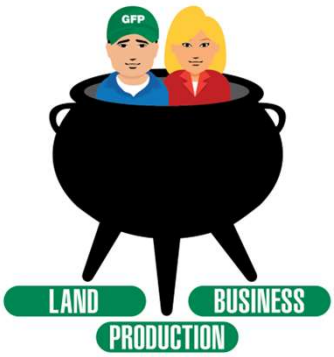
RCS
Transforming Agriculture

Enhancing Natural Capital in Grazing Systems

Henry Hinds
March 2023

What is Natural Capital?

Why would you want to enhance it?



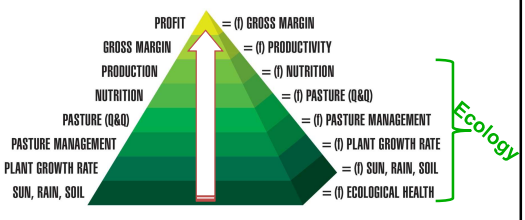
Focus Question

Do we regard a farm as a manufacturing environment

or

part of an ecosystem?

RCS Pyramid of Profit



Ecosystems are Complex Adaptive Systems

1. Distributed Control
2. Connectivity (Flows of nutrients, energy, information, material)
3. Co-Evolution
4. Sensitivity to change
5. Self-Organization
6. Non-Linear
8. Diversity – includes Keystone Species
10. Nested Systems

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Economy

Complex Adaptive Systems

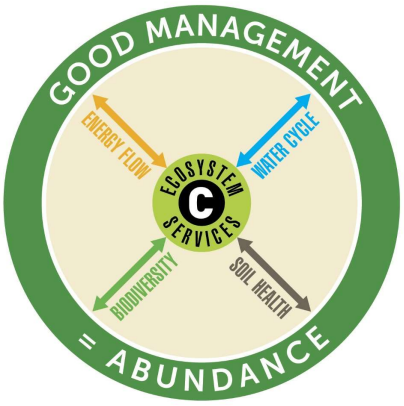
Ecology

Feedback Loops

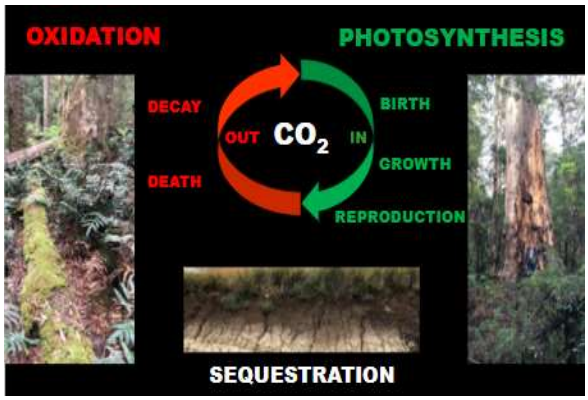
1. In a Complex Adaptive System all parts are connected
2. A change in one part generates waves of changes that reach all other parts of a CAS
3. Positive Feedback Loops generates waves of positive changes through a system
4. Negative Feedback Loops generates waves of negative changes through a system

In NATURE there are no REWARDS or PUNISHMENT, only CONSEQUENCES

Robert Ingersoll (1833 – 1899)



