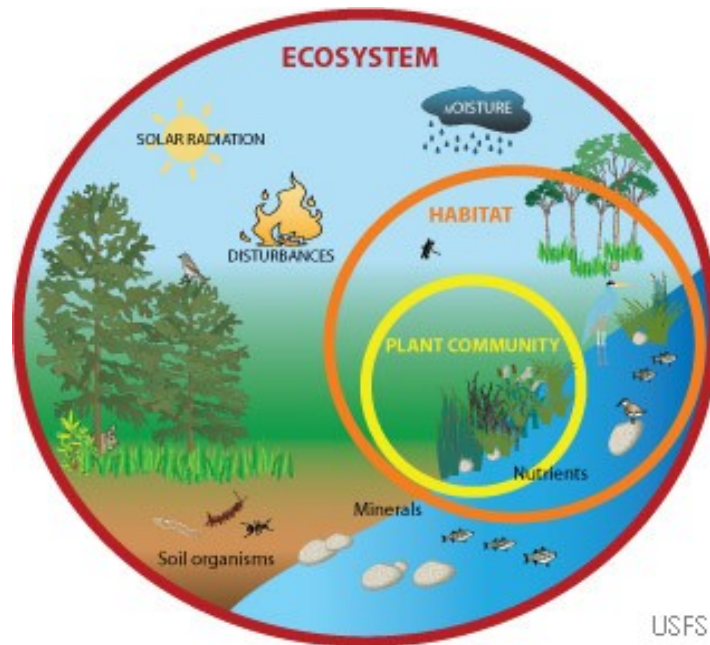


## Lesson Week 14 – Wrap Up

### One Worldview and Several Methods

Systems thinking as presented in this course consists of a worldview - an understanding of the connectedness of the universe and its operating principles – and a single method. Within this worldview there exists more than one method of achieving the understanding needed to manage our affairs in any given situation. The method used in this course is widely used because it systematically employs the principles of the worldview – it covers all the bases.



Scientists trained in systems ecology share the same worldview, and have a method that is intrinsic to their discipline, which teaches that all activity of every species (including humanity) occurs within an ecological whole whose health must be sustained if those pursuits are to continue for very long. They too see the world as nested wholes, starting at the planetary level with the biosphere and working down through interdependent wholes to any given situation. Hence ecosystems scientists commonly use simulation modeling to address problems. Systems thinking and systems ecology are joined at the hip as it were, an argument made in more detail in the lesson in week 12.

