Jonathan Schechter – "Corpus Callosum" Column
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Two columns ago, I described my thinking about how environmentalism/conservation has been practiced, and how it might be practiced in the future; call this the difference between Conservation 1.0 and Conservation 2.0. Today I'd like to explore what Conservation 2.0 might look like.

The essence of my thinking is this. Conservation 1.0 arguably began with the founding of Yellowstone National Park in 1872. Grossly oversimplified, the idea was to preserve Yellowstone (and subsequent parks) in their "natural state" for future generations; in essence, to ensure nothing would change.

In many ways, the idea has worked splendidly, begatting thousands of additional national parks around the world, numerous other forms of protected public lands, and millions of acres of land preserved through conservation easements. But over the course of the last 136 years, we've also come to understand that change is essential to natural systems; to attempt to preserve them as they were at a particular point in time is in fact unnatural.

As we have learned more about the operation of natural systems, something else has changed: the world's population has boomed. When Yellowstone was founded in 1872, there were approximately 1.3 billion people living in the world; today there are over 5 times that many. 136 years ago, there were approximately 42 million people living in the United States; today there are over 7 times as many. With all these additional people, there are a lot more eyes coveting those "locked up" acres. One result is that conservation – not to mention its offspring of environmentalism – is, at best, poorly appreciated; at worst, it is in disfavor.

Given these dynamics, it seems clear that, in order to progress, our thinking about conservation itself will have to change. In conjunction with Professor Ed Russell of the University of Virginia, I've given some thought to what this new approach to conservation – call it Conservation 2.0 – might look like.

As we see it, Conservation 2.0 is grounded in two fundamental organizing principles, from which 16 applications flow. These are summarized in Table 1; below I expand on each. Some of these are already occurring; others are mere glimmers in the future.

Organizing Principle I: Discrete v. Connected

Conservation 1.0 views the various components of conservation in isolation; Conservation 2.0 will view all aspects of conservation as connected with each other, whether physically, through systems, or temporally.

For example, Yellowstone National Park is a distinct, discrete entity, whose boundaries are defined by lines drawn on a map. Some of these lines follow natural features; others are more arbitrary. As with all national parks, the goal of creating Yellowstone was to "... to conserve the scenery and the natural and historic objects and the wildlife therein...," with no regard for things outside those boundaries. A similar approach has been taken to creating and managing all subsequent preserves, be they national parks, forests, monuments, or other types of public land.

In the 136 years since Yellowstone's founding, natural and social scientists have come to appreciate that, in their behavior, species – whether human or non-human – pay little attention to such lines. Instead, different species' habitats range over different parcels, often owned and managed by different entities with different goals. In its focus on protecting individual parcels of land, Conservation 1.0 does not appreciate this connectivity; Conservation 2.0 does.

In a larger context, Conservation 1.0 also fails to recognize the connectivity between different species, in particular how the lifecycle and well-being of any one species is linked not just to the land it occupies, but to the many other species on that land, each of which has its own distinctive habitat and connections. Recognizing and addressing this larger web of inter-connectivity is part-and-parcel of Conservation 2.0

Organizing Principle II: Fixed v. Changing

Not only does Conservation 1.0 focus on parcels of land with fixed boundaries; it views conservation as essentially fixing a landscape or species in time. In contrast, Conservation 2.0 focuses on how ecosystems change.

For example, Yellowstone National Park was founded in 1872, just 13 years after Darwin published *The Origin of Species.* In fixing boundaries for Yellowstone and subsequent public lands, Congress did not appreciate that natural processes do not lend themselves to clear spatial demarcations. In a similar spirit, the management philosophy suggested by the Organic Act did not take into account the fact that species change and evolve over time, instead implicitly assuming that the landscape and animals which defined a park or forest at its founding would continue to define it in perpetuity. Recognizing that change and evolution lie at the heart of natural process will be fundamental to Conservation 2.0.

Natural science-related applications

Application 1 – Boundaries: Fixed v. Permeable

Conservation 1.0 sees fixed boundaries: between parcels of land, between species, and between ecosystems. Conservation 2.0 recognizes that these boundaries are constantly in flux, subject to change both temporary and permanent, both short- and long-term.