Carbon



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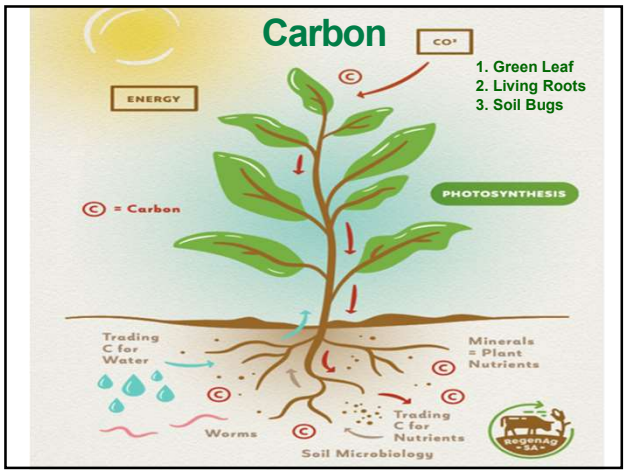
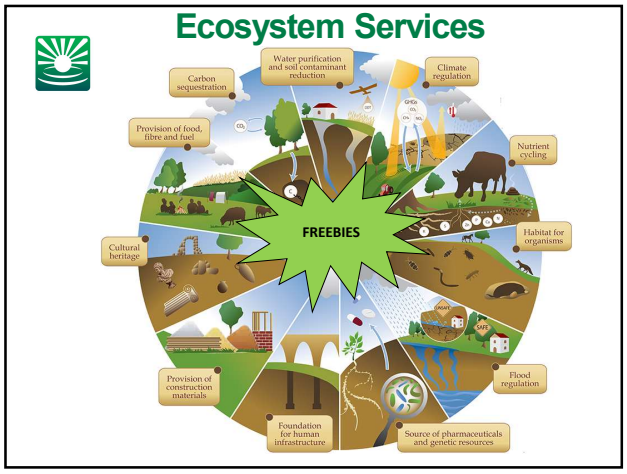
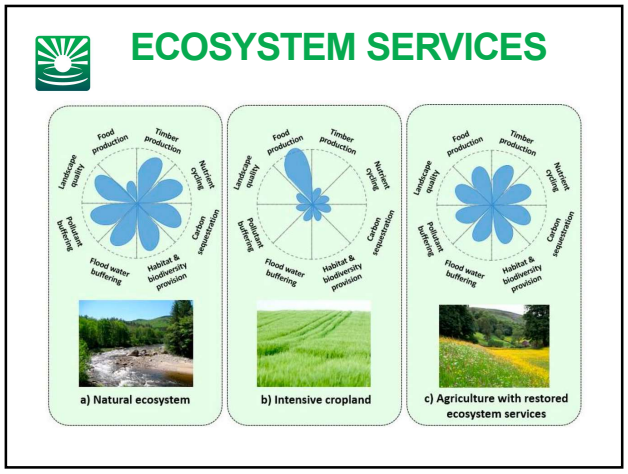
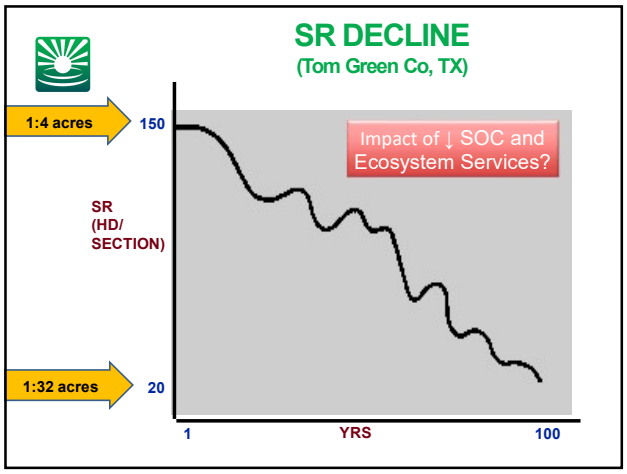


Effects of Soil Carbon

- ✓ Increase circulating Nitrogen
- ✓ Holds more nutrients
- ✓ Increase biodiversity, under and above ground
- ✓ 1% increase in SOC increases water holding capacity by >144,000L water/ha
- ✓ Drought resilience, longer growing seasons
- ✓ Increase production
- ✓ Commodity hedge







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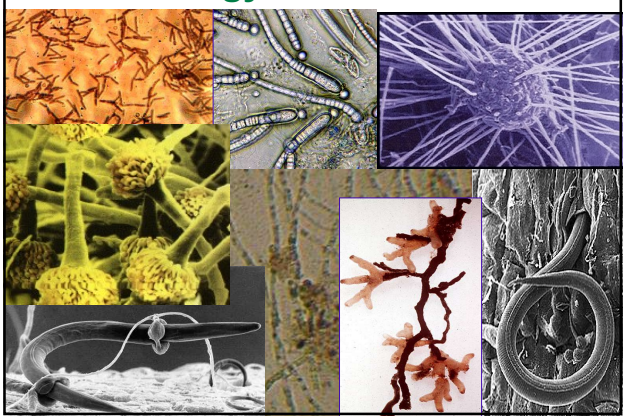
Biology we CAN'T see



