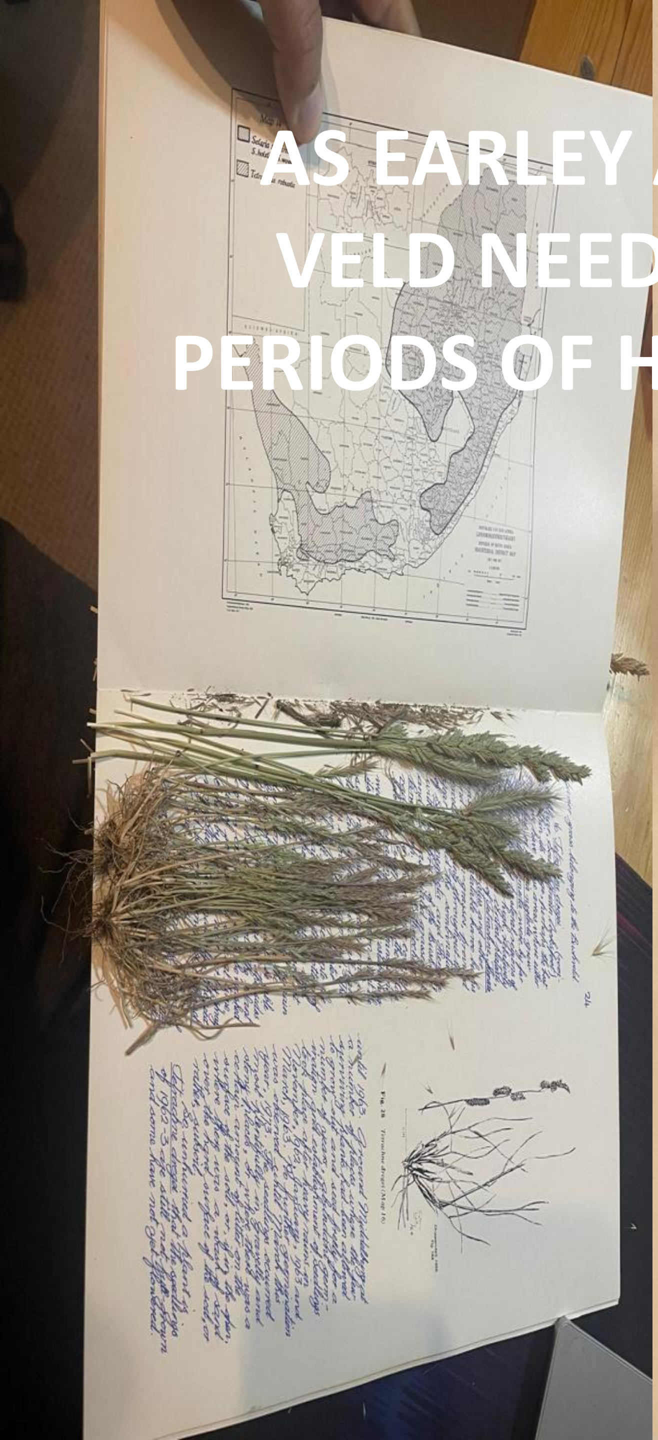
FROM GERBIL SANDPITS TO WINTER GREENS

My Regenerative journey into Adaptive Multipaddock Grazing (AMP)

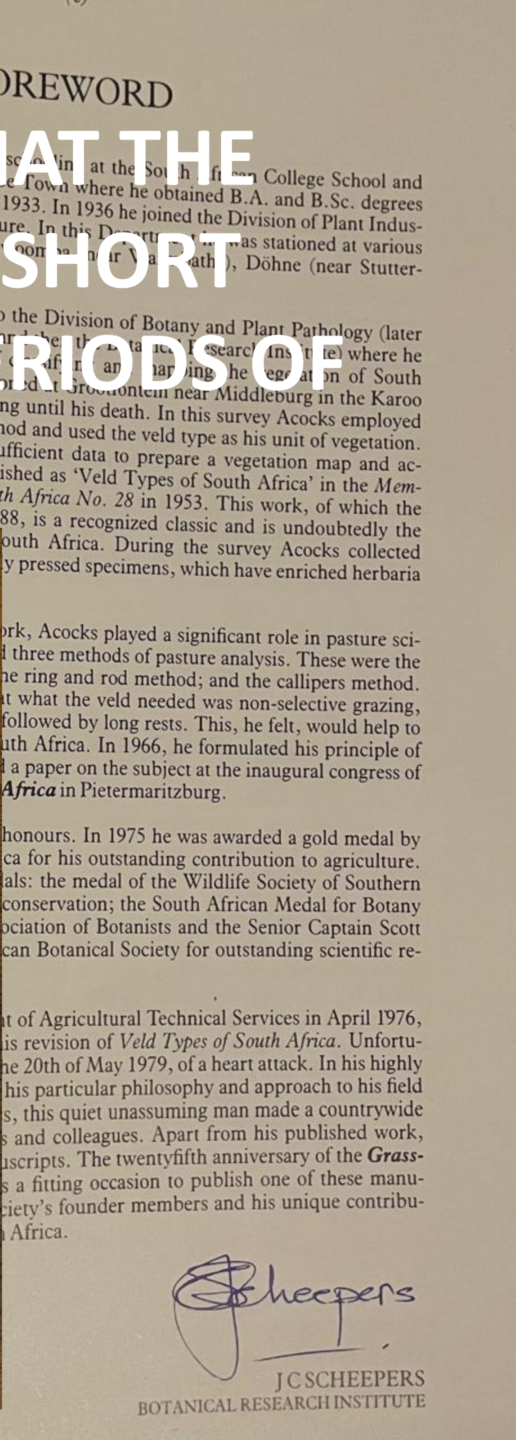
WHERE I'M SITUATED AND WHAT WE FARMING

- **6000HA FARM ON THE STORMBERG, NEAR MOLTENO.**
- **AVERAGE RAINFALL 520MM PER YEAR.**
- **MOLTENO IS ONE OF THE COLDEST REGIONS OF THE COUNTRY**
- **NEGATIVE WINTER TEMPERATURES OF AROUND -12 TO -15 A REGULAR OCCURRENCE.**

AS EARLEY AS 1945 ACOCKS CONCLUDED THAT WHAT THE VELD NEEDED WAS NON-SELECTIVE GRAZING, i.e. SHORT PERIODS OF HEAVY GRAZING FOLLOWED BY LONG PERIODS OF REST



JOHN PHILLIP HARISON ACOCKS
(Cape Town, 7 April 1911 to Middleburg, Cape, 20 May 1979)



FOREWORD

in 1933 and an M.Sc. in botany in 1933. In 1936 he joined the Division of Plant Industry of the Department of Agriculture. ... stationed at various times at Pretoria, Kimberley, ... Döhne (near Stutter-

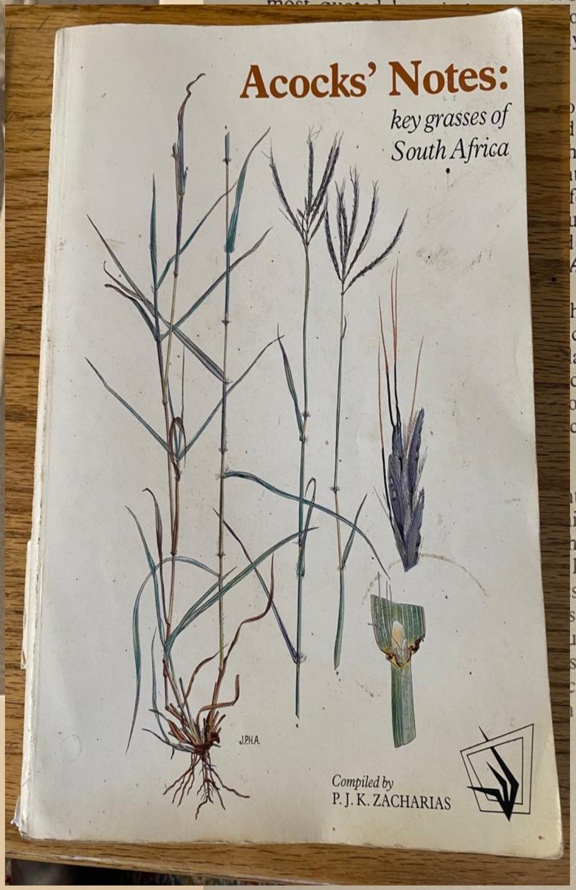
During 1945 he was transferred to the Division of Botany and Plant Pathology (later to become the Division of Botany ... where he ... of South ... near Middleburg in the Karoo Region where he continued working until his death. In this survey Acocks employed his relative-abundance listing method and used the veld type as his unit of vegetation. Within eight years Acocks had sufficient data to prepare a vegetation map and accompanying text, which was published as 'Veld Types of South Africa' in the *Memoirs of the Botanical Survey of South Africa No. 28* in 1953. This work, of which the third edition was published in 1988, is a recognized classic and is undoubtedly the ... outh Africa. During the survey Acocks collected ... y pressed specimens, which have enriched herbaria

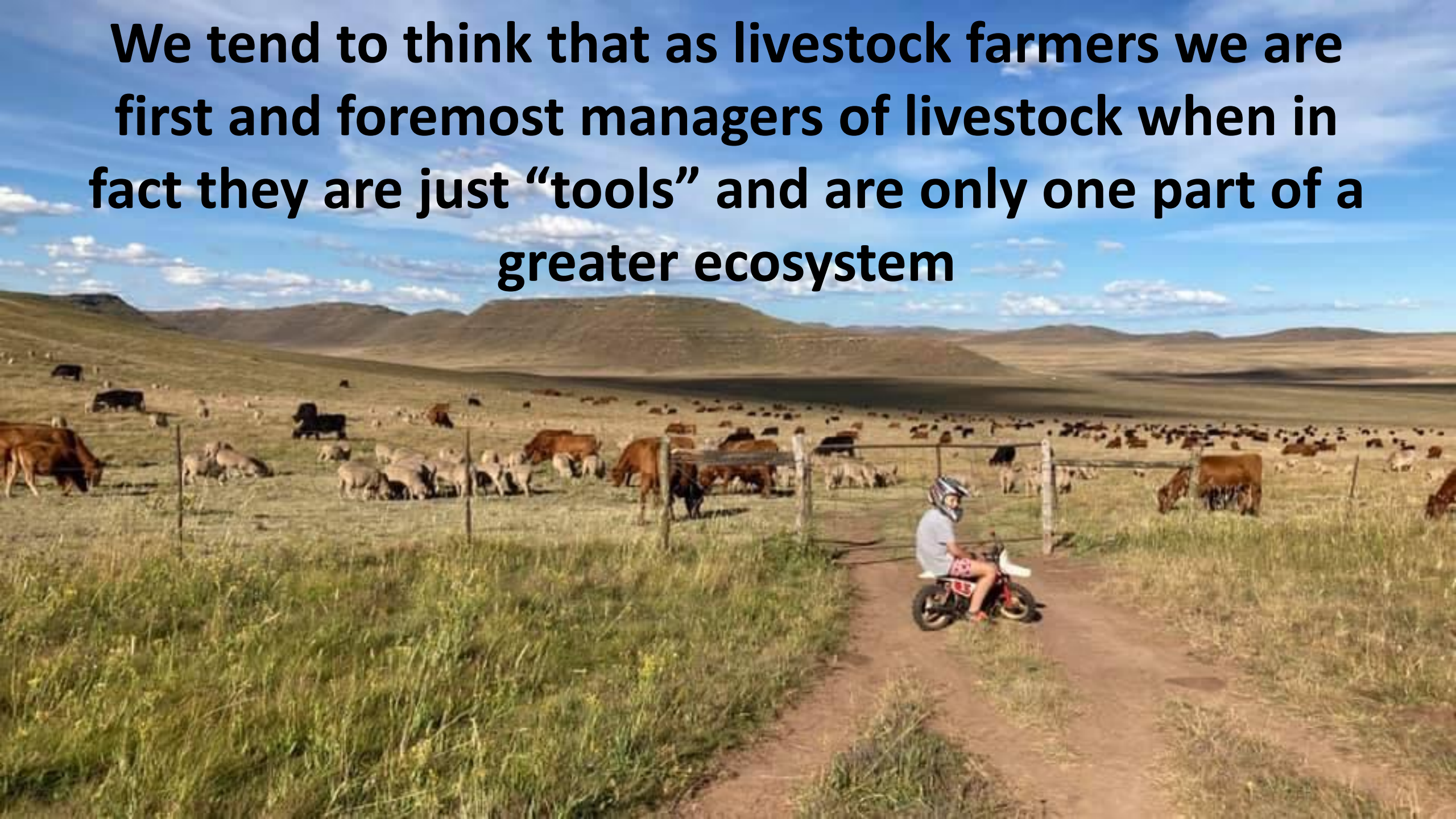
... ork, Acocks played a significant role in pasture sci- ... three methods of pasture analysis. These were the ... e ring and rod method; and the callipers method. ... t what the veld needed was non-selective grazing, ... followed by long rests. This, he felt, would help to ... uth Africa. In 1966, he formulated his principle of ... a paper on the subject at the inaugural congress of ... *Africa* in Pietermaritzburg.

... honours. In 1975 he was awarded a gold medal by ... ca for his outstanding contribution to agriculture. ... als: the medal of the Wildlife Society of Southern ... conservation; the South African Medal for Botany ... ociation of Botanists and the Senior Captain Scott ... can Botanical Society for outstanding scientific re-

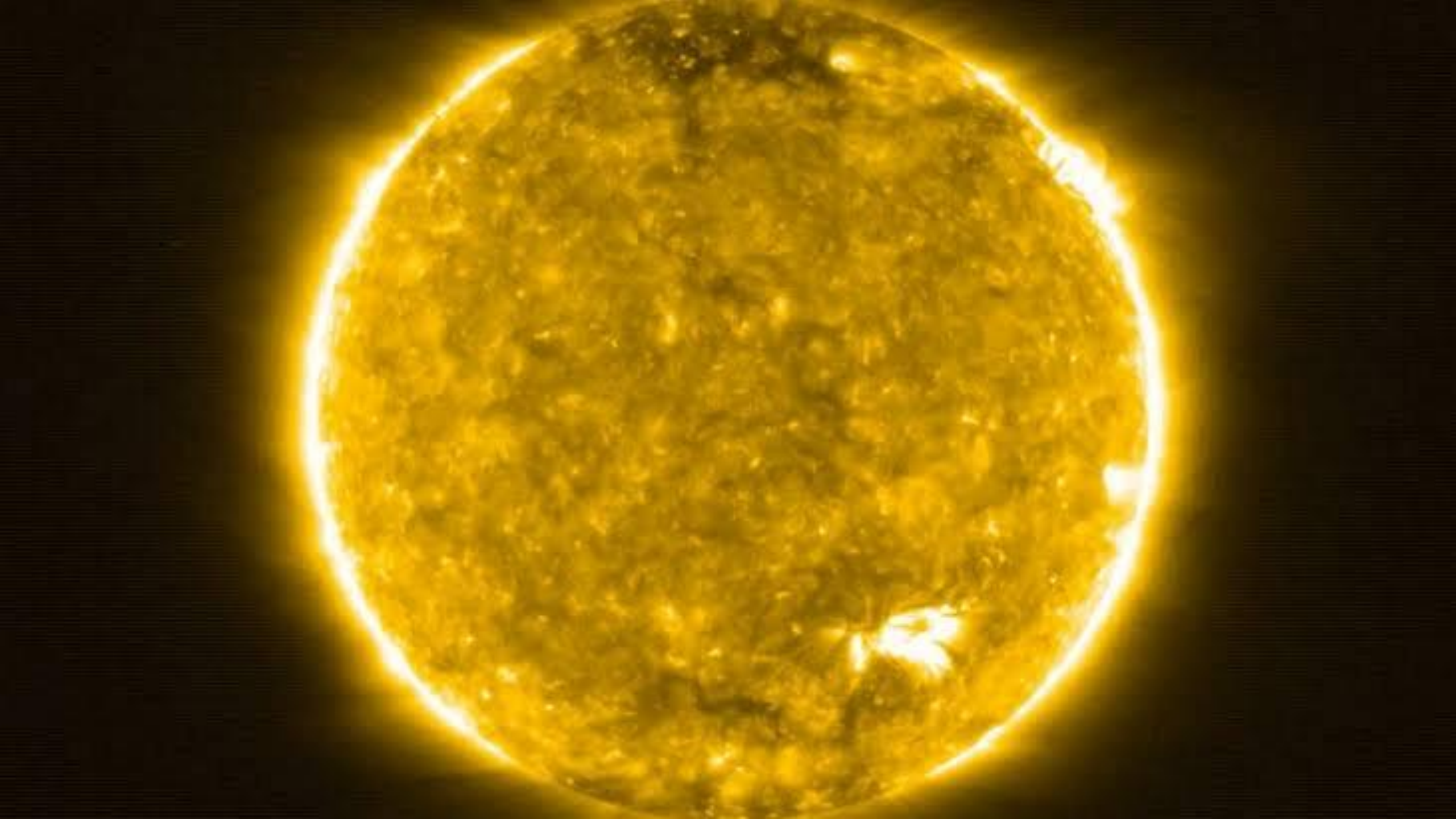
... t of Agricultural Technical Services in April 1976, ... is revision of *Veld Types of South Africa*. Unfortu- ... e 20th of May 1979, of a heart attack. In his highly ... his particular philosophy and approach to his field ... s, this quiet unassuming man made a countrywide ... s and colleagues. Apart from his published work, ... uscripts. The twentyfifth anniversary of the *Grass-* ... s a fitting occasion to publish one of these manu- ... ciety's founder members and his unique contribu- ... Africa.

