Co-creating with Nature

An Exploration of Holistic Management

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Interacting with nature

Nature is a bank of natural capital which includes:

- healthy soil required to grow plants
- clean air to breath
- clean water needed for many purposes
- plants and creatures we share the planet with
- rocks and minerals
- a climate suitable for our survival
- sunlight , our ultimate energy source
- our health is part of this natural capital

Most current human management systems are depleting this bank of natural capital that our very existence depends upon.

UN Food & Agriculture Organization's 2014 warning

"Only 60 years of farming left if soil degradation continues"

How far are we humans willing to go?

Fresh New Zealand air selling in China
130 full breaths for only $44

https://www.stuff.co.nz/business/world/87066936/fresh-nz-air-selling-cheap-in-china-at-44-a-bottle

https://www.huffingtonpost.com/2010/08/17/un-environment-programme-_n_684562.html

How do I define Co-creating with Nature?

1) Interact in a way that sustains the current natural capital into the future.

2) Interact in a way that rebuilds or regenerates the natural capital going forward in time.

Second option is preferable otherwise we will be sustaining a badly depleted account.

“If you want to make small changes, change how you do things. But if you want to make big changes, you need to change how you see things.

Don Campbell

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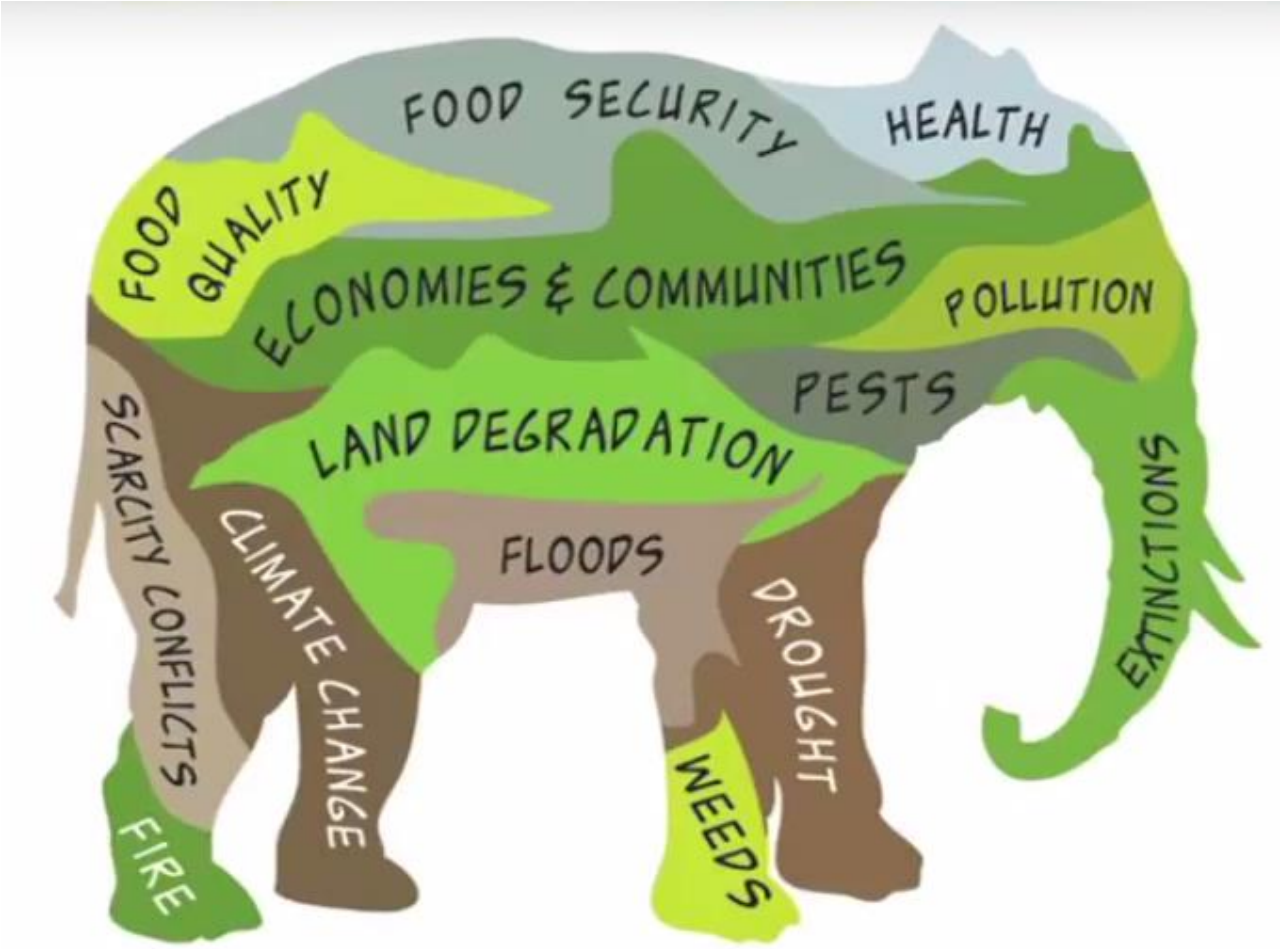


Used with permission: Peter Donovan https://soilcarboncoalition.org/

Tremendous energy spent trying to isolate and solve individual problems with limited success because many are strongly interconnected. Leading to unintended consequences

Need a Holistic Approach

Peter Donovan Grassfed Exchange https://www.youtube.com/watch?v=OQrQBvHH0eM

Brief history of Holistic Management

Holistic Management is a new framework for decision making that integrates environmental, social and economic factors.

It was developed by Allan Savory, a wildlife biologist in his native Southern Rhodesia (now Zimbabwe), who set out to understand desertification in the 1960's.

The larger framework of Holistic Management emerged from his work in wildlife management, holistic planned grazing in both Africa and the USA, his experience in the Rhodesian military and as a member of the Rhodesian Parliament.

Holistic Management: A Commonsense Revolution to Restore Our Environment
by Allan Savory with Jody Butterfield, (Island Press: 2016)

Holistic Management Framework

Overview from 30,000 feet

9 steps in total

Ignore details for now

WHOLE UNDER MANAGEMENT

Decision Makers — Resource Base — Money

HOLISTIC CONTEXT

(Statement of Purpose) — Quality of Life — Future Resource Base

ECOSYSTEM PROCESSES

Water Cycle — Mineral Cycle — Community Dynamics — Energy Flow

ECOSYSTEM MANAGEMENT TOOLS

Human Creativity

Technology Fire Rest

Living Organisms
- *Animal Impact*
- *Grazing*

Money & Labor

ACTIONS & DECISION MAKING

Objectives, Goals, Tactics, Strategies, Policies
Customary Selection Criteria (past experience, expert advice, research, etc.)