6 PRINCIPLES of SOIL HEALTH

1. PLAN, MONITOR & MANAGE SOIL HEALTH
2. MAXIMIZE LIVING PLANT PRODUCTION
3. A FOCUS on BIOLOGY will REPAIR SOIL HEALTH
4. INTRODUCE BIODIVERSITY
5. MAXIMUM THICKNESS and AVAILABILITY of GROUND COVER
6. LIVESTOCK are NATURE's RECYCLERS

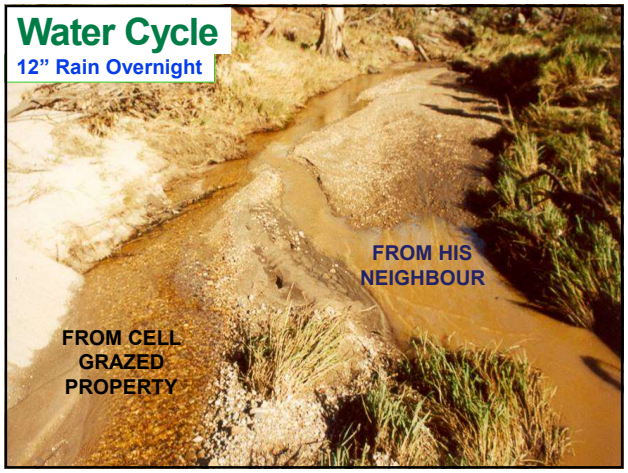
Biodiversity & Succession

Bacteria …A few Fungi……Balanced ……..More Fungi…… Fungi

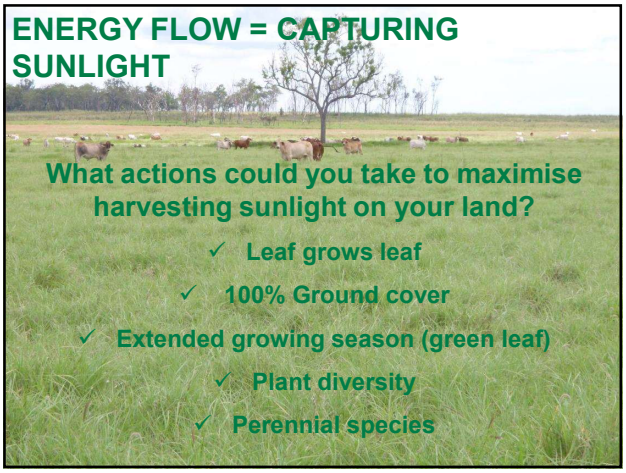
Bacteria:	10 µg	100 µg	500	600 µg	500 µg	700 µg
Fungi:	0 µg	10 µg	250	600 µg	800 µg	7000 µg

Water Cycle

12" Rain Overnight



ENERGY FLOW = CAPTURING SUNLIGHT



What actions could you take to maximise harvesting sunlight on your land?

- ✓ Leaf grows leaf
- ✓ 100% Ground cover
- ✓ Extended growing season (green leaf)
- ✓ Plant diversity
- ✓ Perennial species

Where is the energy flow?

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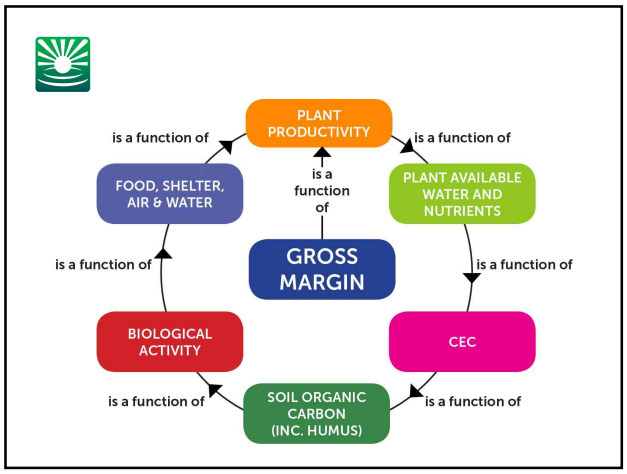