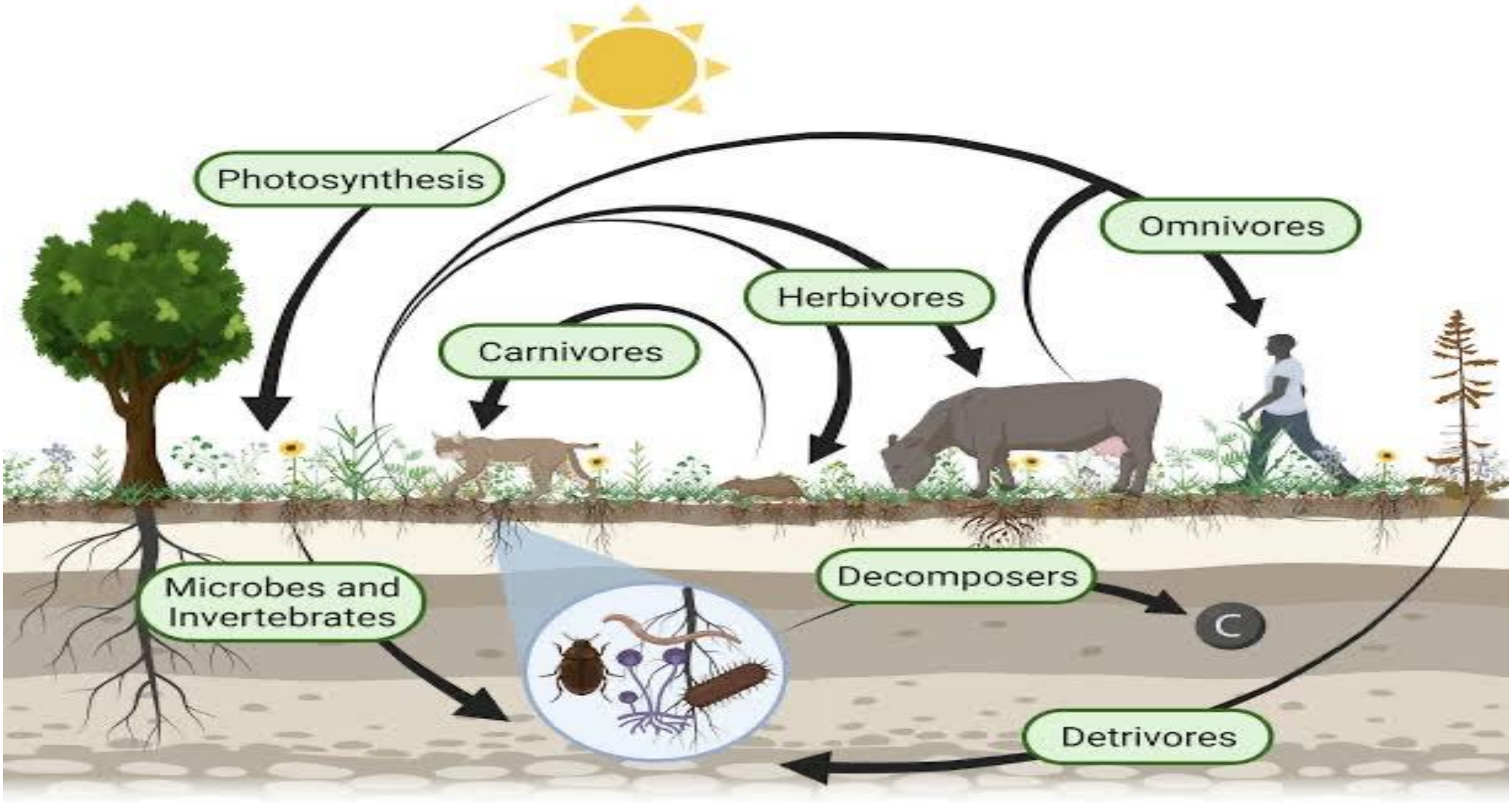
J C SCHEEPERS
BOTANICAL RESEARCH INSTITUTE



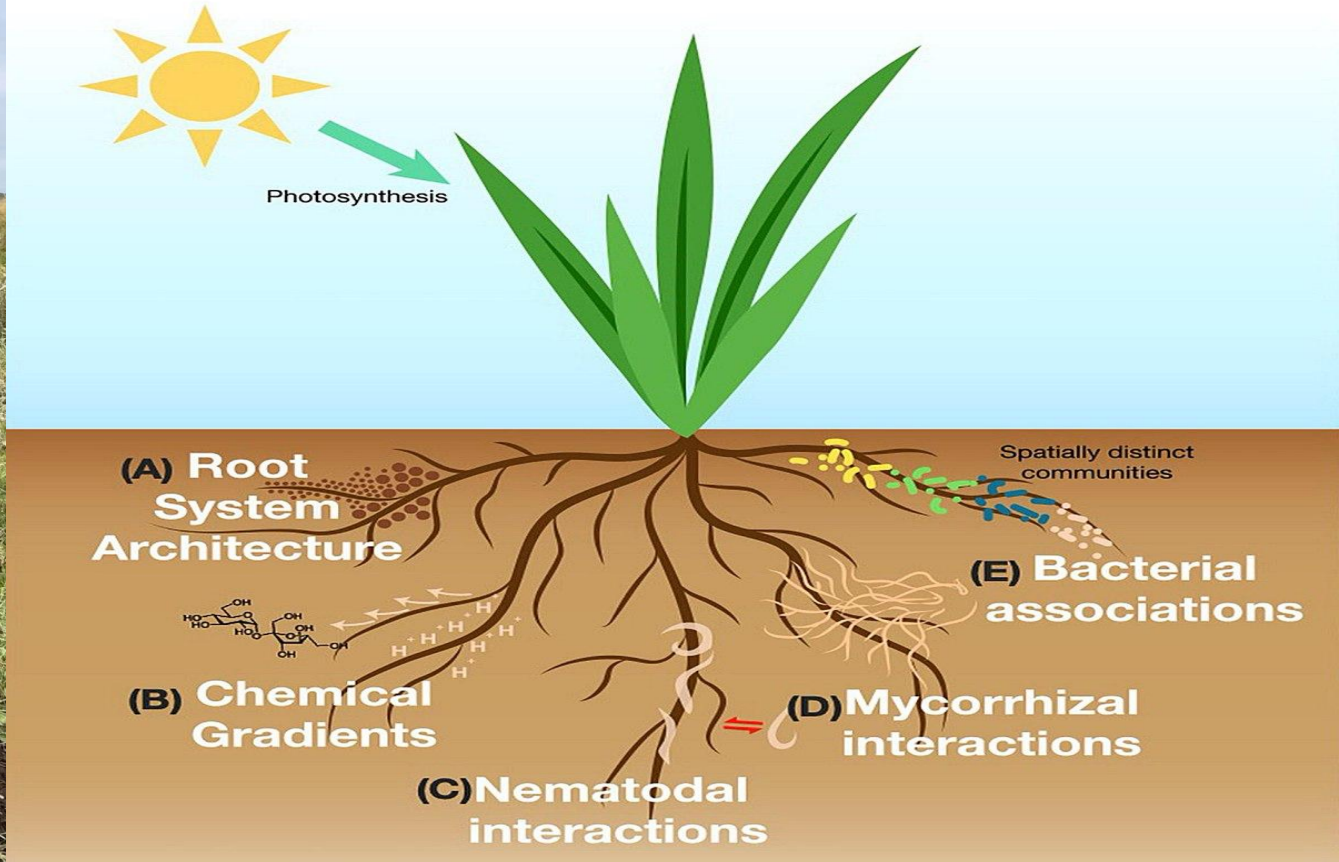

We tend to think that as livestock farmers we are first and foremost managers of livestock when in fact they are just “tools” and are only one part of a greater ecosystem


Some might take it further and say we are farming grass!
We are first and foremost managers of an ecosystem and we need to start to learn and understand how that ecosystem works and functions




Photosynthesis
Omnivores
Herbivores
Carnivores
Microbes and Invertebrates
Decomposers
C
Detrivores

We actually need to take it even one step further than the grass and we need to start looking at what we cant see with the naked eye, Below the surface of the soil we find a whole unseen world of soil microorganisms, these are the little critters that make the magic happen!!

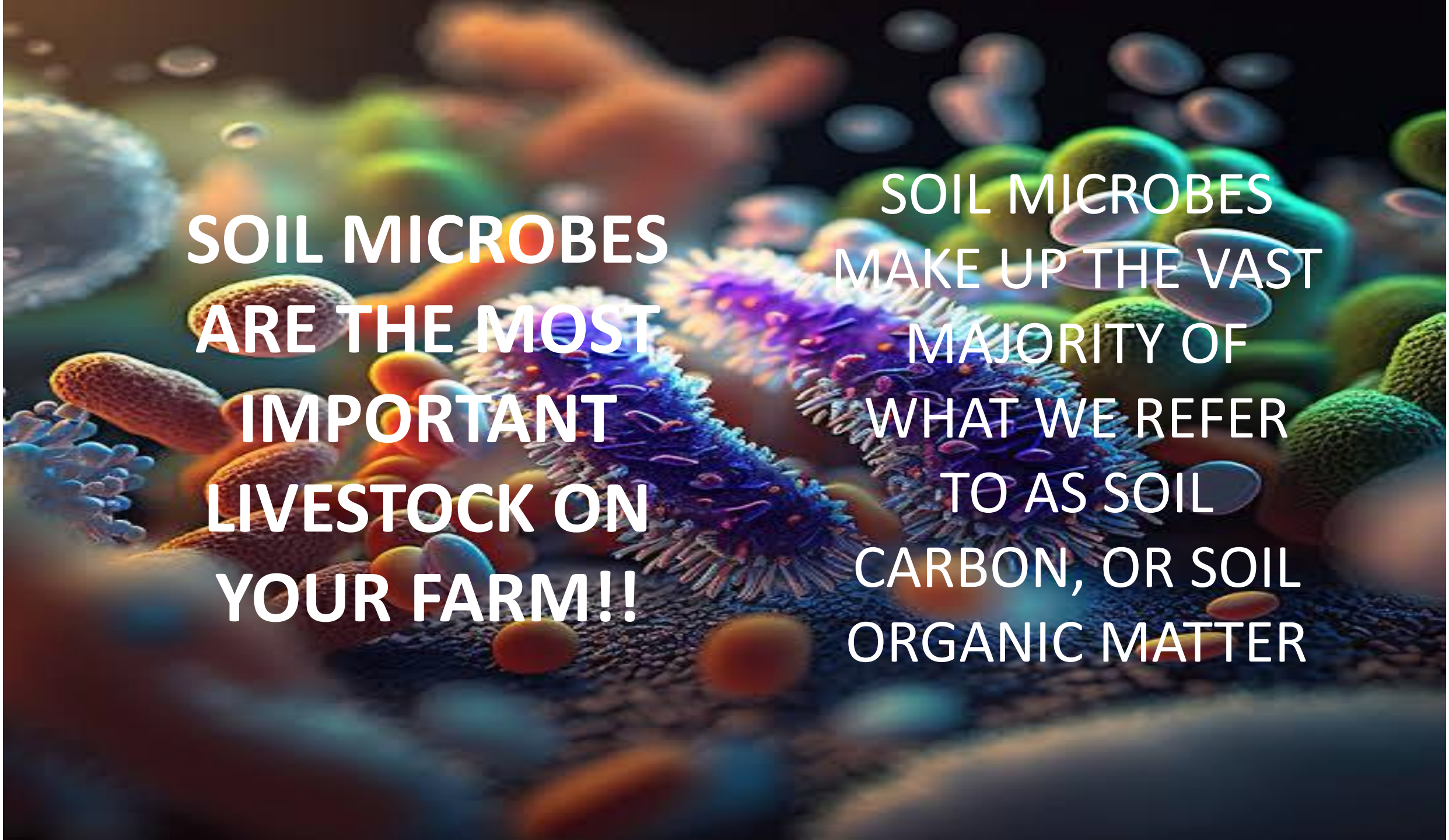


AND THE BEST PART IS THAT ITS FOR FREE , IF YOU KNOW WHAT TO DO!

90% of Soil function is mediated by microbes

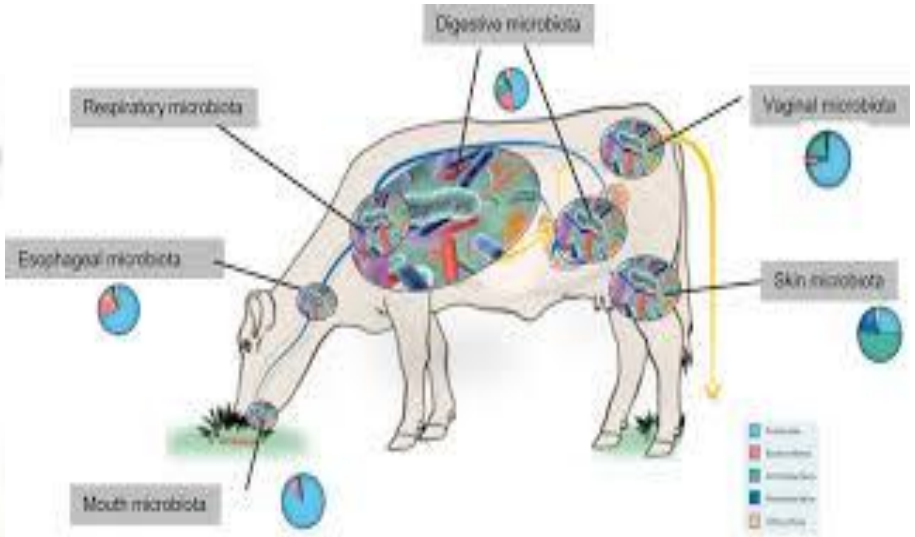
Microbes depend on plants

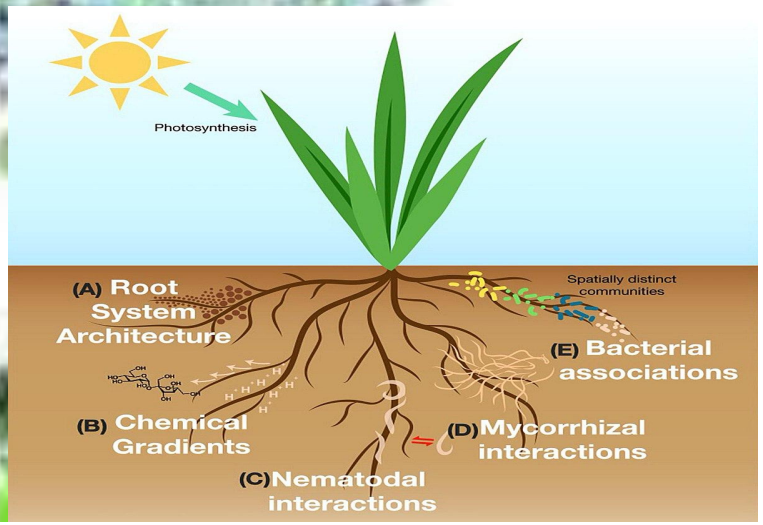
So how we manage plants is critical


SOIL MICROBES ARE THE MOST IMPORTANT LIVESTOCK ON YOUR FARM!!
SOIL MICROBES MAKE UP THE VAST MAJORITY OF WHAT WE REFER TO AS SOIL CARBON, OR SOIL ORGANIC MATTER

YOU ARE MORE MICROBE THAN YOU ARE HUMAN

SCIENTISTS HAVE SHOWN THAT HUMAN CELLS ONLY MAKE UP 43% OF OUR TOTAL BODDIES CELL COUNT






#DYK There are more living
organisms in a tablespoon of soil
than there are people on Earth!

organic matter [26].