CONTEXT CHECKS

Cause & Effect

Weak Link
- *Social*
- *Biological*
- *Financial*

Marginal Reaction

Gross Profit Analysis

Energy/ Money Source & Use

Sustainability

Gut Feel

MANAGEMENT GUIDELINES

Time

Stock Density & Herd Effect

Cropping

Burning

Population Management

PROCEDURES & PROCESSES

Holistic Financial Planning

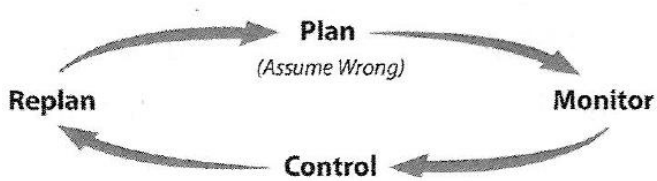
Holistic Land Planning

Holistic Planned Grazing

Holistic Policy Development

Research Orientation

FEEDBACK LOOP



Used with permission: Allan Savory with Jody Butterfield, *Holistic Management: A Commonsense Revolution to Restore Our Environment* (Island Press: 2016)

Holistic Management

WHOLE UNDER MANAGEMENT

Decision Makers — Resource Base — Money

(Step 1)

Identify the "Whole" to be managed which in our case is Bowen Island.

Holistic Management

WHOLE UNDER MANAGEMENT

Decision Makers — Resource Base — Money

(Step 1)

Identify the "Whole" to be managed which in our case is Bowen Island.

The "Whole" includes:

1) **ordinary people like ourselves, who will create the holistic context,**
2) **decision makers like councillors,**
3) **groups that can veto our decisions,**
4) **the resources that are to be managed land, environment, money, and people.**

Holistic Management

(Step 2)

HOLISTIC CONTEXT

(Statement of Purpose) — Quality of Life — Future Resource Base

Holistic Management

(Step 2)

HOLISTIC CONTEXT

(Statement of Purpose) — Quality of Life — Future Resource Base

If the "Whole" is being managed for a specific purpose, start with a statement of purpose

Holistic Management

(Step 2)

HOLISTIC CONTEXT

(Statement of Purpose) — Quality of Life — Future Resource Base

In the past our goals were made within a context that was too narrow given the complexity of the situation. This leads to unintended consequences

Holistic Management

(Step 2)

HOLISTIC CONTEXT

(Statement of Purpose) — Quality of Life — Future Resource Base

Need to create a broader context for management actions

The context guides day-to-day management decisions

(Step 2)

HOLISTIC CONTEXT

(Statement of Purpose) — Quality of Life — Future Resource Base

Holistic context includes:

1) Quality of life: expression of how people want to live their life within the "Whole"

2) Future resource base: environment and behaviors that will sustain that quality of life for their successors

(a) people (b) environment

In brief: how we want our lives to be in the "Whole" we manage, and the environment and behaviors that will sustain that quality of life for future generations.

China's calls for building an ecological civilization

James Thornton's specialty is suing governments and corporations on behalf of his only client – the Earth.
In 4 decades on three continents, he's never lost a case.

https://www.theguardian.com/environment/2017/sep/10/my-job-is-to-clean-up-the-environment-china-really-wants-to-do-that

China's calls for building an ecological civilization

Thornton was invited to Beijing in 2014 to help implement China's new law allowing NGOs to sue polluting companies for the first time.

Thornton has seen how serious the world's biggest polluter is about addressing its environmental problems.

https://www.theguardian.com/environment/2017/sep/10/my-job-is-to-clean-up-the-environment-china-really-wants-to-do-that

China's calls for building an ecological civilization

"Facing the ruin of their environment, the Chinese looked hard and amended their constitution. This core document now calls for the building of an ecological civilization," he says. "We built an agricultural, then an industrial, and now must build an ecological civilization."

https://www.globalresearch.ca/chinas-determined-march-towards-the-ecological-civilization/5639626

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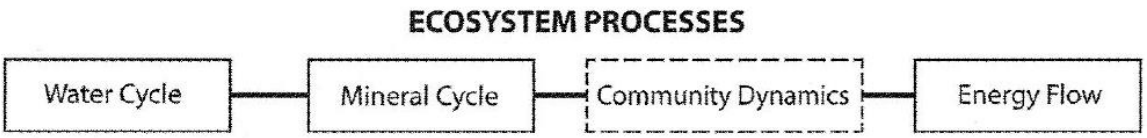
Their long-term vision is to be here in another 2,000 years and that will only happen if we clean up the environment.

https://www.globalresearch.ca/chinas-determined-march-towards-the-ecological-civilization/5639626

https://www.theguardian.com/environment/2017/sep/10/my-job-is-to-clean-up-the-environment-china-really-wants-to-do-that

Holistic Management

(Step 3)



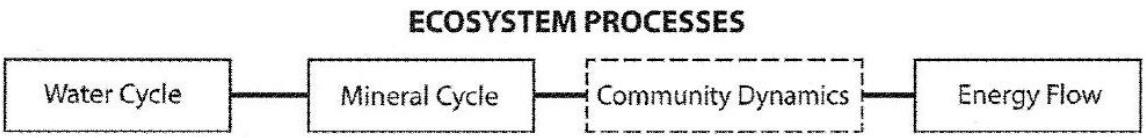
Holistic Management pays explicit attention to ecosystem processes whether it is a company, farm or community

We once viewed the ecosystem as a source of raw materials

New view: ecosystem is the foundation on which all human endeavors, all economies, and all life is built

Holistic Management

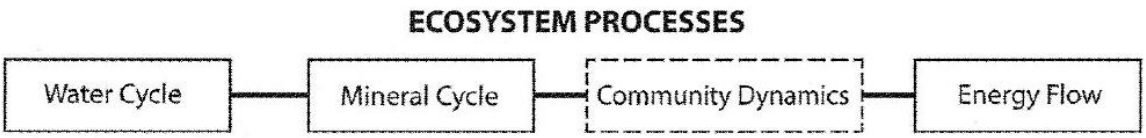
(Step 3)



