POLARIS Workshop

Methodology of valorisation: territories, identities and local heritage (visually perceived structures)

Initial statements

- Benjamin Walter: **secular pilgrimage**, flāneur, re-collection of yourselve, etc.
- „The *flāneur* goes in search of ‘vanished time’ like a ‘werewolf restlessly roaming a social (natural?) wilderness’“
- **Re-collection** becouse of associations, archetypical structures, uniquenes, iconic attraction, inborn perception features of the space.
- Pilgrimage (both sacral and secular) takes the pilgrim **out of everyday life activities** (in wide sense) and brings him/her **to the realms of other realities and experiences**.
- Not only metropolis or megalopolis are the points of secular pilgrimage, but some natural, distinguishable landscapes as well.

Background

- Environmental psychology:
- **Environmental psychology** is an interdisciplinary field focused on the interplay between humans and their surroundings. The field defines the term environment broadly, encompassing natural environments, social settings, built environments, learning environments, and informational environments.
- Concept of preferred environments and preferred landscapes
- **Preferred Environment:** An environmental psychologist recognizes the fact that there are certain environments that appeal more to a person. A preferred environment will help to increase a person's sense of well-being and also help the person to become more productive and effective. People who are in their preferred environment will feel more confident and competent as well as becoming more involved with that environment.
- Ecological (evolutionary) and cultural approaches

Background

- Evolutionary theories supported by experimental research: biophilia hypothesis (Wilson, 1984), habitat theory (Orians, 1980), prospect–refuge theory of Appleton (1975), **preference theory (Kaplan & Kaplan, 1989)**,…
- **Preference matrix:**

Background

Level of interpretation	Informational needs	
	Understanding	Exploration
Immediate (2-dimensional)	Coherence: Immediate understanding of how elements in the environment fit together.	Complexity: Visual richness that can be immediately explored.
Inferred (3-dimensional)	Legibility: Understanding of what lies ahead and how you could find your way and not get lost.	Mystery: The promise of new things to explore if moving further into the landscape.

Further development of methodologies

- MEASURING AND MAPPING SCENIC BEAUTY
- The scenic beauty estimation (SBE) method is a psychophysical method developed by the US Forestry Department (Daniel & Boster, 1976).
- The **VisuLands framework** (Tveit et al., 2006; Ode et al., 2008). This framework links visual indicators to theories of landscape perception and preference. It identifies **nine key visual landscape aspects: naturalness, stewardship, disturbance, historicity, visual scale, imageability, ephemera, coherence and complexity *(legibility and mysteriousness could be added?)***

Methodology

Table 2. Concepts describing landscape character—relationships to theories of landscape preference and experience

Concept	Theory	References
Complexity	Biophilia	Kellert & Wilson (1993)
Coherence	Information Processing Theory	Kaplan & Kaplan (1982, 1989)
Disturbance	Biophilia	Kellert & Wilson (1993)
Stewardship	Aesthetic of care	Nassauer (1995)
Imageability	Spirit of place/genius loci/vividness	Lynch (1960); Litton (1972); Bell (1999)
	Topophilia	Tuan (1974)
Visual scale	Prospect-refuge theory	Appleton (1975)
	Information Processing Theory	Kaplan & Kaplan (1982, 1989)
Naturalness	Restorative landscapes	Kaplan & Kaplan (1989); Ulrich (1979, 1984)
	Biophilia hypothesis	Kellert & Wilson (1993)
Historicity	Topophilia	Tuan (1974)
	Landscape heritage/ historic landscapes	Lowenthal (1979, 1985); Fairclough *et al.* (1999)
Ephemera	Restorative landscapes	Kaplan & Kaplan (1989); Ulrich (1979, 1984)

Methodology

- Complexity: Complexity refers to the diversity and richness of landscape elements and features and the interspersion of patterns in the landscape. *Higher complexity means lower legibility*.

Methodology

Table 3. Complexity—suggested indicators and application using different data sources

Concept Complexity	Data source			
	Landscape photos	Orthophotos	Land cover data	Field observations
1. Distribution of landscape attributes				
• Richness of landscape elements	Number of landscape elements per view	Number of landscape elements per area	Number of landscape elements per area	Number of landscape elements per area
• Diversity of land cover	Number of different land covers per view	Diversity and evenness indices[a]	Diversity and evenness indices[a]	Number of different land covers per area
2. Spatial organization of landscape attributes				
• Edge density		Edge density[a]	Edge density[a]	
• Heterogeneity		Heterogeneity Index[b]	Heterogeneity Index[b]	
• Aggregation of land cover/patches		Aggregation indices[a]	Aggregation indices[a]	
3. Variation and contrast				
• Contrast	Degree of contrast between land covers in view			Degree of contrast between land covers
• Shape variation	Degree of variation between shapes in view	Shape indices[a]	Shape indices[a]	Degree of variation between shapes
• Size variation	Degree of variation between size in view	Size distribution indices[a]	Size distribution indices[a]	Degree of variation between size

