

Reading The Landscape

- Why should I bother?
- After the drought / floods is your landscape regenerating?
- Is your landscape degrading?



- Is Soil Health and Landscape management related?
- Can I have a <u>healthy soil</u> and have a degrading landscape?
 (Land ethics: Aldo Leopold)



Managing two systems

Agri-cultural landscape management involves the overlay of a <u>human</u> (political) system over a <u>biological</u> system

How big a "footprint" [and costs] do you have on the landscape?

Is your footprint building or crushing the landscape?



What is your geography? Parent material on the hills Clays in the floodplains [High Mg]

How unique is your topography?

• What makes your landscape different?

Why is reading soil important?



- Reading your landscape involves observing the <u>visual</u> vocabulary of nature.
- Can you see the wood for the trees?
- The problem is that different people see different things.
- [Left and right brain people think differently]

The value of a tree may differ from you to me. For it depends on who we are. To a painter it is a scene of untold beauty, so serene.

To a watcher of nature it is home for some birds. To a saw miller straight timber is his heart's desire.

To a farmer its shelter or logs for his fire. When you look at a tree which person shall you be? Don't judge a tree just by its girth.

So, value the tree the next one you see and appreciate its worth.

Gwyn Jones ©1994

Q: How long have you been observing the landscape? (Benefit of "*local*" knowledge)

Q: Can you access generational knowledge?

Q: How many droughts, floods, fires have you seen and what has changed?



Have times changed or just us?



Time and Space

- Has the <u>previous drought</u> adversely affected your landscape?
- If so how long will it take to recover?
- How resilient is your landscape?
- (How quickly can it bounce back?)

Where to start:

Interpreting your prevailing (changing) climate and weather patterns

Where are you in the bigger landscape – In the hills, slopes, valleys, floodplains?

How many "edges" [2 meeting ecosystems] do you have?

What to focus on

Where is your landscape in the watershed?

Where are your high and low points?

How much water is coming into your land?

How much soil is leaving your landscape?

How does water move through?

- Water originally flowed in water courses and often spread out into wide floodplains.
- From a hill to the sea, water moves down a series of "steps" which can occur in about 1 meter of fall.
- A big step is a waterfall!

Where are the "*steps*" in your landscape

• "Steps" are used as a term by Peter Andrews and they can be on and in the landscape.







What is happening on your landscape -Water

Does your rainfall quickly run off [with soil]?

Is flash flooding becoming more common?

Is your landscape <u>rehydrated</u> with (+) water pressure in its water courses? (Demonstration)

<u>Biodiversity</u>

What range of diversity do you have?

What is your smallest and tallest plant? What about their root systems?

Are weeds part of the landscapes biodiversity?





Biodiversity (It is about diversity)

Which has the most biodiversity? A monocrop – one species crop or a mature tree?

Think also about the homes needed for living organisms, more homes more biodiversity. [Eg: Biochar creates more "eco"-homes]

<u>Biodiversity</u>

What animals / livestock do you have? [Wanted and Unwanted]

In a cropping landscape there is Still underground "livestock"



Can you read the timeline of plant succession on your region's landscape?

Rock > moss lichen > herbs / forbs > grasses > legumes {N+}

[More detail will be in the Weed Management Presentation and covered practically in the field day] [Do weeds play a role in regenerating landscapes? See field day hand out]

Space: What is happening on your landscape

Macro Level

- What is your "GREEN" Index [of 365 days]
- The more green plant surface area
- The cooler your landscape & environment
- How long do you maintain "green" coverage?
- [Important feature of cover crops]

Space: What is happening on your landscape

Macro Level

- How "cool" is your landscape?
- Does your landscape absorb or reflect heat?
- How effective is your <u>small water</u> cycle²
- Do you get mists and morning dews?
- [An important feedback loop]

Regeneration & New topsoil





Space: What is happening on your landscape

Macro Level

- Accelerated Soil Erosion [A Natural process]

Erosion and Compaction





Problem = Soil detachment

- Stop the soil detaching on the surface
- Need for ground cover \checkmark
- Need for good soil aggregation
- [Look at the interface between the soil and the surface organic matter]



Erosion - Two foot loss of soil





Types of Erosion

- Water including flooding
- Rill or "Finger" Erosion [soil scratched]
- Gully [water dropping need for ponding]
- River bank
- Road water
- Mass movement [Hillside]

Reading Erosions has 2 stages

Two parts to soil erosion

1st Detachment of soil particles
2nd Transportation by water
on the soil surface
into the lower levels / horizons

In cultivate landscapes subsoil soils can have midule age

spread = compaction layer

Types of Erosion

- 1st Soil Detachment
- Need for plant and ground cover
- Put a roof on your soil house
- Need for improved soil aggregation
- Role of plants roots and soil biology

Soil Structure Decline



Poor soil Structure



- Micro Level
- Soil health
- What does your soil surface look like?
- Do you have coverage, bare spots?
- Do you get surface sealing [& nitrate weeds]?

Cracking Clay: Aeration or Calcium?



- Micro Level
- Soil health
- Need for dig, sniff and look
- For fungal activity best to look 2-3 weeks after 1st major rain event