Four fundamental Ecosystem Processes

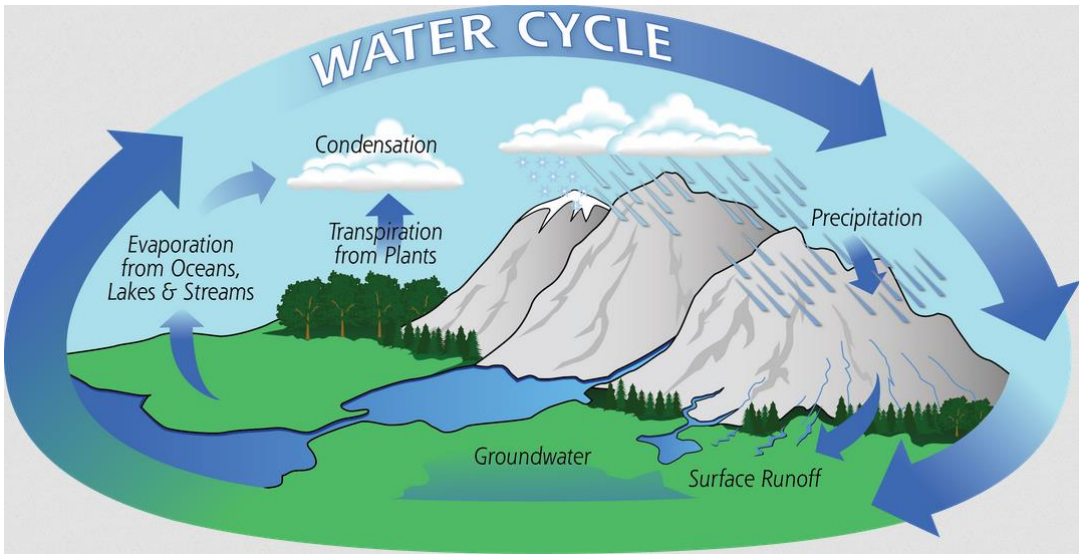
Holistic Management

(Step 3)



Four fundamental Ecosystem Processes

1) Water cycle

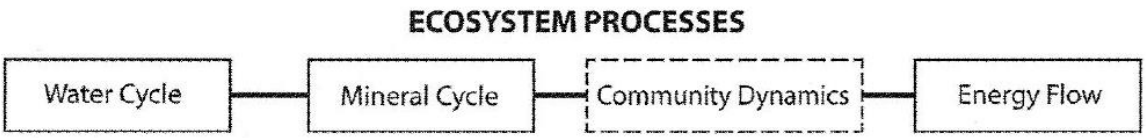


Credit NASA https://pmm.nasa.gov/education/water-cycle

New insights: - (a) active soil biology sequesters carbon & builds soil structure which infiltrates, stores, & purifies water. Healthy plant cover is essential for providing the root exudates of sugars to attract and feed soil microbes. In animal grazing managing plant recovery time is essential.

Holistic Management

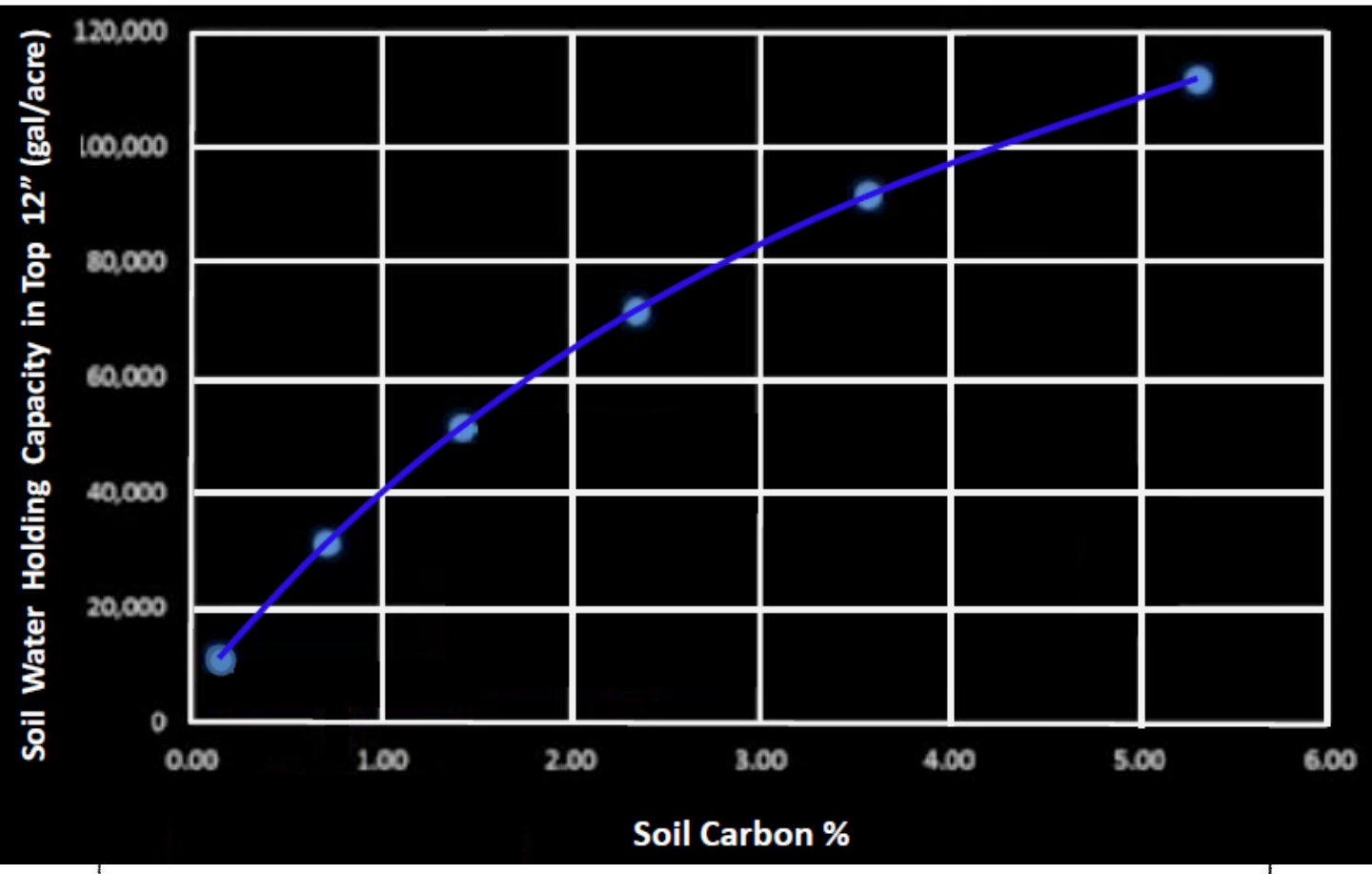
(Step 3)



