

## Seminars

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

### Dryland Permaculture Design

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## 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*

*Plant Succession  
and its implications for  
the design and  
management of dryland  
environments*



## *Plant Succession and its implications for the design and management of dryland environments*

**Nature** is dynamic. When an ecosystem evolves, there is a sequence to the establishment of the plant community. This sequence is called succession.

**In northern temperate** environments, non-brittle environments, this succession might broadly follow this sequence: bare ground, annual plants, herbaceous perennials, shrubs and pioneer trees, mature woodland. However, the story is very different in dryland environments.

**Dryland environments** are also brittle - some 70% of the world's landmass - and plant succession might typically be grassland, annual forbs, short-lived woody perennials, bare soil, desert.

**The difference** between a non-brittle and a brittle environment is that the establishment of herbaceous perennials in the former indicates a succession towards a mature woodland. However, woody perennials in the latter indicates a plant succession towards a desert!

**The implication** for those of us managing brittle landscapes is the correct selection of appropriate tools of management for such an environment. For example, resting land or 'leaving things to nature' in a landscape that is not brittle is likely to lead to the the eventual establishment of a mature woodland. However, applying the same practice in a brittle environment, where there are no grazing animals with predators or appropriate management, will at best create a fire risk and at worst a desert.

**In any environment**, year-round ground cover is a priority as we attempt to establish stable, complex plant and creature communities, which in turn ensure the healthy function of the ecosystem processes.

**In a brittle** environment there is not the year-round moisture to encourage the breakdown of dead plant material. If this is not removed either by humans or animals, then it builds up and suffocates plant growth beneath. Grassland depends upon grazing animals to keep it healthy, so when dead material builds up, the grass eventually dies. This moves the plant succession to annual forbs, which in turn are replaced by short-lived woody perennials - short-lived because again there are no animals to browse them and keep them



healthy. As grasslands and forbs are replaced by woody perennials, so more soil is exposed to erosion. The sun bakes the exposed soil making it harder for any plants to re-establish. The soil organisms begin to die and the cascade effect of ecosystem process ill-health continues.

**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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