THE KRUGER PARK ELEPHANT CHALLENGE : SOME ANIMAL HEALTH AND ECONOMIC CONSIDERATIONS

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ELEPHANT COW BIOLOGY

- MATRIARCHAL SOCIETY WITH A DOMINANCE HIERARCHY
- THE FAMILY GROUP IS THE ECOLOGICAL UNIT
- AGGREGATIONS OF FAMILY GROUPS FORM HERDS
- SEXUAL MATURITY OF HEIFERS : 11 – 13 YEARS
- GESTATION AVERAGES 22 MONTHS AND CALVING INTERVAL IS ABOUT 42 MONTHS
- LACTATIONAL SUPPESSION OF OESTRUS IS THEREFORE 18 – 20 MONTHS
- FEMALES ARE EITHER PREGNANT OR LACTATING DURING THEIR ENTIRE ADULT LIVES – THIS IS THE NORM !!!

ELEPHANT BULL BIOLOGY

- BULL CALVES STAY WITH FAMILY GROUP UNTIL PUBERTY
- PUBERTAL BULLS LEAVE THE FAMILY GROUP AND FREQUENTLY JOIN UP WITH AN OLDER BULL OR BULL GROUP
- DOMINANCE HIERARCHY AMONGST BULLS
- PRESENCE OF ADULT BULLS APPEARS TO SUPPRESS “MUSTH” IN YOUNGER BULLS
- “MUSTH” TRIGGERS LONG RANGE MOVEMENT IN THE QUEST FOR OESTRUS COWS. IT ALSO STIMULATES AGGRESSION

WHY ARE ELEPHANTS SO SUCCESSFUL

- THEY CAN ACCESS DIFFERENT STRATA OF VEGETATION.
- THEY CAN BROWSE, GRAZE, ROOT, STRIP BARK, PICK FLOWERS, SEEDS AND PODS
- THEY ARE HINDGUT DIGESTORS, AND HAVE NO RUMENAL “BOTTLE NECK”.
- THEY CAN PROCESS LARGE VOLUMES OF POOR QUALITY FORAGE, AND EXTRACT MARGINAL NUTRIENTS.
- THEY CAN DIG THEIR OWN WATER PITS

OTHER REASONS FOR THE SUCCESS OF THIS SPECIES

- THEY ARE HIGHLY MOBILE
- THEY ARE HIGHLY PROTECTIVE OF THEIR OFFSPRING
- THEY ARE HIGHLY INTELLIGENT
- THEY HAVE FEW NATURAL ENEMIES OTHER THAN MAN
- THEY ARE VERY RESILIENT TO CLIMATIC EXTREMES SUCH AS DROUGHT
- THERE ARE VERY FEW INFECTIONS THAT CAUSE DISEASE IN ELEPHANTS

DISEASES DOCUMENTED IN ELEPHANTS IN THE K.N.P.

- **ANTHRAX – ELEPHANTS APPEAR TO HAVE LOW VULNERABILITY IN KNP . ONLY 5 / 2770 POSITIVE ANTHRAX CARCASSES DETECTED IN 1990 / 91 OUTBREAK WERE ELEPHANTS**
- **EMC (MOUSE VIRUS) : SPORADIC OUTBREAKS - TRACK RODENT POPULATION EXPLOSIONS. FATALITIES MAINLY IN BULL ELEPHANTS. IN THE 1993 OUTBREAK, THE CARCASSES OF 68 BULLS AND 4 COW ELEPHANTS WERE FOUND THAT DIED OF EMC.**
- **FLOPPY TRUNK AND PODO-DERMATITIS – FOCAL AND SPORADIC, ONLY A FEW CASES DETECTED EACH YEAR**

ELEPHANTS HAVE NOT BEEN IMPLICATED AS DISEASE RESERVOIRS FOR CONTAGIOUS LIVESTOCK DISEASES

THEREFORE ELEPHANTS DO NOT CONSTITUTE A PRIMARY ANIMAL HEALTH PROBLEM

ELEPHANTS AND THE KNP FENCING ISSUE

- **ELEPHANTS ARE THE MOST IMPORTANT FENCE-BREAKING SPECIES.**
- **FENCES ARE BROKEN TO ACCESS WATER, HIGHLY DESIREABLE TREES AND NATURAL FRUITS OR AGRICULTURAL CROPS**
- **FEBRUARY / MARCH (maroelas and ripening agricultural crops) AND THE WINTER DRY SEASON MONTHS SHOW PEAKS OF FENCE BREAKING ACTIVITY**

WE HAVE ATTEMPTED TO REDUCE ELEPHANT FENCE BREAKAGES BY ELECTRIFICATION

EFFECTIVENESS OF ELECTRIFICATION HAS BEEN REDUCED BY HUMAN INTERFERENCE :

