

## Seminars

### The Natural Mediterranean Garden

Week-end residential seminar offering new insights to the Mediterranean Garden

### Dryland Permaculture Design

Residential seminar for designers and land owners

### Holistic Management

Residential seminar in sustainable decision-making and management

### Sustainable Stewardship

Residential seminar in a whole approach to creating a sustainable life, landscape or livelihood

Free on-line Newsletter

Membership on-line Library

For more information see our website on

[www.holisticdecisions.com](http://www.holisticdecisions.com)

## Nutshell Series

1. The Savory Brittleness Scale
2. Carbon Sequestration
3. Ecosystem Processes
4. Grazing Animals
5. Run-off
6. Water Cycle
7. Root Cause
8. Plant Succession
9. Irrigation
10. What is Holistic Management®?

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*Semilla Besada*  
*Nutshell Series*

*The Water Cycle*  
*as it concerns design and*  
*management of dryland*  
*environments*



## *The Water Cycle as it concerns design and management of dryland environments*

**The ecosystem processes** are to our earth, what the heart, lungs and other organs are to our bodies. When there is a dysfunction in any one of these processes, the whole health of environment is compromised.

**A healthy ecosystem** has varied and abundant plant and animal life, year-round plant cover for the soil, and moisture and nutrients available in the soil to nurture the plants that grow there.

**The water cycle** in dryland environments is the ecosystem process that is most compromised. What this means is that the rain that falls on the land is unable to effectively nurture the plants growing there.

**The reasons** are as follows:

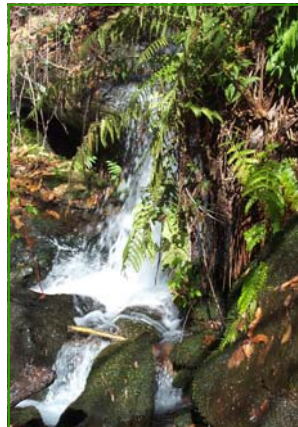
- The gradient of the land is so steep and bare that rain does not sink in
- The soil is so lacking in water retentive humus that rain drains away too quickly
- The land is ploughed and bare so that the rain evaporates and is not drawn into the ground by plant roots

**The installation** of irrigation systems to service farms in dryland areas is already an indication that the water cycle is not effective enough to support the requirements of those farmers. Unless the health of the water cycle is restored, matters can only get worse.

**Access to** irrigation water is not the same as a healthy water cycle. If the water cycle is not restored to health, then there will eventually be no irrigation water. Building reservoirs and drilling wells are only stop-gap measures.

**Soil building** is the key to creating a healthy water cycle. Bare ground cannot create healthy soil. The surface becomes hard and impenetrable, resulting in rain running off the surface. The wind and rain erode the fertile top soil, making it difficult for plants to establish. The sun increases the soil temperature, destroying the millions of organisms that help create healthy soil and nurture plants.

**Dryland environments** are brittle landscapes which means that leaving things to nature can at best create a fire risk and at worst a desert. This is because there is not the year-round moisture to break down dead vegetation which can then be made available to soil organisms to create a humus-rich soil and provide nutrients for plants.



**Building soil** in a brittle landscape involves understanding what factors need to be in place in order to encourage break down of dead vegetation. It also requires an understanding of how brittle landscapes evolved with a crucial role being played by grazing animals.

**In a temperate** environment the consistent year-round moisture enables dead vegetation to break down easily. In a brittle landscape this does not happen and grazing animals recycle dead vegetation through their digestion to create fertility and humus for the soil. This is bedded into the ground by animal hooves, and carried beneath the surface by dung beetles.

**Using grazing animals** in a holistically managed way builds soils and restores the healthy function of the water cycle.

**For the first time in Europe**, residential educational programmes at Semilla Besada consider new insights for sustainable design and management of dryland environments.

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