential habitat requirements are rocky cliffs or tall trees (such as riverine vegetation) in which to retreat (cf. Stuart and Stuart; 1988: 74). Furthermore, the species is water-dependent (Shortridge; 1934: 8). In the OFCA, historical incidence in the vast open plains would have been unlikely. In present times, the construction of artificial watering points may have contributed to an increase in numbers in the OFCA.

5.2.

### PANGOLINS (PHOLIDOTA)

#### Manidae:

1. *Manis temmincki* (Temminck's Pangolin/ Ietermagô(g)/ //Kom; //Koom (Shortridge))
  - No records for S. Namibia; scattered records for occurrences in Gordonia and Northern Cape (South Africa) (Skead; 1980: 49-50)
  - 1934: Shortridge finds the species widely distributed throughout Namibia (with possible exception of coastal Namib), but sporadic in distribution, and nowhere plentiful; appears most plentiful N of the Tropic of Capricorn, and on the eastern sand-plains along the Botswana border; rare near the Orange River and in the southern parts of Namaland (Shortridge; 1934a: 665);
  - 1936: Shortridge (1942) - “unknown in (Little) Namaqualand” (Skead; 1980: 49).

### Assessment

Pangolins have not been mentioned in the historical record. This may be due to the reclusive habits of the animal. Shortridge's findings indicate that they may have historically occurred in Namaland, even if probably never very plentiful. Food requirements (termites and ants) would have limited occurrence to more grass-rich parts of the OFCA (cf. Stuart and Stuart; 1988: 82).

## 5.3.

**HARES AND RABBITS (LAGOMORPHA)**Leporidae:1. *Lepus Capensis* (Cape Hare/ Vlakhaas/ /Karus (Shortridge); /Karub (Shortridge after Krönlein))

- No specific records for S. Namibia;
- 1934: Shortridge found the species widely distributed in Namibia S of 20°S, but not in particularly large numbers; recorded throughout Namaland and Gobabis district, and comparatively plentiful in central Namaland (around Berseba); records for the Orange River valley (but Shortridge only mentions the more level country near Kakamas and Upington) (Shortridge; 1934: 345-6).

2. *Lepus saxatilis* (Scrub Hare/ Kolhaas/ !Kai:rob; !Kai:rab (Shortridge); !Õas (Shortridge after Krönlein))

- No specific records for S. Namibia;
- 1934: Shortridge found the species widespread in Namibia; "the Common Hare over practically the whole of South West Africa, although possibly outnumbered by *L. capensis* in the open plains of Great Namaqualand" ("not observed in Berseba District"); extremely plentiful in the Gobabis district, but scarcer towards the Botswana border; plentiful on the Orange River near cultivated lands (Louisvale is specifically mentioned); common in Namaqualand (according to Grant) (Shortridge; 1934: 349);

3. *Pronolagus rupestris* (Smith's Red Rock Rabbit/ Smith se Rooi Klipkonyn/ Tsoa:rus; Tsoarus (Shortridge after Krönlein))

- No records for S. Namibia;
- 1934: Shortridge found the species occurring in Namibia S of ca. 23°S (N of which *P. randensis* (= Jameson's Red Rock Rabbit) occurs); in Namaland, recorded on Mt. Brukkaros and the Karas ranges, but "probably widely distributed in suitable (= mountainous, rocky) situations" throughout Namaland; records available for the Orange River valley (spec. mentioned between Upington and Augrabies Falls), where it is restricted to rocky situations (thus possibly more frequent on the Namibian Lower Orange); recorded on koppies and mountains in Namaqualand by Grant (Shortridge; 1934: 353);

**Assessment (Leporidae)**

No species specific records have been found for Namibia. For the Cape, Skead remarked: "Hares were mentioned more than might be expected in view of their small size, but seldom was any idea of species indicated, not that the early settlers would have bothered about such matters; hares were hares. The wonder is that they called them hares and not rabbits" (Skead; 1980: 627); "Hares must have been reasonably plentiful in the dry interior, although very little has been written about them" (Skead; 1980: 629). In the light of this, all three species probably historically occurred in Namaland and may have been sympatric in places, but similarities between the hares and the alert and retiring habit of the rock rabbit seem likely to have lead to no distinction being made in the literature in the first instance, and observation having been

limited in the last. Different habitat requirements – dry open land (*L. capensis*), woodland and scrub (*L. saxatilis*) and rocky terrain (*P. rupestris*) would have meant differential spatial distribution of the various species in Namaland (cf. Stuart and Stuart; 1988: 82-4).

The following indeterminate records have been found in Alexander. Alexander only refers to "hares" and "rabbits", and it is not always clear from the context which spp. is meant – or even whether he *sensu strictu* means "hare" and "rabbit" in every case:

- 1836 (Oct): Alexander; at the Kamiesberg – supped on "rabbits and plump partridges" (1838: 61);
- 1836 (Oct): Alexander; N. Namaqualand, near the Orange mouth – "Hares (indet.) I found in plenty" (Alexander; 1838: 114).
- 1837 (March): Alexander; near Helmeringhausen – saw hares (Alexander; 1838: 269);
- 1837 (May): Alexander; somewhere just SW of the Gams mountain – dined on "hare" (etc.) (Alexander; 1838a: 127);
- Alexander; somewhere S of the Gams mountain – came across a "large black snake... with a hare in its mouth" (Alexander; 1838a: 128).

#### 5.4.

#### RODENTS (RODENTIA)

##### Hysticidae:

1. *Hystrix africaeaustralis* (Southern African Porcupine/ Ystervark/ !Noab (Shortridge))
  - No records for S. Namibia;
  - 1934: Shortridge found the species "everywhere widely distributed" throughout Namibia (with the possible exception of the coastal Namib); recorded and well-known in all districts of Namaland; apparently plentiful in Gobabis district (Shortridge; 1934: 339);
  - 1936: Shortridge (1942) found them "widely distributed and comparatively plentiful" in Namaqualand (Skead; 1980: 654).

##### **Assessment**

With very little historical reference having been made for the species in South Africa (Skead; 1980: 654), it is not surprising that the record for Namibia is equally lacking. Skead has found some historical records for relevant parts of Bushmanland and the Karoo (South Africa) (Skead; 1980: 654), and in the light of Shortridge's findings, it may be assumed that the species historically also occurred in Namaland. The species has a preference for broken habitat or some shrub cover (Stuart and Stuart; 1988: 96), but appears to have regardless occurred over much of Namaland.

##### Pedetidae:

2. *Pedetes capensis* (Springhare/ Springhaas/ #Go:b (Shortridge))
  - No records for S. Namibia;

- 1778 (Oct/ Nov); Wikar – writing of the BaThlaping people N of Upington – reports that they commonly wear feet of springhare as talismans (Wikar, in Mossop; 1935: 155);
- 1934: Shortridge found the species distributed throughout Namibia (except coastal Namib); “apparently scarce” in central Namaland (around Berseba); plentiful near cultivated areas on the Lower Orange (specifically near Upington and Kakamas) (Shortridge; 1934: 312); seem to be holding their own, even where hunted by natives and in populated areas (Shortridge; 1934: 314);
- 1936: Shortridge (1942); N Namaqualand near Goodhouse – “A few burrows were observed within a mile or two of Goodhouse itself. According to local Hottentots they become more numerous farther east towards the Bushmanland border” (quoted: Skead; 1980: 658). Shortridge found that the species does not occur in the coastal and southern parts of Namaqualand or the Kamiesberg (Skead; 1980: 658).

### Assessment

“The springhare has received very little notice in the literature, a fact due almost certainly to its very secretive habits both as a nocturnal and an underground-dwelling species” (Skead; 1980: 657). Wikar’s record makes it clear that the animal did historically occur in the same Nama Karoo vegetation type. Shortridge’s findings indicate that the species probably historically occurred in suitable habitat in Namaland. Essential habitat requirement is the presence of underlying deep and well-compacted sand in which to burrow (Stuart and Stuart; 1988: 94). This would have limited natural incidence over much of the lithosol-comprised areas of the OFCA.

## 5.5.

### CARNIVORES (CARNIVORA)

#### Canidae:

Possible confusion between *O. megalotis* and *V. chama*.

Furthermore, it seems likely that “jackal” may have functioned as generic term for jackals and foxes, thus:

- Alexander (1838: 104-5) talks of *C. mesomelas* (evident from description) as “one species of jackal (which may be caught with dogs)”;
  - According to Shortridge (1934: 168), 4 distinct spp. (*C. mesomelas*, *V. chama*, *O. megalotis* and *P. cristatus*) are commonly colloquially refereed to as “jackal” in Namibia and South Africa.
1. *Canis mesomelas* (Black Backed Jackal/ Rooijakkals/ /Girib (Shortridge); /Geirab (Shortridge, after Krönlein))
    - 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as “elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals (indet.)” (Paterson; 1790: 64);
    - 1778 (Sept/ Oct): Wikar; ca. Skuitdrift Oost, and 10 km S of the Orange in Bushmanland – reports that the food of local Khoi consist of hyrax, jackals, wild cats, snakes and the pupae of termites (Wikar, in Mossop; 1935: 55);
    - 1836 (Oct): Alexander; NW Namaqualand, near the Orange River – party awoken at night by the calls of jackal (Alexander; 1838: 104);

- 1836 (Oct): Alexander; NW Namaqualand, plains S of "Aris" on the Orange River – observed jackal and hyena as common predators of ostrich eggs here (Alexander; 1838: 122);
- 1837 (Feb): Alexander; ca. 25 km NE of the Gaab River, and just E of the Klein Karas mountains - reported jackal to have come amongst the party's sheep overnight, scattering them (Alexander; 1838: 226);
- 1837 (June): Alexander; on the Kalf River, SW of Kalkrand – party shoots a jackal – which is later eaten by one of his Nama companions (Alexander; 1838a: 199);
- 1837 (Aug): Alexander; N Namaqualand, Richtersveld, ca.20-30 km S of the Orange River – heard jackals calling at night (Alexander; 1838a: 246);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "hyenas, wild boars, jackals, polecats, rats and mice are in great abundance" (Alexander; 1838: 192);
- 1842 (April): Tindall; near Lower River, N. of Brukkaros – observed a lion and lioness hidden amongst "numerous bushes"; also a jackal at the same spot (Tindall; 1959: 30);
- 1843: Tindall; somewhere in Bondelswarts area, near Warmbad station – collection on the 12<sup>th</sup> of June included "... 2 tiger (sic) skins, 2 koodoo skins, 2 jackal skins" (Tindall; 1959: 52);
- 1934: Shortridge found them "exceedingly abundant" throughout Namibia (except for the NE and the Caprivi, where it is replaced by *C. adustus* (= Side-striped jackal)); also plentiful throughout most of Southern Africa (Shortridge; 1934: 167);
- 1936: Shortridge (1942): in Namaqualand – found them generally distributed and relatively plentiful (Skead; 1980: 57).

### Assessment

Alexander commonly met with Nama and Namaqua during his travels through Namaqualand and southern Namibia who were wearing karosses of jackal skin, and sweatsticks made of jackal tails. The wide historical distribution of this species in historical Namaland is supported by the historical record. The extremely wide habitat tolerance of the species makes it likely that it historically occurred over most of the OFCA (cf. Stuart and Stuart; 1988: 124). It is currently considered one of the greatest pest animals by smallstock farmers of the OFCA<sup>4</sup>. Typical natural prey would have included a large mix of vegetable and animal foods, with the latter ranging up to the size of small antelope (Shortridge; 1934: 169).

### 2. Lycaon pictus (Wild Dog/ Wildehond/ !Gaub (Shortridge); ≠Hou-arib (Shortridge after Krönlein))

- 1823: Thompson; Augrabies Falls on the Orange River – found wild dogs "infesting" the banks of the River (Skead; 1980: 64);
- 1834 (July): Cook; S. of Warmbad – fears for the safety of cattle from these "ferocious and destructive creatures" (Skead; 1980: 64);
- 1838: Shaw; plains at the Ham River, ca. 65 km E of Warmbad – noticed wild dogs pursuing their prey (indet). (Skead; 1980: 64);

---

<sup>4</sup> UCT; 2000: 96.

- 1934: Shortridge found a wide distribution for Namibia (except coastal Namib), but of infrequent occurrence S of the Tropic of Capricorn; sporadic incursions into Namaland (Berseba and elsewhere) recorded; "practically unknown in the vicinity of the Orange River" (Shortridge; 1934: 181);
- 1936: Shortridge (1942) found them extinct in Namaqualand (Skead; 1980: 64).

### Assessment

Apparently the arid terrain did not deter wild dogs, and some historical incidence has been established from the record. A preference for open country would have made most of the OFCA suitable habitat (cf. Stuart and Stuart; 1988: 126). Given the extensive range of this species, known migratory behaviour, and natural concentration around plentiful game (Shortridge; 1934: 181; 183; Stuart and Stuart; 1988: 126) incidence was probably coupled to the occurrence of large scale game movements, and the species may not have been resident in any concentrated terms.

The species has a natural tendency to retreat from human settlement and sustained persecution (Shortridge; 1934: 183), and may have become locally extinct in the OFCA within the 19<sup>th</sup> century already. Historically, the species had to endure considerable bias – as destructive of livestock and game – and was widely and ruthlessly persecuted as "vermin". Due to efficient pack-hunting, typical prey includes a wide range of antelope, and natural prey in the OFCA would have ranged in size from Steenbok to Buffalo. In much of the animal's present Botswana range, Springbok is the most important prey (cf. Stuart and Stuart; 1988: 126).

### 3. *Otocyon megalotis* (Bat-eared Fox/ Bakoorjakkals/ Hei//kum (Shortridge); //Ai (Shortridge, after Schinz))

- 1778 (Sept/ Oct): Wikar; ca. Skuitdrift Oost, and 10 km S of the Orange River in Bushmanland – reports that the local Khoi wore karosses made of the skins of "noas<sup>5</sup>", "an animal smaller than the jackal, gray in colour with a pointed snout" (Wikar, in Mossop; 1935: 55) – as Wikar previously mentions aardwolf (nääs) without bothering to describe the animal as if encountered for the first time (Wikar, in Mossop; 1935: 47), it seems that *O. megalotis* is meant here;
- 1837 (March): Alexander; near Helmeringhausen – caught with dogs what appears to have been *O. megalotis* from the description given<sup>6</sup> (Alexander; 1838: 269);
- 1934: Shortridge found *O. megalotis* widely distributed over Namibia (except possibly in the coastal Namib), and comparatively plentiful in the Kalahari biome ("Gobabis, etc.") and also (i.a.) Namaland, but becoming scarcer towards the Orange River, southern Namaland and Namaqualand (Shortridge; 1934: 175);
- 1936/7: Shortridge (1942) for Namaqualand - found the species "generally scarce; presumably most plentiful along the coastal plain" (quoted in: Skead; 1980: 53).

<sup>5</sup> No Nama, San or Tswana approximation could be found for this term in Shortridge's lists of native names for *O. megalotis* (cf. Shortridge; 1934: 174).

<sup>6</sup> Alexander: "I caught... a fox of a species which Choubib and the others (Nama) said was new to them; its colour was grey; muzzle, face, ears, ridge of back, legs, and half of the tail, black. It was two feet seven inches (= 770 mm) long including the bushy tail" (1838: 269).

### Assessment

No direct records for the OFCA could be found, but probable records have been found for Bushmanland (Wikar) and Southern Namibia (Alexander). This species received very little historical coverage, but may be inferred to have been widespread throughout the dry inland areas of the Cape and Southern Namibia (Skead; 1980: 53). The species prefers open country such as grassveld and short scrub, but avoids mountainous or broken terrain (Stuart and Stuart; 1988: 122). Historical distribution would have been widespread over the open plains of the OFCA.

#### 4. *Vulpes chama* (Cape Fox/ Silwervos; Draaijakkals/ !Khamab (Shortridge); //Ab (Shortridge after Bleek))

- No records for S. Namibia;
- 1830's: Dr Andrew Smith collected specimens in Namaqualand (indet.) (Skead; 1980: 52);
- 1934: Shortridge found a wide distribution S of Grootfontein (and with the exception of the coast) in Namibia; widely distributed in Namaland, but less common than *O. megalotis*; plentiful on the eastern sandy plains (around Gobabis); evidence (skulls) collected for the Orange River, but between Upington and the Augrabies Falls (Shortridge; 1934: 178);
- 1936: Shortridge: "Widely distributed throughout the plains of (Little) Namaqualand: said to be plentiful inland from Port Nolloth" (quoted: Skead; 1980: 52).

### Assessment

The species has been overlooked historically, but was undoubtedly common in the dry Northern Cape (Skead; 1980: 53). Shortridge's findings for Namaland and Namaqualand in the 1930's would suggest that the species historically may have had a widespread distribution in the OFCA. Habitat preference in arid areas is similar to that of *O. megalotis* (cf. Stuart and Stuart; 1988: 122), and distribution within the OFCA would have been likely sympatric (cf. Shortridge; 1934: 175).

### Mustelidae:

#### 5. *Aonyx capensis* (Cape Clawless Otter/ Kaapse Groototter/ //Omitsi//äb (Shortridge after Krönlein))

- No records for S. Namibia; none for Namaqualand or Bushmanland either.
- 1934: Shortridge concluded both *A. capensis* and *Lutra maculicollis* (= Spotted-necked otter) to occur in the Lower Orange River W of Upington, with *L. maculicollis* probably the more plentiful of the two spp<sup>7</sup>; (both spp.) found to occasionally wander up the Fish River for some distance, but not as far N as Berseba (Shortridge; 1934: 190) – no indication is given of how numerous, but judging by the fact that Shortridge mentions seeing very little spoor (of both spp.), it seems infrequent (Shortridge; 1934: 187).

<sup>7</sup> Shortridge's assertion seems questionable, for *L. maculicollis* hunts mainly by sight, and clear water is an essential habitat requirement (cf. Stuart & Stuart; 1997: 240) – the muddy waters of the Lower Orange thus being very unlikely habitat. The species seems unable to adapt to muddy waters, and runoff from eroded lands in its South-African range has been related to the decline of this species (cf. Stuart & Stuart; 1988: 128).

### Assessment

No records for the OFCA Orange River have been found, but this should be placed into proper historical context, for in compiling records for the Cape Province, Skead remarks "No extract on otters has given enough information to make the identification of a species possible, indeed so few otter records have been found that their use as historical references are of little value" (Skead; 1980: 73). Skead explains the absence of records by the reclusive habit of the species (Skead; 1980: 74). Essentially an aquatic mammal, the species may nevertheless wander several kilometers from water (Stuart and Stuart; 1988: 128). Shortridge's findings indicate that the species probably did historically occur in the Orange River, and may also have wandered up some distance into the Fish River system during good rainfall years. Habitat and food requirements would have limited the species to the perennial Orange River and the perennial pools of the Fish River.

#### 6. *Ictonyx striatus* (Striped Polecat/ Stinkmuishond/ /Ga:mirob; !U:rob (Shortridge))

- 1836 (Dec): Alexander; plains SE of Warmbad, and travelling at night - killed two "black and grey striped polecats" with dogs (Alexander; 1838: 179);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "hyenas, wild boars, jackals, polecats, rats and mice are in great abundance" (Alexander; 1838: 192);
- 1907: Cornell; Orange River between Sendeling's Drift and Lorelei Mountains on N bank – reported how polecats are caught in traps (Skead; 1980: 70);
- 1934: Shortridge found the species "ubiquitous" in Namibia, even extending into the coastal Namib (where it inhabits the scrub along ephemeral watercourses such as the Kuiseb River) (Shortridge; 1934: 198-9).

### Assessment

From Alexander's general description of the Namaland game suite, it appears as if the species must have been fairly common in the regions he travelled through during his extensive trip, and thus in the OFCA. The species has a very large habitat tolerance (Stuart and Stuart; 1988: 132), and likely occurred over the whole OFCA.

#### 7. *Mellivora capensis* (Honey Badger/ Ratel/ !Harebab; !Hareba (Shortridge))

- No records for S Namibia inland;
- 1907: Cornell; Orange River between Sendeling's Drift and Lorelei Mountains on N bank – reported how badgers are caught in traps (Skead; 1980: 72);
- 1934: Shortridge found them "evenly distributed and fairly plentiful" throughout the whole Namibia (with the possible exception of the coastal Namib); also occurs in Namaqualand (Shortridge; 1934: 194).

### Assessment

The fact that no historical records for this species could be found probably reflects the reclusive habits of the animal. For the Cape, Skead was not able to find any historical records of incidence north of the Berg River – even though he felt that the species must have historically occurred in Namaqualand (Skead; 1980: 72). Cornell and Shortridge's findings during the early decades of the 20<sup>th</sup> century seem to support the historical incidence of this species in the OFCA. The species has a very large habitat tolerance (Stuart and Stuart; 1988: 130), and likely occurred over the whole OFCA.

### Viverridae:

8. *Genetta genetta* (Small Spotted Genet/ Kleinkol Muskeljaatkat/ //Arob (Shortridge))
- Skead found no historical records for S. Namibia, Namaqualand or Bushmanland<sup>8</sup>;
  - 1779: Wikar (in his *Relaas* prepared for Cloete); of the Khoi tribes ("Eynicquas") living along the Orange River ca. E of Beenbreek – they wear (i.a.) the skins of "Mosschelyaat Katte"<sup>9</sup> as karosses (Wikar, quoted in Mossop; 1935: 188-9, note 145);
  - 1934: Shortridge found Small Spotted Genet widely distributed throughout the whole of Namibia (including sparsely along ephemeral watercourses in the Namib), but particularly numerous towards the north (and esp. Ovamboland) (Shortridge; 1934: 113).

### **Assessment**

The strongly nocturnal and cautious habit of this species may account for its absence in the historical record. For the Cape, Skead could find very few records for Genets *überhaupt* (cf. Skead; 1980: 77-8). Wikar's record indicate that the species at least did historically occur within the same veld type as the OFCA Nama Karoo; Shortridge's findings seem to suggest actual historical incidence in the OFCA itself. The species has a wide habitat tolerance, is apparently water-independent, but cover is essential, and in the OFCA would likely have been restricted to wooded watercourses, thick scrub, mountainous areas, but also possibly to isolated rocky outcrops on open plains (cf. Stuart and Stuart; 1988: 144; Shortridge; 1934: 113).

### Hyaenidae:

9. *Crocuta crocuta* (Spotted Hyena/ Gevlekte Hiëna/ ≠Nube≠hiras (Shortridge))
- 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as "elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals" (Paterson; 1790: 64);
  - 1836 (Oct): Alexander; NW Namaqualand, plains S of "Aris" on the Orange River – observes Jackal and Hyena as common predators of Ostrich eggs here (Alexander; 1838: 122);
  - 1837 (June): Alexander; on the Konkiep River, S of Helmeringhausen – encampment visited at night by a hyena which took off with an iron kettle in which milk was being kept (Alexander; 1838a: 233);
  - 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "hyenas, wild boars, jackals, polecats, rats and mice are in great abundance" (Alexander; 1838: 192); During his actual voyage N of the Orange, he never meets directly with Hyena, but sometimes

<sup>8</sup> But Backhouse (1844) when in the Vryburg district of the Northern Cape, recounted that locals travelled from there to the Kalahari to obtain "skins of genet (*G. felina*)" (Skead; 1980: 78).

<sup>9</sup> The Dutch – and later Afrikaans – term here may refer to either *G. genetta* or *G. tigrina* (Large-spotted Genet), but the latter species' preference for dense vegetation in well-watered areas (cf. Stuart and Stuart; 1988: 144) would indicate that the former was meant here.

he refers to Hyena when relating the accounts of locals where he meets them. From habit and prey it is plain to see that *C. crocutta* is meant:

- When travelling to the Bullspoot, Hendrik Boois (living somewhere near Helmeringhausen at the time, and famed as a hunter) told Alexander of meeting with a "hyena which had killed a rhino" – presumably on the present farm Grootfontein, SW of Maltahöhe (Alexander; 1838a: 5-6);
- The Bushman from Abbabis (SE of Solitaire) he met with, he describes as wearing "some teeth of hyena apparently" (Alexander; 1838a: 19);
- 1839-1855: Tindall often refers to "wolves" being troublesome amongst sheep. As he elsewhere mentions jackal (cf. Tindall; 1959: 30), he appears to have Spotted Hyena in mind (by process of elimination) when he mentions wolf<sup>10</sup>. Some instances of references to "wolves" include:
  - 1842 (April): Tindall; near Lower River, N. of Brukkaros – "In the evening a wolf attempted to divide our slaughter sheep" (Tindall; 1959: 30);
  - 1853 (May): Tindall; somewhere between Warmbad and the Blydeverwacht Plato – at night the party was "attacked by a wolf which snatched at a slaughter sheep" (Tindall; 1959: 174);
  - 1853 (June): Tindall; Warmbad station – "Wolves had deprived four poor men of a cow each" – note however that in the preceding sentence Tindall remarks that "The hyenas had killed four calves belonging to our interpreter..." (Tindall; 1959: 175);
  - 1853 (Nov): Tindall; (pres.) travelling E of the Great Karas mountains – "During the first day wolves abound but lions are now rarely seen within a week's journey north of the (apparently Hom) River" (Tindall; 1959: 179).
- 1907: Cornell; near Sendelingsdrift – "(tjiger wolf) common in the mountains" (Skead; 1980: 97);
- 1934: Shortridge found the Spotted Hyena far scarcer than *H. brunnea* in Namibia, and absent or sporadic S of the Tropic of Capricorn, with the most recent southern record for Gobabis (Shortridge; 1934: 160);
- 1936: Shortridge (1942) found the species extinct in Namaqualand, and raised the opinion that it must have become extinct before *H. brunnea* there (Skead; 1980: 97).