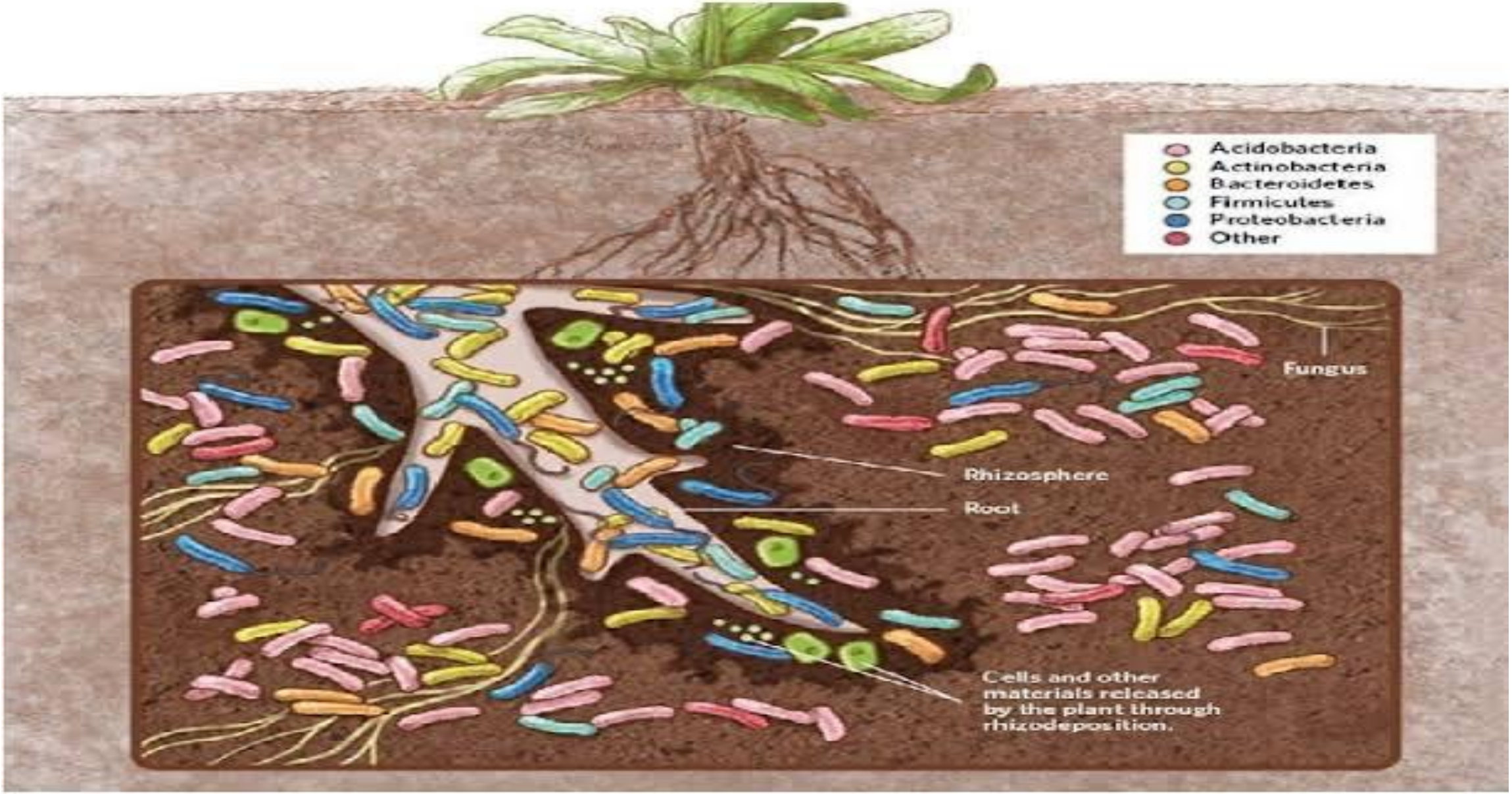
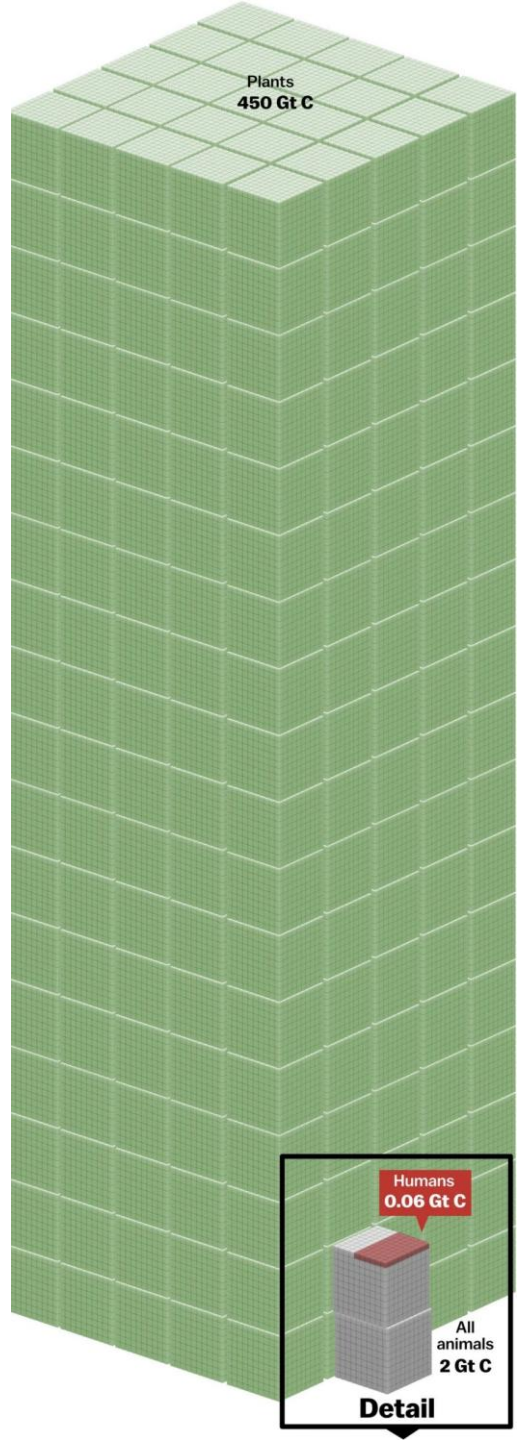
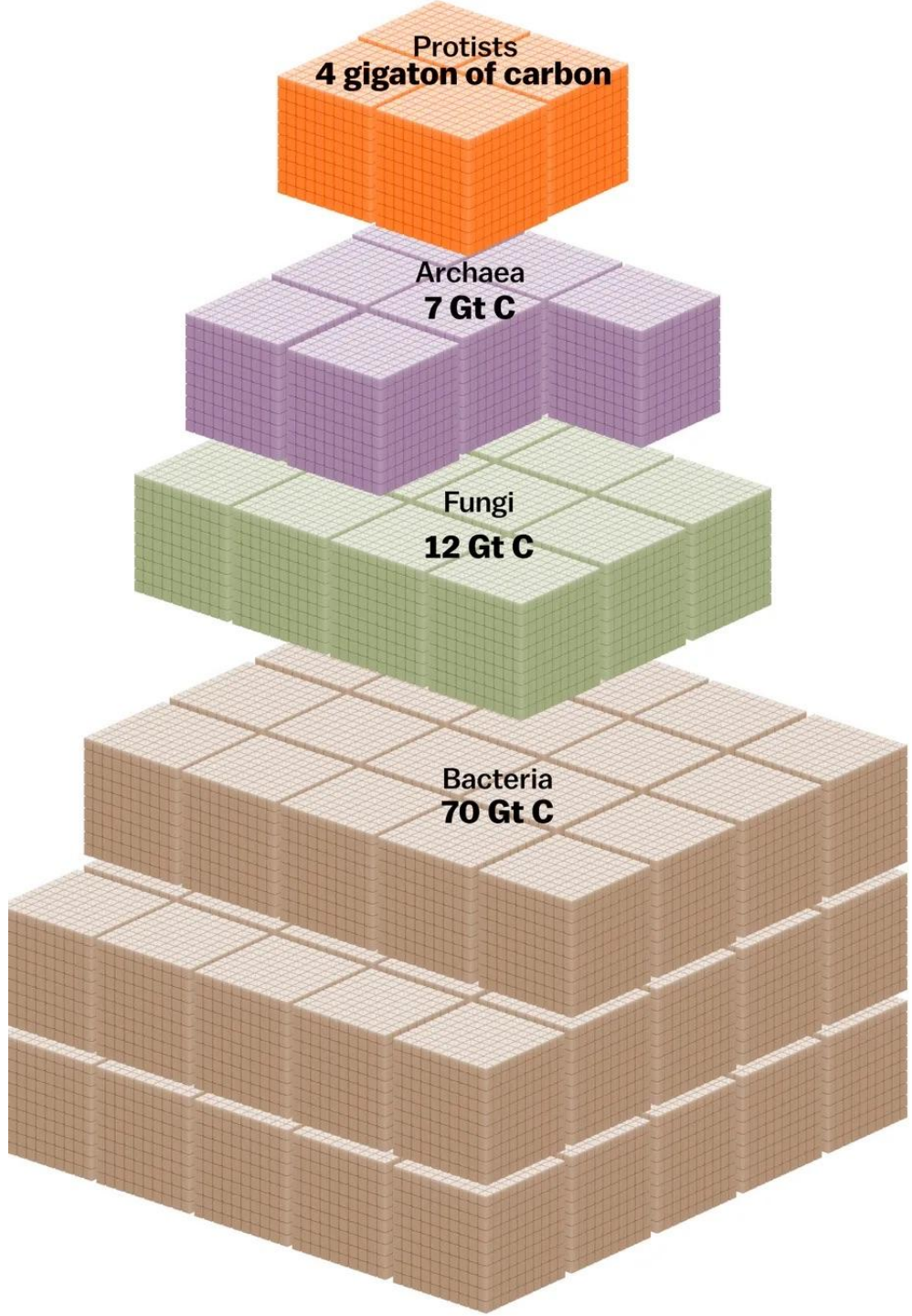
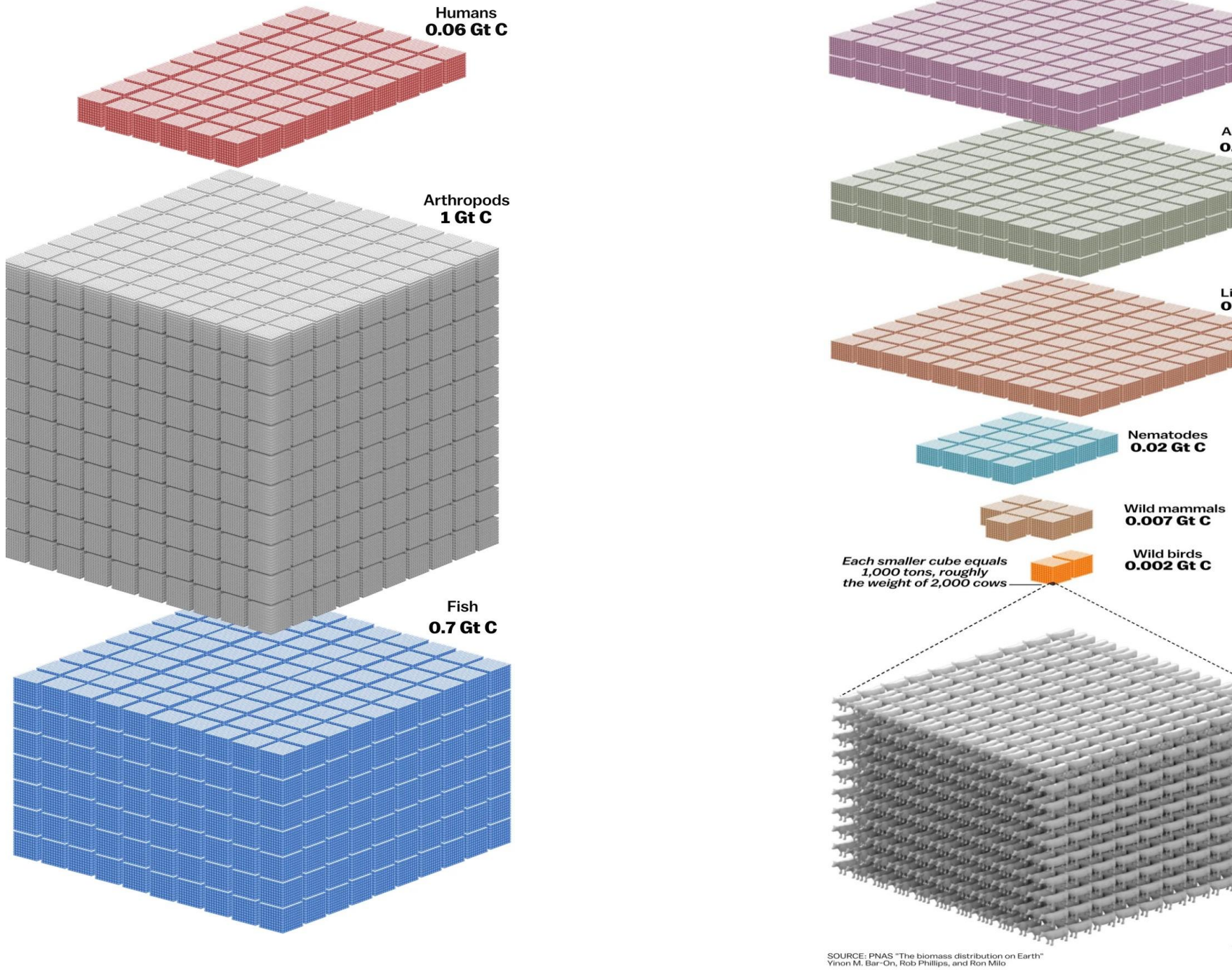


Figure 2: Rhizobium sp and their roles in plant.

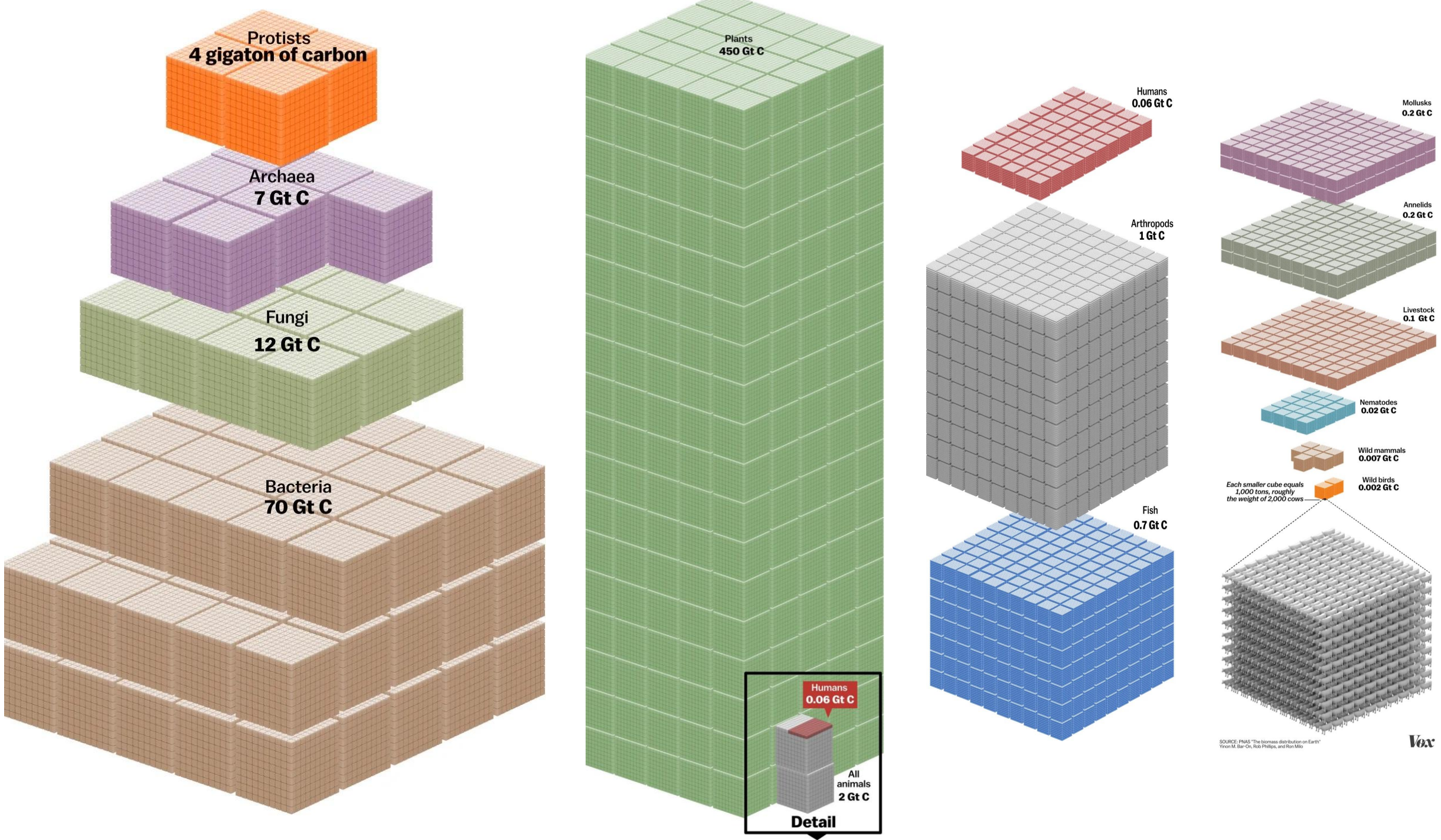

Plants
450 Gt C
Humans
0.06 Gt C
All
animals
2 Gt C
Detail


Protists
4 gigaton of carbon
Archaea
7 Gt C
Fungi
12 Gt C
Bacteria
70 Gt C



SOURCE: PNAS "The biomass distribution on Earth"
Yinon M. Bar-On, Rob Phillips, and Ron Milo

Vox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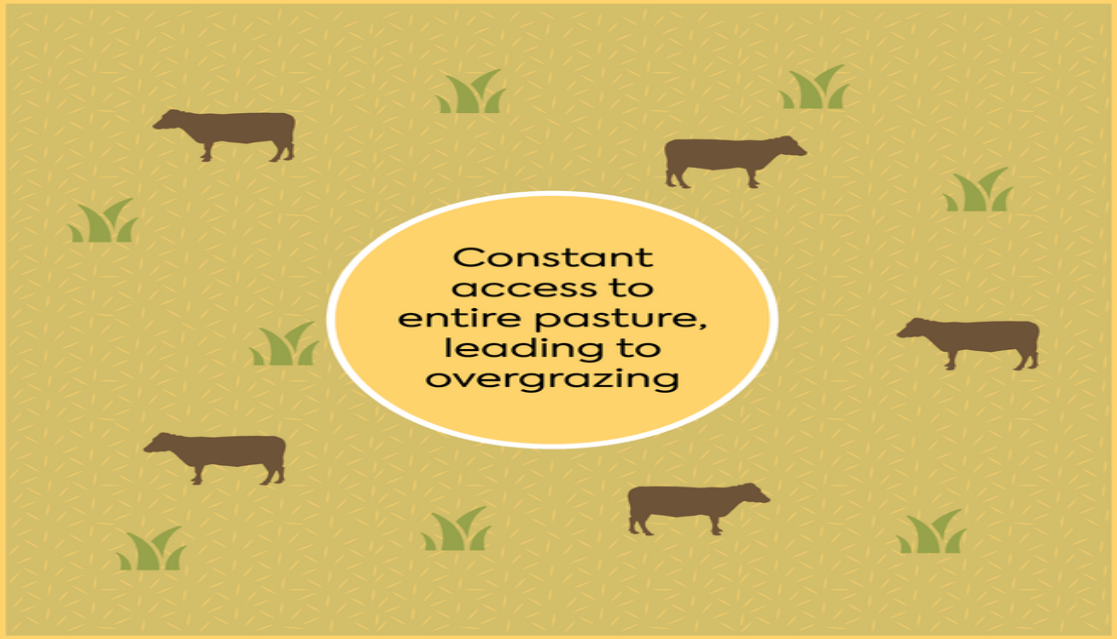
Detail
Humans
0.06 Gt C
Arthropods
1 Gt C
Fish
0.7 Gt C
Mollusks
0.2 Gt C
Annelids
0.2 Gt C
Livestock
0.1 Gt C
Nematodes
0.02 Gt C
Wild mammals
0.007 Gt C
Wild birds
0.002 Gt C
Each smaller cube equals 1,000 tons, roughly the weight of 2,000 cows
SOURCE: PNAS "The biomass distribution on Earth" Yinon M. Bar-On, Rob Phillips, and Ron Milo
Vox

IT'S NOT THE COW, IT'S THE HOW

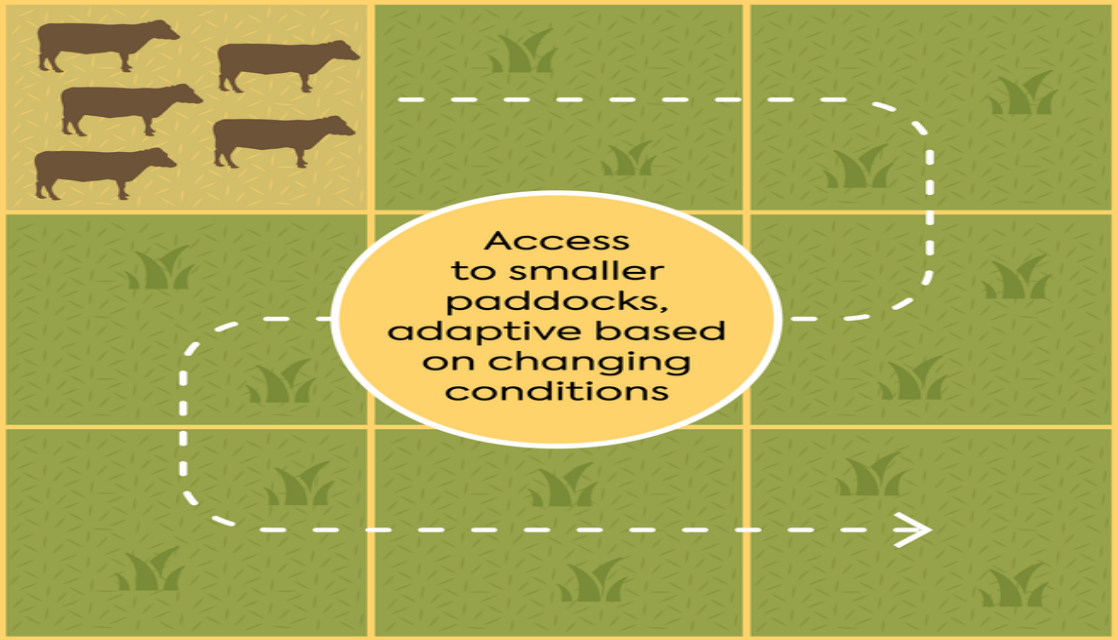
@SUSTAINABLEDISH | SACREDCOW.INFO

CONTINUOUS GRAZING



- ✕ Less wildlife habitat
- ✕ More exposed soil
- ✕ Reduced forage diversity
- ✕ Increased rainfall runoff
- ✕ Less healthy animals
- ✕ More parasites

MANAGED GRAZING



- ✓ Better wildlife habitat
- ✓ More microbial diversity
- ✓ Increased rainfall absorbtion
- ✓ More carbon sequestration
- ✓ Healthier animals
- ✓ Fewer parasites

SACREDCOW


LACK OF WATER
IFILTRATION
INTO THE SOIL IS
THE NEXT BIG
LIMITING
FACTOR ON OUR
FARMS!!

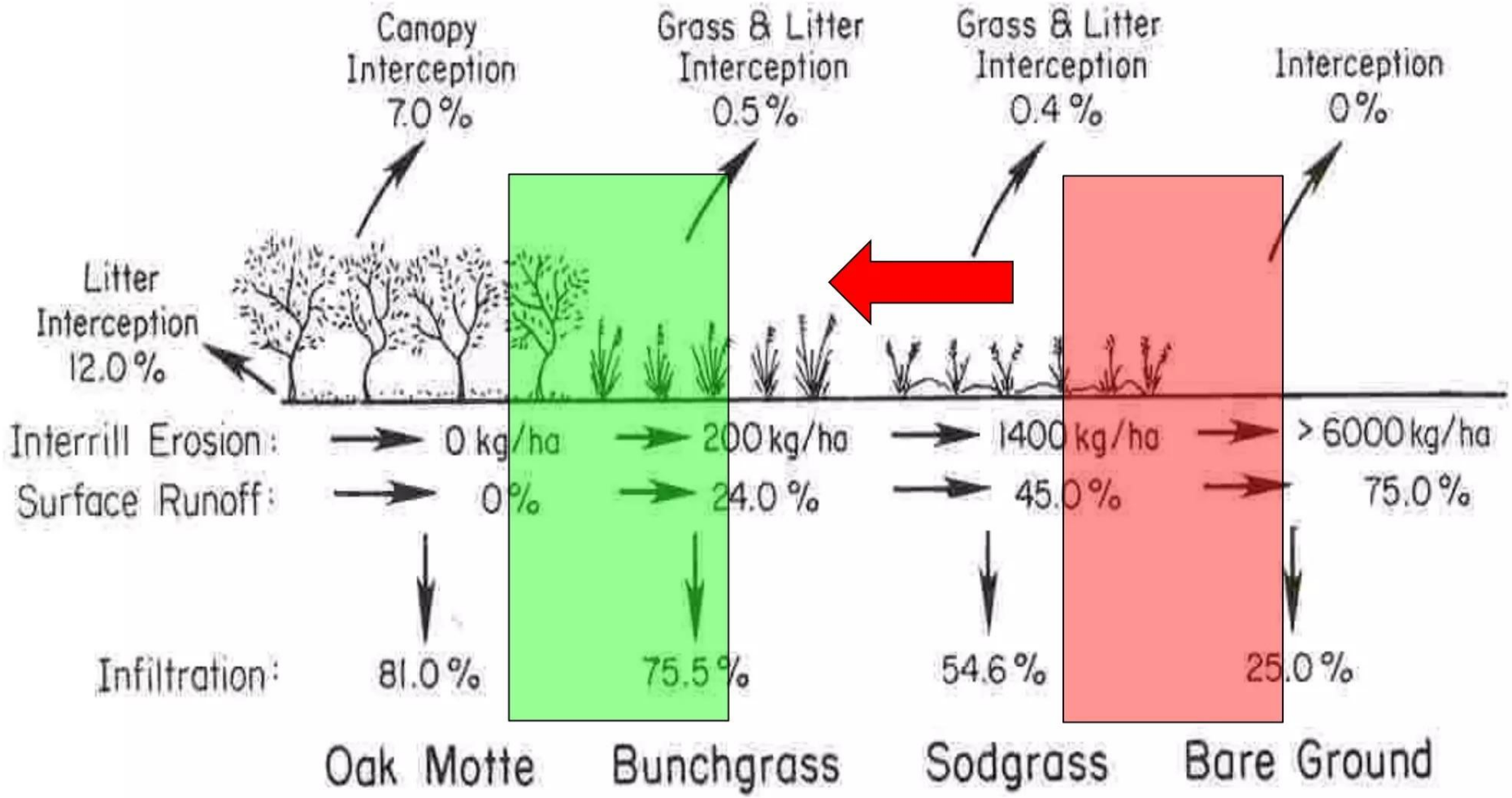
90% of Soil function is mediated by microbes