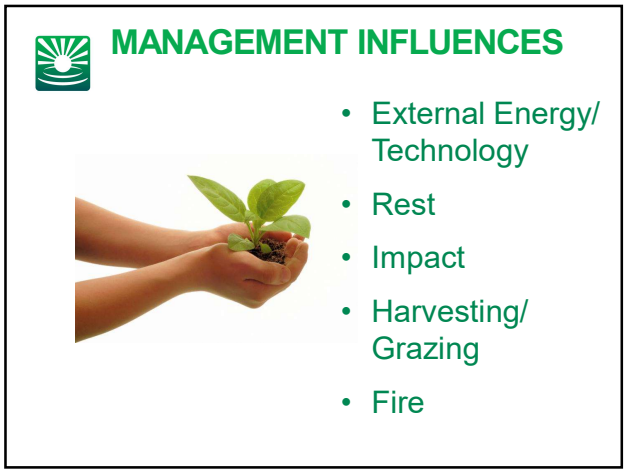

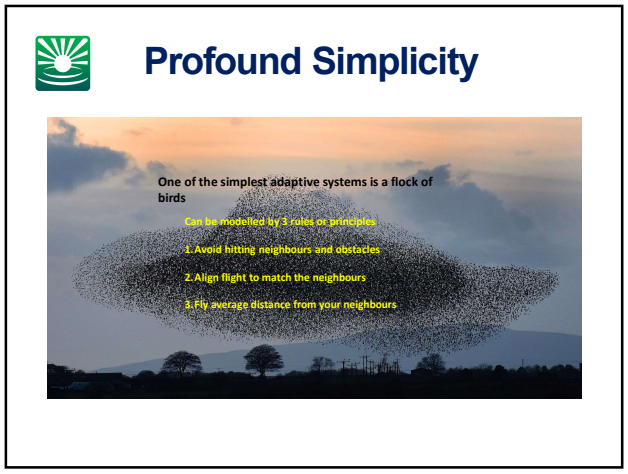

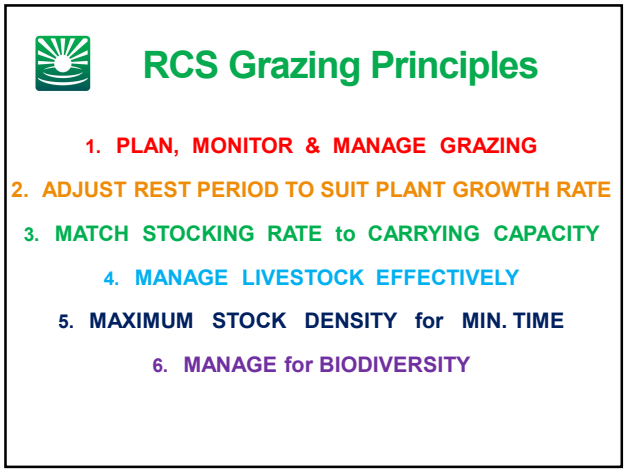

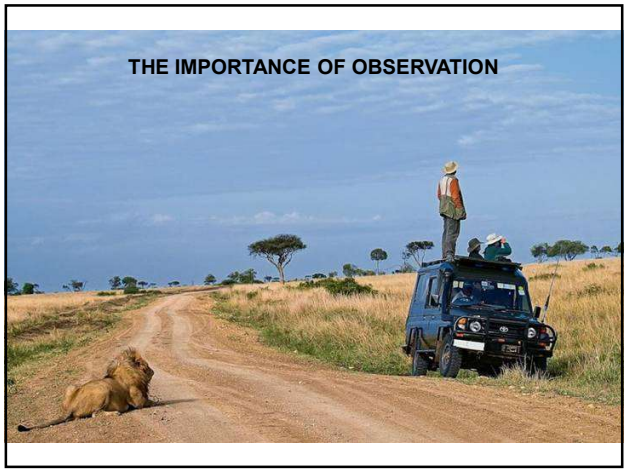

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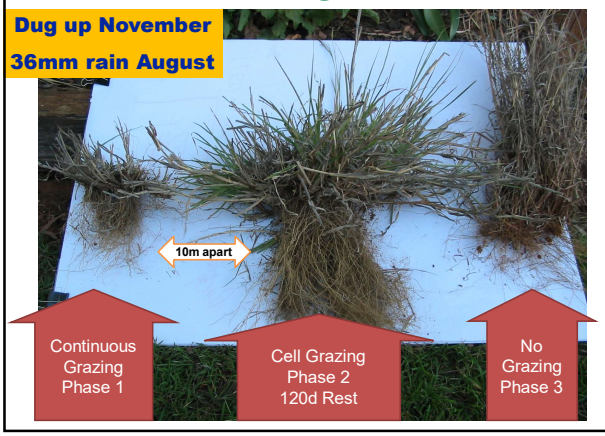
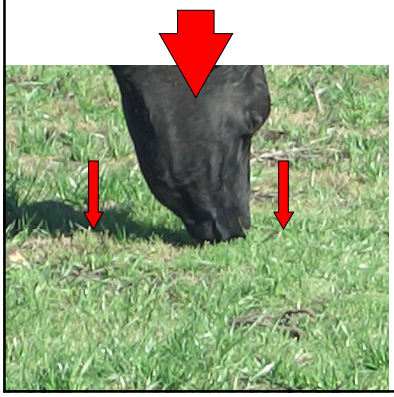
REST



WHAT is CARRYING CAPACITY?

IT IS WHAT GROWS UP FROM THE SOIL IN RESPONSE TO RAIN AND TEMPERATURE

WHAT is STOCKING RATE?



IT IS WHAT COMES **DOWN** FROM ABOVE AND IS DETERMINED BY: **MANAGEMENT**

Managing Biodiversity?




Managing for Balance

Narrow strips – 6m