### Assessment

The historical incidence of this species in the OFCA seems well established by the available historical record, and distribution appears to have been widespread. This is supported by a known habitat tolerance of both open country and rocky areas (cf. Stuart and Stuart; 1988: 148). By 1934 however, the species was extinct within the settled OFCA – probably due to predator persecution. The species has a broad diet. Typical natural prey in the OFCA may have ranged in size up to that of Giraffe (cf. Stuart and Stuart; 1988: 148).

<sup>10</sup> Alexander (1838a: 247) refers to "a stupid old wolf (hyena)". According to Skead (1980: 61) hyena were earlier commonly referred to as "wolves". Further on Skead (1980: 83) states that a determination between *C. crocuta* and *H. brunnea* can only be made with further contextual hints, as both species may have been included under this catch-all term of "wolf". Attacks on stock are most likely to indicate *C. crocuta*, as *H. brunnea* is considered as normally not troublesome among stock (cf. Shortridge; 1934: 157).

10. *Hyaena brunnea* (Brown Hyena/ Strandjut/ Hei//kum (Shortridge))

- 1907: Cornell; near Sendelingsdrift – "(stront wolf) common in the mountains"; near Lüderitzbucht – found numerous spoor (Skead; 1980: 92-3);
- 1934: Shortridge found them widely distributed in Namibia, also along the coastal belt, especially plentiful in the Kalahari sandveld (Botswana and Namibia), well-known and plentiful in the eastern parts ("near Gobabis, it is estimated that at least half a dozen Brown Hyena is trapped for every leopard") at least as far south as the Karas ranges, but scarce "in those portions of Namaland where game is scarce" (Shortridge; 1934: 153-6);
- 1936: Shortridge found *H. brunnea* extinct in Namaqualand, but feels that they may held out longer here than *C. crocuta* (Skead; 1980: 93);
- No historical records for Bushmanland or Karoo; few scattered records for Northern Cape (Herbert, Mafeking) (Skead; 1980: 93-4).

**Assessment**

"The poverty of definite records for this species is about as low as it can be for any species (,) with the full extent of the animal's overall distribution in Southern Africa still controversial as it will always will be unless some as yet untraced records are found" (Skead; 1980: 92). The species has a very wide tolerance of habitat (cf. Stuart and Stuart; 1988: 148), and Shortridge's findings suggest that the species must historically have occurred in the OFCA Nama Karoo at a time when game was still more plentiful there.

Protelidae:

11. *Proteles cristatus* (Aardwolf/ Aardwolf; Maanhaarjakkals/ /Gi:b (Shortridge))

- No historical records for S. Namibia; scattered records for Namqualand (1840: Backhouse – near Steinkopf) and Bushmanland (1779 – Wikar – 20 km NE of Pella) (Skead; 1980: 104);
- 1778 (Sept<sup>11</sup>): Wikar; between the Orange/ Kaboop confluence and Onseep on the south bank of the Orange River ("Kalagas") – reports that local "Nanningai" (Khoi) hunts the calves of hartebeest and gemsbok with dogs, and also commonly catch aardwolf in this way (Wikar, in Mossop; 1935: 47);
- 1778 (Oct): Wikar; N Bushmanland, near Daberas, and a few km S of the Orange River – reports that the dogs of the local Khoi caught a gemsbok calf and an aardwolf "(which) feeds on ants" (Wikar, in Mossop; 1935: 75);
- 1934: Shortridge found Aardwolf widely distributed throughout Namibia (occurrence in Namib not confirmed), but nowhere abundant. He further found it "apparently scarce along the valley of the Orange River"; "familiar in Namaland", and most plentiful in the sand-plains country (e.g. near Gobabis). In its overall distribution, apparently most plentiful in the Kalahari, spec. Botswana (Shortridge; 1934: 149 - 150);

---

<sup>11</sup> Skead (1980: 104) mistakenly identified the year as 1779. On the 11<sup>th</sup> of July 1779 however, Wikar had left the Orange River Valley to travel back to the Cape (Wikar, in Mossop; 1935: 197).

- 1936/7: Shortridge (1942) finds them to still exist in most parts of Namaqualand (Skead; 1980: 104).

### Assessment

"Very few records of this animal have been found. This is not surprising because its strictly nocturnal habits and its retiring nature kept it from sight. Even in modern times when farms are fenced it is seldom seen and often comes to be known only when it falls victim to road traffic in the lights of motor cars on country roads" (Skead; 1980: 103). Records from Wikar (Bushmanland) and Shortridge's findings seem to indicate that the species historically occurred in Namaland. Distribution would have been limited to open plains and such with enough grass cover to support termites and ants – the bulk of the species preferred diet (cf. Stuart and Stuart; 1988: 150).

### Felidae:

Application of the term "wild cat" poses a problem of identification between *F. nigripes* and *F. sylvestris*. Wikar mentions encountering people who commonly ate "wild cat":

- 1778 (Sept/ Oct): Wikar; ca. Skuitdrift Oost, and 10 km S of the Orange in Bushmanland – reports that the food of local Khoi consist of hyrax, jackals, wild cats, snakes and the pupae of termites (Wikar, in Mossop; 1935: 55). Later on (near Upington) Wikar again remarks that "wild cats" form a common component of the Khoi diet (Wikar, in Mossop; 1935:147).

While both species probably occurred in the regions Wikar travelled at the time, the closer resemblance between *F. sylvestris* and domestic cats make it more likely that this species was meant by the unqualified use of "wild cats".

### 12. *Acinonyx jubatus* (Cheetah/ Jagluiperd/ !Arub (Shortridge))

- No actual records for S. Namibia; scattered records for Namaqualand, Bushmanland and the Karoo regions (South Africa) (Skead; 1980: 187-8);
- 1840 (Jan; Feb): Backhouse; on the Orange River near Goodhouse – mentions spoor, and being told by inhabitants that the species is common; later observed by Backhouse in the same month (Skead; 1980: 186);
- 1934: Shortridge found Cheetah to have a widely scattered range throughout Namibia, especially plentiful in the eastern sandveld regions, but apparently scarce near the Orange River and southern and south-western Namaland (Shortridge; 1934: 105);
- 1936/7: Shortridge (1942) for Namaqualand - found Cheetah to have historically occurred in Namaqualand, but reduced to individuals in the Richtersveld along the Orange River, and with a few still seemingly occurring in Bushmanland (Skead; 1980: 187).

### Assessment

In general for Southern Africa, the Cheetah's occurrence has been badly recorded and often ignored (Skead; 1980: 186). Shortridge's findings and the existence of a traditional Nama name for the animal suggest that the species must have historically occurred in Namaland. The open plains and even more hilly parts of the OFCA would have been suitable habitat for this species, and it is furthermore largely water-independent (cf.

Stuart and Stuart; 1988: 156). Typical natural prey in the OFCA would have ranged in size from Steenbok to Kudu (cf. Shortridge; 1934: 107).

13. *Caracal caracal* (Caracal/ Rooikat/ !Hab (Shortridge))

- 1837 (March) Alexander; near Helmeringhausen – “pursued in vain, a sort of cat with a red skin” (Alexander; 1838: 269) – from this description it is clear that neither *F. silvestris* nor *F. nigripes* was meant;
- 1934: Shortridge found caracal widely distributed throughout Namibia, particularly plentiful on the eastern sand-plains N of the Karas mountains, but relatively scarce near the Orange River and in SW parts of Namaland (Shortridge; 1934: 98);
- 1936: Shortridge (1942); Namaqualand – generally distributed throughout Namaqualand, if rare in the Kamiesberg (Skead; 1980: 115);
- A few scattered records exist for Bushmanland (1839: Backhouse) and the Great Karoo (1860’s: Jackson) (Skead; 1980: 115).

**Assessment**

The only record for Southern Namibia is from Alexander, and then from outside the demarcated OFCA. Nevertheless, in Skead’s assessment: “Despite the paucity of records, it can be presumed that the caracal had a fairly wide coverage of these (i.e. broad Karoo) dry inland regions” (Skead; 1980: 116). Shortridge’s findings indicate probable historical incidence – although distribution would probably have been limited to suitable habitat conditions within the broader Namaland area. The species has a preference for scrub-covered plains and broken terrain (Shortridge; 1934: 98). The animal is currently considered as an important destructive predator of small-stock in parts of the OFCA<sup>12</sup>. Natural diet includes small and medium sized vertebrates up to the size of young Springbok (Stuart and Stuart; 1988: 154; Shortridge; 1934: 98).

14. *Felis silvestris* (lybica group) (African Wild Cat/ Vaalboskat/ /Hōas (Shortridge, after Krönlein))

- No firm records for S. Namibia or even for the Cape (Skead; 1980: 107-8);
- 1934: Shortridge found these cats widely distributed and fairly numerous throughout the entire Namibia (including the ephemeral watercourses of the Namib), but especially so in the northern and eastern sand-plains (Shortridge; 1934: 93).

**Assessment**

No historical records for the OFCA could be found, but the reclusive habits of the species may have influenced observation. Shortridge’s findings suggest probable widespread incidence in historical Namaland, if such would have been restricted by the availability of some cover as required by this species (cf. Stuart and Stuart; 1988: 152).

15. *Felis nigripes* (Small Spotted Cat/ Swartpootkat/ !Koe:rus; !Koirus (Shortridge))

- No records for S. Namibia; a few scattered records for Northern Cape, South Africa (1812: Burchell) and Botswana (1849: Livingstone – in the desert between the Orange River and lake Ngami) (Skead; 1980: 109).

---

<sup>12</sup> UCT; 2000: 96.

- 1934: Shortridge found the Small Spotted Cat almost exclusively confined to the Kalahari sandveld, south of 20° S, and west of a line between Windhoek and Keetmanshoop. He found them to be rare even where they do occur (Shortridge; 1934: 95).

### Assessment

Very few historical records for the species *überhaupt*, probably due to nocturnal habits and small size – "(E)ven today, many a farmer in the Karoo regions of the Great and eastern Karoo is unaware that this little cat lives on his farm, or, in fact, that such a species exist" (Skead; 1980: 108). From the historical record and Shortridge's findings, it is not certain whether this species historically occurred in the OFCA.

#### 16. *Panthera leo* (Lion/ Leeu/ Xami (Shortridge, after Krönlein and Bleek))

- 1760 (Aug/ Sept): Coetsé; names present Hom River the "Leeuwen rivier" – "in consequence of the many lions found hereabouts" (Coetsé, in Mossop; 1935: 279);
- 1760 (Aug/ Sept): Coetsé; of the Land of the Great Namaqua in general (i.e. the course of the Hom River as far north as ca. Dabegabis) – reports the region to be filled with a "multitude of lions and rhinoceri... and (also, the previously unknown) giraffe" (Coetsé, in Mossop; 1935: 287);
- 1761: Brink and Hop; of the Hom River – reports the River bears its name due to the large number of lions which exist there (Brink, in Mossop; 1947: 31);
- 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as "elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals" (Paterson; 1790: 64).
- 1778 (Sept): (Sebastiaan) van Reenen; plains on N bank of Orange River between Ramansdrift and later towards Warmbad (cf. Skead; 1980: 434-5) – reported shooting a giraffe far from water; the kill later attracting a lion (Paterson; 1790: 64);
- 1779 (Aug): Paterson; ca. 20-30 km from Orange mouth, S. bank – reports that one of party, Sebastiaan van Reenen had shot an elephant, the carcass of which had attracted lions (Paterson; 1790: 118);
- 1779 (Aug-Oct): Paterson; travels through N Namaqualand, around and N of the Buffels River – on both journeys to the Orange River in 1779, Paterson and his party frequently encountered tracks and other signs of lions (cf. Paterson; 1790: 106; 122; 129);
- 1779 (Oct): Paterson; valley of the Hom River, S. of Warmbad – Paterson refers to the Hom River as the "Leeuwen", and observes that "the banks... are in general inhabited by those animals" (Paterson; 1779: 124);
- 1791 (Nov): van Reenen; near Noachabeb, between the Great and Small Karas mountains – recorded three lion to have attacked their oxen and horses during the night, killing four oxen and three horses (van Reenen, in Mossop; 1935: 303);
- 1791 (Nov): van Reenen; Löwen River, on his way to Keetmanshoop – found that not many lions are to be found at the Löwen (van Reenen, in Mossop; 1935: 305);
- 1820: Shaw; S of Bethany, ca. 200 km NW of Warmbad – encountered lions (Skead; 1980: 175);
- 1823: Thompson; near Pella, close to the Orange River – Hottentot watering his horses attacked by a lion (Skead; 1980: 172);
- 1836 (Nov): Alexander; near "Kaharas Drift" (ca. Ramansdrift) on the north bank of the Orange River – relates that the Bondelswarts party which had come to meet him

at the Orange had killed a lion shortly before his arrival – the lion had caught 2 of their horses, and was shot by a party of 50-60 Bondels armed with guns (Alexander; 1838: 143);

- 1836 (Nov): Alexander; describing the banks of the Orange River, near Ramansdrift on the north bank at the time - "lions are to be met with, panthers (sic), and... baboons" (Alexander; 1838: 150);
- 1837 (Jan): Alexander; at Korechas on the Hom River, just N of the present Dreihuk dam, and SW of Karasburg – reports that "Kurekhas (is) a favorite resort of lions" (Alexander; 1838: 204);
- 1837 (Jan): Alexander; in the broken terrain along the SE side of the Great Karas mountains – observed "the great footmarks of a camel-leopard were seen, those of the lion, and of ostriches" (Alexander; 1838: 214);
- 1837 (March): Alexander; near the River Gamochas, ca. 40 km S of Helmeringhausen – on the plains he observed "the fresh print of a lion's paw", and later a "lion devouring a zebra under a bush" (Alexander; 1838: 257);
- 1837 (March): Alexander; near the Konkiep River, N of the Gamochas River, and ca. 20-30 km S of Helmeringhausen – a lion is seen passing the camp (Alexander; 1838: 267);
- 1837 (March): Alexander, near the Tsondeb River at the entrance to the Bullspoort on the Naukluft Mountains – came across "fresh prints of lions" (Alexander; 1838a: 8);
- 1837 (May): Alexander; somewhere on the Kuiseb River, and just E of presumably the Rostock and Sandsteen Mountains: saw evidence of a lion which had chased baboons (Alexander; 1838a: 115);
- 1837 (May): Alexander; well SW of the Gams Mountain – on "a great plain surrounded by mountains" his party crossed "fresh traces of several lions" (Alexander; 1838a: 121);
- 1837 (May): Alexander; somewhere on the Oanob or Usip Rivers, N of Rehoboth – camp visited at night by three lions tracks found); the lions also caught a stray ox – a hunting party is organised by the Oorlam Afrikaners, and a large male lion is shot (Alexander; 1838a: 176 – 180);
- 1837 (June): Alexander; on the Kalf River, just SW of Kalkrand – his camp is visited at night by a lion, attracted by a kudu which had been shot earlier in the day (Alexander; 1838a: 195);
- 1837 (July): Alexander – of the country S of Bethany and N of the Arimas River, W of the Konkiep River – travels through "Sharp Lion Country" – fires are nightly lit against lion, but on two separate occasions lions visit, killing an ox on one (Alexander; 1838a: 237);
- 1838: Alexander – writing of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "Lions are every where found" (Alexander; 1838: 191);
- 1841 (July): Tindall; near Warmbad missionary station – reports that a lion "which had been causing great alarm for a few days" had been tracked down and shot with muskets (pres. by the Bondelswarts from the station) (Tindall; 1959: 24-5);
- 1842 (April): Tindall; near Lewer River, N. of Brukkaros – observed a lion and lioness hidden amongst "numerous bushes"; also a jackal at the same spot (Tindall; 1959: 30);

- 1934: Shortridge found lions extinct in most of Namaland (the west), with remaining numbers in Namibia concentrated N of ca. 25° S in the west, although in the east some lion still occasionally followed migratory game (e.g. Blue Wildebeest) along the Auob River NE of the Karas ranges<sup>13</sup> (Shortridge; 1934: 78);
- 1936: Shortridge (1942) found lion extinct in Namaqualand (Skead; 1980: 172).

### Assessment

The historical record reflects widespread historical distribution of lions in the OFCA. In the assessment of Skead: "Because southern South West Africa was a rich plains-game region, lions were there too" (Skead; 1980: 173). The species has a known wide tolerance of habitat conditions, and may have been present in much of the OFCA wherever enough game was available (cf. Stuart and Stuart; 1988: 158). The patchy historical record does not allow for the exact dating of local lion extinctions in the OFCA, but some historical records do indicate that lions were already becoming scarce in the Karasburg district by the 1840's<sup>14</sup>. The formidable nature of these predators for livestock and humans, and the common availability of firearms from the 1840's onwards likely meant that lions became practically locally extinct long before Shortridge's investigation in the early 1930's. Original prey would have included vertebrates up to the size of young elephant (cf. Stuart and Stuart; 1988: 158).

### 17. *Panthera pardus* (Leopard/ Luiperd/ /Garub (Shortridge))

- 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as "elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals" (Paterson; 1790: 64);
- 1836 (Oct): Alexander; ca. 30 km from the Orange River mouth (Arrisdrift) – presented with a leopard which had been troubling their horses by "Arris people", and been killed by a string-gun (Alexander; 1838: 120);
- 1836 (Nov): Alexander; describing the banks of the Orange River, near Ramansdrift on the north bank at the time – "lions are to be met with, panthers (sic), and... baboons" (Alexander; 1838: 150);
- 1837 (July): Alexander; ca. 150 km N of the Orange River and just S of the Arimas River, and entering into the Huns mountains – "Lion field (...) now succeeded by that of leopard" (Alexander; 1838a: 238) – he later came across "leopards... lying among the rocks" in the Hunsberge further south (1838a: 241);

<sup>13</sup> Shortridge's distribution map indicates the southernmost contemporary records for the western parts as the escarpment W of Maltahöhe; for the eastern parts, around the Great Karas mountains (see: Shortridge; 1934: map insert between pp. 76 and 77: "Distribution of the Lion (*Panthera leo*) in S.W. Africa").

<sup>14</sup> Cf. 1836/7: Alexander at Warmbad – asking the Bondels elders whether there have occurred any significant difference in the country with regard to wild animals in their recollection, was told "Yes, there were more lions formerly in this district. We killed a number with our assegais" (Alexander; 1838: 174);

1853 (Nov): Tindall; (pres.) travelling E of the Great Karas mountains – "During the first day wolves abound but lions are now rarely seen within a week's journey north of the (apparently Hom, but possibly Orange) River" (Tindall; 1959: 179).

- 1838: Alexander – writing of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – lists “beautiful spotted panthers” as one of the animals commonly found in Namaland (Alexander; 1838: 191);
- 1843; Tindall; Warmbad missionary station – records that collection on the 17<sup>th</sup> of May included “... some ostrich feathers and three leopard skins” (Tindall; 1959: 51);
- 1843: Tindall; somewhere in Bondelswarts area, near Warmbad station – collection on the 12<sup>th</sup> of June included “... 2 tiger (sic) skins, 2 koodoo skins, 2 jackal skins” (Tindall; 1959: 52);
- 1907: Cornell; Richtersveld S of Orange River – reports of leopard taking companion dog while party was sleeping (Skead; 1980: 130).
- 1934: Shortridge found leopard widespread in Namibia (with the exception of the Namib), plentiful in Damaraland, Gobabis district and further north, but comparatively scarce in the plains of Namaland (Shortridge; 1934: 86).
- 1936: Shortridge (1942) in Namaqualand - found leopards no longer resident on the Kamiesberg, but still occurring sparsely among the mountains of the Lower Orange River valley in Northern Namaqualand (Skead; 1980: 129);
- Most records for Namaqualand are from the N, near the Orange (Skead; 1980: 128).

### Assessment

The historical record supports the original incidence of Leopard in the OFCA. Although drinking water is not essential, sufficient cover is an essential habitat requirement for this species (cf. Stuart and Stuart; 1988: 160), and historical incidence in Namaland would have typically been restricted to mountainous or broken terrain – as supported by Shortridge’s findings. Leopard numbers are likely to have declined into present times due to persecution by stockfarmers, but some still naturally occur within the OFCA. Natural prey would have ranged up to the size of Kudu, but smaller antelope – Steenbok, Duiker and Springbok – and Baboons may have been more typical prey in the OFCA.

## 5.6.

### AARDVARK (TUBULIDENTATA)

#### Orycteropodidae:

##### 1. *Orycteropus afer* (Aardvark/ Erdvark/ /Ku:bus; /Ku:bub (Shortridge))

- No early records for S. Namibia or Namaqualand; scattered early records from the Karoo (1860’s: Jackson – Beaufort West) and Northern Cape (e.g. 1823: Thompson; Campbell; Kuruman) (Skead; 1980: 193-4);
- 1934: Shortridge found the species distributed throughout Namibia – with the exception of the coastal Namib; S. of the Tropic of Capricorn, he found it most numerous in the eastern sandveld; plentiful along the Botswana border in Gobabis district; scarce in the western arid Karoo plains of Namaland; scarce on the Lower Orange River W of Upington (Shortridge; 1934a: 660);
- 1936: Shortridge (1942) in Namaqualand – found the species “sparsely but widely distributed”, and collected a specimen from near Steinkopf (Skead; 1980: 193).

## Assessment

The record does not reflect the historical incidence of the species in the OFCA, but this may be more the result of the absence of observations due to the nocturnal and retiring habit of the species. While dryness does not seem to inhibit the species' occurrence, the availability of termites and ants are an essential dietary requirement (Skead; 1980: 193). This would have limited possible occurrence in historical Namaland to areas with sufficient grass.

5.7.

## ELEPHANT (PROBOSCIDEA)

### Elephantidae:

1. *Loxodonta africana* (African Elephant/ Afrikaanse Olifant/ ≠Khoab (Shortridge); ≠Korab (Shortridge after Bleek))
  - 1761/2: Brink's general description of the eastern and northern portions of the regions visited by Hop's party (and thus probably closer to the Löwen than the Hom River) – a region with "fine grassy level plains where exist great numbers of big game such as elephant, rhinoceros, giraffe, "Auerossen" (Blue Wildebeest), buffalo, "wilde paarden and gestreepte ezels", kudu, gemsbok and hartebeest" (Brink, in Mossop; 1947: 54/55, see also: 48/49 for an almost exact description of the game suite during December, when encamped at the Löwen);
  - 1778 (Sept): Paterson, S. bank of Orange River, near Goodhouse – "beheld elephant" (Paterson; 1790: 62);
  - 1779 (Aug): Paterson; ca. 20-30 km from Orange mouth, S. bank – reports that one of party, Sebastiaan van Reenen, had shot an elephant, the carcass of which had attracted lions (Paterson; 1790: 118);
  - 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as "elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals" (Paterson; 1790: 64);
  - 1778 (Sept): Wikar; between the Orange/ Kaboop confluence and Onseep on the south bank of the Orange River ("Kalagas") – reports that an elephant bull had trampled to death two "Nanningai" (Khoi) women who had fallen asleep in an elephant path (Wikar, in Mossop; 1935: 43);
  - 1778 (Sept): Wikar; between the Orange/ Kaboop confluence and Onseep on the south bank of the Orange ("Kalagas") – reports fair numbers of elephant in a forest of *Aloe dichotoma*, some with calves. One of this group was shot by Wikar's companion Claas Barend (Wikar, in Mossop; 1935: 43 - 47);
  - 1778 (Sept): Wikar; immediately E of Beenbreek, away from the Orange River, and on the Oup vlakke in N Bushmanland – reported that Rhinos and Elephant dug for water (Wikar, in Mossop; 1935: 51);
  - 1779 (Sept): Gordon; just W of Augrabies on the Orange River – claims to have seen (i.a.) a troop of 50 elephant during one specific sighting (Skead; 1980: 213);
  - 1779 (Oct): Paterson; south bank of Orange River, somewhere E of Goodhouse (acc. to Skead) – observed several paths made by hippo and elephant (Paterson; 1790: 123);

- 1934: Shortridge found the species extinct in southern Namibia, and restricted to the Kaokoveld and Caprivi, with occasional migrants entering Ovamboland<sup>15</sup> (Shortridge; 1934: 358);
- 1936: Shortridge (1942) in Namaqualand – found elephant extinct for at least 150 years (Skead; 1980: 211).