Microbes depend on plants

So how we manage plants is critical

Infiltration with Vegetation Composition

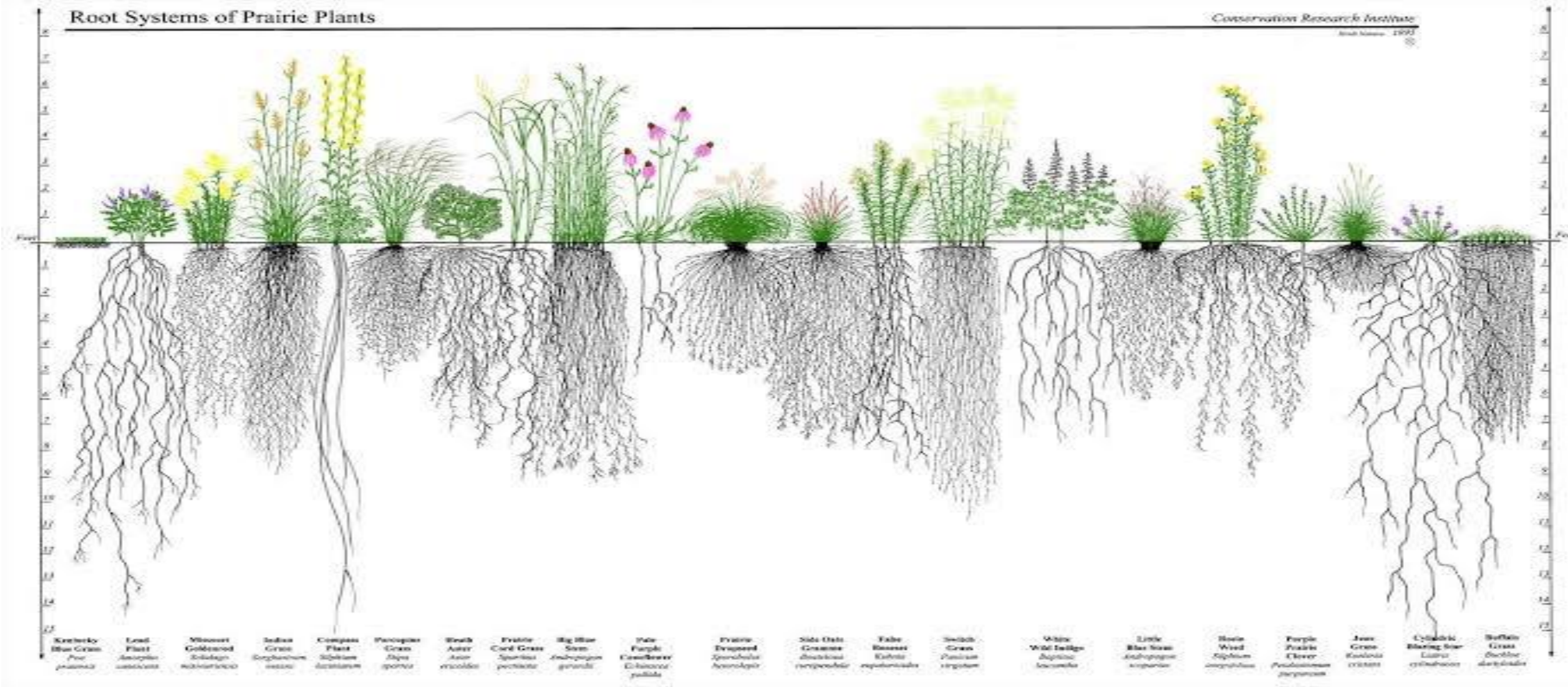
Thurow 1991



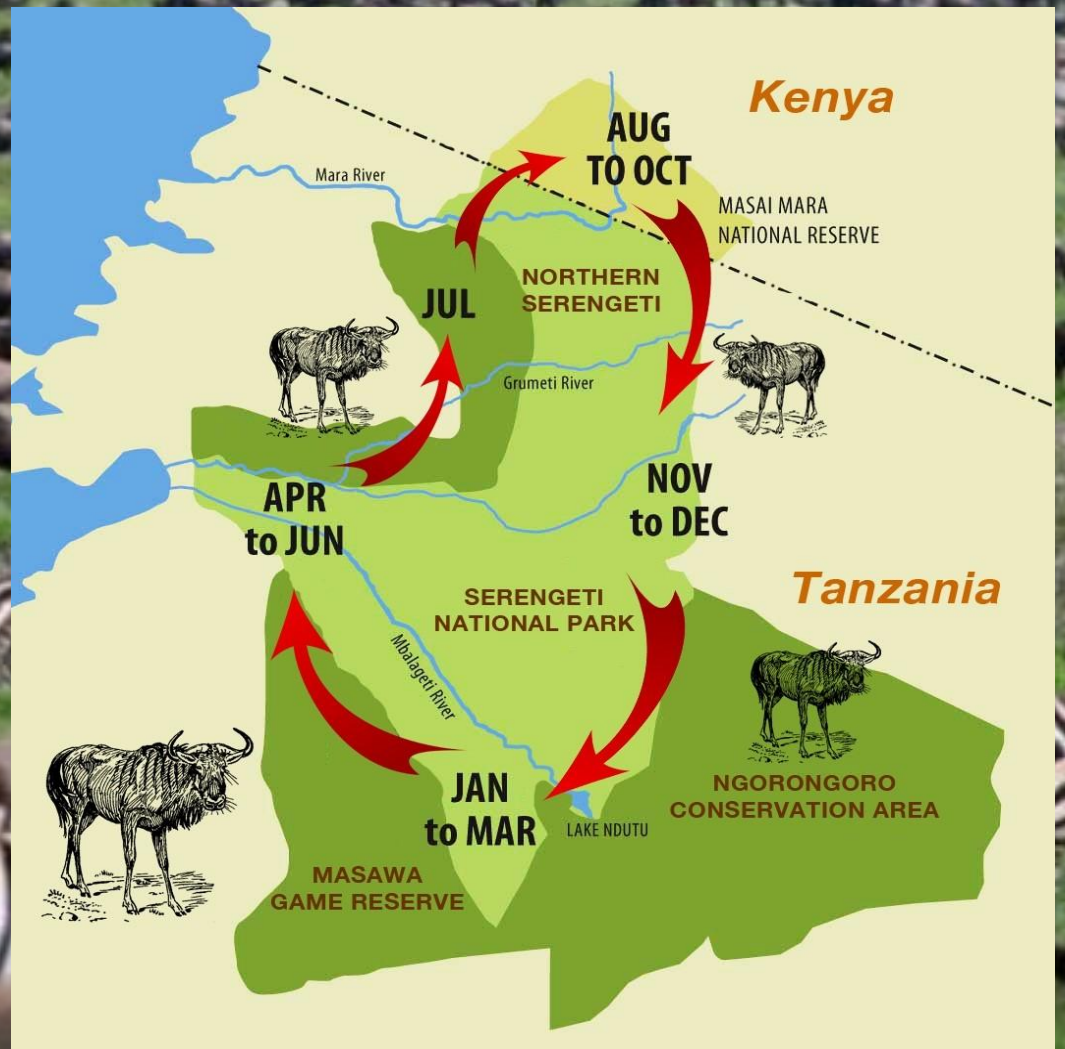
AgriLIFE RESEARCH
Texas A&M System


MANAGING FOR PLANT BIODIVERSITY IS ESSENTIAL FOR ECOSYSTEM FUNCTION, ONE NEEDS TO MANAGE TOWARDS HAVING AS MANY DIFFERENT SPECIES AS POSSIBLE CO-EXISTING TOGETHER

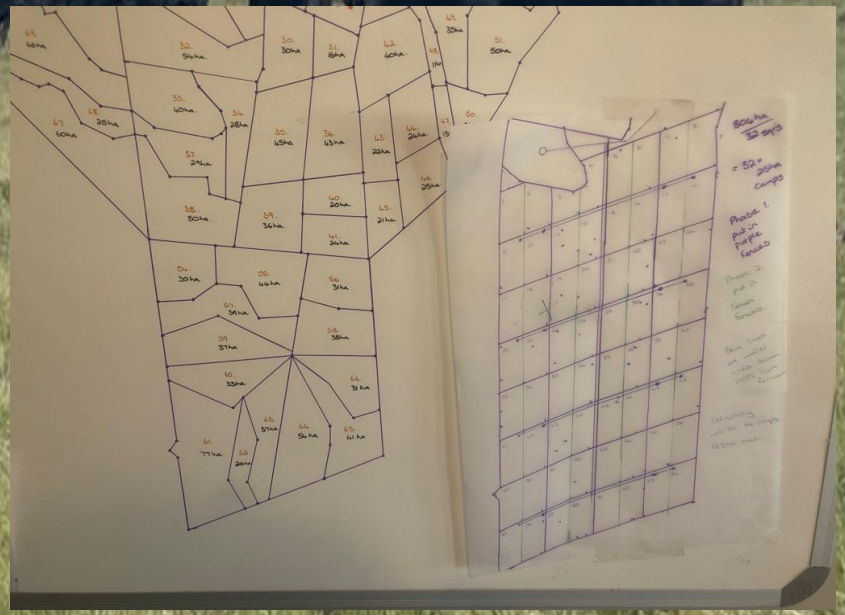
PLANT BIODIVERSITY IS HUGELY IMPORTANT!!



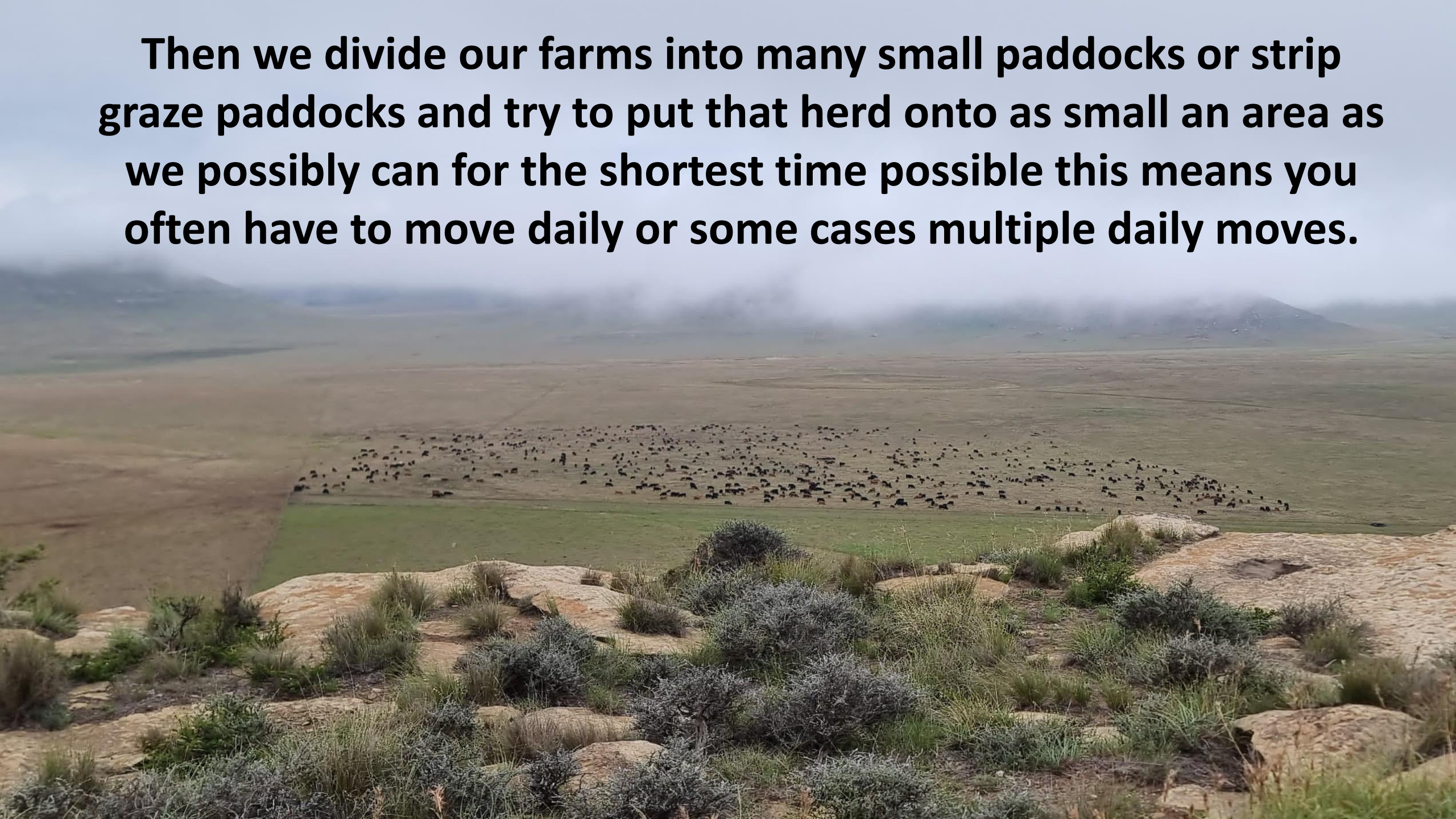
OVERGRAZING HAS NOTHING TO DO WITH THE SIZE OF A HERD OR TOO MANY ANIMALS BUT RATHER HAS EVERYTHING TO DO WITH THE AMOUNT OF TIME THEY SPEND IN A PARTICULAR AREA



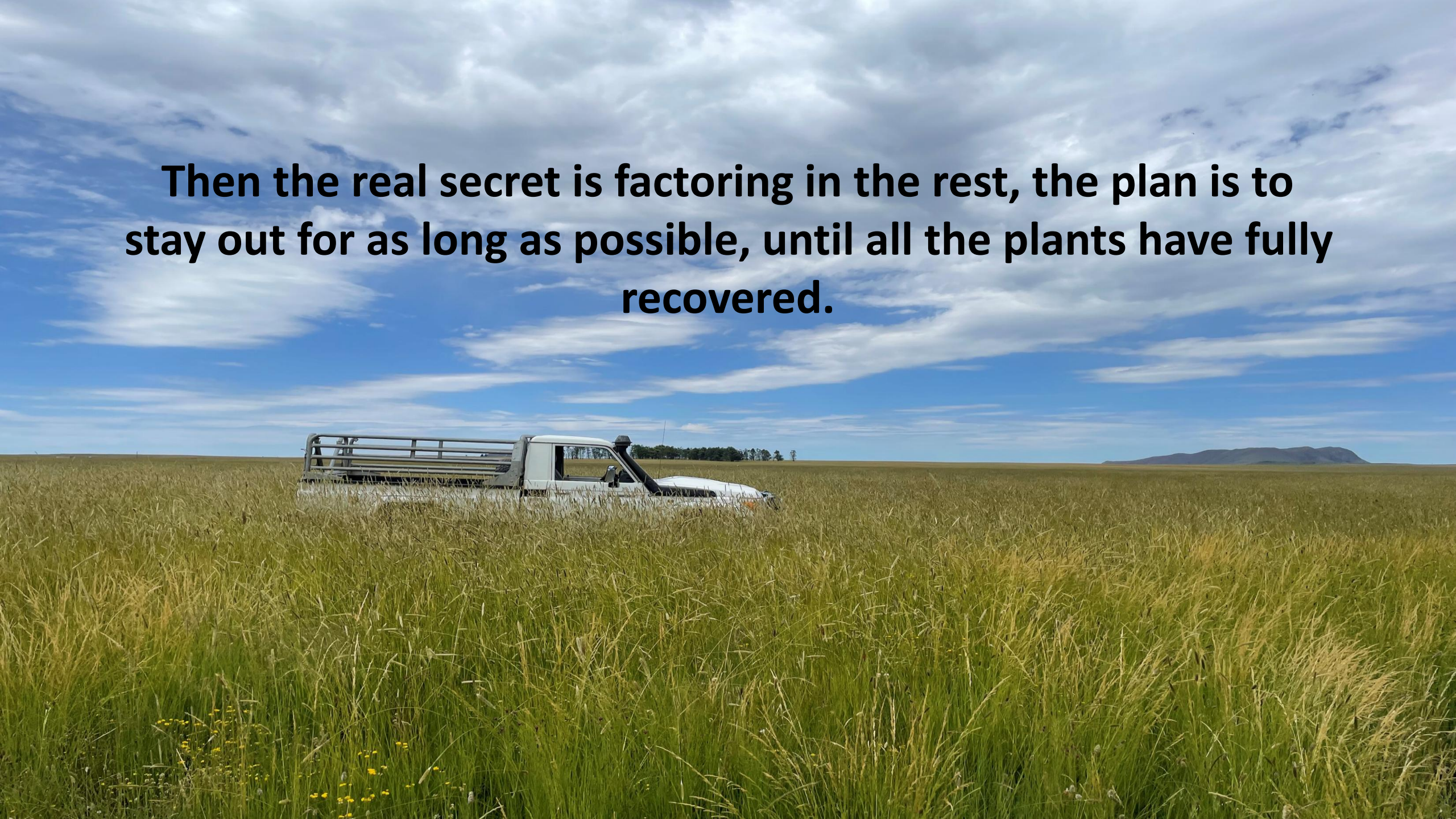
What we are tying to do is to simulate the great migratory herds of old, For example the Serengetti migration, the great bison herds of the great plains in the US on our own farms as best we can.




And in doing so we are developing watering systems trying to bunch animals wherever and whenever we can, into as big a herds as the water can handle



Then we divide our farms into many small paddocks or strip graze paddocks and try to put that herd onto as small an area as we possibly can for the shortest time possible this means you often have to move daily or some cases multiple daily moves.


Then the real secret is factoring in the rest, the plan is to stay out for as long as possible, until all the plants have fully recovered.

Essential Ecosystem Processes

1. **Energy flow** - Maximize the flow of solar energy through plants and soil.

2. **Water cycle** - Maximize capture and cycling of water through plants and soil. Reduce export and import.

3. **Mineral cycle** - Maximize cycling of nutrients through plants and soil.

4. **Community dynamics** - High ecosystem biodiversity with more complex mixtures and combinations of desirable plant species leads to increased resilience and productivity.