Application 2a – Science: Certainty v. Probability

Arguably, mathematics forms the popular conception of science; that is, in the popular mind, science produces precise, certain answers to questions it studies. This conception plays out in a number of fields associated with Conservation 1.0, ranging from the exactness of land boundaries to the conventional wisdom about the health of a population (e.g. since elk can be counted, and since there are a large number of elk in an area, the elk population must be healthy).

Put another way, the popular view equates all science with Newtonian physics, a discipline which produces precise answers and involves objects and phenomena people can detect with their own senses. This view is reflected in Conservation 1.0. In contrast, Conservation 2.0 is grounded in the fact that, to biologists, there are few absolute truths. Instead, there are only best estimates based on currently-available data and understanding. Further, because data and understanding are subject to change, so too is ecological science.

In that sense, Conservation 2.0's approach to science is akin to quantum physics, which focuses on objects which cannot be readily detected by human senses, and which behave in ways often at odds with everyday experience. Also, like quantum physics, ecology deals in probabilities rather than certainties, creating enormous problems for political and other systems which are ultimately subject to binary yes-no decisions.

Application 2b – Science: Ecology v. Ecology + Evolution

Conservation 1.0 is grounded in ecology, the recognition that systems need to be intact in order to function. However, Conservation 1.0 perspectives rarely take into account the fact that species in a given parcel of land had evolved to where they were before that parcel was conserved, and will continue to evolve in the future. Conservation 2.0 will take into account the ecological perspective of Conservation 1.0, then add to it the evolutionary perspective of on-going change.

Application 3 – View of Nature: Fixed v. Changing

Because Conservation 1.0 has focused on preserving land and the species living on that land, it has taken a fixed view of nature: future generations will continue to enjoy the qualities extant on a property when that property was preserved.

In contrast, Conservation 2.0 takes into account the reality of evolution. As a result, it seeks to conserve not just land and species, but the evolutionary processes that connect them through time.

Application 4 – Ecosystem Connectors: Non-human v. Human

When Yellowstone was founded, foot, horse, and sailboat were the primary means of transport; the golden spike had just been driven at Promontory Point, Utah; and steam-powered oceanic crossings were just beginning to become fixtures in world commerce.

As a result, from a Conservation 1.0 perspective, parcels of land were primarily connected by non-human processes, such as animal movement, water flows, wind, and the like. Conservation 2.0 recognizes that human processes – particularly their rapid movement between regions and continents – have become significant factors in altering the ecology of the entire planet.

Perhaps the most vivid example of this is global warming, which affects every portion of the world without regard to population or visitation.

Application 5 – Management Focus – Species v. Systems (habitats)

In the United States, one of the landmark pieces of environmental legislation was the Endangered Species Act of 1973. As the name suggests, the focus of the act was on individual species, rather than on species within the context of larger systems. Conservation 2.0 recognizes this context of species within habitats within systems.

Social science-related applications

Application 6 – People and Nature: Separate (other) v. Incorporated (us)

One hallmark of the founding of national parks has been the removal of people – both indigenous and settlers – permanently or seasonally living within their boundaries. This removal captures the Conservation 1.0 view that humans are not part of the natural world, but instead something alien to it. In contrast, Conservation 2.0 recognizes that humans are a one of the many components shaping and using the natural world.

Application 7– Honored Landscape Types: Minimally Settled v. All

Conservation 1.0 creates a clear distinction between minimally-to-non-settled landscapes and more intensively settled ones (e.g. urban areas), revering the former and disdaining the latter. Conservation 2.0 recognizes the connectivity between all landscape types (e.g. intensively-farmed areas produce food for those living in minimally-settled landscapes; high population concentrations make it easier for less settlement in wild areas), and honors each.

Application 8– Epistemology – Leisure v. Leisure + Livelihood

As they have developed, national parks disallow essentially all human activities except leisure; national forests are less exclusive, but still emphasize leisure activities. This has shaped how people view wild lands, encouraging a sense that such lands are at a remove from most aspects of human life. From a Conservation 2.0 perspective, wild lands are integral to all aspects of life, not just leisure.