### Assessment

Despite Skead's observation that the true historical position of elephants in the southern part of Namibia is not known (Skead; 1980: 212), the record does support the historical occurrence of the species in the OFCA and similar veld type in Namaqualand, Bushmanland and along the middle stretches of the Orange River. The essential requirements of shade and available surface water (cf. Stuart and Stuart; 1988: 164) would have naturally limited incidence of the species for much of the year in the OFCA to particular areas such as the banks of the perennial Orange River and around perennial pools of the Fish River, with incursions into the veld only under suitable fodder and water conditions – such as when green grass is available during the wet season (cf. Stuart and Stuart; 1988: 164). Against the bulky daily dietary requirements of the species, the typically low plant biomass productivity of the OFCA would have placed a serious limit on natural abundance and concentration<sup>16</sup>. Already by the time Alexander was travelling in Namibia, elephant in the OFCA appear to have been in the process of local extinction<sup>17</sup>, and must have become so well before Shortridge's subsequent confirmation of the fact in 1934.

5.8.

### HYRAXES (HYRACOIDEA)

#### Procaviidae:

1. *Procavia capensis* (Rock Hyrax/ Klipdassie/ !Aǖb (Shortridge))
  - No records for S. Namibia; scattered records for Namaqualand (Vanrhynsdorp); Bushmanland and Karoo (1811/2: Burchell – Sutherland) (Skead; 1980: 245-6);

<sup>15</sup> Shortridge's distribution map indicates the southernmost contemporary records for ca. Outjo/ Otjivarongo (see: Shortridge; 1934: map insert between pp. 356 and 357: "Distribution of the Elephant (*Loxodonta africana*) in S.W. Africa").

<sup>16</sup> This seems supported by the fact that Coetsé Jansz: specifically journeyed to the Orange and across to hunt for elephant, but only shot two on his journey – both in Namaqualand - and he mentioned encountering none for the parts of Namibia he travelled (Coetsé, in Mossop; 1935: 279; 289).

<sup>17</sup> 1836/7: Alexander – found elephants extinct in the parts of Namaland through which he travelled, and remarks that "elephants are now several day's journey east of the Fish River" (Alexander; 1838: 191). When at Walfish Bay, he hoped to travel to the Swakop River mouth in the hope of finding elephant there (1838a: 103). The Afrikaner Oorlam ("Aramap" = Jonker Afrikaner) he met with at the settlement of "Niais", N of Rehoboth told him that they had just returned from an elephant-hunting expedition where it had been necessary to travel well to the east of the River Nossob in order to find elephants (1838a: 159-60).

- 1778 (Sept/ Oct): Wikar; ca. Skuitdrift Oost, and 10 km S of the Orange River in Bushmanland – reports that the food of local Khoi consist of hyrax, jackals, wild cats, snakes and the pupae of termites (Wikar, in Mossop; 1935: 55);
- 1778 (Sept/ Oct): Wikar; ca. Skuitdrift Oost, and 10 km S of the Orange River in Bushmanland – reports finding hyrax in abundance (Wikar, in Mossop; 1935: 57);
- 1934: Shortridge found the species “abundantly distributed” over the mountainous and rocky parts of Namaland and Damaraland – from the Orange River valley and Karas ranges as far N as the Waterberg; recorded in Namaqualand by Grant (Shortridge; 1934: 381).

### Assessment

No actual historical records for the OFCA have been found, but records for the same veld type in Namaqualand, Bushmanland and along the Middle Orange River indicate likely historical incidence in the OFCA. This is supported by Shortridge's findings in 1934, and it may be assumed that the species did historically occur in the OFCA in suitable habitat conditions – i.e. areas with broken terrain – as it still does currently.

## 5.9.

### ODD-TOED UNGULATES (PERISSODACTYLA)

#### Equidae:

Early records generally refer to “wild mules/ horses/ asses” – with no appreciation of differences in spp. between Quagga, Mountain Zebra and Burchell's Zebra (Skead; 1980: 312). The true Quagga (*E. quagga*) is thought to have existed in the Cape up to the Orange River, but there are no records for S. Namibia (Skead; 1980: 334). While confusion with true Quagga is not really possible for S. Namibia, confusion between *E. zebra* and *E. burchelli* may well have occurred (Skead; 1980: 334).

Instances of indeterminate records:

- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Hom River) – a region with “fine grassy level plains where exist great numbers of big game such as “wilde paarden and gestreepte ezels” (Brink, in Mossop; 1947: 54/55). When describing more or less the same area in December 1761, Brink mentions more or less the same game suite, but equines are then described as “witte wilde paarden, ezels and quaggas” – in both instances it is unclear whether Brink really had in mind a clear distinction between *E. zebra* and *E. burchelli* (and possibly even *E. quagga*), but his distinction of more than one sort of striped wild horse on both occasions seem to suggest that the party may have indeed encountered more than one species;
- 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as “elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals” (Paterson; 1790: 64).
- 1779 (Aug): Paterson; Namaqualand, near the Orange mouth – “saw several zebras, quaggas and elk (pres. eland)” (Paterson; 1790: 112);

- 1779 (Aug): Paterson; NW Namaqualand, ca. 15-20 km from Orange River (ca. Richtersveld) – encountered a herd of zebra: “they seemed not in the least shy, and we shot two of them” (Paterson; 1790: 119);
  - 1779 (Oct): Paterson; plains SE of Warmbad – saw zebras, rhinoceros, giraffe and kudu, etc. (Paterson; 1790: 126).
1. *Equus burchelli* (Burchell’s Zebra/ Bontsebra/ !Go:reb; !Khrob (Shortridge))
    - 1836: Alexander<sup>18</sup>; plains on the N bank of the Orange opposite Goodhouse – inscribed such as “plains with zebra” on his map of his journey (Alexander; 1838: map insert);
    - 1837 (Jan): Alexander; at Korechas on the River Hom, just N of the Dreihuk dam, and SW of Karasburg – reports “footmarks of zebras” beside the fountain there (Alexander; 1838: 204);
    - 1837 (Feb): Alexander, near Kosis on the River Gurib, ca. 40 km SE of Bethany – observed half a dozen zebra grazing on a plain – all of which took to their heels into the hills when pursued by Alexander’s party, a pregnant mare was shot (Alexander; 1838: 246-7);
    - 1837 (March): Alexander; near the River Gamochas, ca. 40 km S of Helmeringhausen – on the plains he observed “traces of zebras”, and later a “zebra being devoured by a lion underneath a bush” (Alexander; 1838: 257);
    - 1837 (March): Alexander; somewhere N of Helmeringhausen, and west of the Schwarzrand – the hunter Hendrik Boois unsuccessfully pursues a zebra (Alexander; 1838: 272);
    - 1837 (March): Alexander; on the upper reaches of the Konkiep River north of Helmeringhausen – came across a troop of “seven zebras” in apron veld just off the Schwarzrand (Alexander; 1838: 277);
    - 1837 (March): Alexander; plains just SE of the Bullspoot (Naukluft mountains) – saw zebra (Alexander; 1838: 296);
    - 1837 (March): Alexander, near the Tsondeb River at the entrance to the Bullspoot on the Naukluft mountains – party “saw zebras grazing on a slope” (Alexander; 1838a: 8);
    - 1837 (May): Alexander; Tumasvlakte, just W of the Kuiseb River – saw a “troop of zebra” in the broken terrain along an ephemeral watercourse (Alexander; 1838a: 114);
    - 1836/7) – “zebras are everywhere in the land” (Alexander; 1838: 191);

<sup>18</sup> Alexander was aware of the existence of and differences between *E. zebra (hartmannae)*, *E. burchelli*, and even *E. quagga* – which he identifies as “wild horses”, “zebra” and “quagga” (cf. Alexander; 1838: 215). During his travel through Namibia he often mentions zebra, sometimes wild horses, but never quagga.

From Alexander’s description, the two major differences between *E. zebra* and *E. burchelli* he identified are dark legs and a preference for broken terrain in the case of *E. zebra*, and the white legs and plains habitat of *E. burchelli*. Alexander does not mention the distinctive gridiron rump-patterning or dewlap of *E. zebra*, nor the shadow-stripes of the southern races of *E. burchelli*.

According to Shortridge, Alexander’s criterium is borne out by general field observations: banding on legs of *E. burchelli* is less dense – giving it the appearance of having white legs compared to *E. zebra hartmannae* (Shortridge (1934: 395). Furthermore, according to Shortridge, distinction in the field is possible up to “several hundred yards” on account in differences in built, shoulder-height and the dewlap of *E. zebra hartmannae* (Shortridge; 1934: 408).

- 1837 (May): Alexander; well SW of the Gams Mountain – on “a great plain surrounded by mountains” he saw “in every direction zebras grazing in herds of six or eight ... I had never seen before such a large number of these beautiful animals together” – a little further on, the party shot one (Alexander; 1838a: 121; 122);
- 1837 (May): Alexander; ESE of the Gams mountain – saw “a large troop of white legged zebras” galloping across a plain (Alexander; 1838a: 143);
- 1837 (June): Alexander; somewhere between the Rivers Tsub and Kuteb, well W of Gibeon, and NE of the Schwazrand – shoot 2 zebras on “level country” (Alexander; 1838a: 221);
- 1934: Shortridge finds that according to the Nama and the San of the Gobabis district, *E. burchelli* formerly occurred in these areas (Shortridge; 1934: 401);
- 1934: Shortridge found the species only occurring N of ca. 21° S in the western parts, and N of 19-20° S in the eastern parts of Namibia; thus absent from Namaland, etc.; absent from the Gobabis district with the exception of 2 strays who were recorded in 1922 near 22° S close to the Botswana border<sup>19</sup> (Shortridge; 1934: 399-400).

### Assessment

Judging by such a meticulous source as Alexander, the species seems to have historically occurred over much of the OFCA under favourable veld conditions. This has been borne out by Shortridge's findings of traditional Nama lore. Access to drinking water is essential for the species, and movements are generally dictated by obtaining veld conditions (cf. Stuart and Stuart; 1997: 74). These factors would have limited typical occurrence in the OFCA to the aftermaths of good rains. On account of the strong musky smell of the meat of this species, the indigenous peoples of Namibia were not partial to its flesh (Shortridge; 1934: 404), and large scale persecution in the OFCA must have resulted from hunting for skins for the Cape trade in the latter decades of the 19<sup>th</sup> century. It is unclear when the species became extinct in the OFCA.

### 2. *Equus zebra hartmannae* (Hartmann's Mountain Zebra/ Hartman-bergsebra/ Nu!khrob; Nu!go:reb (Shortridge))

- 1837 (Jan): Alexander; in the broken terrain along the SE side of the Great Karas mountains – observed “a troop of wild horses crossing rapidly the hillside” (Alexander; 1838: 214);
- 1837 (March): Alexander; on plains just SE of the Bullspoor, and near the River Tsondeb – came across “a large troop of wild horses” (Alexander; 1838: 298);
- 1837 (April): Alexander, south-eastern fringes of the Namibvlakte, NE of Solitaire – came across “spoor of wild horses” – the extremely barren terrain gives credence to Alexander's identification here (Alexander; 1838a: 31);
- 1837 (May): Alexander; somewhere between the Oanob and Usib Rivers, N of Rehoboth – travelled across a plain with sweet grass, high trees and detached bushes, amongst which “wild horses” were seen (Alexander; 1838a: 152);

<sup>19</sup> Shortridge's distribution map indicates this as the southernmost contemporary record for the species (see: Shortridge; 1934: map inserted between pp. 396 and 397: “Distribution of the Bontequagga (*Quagga quagga antiquorum*) in S. W. Africa”).

- 1907: Cornell: Namaqualand, ca. 20 km from the Orange mouth – “The whole land seemed dead,... devoid of life;... though the spoors of wilde paarde ... showed where mountain zebra occasionally roamed” (quoted: Skead; 1980: 333);
- 1934: Shortridge found the species to inhabit the sub-continuous chain of mountains of the western escarpment; most numerous within ca. 80 km from the sea (but less numerous near the coast), and rarely further inland than ca. 160 km; the only species of wild equinine to occur in Namaland (and even Damaraland S of the River Ugab): fairly numerous throughout Bethany district, along the Orange River and Warmbad district as far west as the Fish River mouth and somewhat to the east of it<sup>20</sup>; very numerous in western parts of Maltahöhe district; widely distributed in esp. N parts of Lüderitz district (Shortridge; 1934: 390-1);
- 1934: Shortridge finds the species to have occurred historically in Namaqualand and the Bushmanland escarpment (until ca. 1912-1931), where the Kamiesberg (for geographical = habitat reasons) probably formed the southernmost point of distribution (Shortridge; 1934: 390-1).

### Assessment

Again Alexander's record indicates the historical incidence of this species in the OFCA – at least in areas of suitable habitat (mountainous areas and adjacent flats). Due to habitat preference, the species may not have occurred in any significant way over most of the flat expanse of the Central Plateau (cf. Stuart and Stuart; 1988: 170).

### Rhinocertidae:

Unlike *D. bicornis*, *C. simum* was a creature of the far inland, and unknown in the early Cape; the first acceptable record being of one shot by Burchell in 1812 (80 km NW of Kuruman) (Skead; 1980: 297). Even into the 19<sup>th</sup> century confusion was widespread re. the relationship between various rhinoceri in Southern Africa (Skead; 1980: 277). Thus, records of early travelers to S. Namibia may only be determinable from descriptions of habit and habitat of the animals observed.

Indeterminate records include:

- 1760 (Aug/ Sept): Coetsé; of the Land of the Great Namaqua in general (i.e. the course of the Hom River as far north as ca. Dabegabis) – reports the region to be filled with a “multitude of lions and rhinoceri... and (also, the previously unknown) giraffe” (Coetsé, in Mossop; 1935: 287);
- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Hom River) – a region with “fine grassy level plains where exist great numbers of big game such as... rhinoceros...” (Brink, in Mossop; 1947: 54/55, see also: 48/49 for an almost exact description of the game suite during December, when encamped at the Löwen – “rhinoceros encountered on plains covered with grass and 'Renoster bosjes'”);
- 1791 (Dec) – 1792 (March): van Reenen – Keetmanshoop to Rehoboth and back – reported shooting 65 rhino (indet.) and six giraffe on this journey (van Reenen, in

<sup>20</sup> Shortridge's distribution map indicates records along the Orange River as far east as 18° E (see: Shortridge; 1934: map inserted between pp. 396 and 397: “Distribution of Hartmann's Mountain Zebra (*Hippotigris hartmannae*) in S. W. Africa”).

Mossop; 1935: 313). Some of the places where rhino were shot are given in the journal, with the southernmost location somewhere near Berseba on the Wasser River, and further locations along the Fish, Lewer and Kalf Rivers, and then 8 rhinoceri on one day (24 January 1792), apparently near Rehoboth (settlement). Van Reenen does not mention encountering or shooting any rhino south of Keetmanshoop. The rhino he had shot are nowhere described, but the journal makes no mention of shooting more than one type of rhino or encountering a new type or species, and – judging by the habitat – the animals are most likely to have been *D. bicornis*.

### 3. *Diceros bicornis* (Black Rhinoceros/ Swartrenoster/ /Ki:s (Shortridge))

- Pre-historic: various skeletal remains (one fossilised skeleton as old as 10 000 years) have been found in the Fish River, Grullental, etc. (Skead; 1980: 287);
- 1778 (Sept): Wikar; E of the Orange/ Kaboop confluence, Bushmanland – reported seeing numerous tracks of rhino and giraffe (Wikar, in Mossop; 1935: 47);
- 1778 (Oct): Wikar; near Paarden island on the Orange (near Keimoes) – observed skulls of rhino, elephant and buffalo in local kraals (Wikar, in Mossop; 1935: 123);
- 1779 (Aug/ Sept): Gordon; near Augrabies Falls in Bushmanland – saw 5 rhinos (pres. black) during one specific sighting (Skead; 1980: 289);
- 1778 (Sept): Wikar; immediately E of Beenbreek, away from the Orange, and on the Oup vlakke in N Bushmanland– reported that rhinos and elephant dug for water (Wikar, in Mossop; 1935: 51);
- 1778 (Oct): Wikar; N Bushmanland, near Daberas (Seekoeisteek), and S of the Orange – shot at rhino on two consecutive days (Wikar, in Mossop; 1935: 75);
- 1778 (Oct): Wikar; N Bushmanland, E of Daberas (Seekoeisteek), and S of the Orange – shot and pursued a rhino, and then came upon six further rhinos (Wikar, in Mossop; 1935: 97-99);
- 1778 (Oct): Wikar; N Bushmanland, W of and near Augrabies Falls – reports of a San woman attacked by a rhino with calf (Wikar, in Mossop; 1935: 105);
- 1778 (Oct): Wikar; N Bushmanland, W of and near Augrabies Falls, between "Amkams" and "Namies" – shot a rhino (Wikar, in Mossop; 1935: 109);
- 1778 (Oct): Wikar; N Bushmanland, along the Orange and just E of Augrabies Falls – came across rhino in dense woods (Wikar, in Mossop; 1935: 119);
- 1779 (Oct): Paterson; plains SE of Warmbad – saw zebras, rhinoceros, giraffe and kudu, etc. (Paterson; 1790: 126);
- 1779 (Oct): Paterson; near Warmbad – related of companions wounding two rhinoceri, which had been feeding on "wild Apricot (?) fruit" and "leaves and branches of a ... species of Mimosa (apparently *A. erioloba*)" – clearly *D. bicornis* (Paterson; 1790: 128);
- 1837 (March): Alexander; on the Haseweb River S of the farm Grootfontein, between Helmeringhausen and Maltahöhe – saw "fresh traces of a rhinoceros" near pools (Alexander; 1838: 287) – the first rhino he recorded encountering N of the Orange;
- 1837 (March): Alexander; presumably on the present farm Grootfontein on the River Haseweb, SW of Maltahöhe – describes the area around the fountain here as "a favorite resort for rhinoceroses" (Alexander; 1838: 291);
- 1837 (March): Alexander; on plains just SE of the Bullspoort, and near the River Tsondeb – came across a group of four rhino (Alexander; 1838: 299-302) – at the

mouth of the Bullspoot, Alexander remarks "we now seemed to have invaded the domains of the black rhinoceros" (Alexander: 1838a: 1). He here gives a description of the black rhino – mentioning its hooked lip and browsing habit (1838a: 2);

- 1837 (March/ April): Alexander; on the Tsondab valley in Bullspoot pass, N Naukluft mountains – came across rhino frequently during his trek through the pass, especially towards the eastern entrance (Alexander; 1838a: 8; 9; 11);
- 1837 (April): Alexander; dry course of the Kuiseb River, somewhere E of Gobabab – came across a dead rhino on the riverbed (Alexander; 1838a: 55);
- 1837 (May): Alexander; Tumasvlakte, just W of the Kuiseb River – saw "numerous traces of rhinoceroses" in an ephemeral watercourse enclosed by "lofty hills" (Alexander; 1838a: 114);
- 1837 (May): Alexander; area between Kuiseb River and Gams mountain, and to the S of the latter – frequently met with rhino in dry watercourses and near fountains (Alexander; 1838a: 120; 122; 127);
- 1837 (May): Alexander; SE of the Gams mountain, and just W of the River Kubitsaus – saw "two or three rhinoceroses at a distance" while crossing "a most beautiful grassy plain with scattered bushes" (Alexander; 1838a: 149);
- 1837 (May): Alexander; on the Oanob or Usip River, N of Rehoboth – reports that members of his party were hunting a "white rhinoceros" when a "black rhinoceros" appeared from a clump of bushes and stormed the hunters (Alexander; 1838a: 174);
- 1837 (June): Alexander; somewhere W of Kalkrand, and on the plains N and S of the River Gamagam – came across (black) rhino on separate occasions (Alexander; 1838a: 192; 193);
- 1838: Alexander – writing of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "Two-horned rhinoceroses, both black and white, are found in the upper parts of the Fish River" (Alexander; 1838: 191); Alexander recorded no sightings S of this (i.a. the ca. 450 km stretch back to the Orange) (Skead; 1980: 288);
- 1934: Shortridge finds the species to have occurred "within comparatively recent times, at least as far south as Great Namaqualand (= Namaland), (where) they are still remembered by Bushmen and other native tribes" (Shortridge; 1934: 415);
- 1934: Shortridge finds the species extinct in Southern Namibia; all (estimated 40-80 individuals) remaining to occur between the Ugab and Kunene Rivers<sup>21</sup>, concentrated in the Kaokoveld, and most numerous near the Angolan border; some incursions into western Ovamboland, and scarce in the Caprivi (according to Balme in 1930) (Shortridge; 1934: 413).

### Assessment

From the historical record, it seems clear that the species had a widespread historical occurrence in the OFCA. The species is mainly a browser, and requires areas with shrubs and trees up to 4 m, and some thicket-shade for resting. Arid area populations may go several days without water (Stuart and Stuart; 1988: 172). During good rainfall conditions it will also feed on green grass (Stuart and Stuart; 1988: 172). Historical distribution in the OFCA may have favored occurrence to the proximity of dry

<sup>21</sup> Shortridge's distribution map indicates the Ugab River (at ca. 15° E) as the southernmost site for contemporary records (see: Shortridge; 1934: map inserted between pp. 356 and 357: "Distribution of the Rhinoceros (*Diceros bicornis*) in S. W. Africa").

watercourses and scrub-covered areas, with incursions into grasslands under favorable conditions. The records makes clear that the species was a favorite target of hunters, and it may have become extinct in the OFCA within the first few decades after the general introduction of horses and firearms.

4. *Ceratotherium simum* (White Rhinoceros/ Witrenoster/ !Navas; !Nawas (Shortridge after Krönlein))

- Archeological: Shortridge (1942) reports that a pair of weathered horns of *C. simum* were collected near Seeheim in 1919, and were seen by him at the Port Elizabeth Museum; subsequent investigation at the museum (1974) proved inconclusive (Skead; 1980: 300);
- 1837 (March): Alexander; at the entrance to the Bullspoot, Naukluft mountains – apparently now finding himself in the “domain of the black rhino”, he remarks that “the rhinoceros “which eateth grass as an ox” is the white rhinoceros (which we had yet to see)” (Alexander; 1838a: 5);
- 1837 (May): Alexander; on the River Kubitsaus, 50-60 km WSW of Rehoboth – came across “a huge white or cream-coloured rhinoceros”, and the party wounds it. Alexander here provides a description of the “square lipped and grass eating” white rhinoceros (Alexander; 1838a: 150);
- 1837 (May): Alexander; on the Oanob or Usip River, N of Rehoboth – reports that members of his party were hunting a “white rhinoceros” when a “black rhinoceros” appeared from a clump of bushes and stormed the hunters (Alexander; 1838a: 174);
- 1837 (June): Alexander; near Lekkerwater, halfway between Rehoboth and Kalkrand – shot “a white rhinoceros” in a valley (Alexander; 1838a: 188);
- 1934: Shortridge found that the Nama, and the San of the Gobabis district had distinct names for *C. simum* and *D. bicornis*, and concluded that both species must have occurred formerly in Namaland and the Gobabis district (Shortridge; 1934: 427);
- 1934: Shortridge finds the species extinct in Namibia for at least 50 years; reports for the Kaokoveld are in his opinion mistaken, and probably for *D. bicornis* which were coated in mud after wallowing in limestone pits (Shortridge; 1934: 425);
- 1934: Shortridge found no authentic records in existence for the distribution of *C. simum* S of the Orange River (Shortridge; 1934: 429).

### Assessment

There is no historical evidence from the actual record to support the original incidence of the species in the OFCA, but it is possible that it may have sporadically occurred in the northernmost parts. In any case, it seems not to have been sympatric with *D. bicornis* in the central and southern parts of the OFCA. The species is a grazer with a preference for short green grass, and water is an essential requirement (Stuart and Stuart; 1988: 174). This may have limited incidence in the OFCA to good or exceptional rainfall conditions when sufficient suitable grazing and stagnant pools of surface water would have been generally available.

5.10.

