Planning and Design with Landscape Ecology?

There is a fine line of balance between a high quality ecological landscape and good design. Finding that balancing point in a human dominated landscape is difficult yet possible. The goal of this paper was to dig into this fairly new idea of landscape ecology with design/planning in mind. The topic of this paper has great interest to me as I have a background in landscape architecture and planning. These papers were extremely insightful into the lack of coherence between the design fields and landscape ecology field.

The papers that I found were mostly published within the last decade and a half, though not all, which I immediately recognized this thought process as a new, hopefully up and coming study area. The concepts that I have discovered in these papers are extremely fascinating and I even managed to get myself completely enthralled reading a paper that explained the development of both landscape ecology dating back to pre-16th century to present day and explained how landscape design and landscape ecology are on this parallel track through history. This parallel track is a slowly evolving from one a handful of different underlying themes. Such as Henry IV wanting to improve the appearance of Paris, France thus creating some of the first greenspaces and we know now that greenspaces can be an excellent source of ecological networks. From a landscape ecology point of view,
urban and rural ecological networks are especially important because, in these fragmented cultural landscapes, they may provide the only opportunity for corridors, connectivity and wildlife movement (Ignatieva et al, 2011). These networks are just individual areas that support nearby open spaces by hosting a different range of ecological functions that may be different or overlap that of another site thus creating a network of ecological functions across a web of sites. This is one of the starting points discussed in the history portion of the paper and this parallel track that design and ecology had slowly started to separate and travel their own route when the ideas of everyone having a nice manicured landscape around their home. Thus the creation of large spaces of disconnect began to grow between patches of natural landscapes.

As I noted prior that there is next to no connectivity between design and ecology currently and my first thoughts now after reading these papers is; Why are these two disciplines not working together to create sustainable landscapes or sustainable ecological networks? I get the feeling that designers/architects/planners are just striving to design to the best of their ability at their particular location without thoughts or concerns to the outlying area. Landscape ecologists on the other hand are looking at the models for the outlying area and quantifying the landscape and seeing the fragmentation but aren’t displaying the concerns to the designers. I also understand that having a degree in landscape architecture and a minor in community planning does not mean you have had an experience in landscape ecology. To help landscape science affect landscape change, we propose to broaden the landscape ecology paradigm beyond pattern;
process to explicitly incorporate intentional human action: design (Process: Pattern: Design) (Nassauer et al 2008). Interdisciplinary collaboration is a subject matter that came up in several of the papers that I read and I have to agree that it is needed. The reason why I agree is because if you are making theories about how a landscape is supposed to function in its natural state why would you not want to work with a designer/planner to implement it in the field to gain a higher degree of information and results rather than just constantly using computer modeling.

Common ground is a topic that was also brought up quite a bit through these papers. At the indicator level there are more than a few shared indicators between aesthetics (design) and ecological functions though not all can be interpreted the same way because what may be a positive aspect in ecology could be a totally negative aspect when looking at it from an aesthetics point of view. The need for such incorporation of ecological sustainability in landscape planning have been argued by several researchers, as well as the current limitations of using landscape pattern indicators to evaluate ecological consequences of alternative plans and designs (Fry et al, 2009). Just to reiterate from my reading that every given landscape will have some form of overlap, not all good or vice versa but there is that small percentage where its fairly even across the board and the difficulty is selling the concept of true sustainability to society. This is the by far one the hardest tasks.

There certainly needs to me more professional research done on this topic as it is still in its infancy. I originally didn’t see the connection but after further thought that there isn’t much need for them to be linked or function together as a whole. I will be the first to tell you that I was wrong as I am now dumbfounded that there is
no true union between landscape ecology and design. I would certainly like to look
more into this topic, as it is certainly one that could have the potential of being a
great concept put into action. Also being a designer I am very interested in
developing the skills to understand the possible cross over between landscape
ecology and landscape design/planning.
Works Cited


The authors of this paper analyzed urban open space systems in Phoenix, Arizona. They analyzed three different indicators; patch content, corridor content, and network structure analysis. This paper looks deeply into the summaries of these analyses and they developed summaries of what a healthy/optimal ecological network should look like. My take on this is that these open spaces aren’t as “natural” as one may assume especially after looking at the authors results.


The paper breaks down New York and explains the framework of the city through a handful of ecological principles. These principles are present through the various patches throughout the region. This paper made quite a bit of sense after reading the paper about ecological networks because it explains how these patches function as a whole.


This paper introduces a new topic which it that of common ground. Common ground is the shared links between aesthetics and ecology. There is an overlap between aesthetics and ecology on several levels. I personally think that this topic needs to be studied further so that this common ground can be determined in finer detail.


The purpose of this paper was to explain the fine balance needed between aesthetics and ecology. The main point that I took out of this paper was that if
a given landscape has a high level of important ecological features but it has no aesthetics then it is not going to survive in this human dominated landscape, which exists today. That being said there are ways to balance between aesthetics and ecology through planning and design to make these high quality landscapes appealing.

Ignatieva, Maria, Glenn H. Stewart, and Colin Meurk. "Planning and Design of Ecological Networks in Urban Areas." Landscape Ecol Eng (2011): 17-25. This paper goes really in depth into the history of landscape planning and design around ecological networks. This was truly insightful paper as the authors go from 16th century Rome to the 21st century and how each time period had was influenced by a previous design, thought process or designer and thus slowly evolving to the idea of ecological networks that we know today (i.e. Boston’s greenbelt).

Kong, Fanhua, Haiwei Yin, Nobukazu Nakagoshi, and Yueguang Zong. "Urban Green Space Network Development for Biodiversity Conservation: Identification Based on Graph Theory and Gravity Modeling." Landscape and Urban Planning 95.1-2 (2010): 16-27. The graph theory and gravity model helped alleviate the complexity of a highly fragmented landscape in Jinan city, China. This helped create a plan that decreased fragmentation inside the city as well as displaying that the road side greening barely helped the corridor connectivity and fragmentation issue.

Morancho, A. "A Hedonic Valuation of Urban Green Areas." Landscape and Urban Planning 66.1 (2003): 35-41. The purpose of this paper was to look at the effects of greenspace/parks on housing values in cities. was hoping for more examples in this paper but there still was a conclusion that the only factor that does have significance on house values is the distance from green area, the “VIEWS“ and GREENSIZE” variables had little to no effect on the values.

Nassauer, Joan Iverson, and Paul Opdam. "Design in Science: Extending the Landscape Ecology Paradigm." Landscape Ecology 23.6 (2008): 633-44. This paper argues a concept which I certainly agree with which is adding design to the landscape ecology paradigm (pattern: process.→ pattern: process: design). The authors really make a solid argument that the ecology paradigm should include design so that it is no longer just a theory based study but rather putting those theories into action to get an array of new ideas and results from theory to design results.

This paper looks at how planning needs to be taken to a different level when it comes to thinking “sustainable”. This paper looks at how several landscapes should be considered when planning for sustainability because each can support a different function thus creating an “ecological network” as they called it. I would have to say that this concept is certainly one that I will continue to think about.


This paper brings up the concerns of lack of value and interdisciplinary collaboration. The authors are calling for these two methodologies to be added to the analysis of landscape ecology creating this so called framework of interactions. My opinion is that the authors of this paper truly add another aspect, with the emphasis on interdisciplinary collaboration, to landscape ecology that should help this concept reach a new level.