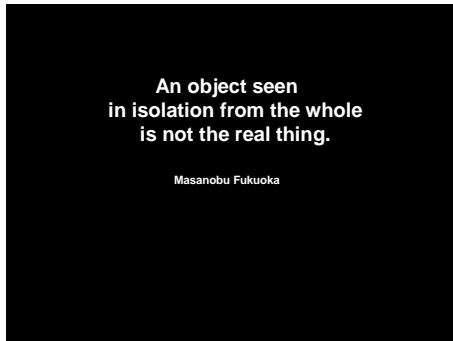


**A Living Systems Approach to Design**  
**AIA National Convention May 2007 – Theme Keynote Address**  
**Bill Reed - Regenesis and Integrative Design Collaborative.**

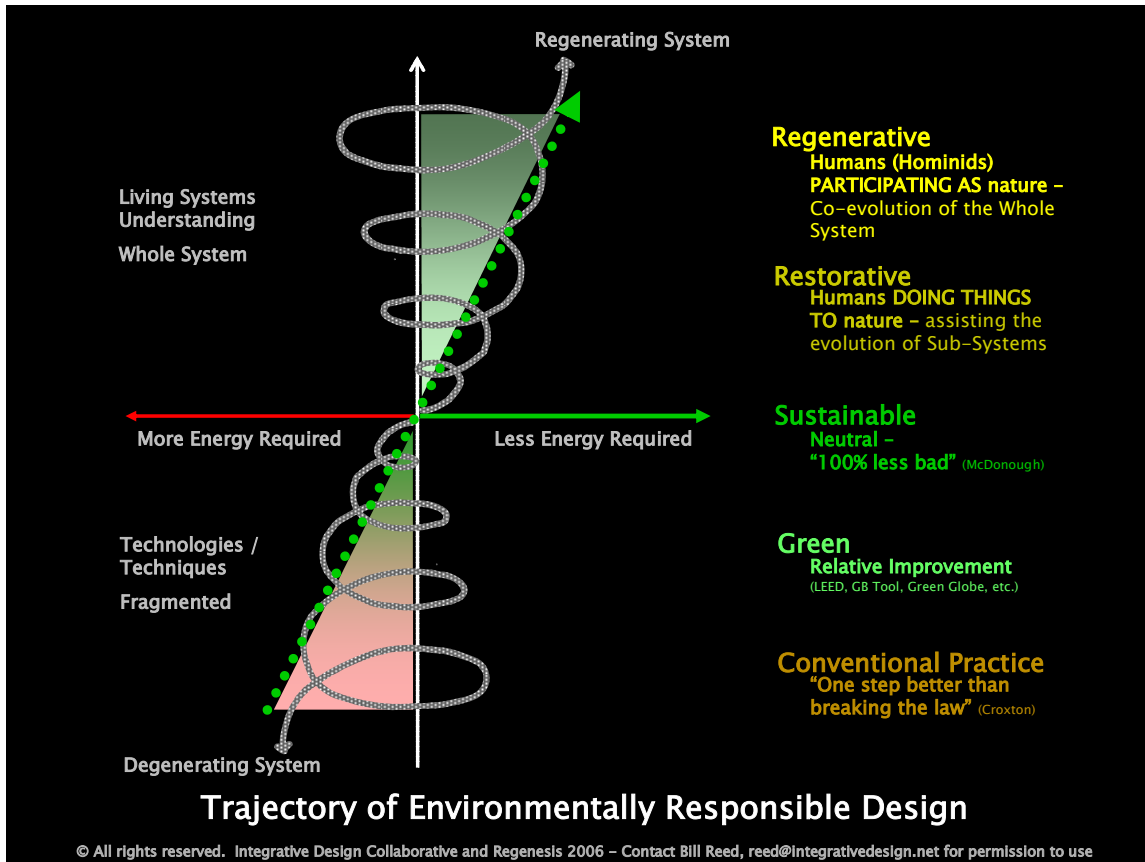
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In the context of sustainability we are proposing a philosophical shift and an expansion of the purpose of architecture.



Sustainability is not a deliverable. Sustainability is not a thing. Sustainability is not simply about efficient technologies and techniques. It is about life – a process by which living things such as forests, neighborhoods, people, businesses, mushrooms, and polar bears ensure their viability over the long haul. It is a process of *reciprocal relationship* – a process by which living things support and are supported by a larger whole. That means a building can't simply be high performance and considered sustainable. Imagining a high-performance building is like imagining a high-performance liver. Certainly, the limitations of that liver are pretty obvious outside of the context of the whole body. Buildings, neighborhoods, and cities are the same. Buildings can be worked on as autonomous, but only become meaningful and beneficial when understood as part of the living fabric of place.