**EVEN-TOED UNGULATES (ARTIODACTYLA)****Suidae:**

1. *Phacocoerus africanus* (Warthog/ Vlakvark/ Dirib (Shortridge); Girib (Shortridge after Bleek))
  - No historical records for S. Namibia have been found (see also: Skead; 1980: 389);
  - 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – “hyenas, wild boars<sup>22</sup>, jackals, polecats, rats and mice are in great abundance” (Alexander; 1838: 192) – during his entire journey however, Alexander does not record meeting with any “wild boar” anywhere;
  - 1934: Shortridge found the species most common in the northern and central parts of Namibia (N of the Tropic of Capricorn, and towards the E near Gobabis (where they are plentiful and widely distributed)) where vleis and water-holes occur; in Namaland restricted to the northernmost part: as far S as Maltahöhe district in the W, and probably follows Acacia thickets along the Auob and Nossob Rivers as far S as Aroab district; no occurrences have been recorded for the (Lower) Orange or Fish Rivers (Shortridge; 1934a: 635-6);
  - Indeterminate (bushpig or warthog) records for the Orange River between Augrabies and Upington – Shortridge (1942) reported that “wild pig” (indet.) are said to have occurred on the islands in the River at some time (Skead; 1980: 389). Skead feels that *P. africanus* is most likely to have occurred here (Skead; 1980: 386);
  - 1936: Shortridge (1942) for Namaqualand – found the species extinct, but found local tradition to refer to their former occurrence (Skead; 1980: 388).

**Assessment**

No historical records for the OFCA could be found. However, Skead found records for the species are also very scarce for the Cape. In view of its diurnal habits, preference for more open country and habit of running with erect tails, Skead feels that the absence of records is very puzzling (Skead; 1980: 381) – leading him to speculate that either the species was never very common, have been hunted out extensively since early settlement, or that observers did not bother to record the animal as “it was something to be shot and eaten, not written about” (Skead; 1980: 381; 386-7). In view of the assembled information, it must be concluded that historical incidence of the species in the OFCA is indeterminate.

---

<sup>22</sup> The other wild suid which occurs in Southern Africa, *Potamochoerus larvatus* (Bushpig), has a distinct preference for dense bush and lush riverine woodland (Stuart and Stuart; 1988: 176), which makes it more likely that Alexander is indeed here referring to *P. africanus*.

## Hippopotamidae:

2. *Hippopotamus amphibius* (Common Hippopotamus/ Seekoei/ !Khaob (Shortridge))
  - 1685: Jacobus Coetsé; Namaqualand, on the Orange near Goodhouse – found the river heavily overgrown with *P. australis* (Fluitjiesriet), and that “a large number of hippopotami have their abode there” (Skead; 1980: 411);
  - 1760 (Aug/ Sept): Coetsé; S. bank of the Orange – presumably between Goodhouse and the Hom confluence – reported both banks of the Orange to contain abundant hippopotami (Coetsé, in Mossop; 1935: 279);
  - 1761 (Sept): Brink and Hop; Orange near Goodhouse/ Ramansdrift – found a large number of hippopotami living there, and “discovered also several small level places along the riverside on which the hippos grazed” (Brink, in Mossop; 1947: 25; 27);
  - 1779 (Aug): Paterson; Orange, ca. 10-20 km from mouth – party observed numerous tracks, some further sightings, and wounded several hippos over the course of ca. 3 weeks at this part of the Orange (Paterson; 1790: 117-119);
  - 1778 (Sept): Wikar; near confluence of Kaboop and Orange Rivers – met a party of hippo, and wounded one. These are the first hippo mentioned by Wikar (Wikar, in Mossop; 1935: 37);
  - 1778 (Sept): Paterson; pres. near Goodhouse, encamped there for ca. 3 weeks – reports encountering hippo the whole time in the Orange; the party often hunted (and mostly wounded) hippo, was once attacked by two hippo while crossing the river, and observed pitfalls dug on hippo paths by the (Namaqua) to trap hippo (Paterson; 1790: 60 – 66);
  - 1778 (Sept): Wikar; on Orange, near Beenbreek, N Bushmanland– observed pitfalls dug for “hippo, hartebeest and other game”, later (E of the Augrabies Falls), he actually observed kills of hippo and hartebeest (Wikar, in Mossop; 1935: 49);
  - 1778 (Oct): Wikar; N Bushmanland, along Orange and just E of Augrabies Falls – reports that a large number of rhino were to be found there (Wikar, in Mossop; 1935: 119);
  - 1778 (Oct): Wikar; near Paarden island on the Orange (near Keimoes) – observed skulls of rhino, elephant and buffalo in local kraals (Wikar, in Mossop; 1935: 123);
  - 1779 (Oct): Paterson; Orange between Goodhouse and Hom confluence – passed through good grass and observed many hippo and elephant paths (Paterson; 1779: 123-4);
  - 1836/7: Alexander; of the Lower Orange: “The Gariep... sweeps in its course round numerous islands, some of them inhabited ... by hippopotami (Alexander; 1838: 108);
  - 1836/7: Alexander; of the Lower Orange: “The hippopotami... remain during the day in the deep parts of the River, commonly known as sea cow holes (zee koe gatten), and issue out to feed on grass and foliage at night” (Alexander; 1838: 110);
  - 1887: Schinz (in “Deutsche Südwest-Afrika”) – “Only a few Hippo survive in the Orange River where they were seen by Iselin as recently as 1886” (quoted in: Shortridge; 1934a: 646-7);
  - 1898: Rehbock (in “Deutsche Südwest-Afrika”) – “Hippo are still to be met with in the Lower Orange River” (quoted in: Shortridge; 1934a: 647);
  - 1907: Cornell; Lower Orange River – reports that “(Of hippo) there are but a few left in the Orange, (and) are usually found on the islands near where the Great Fish River joins the larger stream” (quoted in: Skead; 1980: 415);

- 1907: Sub-insp. Bowden of the Cape Mounted Police near Goodhouse – reports to the South African Museum that about two dozen hippo still existed in the Lower Orange, and particularly in the stretch between Vioolsdrift (Noordoewer) and the Fish River confluence, but with no definite information for the stretch E of Pella (Shortridge in: Skead; 1980: 416);
- 1920: acc. to Shortridge (1942) a large bull was shot on the N bank of the Orange ca. 20 km from the mouth by a certain local, Hendrik Louw (successfully claiming self-defense when hauled before the magistrate in Springbok) (Skead; 1980: 417);
- 1934: Shortridge finds the species originally distributed along the permanent rivers along the north (Cunene, Okovango, Chobe and Zambesi) and south (Orange); severely reduced in numbers in the north, and extinct in the Orange since ca. 1925 (Shortridge; 1934a: 644-5).

### Assessment

The species clearly historically existed in the OFCA. Nevertheless, all records are for the immediate Orange River valley, and it does not seem as if it ever ventured any length up the Fish River, not even during good rainfall years. Sufficient surface water in which to wallow is an essential habitat requirement of this species (Stuart and Stuart; 1988: 178). According to Skead, hippos seem to have historically inhabited the whole length of the Orange River in the Karoo, Bushmanland and Namaqualand areas (South Africa), if only at places with suitable water-holes and fodder. These hippo seem to have been adapted to the Orange's flood-régime (Skead; 1980: 419). In the case of South Africa, occurrence on tributaries and sub-tributaries of the Orange River are unconfirmed but may have likely for whole of Lower Orange (Karoo, Bushmanland, Namaqualand) (Skead; 1980: 421). As is plain from the historical record, hippos were a favorite target of both native and European hunters. Skead found the last hippos on the Lower Orange to have become extinct between 1925 and 1930 (Skead; 1980: 419).

### Giraffidae:

#### 3. *Giraffa camelopardalis giraffa* (Southern Giraffe/ Kameelperd/ !Neib (Shortridge))

- 1760 (Aug/ Sept): Coetsé; of the Land of the Great Namaqua in general (i.e. the course of the Hom River as far north as ca. Dabegabis) – reports the region to be filled with a "multitude of lions and rhinoceri... and (also, the previously unknown<sup>23</sup>)

<sup>23</sup> The Southern Giraffe was only first described in 1842 by Lesson (*Giraffa capensis*) – from a specimen collected on the Löwen River in Namaland (Shortridge; 1934a: 619). Linnaeus (1758) described the genotypical Giraffe, but the specimen was from the Northern Sudan (Shortridge; 1934a: 619) – apparently the subspecies *G. camelopardalis camelopardalis* (= Nubian Giraffe) (cf. Stuart and Stuart; 1997: 96).

Giraffe may possibly have occurred in northern Namaqualand in historical times – as recorded in 1663 by Pieter van Meerhof during Jonas de la Guerre's expedition towards the Orange river, apparently near the mouth of the Spoeg river (cf. Skead; 1980: 434), but regular records only really start surfacing once the Orange river was crossed in 1760, and Giraffe were being mentioned by Coetsé, Brink and Hop, and Paterson. When Coetse Jansz: returned to the Cape, the animal which he had shot was thought to be a type of camel. Later captain Hop was instructed by the colonial government to find out whether giraffe were employed as beasts of burden across the Orange, and if so, to bring back one alive (Mossop; 1947: 81). In the event, a cow was shot by the party (near Warmbad) and her calf was captured. The calf however died within a week of being captured (Brink, in Mossop; 1947: 32-35).

giraffe" – Coetsé took the giraffe for a "kind of camel", and gives a fair description; he shot two cows, and captured a calf which eventually succumbed without its mother (Coetsé, in Mossop; 1935: 287);

- 1761 (Oct): Brink and Hop; on Hom River at Warmbad – saw first giraffes, shot a cow, and captured her calf. Brink also gives a general description of a giraffe at this point (Brink, in Mossop; 1947: 33; 35);
- 1761 (Oct): Brink and Hop; near Hom River, N. of Warmbad and somewhere between Dabegabis and Kanus – member of party shot a bull giraffe; measurements recorded by Brink (Brink, in Mossop; 1947: 37);
- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Hom River) – a region with "fine grassy level plains where exist great numbers of big game such as elephant, rhinoceros, giraffe, "Auerossen" (Blue Wildebeest), buffalo, "wilde paarden and gestrepte ezels", kudu, gemsbok and hartebeest" (Brink, in Mossop; 1947: 54/55, see also: 48/49 for an almost exact description of the game suite during December, when encamped at the Löwen);
- 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as "elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals" (Paterson; 1790: 64);
- 1778 (Sept): (Sebastiaan) van Reenen; plains on N bank of Orange between Ramansdrift and later towards Warmbad (cf. Skead; 1980: 434-5) – reported shooting a giraffe far from water (Paterson; 1790:64);
- 1778 (Sept): Wikar; E of the Orange/ Kaboop confluence, Bushmanland – reported seeing numerous tracks of rhino and giraffe (Wikar, in Mossop; 1935: 47);
- 1778 (Dec): Wikar; E of the Orange/ Kaboop confluence, Bushmanland – reported seeing a group of as many as 20 giraffe in the Orange Valley (Wikar, in Mossop; 1935: 47);
- 1779 (April): indet., but 10 days E of Little Hartebeest/ Orange confluence – shot a giraffe (Wikar, in Mossop; 1935: 185);
- 1779 (Oct): Paterson; Hom valley, S. of Aluriesfontein – told by locals that there are a number of giraffes to be found around here (Paterson; 1790: 124);
- 1779 (Oct): Paterson; plains SE of Warmbad – saw zebras, rhinoceros, giraffe and kudu, etc. (Paterson; 1790: 126);
- 1779 (Oct): Paterson; between Velloor Küppen and Warmbad (ca. 30 km ESE of Warmbad - Skead; 1980: 436) – encountered 6 giraffe and shot a bull (Paterson; 1790: 126);
- 1791 (Dec) – 1792 (March): van Reenen – Keetmanshoop to Rehoboth and back – reported shooting 65 rhino (indet.) and six giraffe on this journey (van Reenen, in Mossop; 1935: 313). One of the giraffe shot was documented 14<sup>th</sup> January on the Lower River (pres. near Gibeon) (van Reenen, in Mossop; 1935: 309);
- 1820: Shaw; land between Orange and Nisbett Bath (Warmbad) missionary station – saw numbers of giraffe "with their heads elevated far above the brushwood and trees" (Skead; 1980: 438);

---

The – not dissimilar - Nubian Giraffe was of course known to i.a. the Romans during antiquity.

- 1837 (Jan): Alexander; in the broken terrain along the SE side of the Great Karas mountains – observed “the great footmarks of a camel-leopard were seen, those of the lion, and of ostriches” (Alexander; 1838: 214);
- 1837 (March): Alexander; on the Haseweb River S of the farm Grootfontein, between Helmeringhausen and Maltahöhe – saw “spoor of cameleopard” near pools of water (Alexander; 1838: 287);
- 1837 (March): Alexander; plains just SE of the Bullspoort (Naukluft mountains) – saw eight giraffe (Alexander; 1838: 296);
- 1837 (April): Alexander; at Abbabis, SE of Solitaire – came across a Bushmen encampment where the fresh remains of a young giraffe were to be seen (Alexander; 1838a: 20);
- 1837 (June): Alexander; on the Kalf River, and a few km N of its confluence with the Fish River – came across 12 giraffe grazing in the valley of the Kalf River (Alexander; 1838a: 200);
- 1837 (June): Alexander; just N of the River Kuteb, and NE of the Schwarzrand – observed “a troop of half a dozen cameleopards” (Alexander; 1838a: 224);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – “plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest, klip-springers, springbok, and others of the deer tribe (= antelope?)” (Alexander; 1838: 191-2);
- 1934: Shortridge finds the giraffe restricted to the N of Namibia (separate distributions in the Caprivi, Kaokoveld and Grootfontein district – separation possibly a function of recent exterminations for the intervening areas); southernmost distribution in Namibia along the Botswana border to ca. 22° S (Shortridge; 1934a: 620-1);
- Namaqualand: this is the most southerly distribution of giraffe known in historical times, and probably even well before that (Skead; 1980: 433); but giraffe also occurred in northern Bushmanland – if mostly in the proximity of the Orange River (Skead; 1980: 439-440).

### Assessment

From the historical record, the widespread historical incidence of the species is firmly supported. Aridity is no hindrance to giraffe (Skead; 1980: 441), but habitat requirements and diet – specialisation as crown-browsers - (cf. Stuart and Stuart; 1988: 180) would have served to confine the species to the banks of the Orange River, those of ephemeral watercourses, or to tree growth around fountains. In the words of Shortridge: “Apart from when trekking, the species is seldomly observed far from scattered acacia-forest” (Shortridge; 1934a: 623). Historical residence on the bare Namaland plains would have been unlikely. The general absence of arborescent vegetation in the OFCA would have served to place a natural limit on numbers and concentration.

According to Skead, giraffe were beginning to disappear in Southern Namibia by ca. 1830's ff. (Skead; 1980: 438).

## Bovidae:

(Subfamily: Bovinae):

### 4. *Syncerus caffer caffer* (Savanna Buffalo/ Buffel/ /Gaub (Shortridge))

- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Horn River) – a region with "fine grassy level plains where exist great numbers of big game such as elephant, rhinoceros, giraffe, "Auerossen" (Blue Wildebeest), buffalo, "wilde paarden and gestrepte ezels", kudu, gemsbok and hartebeest" (Brink, in Mossop; 1947: 54/55; see also: 48/49 for an almost exact description of the game suite during December, when encamped on the Löwen River);
- 1778 (Oct): Wikar; near Paarden island on the Orange (near Keimoes) – observed skulls of rhino, elephant and buffalo in local kraals (Wikar, in Mossop; 1935: 123);
- 1778 (Oct): Wikar; N bank of Orange, near Marchand – encountered a large herd of buffalo (Wikar, in Mossop; 1935: 129);
- 1792 (Jan): van Reenen; Fish River N of Gibeon (and west of Mariental)– party "shot ten buffaloes" (van Reenen, in Mossop; 1935: 309);
- 1835: Cook; N of the Löwen River, near Keetmanshoop – shot a buffalo (Skead; 1980: 605);
- 1837 (March): Alexander; near Bullspoort, SW Rehoboth – encampment visited by a "savage buffalo" at night but; also remarks having picked up a skull somewhere further towards the eastern side of the pass earlier on (Alexander; 1838a: 15). Alexander here gives a fairly good description of the Buffalo (1838a: 16). This is the only recorded instance of actually seeing a buffalo during the entire journey – despite some good veld/ water conditions observed for that year in the regions he travelled through between Rehoboth and Mariental;
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest (sic), klip-springers, springbok, and others of the deer tribe (?)" (Alexander; 1838: 191-2) – Alexander however only mentions encountering buffalo once, and then in the Naukluft mountains;
- 1934: Shortridge found traditional lore amongst the Nama and San in the Gobabis district to indicate that the species earlier occurred here (Shortridge; 1934a: 442);
- 1934: Shortridge found the species in Namibia restricted to the Caprivi, with irregular migrations to the extreme NW of Grootfontein district and NE of Ovamboland<sup>24</sup> (Shortridge; 1934a: 440);
- Namaqualand: When at the Buffel's River in N Namaqualand in 1685, François Valentijn was informed that the River was called such in Khoi because of the fact that two buffalo had been found by the Khoi in it at some stage (Skead; 1980: 603). Skead feels that the arid plains of E Namaqualand may well have provided suitable habitat to migratory buffalo during good rainfall years when grazing was good and there was sufficient water in vleis (Skead; 1980: 605).

<sup>24</sup> Shortridge's distribution map indicates incidences further south for Botswana south of the Caprivi, but the Caprivi as the southernmost distribution for Namibia (see: Shortridge; 1934a: map inserted between pp. 578 and 579: "Distribution of the Buffalo (*Syncerus caffer*) in S.W. Africa"). For Botswana, Shortridge found the species restricted to N of ca. 21° S (Shortridge; 1934a: 443).

- **Bushmanland:** "Although there are no records of buffalo in the interior of Bushmanland it is reasonable to suppose that they kept to the full length of the Orange River where conditions of food and water would have suited them well" (Skead; 1980: 606).

### Assessment

The historical record does indicate the occurrence of the species in the OFCA. It should however be noted that all records are associated with the proximity of rivers or watercourses, and given the requirements of abundant water, grass and cover of the species (cf. Stuart and Stuart; 1988: 182), it may be assumed that such records indicate opportunistic incursions into lands removed from the perennial Orange river, rather than typical residence. Much of the arid plains of Namaland would under typical rainfall conditions have been far too dry to support resident populations.

(Subfamily: Tragelaphinae):

#### 5. *Tragelaphus oryx* (Common Eland/ Eland/ !Khan (Shortridge))

- No specific records for S. Namibia (see also Skead; 1980: 582);
- 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift, N Namaqualand – records the wild mammal suite as "elephants, rhinoceros, giraffe, zebras, elks<sup>25</sup> (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals" (Paterson; 1790: 64);
- 1779 (Aug): Paterson; Namaqualand, near the Orange mouth – "saw several zebras, quaggas and elk (pres. eland)" (Paterson; 1790: 112);
- 1836 (Oct); Alexander; NW Namaqualand, on his way to the Orange mouth – describes game commonly taken by the Namaqua as "eland, springbok and ostrich" (Alexander; 1838: 98);
- 1836 (Oct): Alexander; S bank of Orange near the mouth – "there is also the large elandbok to be found there" (Alexander; 1838: 115);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest (sic), klip-springers, springbok, and others of the deer tribe (?)" (Alexander; 1838: 191-2) – Alexander does however never make mention of encountering eland during his travels through Namaland.
- 1934: Shortridge found the species mainly distributed towards the N and NE of Namibia; distribution limited S of the Tropic of Capricorn – mainly along and E of the Great Nossob towards the Botswana border at ca. 24° S<sup>26</sup>; eastern parts of the

---

<sup>25</sup> Paterson's use of terminology is inconsistent, for while it seems clear that eland are intended here and elsewhere when he uses the term "elk" (see description of "elk" in Paterson; 1790: 73), he also mentions seeing "Elks and Eyelands" in the Hantam (Paterson; 1790: 54). Paterson apparently did not realise that he was seeing members of only one species, because no other animal in Southern Africa resembles the Eland sufficiently to warrant confusion.

The true Elk (*Alces alces*) is indigenous to Europe and Asia. Although it has (palmate) antlers, its similar large size pays resemblance to *T. oryx*, thus explaining Paterson's use of terminology here.

<sup>26</sup> From his distribution map, distribution appears to reach its westernmost point in the north of Namibia, on the Cunene River at ca. 14° E. Further south, distribution becomes increasingly further confined to the east of the country, in the extreme southernmost part of the range

Grootfontein district to as far S as Gobabis ("local but occasionally plentiful") seem to form the main area of concentration for the species (Shortridge; 1934a: 608-9).

### Assessment

The record is somewhat inconclusive with regards to the historical occurrence of this species in the OFCA. A general reference by Alexander is the only pointer to such historical occurrence. Nevertheless, for the Cape, Skead could also find few records, concluding: "... (despite) the antelope's wide distribution in most types of habitat and at all altitudes, ... its very commonness may be the reason why so few records of it has appeared in print" (Skead; 1980: 589). The widespread historical incidence of the species in the OFCA Nama Karoo is likely, as it contains the species' preferred arid habitat (open scrub-covered plains) and the species is largely water-independent (Stuart and Stuart; 1988: 184). This is borne out by Skead's opinion that the relevant plains "must have been good eland country" (Skead; 1980: 582).

#### 6. *Tragelaphus strepsiceros* (Greater Kudu/ Koedoe/ Xai:b (Shortridge))

- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Hom River) – a region with "fine grassy level plains where exist great numbers of big game such as elephant, rhinoceros, giraffe, "Auerossen" (Blue Wildebeest), buffalo, "wilde paarden and gestreepte ezels", kudu, gemsbok and hartebeest" (Brink, in Mossop; 1947: 54/55; see also: 48/49 for an almost exact description of the game suite during December, when encamped on the Löwen River);
- 1778 (Sept): Paterson; plains immediately S of ca Ramansdrift – records the wild mammal suite as "elephants, rhinoceros, giraffe, zebras, elks (sic), kudu, (i.a.), lions, tigers (sic), hyenas and jackals" (Paterson; 1790: 64);
- 1778 (Oct): Wikar; N Bushmanland, near "Amkams", W of the Augrabies Falls – saw a large herd of kudu in a dry rivercourse (Wikar, in Mossop; 1935: 107);
- 1779 (Oct): Paterson; plains SE of Warmbad – saw "zebras, rhinoceros, giraffe and kudu, etc". (Paterson; 1790: 126);
- 1837 (March): Alexander; on plains just SE of the Bullspoort, and near the River Tsondab – came across "a troop of that most magnificent antelope, the koodoo" (Alexander; 1838: 299);
- 1837 (June): Alexander; somewhere NW of Kalkrand, and S of Lekkerwater – came across several kudu in unlevel terrain near an ephemeral watercourse, and a bull is shot by his party; he here describes the kudu, noting that "(it) is always near cover, and is seldom seen in the open plains" (Alexander; 1838a: 189-90);
- 1837 (June): Alexander; near the headwaters of the Kalf River, W of Kalkrand – came across "a troop of kudu", and a bull is shot by his party (Alexander; 1838a: 194);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest (sic), klip-springers, springbok, and others of the deer tribe (?)" (Alexander; 1838: 191-2);

---

becoming confined to the area between E of 18°E and the Botswana border S of the Tropic of Capricorn (see: Shortridge; 1934a: map inserted between pp. 612 and 613; "Distribution of the Eland (*Taurotragus oryx*) in S.W. Africa").

- 1843: Tindall; somewhere in Bondelswarts area, near Warmbad station – collection on the 12<sup>th</sup> of June included "... 2 tiger (sic) skins, 2 koodoo skins, 2 jackal skins" (Tindall; 1959: 52);
- By ca. 1921 Shortridge found kudu numbers seriously declined in S. Namibia – "The last kudu observed near Goodhouse was at Haakiesdoorn farm in about 1921" (Shortridge, 1942: 71; quoted in: Skead; 1980: 582);
- 1934: Shortridge finds the species widely distributed over Namibia (except the coastal Namib), but scarce on the plains of Namaland and near the Orange River; widely distributed and plentiful in the Gobabis district; Aroab: scarce, with occasional incursions along the Auob River; Maltahöhe and Gibeon district: fair numbers – not very plentiful, occurring chiefly in the western hills; Keetmanshoop district: localised, but plentiful in certain areas (and for the district more or less as plentiful as gemsbok); Bethany district: not very numerous, but the most numerous of large antelope; Lüderitz district: scarce, and mainly occurring between Aus and the Orange River; Warmbad (= Karasburg district): not plentiful, and scarcer than gemsbok, occurring sparsely along the Orange River<sup>27</sup> (Shortridge; 1934a: 597-8);
- 1936: Shortridge (1942), of Namaqualand – "Kudu are practically extinct in (Namaqualand); there may be a few in the Richtersveld, and occasionally stragglers from (Namibia) have been recorded within recent years from mountains close to the Orange River between the Fish River and Pella" (quoted in: Skead; 1980: 581).
- Bushmanland: Kudu occurred in Bushmanland all along the Orange River in the Kenhard district towards the Augrabies Falls, and also further to the east (Skead; 1980: 583); records also exist for the Great Karoo and Northern Cape Kalahari Bushveld (Skead; 1980: 584).