Four fundamental Ecosystem Processes

1) Water cycle

Soil water holding capacity depends on soil carbon



Dr. David Johnson's "The Beam Approach" https://www.youtube.com/watch?v=79qpP0m7SaY&t=6s

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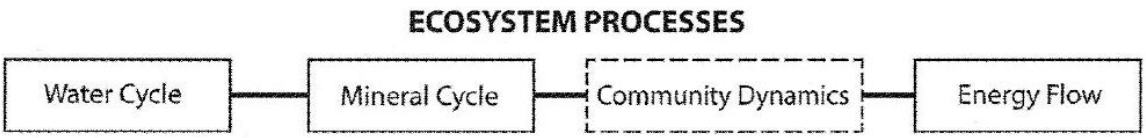

Four fundamental Ecosystem Processes

1) **Water cycle**

New insights: - (b) in addition to transpiring water and cooling the environment, trees and some plants release chemical compounds and microbes, which float into the air in large quantities and seed clouds.

Nature 2014 ,506, p.476-9. doi: 10.1038/nature13032
brent.xner.net/pdf/NewScient_clouds_April2016.pdf

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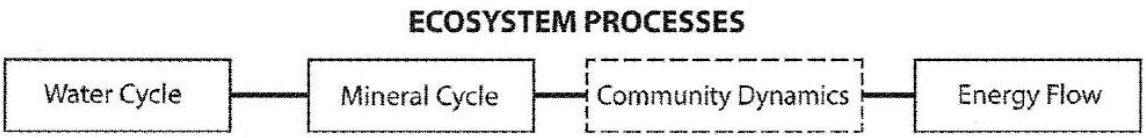


Four fundamental Ecosystem Processes

2) Mineral cycle:

Nature's bartering system: plants supply soil microbes carbon energy compounds (sugars) generated from photosynthesis.

In return the microbes provide the plants with all the other elements they require by:

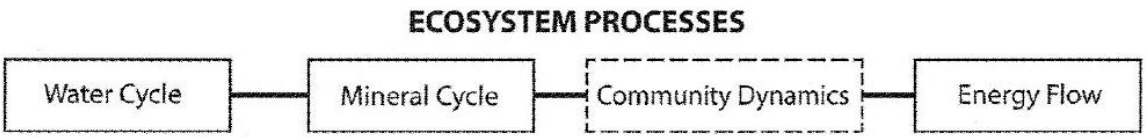
- recycling dead plant and animal matter,
- mining* the rocks, sand, silt and clay,
- and fixing nitrogen from the atmosphere.

Microbes also build carbon rich humus in the soil.

* 'The World's Largest Mining Operation Is Run by Fungi' Jennifer Frazer, Scientific American Nov. 5, 2015

Holistic Management

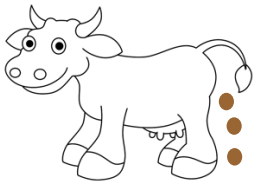
(Step 3)



Four fundamental Ecosystem Processes

2) Mineral cycle:

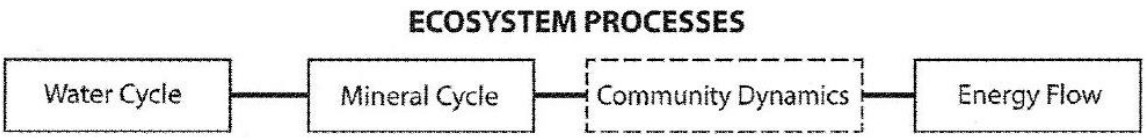
In land used for animal grazing, managing the grazing for adequate plant recovery is essential to achieve healthy plant cover.



As mobile biodigesters and biofertilizers, herbivores play a key role in mineral recycling and greatly reduce the need for fire and cut the natural fire fuel load.

Holistic Management

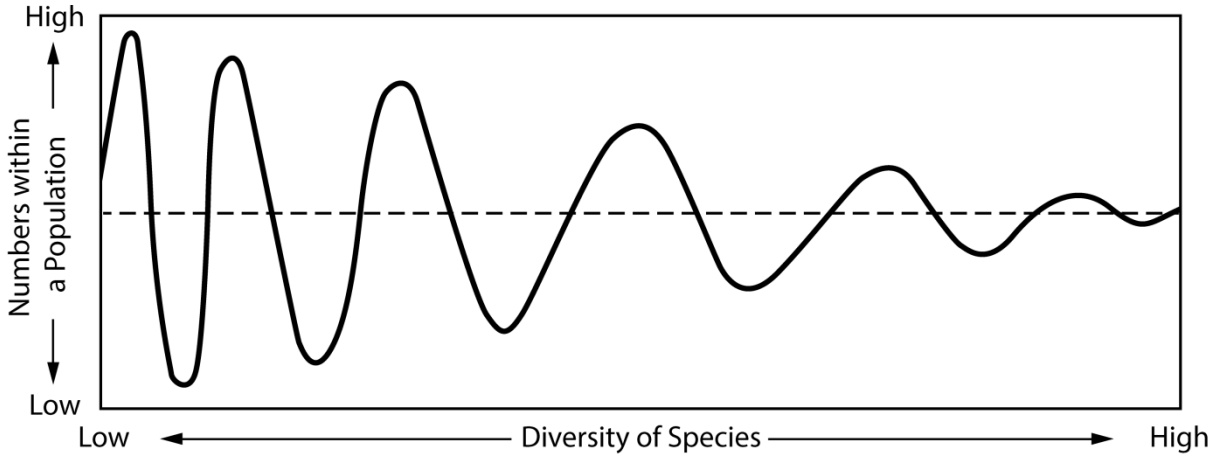
(Step 3)



Four fundamental Ecosystem Processes

3) Community dynamics: complex community of plants, animals & microorganisms functions as a whole. Precise behavior currently beyond human understanding.

The more complex and diverse communities become, the more stable the populations within tend to be



Used with permission: Allan Savory with Jody Butterfield, *Holistic Management: A Commonsense Revolution to Restore Our Environment* (Island Press: 2016).