Since we are speaking of living systems, it is important to make a distinction: because life evolves and is not static, we can never restore something to its 'original condition.'



When we speak of restoration (of a woodland, a riparian system, a wetland) we are speaking of restoring a system's *capability* to continuously self organize and evolve. Regeneration is about framing restoration as a whole - engaging the earth systems, the biotic systems, AND the people of each unique place in a continuous dialogue of restoration and evolutionary development - a healing or 'wholeing'. Regeneration means to give new life and energy to. Sustained life and energy can only happen in a whole system. This is not some nuanced, intellectual nicety - developing relationships between living things is what is required to achieve a sustainable condition. It is necessary to be working in both regions of this diagram or the whole system - a conservation, or high performance, approach focused on reducing our impact AND a living system understanding focused on learning how to engage nature as a co-equal partner.

**Develop:**

1. To bring out the capabilities or potential of; bring to a more advanced or effective state
2. To disclose, reveal
3. To bring into being or activity; generate; evolve

The word 'development' in its true sense, supports this perspective: "To bring out the capabilities or potential of; to bring to a more advanced or effective state; to generate or evolve; to reveal OR de-veil." 'Develop' does not mean 'to occupy'. To achieve true sustainability we need to focus on developing our awareness, our capabilities, and the potential for life in the places we build.

This is not a new thought or a new practice – just a forgotten one – left in the wake of reductionist, industrial age, and monoculture thinking; the result – a destroyed landscape and systems of life and a forgetting of how life works in each unique place.



In the book Tending the Wild, by M. Kat Anderson. We read:

" . . . contemporary Indians often use the word *wilderness* as a negative label for land that has not been taken care of by humans for a long time, for example, where dense understory shrubbery or thickets of young trees block visibility and movement. (This first image is of the eastern forest we know today – the next is a remnant section of forest that is similar to the eastern forest as found by the first European settlers stretching from NC to Newfoundland – a forest that was understood and tended by the native peoples)



As Thomas Morton said in his diary (his spelling) "The Salvages are accustomed to set fire of the Country in all places where they come, and to burne it twize a year, viz: at the Spring, and the fall of the leafe."

A common sentiment among California Indians is that a hands-off approach to nature has promoted feral landscapes that are inhospitable to life.

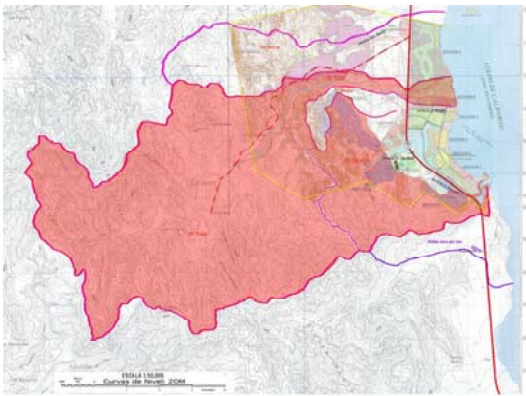


"The white man sure ruined this country," said James Rust, a Southern Miwok elder. "It's turned back to wilderness". California Indians believe that when humans are gone from an area long enough, they lose the practical knowledge about correct interaction, and the plants and animals retreat spiritually from the earth or hide from humans. When intimate interaction ceases, the continuity of knowledge passed down through generations, is broken, and the land becomes "wilderness."

As indigenous people—people in direct association with the land that supported us—we used to have this living system knowledge. We are now beginning the rediscovery—or re-mem-bering – of the whole system of life in each unique place instead of simply the fragments we have been taught to specialize in. We are being called to become indigenous once again—to become living and contributing expressions of a particular place.

Since we are asking ourselves how to sustain life, this is where we can start the design process – by understanding life processes in each unique place we are building - an indigenous way of building. Everything we design engages with the living system that it's a part of—whether or not that engagement is unplanned or intentional. It is by expanding our concept of design to include *designing that engagement* that we find the potential not only to sustain, but to regenerate. To develop something that *contributes* to the health and wealth of its place.

There are three essential aspects that serve as a basis for creating a regenerative or healing relationship with place.



