



Estonian University  
of Life Sciences

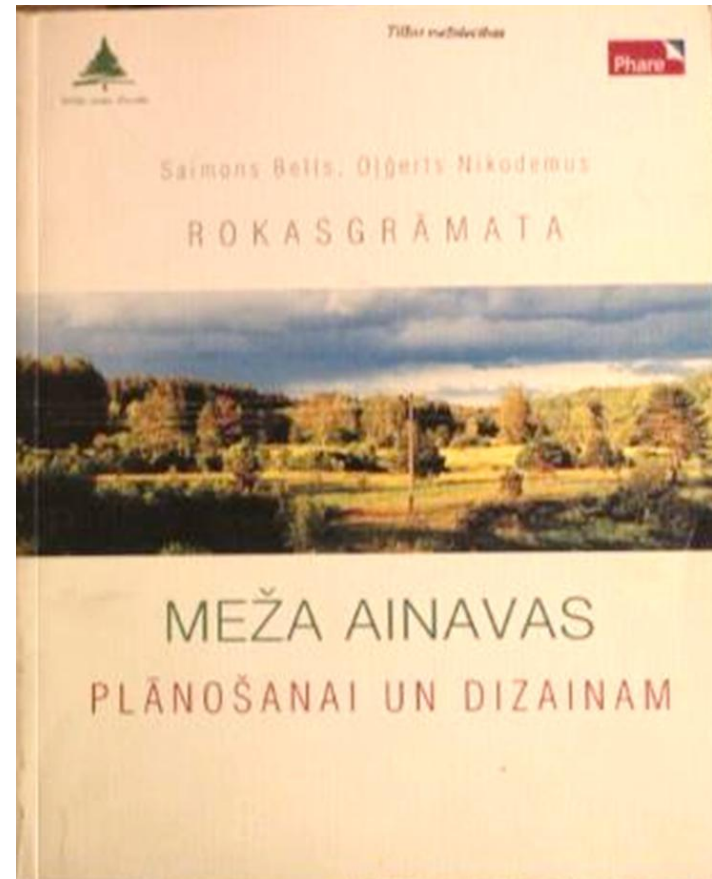
# How to Plan and Manage Forests to Maintain Aesthetic, Recreational, Health and Wellbeing Values

Simon Bell

Professor of Landscape Architecture

# Introduction: Forests in the Landscape

- Simon Bell was first involved in forestry planning and design in Latvia in 1999
- He co-wrote a book with Prof O. Nikodemus and held training courses in 2000 onwards
- This contains the main theories and principles which still apply



# Forests in the Latvian Landscape

- Latvia is a very forested country and the landscape is in many ways defined by forest: almost all views have forest on the horizon, close up or in the distance
- Latvia has a diversity of forest landscapes which have arisen from the variety of landform, soils, land use, climate and other factors.
- Trees affect what and how much we can see - because of the height of trees, which have the capacity to enclose space and to create, frame or block views.



# Forest Landscapes: Perceptions and Preferences

International research has identified the features that create an attractive forest and found to include

- diversity of composition and structure (tree species, open spaces, different ages of trees, different successional stages),
- naturalness of layout and avoidance of geometry,
- the presence of water, colours, seasonal changes
- being able to see beneath the canopy of the trees,