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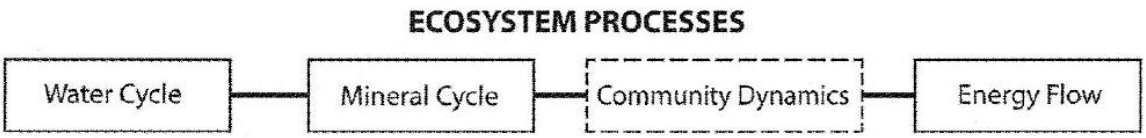

Four fundamental Ecosystem Processes

4) Energy flow: all life and economies depend on sunlight and photosynthesis

Sunlight and photosynthesis power our lives and the economy

Used with permission: Peter Donovan https://soilcarboncoalition.org/

We are not just objects
We live in a flow of solar energy

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We live in a flow of solar energy

Solar power received by Earth is 4000 times larger than all forms of geothermal heating power including natural radioactivity.

https://blogs.scientificamerican.com/observations/nuclear-fission-confirmed-as-source-of-more-than-half-of-earths-hea

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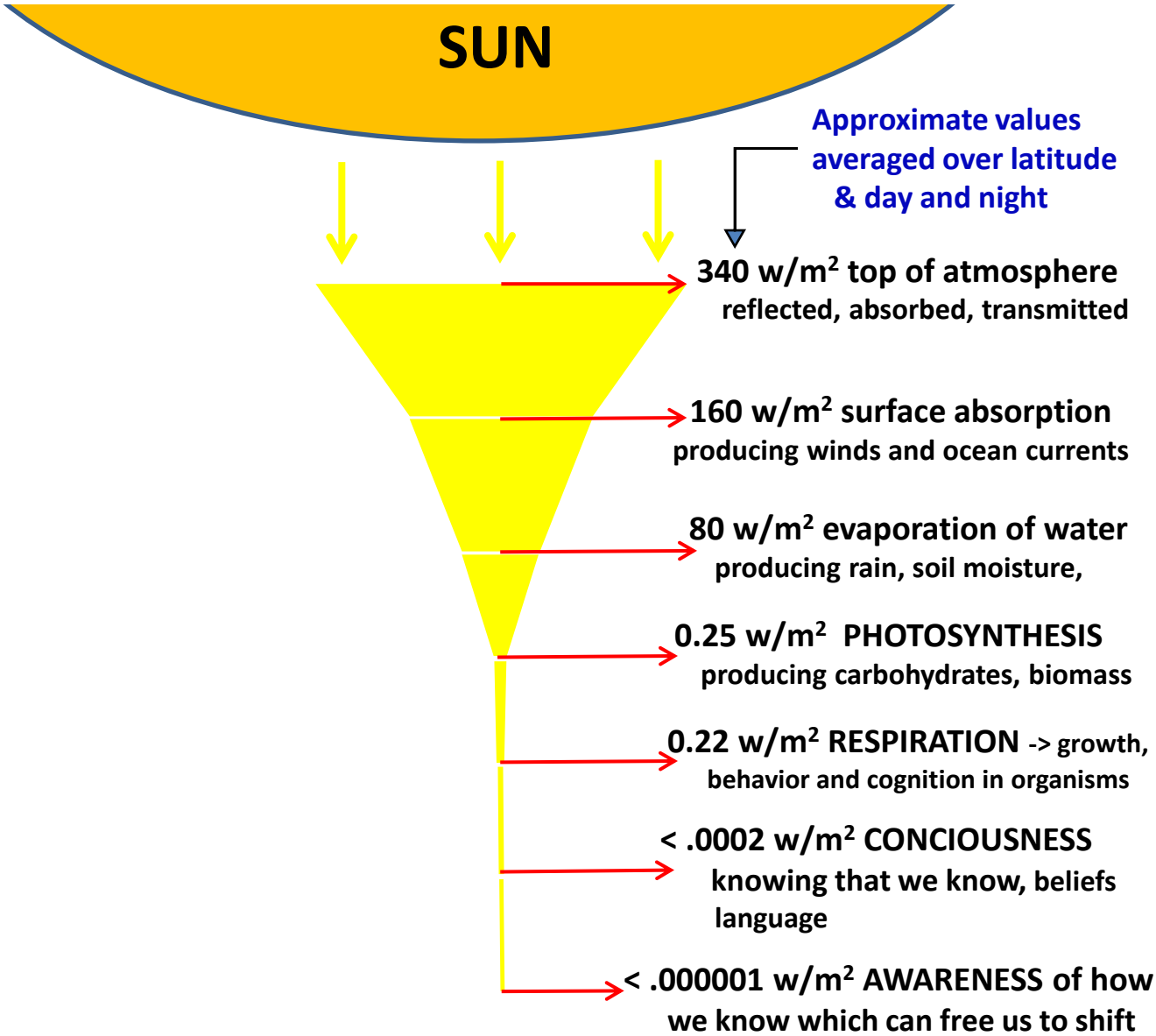

Adapted by Phil Gregory from https://soilcarboncoalition.org/files/guide.pdf

Peter Donovan Grassfed Exchange https://www.youtube.com/watch?v=OQrQBvHH0eM

We are not just objects
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Solar power received by Earth is 4000 times larger than all forms of geothermal heating power including natural radioactivity.

Approximate values averaged over latitude & day and night

340 w/m^2 top of atmosphere
reflected, absorbed, transmitted

160 w/m^2 surface absorption
producing winds and ocean currents

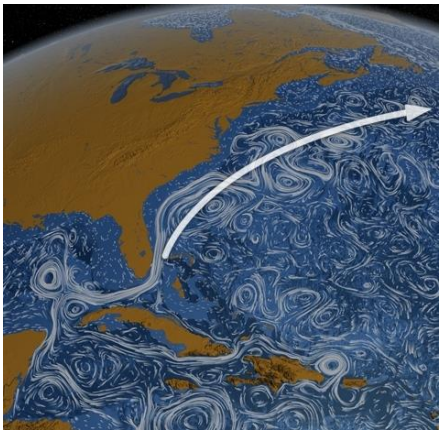
80 w/m^2 evaporation of water
producing rain, soil moisture,