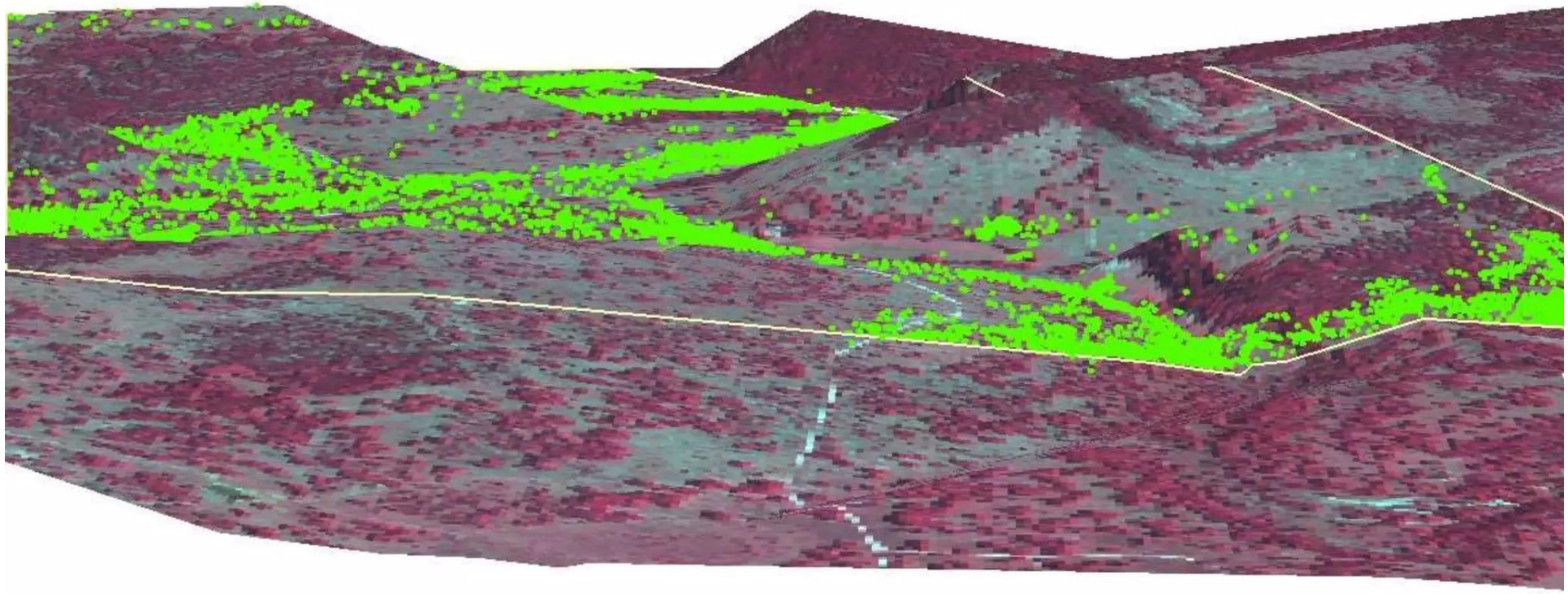
Improving Rangeland Soil Health

Improve soil microbe function by:

- Improving plant cover
  - Perennial plants rather than annuals
  - Manage for most productive plants
  - Leave adequate plant residue
- Minimizing bare ground - plant and litter cover
- Grow plants for as many months each year as possible

Edwards Plateau Ranch 3-D View w/ GPS Locations

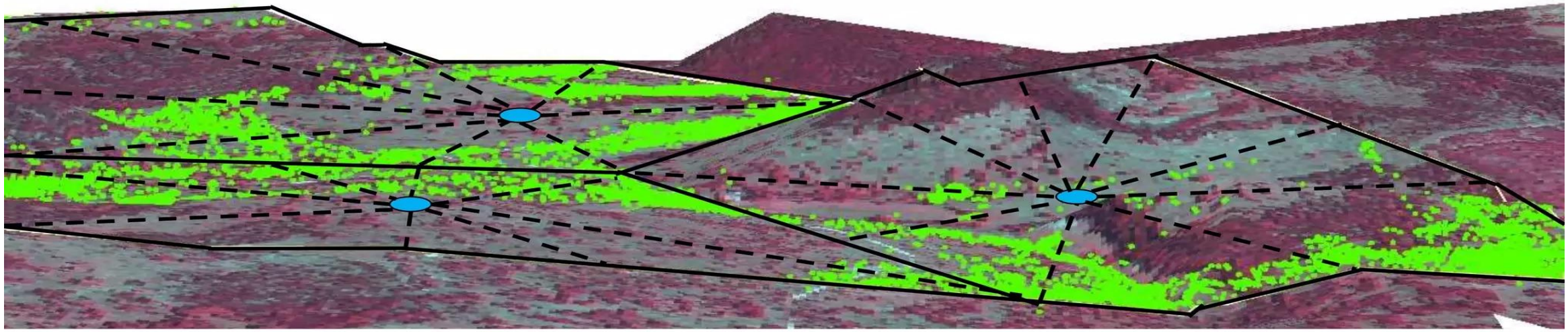
1. 39% area used
2. 41% GPS points on 9% area
3. SR: 21 ac/cow
4. Effective SR: 9 ac/cow



Planned multi-paddock grazing

Animals:

- Graze more of the whole landscape
- Select a wider variety of plant species

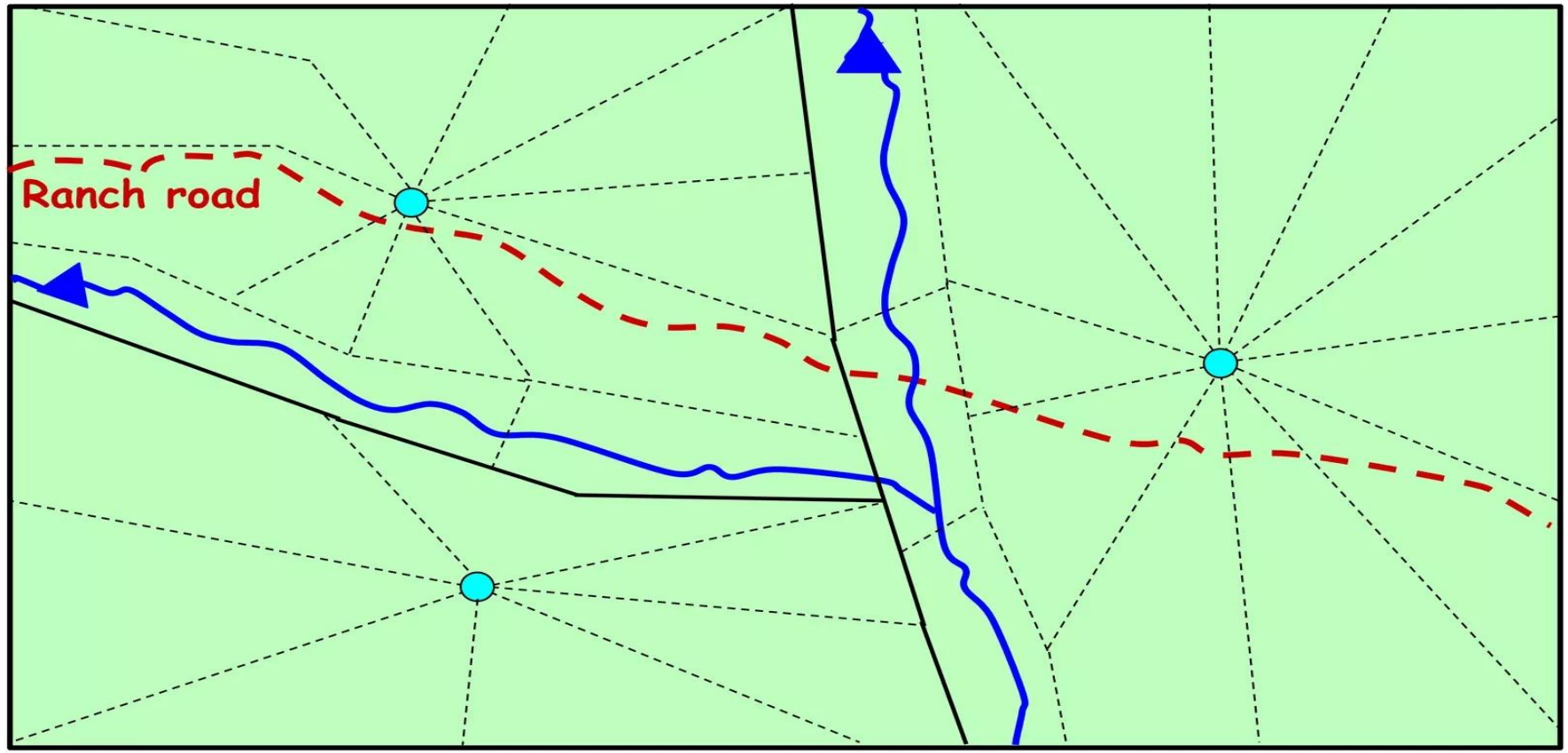


Manager can control:

- How much is grazed
- The period of grazing, and
- The length and time of recovery

Landscape impact of continuous grazing

Planned multi-paddock grazing



Summary of Managing for Desired Outcomes

- Match animal numbers to available forage
- Spread grazing over whole ranch
- Defoliate moderately in growing season
- Short grazing periods
- Adequate recovery before regrazing
- Graze again before forage too mature
- Adaptively change these elements according to changing conditions

Teague et al. 2013

Conclusions

Appropriate regenerative grazing management:

- Sequesters more soil carbon
- Improves watershed function
- Improves species composition
- Stabilizes soil and soil fertility
- Enhances wildlife and biodiversity
- Improves economic returns while improving the resource base

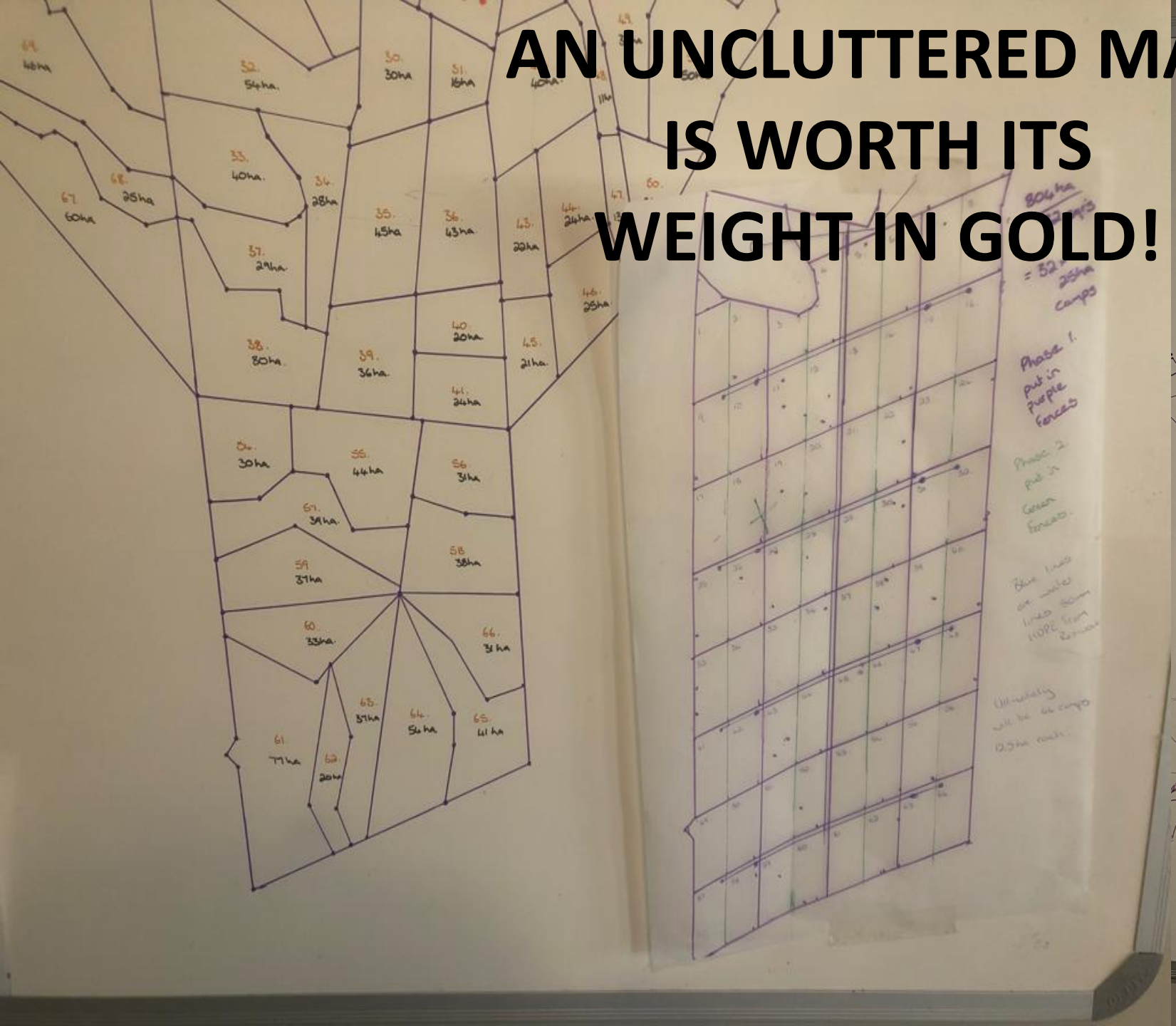
THIS MIGHT ALL BE GOOD AND WELL BUT HOW DOES ONE GO ABOUT PUTTING THIS ALL INTO PRACTICE, I CAN TELL YOU KNOW ITS FAR EASIER SAID THAN DONE!

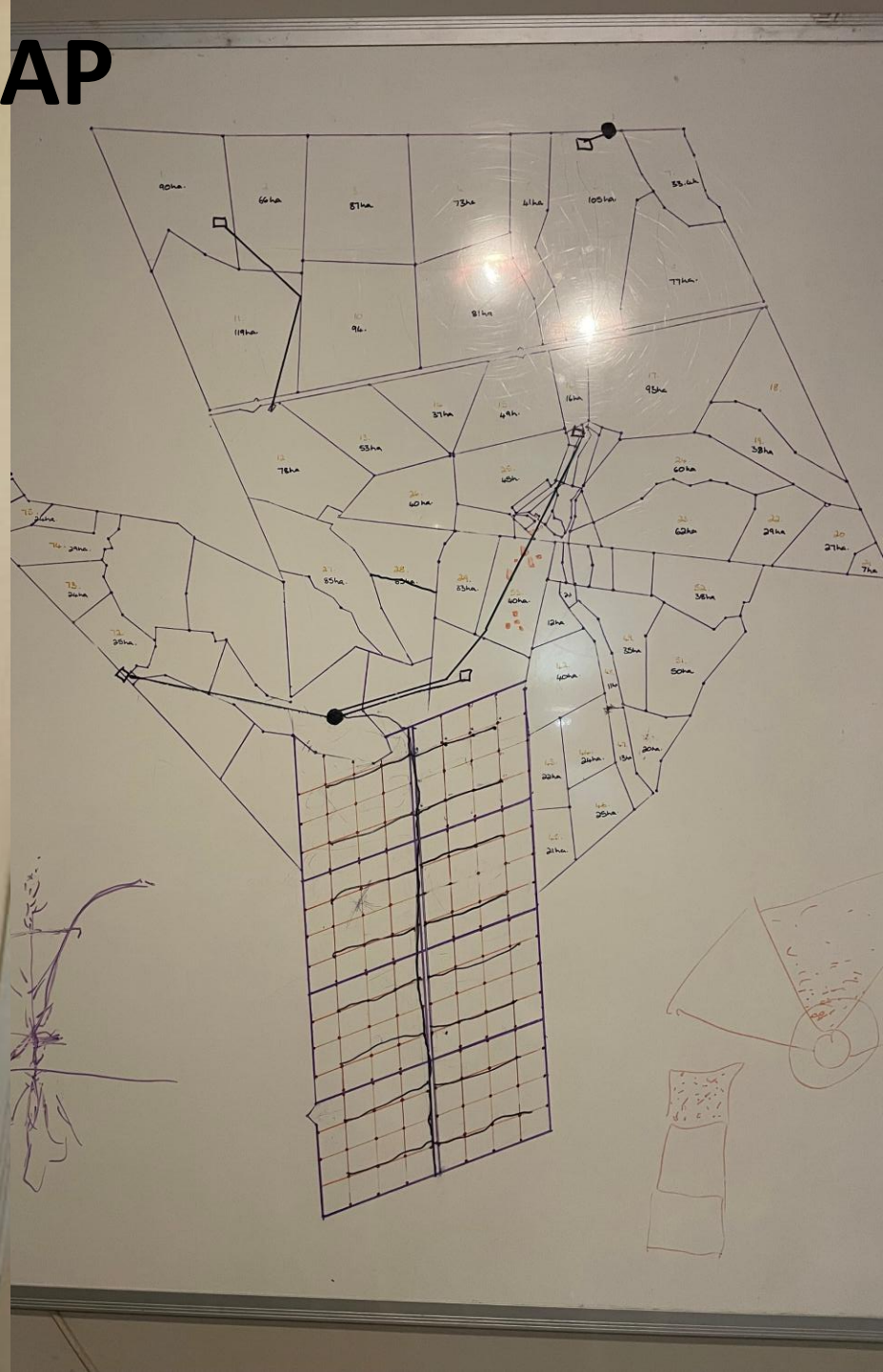
WHERE AND HOW DO YOU START?

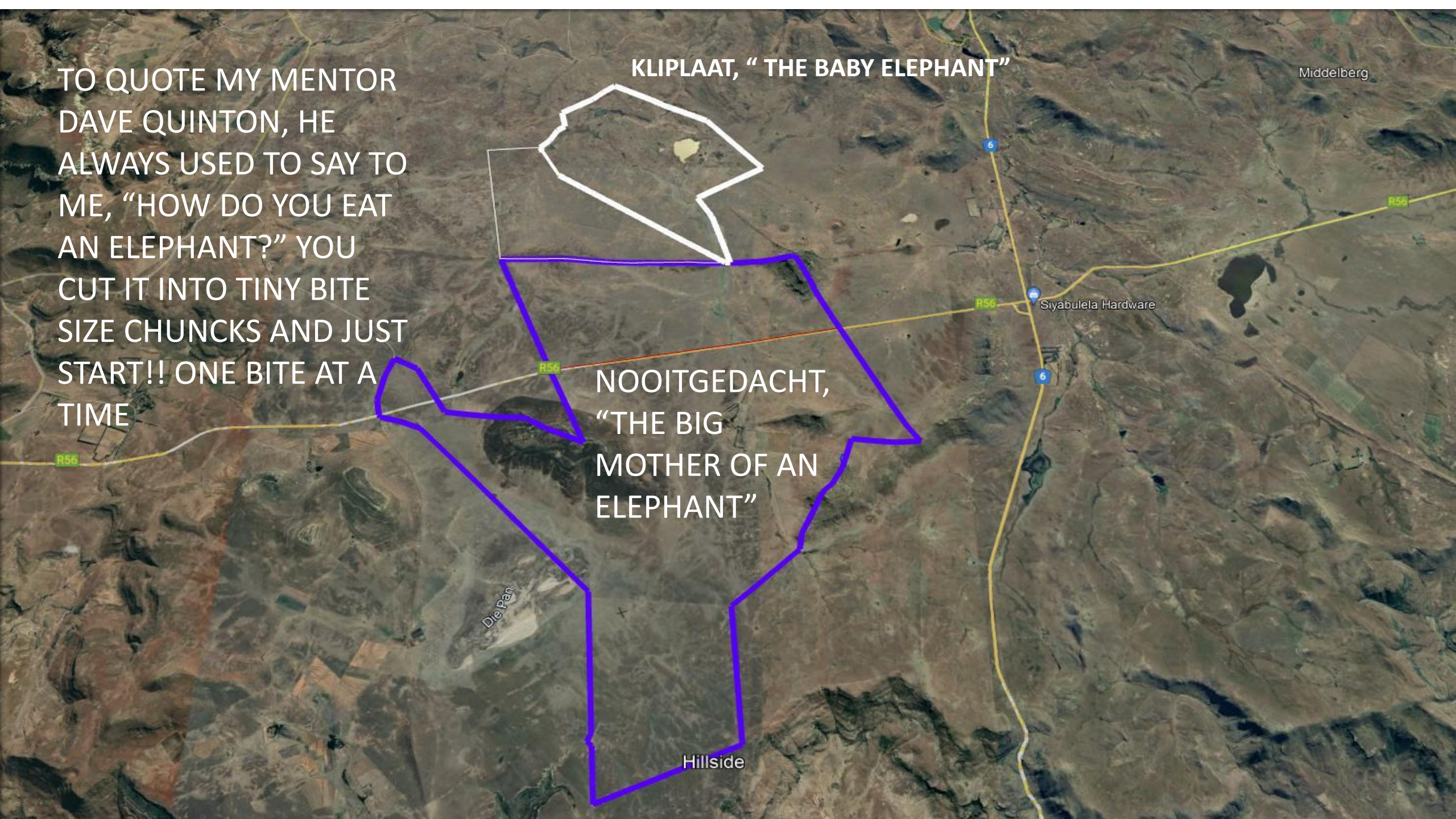
GET YOUR MAP OUT AND START PLAYING WITH DIFFERENT SCENARIOS AND

GO AND FIND THE WATER!!