Application 9 – Decision-making – Hierarchical/elitist v. Democratic within Shared Goals

The creation and management of public lands has tended to be the result of top-down efforts by a handful of people. Conservation 2.0 will encourage broad democratic participation in decisions made regarding wild lands, while ensuring those democratic processes are oriented toward the larger shared goal of conserving those lands.

Application 10 – Conservation Advocates

(a) – Class: Middle- & Upper-class v. All Economic Strata
(b) – Race: Caucasian v. All Races/Ethnicities
(c) – Nationality: American v. All

As a rule of thumb, since the founding of Yellowstone, conservation advocates have tended to be white, middle-to-upper class Americans. Conservation 2.0 will look to involve all economic strata, ethnicities, and nationalities actively involved in adopting and advocating for fundamental conservation principles.

Application 11 – Temporal

Conservation 1.0 views conserving nature as maintaining a landscape and wildlife at a particular point in time; Conservation 2.0 views conserving nature as maintaining natural wild processes through time.

Management-related applications

Application 12 – Land Owners: Public v. Public + Private

Conservation 1.0 involves public agencies buying and managing land. Conservation 2.0 involves those public agencies plus private landowners of parcels ecologically connected to public lands.

Application 13 – Organizations: Government v. Govt. + NGOs + Business

Conservation 1.0 involves public lands managed by public agencies. Conservation 2.0 complements those efforts through collaborations with non-profits and businesses, all sharing similar goals.

Application 14 – Tools: Land Ownership v. Behavior Change

Conservation 1.0 believes that simply controlling ownership and use of land is sufficient to ensure its conservation. Conservation 2.0 recognizes that human behavior – both while on public lands and, more critically, in every other aspect of life – has profound effects on all natural systems.

Application 15 – Working Style: Solo v. Collaboration

Since the founding of Yellowstone, most conservation activity has been undertaken by individuals or organizations working by themselves, or at best in tactical alliances with others aimed toward accomplishing a specific goal. Conservation 2.0 will involve groupings of organizations pro-actively collaborating to achieve larger shared visions.

Application 16 – Efficacy Measure: Acreage v. Native Species: Viability + Evolution

As its rough measure of success, Conservation 1.0 has counted the number of acres of land that have been stripped of most, if not all, human use (save recreation). Conservation 2.0 will look to conserve not just land, but the native species and evolutionary processes occurring on that land.

How and when thinking about conservation might evolve in the direction of Conservation 2.0 isn't clear; murkier still is when actions will be driven by it. But in our view, the future of conservation will likely involved most, if not all, of these concepts. What do you think?

Table 1

THE FUTURE OF CONSERVATION

CONSERVATION 1.0 V. 2.0: A TAXONOMY

Schechter/Russell

	Conservation 1.0	**Conservation 2.0**
ORGANIZING PRINCIPLES	Discrete	Connected
	Fixed	Changing
APPLICATIONS		
NATURAL SCIENCE-RELATED		
1. Boundaries	Fixed	Permeable
2a. Science	Certainty	Probability
2b. Science	Ecology	Ecology + Evolution
3. View of Nature	Fixed	Changing
4. Ecosystem Connectors	Non-human	Human
5. Management Focus	Species	Systems (habitats)
SOCIAL SCIENCE-RELATED		
6. People and Nature	Separate (other)	Incorporated (us)
7. Honored Landscape Types	Minimally Settled	All
8. Epistemology	Leisure	Leisure + Livelihood
9. Decision-making	Hierarchical/elitist	Democratic w/in Shared Goals
10a. Conservation Advocates – Class	Middle- & Upper-class	All Economic Strata
10b. Conservation Advocates – Race	Caucasian	All Races/Ethnicities
10c. Conservation Advocates – Nationality	American	All
11. Temporal	In time	Through time
MANAGEMENT-RELATED		
12. Land Owners	Public	Public + Private
13. Organizations	Government	Govt. + NGOs + Business
14. Tools	Land Ownership	Behavior Change
15. Working Style	Solo	Collaboration
16. Efficacy Measure	Acreage	Native Species: Viability + Evolution