

Framework for assessing visual character of landscape

Effects of the visual landscape

- Landscape aesthetics
 - Landscape preferences
 - What makes us prefer one landscape over another?



- Environmental psychology
 - Health and well-being
 - Stress reduction
 - Restorative effects

Environmental psychology – Measuring health effects of landscapes

- Studies on health effects of landscapes; stress reduction, restoration, quicker recovery in hospitals
- Stress reduction; blood pressure, heart rate, brain activity, skin conductance, muscle tension etc.
- Restorative effects; frequency of sick-call visits, number of days in hospital after surgery, or doses of analgesics needed during the recovery period
- Measurements of behavioural changes; self reports about feelings and perceptions,

Landscape aesthetics

– what shapes preferences?

- Evolutionary theories:

Landscape preferences shaped by common evolutionary history

- Prospect-refuge theory (Appleton 1975;1996)
- Information Processing theory (Kaplan and Kaplan 1982;1989)
- Biophilia (Wilson and Kellert 1993)

Landscape aesthetics

– what shapes preferences?

- Humanistic approaches

Culture, ethics and knowledge based preferences

- cultural background, education, gender, place of birth/residence, age, interests, etc.

Meinig 1976, Bourassa 1991, Bell 1999

- Integrated approach

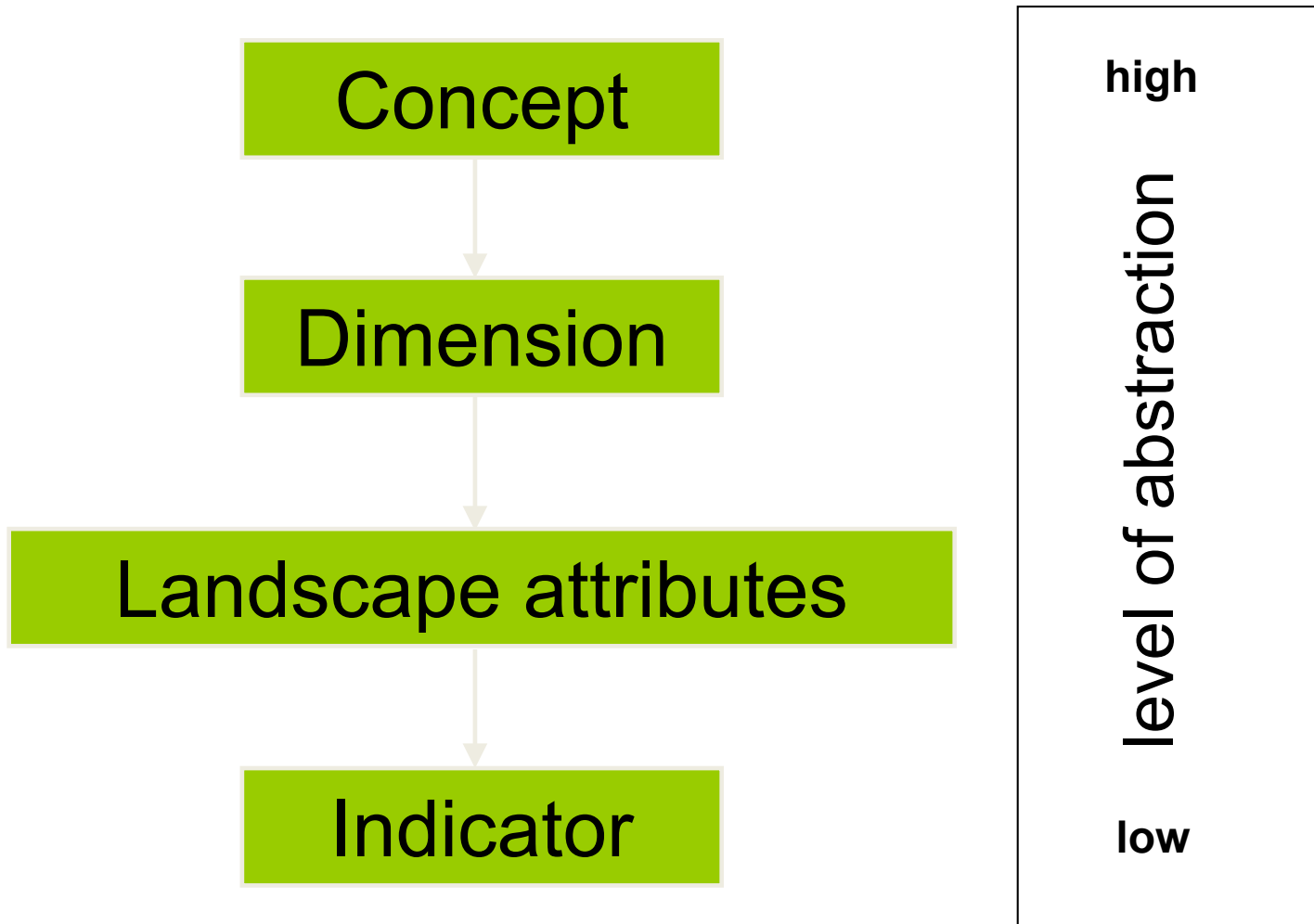
- evolutionary core, but cultural/personal modification

Landscape aesthetics

– what shapes preferences?