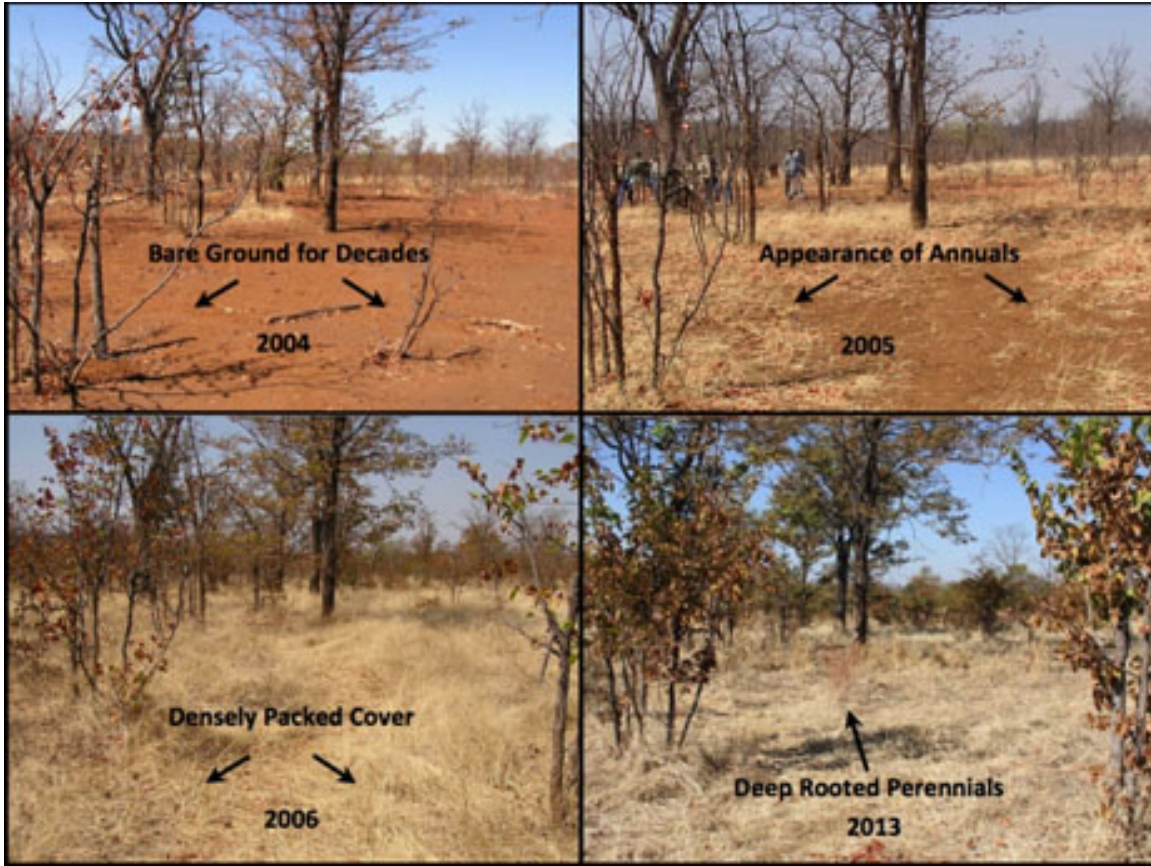
### Holistic Management

Another method is worth discussing in some detail because it is conceived for the purpose of directly guiding decision making. It is Holistic Management, the brainchild of Alan Savory, a range ecologist. Savory shares the worldview of systems thinking. Savory says that the world functions in wholes; therefore we must understand and manage it as such (holistically) or court failure.



The range management in which Savory works, whether for domestic livestock like cattle or sheep, or wild grazing herds in conservation reserves, is confronted with the problem of rangeland degradation all over the world. The conventional belief in the field was to blame the livestock – there were too many of them. However, within recorded history natural range ecosystems demonstrated a high carrying capacity, tens of millions of bison on the US prairies and heavy loads of large herbivores of all kinds on the African savannahs. Taking a holistic view of the problem, Savory saw that range managers had disrupted the natural prairie ecosystems by removing the carnivorous predators, so that their herbivore prey behaved differently, degrading the range. He demonstrated that by bunching and constantly moving the livestock as predator action had done, cattle and sheep could be employed to actually regenerate degraded range, improving the health of the soil and all ecosystem processes. Using methods based on Savory’s insights, livestock managers all over the world have rebuilt soil and whole landscapes.

<http://www.savoryinstitute.net/>



A dramatic demonstration of Savory's insistence on the importance of the role of predators in ecosystem health is the story of the reintroduction of wolves to Yellowstone National Park, and its manifold beneficial consequences. Read that story unfolded and modeled as a CLD in [Wolves and Trees](#). Watch the included video that shows how wolf reintroduction changed the behavior of the large grazing animals and thereby regenerated the whole Yellowstone ecosystem in what ecologists call a trophic cascade.