0.25 w/m^2 PHOTOSYNTHESIS
producing carbohydrates, biomass

0.22 w/m^2 RESPIRATION -> growth, behavior and cognition in organisms

< .0002 w/m^2 CONCIOUSNESS
knowing that we know, beliefs language

< .000001 w/m^2 AWARENESS of how we know which can free us to shift



NASA video of ocean currents
https://www.youtube.com/watch?v=CCmTY0PKGDs

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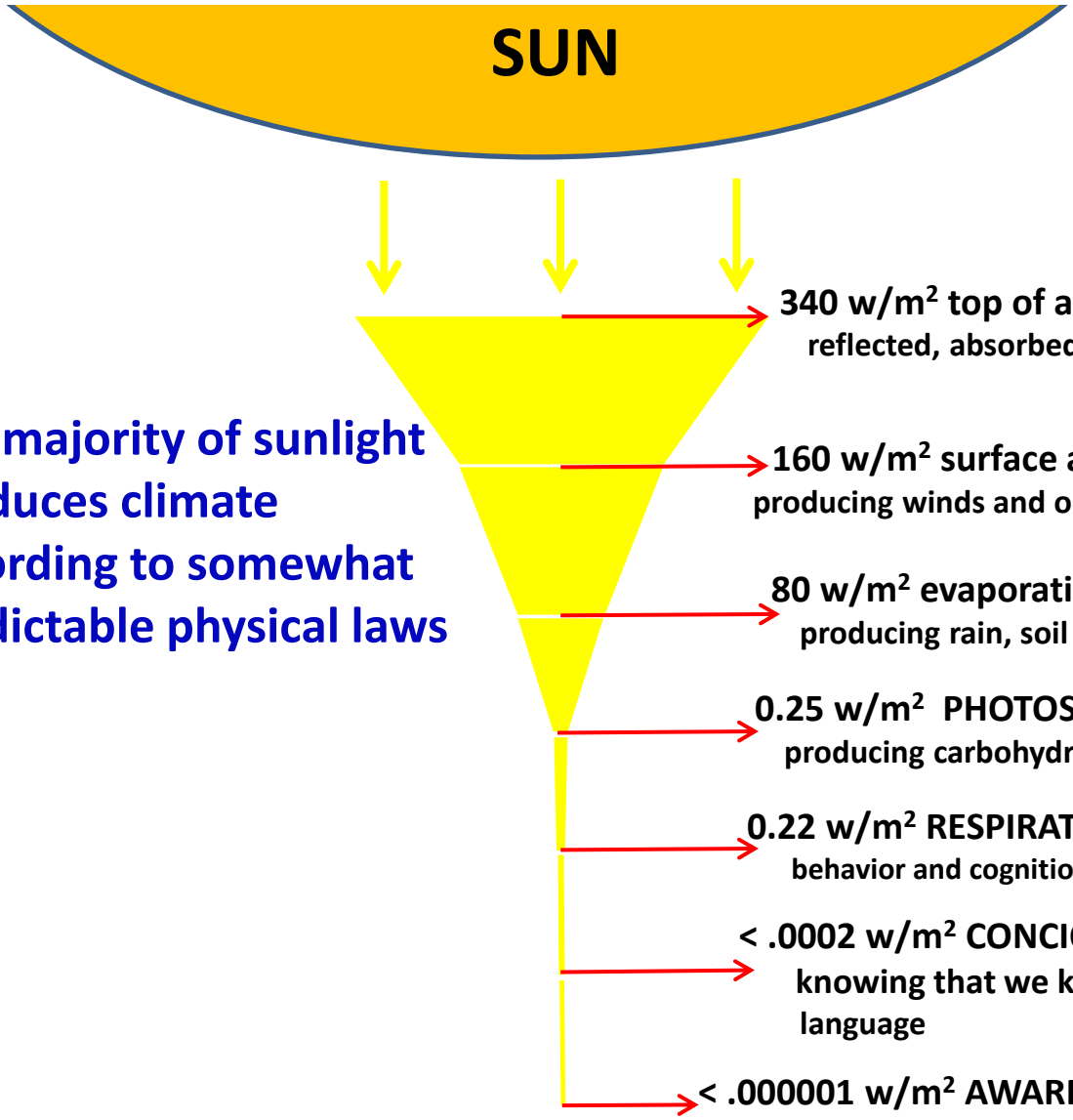
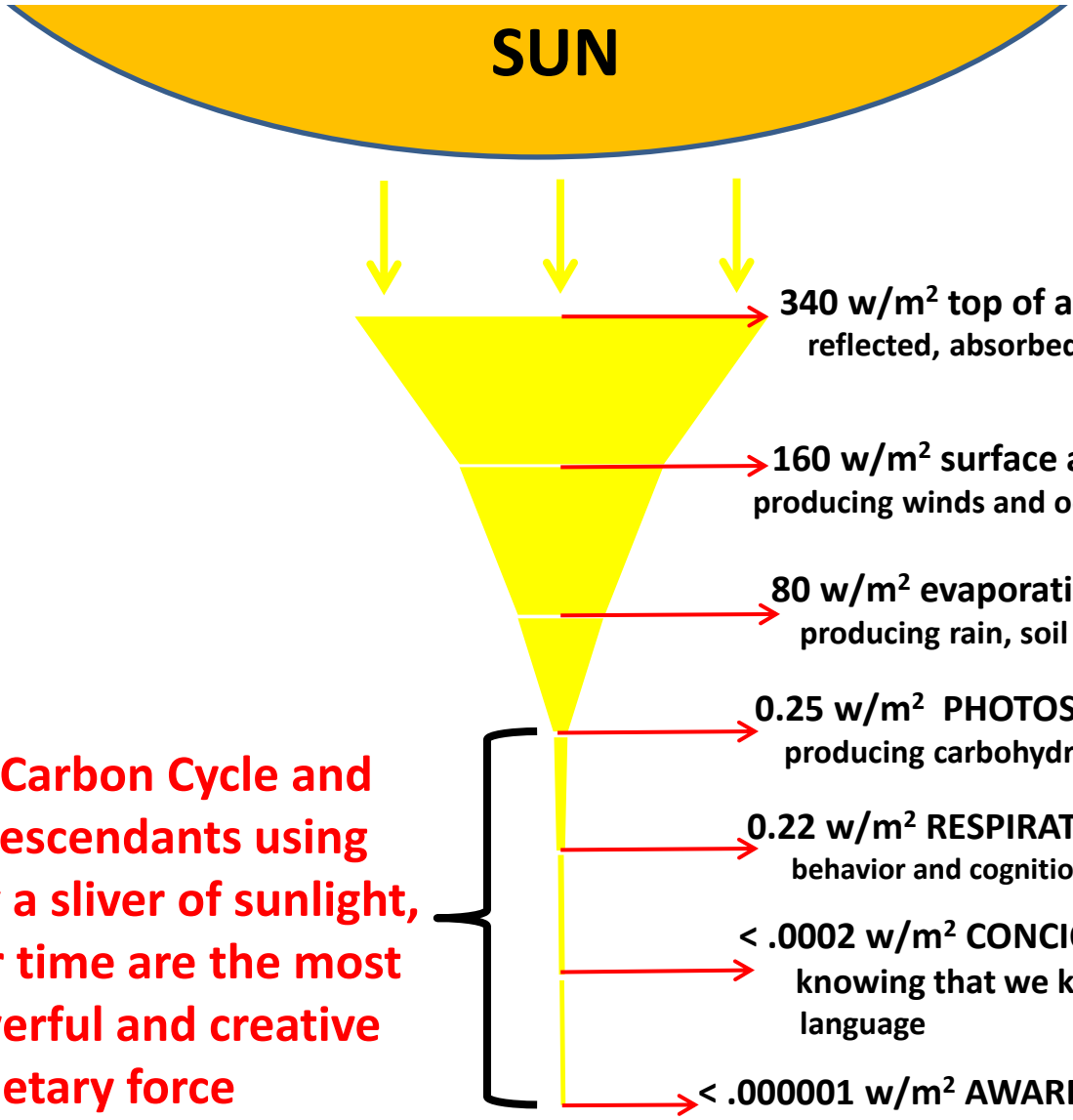