AN UNCLUTTERED MAP IS WORTH ITS WEIGHT IN GOLD!






TO QUOTE MY MENTOR DAVE QUINTON, HE ALWAYS USED TO SAY TO ME, “HOW DO YOU EAT AN ELEPHANT?” YOU CUT IT INTO TINY BITE SIZE CHUNCKS AND JUST START!! ONE BITE AT A TIME
KLIPLAAT, “ THE BABY ELEPHANT”
NOOITGEDACHT, “THE BIG MOTHER OF AN ELEPHANT”
Middelberg
Siyabulela Hardware
Hillside
Die Pan
R56
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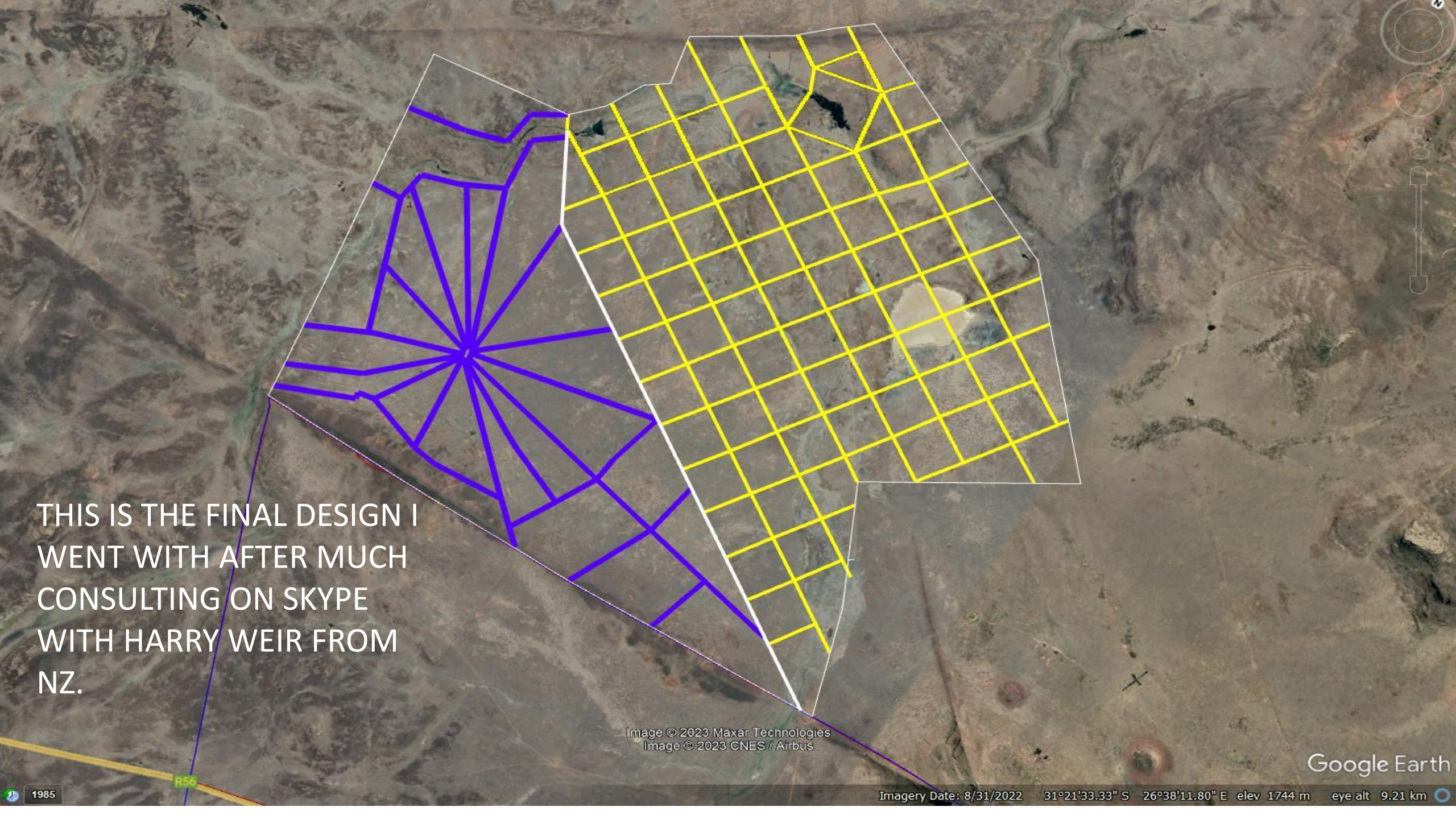
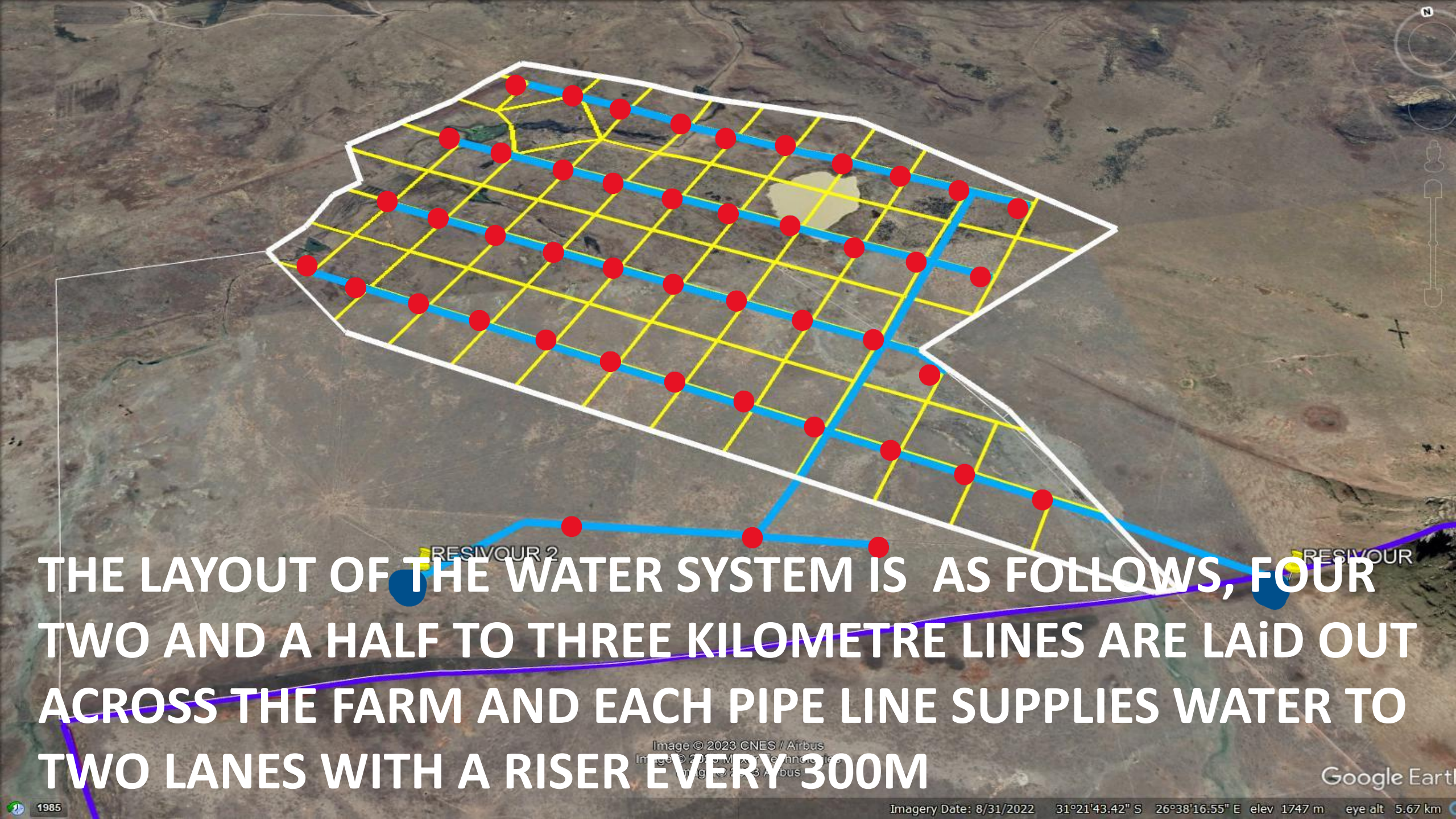
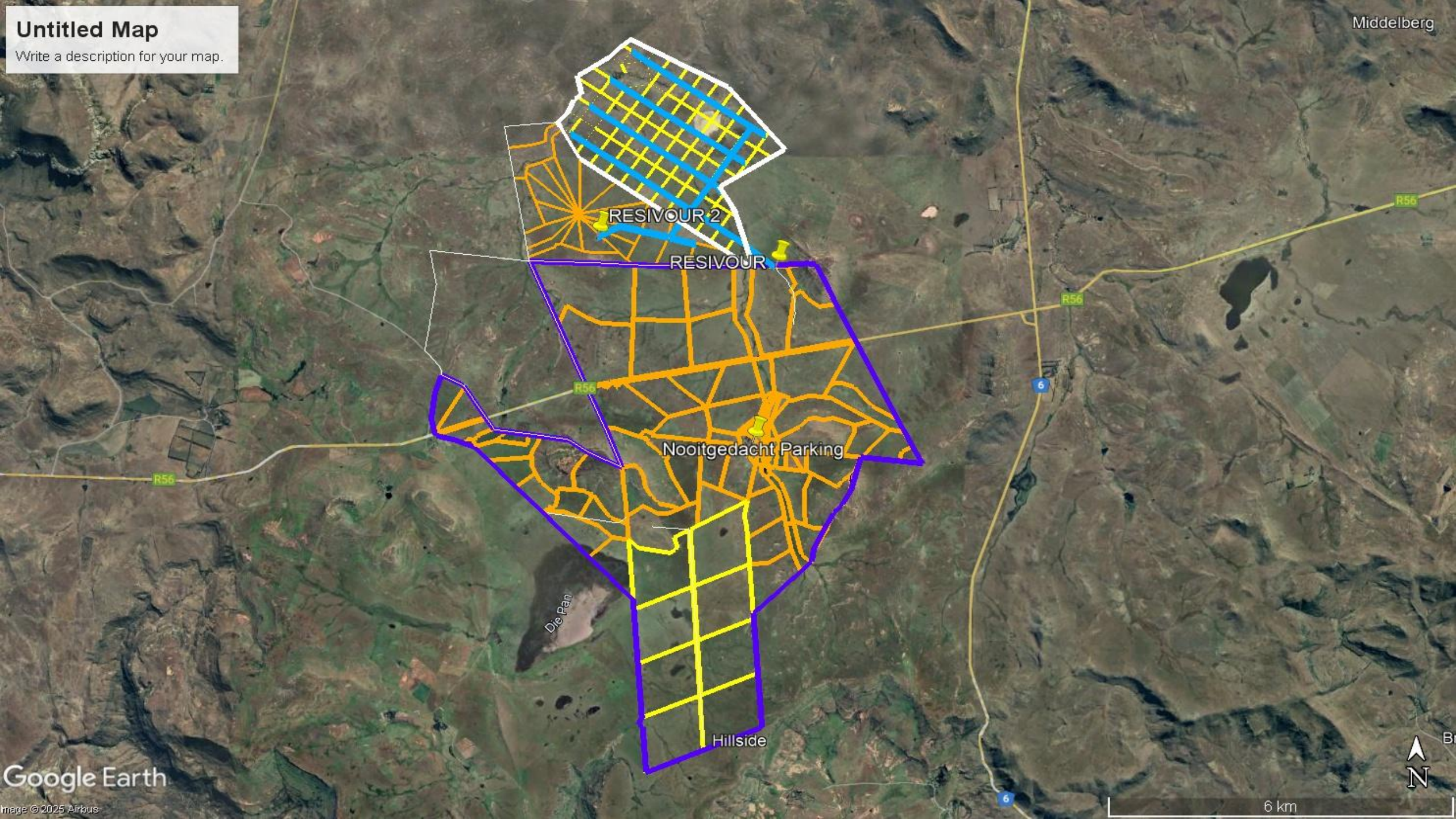
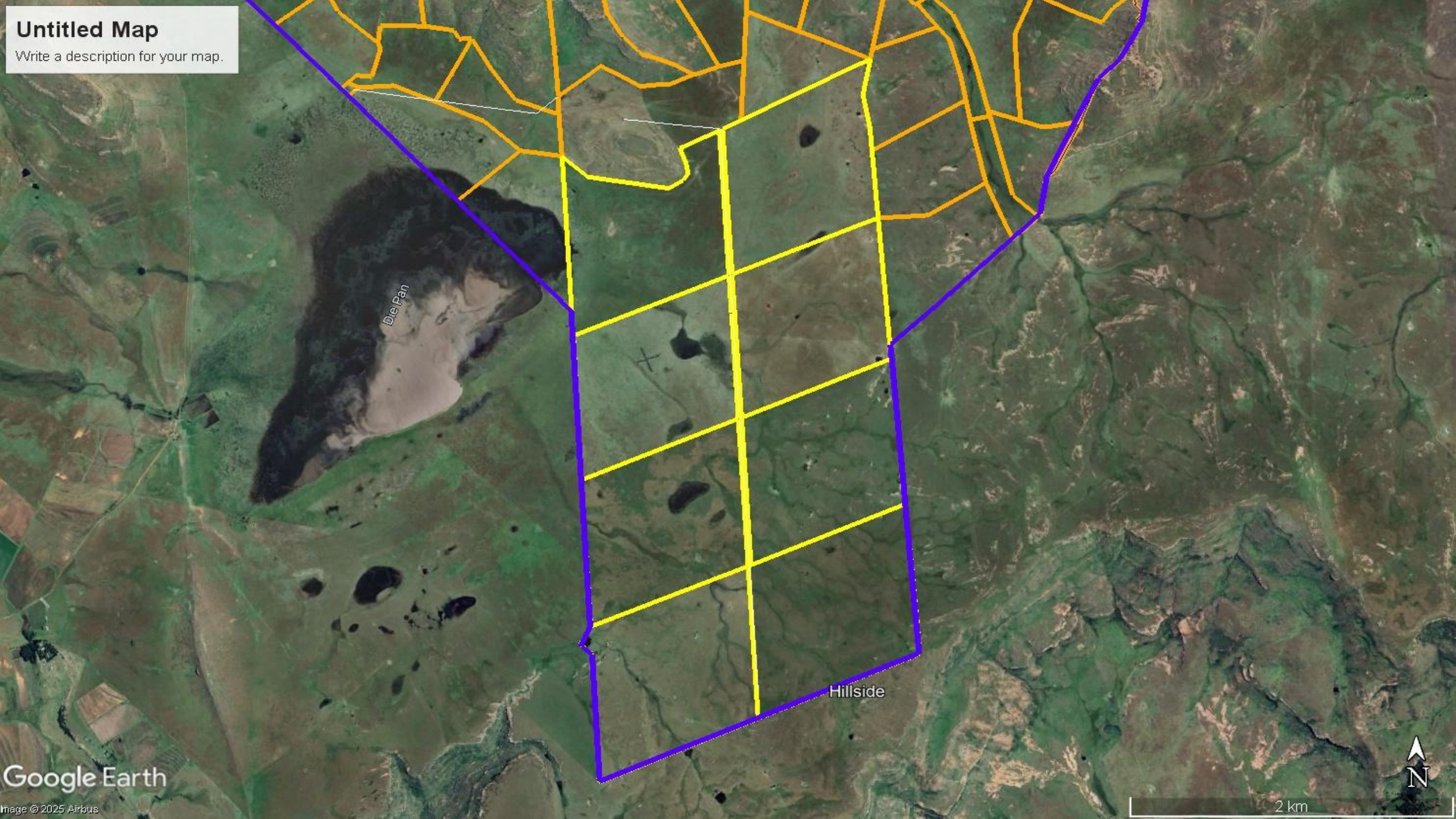

THIS IS THE FINAL DESIGN I WENT WITH AFTER MUCH CONSULTING ON SKYPE WITH HARRY WEIR FROM NZ.
Image © 2023 Maxar Technologies
Image © 2023 CNES / Airbus
Google Earth
R56
1985
Imagery Date: 8/31/2022 31°21'33.33" S 26°38'11.80" E elev 1744 m eye alt 9.21 km



THE LAYOUT OF THE WATER SYSTEM IS AS FOLLOWS, FOUR TWO AND A HALF TO THREE KILOMETRE LINES ARE LAiD OUT ACROSS THE FARM AND EACH PIPE LINE SUPPLIES WATER TO TWO LANES WITH A RISER EVERY 300M