### Assessment

The historical incidence of the species in the OFCA and the Nama Karoo biome seems conclusive. Nevertheless, it should be noted that most records place the species in the vicinity of ephemeral watercourses. From Alexander's general observation of the Namaland game suite, it seems as if the species had a widespread distribution. Nevertheless, habitat requirements – where sufficient cover is essential (cf. Stuart and Stuart; 1988: 186) – would have limited natural occurrence in the OFCA to wooded ephemeral watercourses and adjacent areas, or to the incidence of broken, hilly country such as the Schwarzrand or the Karas ranges. The fact that Kudu can easily clear fences of up to 2 m (cf. Stuart and Stuart; 1988: 186) has meant that the fencing-in of the OFCA landscape during the 20<sup>th</sup> century did not put a stop to movements. Iterant Kudu still occurs in the wild in the OFCA, and is often hunted by commercial farmers as cheap meat for their labourers (De Lange – pers. comm.)

---

<sup>27</sup> From his distribution map, it appears that kudu - although scarce throughout the central and level parts of Namaland – are also distributed along the course of the entire Fish River (see: (Shortridge; 1934a: map inserted between pp. 600 and 601: "Distribution of the Kudu (*Strepsiceros strepsiceros*) in S.W. Africa")

(Subfamily: Hippotraginae):

7. *Oryx gazella gazella* (Gemsbok/ Gemsbok/ /Gaeb (Shortridge))

- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Hom River) – a region with "fine grassy level plains where exist great numbers of big game such as elephant, rhinoceros, giraffe, "Auerossen" (Blue Wildebeest), buffalo, "wilde paarden and gestrepte ezels", kudu, gemsbok and hartebeest" (Brink, in Mossop; 1947: 54/55, see also: 48/49 for an almost exact description of the game suite during December, when encamped at the Löwen);
- 1778 (Sept): Wikar; between the Orange/ Kaboop confluence and Onseep on the south bank of the Orange ("Kalagas") – reports that local "Nanningai" (Khoi) hunt the calves of hartebeest and gemsbok with dogs (Wikar, in Mossop; 1935: 47);
- 1778 (Oct): Wikar; N Bushmanland, near Daberas, and a few km S of the Orange River – reports that the dogs of the local Khoi caught a gemsbok calf (Wikar, in Mossop; 1935: 75);
- 1836 (Nov): Alexander; Namaqualand, between Kommagas and the Kardouw pass – relates of a gemsbok bull which had recently been shot, and to have contained "i3 musket balls and numerous scars of other shots". He also provides a fair description of the gemsbok here (Alexander; 1838: 123-4);
- 1837 (March): Alexander; just beyond on the upper reaches of the Konkiep River north of Helmeringhausen – came across a "troop of gemsbok" among hills (Alexander; 1838: 278);
- 1837 (April): Alexander; in the Namibvlakte, somewhere near the Saagberg – tracked down and shot a gemsbok in extremely dry and sandy terrain – Alexander later drinks its stomach water out of desperate thirst (Alexander; 1838a: 36; 41);
- 1837 (April): Alexander: Namibvlakte, ca 11 km (7 miles) W of the Kuiseb River – met a party of Nama which had just killed another gemsbok (Alexander; 1838a: 43);
- 1837 (May): Alexander; somewhere SW of the Gams mountain – party shot a gemsbok (Alexander; 1838a: 122);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest, klip-springers, springbok, and others of the deer tribe" (Alexander; 1838: 191-2) – it should be noted however that all Alexander's actual records fall outside of the demarcated OFCA;
- 1934: Shortridge found gemsbok and kudu the most widely distributed large antelope in Namibia, gemsbok occurring sparsely in some districts, but in all apart from the Caprivi; Namaland: scarce in central Namaland; Maltahöhe, Bethany, Keetmanshoop and Warmbad (= Karasburg) districts – widely but sparsely distributed, and said to increase in numbers during droughts when migratory herds move through these districts; plentiful throughout the southern Namib (Lüderitz district); fairly numerous in the Kalahari-veld around Gobabis, E Mariental district, along the Botswana border to N and NE of Aroab district; also occurs in the Schwarzrand (Shortridge; 1934a: 561-2);
- 1934: Shortridge finds gemsbok largely shot-out in Namaqualand, and possibly extinct in the wild – whereas Sclater (1900) estimated ca. 5000 to still have occurred in Kenhard district and Namaqualand in 1900 (Shortridge; 1934a: 562);
- 1936: Shortridge (1942): "A few gemsbok still survive in the Richtersveld near the mouth of the Orange River... They are extinct elsewhere in Little Namaqualand

except for occasional individuals or small parties that cross the Orange River at low water from South West Africa between its junction with the Fish River and Pella" (quoted in: Skead; 1980: 513).

### Assessment

The historical record is surprisingly scant on the incidence of this species in the OFCA, but both from Brink's and Alexander's general descriptions of the indigenous game suite, historical incidence seems fairly established. This is corroborated by historical records from the Nama Karoo in Namaqualand and Bushmanland. The OFCA is ideally suited to the habitat requirements and general preference of this species (cf. Stuart and Stuart; 1988: 196), and it must have occurred fairly widely on the open plains of Namaland. Gemsbok are deterred by jackal-proof fencing, and such stocks that have survived in the OFCA are either derived from scattered original populations, or have been subsequently reintroduced (Cf. Liversidge and Berry; 1996f: 599).

(Subfamily: Peleinae):

8. *Pelea capreolus* (Grey Rhebok/ Vaalribbok<sup>28</sup>)

- No records for S. Namibia;
- 1894-1900: Sclater and Thomas recorded the species for Great Namaqualand and Bushmanland (Kenhard district) (Shortridge; 1934a: 519);
- 1934: Shortridge found adequate confirmation lacking for the distribution of the species in Namibia (Shortridge; 1934a: 519);
- 1936: Shortridge; Richtersveld and mountain ranges near the mouth of the Orange – reported that Grey Rhebok is extremely scarce in Namaqualand, but that a few individuals were said to occur near the Orange, westward of the confluence with the Fish (Skead; 1980: 480).

### Assessment

Historical incidence not confirmed by the historical record. Stuart and Stuart (1988: 202) indicates the Huns Mountains as currently the northernmost western distribution of the species in Southern Africa. It may have historically occurred in the OFCA, but the absence of an historical Nama name for the species seem to indicate very limited incidence and distribution in the OFCA.

(Subfamily: Alcelaphinae):

9. *Alcelaphus buselaphus caama* (Red Hartebeest/ Rooihartebees/ //Kamab; /Khamab (Shortridge))

- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Hom River) – a region with "fine grassy level plains where exist great numbers of big game such as elephant, rhinoceros, giraffe, "Auerossen" (Blue Wildebeest), buffalo, "wilde paarden and gestrepte ezels", kudu, gemsbok and hartebeest" (Brink, in Mossop; 1947: 54/55, see also: 48/49 for an almost exact description of the game suite during December 1761, when encamped at the Löwen);

---

<sup>28</sup> For Namibia and Gordinia, Shortridge collected only the name in Tswana - "peeli" (whence the generic *Pelea*) (Shortridge; 1934a: 519).

- 1778 (Sept): Wikar; near the confluence of the Little Hartebeest and Orange Rivers – reports shooting a hartebeest which had been wounded with a poisoned arrow (Wikar; in Mossop; 1935: 33);
- 1778 (Sept): Wikar; between the Orange/ Kaboop confluence and Onseep on the south bank of the Orange ("Kalagas") – reports that local "Nanningai" (Khoi) hunt the calves of hartebeest and gemsbok with dogs, and also commonly catch aardwolf in this way (Wikar, in Mossop; 1935: 47);
- 1778 (Sept): Wikar; on Orange, near Beenbreek, N Bushmanland– observed pitfalls dug for "hippo, hartebeest and other game", later (E of the Augrabies Falls), he actually observed kills of hippo and hartebeest (Wikar, in Mossop; 1935: 49; 119);
- 1779: Paterson; NW Namaqualand (ca. Richtersveld), near Orange – one of party shot a "Hart" (pres. a hartebeest – an animal familiar to Paterson, as may be seen from earlier references (cf. Paterson; 1790: 100) (Paterson; 1790:119);
- 1837 (June): Alexander; between the Packriem and Tsub Rivers, ca. 60-70 km W of Mariental – encountered hartebeest - the first encountered since his visit to the Eastern Cape in 1835<sup>29</sup>; (Alexander; 1838a: 216)
- 1837 (June): Alexander; just N of the River Kuteb, and NE of the Schwarzrand – observed "numerous traces of hartebeest" (Alexander; 1838a: 224);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – "plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest (sic), klip-springers, springbok, and others of the deer tribe (?)" (Alexander; 1838: 191-2);
- ca. 1892: Nicholls and Eglington wrote: "in Great Namaqualand (= Namaland), it is still, in places, extremely numerous, ... in large herds (quoted in: Skead; 1980: 562);
- 1934: Shortridge finds the species mostly distributed E of a line connecting ca. Ariamsvlei with the Ruacana Falls (but absent in parts of the Grootfontein district and in the Caprivi) – thus with a very limited distribution in Namaland: plentiful in the Aroab district (southernmost distribution in Namibia<sup>30</sup>), from where small troops periodically enter the eastern parts of the Keetmanshoop district; plentiful in the Kalahari portion of Gibeon; plentiful and widely distributed around Gobabis; a few detached groups surviving on farms in the Maltahöhe district (Shortridge; 1934a: 450-1);
- 1934: Shortridge found hartebeest in Namaqualand and Bushmanland "rapidly disappearing towards the Orange River, and possibly already extinct" (Shortridge; 1934a: 451).

### Assessment

Historical incidence in the OFCA has been supported by the record. General observations by Brink, Alexander and Eglington seem to indicate fairly numerous incidence in the historical OFCA and other parts of the Nama Karoo biome. The relative paucity of

---

<sup>29</sup> Alexander gives no date here, but Skead identifies it as 1835 (cf. Skead; 1980: 561).

<sup>30</sup> Shortridge's distribution map indicates ca. 27° S (= due east of the Great Karas range) as the southernmost distribution. The map makes clear that distribution is concentrated in the extreme east along the Botswana border for the region S of the Auob River (see: Shortridge; 1934a: map inserted between pp. 452 and 453: "Distribution of the Cape Hartebeest (*Alcelaphus caama*) in S.W. Africa").

specific records seem puzzling in this regard, but should be seen in perspective of Skead's similar poor findings for the Cape. Skead concludes: "Its very commonness may be the reason why so few records of it has appeared in print. (Its') ... range was almost as wide and it was as readily seen an animal as the large eland" (Skead; 1980: 589). Its preference for open country and its general water independence (cf. Stuart and Stuart; 1988: 206) would have made the plains of Namaland suitable habitat to this animal. Hartebeest are deterred by jackal-proof fencing, and such stocks that have survived in the OFCA are either derived from scattered original populations, or have been subsequently reintroduced (Cf. Liversidge and Berry; 1996f: 599).

10. *Connochaetes taurinus taurinus* (Blue Wildebeest – Blackbearded Race/ Blouwildebees/ /Go:ab<sup>31</sup> (Shortridge);

- 1761/2: Brink's general description of the eastern and northern portions of the regions visited (and thus probably closer to the Löwen than the Hom River) – a region with "fine grassy level plains where exist great numbers of big game such as elephant, rhinoceros, giraffe, "Auerossen" (Blue Wildebeest), buffalo, "wilde paarden and gestrepte ezels", kudu, gemsbok and hartebeest" (Brink, in Mossop; 1947: 54/55; see also: 48/49 for an almost exact description of the game suite during December, when encamped at the Löwen) – from Brink's earlier description (Brink, in Mossop; 1947: 49/50), it is clear that he meant Blue Wildebeest by "aueros";
- 1837: Alexander; SE of the Gams mountain, and presumably near the River Gaub – comes across the remains of a Blue Wildebeest at a Bushman encampment – his first sight of the animal. He remarks that "The Kaop (or Blue Wildebeest) is not found in this district in herds, they are found singly or at most two or three together", and he also gives a fairly good description of the animal (he was later to meet), noting the brindled aspect, and the dark tail (Alexander; 1838a: 144-5);
- 1837 (May): Alexander; SE of the Gams mountain, and near the River Kubitsaus – saw three or four solitary gnu on (apparently) separate occasions during a daystretch (Alexander; 1838a: 149);
- 1934: Shortridge found the species to be the most plentiful of the large open-country antelope in Namibia; distribution closely resembles that of Red Hartebeest (at least S. of say Windhoek); southernmost records for Namibia are for near the Botswana border due E from Keetmanshoop, and as far N as Martiental, mostly restricted to the region E of the Auob River<sup>32</sup>, and as far N as Windhoek, to the E of 18° E (= ca. Mariental); restricted to, but fairly numerous in the extreme NE portions of the Aroab district; large migrational herds recorded for the Gobabis district; plentiful E of the Nossob River, with occasional wanderings as far W as the Auob River in the Gibeon (= Mariental) district (Shortridge; 1934a: 468-9).

---

<sup>31</sup> Alexander recorded the name "Kaop" (when near the Gams mountain), and stated that the name may be translated as "master", and is given to the animal on account of its bold and dangerous habit when wounded (cf. Alexander; 1838a: 144-5).

<sup>32</sup> See: Shortridge; 1934a: map inserted between pp. 474 and 475: "Distribution of the Blue Wildebeest (*Gorgon taurinus*) in S.W. Africa", for the complete distribution of this species in Namibia and adjacent parts of Botswana by 1934.

### Assessment

The historical incidence of the species in the OFCA has been established. The absence of records for much of the southern parts of the region tallies well with Skead's observation that "The blue wildebeest is an animal from north of the Orange River with one aberrant excursion known south of the River, and then only by one individual" (Skead; 1980: 571) – thus implying that it was historically absent from the more southern parts of the Nama Karoo. On the basis of Alexander's records – spec. the relative absence of references, and then of only a few individuals at a time – Skead concluded that "it does not seem to have been common in those early days in southern South West Africa (= Namibia)" (Skead; 1980: 573). Habitat requirements – the availability of shade – and water-dependence (cf. Stuart and Stuart; 1988: 204) would militate against historical residence of the species in Namaland, and its preference for short green grass (cf. Stuart and Stuart; 1988: 204), makes it likely that this species only occurred opportunistically in the OFCA in the aftermath of good rainfall.

(Subfamily: Antilopinae):

#### 11. *Antidorcas marsupialis* (Springbok/ Springbok/ //Gub (Shortridge)

- 1779 (June - December): Paterson encountered no springbok near or across the Orange River. The only mention he makes of springbok on his fourth journey, are of "large flocks of at least twenty to thirty thousand in each flock", on the plains of Bushmanland E of the Bokkeveldberge in November (Paterson; 1790: 130);
- 1823 (Aug): Thompson; plains near Pella, Namaqualand – "(The land was) entirely destitute of water and only a few straggling gemsbok and springbok were browsing on the withered herbage.. it is from these parts that the destructive flocks of trekbokken, or migratory springbok, pressed by long droughts, occasionally inundate the northern parts of the colony" (quoted in: Skead; 1980: 496);
- 1836 (Oct); Alexander; NW Namaqualand, on his way to the Orange mouth – describes game commonly taken by the Namaqua as "eland, springbok and ostrich" (Alexander; 1838: 98);
- 1836 (Nov): Alexander; plains around Warmbad – "always found plenty of springbok on the plains" just north of the station (Alexander; 1838: 163; 178), and he here gives a fairly good description of the springbok (163-4);
- 1837 (Jan): Alexander; plains between Kanus on the Hom River (ca. 20 km NW of Karasburg) and the Great Karas mountains - "Leaving the mountains we reached open country and had some excellent sport with innumerable springboks which danced and bounded on each side of us" (Alexander; 1838: 215);
- 1837 (March): Alexander; somewhere N of Helmeringhausen, and west of the Schwarzrand – came across a herd of springbok, and a ram is shot (Alexander; 1838: 272);
- 1837 (March): Alexander; just beyond on the upper reaches of the Konkiep River north of Helmeringhausen –came across springbok (Alexander; 1838: 278);
- 1837 (March): Alexander; on the Haseweb River S of the farm Grootfontein, between Helmeringhausen and Maltahöhe – saw "springboks on the plain" (Alexander; 1838: 287);
- 1837 (March): Alexander; on plains just SE of the Bullspoort, and near the River Tsondab – came across "a dancing flock of springboks" (Alexander; 1838: 299);

- 1837 (April): Alexander, south-eastern fringes of the Namibvlakte, NE of Solitaire – came across “a large flock of springboks” in extremely dry terrain (Alexander; 1838a: 31);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his travel to Walfish Bay and back in 1836/7) – “plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest, klip-springers, springbok, and others of the deer tribe” (Alexander; 1838: 191-2);
- 1840: Backhouse; plains of the Hom River, S of, and near Warmbad – found springbok numerous (Skead; 1980: 499);
- 1934: Shortridge found the species widely distributed throughout Namibia, with the exception of the NE and Caprivi; fairly numerous in the Kalahari sandveld S of 21° S; occurring in parts of the Namib between the Orange and Cunene Rivers; large herds still to be found in Namaland: very numerous in Maltahöhe and Gibeon (= Mariental) districts; numerous resident herds in the Keetmanshoop and Bethany districts, with largest congregations after rains; still plentiful in Lüderitz district; comparatively plentiful in Warmbad (= Karasburg) and Aroab districts, but apparently less so than in Central Namaland; in SW Namaland, accounts of springbok crossing the Orange between Namaland and Namaqualand; Gobabis district: fairly numerous, but patchy in distribution, and growing scarcer (Shortridge; 1934a: 541);
- 1934: Shortridge found the species occurring in depleted herds in Namaqualand, and rapidly growing less numerous (Shortridge; 1934a: 541).

### Assessment

The historical record clearly indicates the original incidence of springbok throughout the OFCA. The species' preference for open arid plains and its water-independence (cf. Stuart and Stuart; 1988: 212) would have made much of Namaland very suitable terrain for this species. Medium size, herding habit and relatively rapid breeding patterns would have made this a comparatively plentiful species in the OFCA, and likely one of the staple antelope for resident larger carnivores. Springbok are deterred by jackal-proof fencing, and such stocks that have survived in the OFCA are either derived from scattered original populations, or have been subsequently reintroduced (Cf. Liversidge and Berry; 1996f: 599).

(Subfamily: Neotragini):

According to Skead, small antelope appears seldom in early written records – probably because they were too small or too common to elicit comment (Skead; 1980: 448).

### 12. *Raphicerus campestris* (Steenbok/ Steenbok/ !Aris (Shortridge))

- 1779: Wikar; of the plains of the Orange River (indet.) – reports of steenbok which are caught during the hottest months by hand (Wikar, in Mossop; 1935: 175);
- 1836 (Nov): Alexander; Namaqualand, ca. 130 km S of Orange (“Buffels River”) – shot a few steenbok (Alexander; 1838: 122).
- 1837 (March): Alexander; near Helmeringhausen – saw steenboks (Alexander; 1838: 269);
- 1837 (March): Alexander, near the Tsondab River at the entrance to the Bullspoort on the Naukluft mountains – party “started steenboks” (Alexander; 1838a: 8);
- 1934: Shortridge found the species the most widely distributed of all antelope in Namibia, occurring in the level (open as well as bush-clad) parts of all districts from

the Orange to the Cunene Rivers; "the only antelope that is not appreciably decreasing in numbers in Great Namaqualand – despite the fact that large numbers of their young are destroyed by Hottentot (= Nama) dogs"; not very plentiful on the Orange River around Upington (Shortridge; 1934a: 500);

- 1936: Shortridge; Namaqualand as a whole – "Not everywhere plentiful but widely distributed over open country and plains and coastal sand-dunes, (but does) not occur on the plateau of the Kamiesberg" (quoted in: Skead; 1980: 458).

### Assessment

No historical record for the species had been found for Namaland. Nevertheless, this may relate to factors of size and commonness in observation, rather than to actual (infrequent) historical incidence. Historical records for Bushmanland (Wikar), Shortridge's findings, and the existence of an historical Nama name for the species appear to make historical incidence conclusive. The species prefers some cover, but is adapted to arid conditions (Stuart and Stuart; 1988: 216). In arid environments, the species tend to inhabit dry River-bed associations (Stuart and Stuart; 1988: 216). The species still occurs widespread within the OFCA.

### 13. *Oreotragus oreotragus* (Klipspringer/ Klipspringer/ //Khaisis (Shortridge))

- 1836/7: Alexander; plains along Fish River Valley, NW of Seeheim – "The hills about the Fish River abound in klipspringer bucks" – he also gives a description of the animal here (Alexander; 1838: 239); a party later sent to the Fish River from further NE reported seeing "plenty of klipspringers" in the "rocky glens of the Fish River" (Alexander; 1838: 242);
- 1838: Alexander – writing of the game suite of Namaland in general (and based on his voyage to Walfish Bay and back in 1836/7) – "plenty of giraffes or cameleopards, buffaloes, koodoos, gemsboks, elands, hartibeest (sic), klip-springers, springbok, and others of the deer tribe (?)" (Alexander; 1838: 191-2);
- 1907: Cornell; Richtersveld – reported klipspringer plentiful in higher elevations (Skead; 1980: 472);
- 1934: Shortridge found the species widely distributed throughout the mountainous (mostly western) parts of Namibia, occurring among mountains and on hill-ranges from Namaqualand to southern Angola; along the Orange River, on rocky plateaux and stony level country westwards of Kakamas to the mouth; in Namaland, inhabiting coastal ranges and the few inland mountainous areas such as Mt. Brukkaros and the Karas ranges, scarce in the Bethany district, chiefly around Aus for the Lüderitz district; recorded for the westernmost parts of Gibeon, Maltahöhe and Rehoboth districts; absent throughout the eastern parts of Namibia, with the exception of the regions immediately N of the Orange River and E of the Great Karas range (Shortridge; 1934a: 474);
- 1936: Shortridge (1942) of Namaqualand – found the species fairly plentiful on the Kamiesberg; collected a specimen near Goodhouse (Skead; 1980: 472).

### Assessment

The historical record explicitly refers to the species only in relation to the broken terrain around the Fish River, but Alexander's description of the general Namaland game suite, and Shortridge's findings seem to support the conclusion that the species may have historically occurred over much of more broken terrain within Namaland. This is

supported by Skead's conclusion: "The klipspringer undoubtedly thrived in (these) drier zones (of Southern Namibia)" (Skead; 1980: 472).

14. *Madoqua kirki* (Kirk's or Damara Dik-dik/ Damara Dik-dik/ no Nama name recorded)

- No records for S. Namibia.
- 1934: Shortridge found the species limited to more or less N of 23° S and W of 18° E – and mainly restricted to Damaraland and the Kaokoveld (Shortridge; 1934a: 482; map inserted between pp. 570 and 571: "Distribution of the Damara Dik Dik (*Rhynchotragus damarensis*) in S.W. Africa"); dubious and unverified records for the Gobabis district and the Karas ranges (but unlikely habitat due to insufficient bush-cover) (Shortridge; 1934a: 483).

**Assessment**

The historical record, the absence of a traditional Nama name for the species, and Shortridge's findings seem to indicate that this species did not form part of the historical Namaland game suite.

15. *Sylvicarpa grimmia* (Common Duiker/ Gewone Duiker/ Nõas, or possibly Dõas (Shortridge))

- No records for S. Namibia, "although the animal may well have occurred in some regions. They were certainly further north in the Kuiseb River..." (Skead; 1980: 451);
- 1934: Shortridge found the species widely distributed throughout Namibia, but more common N (and spec. NE) of the Tropic of Capricorn; in Namaland localised and mostly restricted to bush along watercourses; relatively scarce in Maltahöhe, Bethany, Keetmanshoop, Lüderitz and Warmbad (= Karasburg) districts; reported by local Nama at Berseba to sparsely inhabit the Fish River valley; in eastern S. Namibia, from Aroab northwards, comparatively plentiful in the acacia-belts along the Auob and Nossob Rivers; plentiful from Gobabis northward, "almost as plentiful as steenbok" (Shortridge; 1934a: 505);
- 1936: Shortridge (1942) for Namaqualand as a whole – found Grey Duiker status fairly sound, but not common in the Kamiesberg; "occurring in most parts of (Namaqualand) but restricted to suitable localities such as hill-slopes and level country near hills where there is sufficient density of bush and scrub". (quoted in: Skead; 1980: 451).

