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## **Game Management an Incidence of Global Climatic Change**

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With reference to the publication in *Game & Hunt*, 2003 (Below).

Habitats are ever changing as a consequence of the effects of nature as well as a result of the interference of human. Natural changes are due to the cyclic tumbling of climatic conditions as a result of the position of earth in relation to the position of the sun and the other planets in the galaxy. Human interference is the developing abilities of mankind in using mechanic machinery and means as well as artificial chemicals to change the environment and its surroundings. The second most devastating effect caused by mankind is the allowing of extended numbers of livestock to continuously inhabit the very same piece of land.

As a result of environmental changes, including habitat changes, plants and animals tend to adapt to overcome the changing conditions. Either the plant or animal will move or try to move to more suitable sites, or try to tolerate the change and the accompanied pressure thereof (which will restrain the species well being and mostly its production abilities) or, the species will change itself to something else - a new living form. To do this the species will undergo speciation, which is a change in its feature and genetics. If the species can not adapt it will die off and become extinct.

This process of change is called evolution. Evolution is a global action of a sequence of intriguing forces taking place. It all started with the evolving of the universe and its galaxies. Galaxies evolve from BIG-BANG explosions of gravity that was grasped up into a prior BLACK-HOLE. This leads to the ever ongoing expansion of the universe. Earth is believed to was formed some 4200 million years (4.2 billion years) before present. The exploded gas masses cooled down and created oceans of water and land masses on its surface. Life forms developed since 3000 million years BP. The crust of the land masses is continuously moving across the surface of earth, called continental drift. The earth itself changes its angle as well as its ellipse orbital path around the sun. As a result of this the climate on earth changes.

Stormy conditions and instability causes the habitats on earth to undergo long-term, 10 000 to 200 000 year changes as well as short-term, 50 to 300 year changes. Long-term changes are experienced through the cyclic occurrence of Glacial Ice Ages alternated by Inter Glacial Sun Ages. These cycles only started 1.2 million years ago. Some 12 cycles have passed to date. The maximum or extreme changing climatic and environmental conditions are found with the core of each cycle. The core of the last Ice Age was some 12 000 years ago (Bp). The core of the present

alternating Sun Age we are living in is expected to appear between the years 2100 and 2150 AC. This is 90 to 140 years from present and is called NATURAL GLOBAL WARMING. Between the cores the surface temperatures of earth varies on average by 12°C. This is mainly the consequence of the change in concentration of atmospheric CO<sub>2</sub> gasses. CO<sub>2</sub> concentration changes from 200 parts per million in the atmosphere during Ice Ages to 275 ppm during Sun Ages. Since 1840 to 2004 (this is less than 200 years) the temperature on earth has risen by 2°C. Glaciers and the ice-caps of the poles have already started to melt. Ocean levels have risen during the same time by 9 cm. Habitats on earth and within South Africa have already undergone severe changes over the past 200 years, hereof.

The interference of man by commercial industrial CFC gasses being released in the atmosphere has raised the CO<sub>2</sub> levels to 378 ppm contributing to the ARTIFICIAL GREENHOUSE EFFECT. This is 100 ppm more than ever experienced during the past cycles of change. Other greenhouse gasses are CH<sub>4</sub>, N<sub>2</sub>O and CFC. Over the next 100 years from present the temperatures is expected to rise by an additional 4°C. The ocean levels are expected to rise.

Life on Earth has experienced five major global extinctions to date and the sixth banging on our doors.

- 1<sup>st</sup> extinction of marine life, major climatic change 435-425 mil yr BP
- 2<sup>nd</sup> extinction of marine life, asteroid collision (Siljan Crater, Belgium) 370-360 mil yr BP
- 3<sup>rd</sup> extinction of reptiles, massive CO<sub>2</sub> poisoning 250-240 mil yr BP
- 4<sup>th</sup> extinction of 1<sup>st</sup> dinosaurs, environmental change (dust & acid cloud – 2 asteroids, Manicougan Crater, Canada) 220-210 mil yr BP
- 5<sup>th</sup> extinction of 2<sup>nd</sup> dinosaurs, tsunami mud wave (1 asteroid, Chicxulub Crater, Gulf of Mexico) 65-55 mil yr BP
- 6<sup>th</sup> extinction of mammals???, Greenhouse Effect??? 21<sup>st</sup> Century???