The majority of sunlight produces climate according to somewhat predictable physical laws

Adapted by Phil Gregory from https://soilcarboncoalition.org/files/guide.pdf

Peter Donovan Grassfed Exchange https://www.youtube.com/watch?v=OQrQBvHH0eM

We are not just things
We live in a flow of solar energy



The Carbon Cycle and its descendants using only a sliver of sunlight, over time are the most powerful and creative planetary force

Adapted by Phil Gregory from https://soilcarboncoalition.org/files/guide.pdf

Peter Donovan Grassfed Exchange https://www.youtube.com/watch?v=OQrQBvHH0eM

Flow of solar energy is like a fast flowing river

Peter Donovan Grassfed Exchange https://www.youtube.com/watch?v=OQrQBvHH0eM

Our self awareness allows us to change our behavior and alter the flow of solar energy like a rock can alter a river

Peter Donovan Grassfed Exchange https://www.youtube.com/watch?v=OQrQBvHH0eM

We co-create the future with the flow of solar energy

“Changes in how we see ourselves and our power relative to the biosphere as a whole, how we make decisions, recognize or fail to recognize threats and opportunities, and how we select and organize leadership, are and will continue to be, key influences on the power and uses of sunlight on earth.”

Peter Donovan

Peter Donovan Grassfed Exchange https://www.youtube.com/watch?v=OQrQBvHH0eM

Holistic Management

(Step 4)

ECOSYSTEM MANAGEMENT TOOLS

Human Creativity [Technology Fire Rest Living organisms] Money & Labor

The 4 tools for managing ecosystem processes are shown inside the square brackets

Holistic Management

(Step 4)

ECOSYSTEM MANAGEMENT TOOLS

Human Creativity [Technology Fire Rest Living organisms] Money & Labor

Outside the brackets are human creativity, money & labour that are required to make use of these tools

Holistic Management

(Step 4)

ECOSYSTEM MANAGEMENT TOOLS

Human Creativity [Technology Fire Rest Living organisms] Money & Labor

Conventional management has employed the first 3 tools. We now recognize living organisms as a powerful tool.

Savory has specifically highlighted the importance of herbivores.

Geological Time

(Step 5)

ACTIONS & DECISION MAKING

Objectives, Goals, Tactics, Strategies, Policies
Customary Selection Criteria (past experience, expert advice, research, etc.)

Create plans or analyze proposals involving different objectives, tactics, strategies and policies.

Holistic Management

(Step 5)

ACTIONS & DECISION MAKING

Objectives, Goals, Tactics, Strategies, Policies
Customary Selection Criteria (past experience, expert advice, research, etc.)

The actions proposed address immediate needs and desires. But the holistic context reminds us not to lose sight of what is meaningful in the short and long term.

Holistic Management

(Step 5)

ACTIONS & DECISION MAKING

Objectives, Goals, Tactics, Strategies, Policies
Customary Selection Criteria (past experience, expert advice, research, etc.)

What actions to take & what tools to use are based on the best science, past experience, expert advice, research, permaculture, etc.

Holistic Management

(Step 6)

CONTEXT CHECKS

Cause & Effect	Weak Link • *Social* • *Biological* • *Financial*	Marginal Reaction	Gross Profit Analysis	Energy/ Money Source & Use	Sustainability	Gut Feel

Carry out a useful series of context checks to filter out proposed actions that might not be environmentally, socially, and economically sound, both short- and long-term.

E.g., Does it address the root cause or weakest link in the situation? Is it sustainable?

Holistic Management

(Steps 7 & 8)

MANAGEMENT GUIDELINES

Time	Stock Density & Herd Effect	Cropping	Burning	Population Management

PROCEDURES & PROCESSES

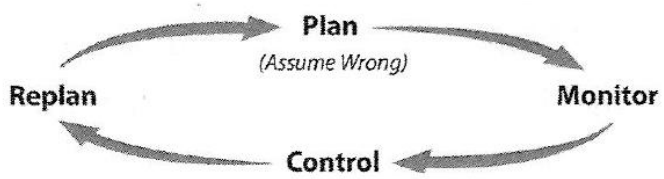
Holistic Financial Planning	Holistic Land Planning	Holistic Planned Grazing	Holistic Policy Development	Research Orientation

Guidelines, procedures, and practices relevant to regenerative agriculture involving livestock.

To be replaced by others relevant to the particular arena to be managed.

(Step 9)

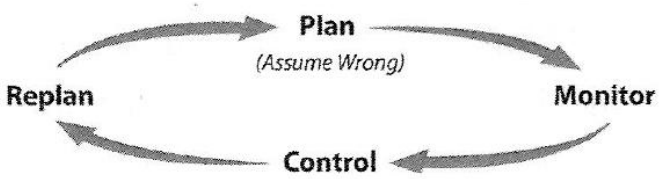
A feature copied from battlefield planning



Holistic Management

(Step 9)

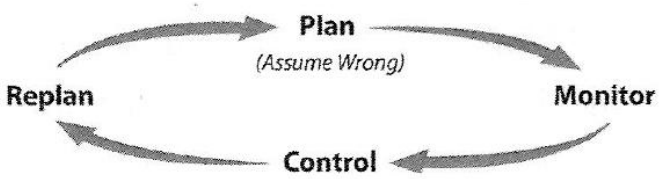
Once a plan is made, we need to monitor from the outset as unforeseen circumstances always lie ahead.