Untitled Map
Write a description for your map.
Middelberg
RESIVOUR 2
RESIVOUR
R56
R56
R56
6
Nooitgedacht Parking
De Pan
Hillside
Google Earth
Image © 2025 Airbus
N
6 km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Die Pan
Hillside
Google Earth
Image © 2025 Airbus
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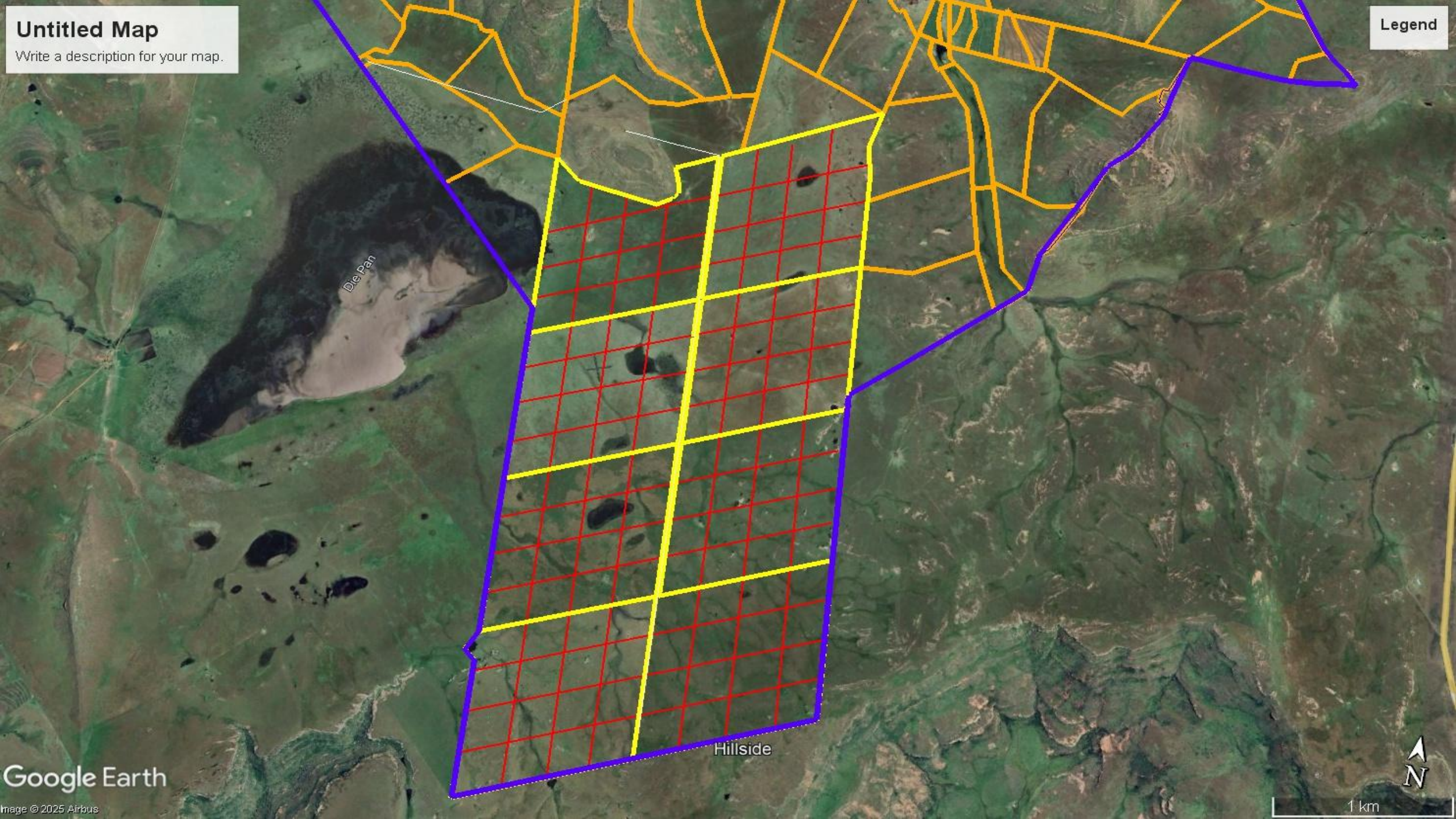
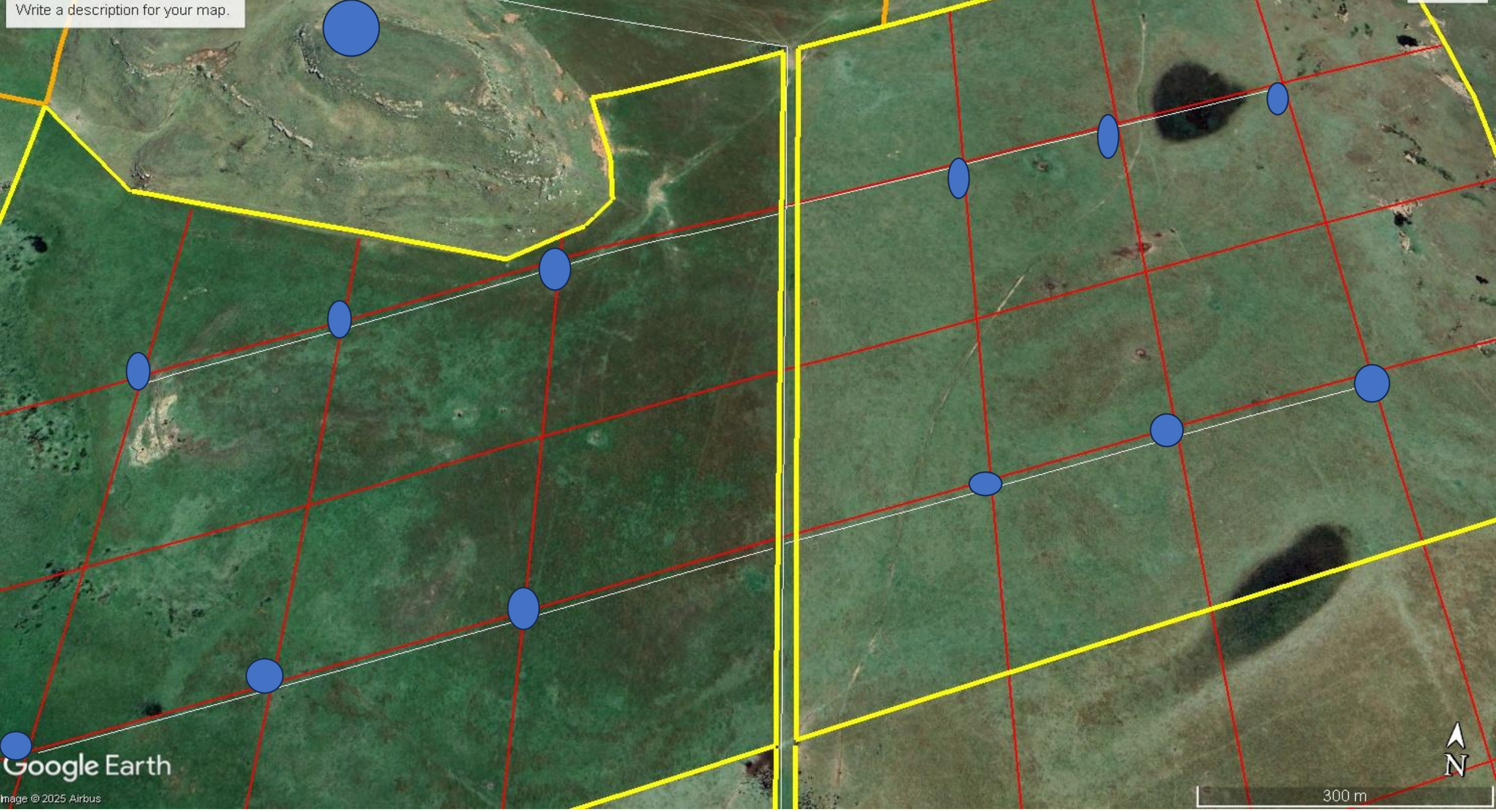
2 km


Untitled Map
Write a description for your map.
Legend
Die Pan
Hillside
Google Earth
Image © 2025 Airbus
N
1 km


Write a description for your map.
Google Earth
Image © 2025 Airbus
N
300 m

DRINKING WATER THE MAIN LIMITING FACTOR

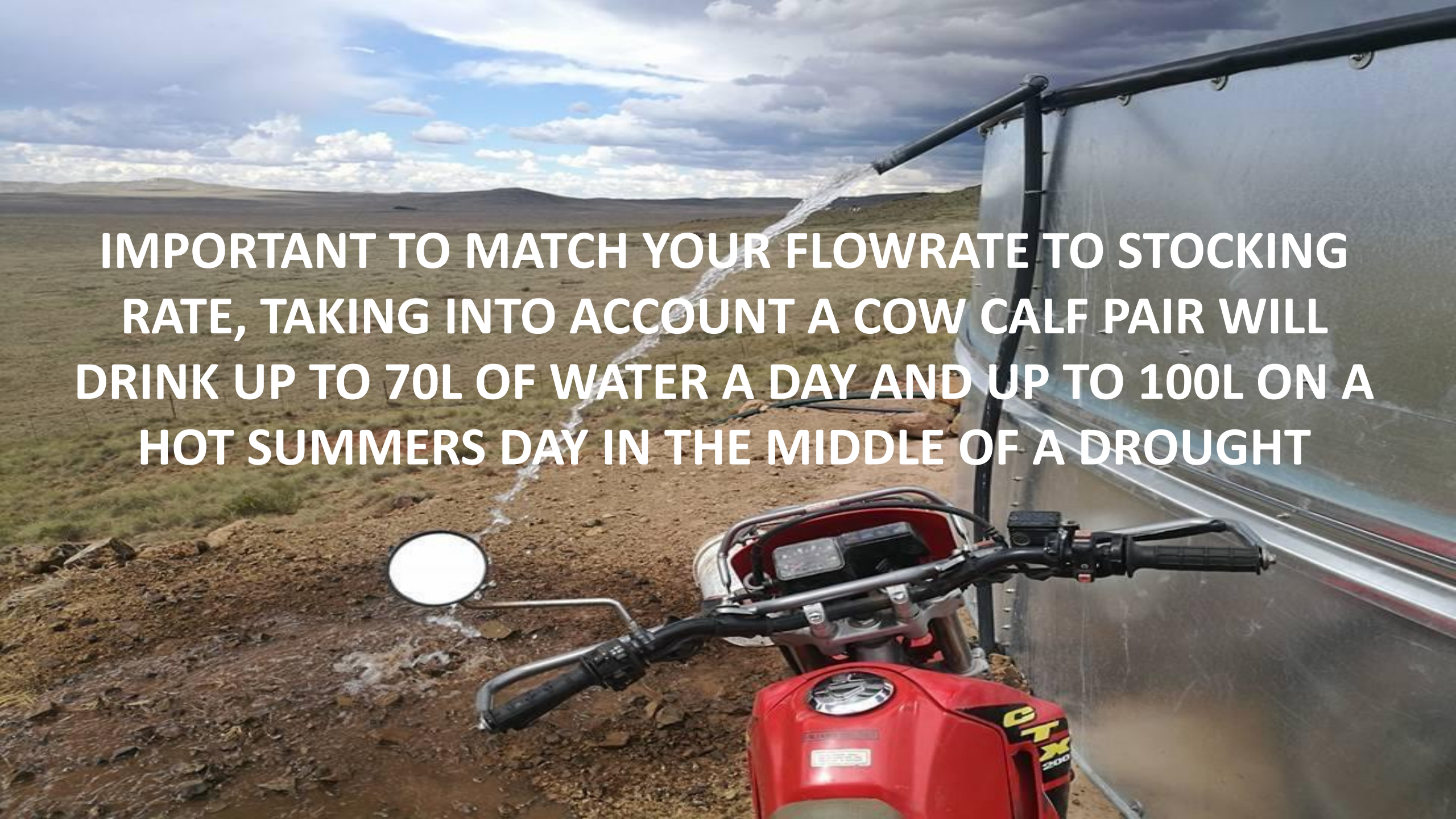
WATER DEVELOPMENT IS CRUCIAL AND WAS WHERE I STARTED. THE EXISTING WATER ON THE FARM CONSISTED OF A SINGLE WINDMILL ON A VERY WEAK BOREHOLE ONLY DELIVERING ABOUT 1500L AN HOUR, WE GOT A WATER DEVINER IN TO COME AND HELP AND WERE VERY LUCKY TO HIT WATER AT 10M DEEP AT A FLOW RATE OF 15000 L AN HOUR. NOW WE COULD FINALY ENTERTAIN SOMETHING!!

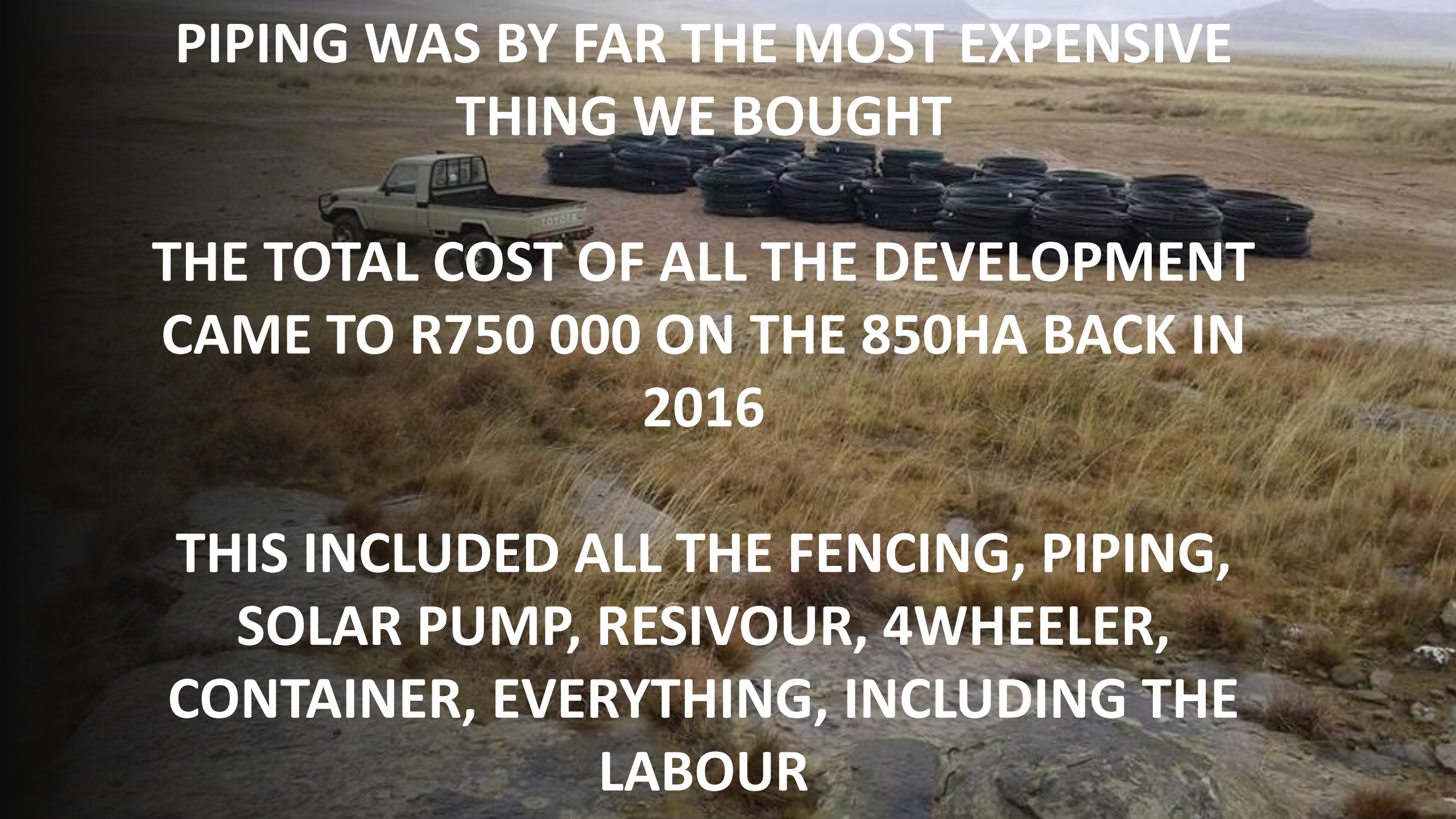
KIWITECH ELECTRIC FENCE DESIGN

FENCES ARE A THREE STRAND ELECTRIC FENCE ALL PERMANENT FOR NOW, THEY HAVE AN INLINE SPRING AND A TENTIONER ON THE OTHER END, A FIBREGLASS DROPPER EVERY 20M, IRON STANDARD EVERY 100M AND AN ANCHOR POLE EVERY 300M

SUN NOT ONLY FOR GROWING GRASS BUT FOR PUMPING WATER TOO

SOLAR SUBMERSIBLE PUMPS ARE THE ONLY WAY TO GO, A WINDMILL JUST DOESN'T CUT IT ANYMORE WHEN HERD NUMBERS START CREEPING ABOVE 200 HEAD


IMPORTANT TO MATCH YOUR FLOWRATE TO STOCKING RATE, TAKING INTO ACCOUNT A COW CALF PAIR WILL DRINK UP TO 70L OF WATER A DAY AND UP TO 100L ON A HOT SUMMERS DAY IN THE MIDDLE OF A DROUGHT



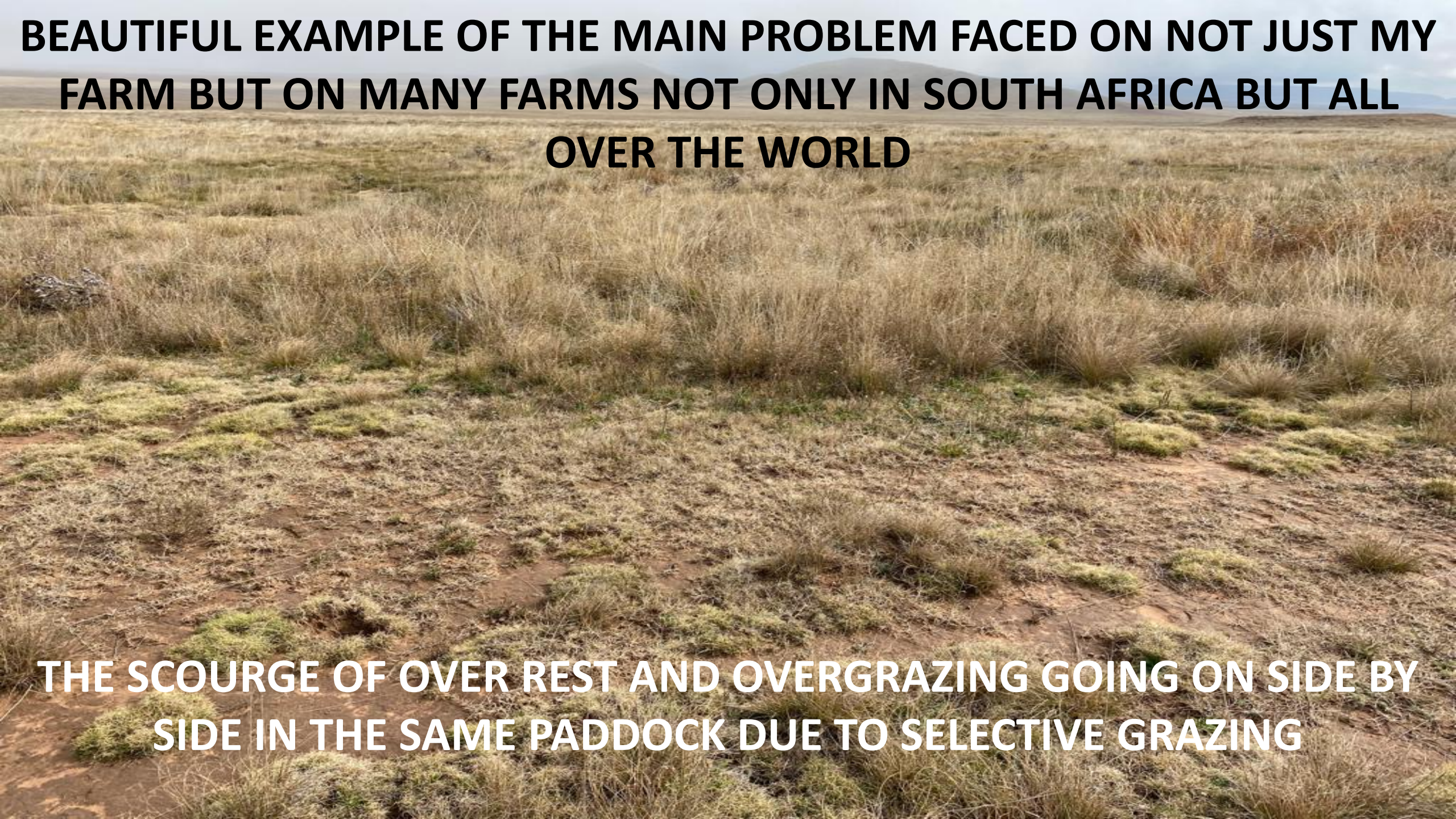
PIPING WAS BY FAR THE MOST EXPENSIVE THING WE BOUGHT

THE TOTAL COST OF ALL THE DEVELOPMENT CAME TO R750 000 ON THE 850HA BACK IN 2016

THIS INCLUDED ALL THE FENCING, PIPING, SOLAR PUMP, RESIVOUR, 4WHEELER, CONTAINER, EVERYTHING, INCLUDING THE LABOUR

200 000L WATER STORAGE CAPACITY INSTALLED

MY MOBILE TROUGH DESIGN

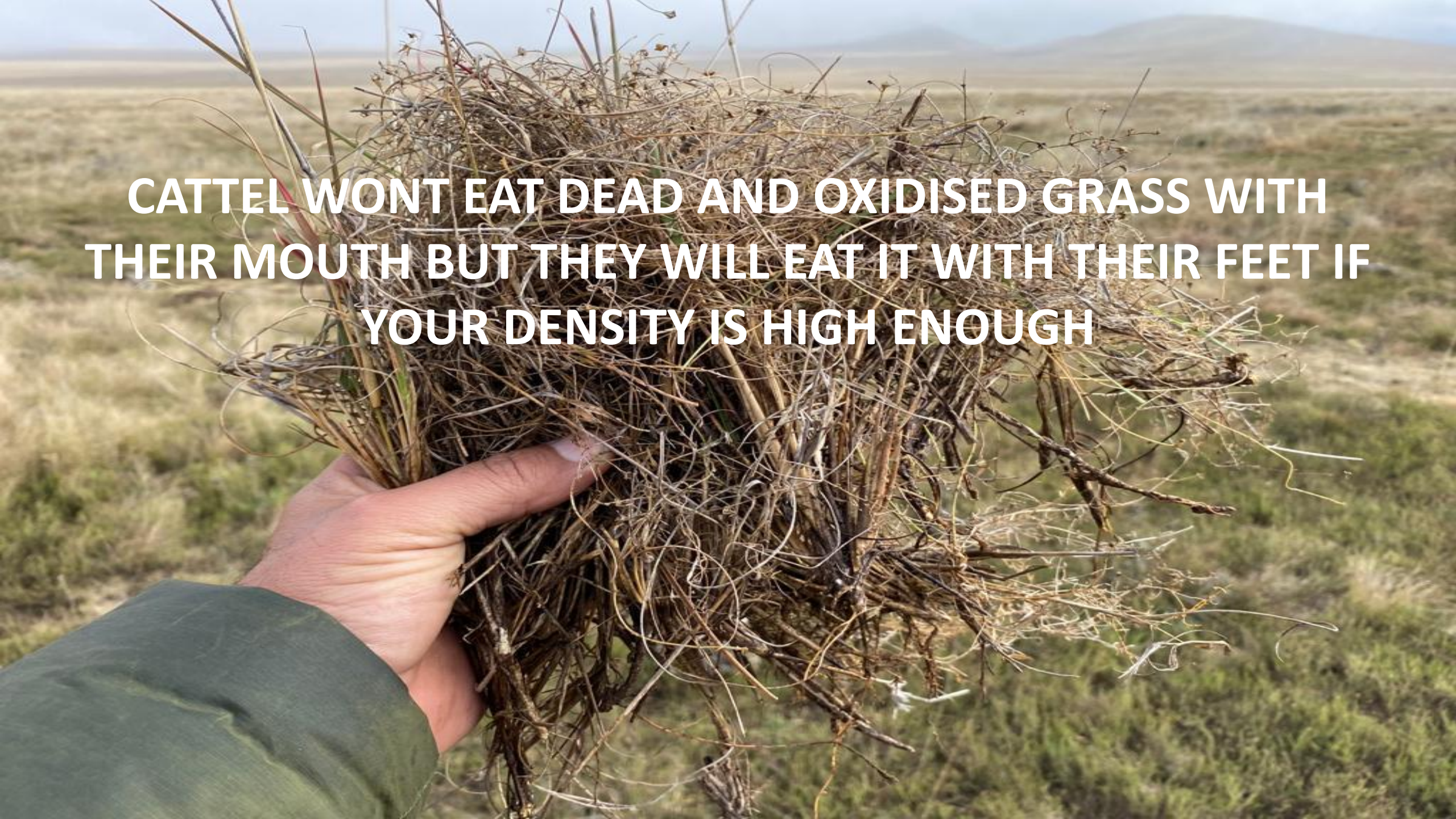

BEAUTIFUL EXAMPLE OF THE MAIN PROBLEM FACED ON NOT JUST MY FARM BUT ON MANY FARMS NOT ONLY IN SOUTH AFRICA BUT ALL OVER THE WORLD
THE SCOURGE OF OVER REST AND OVERGRAZING GOING ON SIDE BY SIDE IN THE SAME PADDOCK DUE TO SELECTIVE GRAZING