- ILLEGAL IMMIGRANTS CROSSING FROM MOZAMBIQUE AND ZIMBABWE
- INTERFERENCE WITH FENCE BY MEMBERS OF LOCAL COMMUNITIES ILLEGALLY ENTERING THE K.N.P.TO HARVEST FIREWOOD, THATCHING GRASS, HONEY, MEDICINAL PLANTS, OR TO POACH
- THEFT OF SOLAR PANELS AND BATTERIES BY CRIMINAL ELEMENTS

THE ELEPHANT POPULATION OF THE KNP HAS ALMOST DOUBLED IN THE PAST 10 YEARS

- THIS IS PLACING INCREASED PRESSURE ON THE KNP FENCE.
- THE NUMBER OF ELEPHANT- ASSOCIATED FENCE BREAKS HAS INCREASED SIGNIFICANTLY IN CERTAIN AREAS.
- THERE IS A STRONG SPATIAL AND TEMPORAL CORRELATION BETWEEN ELEPHANT DENSITIES AND THE NUMBER OF FENCE BREAKS

KNOCK-ON EFFECTS OF FENCE BREAKAGES

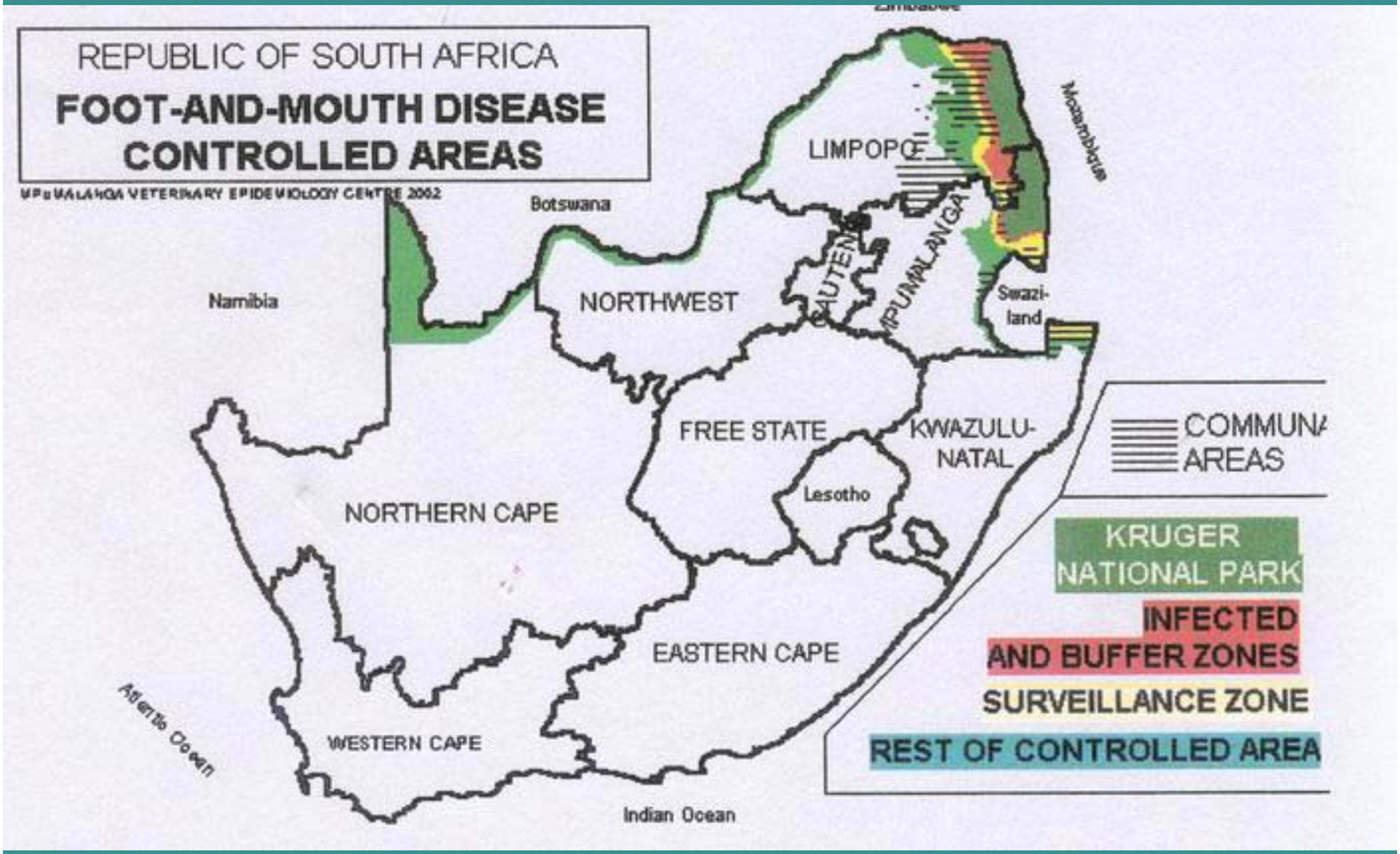
- CROP RAIDING
- FENCE BREAKS ARE CONDUITS FOR OTHER SPECIES TO EXIT THE KNP
- PROBLEMATIC PREDATORS KILL LIVESTOCK
- BUFFALO, KUDU, WARTHOG, AND WILDEBEEST ARE IMPORTANT “CARRIERS” OF LIVESTOCK DISEASES
- BUFFALO ARE THE MOST IMPORTANT DISEASE RISK BECAUSE THEY CARRY FOOT AND MOUTH DISEASE, THEILERIOSIS, BOVINE TB AND BRUCELLOSIS