[a]A range of diversity, evenness, edge density, aggregation, shape and size distribution indices are found within landscape metric software such as FRAGSTAT (McGarigal *et al.*, 2002) and IAN (DeZonia & Mladenoff, 2004) developed within landscape ecology.
[b]The heterogeneity index is the proportion of points on different land types and is calculated using a grid of points for which land types are recorded (see Fjellstad *et al.*, 2001, for full detail of how to calculate the index).

Methodology

- Coherence: Coherence relates to the unity of a scene, the degree of repeating patterns of color and texture as well as a correspondence between land use and natural conditions. *N.Salingaros sequence of scales and complexity of patterns could be used here; fractal analysis could be applied.*

Methodology

Table 4. Coherence—suggested indicators and application using different data sources

Concept Coherence	Data source			
	Landscape photos	Orthophotos	Land cover data	Field observations
1. Spatial arrangement of water				
• Presence of water	% of water cover	% of water cover	% of water cover	Proportion of water cover
• Correspondence land form and water location	% of area in correspondence	% of area in correspondence	% of area in correspondence	Proportion of area in correspondence
2. Spatial arrangement of vegetation				
• Correspondence with natural conditions	% of area in correspondence	% of area in correspondence	% of area in correspondence	Proportion of area in correspondence
• Fragmentation		Fragmentation indices[a]	Fragmentation indices[a]	
• Repetition of pattern across the landscape	Presence of repeated patterns	Autocorrelation indices[b]	Autocorrelation indices[b]	Presence of repeated patterns

[a]A range of fragmentation indices are suggested in landscape metric software such as FRAGSTAT (McGarigal *et al.*, 2002) and IAN (DeZonia & Mladenoff, 2004) developed within landscape ecology.
[b]Autocorrelation indices are found within different GIS software packages, such as ArcGIS.

Methodology

- Disturbance: Disturbance refers to the lack of contextual fit and coherence in a landscape. *Higher disturbance means lower coherence.*

Methodology

Table 5. Disturbance—suggested indicators and application using different data sources

Concept	Data source			
Disturbance	Landscape photos	Orthophotos	Land cover data	Field observations
1. Presence of disturbing elements				
• Landscape elements classified as disturbed	Density of disturbing elements in the view	% of area classified as visually disturbed	% of area classified as visually disturbed	Density of disturbing objects
2. Visual impact of disturbing elements				
• Area visually affected by disturbance		% of area visually affected	% of area visually affected	% of area visually affected

Methodology

- Stewardship: Stewardship refers to the sense of order and care present in the landscape reflecting active and careful management.

Methodology

Table 6. Stewardship—suggested indicators and application using different data sources

Concept Stewardship	Data source			
	Landscape photos	Orthophotos	Land cover data	Field observations
1. Level of management for vegetation				
• Level of abandonment	% of vegetation in different stages of abandonment (1–4)[a]	% of vegetation in different stages of abandonment (1–4)[a]	% of vegetation in different stages of abandonment (1–4)[a]	% of vegetation in different stages of abandonment (1–4)[a]
• Presence of weed	Density of weed	Density of weed		Density of weed
• Management type	% of area under different management regimes	% of area under different management regimes	% of area under different management regimes	% of area under different management regimes
• Management frequency	Number of highly maintained features			Number of highly maintained features
2. Condition of man-made structures				
• Condition/maintenance of structures such as fences, buildings	Number of structures in different conditions (1–4)[a]			Number of structures in different conditions (1–4)[a]

[a]e.g. 1 = highly maintained/no abandonment; 2 = partly maintained; 3 = poorly maintained; 4 = no maintenance/total abandonment.

Methodology

- Imageability: Imageability reflects the ability of a landscape to create a strong visual image in the observer and thereby making it distinguishable and memorable. Imageability can be a product of the totality of a landscape or its elements.