**Assessment**

No historical record for the species has been found for Namaland. Nevertheless, this may relate to factors of size and commonness in observation rather than to actual historical incidence. Shortridge's findings and the fact that a traditional Nama name exists for the species supports the conclusion that it historically occurred in Namaland. The species is arid-adapted, but scrub and bush-covered country provide essential cover (Stuart and Stuart; 1988: 222). Historical incidence therefore probably mostly associated with ephemeral watercourses, and occurrence on flat open plains would have been unlikely. The species still occurs in the OFCA.

## BIBLIOGRAPHY OF SOURCES

Alexander J E (1838) *An Expedition of Discovery into the Interior of Africa, through the hitherto undescribed Countries of the Great Namaquas, Boschmans and Hill Damaras, Vol. 1*, Henry Colburn, London.

Alexander J E (1838a) *An Expedition of Discovery into the Interior of Africa, through the hitherto undescribed Countries of the Great Namaquas, Boschmans and Hill Damaras, Vol. 2*, Henry Colburn, London.

Gordon R J (1988) *Cape Travels 1777 – 1795, Vol. 2*, edited by Peter E Raper and Maurice Boucher, Brenthurst Press, Houghton.

Liversidge R and Berry M P S (1996f) Mixed ranching with Game and Domestic Livestock, in Bothma J du P (ed) *Game Ranch Management*, J L van Schaik, Pretoria, pp. 598-599.

Mossop E E (1935) *The Journal of Hendrik Jacob Wikar (1779) with an English translation by A. W. van der Horst and the Journals of Jacobus Coetsé Jansz: (1760) and Willem van Reenen (1791) with an English Translation by Dr. E.E. Mossop*, V.R.S. publication no. 15, Van Riebeeck Society, Cape Town.

Mossop E E (1947) *The Journals of Brink and Rhenius, being the Journal of Carel Frederik Brink of the Journey into Great Namaqualand (1761-2) made by Captain Hendrik Hop, and the Journal of Ensign Johannes Tobias Rhenius (1724), transcribed, translated and edited by Dr. E. E. Mossop*, V.R.S. publication no. 28, Van Riebeeck Society, Cape Town.

National Geographic Society (1999) *Millennium in Maps: Biodiversity*, supplement to National Geographic, February 1999.

Paterson W (1790) *Narrative of Four Journeys into the Country of the Hottentots, and Caffraria, in the Years 1777, 1778, 1779*. J. Johnson, London.

Shortridge G C (1934) *The Mammals of South West Africa, Vol. 1*, William Heineman Ltd., London.

Shortridge G C (1934a) *The Mammals of South West Africa, Vol. 2*, William Heineman Ltd., London.

Skead CJ (1980) *Historical Mammal Incidence in the Cape Province, Vol. 1: The Western and Northern Cape*, Department of Nature and Environmental Conservation of the Provincial Administration of the Cape of Good Hope, Cape Town.

Stuart C and Stuart T (1988) *Field Guide to the Mammals of Southern Africa*, Struik, Cape Town.

Stuart C and Stuart T (1997) *Field Guide to the larger Mammals of Africa*, Struik, Cape Town.

Tindall J (1959) *The Journal of Joseph Tindall, Missionary in South West Africa, 1839-1855, edited with Introduction, Footnotes and Sketch-map by B.A. Tindall*, V.R.S. publication no. 40, Van Riebeeck Society, Cape Town.

Vedder H (1937) *Die Voorgeskiedenis van Suidwes-Afrika – Gebeurtenisse in Suidwes tot aan die dood van Maherero in 1890* (vertaling H Rooseboom). John Meinert Ltd., Windhoek.

### **Personal comments**

De Lange, Mr Danie: Chief agricultural extension officer – Hardap region – 21/02/2000; 04/04/2000.

University of Cape Town

## **APPENDIX 4. BACKGROUND TO THE TRIPS AND RECONSTRUCTION OF THE ROUTES TAKEN BY HISTORICAL OBSERVERS**

### **1. INTRODUCTION**

The main purpose of this appendix is to support the records which were extracted from historical sources and presented in Appendix 3 of this study.

In the case of the first six entries, short background information – biographical detail and a broad description of relevant travels – to each is first presented, following by approximate descriptions of the relevant journeys taken. Especially the descriptions of the journeys are important in order to provide a spatio-temporal framework in which to locate mammal records from the various accounts given by these sources. For the purpose of reconstruction, reference has been made to a 1: 1000 000 map of Namibia<sup>1</sup>, as well as to published commentaries on some relevant sources.

### **2. (SIR) JAMES EDWARD ALEXANDER**

#### **2.1. Background to Alexander's expedition to Walfish Bay (1836/7)**

British officer (then Captain in the Royal Scottish Highlanders). Invited by the Royal Geographical Society to undertake a funded journey of exploration in Africa, he arrived in the Cape early in 1835. Initially he intended travelling to the regions westwards of (Portuguese) Delagoa Bay, but was eventually forced by circumstances to reconceive his destination, deciding to explore the lands beyond the Orange River and around the Fish River system instead (Alexander; 1838: v-xv). Specifically, Alexander intended crossing the Orange within 400 miles of its mouth - a stretch of the river which he claimed "no European traveler on an expedition of geographical enterprise had done yet and left an account of<sup>2</sup>" (1838: x - paraphrased) – and to travel as far north as the land of the "Damaras"<sup>3</sup>. Alexander also made arrangements with the commander of a British squadron to attempt a rendezvous at Walfish bay – in the hope of being transported from there by ship to Benguela (then a Portuguese station) in Angola, and hoping to trek from there eastwards across the continent to the Mozambique channel!

Alexander undertook a short excursion from the Kamiesberg to the Orange river mouth at the end of October 1836, returned from there to the Kamiesberg, and eventually

---

<sup>1</sup> Surveyor-General (Namibia); 1994.

<sup>2</sup> Although of course on his fourth journey in South Africa (1779) Paterson did cross the Orange River near the mouth, and again near the confluence with the Hom River - and had left an account of it (1790: 99-135). But the gist of Alexander's claim seems legitimate, in as far as Paterson did not venture far across the northern bank of the Orange River.

<sup>3</sup> "Damaras" here may actually refer to the Herero rather, with the latter often described in early literature as such.

crossed the Orange with his main party somewhere near Goodhouse and Ramansdrift in November 1836, and journeyed through the interior to Walfish Bay and back to the Orange River, and ultimately the Cape again – following routes with little overlap (in Namibia at any rate). By his own reckoning, when he arrived back at the Cape in 1837, he had crossed more than 4000 miles (= ca. 6400 km) within a little more than a year (1838: xiv-v). His accounts were first published in 1838 in two volumes – within a year of the conclusion of his journey, and with details still fresh in his mind.

In Skead's assessment, Alexander was a reliable chronicler (Skead; 1980: 439) – a fact which is clear from any rigorous reading of his account.

## **1.2. Approximate description of Alexander's journey to Walfish Bay and back.**

An attempt has been made here to reconstruct Alexander's journey to Walfish Bay and back from his description thereof (Alexander: 1838 and 1838a). The reconstruction was greatly helped by the fact that Alexander mostly employed original Nama names (or translations thereof) for rivers, settlements and geographical features, instead of coining his own. Thus it is possible to find matches for many of the place names given in Alexander's account, taking into consideration that both Alexander's as well as current names (often) are approximate renderings of the phonetic aspect of original Nama names. Furthermore, Alexander was meticulous in noting down details of terrain, and often provided compass directions and distances – making it possible to still follow his journey even where no similar current names could be found for his place-references. The reconstruction here is only approximate (on a scale-resolution of 1: 1000 000). Furthermore, some specific stretches (e.g. on the return trip, from Walfish Bay to the Gams mountain, and again the stretch between NW of Mariental to the Schwarzrand) have been retraced largely relying on relative locations of identified geographical markers where intermediate ones have not been identified. Nevertheless, the reconstruction here is sufficient in order to more or less place Alexander's observations into some current geographical context.

Given the importance of Alexander as a source, his journey is described below in some detail. Alexander's journey has been artificially broken up into discreet stages for presentation here. Place names given by Alexander have been quoted in inverted commas.

- Cape Town to the Kamiesberg (Sept 10 – Oct 10 1836)

Alexander left Cape Town with a party of 4 Europeans, 1 Bengali servant and 2 Cape coloured ("Bastards") on the 10<sup>th</sup> of September, travelling N, via Piketberg, Clanwilliam, Heerenlogement, reaching the Groen River on the 7<sup>th</sup> of October, and on the 10<sup>th</sup>, the Wesleyan missionary station at Leliefontein<sup>4</sup> ("Lily Fountain") near the Kamiesberg (cf. Alexander; 1838: 1-56).

---

<sup>4</sup> Leliefontein m.s. was founded by Rev. Barnabas Shaw in 1817. At the time of Alexander's visit, the station had however been under the rudder of a "Mr Edwards" (Alexander; 1838: 58).

- Excursion to Orange River mouth (ca. 20 Oct – 7 Nov 1836)

At Leliefontein, Alexander received news of a possibility to visit the Orange mouth together with the missionaries Terlinden and Le(o)pold<sup>5</sup>. He then leaves Leliefontein (date unclear), and traveled towards the London Society missionary station at Kommagas ("Komakas"), where Rev. Schmelen<sup>6</sup> was based at the time (i.e. in Northern Namaqualand, and well W of Springbok). On the 27<sup>th</sup> October, Alexander's party set out for the Orange mouth, crossing the Cape Colony border at the Buffels River on the same day, and reached the Orange River at "Aris" (not found), on the south bank, and ca. 20 miles (= 34 km) from the mouth somewhere towards the end of October. From here the party trekked to the Orange River mouth, explored it for a day, and then traveled back to "Aris" again along the south bank. On the 4<sup>th</sup> of November, the party left again for Kommagas, reaching it on the 6<sup>th</sup>. Here Alexander parted with the missionaries, and traveled back to his main party waiting at Leliefontein, reaching it on the 7<sup>th</sup>. The time Alexander spent at and near the Orange River mouth was about 4 days. Apart from wading across to the northern bank (cf. Alexander; 1838: 113), Alexander and his companions spent the entire time on the southern bank (cf. Alexander; 1838: 82-124).

- Kamiesberg to Warmbad (16 Nov – 27 Nov 1836)

Accompanied by 13 burgers from the Kamiesberg for an official crossing of the Orange River<sup>7</sup>, Alexander set out from Leliefontein on the 16<sup>th</sup> of November, traveled past the Copper mountain (near Springbok), across the barren and sandy Koa plain, and towards Henkries ("Henkrees"), just south of the Orange River (and not far from Goodhouse and Ramansdrift). On the 23<sup>rd</sup> the party reached the Orange – pres. somewhere between Henkriesmond and Ramansdrift, and on the 24<sup>th</sup> crossed the river at "Karahas drift" (= presumably Ramansdrift). Alexander's burgher companions here turn back to the Colony, while – on the 25<sup>th</sup> – he set out for "Nisbett's Bath" (Warmbad<sup>8</sup>) in the company of a party of Bondelswarts who had come to meet him at the Orange River. The route takes the party from the N. bank near Ramansdrift on a NE course to Sandfontein ("Sand Fountain") on the River Hom, and from there along the dry course of the Hom

---

<sup>5</sup> These two Rhenish missionaries were ultimately destined towards Pella, to open a missionary station there. The fact that they disposed over a light horse-wagon made it possible for Alexander to contemplate visiting the Orange mouth, leaving his heavy wagon and large party at the Kamiesberg (Alexander; 1838: 82-3).

<sup>6</sup> The German missionary Johann Heinrich Schmelen was responsible for erecting the missionary station at Bethany in 1814 (Lau; 1987: 22).

<sup>7</sup> "(By) order of the Governor, ... to produce a good impression on the natives" (Alexander; 1838: 126). – Beyond its restless and perforated northern border (the Buffels River), the British government at the Cape was evidently keen to make its authority visible – both to the Nama and Namaqua, as well as its northernmost burghers.

<sup>8</sup> Alexander variously refers to "Warm Bad" (1838: 157) and "Nisbett's Bath" (1838: 158).

via Aluriesfontein ("Ahuries Fountain") to the kraal of the Bondelswarts at Warmbad (27<sup>th</sup>)<sup>9</sup> (cf. Alexander; 1838: 131-157).

- Sojourn at Warmbad, and excursions around (27 Nov 1837 – 18/19 Jan 1837)

Waiting for favorable circumstances to resume his intended journey to Walfish Bay, Alexander remained at Warmbad for the greater part of two months. During this period he spent much time with the Bondelswarts of Abraham Bondel, undertook short excursions by foot and on horseback around Warmbad, and also undertook two longer excursions – first, in the company of Rev. Jackson from the m.s. at Warmbad, to the Afrikaner (Oorlam) settlements ENE of Warmbad near the Blydeverwacht plateau<sup>10</sup> and a few km north of the Orange River between the confluences of the rivers Ham and Kainab (18-25 Dec); and then a two-day excursion with some Bondelswarts from Warmbad to (evidently) the Velloor plateau SE of Warmbad (somewhere in mid-January). At Warmbad Alexander acquired the services of one "Choubib"<sup>11</sup>, a Nama who promised to accompany him to Walfish Bay - in return for which Alexander was to intercede in getting him his cattle back from a certain "Henrick"<sup>12</sup> (cf. Alexander; 1838: 158 – 201).

- Warmbad to Löwen river, SW of Keetmanshoop (18/19 Jan – 22 Feb 1837)

The party left Warmbad on the 18/19<sup>th</sup> of January, and traveled NW along the dry course of the river Hom to Kanus ("Kanus") - via Dabegabis ("Dubee Knabies"), Gabis ("Knabies"), and Korechas just N of the (present) Driehoek dam SW of Karasburg ("Kurekhas"). At Kanus Alexander left his main party and wagon (ca. 24<sup>th</sup>), and set out with a smaller party to attempt the return of Choubib's cattle. The party left the Hom at Kanus, cutting E towards the bend on the river Kainab ("Kei Kab") on the farm Duurdrift Noord, and from there followed the course of the Keinab River N, and into the broken territory along the E side of the Great Karas mountains, and apparently to the Krantzberg (on extreme NE part of Great Karas mountains)<sup>13</sup>. Unsuccessful in their attempt, the party returned to Kanus again along approximately the same route, and

---

<sup>9</sup> The route followed from the Orange to Warmbad thus more or less follows those earlier taken by Coetsé, Brink and Hop, Paterson (1779) and van Reenen. See appropriate entries below.

<sup>10</sup> Towards the beginning of the 19<sup>th</sup> century, Jager Afrikaner found permanent settlements at Jerusalem and Blydeverwacht (which was later named "Hoole's Fountain", and known by that name in Tindall's time). By the mid-1830's - after Jonker Afrikaner had already left with his followers - a group of 300-400 Afrikaner Oorlam (and some Damara and Bushmen dependants) were still living at these two settlements (Lau; 1987: 22).

<sup>11</sup> Apparently a Velskoendraer, then living on the banks of the River Gaab, just SE of the Klein Karas mtns. - See below.

<sup>12</sup> Hendrik ("Henrick") was a Velskoendraer from another group, and appears to have lived below the Krantzberg, at the NE of the Great Karas Mountains. - See below.

<sup>13</sup> Thus following more or less the same route from Kanus that the party of Brink and Hop followed from the bend in the Hom River somewhat N of Kanus (presumably on the farm Goedgevonden) late in 1761.

reached the wagons again on the 28<sup>th</sup>. On the 30<sup>th</sup> the party left for the kraal of Choubib, following the course of the Hom River for a short distance, and then cutting NW on a route to the SE corner of the Klein Karas mountains – crossing the Gamchab ("Lion") river, closely passing NE of the current settlement of Grünau, and reaching Choubib's kraal at "Chubeechees on the Kaap river" (apparently the current farm Tsawisis on the river Gaab, just SE of the Klein Karas mountains) on the 31<sup>st</sup>. Here the party sojourned until the 9<sup>th</sup> of February, leaving on that day on a route NNE, and flanking the E side of the Klein Karas mountains. On the 12<sup>th</sup> the party reached "Nanebis" on the river "Kamop" (apparently near, or on the current farm of Hainabis on the Löwen river, SW of Keetmanshoop). Alexander sojourned here until the 22<sup>nd</sup>, and acquired the company of the menial "chief Kuiseb" (and a number of followers) on his intended journey to Walfish Bay (cf. Alexander; 1838: 201-235).

- SW of Keetmanshoop – Bethany (22 Feb – 6 March)

The party left Hainabis on the 22<sup>nd</sup> of February, following the course of the Löwen River westwards, crossing to the Skaap River ("the Koahap which flows from the black morass<sup>14</sup>"), and following the course of the Skaap to its confluence with the Fish ("Fish or 'Oup") river (near the present settlement of Seeheim), crossing it (23<sup>rd</sup>). The party left the broken valley of the Fish river immediately, and cut NW across the barren and rocky plain to Naiams ("Neims"). From here the party traveled across very dry country towards Kosis ("Kusis"), and crossed the Gurib ("Kusis") river, a tributary of the Konkiep ("Koanquip") River. The country and year is very dry, and Alexander is forced to send a party back to the Fish river to get water for the oxen. They then resumed, following the course of the Gurib northwards, cutting across due W towards, and reaching Bethany (on the Konkiep River) on the 6<sup>th</sup> March (cf. Alexander; 1838: 235 – 247).

- Bethany to Bullspoort (Naukluft) (9 – 30 March 1837)

The party sojourned at Bethany until the 9<sup>th</sup> of March, and then left, following the river Konkiep N, and towards its confluence with the river "Tamuhap", and a bit further along the "Tamuhap" to a place opposite the "Kurusap or Sour Hill" (apparently near/ on the farm Zuurberg on the Gamochas River, just WNW of its confluence with the Konkiep). From here the party traveled further W along the course of the Gamochas, to reach the kraal of Jan "Buys" (Boois) at "Nanees or corner" (not found, but presumably somewhere near the source of the Gamochas on the Rooirand). From here the party traveled NNE to the kraal (not identified) of Hendrik ("the hunter") Boois, and sojourned there until the 18<sup>th</sup>. Earlier Jan Boois, and here his brother Hendrik ("Henrick"), agree to accompany Alexander to Walfish Bay. On the 18<sup>th</sup> the party left, and travel to the Konkiep, just SE of Helmeringhausen. From here the party followed the eastern branch of the Konkiep ("Little Kouanquip"), and traveled northwards, and E of Helmeringhausen to reach the "headwaters" of the Hasewab River. The party followed the dry course of the Hasewab northwards, travelling more or less parallel and to the west of the Schwarzrand, reaching "Kei'us or Great Fountain" (apparently the farm Grootfontein on the Hasewab, SW of Maltahöhe) on the 22<sup>nd</sup>. From here the party resumed NNW

---

<sup>14</sup> "Zwartmorast" (from the Nama ≠Nu≠goaes = black morass) was the name by which Keetmanshoop was known in Alexander's time (see: Lau; 1987: 7).

towards the River Usip ("Oosep"), crossing the Hudub ("Huntob") River NW of Maltahöhe, and reaching the Usip on the 26<sup>th</sup>. The party then cut NW across the plains SW of the Naukluft Mountains, reached the Tsondab ("Chuntop") River, and followed it into the Naukluft Mountains at Bullspoot ("Bulls Pass Mouth") on the 30<sup>th</sup> (cf. Alexander; 1838: 236-302).

- Bullspoot – Walfish Bay (31 March – 19 April 1837)

Alexander's party entered the Bullspoot pass on the 31<sup>st</sup> of March, and followed the westward-flowing and endorrheic River Tsondab through the northern parts of the Naukluft Mountains, to reach "Ababies" (Abbabis) on the same river, just SE of Solitaire on April 3<sup>rd</sup>. Alexander here hoped to find some local guides to help them find water on their trek to Walfish Bay, but (unrelated) rifle shots from Alexander's party scared away the Bushman encamped at Abbabis, and the party had to leave on their own on the 5<sup>th</sup>. The party now crossed the most difficult terrain they were to encounter on the entire journey: travelling NW from Abbabis, they passed Solitaire, and crossed the formidable Namibvlakte S of the Saagberg, to reach the dry course of the !Khuseb, or Kuiseb ("Kuisip") River on the 8/9<sup>th</sup>. On this stretch, the party nearly perished from thirst, and Alexander had to abandon his wagon in the sandy terrain, and travel further by pack-oxen<sup>15</sup>. The party now followed the course of the Kuiseb westwards, often having to dig for water in the dry bed, and eventually reaching Rooibank ("Aban' haus or Red-bank") near the mouth on the 18<sup>th</sup>. The party here met with some local (Topnaar) Nama, and on the 19<sup>th</sup> encamped somewhere between the Kuiseb mouth and Pelican point (just off Walfish Bay)<sup>16</sup> (Alexander; 1838a: 1 – 77).

- Sojourn at/ near Walfish Bay (19 April – 3 May 1837)

Alexander decided to wait at Walfish Bay for two weeks - in the hope that he may meet up with a British warship, and according to his plan be dropped off further north on the coast at the Portuguese station at Benguela<sup>17</sup>. In the event, the expected ship(s) did not turn up, but he did meet with the crew from two American whalers<sup>18</sup> (the "Commodore

---

<sup>15</sup> The wagon is eventually recovered by Jan Boois, who takes it back through the Naukluft mountains to his kraal near Helmeringhausen, where Alexander recovers it later on his return trip towards the end of June.

<sup>16</sup> Alexander here gives his position as 22° 55' S, slightly further north than the actual location of ca. 23° S where he must have been encamped. From a look at Alexander's map (Alexander; 1838: front insert), it is obvious that he gave a far straighter course to the Kuiseb River than it in actual fact has, and this skew is responsible for the distortion of relative distances and bearings when reconstructing his journey to and back from Walfish Bay west of the escarpment.

<sup>17</sup> Alexander's hope was to then cut across the continent from Angola to the Mozambique channel (Alexander; 1838a: 84-5). It seems doubtful whether Alexander really understood the massive journey this would have entailed, and in retrospect, he seems better off for having missed his rendezvous with the British squadron under Sir Patrick Campbell.

Perry" and the "Pocahontas") who had arrived along the Namibian west coast to ply the waters during the winter months. While waiting, Alexander made various excursions along the shore between the Kuiseb mouth and Walfish Bay, and had the occasion to spend time with the Topnaar, and to trade with them for slaughtering stock (cf. Alexander; 1838a: 78 – 104).

- Walfish Bay to just NW of Rehoboth (3 May – 24 May 1837)

Alexander's party decamped from near Walfish Bay on the 3<sup>rd</sup> of May, accompanied by two "Bushmen" guides which the Topnaar had provided to guide them across the waterless terrain east of Walfish Bay. The party initially took the same route along the Kuiseb River to Rooibank as on the inbound trip, but then left the course of the Kuiseb somewhere near Klipneus<sup>19</sup> ("to avoid a considerable southerly bend in the Kuisip"), and (apparently) cut across the Tamas plain due E. The course was well north of the inbound trip, somewhat unclear, but appears to have turned ESE at some stage, and to have reached the Kuiseb again somewhere SW of the Sandsteen and Rostock Mountains ("we passed on our left the Tarahap... and Hokap Mountains"). They now seem to have followed the Kuiseb for a short distance, and then to have cut across E, reaching a point SW of the Gams mountain ("Tans mountain") on the 19<sup>th</sup>. Near the Gams Mountain, he met up with a group of Damara ("Hill Damara"), and travelling to the south of the mountain, he reached the Gaub ("Taop") river on the 22<sup>nd</sup>. Crossing the Gaub, the party now traveled due E, reaching the Kubitsaus ("Chunchaub") River at some distance WSW of Maltahöhe, and from there traveled NE, to reach the Afrikaner Orlam settlement of "Narees on the Oanob river" (apparently the present farm Narais on the western branch of the Oanob River, NW of Maltahöhe) on the 23<sup>rd</sup> of May. On the 24<sup>th</sup>, the party traveled further E to meet with the "powerful chief Aramap, who (comes) with guns and stout fellows from near the Orange river"<sup>20</sup>. Alexander's party now encamped at this settlement of "Niais... on the Kei-kurup river" - the settlement possibly on the farm Ninais on the eastern branch of the Oanob River, NNW of Maltahöhe<sup>21</sup> (cf. Alexander; 1838a: 106-154).