ELEPHANT PRESSURE ON THE KNP PERIMETER FENCES IS THUS PARTIALLY RESPONSIBLE FOR SECONDARY ANIMAL HEALTH PROBLEMS

- FROM 1983 – 1999, NO FOOT AND MOUTH DISEASE OUTBREAKS WERE DETECTED IN LIVESTOCK ADJACENT TO THE K.N.P.
- FROM 2000 – 2004, FOUR SIGNIFICANT OUTBREAKS OF FOOT AND MOUTH DISEASE HAVE OCCURRED IN LIVESTOCK ADJACENT TO THE K.N.P.
- THERE HAVE ALSO BEEN FOCAL OUTBREAKS OF THEILERIOSIS, CAUSING MORTALITIES IN COMMUNAL CATTLE.

FOOT AND MOUTH DISEASE CONTROL MEASURES

- BARRIER FENCES –FIRST LINE OF DEFENCE
- RISK ZONATION
- REGULAR INSPECTION OF LIVESTOCK IN BUFFER ZONE
- VACCINATION OF LIVESTOCK IN BUFFER ZONE
- ZONAL MOVEMENT CONTROL OF CLOVEN-HOOFED ANIMALS


REPUBLIC OF SOUTH AFRICA
FOOT-AND-MOUTH DISEASE
CONTROLLED AREAS
Botswana
Namibia
Mozambique
LIMPOPO
NORTHWEST
GAUTENG
MPUMALANGA
Swazi-
land
FREE STATE
KWAZULU-
NATAL
Lesotho
NORTHERN CAPE
EASTERN CAPE
WESTERN CAPE
Atlantic Ocean
Indian Ocean
COMMUNA
AREAS
KRUGER
NATIONAL PARK
INFECTED
AND BUFFER ZONES
SURVEILLANCE ZONE
REST OF CONTROLLED AREA

LOCAL IMPLICATIONS OF FOOT AND MOUTH DISEASE OUTBREAKS IN LIVESTOCK

- CALF MORTALITIES
- LOSS OF MILK PRODUCTION BY LACTATING COWS
- LOSS OF WEIGHT IN BEEF CATTLE
- SECONDARY INFECTION OF HOOVES WITH SEVERE LAMENESS
- STRICT MOVEMENT CONTROL AND LOSS OF COMMERCIAL TRADING OPPORTUNITIES

ZONAL IMPLICATIONS OF FMD OUTBREAKS IN LIVESTOCK

- MOVEMENT BAN OF ALL CLOVEN HOOFED ANIMALS AND THEIR PRODUCTS.
- MOVEMENT CONTROL OF CERTAIN OTHER AGRICULTURAL PRODUCE
- MASS VACCINATION IN AND AROUND THE OUTBREAK.
- ROAD BLOCKS PLUS THE ERECTION OF ADDITIONAL CORDONS AND BARRIER FENCES
- THE CURRENT OUTBREAK IN THE LETABA DISTRICT WEST OF PHALABORWA IS COSTING 6 MILLION RAND A MONTH TO CONTROL

NATIONAL IMPLICATIONS OF A FMD OUTBREAK IF IT SPREADS BEYOND THE DECLARED CONTROL ZONE

- **RSA MAY LOSE ITS FMD-FREE STATUS FOR INTERNATIONAL TRADE IN AGRICULTURAL PRODUCTS.**
- **THIS TRADE BAN IS ENFORCED UNTIL 3 MONTHS AFTER THE LAST CLINICAL CASE**
- **AN OUTBREAK OUTSIDE OF THE CONTROL ZONE WILL COST THE COUNTRY MILLIONS OF RANDS IN LOST EXPORT EARNINGS**

CONCLUSION

- **IF THE KRUGER NATIONAL PARK PARK ELEPHANT POPULATION CONTINUES TO GROW AT ITS CURRENT RATE, THE PRESSURE ON THE PERIMETER FENCES WILL INCREASE EVEN FURTHER, WITH ALL THE ATTENDANT ANIMAL HEALTH AND ECONOMIC IMPLICATIONS**

WHOOPS, I JUST COULDN’T MAKE IT IN TIME !!!

That's all
folks!!!