- Landscape content
 - landscape structure/character
- Characteristics of the observer
 - landscape function

From concept to indicator



Stewardship

- *Concept:* we define stewardship as the presence of a sense of order and care, contributing to a perceived accordance to an 'ideal' situation. Stewardship reflects human care for the landscape through active and careful management.
- *Dimensions:* sense of order; sense of care; upkeep.
- *Landscape attributes:* signs of use/non-use; vegetation succession; buildings, linear features (fences, paths etc.) management detail; drainage; waste.
- *Potential indicators:* percentage of abandoned land and stage of succession; status of maintenance of buildings; management type and frequency; length and condition of linear features (for example fences and walls); presence of waste; wet areas in crop fields; presence of weed.

Visual concepts in the literature

X stewardship →

- sense of order and care, perceived accordance to an “ideal” situation reflecting human care through active and careful management

□ coherence

– unity of a scene, repeating patterns of colour and texture, correspondence between land use and natural conditions

□ disturbance

- lack of contextual fit and coherence, constructions and interventions





Coherence

- *Concept:* we define coherence as a reflection of the unity of a scene, where coherence may be enhanced through repeating patterns of colour and texture. Coherence is also a reflection of the correspondence between land use and natural conditions in an area.
- *Dimensions:* harmony; unity/holistic; land-use suitability.
- *Landscape attributes:* land use; water; pattern.
- *Potential indicators:* percentage land use in correspondence with natural conditions; water presence and its spatial location; repeating colours and patterns.

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Visual concepts in the literature

□ **stewardship**

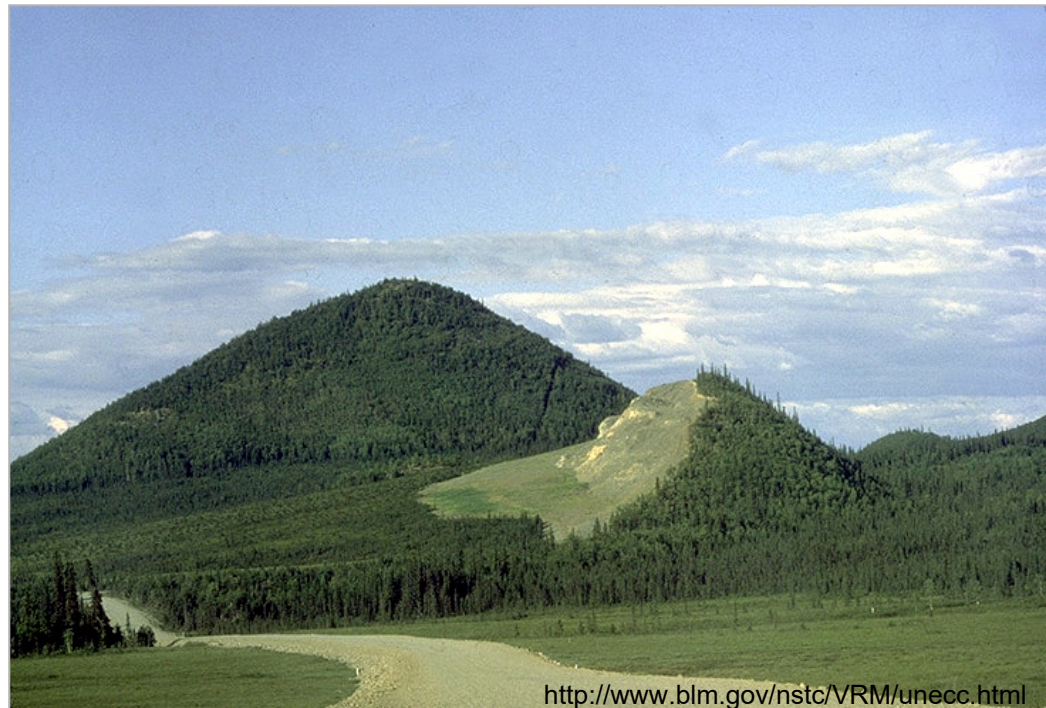
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Disturbance

- *Concept:* we define disturbance as lack of contextual fit and coherence, where elements deviate from the context. Disturbance is related to constructions and interventions occurring in the landscape, of both temporary and permanent character.
- *Dimensions:* lack of contextual fit; lack of coherence.
- *Landscape attributes:* extraction; natural disturbance (for example: fire and windfall); constructions (for example: motorway; infrastructure; urban elements; temporary constructions).
- *Potential indicators:* number of disturbing elements; percentage area impacted by disturbance, visibility of disturbing elements.