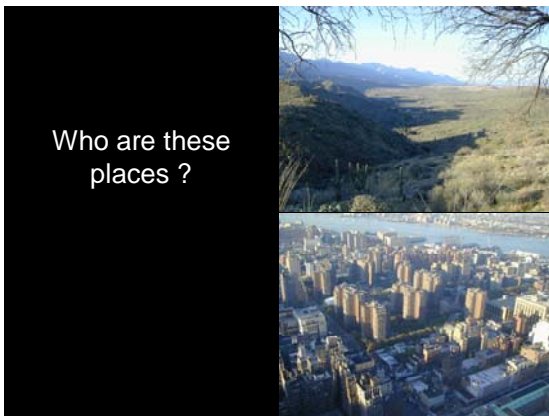
1. We need to first **experience the whole system** we are working within (often a watershed or two) and understand the potential it has to evolve to greater resilience and diverse relationships.

- There is a critical distinction between knowing the facts and figures of a place and an understanding of how a place works and has evolved as a whole system. This requires moving beyond performance standards and how the elements of a system behave to developing a pattern understanding of relationships. Data filled reports on soil, hydrology, habitat, and social history are not sufficient to understand patterns of life.



- These complex relationships are relatively easy to understand with the right expertise of pattern and living system understanding - systems ecologists or permaculturists for instance along with people, usually locals, who deeply know the place.

- On a project in Arizona, the Game and Fish Department told us they were very concerned that the proposed development would destroy the desert ecosystem. A member of a family who had been in that place for five generations had a different perspective; he observed that the ecosystem had already been destroyed. What is now a desert had 100 years ago been a three foot high dry-grassland prairie with running springs. After all, he said, why did my great grandfather bring cattle to graze here in the first place?



2. We need to relate this experience so other stakeholders can be inspired to appreciate the place as a living system. We call this a **story of place**.

- A narrative or story is a powerful means of communicating complex relationships and engaging people in an understanding of how the pieces and subsystems in a place work together. We learn through metaphor. Our ability to communicate is based on metaphor. This is how we maintained and evolved our knowledge of a place for millennia – through song cycles, stories, and epic poems.

An example of this: If you wanted to describe a friend you wouldn't simply describe his physical characteristics. You would also relate a story or two that captures the essence of his personality and character – in other words, 'who' he is. A story gives us the ability to convey 'who' a place is, and how to be part of it – the whole relationship between human settlement and the systems of life that are continually making the place.



3. Implement a continual **dialogue process** as part of the design and operation process to align the aspirations of the stakeholders with the nature of the place.

- The process of regenerative design is a process of continually enriching dialogue among the designers, the community or organization, and the system the design is a part of. Dialogue among the stakeholders is an essential aspect of sustaining sustainability. This dialogue is a process of growing an understanding and relationship with the place – economic, natural, cultural relationships.

- This dialogue should go on and evolve forever – just as life does. Since you won't be around that long, a **core team** is established with key stakeholders whose job it is to hold and develop the understanding of life in that place – the evolving story. Their job is not to manage but to receive the **feedback** from the system and respond to it along with helping the stakeholders understand the implications of the feedback.



- The genius of the work of Jamie Lerner in Curitiba was not the simply the effective transportation system, education system, or pedestrian environment – it was that he and his staff effectively formed a core team. The purpose of this particular team was not to manage but to hold the aspirations of the community. These key leaders met in the morning every day to envision and understand the potential future – not worry about day to day management. They sharpened and focused their thinking and the purpose for the work of the city. Great and evolving results come out of deep and systemic thinking. This pattern has been generally held for over 30 years.

#### SOME EXAMPLES

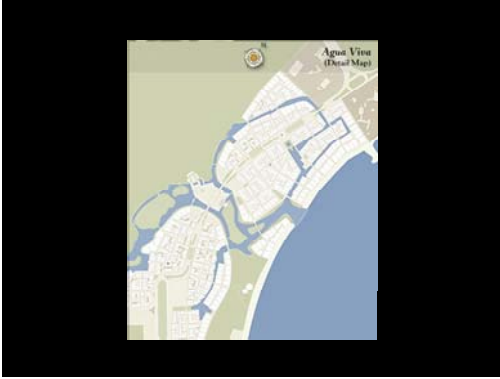


An aspect of this work is becoming visible in a development project in Mexico, on the Baja Peninsula on the Sea of Cortez. Five hundred years ago, European settlement of this area moved it from a scrub oak forest – originally with wetlands and streams to a desert.