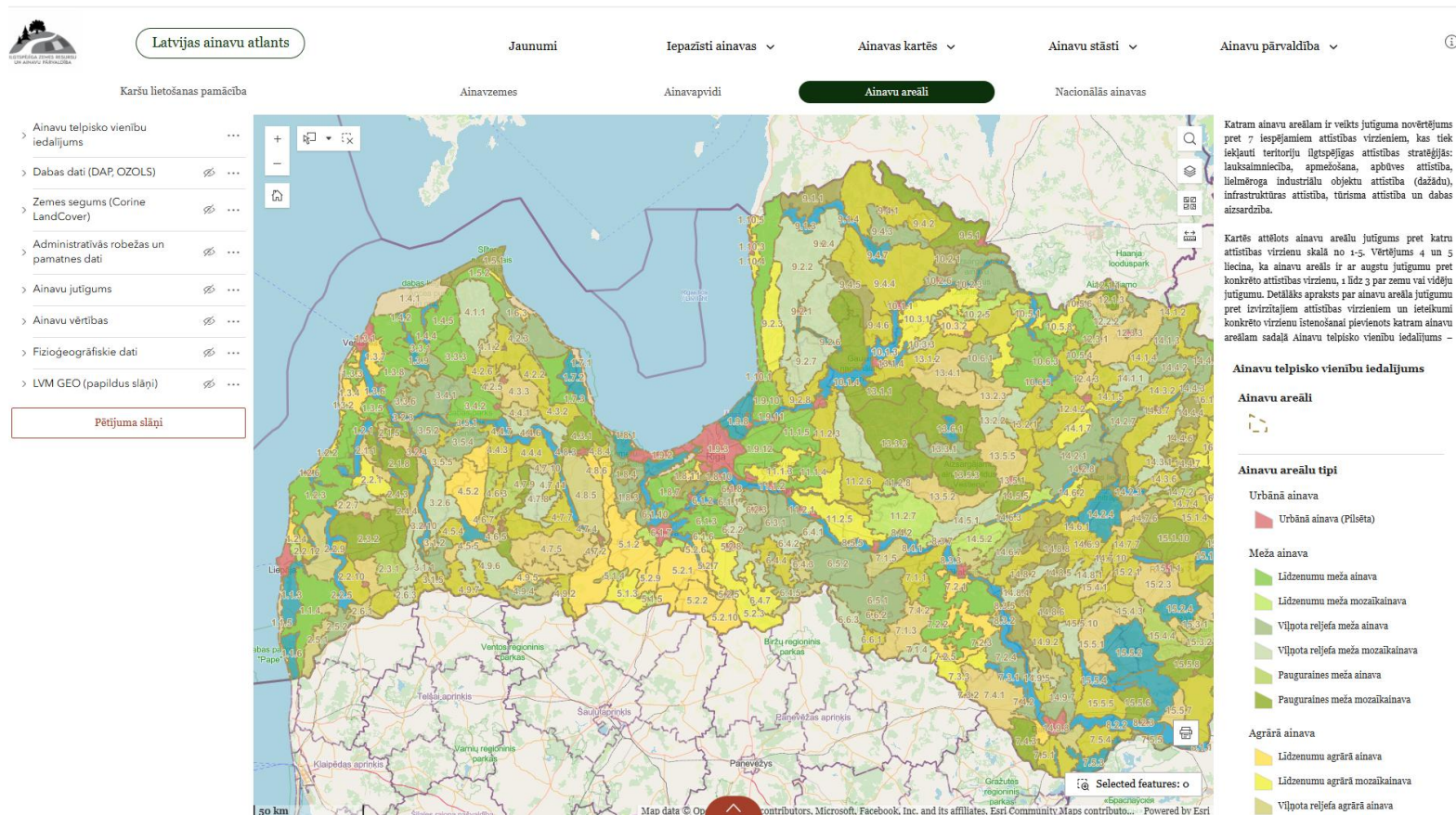
# Key planning and design principles:

To reflect the diverse character, distinct identity and special qualities of the Latvian landscape

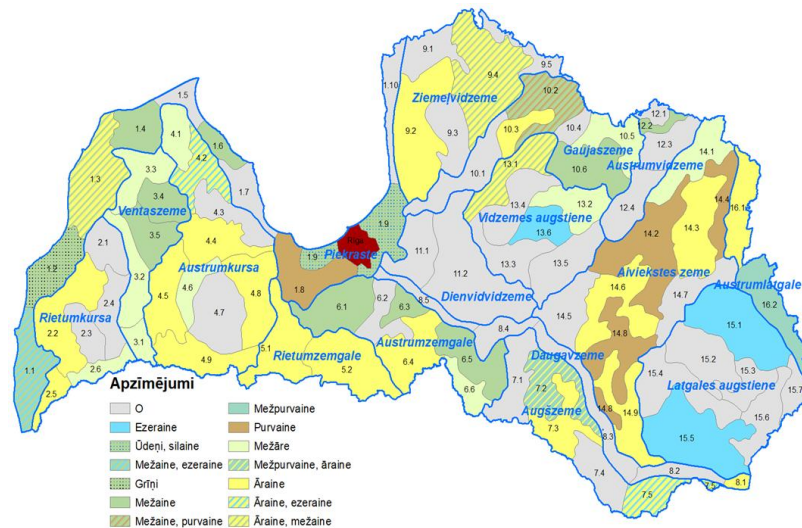
- Adapt planning to the landscape character
- Identify and respond to local distinctiveness
- Be conscious of landscape and visual sensitivity
- Apply aesthetic principles when planning and designing changes in the forest