Looking at the past long-term changes of animal life and the present rapid changes of our habitats it is expected that animal life are heading for major changes over the next 200 years to come. Plants as well as animals need to adapt to the onslaught of environmental changes to come. This is evident and can be seen in the past 50 to 200 year's happenings in South-Africa as well as all over the world.

Examples:

- a) The change of the succulent valley bushveld of the Eastern Cape. It evolved at the end of the last Ice Age and is rapidly retreating and disappearing with the warming conditions and drying of our present climate. The rate of degradation however is enhanced by human livestock farming.
- b) *Dichrostachys cinerea* (cyclebush) encroachment in the northern bushveld.
- c) Mopane trees transforming to encroaching robust shrubland
- d) *Rhigosum trichoneura* (driedoring) shrubs invading the Kalahari desert.
- e) *Acacia melliphera* (swarthaak) invasion in the north-western regions
- f) *Acacia karroo* (soetdoring) dispersing through the midlands of the Karoo regions. 1942 the most northern occurrence of soetdoring was 2 km from Cradock, today it is found as far north as Smithfield some 250 km further.

All of these changes have the same in common: developing of fire resistance bark; resistance to

animal browsing; increased root systems; and overall resistance against draught.

It means that the South African environments are undergoing two types of changing. Firstly it is drying out with grasslands being transformed into arid Karoo dwarf scrubland. Secondly grasslands are being transformed by woodyfication into Bushveld. Marshlands is shrinking and disappearing. The consequence is that animal species firstly have to move according to the changes in distribution of suitable habitats, and secondly have to adapt to survive in less suitable or marginal habitats, and thirdly have to specialize by speciation (genetic changes).

In the past (until 50 to 100 years ago) animals were limited in their movement by natural barriers. Modern technology has made it possible for animals to be conveyed between habitats of interest and suitability. There are no viable reasons to withhold or restrict any animal species today from inhabiting a suitable or marginally suitable habitat irrespective of its location. It also needs to be noted that no ecosystem or habitat today in South Africa or elsewhere is still the same as it were 300 years ago. Even if man would not have intervened the habitats would still have been different due to the natural global changing of earth's climate.

It is also to be noted that the game industry today has transformed into an economic business. Speciation has special marketing values and abilities and has to be treated as such. Without the money spinning business, game animals will not have any role to play within the modern human society. Prepare yourself for a gradual animal change, browsers becoming dominant over grazers.

Speciation of animals is not to be defeated by conservation management, but to be allowed within certain degrees of limitation to develop for adaptation for the future global changes, as they have ever been doing. **MAN IS NOT PERMITTED OR AT LIBERTY TO STOP THE PROCESS OF EVOLUTION.** A process that is currently undergoing rapid change and development due to the entering of the core of the Sun Age.

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## **Game Business: Markets, Production, Distribution & Genetics, and Habitats**

**Deon Furstenburg & Pieter van Niekerk**

With reference to an article in *Game & Hunt* April 2002 "Is Game Ranching Compatible with Nature Conservation?" this paper was presented at a symposium that followed on 2<sup>nd</sup> April at the Wild Expo at the Stwane Event Centre in Pretoria. Emphases were put on the proposed National

Translocation Act which has been initialized by the West Cape Nature Conservation. With the modern development of the game industry the question is rather to be turned around “Is Nature Conservation Compatible with Game Ranching?”

## Overview

Game ranching has become a commercially economic market related industry which does not fit the principles of purified nature preservation anymore. Becoming a commercial enterprise, game ranching in its diversified business structure has converted to agricultural principles of intensified animal production. Population structures of game animals are being manipulated in terms of age and sexual composition and get managed by agricultural animal production norms. Genetic hybridization of game has become a major threat to the conservation of biodiversity, yet it also became the tool and product of economic viability to the greater portion of the game farming sector of the game industry. Enforcing regional bands upon the translocation of , and the keeping of game in areas where they haven't been documented by the mere early travellers and transport riders crossing localized sections of the country in the 1600's to early 1800's should be taken as naïve and irresponsible. Such a band would have merits for global conservation of wildlife resources, but does not take into consideration the negative impact upon the commercial and private markets. National legislation concerning translocation banding should only apply for areas set aside for nature conservation and eco-tourism only, but not upon the productive game farming industry. Game farms are to be rated on a 5 star rating system with regard to its genetic purity and its altered biodiversity in relation to early journal documentations. The farms and/or its products are to be marketed according to its rating. The rating system need to be defined and registered with national Government. Privileges and translocation acts need to be set for each rating consecutively. The responsibility claims of risk and management need to be assigned to the game producing industry itself.