Methodology

Table 7. Imageability—suggested indicators and application using different data sources

Concept Imageability	Data Source			
	Landscape photos	Orthophotos	Land cover data	Field observations
1. Spectacular, unique and iconic elements				
• Density of spectacular, unique or iconic built features	Density in view			Density
• Density of landmark	Density in view			Density
• Proportion of water	% of water in view	% of water	% of water	Proportion of water
• Density of historical elements	Density in view			Density
2. Viewpoints				
• Density of viewpoints		Density of viewpoints through visibility analysis	Density of viewpoints through visibility analysis	Density of viewpoints

Methodology

- Visual scale: Visual scale describes landscape rooms/perceptual units in relation to their size, shape and diversity, and the degree of openness in the landscape. *N.Salingaros sequence of scales (e-2,7) could be applied here.*

Methodology

Table 8. Visual scale—suggested indicators and application using different data sources

Concept Visual scale	Data source Landscape photos	Orthophotos	Land cover data	Field observations
1. Open area				
• Proportion of open land	% of open land	% of open land	% of open land	Proportion of open land
• Viewshed size		Size of viewshed	Size of viewshed	
• Viewshed shape	Classification of view shape (1–3)[a]	Shape index of viewshed	Shape index of viewshed	Classification of view shape (1–3)[a]
• Depth/Breadth of view	Estimation of depth of view (1–3)[b]	Length of radius of view	Length of radius of view	Estimation of depth of view (1–3)[b]
2. Obstruction of the view				
• Density of obstructing objects	Density of obstructing objects	Density of obstructing objects		Density of obstructing objects
• Degree of visual penetration of vegetation	Proportion of vegetation with different levels of visual penetration (1–4)[c]			Proportion of vegetation with different levels of visual penetration (1–4)[c]

[a]e.g. 1 = one large open area; 2 = split open area; 3 = patchy open area.
[b]e.g. 1 = short; 2 = medium; 3 = long.
[c]e.g. 1 = blocked; 2 = dense; 3 = semi-open; 4 = open.

Methodology

- Naturalness: Naturalness describes the perceived closeness to a preconceived natural state.

Methodology

Table 9. Naturalness—suggested indicators and application using different data sources

Concept Naturalness	Data source: Landscape photographs	Orthophotos	Land cover data	Field observations
1. Naturalness of vegetation				
• Proportion of natural vegetation	% of natural vegetation in the view	% of natural vegetation	% of natural vegetation	Proportion of natural vegetation
• Level of succession	% of vegetation in different stage (0–3) of succession[a]	% of vegetation in different stage (0–3) of succession[a]	% of vegetation in different stage (0–3) of succession[a]	Proportion of vegetation in different stage (0–3) of succession[a]
• Shape of edges	Interpretation of edge types[b]	Shape indices[c]	Shape indices[c]	Interpretation of edge types[b]
2. Pattern in the landscape				
• Fractality		Fractal indices[c]	Fractal indices[c]	
• Fragmentation		Fragmentation indices[c]	Fragmentation indices[c]	
3. Water				
• Proportion of water	% of water in the view	% of water	% of water	Proportion of water

[a]e.g. 0 = no succession; 1 = primary succession; 2 = intermediate succession; 3 = climax.
[b]e.g. geometrical, intermediate complex shapes; complex shapes.
[c]A range of diversity, evenness, edge density, aggregation, shape and size distribution indices are found within landscape metric software such as FRAGSTAT (McGarigal *et al.*, 2002) and IAN (DeZonia & Mladenoff, 2004) developed within landscape ecology.

Methodology

- Historicity: Historicity describes the degree of historical continuity and richness present in the landscape. Historical continuity is reflected by the visual presence of different time layers, while historical richness focuses on the amount and diversity of cultural elements. *Architecture should come here. It is as well related to legibility of past.*

Methodology

Table 10. Historicity—suggested indicators and application using different data sources

Concept Historicity	Data source			
	Landscape photos	Orthophotos	Land cover data	Field observations
1. Vegetation with continuity				
• Proportion of landscape with continuity of land cover	% of view with continuity of land cover		% of area with continuity of land cover	Proportion of area with continuity of land cover
• Proportion of landscape with traditional land use	% of view with traditional land use	% of area with traditional land use	% of area with traditional land use	Proportion of area with traditional land use
2. Organization of landscape attributes				
• Field size	Presence of small fields	Size indices[a]	Size indices[a]	Presence of small fields
• Field shape	Presence of traditional field shapes	Shape indices[a]	Shape indices[a]	Presence of traditional field shapes
• Spatial arrangement of vegetation	Presence of traditional spatial arrangement	Aggregation indices[a]	Aggregation indices[a]	Presence of traditional spatial arrangement
3. Landscape elements				
• Density of cultural elements	Density of cultural elements	Density of cultural elements		Density of cultural elements
• Shape of linear features		Shape indices[a]		Presence of traditional shapes

[a]A range of size, shape and aggregation indices are found within landscape metric software such as FRAGSTAT (McGarigal *et al*., 2002) and IAN (DeZonia & Mladenoff, 2004) developed within landscape ecology.