# What is the character of the forest landscape?

Check the Latvian landscape character: Latvijas Ainavu Atlants and look up the description of the relevant unit



# Understanding the Latvian landscape and its diversity



Three levels of the hierarchy of Latvian Landscapes

# Local Distinctiveness

- Many places have a similar character but are also locally different, as seen by local residents.
- Consult the local community and ask what makes the area special to them. Identify the factors on a map or in a report.
- Consider how creative solutions in the use of forestry planning and management can contribute to increasing or enhancing local distinctiveness.



# Landscape and Visual Sensitivity

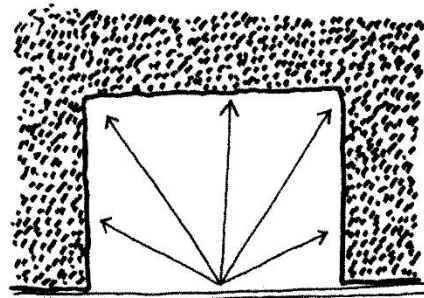
- Some landscapes are more sensitive to change affecting their character and identity than others.
- Assess visual sensitivity and take extra care when planning and designing forestry and forest operations, especially harvesting.
- Typically sensitive landscapes are along roadsides, near settlements, along rivers, lakes, the coast and historic sites.



# Harvesting in the landscape

- Felling of forest areas can have a large and short term impact on the landscape
- Cutting along roadsides is very apparent and can look very unattractive
- It is necessary to harvest timber but there are ways to reduce the impact



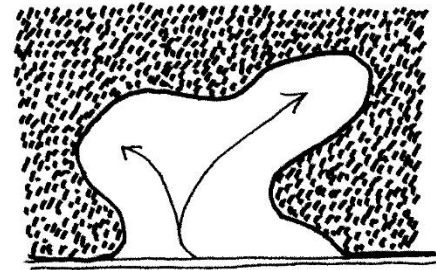


PLAN

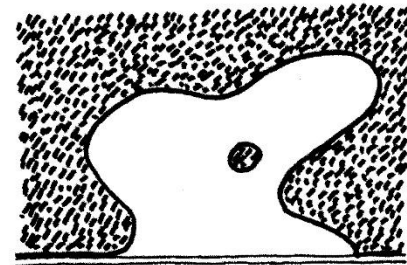


PERSPECTIVE

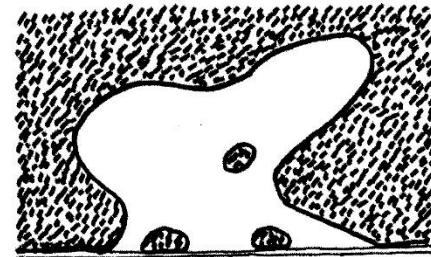
*In this example of a square felling coupe on flat land, the eye roams about, seeking interest that is not present*