---

<sup>18</sup> By the late 18<sup>th</sup> century American whalers were frequenting the coast on a seasonal basis – even erecting small depots – but they were apparently content to trade with the local peoples they encountered here for victuals, and did not venture inland themselves (Vedder; 1937: 18-9).

<sup>19</sup> The stretch of the Kuiseb River west of ca. Klipneus was the first short stretch of overlap between Alexander's in and outbound trips during his journey north of the Orange River.

<sup>20</sup> In her study of Namibia during Jonker Afrikaner's time, Lau identified "Aramap" as JonkerAfrikaner (Lau; 1987).

<sup>21</sup> Alexander's map (1838: front insert) shows the Oanob as having only one branch N of Maltahöhe, and has the "Kei-kurup" river flowing due south, to meet the Oanob SE of Maltahöhe. The Usip River follows exactly this course, meeting the Oanob SE of Maltahöhe, and near the small settlement of Gebiel. It would thus appear as if Alexander had miscalculated, placing the settlement of "Narees" (Narais) on the eastern branch of the Oanob instead of the western; and that of "Niais" (Ninais) on the Usip instead of the eastern branch of the Oanob. In his further journey south, Alexander however mentions following the course of the "Kei-kurup" south from "Niais" – which would have been impossible if he was indeed encamped at Narais, for the two branches of the Oanob meets not much further S of here – and not much further down, as is

- NW of Rehoboth – Fish river, NW of Mariental (31 May – 10 June 1837)

Alexander sojourned at "Naias" until the 31<sup>st</sup> of May. Not being able to find a willing guide to accompany him to the "land of the Cattle Damara" (meant here is the Herero)<sup>22</sup> further north, Alexander decided to turn around, and to start heading back to the Cape - "Naias" thus being the furthest point NE reached on the entire journey. His journey initially took him south parallel to the well-pastured eastern bank of the "Kei kurup" (pres. Usip) River, and beyond the confluence of the Usip and Oanob to reach "Glenelg Bath" (name given by Alexander) somewhere southwest of the endorrheic terminus of the Oanob. - From Alexander's map (see: Alexander; 1838: front insert), "Glenelg Bath" would appear to be at the present settlement of Lekkerwater, more or less halfway between Kalkrand and Rehoboth. From Lekkerwater, the party now traveled due south to the headwaters of the Kalf ("Chounp, or calf") River, some distance W of Kalkrand; crossing the Gamgam ("Ku kama") River south of Lekkerwater on the 5<sup>th</sup> of June. The party followed the Kalf SSE, crossed it on the 8<sup>th</sup>, and traveled on to the Fish River; encamping there on the 9<sup>th</sup>. The exact spot on the Fish is unclear from Alexander, and may have been either to the east or west of the confluence of the Kalf and Fish. From here - on the 10<sup>th</sup> - the party moved camp to "Kuis" (not found), somewhere along the Fish, and 8 miles (= 13 km) SSE of the place on the Fish reached on the 9<sup>th</sup>, and somewhere well NW of Mariental (cf. Alexander; 1838a: 207-236).

- NW of Mariental – Bethany (13 June – 13 July 1837)

At "Kuis" Alexander sojourned until the 13<sup>th</sup> of June, finding time and occasion to dispatch a message to the Oorlam chief "Amral"<sup>23</sup>, pleading with him not to wage war in the land. Alexander's party now traveled SSW, and west of the Fish River across "barren waste country". The exact route is unclear, but he mentions reaching the "Kaikum or Pack river" after ca. 19 km ("12 miles") – possibly the Packriem River, a western tributary of the Fish, and at some distance WNW of Mariental. The exact route from there is again unclear, but he mentions reaching the Tsub ("Chub") River – a tributary of the Lower River - on the 16<sup>th</sup> – possibly somewhere on a line from Mariental to Maltahöhe, and more or less equidistant from both places. The route now seems to take a more pronounced SW aspect, and to pass well towards the W of Gibeon to reach the Kuteb ("Kutip") River on the 23<sup>rd</sup>. Now just east of the Schwarzrand, and well NE of Helmeringhausen, the party appears to have traveled S along the eastern flank of the Schwarzrand, passing through it near "'Ahuas" (possibly on the present farm Auas, NE

---

indicated on Alexander's map. The exact location of his encampment at "Naias" is therefore somewhat unclear.

<sup>22</sup> Little wonder, since the Herero had recently been expelled by Nama and Oorlam groups from the good pasture between the Kuiseb and Swakop Rivers (cf. Lau; 1987: 30). Cattle rustling by this time was becoming established as a major means of production for the Nama/ Oorlam, and the cattle-rich and more primitively armed Herero formed a primary source for this.

<sup>23</sup> Amraal Lambert of the Khauas Oorlam. Tindall was later to become his missionary at Noasonabis ("Wesleyvale", and currently Leonardville). See: Lau; 1987: 34, for a short history of Amraal and his group of Khauas.

of Helmeringhausen), and traveled S to the confluence of the eastern and western branches of the Konkiep River ("Great and Little Koanquip") SE of Helmeringhausen, reaching it on the 25<sup>th</sup>. On the 26<sup>th</sup> the party traveled further S along the Konkiep, after a short while reaching "Khumees" (possibly the present farm of "Chamis Suid" on the Konkiep river, SE of Helmeringhausen). Travelling further south along the Konkiep from here (for "two more marches"), the party reached the people of Hendrik Boois – at the time "tarrying on the banks of the Koanquip" – on the 28<sup>th</sup> (place uncertain, but S of the confluence of the "Great and Little Konkiep", and seemingly N of the place of Jan Boois on the River Gamochas). The party sojourned between here and the Gamochas until ca. the 11/2<sup>th</sup> of July. Here Alexander recovered his wagon from Jan Boois, and the brothers Hendrik and Jan decided to accompany Alexander further south into the Cape Colony. They left for Bethany on the 11/12<sup>th</sup>, (apparently) traveled S along the Konkiep, and reached it on the 13<sup>th</sup>. The stretch traveled from the Gamochas to Bethany was the second and last stretch of short overlap between Alexander's in and outbound trips during his journey north of the Orange River (cf. Alexander; 1838a: 207 – 236).

- Bethany – Orange River (14 - 30 July 1837)

The party apparently left Bethany on the 14<sup>th</sup> of July, initially following more or less the course of the Konkiep River southward. The course is unclear, but appears to have been more or less due S, reaching the "Ukanip" (possibly Aukam) River on the 17<sup>th</sup>, and the "Hoons" (apparently the Arimas<sup>24</sup>) River some time thereafter (20-3<sup>rd</sup>). The exact route from here is again unclear, but seems to have been due S – but possibly SSW -, apparently skirting down west of the Huns Mountains, and well towards the west of the course of the Konkiep River. The exact place where the party reached the Orange ("the ford of the Kunarusip or Ebony Black Sheep") is unclear, but from Alexander's description<sup>25</sup>, it appears to have been somewhere near the confluence of the Nuab River. Most of the party crossed the Orange here on the same day, but it is only on the 1<sup>st</sup> of August that all the party's sheep could also be transported across the river (cf. Alexander; 1838a: 236 – 243).

- Orange River to Cape Town (1 August – 21 September 1837)

From the ford at "Kunarusip" the party moved about 8 km along the south bank of the Orange River (direction not given) to reach another ford "Numedamas or the Shining Eye" (not found), where they left the Orange for the last time, and passing through the Richtersveld in Northern Namaqualand, eventually reached Kommagas m.s. on the 10<sup>th</sup> of August. Here Alexander parted company with the brothers Boois, traveled further on

---

<sup>24</sup> Alexander also calls the "Hoons" the "turn round" River – a very good description of the Arimas river, which flows north before turning east, and then south again into the Konkiep River at some distance W of the Fischflussrücken. On the northernmost stretch of the Arimas, the farm Huns is presently situated – at some distance E of the Huib-Hoch Plateau – giving further substance to the interpretation of the "Hoons" as the Arimas.

<sup>25</sup> At the "Kunarusip ford" Alexander encountered a conspicuous mountain which he named "Mount Mackillop" after a friend of his. The mountain may have been the Sonberg (994 m).

to the Kamiesberg, and from there south along more or less the same route followed in September and October 1836, reaching Cape Town on the 21<sup>st</sup> of September. A little more than a year had elapsed since his departure in 1836 (cf. Alexander; 1838a: 245 – 255).

### **3. BRINK AND HOP**

#### **3.1. Background to the expedition of Captain Hop and his party to ca. Keetmanshoop (1761/2), as was recorded by C.F. Brink.**

Hendrik Hop was a native of the Cape Colony, and a Captain of the Stellenbosch Cavalry by the time of his journey across the Orange River. Mossop (1947: ix) describes him as "essentially a farmer and a man of affairs". Hop successfully approached the Cape Government in 1761 for logistical support (arms, powder and lead) in order to explore the land across the Orange, and also for the company of Brink – who was envisaged to keep a journal of the journey, and to map the unknown territory<sup>26</sup>. Hop was eventually accompanied by 16 Europeans, some Cape Hottentot and a large number of Namaquas, and his party crossed the Orange near Ramansdrift in September 1761. Hop and his party then travelled along the Hom River towards the north of Karasburg, and from there along the eastern side of the Great Karas Mountains towards the confluence of the Naute and Löwen Rivers, the northernmost point reached by the whole party. Apparently travelling during a remarkably dry year<sup>27</sup>, the party was continually stressed to find sufficient water and grazing for their oxen, and eventually turned back towards the Orange (6<sup>th</sup> December), following the same route back to Ramansdrift as they had taken on their northward journey. The party reached the Orange on the 5<sup>th</sup> of January 1762, and remained along the banks until the 2<sup>nd</sup> of March, from where they returned to the Cape (Brink, in Mossop; 1947: 6-71).

Carel Frederik (sic) Brink was a German native from Berlin, who had arrived at the Cape in 1758, and was officially appointed as Assistant Surveyor and Mapmaker in 1760. He remained in the service of the Cape Government until 1784, when he retired and returned to Europe (Mossop; 1947: x). Brink joined Hop's expedition in 1761/2 as keeper of the official journal, and as cartographer. The subsequent journal manuscript was sent to the Chamber of Seventeen in Holland, and early translations were published in Dutch (1778); French (1778) and German (1779) (Mossop; 1947: xi).

---

<sup>26</sup> See: "Extract from Minutes of the Council of Policy, 30 June 1761" from the Cape Archives, the text of which had been reproduced in Mossop; 1947: 2-5.

<sup>27</sup> This seems apparent from Brink's descriptions, and from the fact that the Nama which a scouting party had met at the Fish river (presumably near Seeheim), declined to accompany the party on a journey to the Damara/ Herero, claiming that the year was too dry for travelling that far (Brink, in Mossop; 1947: 50/51).

### 3.2. Approximate description of the route taken by Hop's party

A map of the route taken by Hop's party has been reproduced as a foldout at the back of Mossop (1947). The distances and logged encampments were verified by Mossop in as far as possible, and most entries made by Brink could be verified and attached to current geographical locations. An abbreviated description of the route is given here, focusing on the Namibian portion of the trip:

- 16 August – 18 September (1761): The party treks north from an initial rendezvous at Koekenaap to the banks of the Orange River at Ramansdrift, following a route west of the Kamiesberg, past the Copperberg and across the unforbidding Koa Valley (Brink, in Mossop: 6-25);
- 29 September: Crosses the Orange at Ramansdrift without any mishap (Brink, in Mossop:28/29);
- 1 October (1761) – 5 January (1762): party travels northwards into the interior of the Karas region and back again to the Orange River. The party followed more or less the same route upwards and back, reaching their northernmost destination at the confluence of the Naute and Löwen Rivers SE of Keetmanshoop, and on the present farm of Brauss. During their sojourn on the Löwen, the party dispatched a scouting party to the Fish River (possibly near Seeheim), which returned and made reports to Hop, and which were recorded by Brink. Forced by a lack of water and grazing, the party turned back from the Löwen towards the Orange on the 6<sup>th</sup> of December, reaching Ramansdrift again on the 5<sup>th</sup> of January. The route travelled between Ramansdrift and Brauss basically followed the course of the Hom River via Sandfontein, Aluriesfontein, Warmbad, Dabegabis, "Koregas" (near Karasburg) towards the bend of the Hom at Goedgevonden, just south of the Great Karasberg Range. Here the party left the Hom River, and travelled NE towards the Kainab River at Duurdrift Noord, moved further northwards from there along the east of the Great Karasberg Range<sup>28</sup> towards Naas near the Krantzberg, and from there to the confluence of the Naute and Löwen Rivers, at a place earlier called Gründoorn, on currently on the farm Brauss<sup>29</sup>.
- 5<sup>th</sup> January – 2<sup>nd</sup> March: The party camps on the banks of the Orange. The portion of the journal containing the entries for the period 6<sup>th</sup> – 22<sup>nd</sup> of January have been lost from Brink's manuscript, and for the remainder of the period after that, the journal contains little information about the conditions along the banks (Brink, in Mossop; 1947: 48-63);

---

<sup>28</sup> According to Vedder (1937: 21) the party travelled between the Small and Great Karas Mountains to the Löwen River, but Mossop, in personally retracing the probable route, has placed it towards the east of the Great Karas Mountains. The results from the specific study by Mossop have here been taken in preference over Vedder's general history of Namibia.

<sup>29</sup> In as far as possible, the journey here had been traced after Mossop (see: Map reproduced at the back of Mossop: 1947), and modern place names and relevant geographical features have been inferred from modern maps.

- 2<sup>nd</sup> March – 3<sup>rd</sup> April: Party travels back to Koekenaap near the Olifant's River (Brink, in Mossop; 1947:62-67).

#### **4. JACOBUS COETSÉ, JANSZOOM**

##### **4.1. Background to Coetsé's journey across the Orange River (1760)**

Coetsé was a Cape burger from the Piketberg region, who in 1760 received permission from the colonial authorities to undertake an elephant hunting expedition into Namaqualand and further north. In the event, he crossed the Orange River in August or September 1760 somewhere near Goodhouse, Ramansdrift or the Hom confluence, and travelled along the course of the Hom north of Warmbad, and to near the present Dabegabis; following more or less the same route back to the Orange – incidentally shooting no elephant in the region across the Orange (Coetse, in Mossop; 1935: 289). He was only accompanied by Cape Khoi, and, unable to write himself, related the details of his journey to Political Secretary O.M. Berg shortly after his return to the Cape in November 1760 (Mossop; 1936: 9; Coetsé, in Mossop; 1935: 289; 291)). Although the account was thus made from recent recall, Coetsé did not actually keep a journal of his travels, and detail may consequently not be that accurate. He was however able to speak Namaqua ("the language of the Little Amaquas"), and thus able to converse with the Nama he encountered (Coetsé, in Mossop; 1935: 283). At any rate, Coetse's journey motivated Hop to bring together a more organised party, and to retrace most of the route across the Orange in 1761/2. Coetsé joined this party, and again travelled across the Orange (Brink, in Mossop; 1947: 14/15). During his lifetime, Coetsé claimed to have been the first European to have crossed the Orange and penetrated into the interior of Namibia for any significant distance. This now seems doubtful, as records of illegal cattle trade across the Orange by Cape burgers have been found for as early as 1738, and it seems likely that some other traders and hunters may have ventured across before then, or between 1738 and 1760 (Mossop; 1947: 94-5)<sup>30</sup>.

##### **4.2. Approximate description of the journey of Jacobus Coetsé, Jansz: (1760)**

In general, Coetsé's account does not contain much geographical detail or many dates. Nevertheless, the route he followed in Southern Namibia is fairly clear, if not the actual place where he crossed the Orange River. Description here relies partly on an interpretation of Coetsé's route description against a 1: 1000 000 map of Namibia, and partly Mossop's reconstruction of the route (1935: 9; foldout map inserted at back of book).

In brief, Coetsé left his farm in the Piketberg district in July 1760, and travelled north, across the Olifants River, past the Koperberg, and to the south bank of the Orange. It is unclear when he reached the Orange valley, but it may have been in August or

---

<sup>30</sup> See also Vedder; 1937: 43-4.

September. The exact location where he met with the Orange is also unknown, but from his description it seems likely to have been between Goodhouse and the confluence of the Hom River (see: Coetsé, in Mossop; 1935: 279). It is unclear where and when exactly he crossed the Orange, but it appears not to have been far from the Hom confluence, for he travelled northwards for six days following the course of the Hom – which he named the Leeuwen river at the time (see: Coetsé, in Mossop; 1935: 279). From Mossop's reconstruction of the route, it appears as if Coetsé travelled as far north as more or less the current Dabegabis (the "Swartberg" of his northernmost point apparently the Bunsenberg), just north of Warmbad. From his descriptions, 1760 must have been a good rainfall year, for he encountered "grassy veld and (..) many flowing rivers, which were in good condition" (Coetsé, in Mossop; 1935: 285). Coetsé seems to have followed more or less the same route back to the Orange, even though he reports travelling back somewhat more easterly (Coetsé, in Mossop; 1935: 285). It is unclear from the account how long he took to reach the Orange again, and when he departed from its banks back to the Cape again, but by November, he was back at the Cape for some time, and had related his account to Secretary Berg (Coetsé, in Mossop; 1935: 289; 291).

## **5. LIEUTENANT WILLIAM PATERSON**

### **5.1. Background to Paterson's expeditions to the Orange River and across (1778/9)**

Paterson was a British officer (then Lieutenant) who came to South Africa with the primary aim of botanical collection and discovery (Paterson; 1790: 3). He undertook and described four journeys in Southern Africa; travelling to the Orange and beyond on his second (1778) and fourth (1779) journeys respectively. As a more mature man, Paterson later became Lieutenant-Governor of New South Wales, Australia (Gordon; 1998: 29).

During his second journey (May – November 1778), Paterson was accompanied by Sebastiaan van Reenen. They travelled from the Cape to Swellendam, and from there to the Bokkeveld, northwards through Namaqualand past the Kamiesberg and Koperberg, and to the south bank of the Orange River near Goodhouse. The party spent almost three weeks (September) encamped on the south bank of the Orange river. Paterson seems only to have ventured across the Orange onto the immediate banks, but van Reenen spent four days travelling northward across the Orange and back – presumably in the vicinity of the Hom River, south of Warmbad (although it is not clear from Paterson). Feeling that the season may be too far advanced, the main party never crossed the Orange, and eventually decided to turn back towards the end of September. Paterson followed a return route through Namaqualand and undertook short excursions into the Hantam and Bushmanland, before reaching the Cape in November 1778 (Paterson; 1790: 38-76).

On his journey in 1779 (June to December), he was accompanied by the brothers van Reenen (Sebastiaan, and later on also Jacobus). The party met up and travelled with Colonel Gordon to the mouth of the Orange (Aug), but finding the Orange Valley too

barren to allow travelling eastward, they returned to the Kamiesberg. Here Paterson parted company with Gordon, and travelled with his party – now also joined by the farmer Hermanus Engelbrecht – northwards towards the Orange. He reached the Orange at the beginning of October, and travelled eastward along the south bank, beyond Goodhouse and Ramansdrift, crossing the Orange near the confluence of the Hom. He spent a week exploring the valley of the Hom and the plains SE of Warmbad, eventually turning back to the Orange for fear that it may rise and become impassible. He spent most of the remainder of October on the south bank, eventually leaving for the Kamiesberg, and from there the Bokkeveld, the plains of Bushmanland and then to the Cape, which he reached towards the end of December (Paterson; 1790: 99-135).

Paterson's references to the Orange valley and for southern Namibia are geographically vague, and the map he reproduced to illustrate his travels in Southern Africa is unfortunately extremely sketchy for the lands north of the Orange River. Nevertheless, some reconstruction is possible due to his visiting mostly rather identifiable places like the Orange mouth and Warmbad. Some reference to a 1: 1000 000 map of Namibia had been made below in order to interpret Paterson's description of his journey across the Orange River in 1779<sup>31</sup>.

### **5.2.1. Approximate description of Paterson's journey to the Orange River in 1778.**

During his first journey (May – November 1778), Paterson was accompanied by Sebastiaan van Reenen. They travelled from the Cape to Swellendam, and from there to the Bokkeveld, northwards through Namaqualand past the Kamiesberg and Koperberg, and to the south bank of the Orange near Goodhouse. The party spent almost three weeks (September) encamped on the south bank of the Orange. Paterson seems only to have ventured across the Orange onto the immediate banks, but van Reenen spent four days travelling northward across the Orange and back – presumably in the vicinity of the Hom River, south of Warmbad (although it is not clear from Paterson). Feeling that the season may be too far advanced, the main party never crossed the Orange, and eventually decided to turn back towards the end of September. Paterson followed a return route through Namaqualand and undertook short excursions into the Hantam and Bushmanland (cf. Paterson; 1790: 39 – 76).

### **5.2.2. Approximate description of Paterson's journey to the Orange River and across in 1779.**

During his second journey (1779), Paterson visited the Orange River valley and surrounding lands on two separate occasions. Paterson and Gordon initially intended to explore the Orange eastward from the mouth, but finding the country along the Richtersveld too barren (August), the party decided to turn back, and travelled south to the Kamiesberg. Here Paterson decided to return to the Orange again, intending to

---

<sup>31</sup> Surveyor-General (Namibia); 1994.

travel due north, to cross the Orange, and explore the surrounding land. Paterson eventually spent most of October 1779 along and beyond the Orange.

- Cape Town to the Orange river mouth

Paterson leaves Cape Town, accompanied by Sebastiaan van Reenen – a native of the Cape – on the 18<sup>th</sup> of June. The party reaches Heerenlogement near the Elephant<sup>''</sup> River in the beginning of July, and met up with Colonel Gordon's party. Paterson and Gordon separately travel towards the Kamiesberg, met up again, and on the 25<sup>th</sup> reached the house of a certain Hermannias Engelbrecht ("on a branch of the Kamiesberg, ... in latitude thirty degrees" (S)) (Paterson; 1790: 104). Paterson's party is here joined by the brother of Sebastiaan van Reenen, Jacobus, who had been on an elephant hunting trip somewhere east of there. Gordon and Paterson now decided to trek independently towards the Atlantic, and from there along the coast towards the mouth, hoping to meet up there again (cf. Paterson; 1790: 77 - 110).

- August 17-28: mouth, north bank near mouth, and south bank into Richtersveld

17<sup>th</sup>: Paterson arrives on the banks of the Orange, and moves toward the mouth, where he and Gordon agree to spend a few days (Paterson; 1790: 111);

19<sup>th</sup>: Paterson and Gordon explores the shore near the mouth (Paterson; 1790: 114);

20<sup>th</sup>: Paterson and Gordon crosses the Orange in a boat, and explore the north bank towards the mouth. They encounter a group of elusive "Shore Boshmans", which they eventually have the opportunity to communicate with via a Hottentot interpreter from their party (Paterson; 1790: 114-5);

21<sup>st</sup>: Paterson explores south bank of Orange near mouth (Paterson; 1790: 116);

22<sup>nd</sup>: Paterson and Gordon cross the Orange again in order to find out from the "Shore Boshmen" whether the country to the east is passable, but they receive little useful information (Paterson; 1790: 117);

23<sup>rd</sup>; 24<sup>th</sup>: Party remains on south bank near the mouth, being visited by the "Shore Boshmen" on the 24<sup>th</sup> (Paterson; 1790: 117);

25<sup>th</sup> – 28<sup>th</sup>: Paterson leaves mouth with party, travelling E along the south bank and into apparently the Richtersveld along the Orange, finding it "a hilly country, and the most barren I ever saw..., the hills decayed, with hardly a plant on them" (Paterson; 1790: 118);

29<sup>th</sup>: Leaves the Orange, heading south towards the Buffels River, and from there towards the homestead of Engelbrecht. The party reaches Engelbrecht on the 12<sup>th</sup> of September.

- Sojourn at the Kamiesberg

At the homestead of Engelbrecht, Paterson and Gordon decide to split up. Paterson intends travelling due north, and to cross the Orange into "Great Nimiqua Land". Engelbrecht joins up with Paterson, and on the 21<sup>st</sup> of September they set out towards the Orange, travelling past the Copper mountains and in a northerly direction.