Historicity

- *Concept:* we define historicity as determined by two dimensions, historical continuity and historical richness. Historical continuity reflects the visual presence of different time layers, also influenced by the age of the layers, while historical richness relates to the amount, condition and diversity of cultural elements.
- *Dimensions:* historical continuity; historical richness.
- *Landscape attributes:* visible time layers; cultural elements (for example, historical agricultural buildings, grave mounds, ruins, cairns, signs of earlier cultivation, fences, stone walls, historical roads and paths); traditional agricultural structures.
- *Potential indicators:* presence of cultural elements; shape and type of linear historical elements; age of historical elements; number of time layers; percentage area of historic continuity; presence of traditional land use and pattern.

Visual concepts in the literature

✗ historicity

- historical continuity and historical richness, different time layers, amount and diversity of cultural elements

□ visual scale

- landscape rooms or perceptual units: their size, shape and diversity, degree of openness.



Visual concepts in the literature

□ historicity

- historical continuity and historical richness, different time layers, amount and diversity of cultural elements

X visual scale
landscape rooms or
perceptual units:
their size, shape and
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degree of openness.



Visual Scale

- *Concept:* we define visual scale by the perceptual units that reflect the experience of landscape rooms, visibility and openness.
- *Dimensions:* visibility; openness; grain size.
- *Landscape attributes:* topography; vegetation; man made obstacle.
- *Potential indicators:* viewshed size; viewshed form; depth of view; degree of openness; grain size; number of obstructing objects.

Visual concepts in the literature

X imageability →

- qualities of a landscape present in totality or through elements; landmarks and special features, both natural and cultural, making the landscape create a strong visual image in the observer, and making landscapes distinguishable and memorable.



Visual concepts in the literature

X Complexity

- diversity, richness of landscape elements and features, interspersed pattern

□ Naturalness

- closeness to a preconceived natural state.

□ Ephemera

– changes with seasons or weather, seasonality



Complexity

- *Concept:* we define complexity as the diversity and richness of landscape elements and features, their interspersions as well as the grain size of the landscape.
- *Dimensions:* diversity; variation; complexity of patterns and shapes.
- *Landscape attributes:* linear features; point features; land cover; land form.
- *Potential indicators:* number of objects and types; evenness index; dominance index; diversity indices; shape diversity; size variation indices; heterogeneity indices; edge density; aggregation indices.



Naturalness

- *Concept:* we define naturalness as closeness to a preconceived natural state.
- *Dimensions:* intactness; wilderness; natural; ecologically robust.
- *Landscape attributes:* natural feature; structural integrity of vegetation; vegetation/land-cover type; water; management; patch shape; edge shape.
- *Potential indicators:* fractal dimension; vegetation intactness; percentage area with permanent vegetation cover; presence of water; percentage area water; presence of natural feature; lack of management; management intensity (type and frequency), naturalism index, degree of wilderness.

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Imageability

- *Concept:* we define imageability as qualities of a landscape present in totality or through elements; landmarks and special features, both natural and cultural. making the landscape create a strong visual image in the observer, and making landscapes distinguishable and memorable.
- *Dimensions:* spirit of place; genius loci; uniqueness/distinctiveness; vividness.
- *Landscape attributes:* spectacular elements; panorama; landmarks; water; iconic elements.
- *Potential indicators:* viewpoints; presence of spectacular, unique or iconic elements and landmarks; presence of historic elements and patterns, presence of water bodies, percentage area of moving water.



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Ephemera

- *Concept:* we define ephemera as elements and land-cover types changing with season and weather.
- *Dimensions:* seasonal change (human imposed and natural); weather related changes.
- *Landscape attributes:* land cover/vegetation; animals; land use (ploughing, etc.); water (colour reflections and waves); weather.
- *Potential indicators:* percentage of land cover with seasonal change; presence of animals; presence of cyclical farming activities; percentage area water; projected and reflected images; presence of weather characteristics.

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Concepts related to landscape function

- Accessibility
 - private vs. public, barriers etc.
- Mystery
 - the promise of something more
- Safety
 - e.g. dense vegetation in parks
- Readability
 - finding one's way, not getting lost
- Recreation
- etc.etc