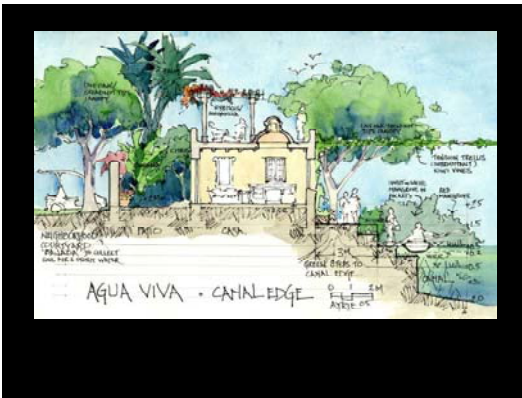
European farming practices – cutting the trees to plant row crops, introducing grazing animals – denuded, eroded, and desiccated the landscape,





Originally, Loreto Bay was to be typical sustainable project - a new-urbanist plan that integrated conservation and appropriate technology. By introducing the perspective of regeneration, the project team began to see that development at Loreto could be an opportunity to heal. A conservation approach would have us occupy less land. But regenerative development would require us to help lift the land and people to a new order of potential.

The developer and project team began to see the project in the context of place, and the role it could play there, based on how the place really works. The development was reorganized to regenerate the estuary and the water in the dry arroyos.



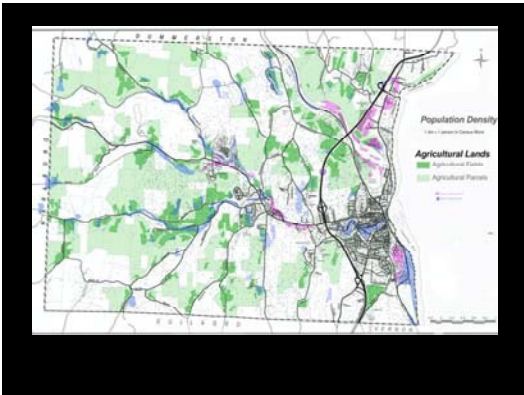
The urban pattern elaborated and enriched the edge between land and sea. The mangroves were replanted . . .



... the upland watersheds are to be restored.

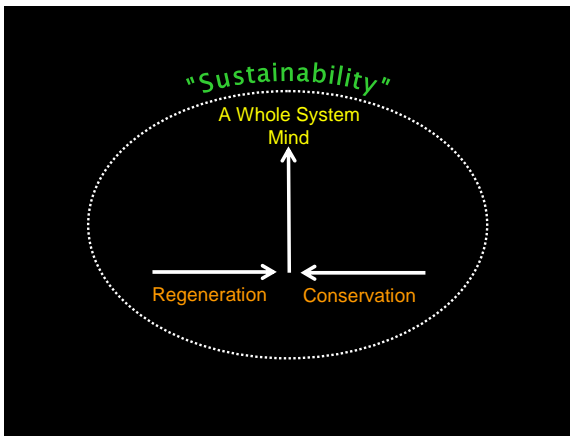
Based on other experience in dryland systems it is anticipated that ground water restoration, habitat, and even running water can be restored in as little as two to ten years. The evidence exists in the upland area.

Little by little a new vocation began to emerge for the project and the community: to work on the regeneration of the Sea of Cortez and the land that interacts with it.



The Brattleboro Coop is a Grocery store that wanted to build a high performance LEED building. In particular, they wanted to generate innovative solutions to their energy use. It was observed that the energy expended in shipping food to the store was far higher than the energy used to operate the building (an average of 3,000 miles per bite of food in New England.) Moreover, their high dependence on shipped in food made their business highly vulnerable to disruptions in the supply chain (e.g. a trucker's strike, fuel costs). The project became one of engaging them in a process that looked at the energies involved in the system as a whole.

As a result, the coop envisioned an entirely new role for itself. Not only will it work to model low energy use in its building, it has become a sponsor for local agriculture and regenerating the soil that had been significantly compromised after 300 years of poor farming and wood extraction practices. They are discussing the reprogramming of this 'grocery store' to potentially grow into an agriculture and soil extension service, a cannery, a place for hunters to dress meat, a day-care center, a credit union. The overall aim is to catalyze the evolution back to a regenerated system for local agriculture and community sustainability. The aspirations of the people and the patterns of place were aligned and new potential was created in an evolving program. The building process became a catalyst for a long-term and living system perspective. They are now using this work as the basis to develop a 100 year plan for the Coop and the region.



So here is a thought to chew on. We have the opportunity and imperative to evolve our thinking and practice in a way that can contribute to regenerating our planet. Slowing down the processes of degradation, while essential, is insufficient; regenerating the evolving resiliency and matrix of life in each place is the other half of achieving a sustainable condition – in fact it's the easier and less expensive half if we only shift the purpose of design and the process of thinking this way. This nature of work will require us to think more and more like living systems and embrace a whole systems mind and design process in order to wholly participate in the system of life. The role of architecture and development will be dramatically enriched and positive - plus it's just plain, powerfully, good fun.