## What is Conservation?

Conservation is the preservation of wildlife and natural resources including biodiversity and ecosystems regardless of economic turnover. Natural, purified animals are being kept and maintained in natural and historical habitats. Government is responsible for maintaining genetic purity within defined conservation areas to sustain biodiversity.

## What is the Game Industry?

It comprises: a) conservation, b) zoological institutes, c) eco-tourism, d) game ranching and e) game farming. **Game ranching** applies external game production with emphasis on the preservation of habitats and productive vegetation. It implies any game animal able to survive by itself within a given natural habitat. The risk of survival of the animal lies with the landowner carrying the financial losses. The landowner is responsible for preserving vegetation habitats. It is a system of sustained animal utilization.

**Game farming** is intensive game production with emphasis on the preservation of a productive soil substrate. It implies any animal to be kept alive by any means of natural and/or artificial feeding mechanism, financially affordable to the landowner. The landowner is responsible for preserving the soil. It is a market related financial business applying agricultural principles. Take note

that >30% of the entire game industry presently consists of game farming.

### **What is Wild and Domesticated?**

Many a definition is found in textbooks, but little soundly supports the modern game industry. Domestication of animals does not only mean the management for production of meat and other products, but it also implies mammalian animals being bred and managed in “captivity” to such an extent that the animal’s social and spatial behavioural needs are lost. The proposed translocation act imply all game animals, regardless of their management, to be wild. It also implies game ranch animals to be free ranging or roaming. Only two parameters truly define an animal to be wild:

a) is the animal free of any space restriction limiting its will of movement at all times? and  
b) is the animal at liberty to maintain its evolutionary developed social behaviour unrestricted?

To what extent can a fenced off “in captivity” animal being classified as “wild” or free roaming?

Any animal being fenced off in a smaller area than its historical migration track is no longer in the wild. It is forced to feed on food sources other than it developed for by evolution. Very little animals in SA reserves today can be declared as in a state of “wild”. Hardly any game ranches and game farms can be declared as “wild”. Production of other products – What are other products? Managing game animals for trophies is also to be classified as other products, though defining it as semi-domestication. Yet, nature conservation bodies want to rule the “WILD” which is correct, but excludes the game business enterprise. The social requirements of game animals can be met on certain reserves and certain game ranches, but are very rarely met on any game farm, as game farms are intensive, managed agriculture units.

### **What is Natural and at what Time?**

**(The dynamics of evolution is an ongoing process.)**

Historical is being defined by conservation authorities mostly to the virtual findings of early European transporters travelling the country and some localised rock arts. Little evidence remains of the tectonic movements of Earth and even less on the dynamic changes of the vegetation and habitats. Yet present non-human changes in habitats can be seen on different scales all over the country.

Confining game species today to the so called believed historical distributions will demolish the natural dynamics of evolution of species, to the detriment of future survival of the taxa and to related sub-speciation. Within 2000 years from present the climate of Earth is entering the centrepoint of the current inter-glacial. Yet the proposed translocation act wants to prevent the process of changing of genetics for the sake of survival. By doing so species will not be able to adapt genetically in time for the climatic changes to come, and game life will risk the threat of total extinction. Habitats as seen today are far from what they were 300-400 years ago as documented in the archives. Yet we do not want to allow our animals to adapt accordingly. Natural global changing of habitats becomes suitable for new species and unsuitable for old species.

In the past animals has been cut of from inhabiting certain suitable habitats due to unsuitable corridors in-between. Occasionally some taxa managed to cross during severe climatic events (e.g. development of bontebok). Human involvement has made it possible for many species to reach

these once remote suitable habitats having equal diagnostic features than the historic habitats and with equal suitability for such an animal species. Who are mankind today to say that such species may not be allowed in these suitable habitats?

### **What is a Suitable Habitat?**

Only the place where an ancient traveller once saw it alive, some 100's of years ago, by some chance? **OR**

The place where the animal can survive at present without being stressed and being able to sustain its social behaviour and where it can breed to its full optimal potential?

Animals used to migrate through and inhabited at different times of the year areas of **OPTIMAL** potential, areas of **MARGINAL** potential and even areas of **UNSUITABLE** potential. Game fencing and fencing regulations by authorities has stopped these natural "WILD" behavioural patterns.