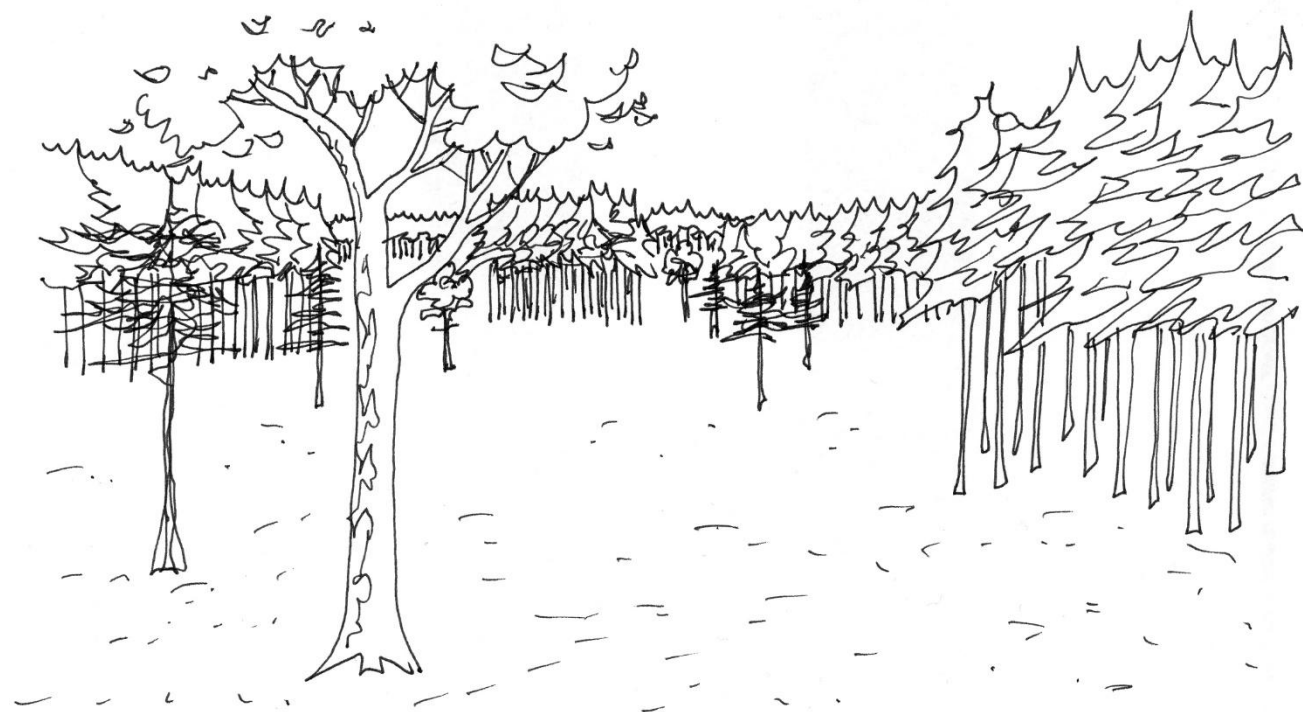
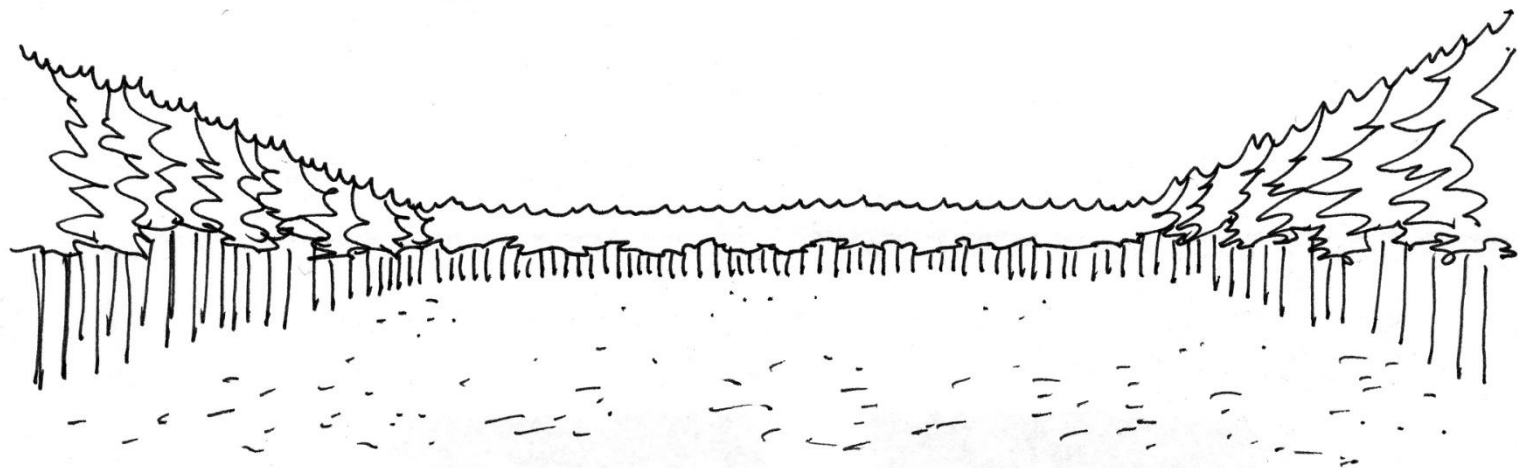
*A curvilinear, interlocking, enclosing space creates some mystery and is more interesting to the viewer*



