to repair because of a lack of seed source or uncharacteristic environmental conditions, or both. Increasingly the 'gaps' created and abandoned by humanity are larger and larger in spatial scale and require greater attention to restoration actions that provide an adequate seed supply of sufficient diversity to insure matches of species with environmental conditions.

The best restoration projects are those that ecologically engineer natural succession through amplifier actions. Establishing seed refugia from which seeds may once again spread to reclaim denuded landscapes, or 'attractors' that attract seed-carrying wildlife, or other mechanisms that increase the number and diversity of seeds are examples of amplifier actions to ultimately increase the speed and potential diversity of successional processes.

Good design is good ecological fit. Ecological fit results when both the affairs of humans and the processes of nature exist in a symbiotic partnership where both benefit from the existence of the other. Development projects that exploit resources, feedback nothing, or dump waste products in quantities or concentrations too great for environmental assimilation detract from environmental values and lower overall sustainability. In other words, landscape designs, housing developments and regional patterns of cities and connecting highways that ignore their environment will not compete in the long run with those that do since more total work is achieved in patterns of good ecological symbiosis. Good ecological fit leads to the following corollaries:

1. The use of native vegetation and ecosystem patches instead of exotics in ornamental plantings
2. Vegetative buffers between developed areas and sensitive ecological communities
3. Development design that minimizes runoff instead of engineering systems to handle stormwaters
4. Development that does not increase fragmentation of wildlands by designing parallel instead of perpendicular to linear landscape elements
5. Small-scale, on-site wastewater treatment instead of regional waste treatment plants

Good engineering is "ecological engineering." Ecological engineering is engineering that results from appropriate mixes of technology with ecological processes. The ecological processes dominate, while technology plays an amplifier role. Sewage recycled through wetland ecosystems, constructed wetlands for stormwater management, forested streams in place of drainage ditches and swales, and so forth are examples of ecological engineering. Characteristics of ecological engineering are as follows:

1. Small in scale
2. Low in energy intensity
3. Renewable and self-sustaining
4. Increases ecological productivity instead of replacing it

These principles and others (that may be less relevant for the moment) need to be taught in a unified program of study designed to educate the next generation of landscape planners and managers. In summary, I would like to outline how this program might be structured and how it might fit within a graduate program in Landscape Design.

A Graduate Program in Landscape Design Science

Currently, if a student wanted an educational experience that would prepare him/her for a career in landscape management he/she would, for the most part, have to design it and face serious obstacles related to cross discipline encounters. The course of study is spread throughout the university in numerous departments which all claim a portion of the biosphere as their turf. As a result, the student, if he/she is lucky enough to study across several disciplines, comes away with a compartmentalized view with no unified understanding of humanity and nature. What is needed is a formal course of study having several core courses in the home department with the remaining course work much like a chinese menu that can be adapted to the individual needs of the student. The student then chooses from a known list