- October 1779: Orange river valley between ca. Vioolsdrift and the Hom confluence; along the Hom and plains S of Warmbad, and back to Orange river at ca. Kabis:

1<sup>st</sup> – 6<sup>th</sup>: Reached the Orange River somewhere between Vioolsdrift and Goodhouse together with Engelbrecht and the brothers van Reenen. Finding the Orange impassible, they decided to take an easterly course along the south bank of the River; reaching a Hottentot village after "some days". Here they received word that Gordon was on the Orange, about one day to the east. With the Orange suddenly subsiding, Paterson decides to cross the Orange wading (Paterson; 1790: 122-3);

7<sup>th</sup> – 14<sup>th</sup> : Leaves Hottentot settlement, travelling E along the S bank on a stretch where the Orange "divides itself into three branches, which are each about a mile broad" (Paterson; 1790: 124) – probably the low-lying areas between Abassaas and Gaudon - which may have been inundated at the time; records nightly seeing several fires to the east;

14<sup>th</sup>: Crosses a rapid Orange with great difficulty, somewhere between Ramansdrift and Kabis, travels ca. 10-15 km north of the Orange, where his party encamped "under a large Ebony (prob. *Euclea psuedoebenus* – (Black) ebony) tree" (Paterson; 1779: 124);

15<sup>th</sup>- 21<sup>st</sup>: leaves his wagons behind to scout the land with a party on horseback: explores country along the Hom towards Aluriesfontein (15<sup>th</sup>-16<sup>th</sup>), exploring the plains NE towards the Velloor-plateau (17<sup>th</sup>-18<sup>th</sup>), the plains SE of, and immediately around Warmbad (19<sup>th</sup>-20<sup>th</sup>). On the 20<sup>th</sup>, Paterson observes a storm rising towards the east, and fearing that the Orange may become impassible, the party decide to return to the Orange along the same route along the Hom as they had came. The party crosses the Orange over the night of the 21<sup>st</sup>, and on the 22<sup>nd</sup> – presumably at the same location as before (Paterson; 1790: 124-8).

- From the Orange River back to the Cape

Towards the end of October, the party left the Orange Valley, arriving at the homestead of Engelbrecht early in November. From here Paterson and his party returned to the Cape, travelling through the Bokkeveldberge, making an excursion from there onto the plains of Bushmanland, and crossing the Elephants River near Heerenlogement on the 6<sup>th</sup> of December, and arriving back in the Cape on the 21<sup>st</sup> of December (Paterson; 1790: 128-135).

## 6. WILLEM VAN REENEN

### 6.1. Background to van Reenen's expedition to Rehoboth (1791/2)

Willem was a brother of Sebastiaan and Jacobus van Reenen, who had accompanied Paterson on his journey across the Orange River in 1779. The brothers were Cape burghers and possessed several farms throughout the Colony. Willem had a house in Rondebosch, Cape Town, and by the time he made his journey across the Orange in 1791, a farm ("Seekoeivlei") near Graafwater. Acting on a rumor that the lands across the Orange were rich in gold, van Reenen in 1791 applied for and received permission from the Cape authorities to undertake a journey across the Orange at his own expense. In the event, accompanied by 5 other burghers, he undertook a nine-month journey from the Cape and back (to his farm) – finding no gold, but bringing back ore which proved to contain copper (see: Mossop; 1935: 10-11). Van Reenen's party crossed the

Orange at Ramansdrift at the end of October 1791, travelled up with the Hom River, further to Keetmanshoop, and up the Lewer and Fish Rivers, and from there further - apparently reaching their northernmost point near the current settlement of Rehoboth towards the beginning of 1792. The party followed more or less the same return route to the Orange via Keetmanshoop, although the description of the return trip is more cryptic in van Reenen's account. He kept a journal of his expedition, but noted down few details of the veld and animals he encountered, mostly mentioning only details of rhino and giraffe shot (Van Reenen, in Mossop; 1935: 292-323).

## 6.2. Approximate description of Willem van Reenen's trip

Van Reenen's journal contains very little reference to place names and other geographical cues are also scarce. The description of the route presented here is mostly taken from Mossop's annotated commentary on the route, and is indeed, very approximate.

Van Reenen and 4 other burgers travelled northward through Namaqualand, and crossed the Orange River at Ramansdrift towards the end of October 1791. From here the party travelled along the course of the Hom River north of Korechas (currently on the Dreihuk dam near Karasburg). Here the party was joined by the burghers Barend Freyn and Pieter Brand - apparently at the time farming near Warmbad<sup>32</sup>. The party then left the Hom and travelled to Noachabeb between the Great and Small Karas mountains, and from there up to Keetmanshoop, passing the Löwen River on their way. From Keetmanshoop, the party continued to the Wasser River (near Berseba), and from there to the Fish River. The party now alternately followed the courses of the Fish and Lewer/ Tsub Rivers<sup>33</sup> towards the confluence of the Kalf and Fish Rivers NW of Mariental. From here the party apparently travelled NW towards the Oanob River, apparently reaching their northernmost destination near the present settlement of Rehoboth in January 1792<sup>34</sup>. Here the party remained for a few weeks, and apparently

---

<sup>32</sup> The journal itself is unclear here, variously stating in the introductory part (van Reenen, in Mossop; 1935: 293) that Freyn (or "Freijn") was a member of the expedition (but omitting Brand's name), and later on in the text that Freyn and Brand joined the party at Korechas near Warmbad (301), and also that the party journeyed back from Modderfontein to Korechas "at Barend's Freijn's", where oxen were obtained to trek as far as the Kamiesberg (319). From these references it is not entirely clear whether Freijn was actually settled at Korechas at the time of van Reenen's expedition, or whether he was merely independently in Namibia at the time - presumably to trade cattle. Vedder (1937: 35; 40; 41) is of the opinion that Freyn was actually settled near Warmbad - an opinion which seems supported by the fact that Freyn was again travelling in NW Namaland by the time of the DEIC vessel *Meermin's* journey to Walvis Bay in 1793 (Vedder; 1937: 41).

<sup>33</sup> From the dates and distances given by van Reenen from the Lewer to Fish River near the confluence of the Kalf River, it seems likely that the party followed the course of the Tsub river as continuation of the Lewer, passing westward of Gibeon and Mariental towards the Fish River north of Mariental (see: van Reenen, in Mossop; 1935: 307-311).

<sup>34</sup> The journal is rather vague on the exact locality here. Mossop (1935: 11) provides reasons for identifying the northernmost point as Rehoboth, instead of Windhoek. Vedder (1937: 36-8)

retracing their route, reached Keetmanshoop in March. Here the party remained for almost a month, waiting for draught-oxen. Towards the end of April, the party left Keetmanshoop. The journal is cryptic on the return route, merely stating that the stretch between Modderfontein (= Keetmanshoop) and the Kamiesberg was travelled from the 23<sup>rd</sup> of April to the 29<sup>th</sup> of May (1792). In general, the journal is very cryptic regarding the mammals encountered, making mention only of rhinoceri, giraffe and buffalo which had been shot, and containing only two references to Lion for the time spent in Southern Namibia. Almost all mammal references have been recorded for the region between Keetmanshoop and Rehoboth (Van Reenen, in Mossop; 1935: 292 – 323).

## 7. HENDRIK JACOB WIKAR

### 7.1. Background to Wikar's wanderings along the Lower Orange (1778/9)

Wikar was a Swede from Göteborg who took service with the Dutch East India Company (DEIC) in 1773 in Amsterdam, and arrived later in the same year at the Cape. Wikar was employed as *schrijver* (writing clerk) at the DEIC hospital in Cape Town. His gambling habits soon put him into massive debt, and in an act of desperation, he deserted from the Company's service in April 1775 - resolving to disappear inland and beyond the reach of the authorities. In the event, Wikar spent 4 years and 6 months roaming the extremities of the Cape and beyond. In April 1779 he addressed a letter to Governor van Plettenberg, asking to be pardoned for his desertion, and informing him that he had collected various curiosities during his travels, and was keeping a journal of his distant travels. In June 1779 Wikar received word of an official pardon, and returned to the Cape, where he was reinstated in his former post. Of the period April 1775 to September 1778 nothing much is known – Wikar's journal starts off in September 1778, when he was on the south bank of the Orange River near Goodhouse<sup>35</sup> (Mossop; 1935: 1-3). From September 1778 to June 1779 he undertook two journeys, more or less following the upstream course of the Orange River eastwards for ca. 480 km, and as far as Koegas on the stretch between Groblershoop and Prieska (South Africa) (cf. Mossop; 1935: 5). The notes kept by Wikar on these two trips form the substance of the journal he eventually prepared in September 1779 for Governor van Plettenberg<sup>36</sup>.

---

substantiates this identification, providing specific reasons why Windhoek is less likely than Rehoboth.

<sup>35</sup> Two factors may have played a role in explaining this fact. On the one hand, Wikar may have been apprehensive of betraying any of the Cape burgers who may have sheltered him during the time he spent in the jurisdiction of the Cape authorities – and he therefore may have only started his narrative once he was beyond the frontier at the Orange River (see: van der Horst, in Mossop; 1935: 117, note 100). On the other hand, it seems plausible that Wikar – tired of his wanderings – may have conceived of the journal as a direct means of gaining some favour from the authorities to facilitate his return to Cape society. This may explain why the journal was started so late – a project born from the desperation of passing time – and why it mostly deals with his travels in officially little known territory – a project likely to illicit official interest.

<sup>36</sup> In the account of his travels prepared for the Stellenbosch farmer Hendrik Cloete, Wikar states that "Myn Journaal, die ik weegens de geringe voorraad pampier die ik by my had, *met characters en abbreviatuuren gevuld heb*, heb ik aan de Caap koomende op 26 vellen groot formaat

From Wikar's account, he set out as lone European amongst a group of Namaqua<sup>37</sup> who had come to the Orange to trade for cattle with the Nama, but finding the river impassible, decided together with Wikar to travel eastwards along the Orange in order to trade with the Khoi and BaThlaping tribes there instead. Later on the party was also joined by a group of (apparently) San<sup>38</sup>. Travelling mostly along the Orange, Wikar's party sometimes struck inland and travelled to further locations along the Orange. All of these travels were however along the south bank for the Namibia/RSA stretch of the river – Wikar apparently never crossed into Namibian territory (apart from perhaps rafting/swimming across the Orange once or twice). His descriptions of the environment and peoples encountered are therefore primarily of value in providing some understanding of the state of the Lower Orange River environment at that time; his descriptions of the plains to the south of the Orange giving some indication of similar conditions immediately north of the Orange in the broader Nama Karoo biome as well. Similarly, Wikar's account is a trove of *lived* information regarding contemporary accounts of life amongst the Khoi peoples – and thus the Nama – he encountered and spent time with, for it is remarkable to which extent he was accepted and assimilated by these peoples. Of all the European sources, Wikar is the only one to have "gone bush", and to thus have been able perceive and record things from a somewhat *native* perspective.

A reconstruction of Wikar's precise itinerary is extremely difficult, with observations from the two journeys often synthesised in his presentation, and with place names often derived from phonetic renderings of Khoi or Bantu names. Wikar was neither a trained naturalist, nor did he grow up in the Southern African environment, and often he clearly recorded (emotive) impressions rather than critical observations<sup>39</sup>. While able to

---

pampier... geschreven" (Mossop; 1935: 240) – which may roughly be translated as "My journal, which - due to the fact that I had such little paper with me – *I had filled with initials and abbreviations*, I (re)wrote onto 26 pages of large format (paper) upon my return to the Cape" (own translation). It thus seems clear that Wikar rather kept notes than an actual journal while on his travels. Inevitably, Wikar was not always able to make sense of his notes again afterwards, as he informs the reader at one point in his account that he had written something in his notebook ("memorieblad"), but that the meaning of it has since escaped him (cf. Wikar, in Mossop; 1935: 92-3). It seems fair to assume that some missing facts may thus have become "smoothed over", and some other facts and observations decontextualised in Wikar's eventual journal accounts.

<sup>37</sup> The party was lead by a certain Claas Barend, originally from the Piketberg district, and a member of Coetsé, Jansz:'s party which crossed the Orange in 1760 (Wikar, in Mossop; 1935: 23). He appears to have been able to speak Dutch, and to use firearms.

<sup>38</sup> They joined the party somewhere near the confluence of the Orange and Little Hartebeest Rivers west of Onseep. Wikar identifies them as "Samgomomkoa or Zandveltsvolk" (Wikar, in Mossop; 1935: 30), but refers to them as "Bushmen" throughout his further account.

<sup>39</sup> Possibly most of all, Wikar was interested in writing a good story – something to captivate his audience, often peppered with exaggerations, etc. Thus, we read that Wikar found the pastures along the south bank of the Orange the "finest pasturage (he) had ever seen" (Wikar, in Mossop; 35) – hardly likely for a Swede from lush Göteborg, who had also spent time in Holland!

communicate in Dutch, Wikar does not seem to have had any grasp of Nama/ Namaqua beyond certain rudimentaries.

In addition to the *Berigt* (report) Wikar prepared for Governor van Plettenberg in September 1779, he also completed a *Relaas* (account) of his travels in December 1779 for the Stellenbosch farmer Hendrik Cloete, containing some additional information (Mossop; 1935: 7-8). This *Relaas* has been referred to in some instances in Appendix 3.

Wikar deserted from the Cape in April 1775, but his journal only starts from the beginning of September 1778, when he was near Goodhouse on the Orange River. Until the beginning of June 1779, he twice travelled eastwards along the Orange River. The journal fairly well records the route Wikar followed eastwards on his first journey, and attached to that is some rudimentary timeframe. The return route of the first trip and the routes of the entire second journey remained largely undescribed - with some details merely referred to, and only some indications of relevant dates. Nevertheless, it seems fair to assume that the journeys overlapped considerably - Wikar often mentioning details from the two trips (and associated return trips) for the same locality or people - and that in total Wikar travelled along the stretch from near Goodhouse to somewhere between Groblershoop and Prieska in the Northern Cape.

A map – possibly drawn by a DEIC clerk at the Cape, and apparently not by Wikar himself – was later added to Wikar's journal (see: Mossop; 1935: Map 1 – inserted between pp. 192 and 193). As Wikar had no compass during his travels (Wikar, in Mossop; 1935: 195-7), the directions contained in his journal are few and at best approximate. Thus the map which was produced from his journal is distorted and not at all to scale.

Mossop made an attempt to retrace Wikar's route, and to identify the places and geographical features mentioned in the journal (Mossop; 1935: 1). The broad reconstruction presented here is based on Mossop, but some contemporary names have been inserted where relevant.

### **7.2.1. Approximate description Wikar's wanderings along the lower and mid-stretches of the Orange River during 1778 (and possibly 1779).**

On this journey Wikar travelled from ca. Goodhouse eastwards along the Orange River, reaching his furthest point at ca. Kheis – near Groblershoop in the Northern Cape. Wikar gives few details of his return trip, but it appears as if he travelled back along more or less the same route from ca. Kheis to his house "down along the river" – probably somewhere near the confluence of the Little Hartebeest and Orange Rivers near Krapohl island (cf. Mossop; 1935: 32-3; note 22).

Wikar's party left Goodhouse early in September 1778, travelling along the south bank, and reaching the confluence of the Orange and Little Hartebeest Rivers on the 11<sup>th</sup>. Here the party were joined by a group of San, and travelled along the course of the

---

Orange to ca. Pellasdrift. Here the party left the Orange Valley, and travelled inland to somewhere on the Kaboop River, and from there back to the Orange valley, and from there further eastwards.

On the 25<sup>th</sup> the party left the course of the Orange at Beenbreek, and travelled eastwards across the plains of Northern Bushmanland towards the Augrabies Falls. The party traveled via the Oup plain, the Swartoup Mountain, Swartmodder, ca. Skuitdrift and Seekoeisteek (ca. Daberas), before reaching the Augrabies Falls towards the beginning of October. On the 8<sup>th</sup> of October the party trekked beyond the Augrabies Falls, resuming a course now following the Orange Valley. On the 18<sup>th</sup> the party crossed the Orange near its confluence with the Hartebeest River near Marchand, and following the Orange, reached the area near Keimoes on the 25<sup>th</sup>. The party then travelled further along the Orange, past Upington, and reaching their furthest point at a Kora kraal near Kheis, somewhere between Groblershoop and the Langberg (Northern Cape) (Wikar, in Mossop; 1935: 20 – 167). Wikar's journal provides no date as to when this point was reached, and simply states "here on my first expedition I turned back" (Wikar, in Mossop; 1935: 167).

Few details of the return route and itinerary are provided in Wikar's journal, and it would appear as if he followed much the same route back – with the notable exception of this time following the course of the Orange River between the Augrabies Falls and Beenbreek instead of the more direct overland route followed in September/ October. Wikar informs us that he travelled along this stretch of the river on his return trip in December (1778), this having been necessitated by the lack of drinking water away from the river at that time (Wikar, in Mossop; 1935: 119). Wikar seems not to have travelled all the way back to Goodhouse, but to have stopped near the confluence of the Little Hartebeest and Orange Rivers – the apparent site of his "house down along the river", and the stretch of the river from where his Sangomomkoa companions hailed. Wikar may have reached this point sometime in December 1778, or early in January 1779, and in the *Relaas* (account) of his travels he later prepared for Hendrik Cloete of Stellenbosch, he informs the reader that he spent time amongst the Sangomomkoa (here) until setting out on his second journey (cf. Mossop; 1935: 32-33; note 22). Before setting out again, Wikar here composed a *smeekbrief* (petition) to Governor van Plettenberg, and had it passed on to the nearest European farmer by some Namaqua for further dispatch to the Cape (Mossop; 1935: 3).

### **7.2.2. Further wanderings along the Orange River, to as far upriver as Koegas (South Africa) in 1779.**

Details of Wikar's second trip are very scarce and cryptic. The journal informs us that he set out (from presumably near the confluence of the Little Hartebeest and Orange Rivers) on the 1<sup>st</sup> of April 1779, and this time travelled "four stages" further along the Orange than on his first journey – apparently to the present Koegas, on the stretch of the river ca. halfway between Groblershoop and Prieska (Wikar, in Mossop; 1935: 171; Mossop; 1935: 170; note 140). Wikar's route to Koegas and back are unclear, but he does inform the reader that he travelled more rapidly than on his first journey, and reached his house again early in June 1779 (Wikar, in Mossop; 197). Soon after his

return, Wikar received news of an official pardon, and on the 11<sup>th</sup> of July left the Orange River Valley to travel back to the Cape (Wikar, in Mossop; 1935: 197).

## 8. BACKGROUND TO THE WORK OF CAPTAIN G.C. SHORTRIDGE

By the time his *Mammals of South West Africa* was published (1934), Shortridge was the Director of the Kaffrarian Museum in King William's Town (South Africa). His 2 volume study – partly funded by the Carnegie Corporation of New York – was the first comprehensive description of the mammals of Namibia, and the first attempt to determine contemporary distributions. His attempts to determine distributions relied on personal collections, field observations, and reports gained from local inhabitants during 6 expeditions<sup>40</sup> to Namibia during the course of 10 years (Shortridge; 1934: vii). For his description of mammal behaviour, he relied on personal observation, but perhaps even more heavily on published accounts from the preceding 50 years or so, often presenting merely extensive quotations from these works on various aspects – e.g. from Bryden (1889 – 1899), Selous (1890-1899), Stevenson-Hamilton (1919-1929); Steinhardt (1924). In order to determine mammal distribution, he subdivided Namibia into 10 distinct zoogeographical zones, of which directly relevant here: 1). The Orange river valley, westwards of Upington; 3). "Great Namaqualand" (Namaland; east of the western escarpment and south of 24°S); 8). The Kalahari Region ("practically all the eastern portions of SWA") (Shortridge; 1934: xii-xv).

In 1942 Shortridge also published an account of mammal surveys undertaken by the South African Museum in the Cape Province (South Africa)<sup>41</sup>.

## 9. SHORT BACKGROUND TO REV. JOSEPH TINDALL'S YEARS IN NAMIBIA (1839 – 1855)

Rev. Joseph Tindall was a Wesleyan missionary who arrived together with his wife at the Cape from Britain early in 1836. In 1838 he left for Warmbad (Nisbett Bath) in order to assist Rev. Cook in his duties, arriving there early in 1839. In the event, Tindall stayed on in Namibia for nearly 16 years, working as missionary at various places. From 1844 to 1851 he was the principal missionary for Ameral Lambert's group of Oorlam, and was based variously at Wesleyvale (ca. Leonardville) and near Gobabis. In 1851 he left Ameral's group, and accepted the post as missionary at Warmbad instead, staying on here until June 1855. During his residence in Namibia, Tindall travelled widely around the missionary stations and cattle outposts of the Nama and Orlam groups he was working with. He also visited the area around Windhoek and Rehoboth, and travelled to Walfish Bay.

<sup>40</sup> Namely: 1). The Orange river, west of Upington; 2). Namaland and Damaraland; 3). Ovamboland; 4). The Kalahari region around Gobabis; 5). The Kaokoveld; 6). Grootfontein district (Shortridge; 1934: xi).

<sup>41</sup> Shortridge G C (1942) Field notes on the first and second expeditions of the Cape Museum's mammal survey of the Cape Province; and descriptions of some new subgenera and subspecies, in *Annals of the South African Museum*, Vol. 36 (1): 27-99.

The journal which Tindall kept is mostly concerned with matters of his missionary task, and contains only incidental references to the wild animals he encountered. Geographically his entries are very approximate, and of little use in locating records. Tindall's entries often skip days or weeks, and often only mentions points of departure or destinations - and sometimes not even that. It has therefore been impossible to trace with any certainty the routes which he took during his travels. Nevertheless, his journal is valuable in broadly sketching a Namaland in the grips of radical social transformation - with cattle rustling, firearm-assisted big game hunting and warring between various Nama, Oorlam, Damara and Herero becoming entrenched features of life in Southern Namibia (cf. Tindall; 1959).

Only a few useful records have been extracted from his journal for the purpose of this study, but it should be mentioned here that Tindall often makes mention of encountering (Black) Rhino (35; 38; 58; 60; 65; 93), Lion (35; 59; 85; 88; 93; 118; 120), Elephant (59; 79; 80; 89; 94), and also of Buffalo (58; 60) Giraffe (58), Kudu (58) and (Burchell's?) Zebra (93; 96) for the area NE of Mariental, around Leonardville and Gobabis. He also mentions (Blue) Wildebeest once (93). Of the big game hunted here, Rhinoceros is most frequently mentioned by Tindall. When first visiting "Elephant's Fountain" (Gobabis) in 1845, Tindall found elephant numerous and terrorising local villages (79-80); later he also reports of Elephant caught in pitfalls (pres.) by Damara (= Herero) near Wesleyvale in 1846 (94).

## BIBLIOGRAPHY OF SOURCES

Alexander J E (1838) *An Expedition of Discovery into the Interior of Africa, through the hitherto undescribed Countries of the Great Namaquas, Boschmans and Hill Damaras, Vol. 1*, Henry Colburn, London.

Alexander J E (1838a) *An Expedition of Discovery into the Interior of Africa, through the hitherto undescribed Countries of the Great Namaquas, Boschmans and Hill Damaras, Vol. 2*, Henry Colburn, London.

Gordon R J (1988) *Cape Travels 1777 – 1795, Vol. 1*, edited by Peter E Raper and Maurice Boucher, Brenthurst Press, Houghton.

Mossop E E (1935) *The Journal of Hendrik Jacob Wikar (1779) with an English translation by A. W. van der Horst and the Journals of Jacobus Coetsé Jansz: (1760) and Willem van Reenen (1791) with an English Translation by Dr. E.E. Mossop*, V.R.S. publication no. 15, Van Riebeeck Society, Cape Town.

Mossop E E (1947) *The Journals of Brink and Rhenius, being the Journal of Carel Frederik Brink of the Journey into Great Namaqualand (1761-2) made by Captain Hendrik Hop, and the Journal of Ensign Johannes Tobias Rhenius (1724), transcribed, translated and edited by Dr. E. E. Mossop*, V.R.S. publication no. 28, Van Riebeeck Society, Cape Town.

Paterson W (1790) *Narrative of Four Journeys into the Country of the Hottentots, and Caffraria, in the Years 1777, 1778, 1779*. J. Johnson, London.

Shortridge G C (1934) *The Mammals of South West Africa, Vol. 1*, William Heineman Ltd., London.

Shortridge G C (1934a) *The Mammals of South West Africa, Vol. 2*, William Heineman Ltd., London.

Skead CJ (1980) *Historical Mammal Incidence in the Cape Province, Vol. 1: The Western and Northern Cape*, Department of Nature and Environmental Conservation of the Provincial Administration of the Cape of Good Hope, Cape Town.

Tindall J (1959) *The Journal of Joseph Tindall, Missionary in South West Africa, 1839-1855, edited with Introduction, Footnotes and Sketch-map by B.A. Tindall*, V.R.S. publication no. 40, Van Riebeeck Society, Cape Town.

Vedder H (1937) *Die Voorgeschiedenis van Suidwes-Afrika – Gebeurtenisse in Suidwes tot aan die dood van Maherero in 1890* (vertaling H Rooseboom). John Meinert Ltd., Windhoek.

**Maps**

Surveyor-General (Namibia) (1994) *Republic of Namibia 1: 1000 000 Map*, Office of the Surveyor-General, Windhoek.

University of Cape Town