*An element retained within the coupe, such as an old tree of interesting character, or a clump of trees, adds a valuable focal point which improves the design further*



*Retained clumps of trees in the foreground add depth to the perspective and created even more mystery, so that the coupe becomes much more attractive in the landscape*





# Forest Recreation, Health and Wellbeing

- Forests represent nature to many people – one end of the spectrum from urban to wilderness
- They offer a wide range of opportunities: fresh air and exercise, being close to nature, picking berries and mushrooms, winding down and de-stressing...the list goes on
- Too much recreation can also lead to damage to the landscape, so needs to be managed correctly

# In 1901 John Muir wrote:

“Thousands of tired, nerve shaken, overcivilised people are beginning to find that going to the mountains is going home; that wilderness is a necessity; and that mountain parks and reserves are useful not only as fountains of timber and invigorating rivers but as fountains of life.”



# Escaping from the city

- Urban environments constantly bombard us with stimulation and living or working there requires constant concentration.
- Natural areas stimulate us without effort, we do not have to concentrate, sounds are calming and colours help us to relax.
- This is known as “soft fascination” and relates to one of the leading theories: Attention Restoration Theory (Kaplan and Kaplan)

# Main issues for recreation planning and design

- We want to encourage people to visit nature to improve their physical, mental and social well-being
- Natural environments are sensitive to pressures from too many visitors, so their capacity should be respected
- Design of facilities should emphasise the contrast between urban and nature
- Sites should not be over-developed

# Designing the Visit

Providing the basic requirements for a visit,  
designed from the perspective of the visitor



Glenmore Forest Park

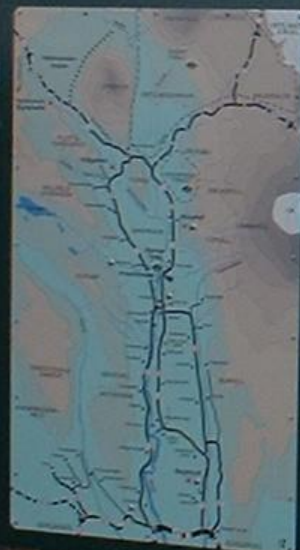
Lochside



Pet Car Park Closes at 6pm



## Hraunfossar Barnafoss



**Stærðingarnar**  
Hraunfossar er 100 metra hár og Barnafoss er 20 metra hár. Þetta eru tvö stórir fossar sem renna niður í Hraunfossar og Barnafoss. Þetta eru tvö stórir fossar sem renna niður í Hraunfossar og Barnafoss.



### SKYRINGAR

#### Reference



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# Testing Shinrin Yoku (Forest Bathing)

- Despite the cultural relationship with forests, Estonia is a highly urbanised and digital society
- However, the benefits of forest to health have not been studied under the context of Shinrin Yoku and its possibilities
- We took this opportunity to conduct a trial study to see if we could detect the same sort of benefits of Shinrin Yoku in Estonia as found elsewhere .
- *NB. The study was for a master thesis so was limited in time and resources, which is why we treat it as a pilot study*

# Research strategy

- We based the study in Tartu, and selected an urban context within the city and a hiking trail in Ilmatsalu forest, which borders the city and is easily accessible to residents, for the comparison of the impact of each environment on mood.
- We followed the approach of inviting participants to spend time in both locations and to complete a pre-post survey on their mood state.
- A route in each location, urban and forest, was defined and participants were asked to walk for 30 minutes and to sit or rest for 30 minutes at a pre-defined spot.