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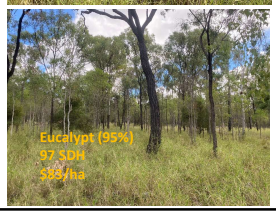
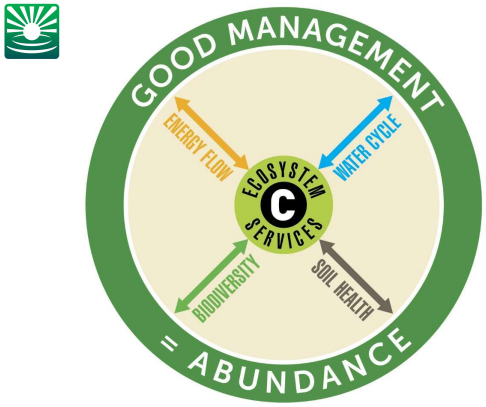
Narrow strips – 6m

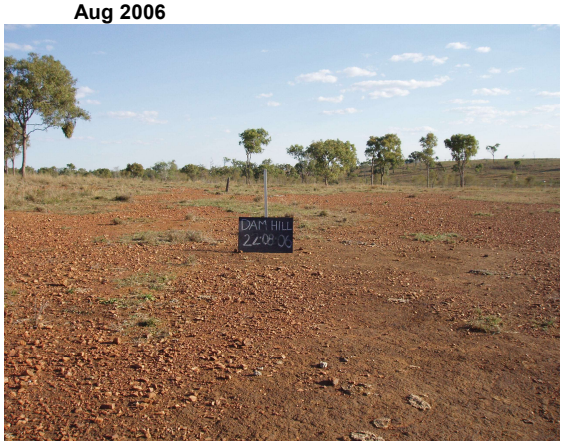
Brigalow Land Type

Other Land Types





Aug 2006



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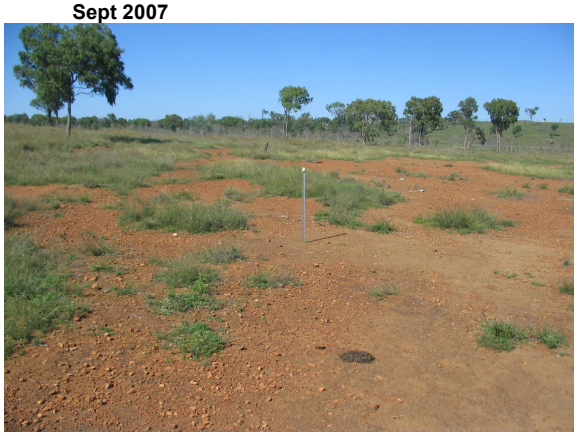

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Nov 2008 – 5 SDH/100mm

Oct 2012 – 17 SDH/100mm

March 2013

RCS Principle Based Management

Land

BEGIN WITH THE END IN MIND

The RCS Regenerative GOAL

To PROFITABLY LEAVE OUR COUNTRY IN BETTER CONDITION

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