Holistic Management

(Step 9)

You monitor*, on the assumption your plan is wrong*, for the earliest possible warning so you can replan before significant damage is done.

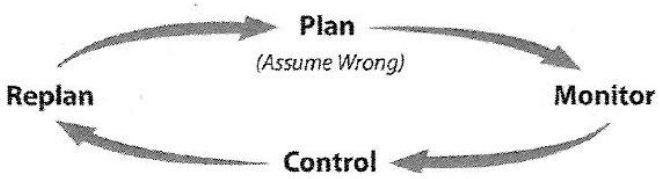


Holistic Management

(Step 9)

In Holistic Management

plan = plan-monitor-control-replan

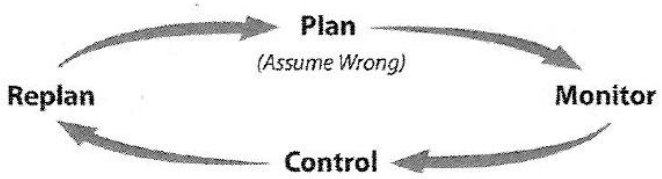


(Step 9)

In Holistic Management

plan = plan-monitor-control-replan

This feature *acknowledges* there can never be one management plan that applies everywhere and for all the time. There are too many variables.



Holistic Management Summary

1) The "Whole" to be managed = Bowen Island

2) Holistic Context = shared quality of life vision & future resource base

3) The 4 ecosystem processes =
- Water cycle
- Mineral cycle
- Community dynamics
- Energy flow

4) Ecosystem management tools=
- Technology
- Fire
- Rest
- Living organisms

5) Actions and decision making

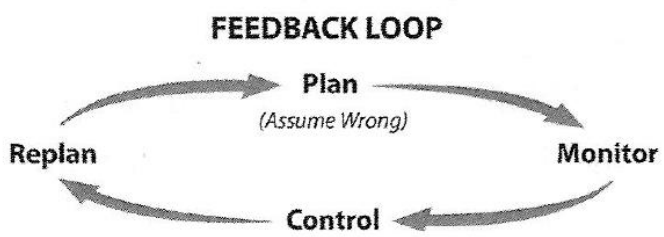
6) Context checks

7) Management guidelines

8) Procedures and processes

Specific to the area under management

9)



Conclusions

1) **The holistic management framework provides a way for dealing with environmental, social and economic complexity, through**
   - **the definition of the "Whole" under management,**
   - **the holistic context,**
   - **specific inclusion of ecosystem processes,**
   - **context checks,**
   - **feedback loop.**

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2) It specifically recognizes living organism as a powerful new management tool.

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   - feedback loops.

2) It specifically recognizes living organism as a powerful new management tool.

3) It emphasizes the need for proactive monitoring of key environmental, social and economic factors, *since your plan is bound to fail at some point,* because there are so many variables.

Conclusions

1) The holistic management framework provides a way for dealing with environmental, social and economic complexity, through
   - the definition of the "Whole" under management,
   - the holistic context,
   - specific inclusion of ecosystem processes,
   - context checks,
   - feedback loops.

2) It specifically recognizes living organism as a powerful new management tool.

3) It emphasizes the need for proactive monitoring of key environmental, social and economic factors, *since your plan is bound to fail at some point,* because there are so many variables.

4) It is a generic framework that can be applied to a wide range of endeavors.

Exercise: Holistic Context for Bowen Island (p. 1)

Two parts (a) Quality of Life and (b) Future Resource Base

Quality of Life: for my life and those who follow

1. *To be engaged in meaningful work or service for the rest of our lives, and to be excited and enthusiastic about what we get to do each day*

2. *To be secure financially, physically, and emotionally into old age, with the wherewithal to realize individual and collective goals without exploiting others*

3. *To enjoy adequate, nutritious food and clean water, and access to excellent health care*

4. *To maintain robust health and physical stamina*

5. *To enjoy an abundance of respectful caring relationships with clear and open communications, respect for truth, and freedom to express ideas*

6. *To be furthering our knowledge of the workings of nature so that we can live more harmoniously with other life on this planet and reduce the risk of climate change*

7. *To explore and experience wild places, and ensure those places will still be here when our grandchildren's grandchildren seek to find them*

8. *To live simply, consume sparingly, recycle, and compost*

9. *To support an educational system that is consistent with these values*

Exercise: Holistic Context for Bowen Island (p. 2)

Future Resource Base: on which our quality of life depends

People:

1. *We are known to be compassionate, thoughtful, adventurous and open to new ideas.*

2. *In managing community issues we employ a holistic framework that takes account of environmental, social, and economic factors. We regularly monitor key indicators of the health of these factors to enable proactive replanning.*

3. *We are well informed about ecological processes and support a healthy soil biology in our lawns, gardens, farms, and forests.*

4. *We avoid the use of chemical fertilizers, herbicides, pesticides, and insecticides that are toxic to soil biology, biodiversity, and the long term health of our ecosystems.*

5. *We recognize the importance of our forests to keep our island hydrated and cool (reducing the risk of fires) and they may act as a biotic pump* to pull in moist air from the surrounding ocean.*

6. *We are continually working with natures to grow as much food in our gardens and farms as possible and provide opportunities and training for youth involvement.*

7. *We continually seek ways to make our community more resilient to shocks from climate change, economic crises, food and energy scarcities and natural disasters.*

* "Water in Plain Sight" by Judith D. Schwartz 2016

Exercise: Holistic Context for Bowen Island (p. 3)

Future Resource Base: on which our quality of life depends

Land:

1. *Many generations hence, this forested Island will be healthy and rich in biological diversity, from the trees – in which all age groups are represented – to the abundant birds, mammals, insects, and microorganisms*

2. *The soils will be covered with plants throughout the year, and streams will flow perennially clear and healthy*

3. *Water and mineral cycles will be maximized by a healthy soil biology*

4. *Energy flow will be optimized for all life forms through maximizing photosynthesis and biodiversity*