Methodology

- Ephemera: Ephemera refer to landscape changes related to season or weather. Within restorative environments, there is a fascination factor, where so-called soft fascination (Kaplan & Kaplan, 1989) has been illustrated by many examples of changes in weather or season. These features, according to Kaplan and Kaplan (1989), enhance the ‘being away’ aspect of landscape experience.

Methodology

Table 11. Ephemera—suggested indicators and application using different data sources

Concept Ephemera	Data source			
	Landscape photos	Orthophotos	Land cover data	Field observations
1. Season-bound activities				
• Presence of animals	Seasonal presence of animals			Seasonal presence of animals
• Presence of cyclical farming activities	% of land cover with cyclical farming activities in view	% of land cover with cyclical farming activities		Proportion of land cover with cyclical farming activities
2. Landscape attributes with seasonal change				
• Seasonal variation in natural vegetation	% of area with seasonal changing vegetation in view	% of area with seasonal changing vegetation	% of area with seasonal changing land cover	Proportion of area with seasonal changing vegetation
• Seasonal variation on agricultural land	% of agricultural land with seasonal variation in view	% of agricultural land with seasonal variation		Proportion of agricultural land with seasonal variation
• Water with seasonal change	% of water in view	% of water	% of water	Proportion of water
3. Landscape attributes with weather characteristics				
• Presence of water	% of water in view	% of water	% of water	Proportion of water

Methodology

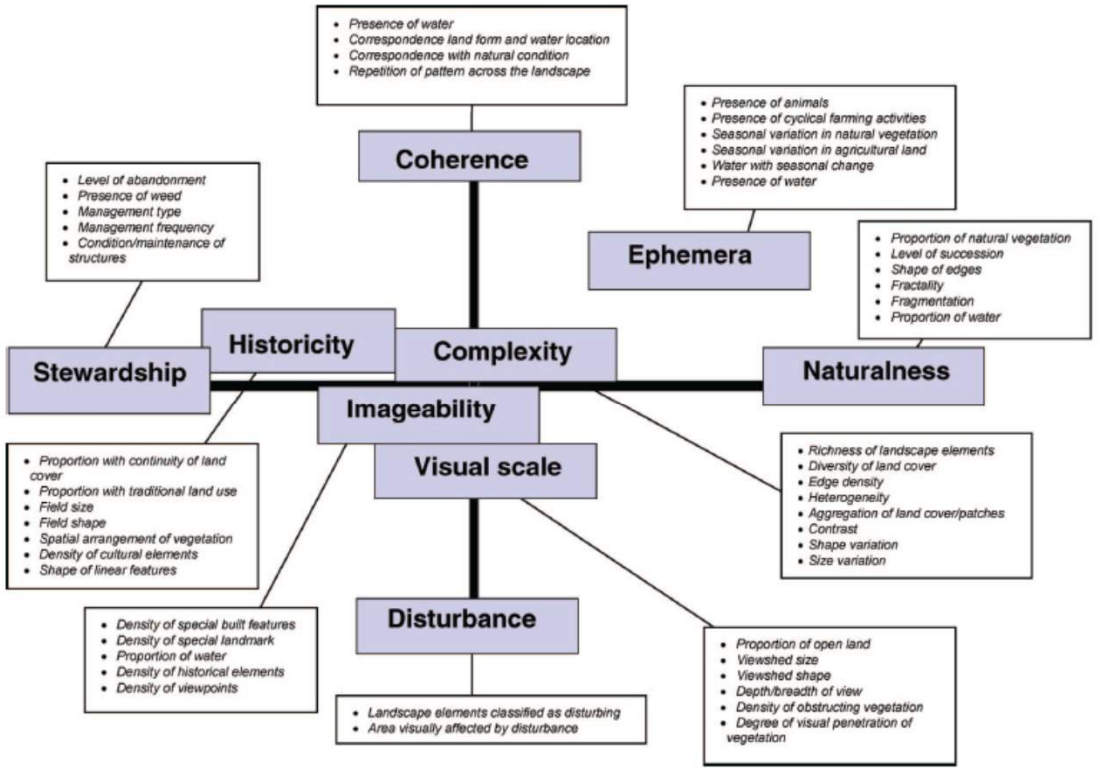

Figure 2. Map of concepts where dotted lines represent dependencies between the concepts, e.g. perceived disturbance is dependent on the visibility of the disturbing element, which is determined by the visual scale of the landscapes.

Methodology

- Polaric landscapes will be compared to traditional, typical “touristic” landscapes or landscapes in EU.
- Where to add mythological layer? Additional methodologies: fractal analysis of visual fields, analysis in terms of mental map (K.Lynch) – imageability?, video-ecology – disturbance, form as container of memory – historicity, here and there concept, N.Salingaros three regularities of vsual composition, etc.