**OPTIMAL** – Animal survives and breeds at full potential

**MARGINAL** – Animal survive except during climatic extremes, and breed at marginal potential

**UNSUITABLE** – Adult animals generally survive, but no breeding occur.

**UNSUPPORTATIVE** – Adult animals can not survive.

### **Trans frontier translocation**

Inhibiting the move of animals across international borders, by the proposed translocation act, where the species existed on either side of the border in different climatic regions (E.g. springbok, gemsbok, eland and kudu) will demarcate sub-speciation exactly as what the authorities wants to prevent within the country borders. It does not make sense to what the motive of achievement are to be accomplished. It puts doubt and disbelief on the authorities spelling a sense of self empowerment and protecting parts of the industry to its own benefits.

### **What is Artificial?**

According to the believes of the authorities it is any animal occurring outside its "historical" believed to be range of distribution, and being able to survive by intensive management. Such conditions are then classified by the proposed translocation act as a "ZOOPARK". This is outrageous as present suitable habitats do not coincide with so called historical distribution ranges. Artificial would in essence be the occurrence outside a suitable available habitat regardless of the exact archaeological location, and being kept alive on supplementary feeding. All game farms and a proportion of Game Ranches are being managed intensively, and therefore by definition would be classified as zoo parks. Zoo parks have been excluded from the proposed translocation act, so the lower rated (on the 5 star rating) farms and ranches are to be considered excluded as well.

### **What is Purified genetics?**

Isolating any gene flow is not purification! Confining certain taxa and animal species to certain so called historic sites in fact result in sub-speciation within taxa. This is in conflict with the goals to be achieved by the proposed translocation act. For example kudu, springbuck, gemsbuck, elephant, buffalo. Genetic flow is part of the dynamics of natural evolution with changing

environments and habitats. Exclusion from changing habitats is isolation and that is not purification.

### **Business Markets**

By definition of the proposed translocation act, any intensively managed game system is to be classified as a zoological institute or a zoo park. Here for all commercial game farms and a great many game ranches are also to be treated as such, which would imply them to be excluded from the translocation restrictions. Authorities need to take recognition once again. Any commercial game producer is to be allowed the decision of choice to register as a zoological institute, or being registered automatically according to its 5 star rating. The registered land owner is to be held responsible for the outbreak of impure gene material from his land to purified neighbouring land. A game insurance industry is already in place to assist in the risks involved. Ruling the market by law is no answer to the complexity of the problem. Differential sectors of the industry are to be responsible for each own risks involved. Not Governmental law.

### **Loss of income**

Phasing out all aliens from all properties by law -- Is Government or Nature Conservation prepared to cover every landowner's losses over time of his future business. The commercial game farming industry is market driven by demand and supply. Here for it is essential for value adding products to be developed. Hybridization and colouring and intensive breeding are value adding. In the Eastern Cape a farm with 800 fallow deer, 200 lechwe and 400 Barbary sheep has an annual production potential of R2 million. The farm is stocked to capacity with all suitable endemic game (eland, mountain reedbuck, black wildebeest), yet no competition exists. Eliminating aliens will decrease production by 80%, yet endemics can only be increased by 15%. The proposed translocation act will result in the aliens to be removed and replaced by domestic sheep of a 90% greater impact upon the habitat and the eco-system. Who is now bluffing who? A farm in the central Kalahari produces 60 sable per annum with intensive breeding. This is marginal to unsuitable habitat and out of the historic distribution range. Are Government prepared to refund the owner with R6 million per annum for 40 years, the time span of his business?

The Eastern Cape game industry has grown by 20-30% over the past 8 years. At present it is approximately 28% of SA industry. Between 85 and 90% of all natural farmland in this province produce game on suitable habitats outside the historic ranges. Is Government going to replace this industry financially for the next 40 years? Or will it be convenient to Government to eliminate this industry by the development of the greater Addo park wilderness near Port Elizabeth, cutting the throats of all private game owners.

**Yes, there need to be Government managed reserves for the preservation of natural wildlife, eco-systems and genetic purity. Private game owners need to have the choice of decision of the scale of business they want to manage and at what ethical or natural purification level. Translocation restrictions need to be set, but not by animal species, but by purification level and rated according to a 5 star rating scale. All game farms and ranches are to be registered according to the 5 star rating. The star rating translocation restriction level needs then to apply in affect accordingly. A 5 star would be a purified wilderness area, whereas a 1 star would be a zoo park filled with alien exotics and hybrids, a 2 star might be**

**exotics on natural veld, 3 star might be hybrids and year round artificial feeding, and 4 star might be SA game in new and marginal habitats outside historic distribution and with only part-time supplement feeding.**

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