The urban environment



The forest environment

# Data collection

- Participants willing to undertake the experiment were recruited through snowball sampling.
- In all, 29 participants completed the task, 16 male and 13 female, of varying ages (above 18).
- The survey was a simplified test of different mood indicators scored on a 5-point Likert scale.
- After the sessions they were also asked about their experience and whether they had heard of Shinrin Yoku before and found it useful.
- The dimensions used in the survey were feelings of:
  - Tense
  - Energetic
  - Restless
  - Difficulty concentrating
  - Relaxed
  - Peaceful
  - Anxious
  - Bored
- The order was a random mix of positive and negative emotions in order to minimise the effect this might have on the results
- The terms were translated into Estonian

# Results

## Urban setting

| Measures of well-being in the city before and after the session |                    |       |                   |       |                |        |        |
|-----------------------------------------------------------------|--------------------|-------|-------------------|-------|----------------|--------|--------|
|                                                                 | Before the session |       | After the session |       |                | T-test |        |
| Feeling                                                         | Mean               | SD    | Mean              | SD    | Change in mood | t      | p      |
| Tense                                                           | 2.03               | 0.906 | 2.48              | 1.122 | +0.45          | -2.917 | 0.007  |
| Energetic                                                       | 2.93               | 0.753 | 2.45              | 0.736 | -0.48          | 3.780  | <0.001 |
| Restless                                                        | 1.83               | 0.928 | 2.45              | 1.152 | +0.62          | -3.876 | <0.001 |
| Difficulty concentrating                                        | 1.72               | 0.751 | 2.28              | 0.996 | +0.56          | -4.332 | <0.001 |
| Relaxed                                                         | 2.59               | 0.825 | 2.07              | 0.961 | -0.52          | 2.726  | 0.011  |
| Peaceful                                                        | 2.86               | 0.833 | 2.24              | 1.185 | -0.62          | 3.415  | 0.002  |
| Anxious                                                         | 1.72               | 0.841 | 2.28              | 1.222 | +0.56          | -3.266 | 0.003  |
| Bored                                                           | 1.62               | 0.903 | 2.31              | 1.105 | +0.69          | -3.179 | 0.004  |

## Forest setting

| Measures of well-being in the forest before and after the session |                    |       |                   |       |                |        |        |
|-------------------------------------------------------------------|--------------------|-------|-------------------|-------|----------------|--------|--------|
|                                                                   | Before the session |       | After the session |       |                | T-test |        |
| Feeling                                                           | Mean               | SD    | Mean              | SD    | Change in mood | t      | p      |
| Tense                                                             | 2.24               | 0.912 | 1.21              | 0.491 | -1.03          | 7.620  | <0.001 |
| Energetic                                                         | 2.86               | 0.789 | 2.76              | 0.872 | -0.10          | 0.500  | 0.621  |
| Restless                                                          | 1.69               | 0.850 | 1.10              | 0.409 | -0.59          | 4.627  | <0.001 |
| Difficulty concentrating                                          | 1.83               | 1.037 | 1.38              | 0.677 | -0.45          | 3.822  | <0.001 |
| Relaxed                                                           | 2.66               | 0.936 | 3.83              | 1.037 | +1.17          | -6.086 | <0.001 |
| Peaceful                                                          | 2.79               | 0.726 | 4.07              | 1.033 | +1.28          | -7.159 | <0.001 |
| Anxious                                                           | 1.93               | 0.884 | 1.24              | 0.435 | -0.69          | 5.625  | <0.001 |
| Bored                                                             | 1.45               | 0.736 | 1.66              | 0.814 | +0.21          | -1.030 | 0.312  |

# Summary and Conclusions

- The forest represents an archetypal form of nature which gives us experiences far removed from our urban and digital lives
- Because it represents nature we expect it to be “natural”, so that obvious signs of management and man-made patterns such as geometric forms of clear cuts signal “unnatural”
- When we explore the forest for recreational purposes we experience it using all our senses, immersing ourselves in it.
- Thinking about forest management to retain these special qualities is important and can be achieved together with other objectives when properly planned and designed.