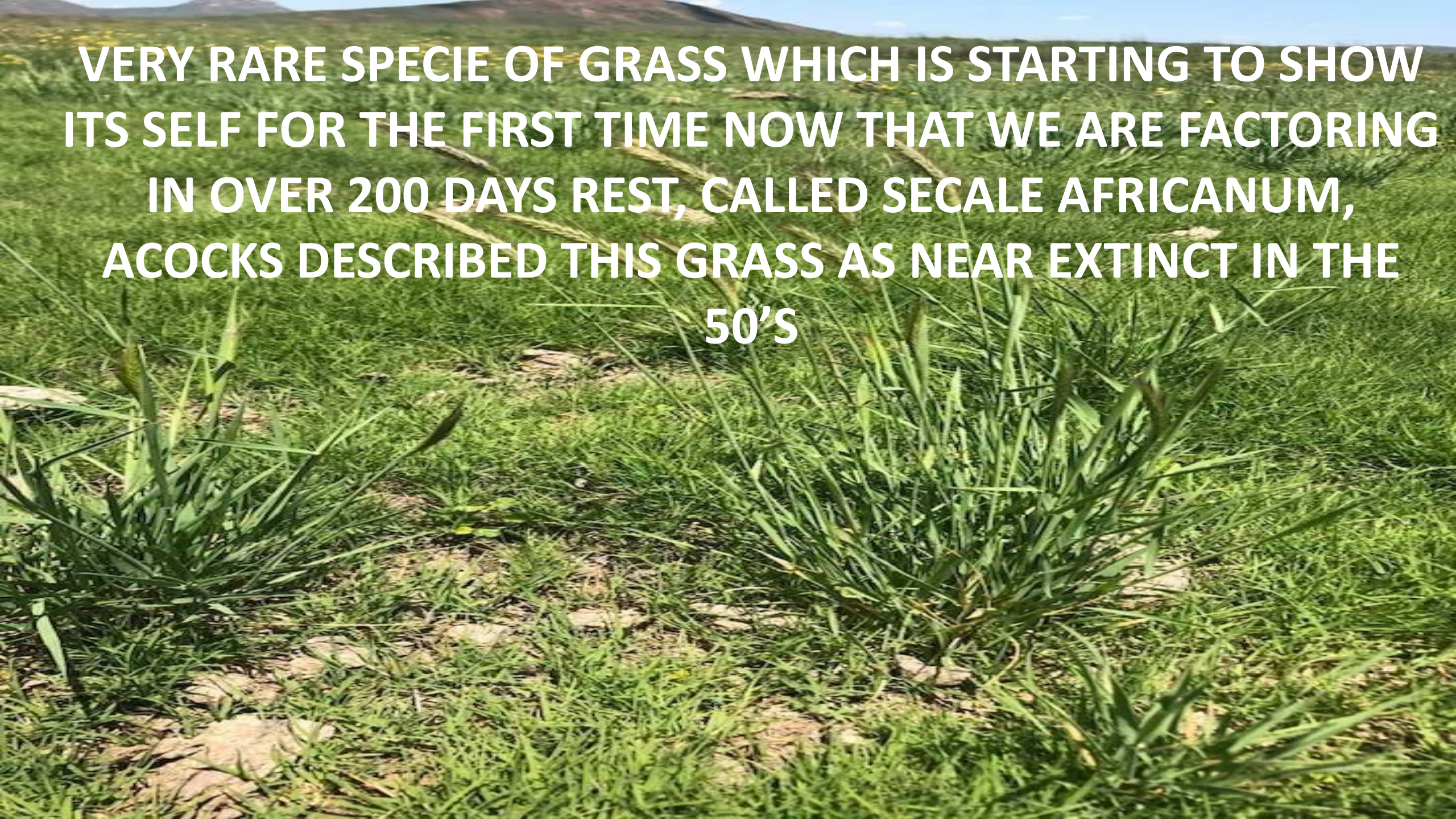

UNDERUTILSED MORIBUND TRETREGNE DREDGII OXIDISED
AND NOT WORTH VERY MUCH TO ANYONE


OVER A SIX YEAR PERIOD USING ADAPTIVE MULTIPADDOCK GRAZING WE WERE ABLE TO GET THE OLD MORIBUND ISLANDS KNOCKED DOWN, AND WE MANAGED TO GET THE OVERGRAZED COMPACTED AREAS TO RECOVER CREATING A FAR MORE EVEN AND DIVERSE SWARD
WINTER GREEN HELICTOTRICHON SPECIES STARTED EMERGING OUT OF THE BED OF TRETREGHNE DREGII

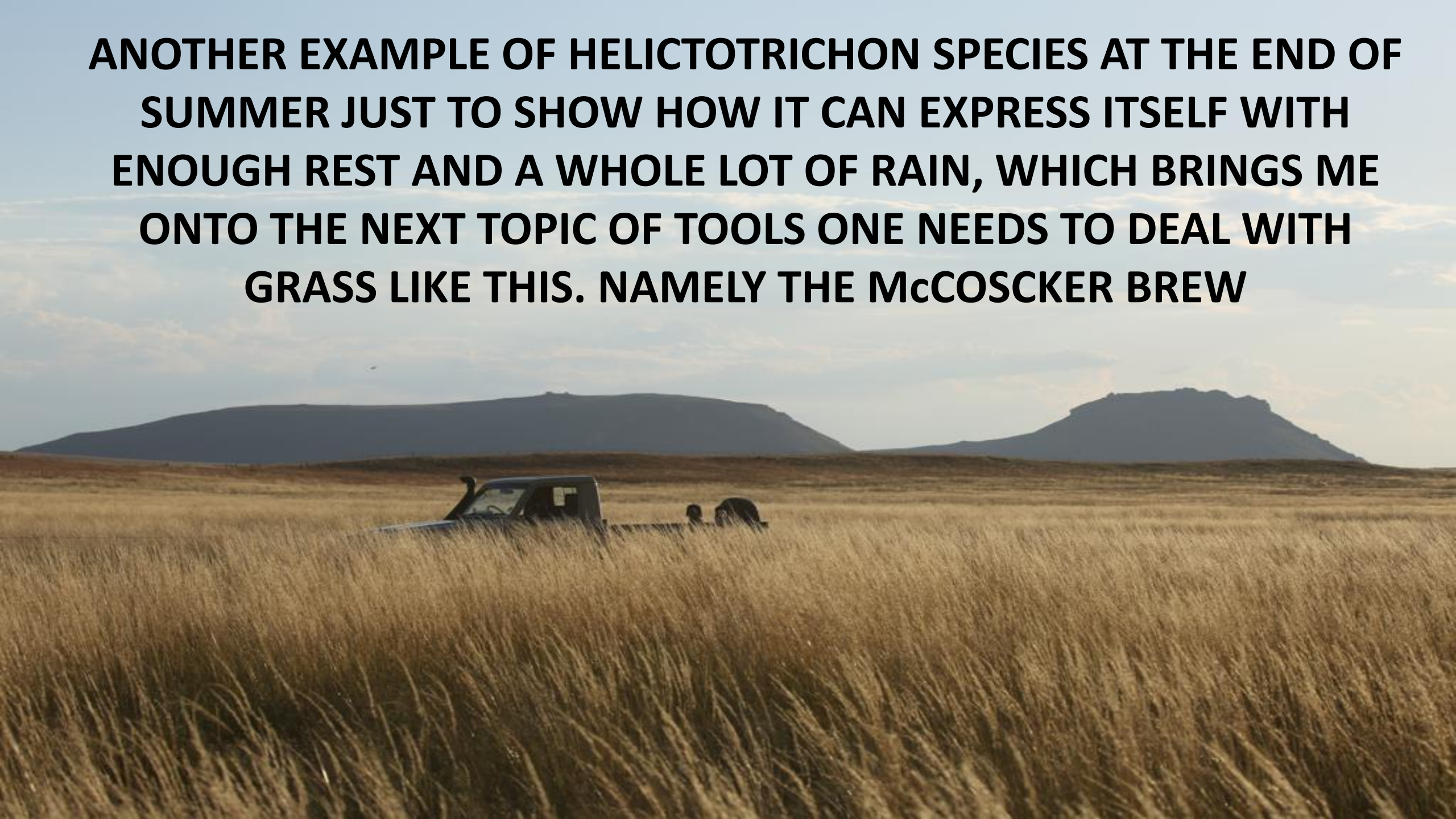
SAME HELICTOTRICHON SPECIES EXPRESSING THEMSELVES AT THE END OF SUMMER OF 2022, FROSTS OFF ON THE TOP BUT STAYS NICE AND GREEN BELOW THROUGHOUT THE WINTER MONTHS


A NICE FRESH BITE OF HELICTOTRICHON MIXED WITH CLOVER REMEMBER CATTLE LIKE EATING FRESH GREEN GROWING GRASS FILLED WITH SUGARS


CATTEL WONT EAT DEAD AND OXIDISED GRASS WITH THEIR MOUTH BUT THEY WILL EAT IT WITH THEIR FEET IF YOUR DENSITY IS HIGH ENOUGH


VERY RARE SPECIE OF GRASS WHICH IS STARTING TO SHOW ITS SELF FOR THE FIRST TIME NOW THAT WE ARE FACTORING IN OVER 200 DAYS REST, CALLED SECALE AFRICANUM, ACOCKS DESCRIBED THIS GRASS AS NEAR EXTINCT IN THE 50’S

ANOTHER EXAMPLE OF HELICTOTRICHON SPECIES AT THE END OF SUMMER JUST TO SHOW HOW IT CAN EXPRESS ITSELF WITH ENOUGH REST AND A WHOLE LOT OF RAIN, WHICH BRINGS ME ONTO THE NEXT TOPIC OF TOOLS ONE NEEDS TO DEAL WITH GRASS LIKE THIS. NAMELY THE McCOSCKER BREW



McCOSKER BREW

ECOLOGICAL ENGINEERS. MY NEW BEST FREINDS


YUM
YUM

This species is a very common rodent in the highveld grasslands of South Africa, and is a pest in agricultural areas. It is generally widely distributed and common. It occurs in the Northern and Eastern Cape provinces, parts of northern and western KwaZulu-Natal, the Free State, the Northern Province, the North-West, Gauteng and Mpumalanga in South Africa, as well as in western Zimbabwe, Botswana and central and eastern parts of Namibia. The overall range of the highveld gerbil does not correlate entirely with any single environmental factor; however, it is an inhabitant of subtropical and wooded grassland.

It occurs on sandy soils or sandy alluvium with some grass or scrub cover. The highveld gerbil tolerates arid areas with a mean annual rainfall of less than 250 millimetres per year. It selects the more open aspects of its environment, which it also clears by browsing on ground cover. It may also be found in peaty soils around marshes and pans and co-exists with the common mole rat.

The highveld gerbil is a light reddish-brown, pencilled with darker brown, whereas the chin, throat and ventral surface are off-white. The tail is about as long as the head and body measurement. It ranges in weight from 80–95 grams and its total body length is 270 millimetres. Characters that are common throughout the distributional range are the long, soft, fluffy, woolly fur and the colour of the tail, which on the upper surface is dark for at least

relatively slow which may be correlated with the high degree of parental care.

Its omnivorous diet comprises the seeds of grasses, bushes and trees, including *Acacia* trees, grass, leaves and stems, and occasionally a high percentage of insects, particularly termites. Unlike most gerbils, it does not hoard food. It has a significant effect on the habitat because of its selective feeding and construction of soil mounds at burrow entrances.

Highveld gerbils occur in small colonies of intercommunicating warrens. They vocalize frequently during mutual upright 'boxing', which forms part of their aggressive behaviour, and are socially tolerant and communal. The many vocalizations emitted during post-copulatory grooming may serve to maintain contact between the pair between bouts of copulation. In most parts of its range it breeds throughout the year, except for the driest and coldest months. Litters of three or four are born after a gestation period of 22 to 23 days.

MIKE PERRIN

NATIONAL PARKS BOARD

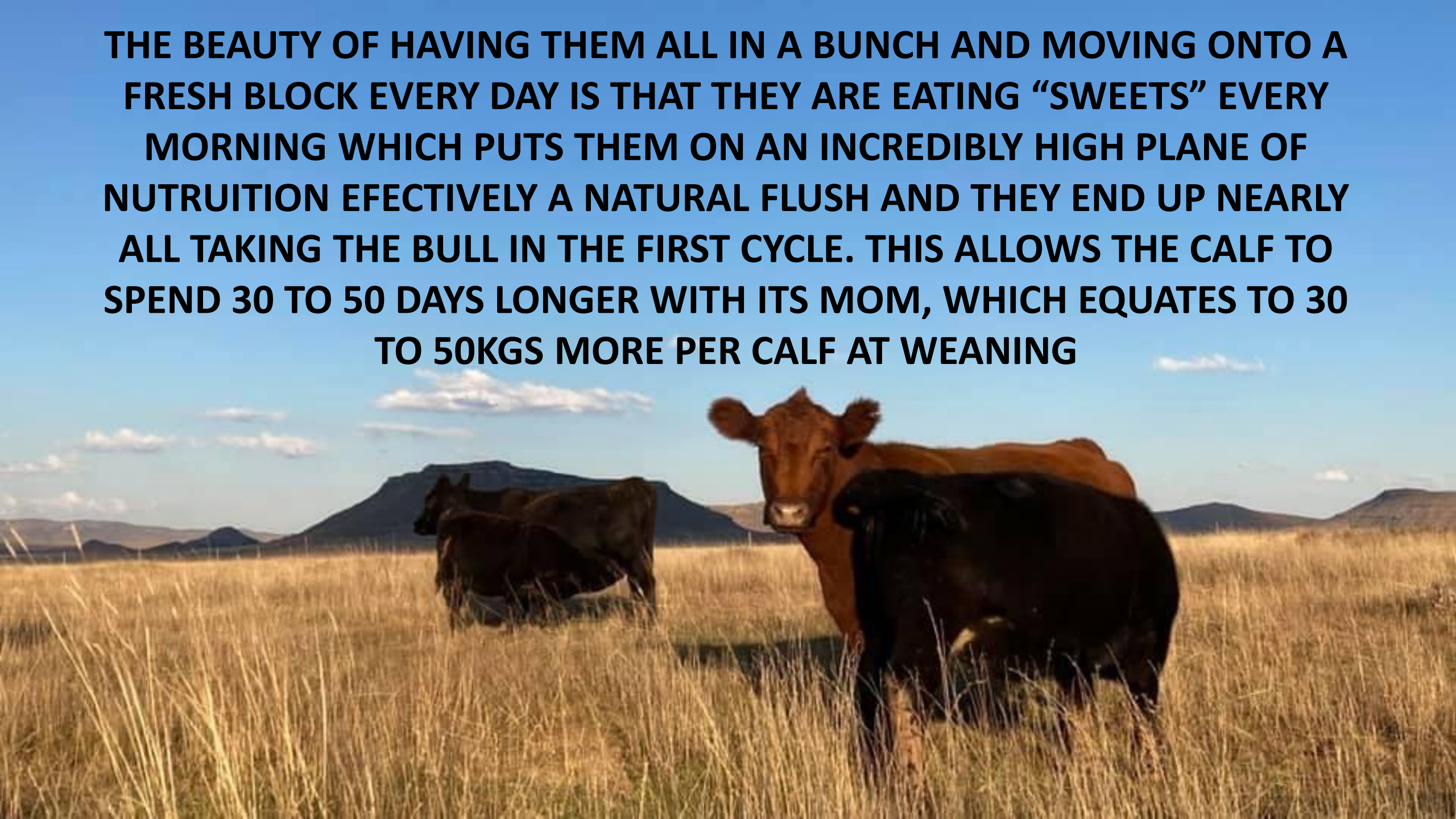
Selective feeding of the highveld gerbil may have a significant effect on its habitat.

I CALL IT HAVING A STEERING WHEEL BRAKE AN ACCELERATOR ON YOUR HERD

USING THE GRAZING SYSTEM AS A TOOL

240 COWS AND CALVES GRAZING A 9HA SQUARE WITH 9 BULLS IN ATTENDANCE, THE ONE PROBLEM I HAD WAS BULLS INJURING THEMSELVES, CATCH 22 COS THERE ARE SO MANY COWS CYCLING ALL AT ONCE THAT YOU NEED ENOUGH BULLS TO COVER THEM

THE BEAUTY OF HAVING THEM ALL IN A BUNCH AND MOVING ONTO A FRESH BLOCK EVERY DAY IS THAT THEY ARE EATING “SWEETS” EVERY MORNING WHICH PUTS THEM ON AN INCREDIBLY HIGH PLANE OF NUTRUITION EFECTIVELY A NATURAL FLUSH AND THEY END UP NEARLY ALL TAKING THE BULL IN THE FIRST CYCLE. THIS ALLOWS THE CALF TO SPEND 30 TO 50 DAYS LONGER WITH ITS MOM, WHICH EQUATES TO 30 TO 50KGS MORE PER CALF AT WEANING



JUST TO DO A QUICK LITTLE SUM, WE USED TO AVERAGE ABOUT A 220-230KG WEANING, THIS HERD IS NOW AVERAGING BETWEEN 275 AND 285 ON THIS LAST LOAD OF CALVES. LET US JUST GO WITH A 45KG INCREASE PER CALF @ R35/KG = AN EXTRA R1575 PER CALF. MULTIPLY THAT BY 120 CALVES AND THAT GETS YOU AN EXTRA R189000 ON YOUR WEANER CHEQUE, IN FOUR YEARS IVE PAID OFF ALL MY INFRASTRUCTURE COSTS JUST ON THE EXTRA WEIGHT OFF MY CALVES


Fence elements, Fence Crossing and Water
Pull up for precise seeking
4:13
0:41 / 4:34