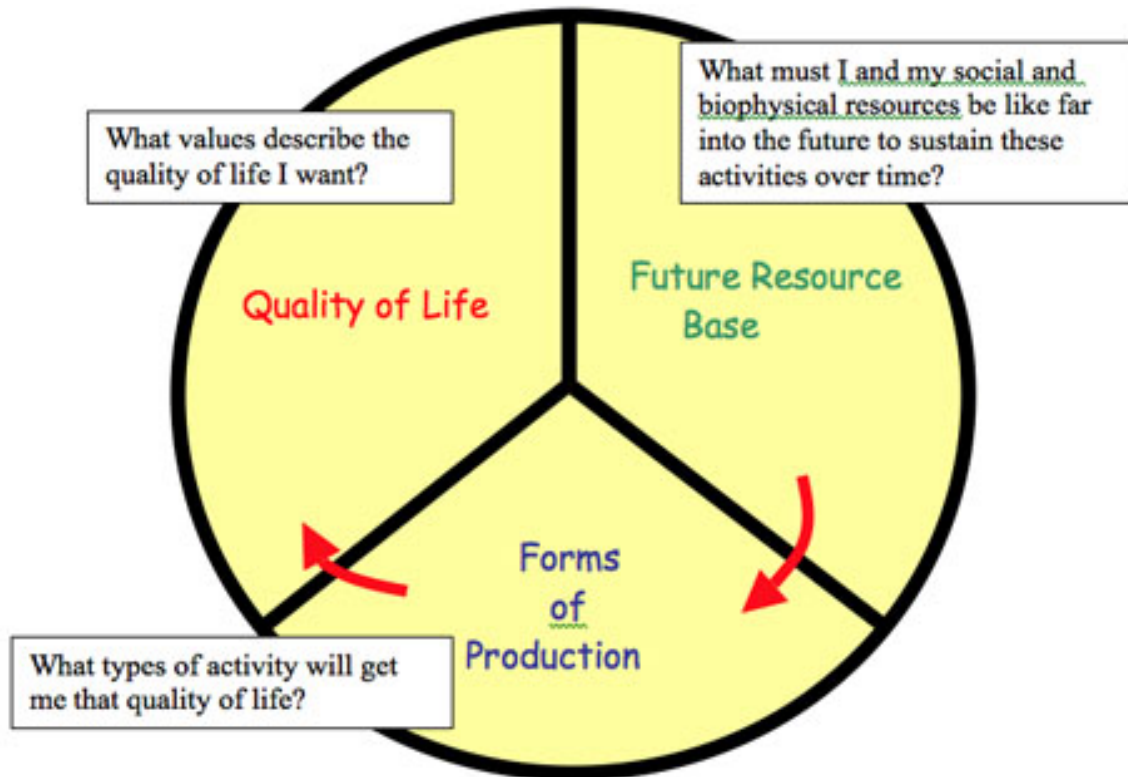




Savory's insights derived from a holistic approach to range management inspired him to create Holistic Management, a framework for decision making that is generic – applicable to the management of any decision making in personal life or business or other social organization. As with the range management problem, all decision making must take into account the health of the surrounding ecosystem. The core of the framework consists of an always evolving written goal that a person, family, business or organization uses as a basis for decision making and a short list of questions to test decisions against.

### A Holistic Goal

Unlike conventional goal setting, Savory's holistic goal has three parts that connect quality of life values, activities chosen to fulfill those values, and the way those activities must be pursued to sustain them far into the future. Thus the concept of sustainability is built into the three-part goal.



### Testing Questions

The decision maker(s) ask some or all of the following questions about a proposed action according to their relevance to that action.

**Cause and Effect**-- Does this action address the root cause(s) of the problem? (Like the models of causal relations learned in this course, this question focuses on structural causes - the system as cause. It embodies the Pogo revelation: "We have met the enemy and he is us!")

**Weak Link** (Another expression of Liebig's Law of the Minimum discussed in Lesson 5 – the principle of factor interdependency)

**Social**-- Have I/we considered and/or addressed any confusion, anger, or opposition this action could create with people whose support I/we need in the near or distant future?

**Biological**— Does this action address the weakest/strongest point in the life cycle of the organism? (Use this question in regard to a pest organism that one wants to control or a beneficial organism that one wants to encourage.)

**Financial**—Does this action strengthen the weakest link in the chain of production?

**Energy/Money Source and Use**—Is the energy or money to be used in this action derived from the most appropriate source and destined for the most appropriate use in terms of my / our holistic goal? (For example, to what extent does my goal allow nonrenewable resource use or debt?)

**Sustainability** — If I/ we take this action, will it lead toward the future resource base described in my / our holistic goal?

**Marginal Reaction** - (Comparing two or more actions) Which action provides the greatest return, in terms of my/our holistic goal, for the time and money spent?

**Gross Profit Analysis** — (Comparing two or more enterprises under consideration) Which enterprise contributes the most to covering the overheads of the business?

**Society and Culture** — Considering all the questions and my / our holistic goal, how do I/we feel about this action now? (This question draws on our intuitions.)

Along with the holistic goal, these testing questions encourage the user to employ many of the same principles of inquiry as the steps of systems thinking you learned in this course. Not as rigorous as the model building approach, Holistic Management nonetheless has the advantage of being a more direct path to decision making. One might call it 'a quick and dirty method'. I found it a good way to start practicing systems thinking more regularly in my life. I encourage you to explore it.

I learned and practiced Holistic Management on my farm as an early complement to my education in systems thinking. My experience as a Holistic Management educator trained by Alan Savory is similar to my experience teaching the method in this course: the intellectual paradigm shift to a systems perspective is relatively easy to teach and learn. For many, it is a dramatic and exciting revelation. But actually learning to use the new

method of decision making calls for changing ingrained habits, is therefore more difficult and more gradual, and takes much practice.



### **In Conclusion**

As I read them, the passion evident in the work of the pioneering systems thinkers is motivated by the conviction that their goal is to foment a long overdue revolution in the way science, and in fact all quest for knowledge, is done. Thomas Kuhn in [The Structure of Scientific Revolutions](#) said that such revolutions call for a paradigm shift to a new way of seeing how the world works. This course offers a set of skills and tools to facilitate that shift. If the goals of this course are achieved, you will have learned and begun to practice a set of critical skills of systems thinking. Here they are with the kind of questions they prompt.

1. Operational thinking
  - a. How does it work?
2. Circular, closed loop, feedback thinking
  - a. What is causing the nonlinear behavior?
3. System as cause thinking
  - a. What structures are generating the behavior pattern?
4. Dynamic thinking
  - a. How did a problem get to the current situation, and where will it go in the future?
5. Relational, interdependence thinking
  - a. What are the key variables that are causally connected?

6. Holistic, emergent properties, big picture thinking
  - a. How can we map a problem to expand the boundary of inquiry to match the appropriate system of influence and see it in a useful time frame to reveal the ripple effects of our decisions?
7. Generic, trans-disciplinary thinking
  - a. Does the system of influence resemble a systems archetype?

## **Assigned Reading**

[Wolves and Trees](#)

## **Resources**

[Holistic Management: A New Framework for Decision Making](#)

[The Structure of Scientific Revolutions](#)

