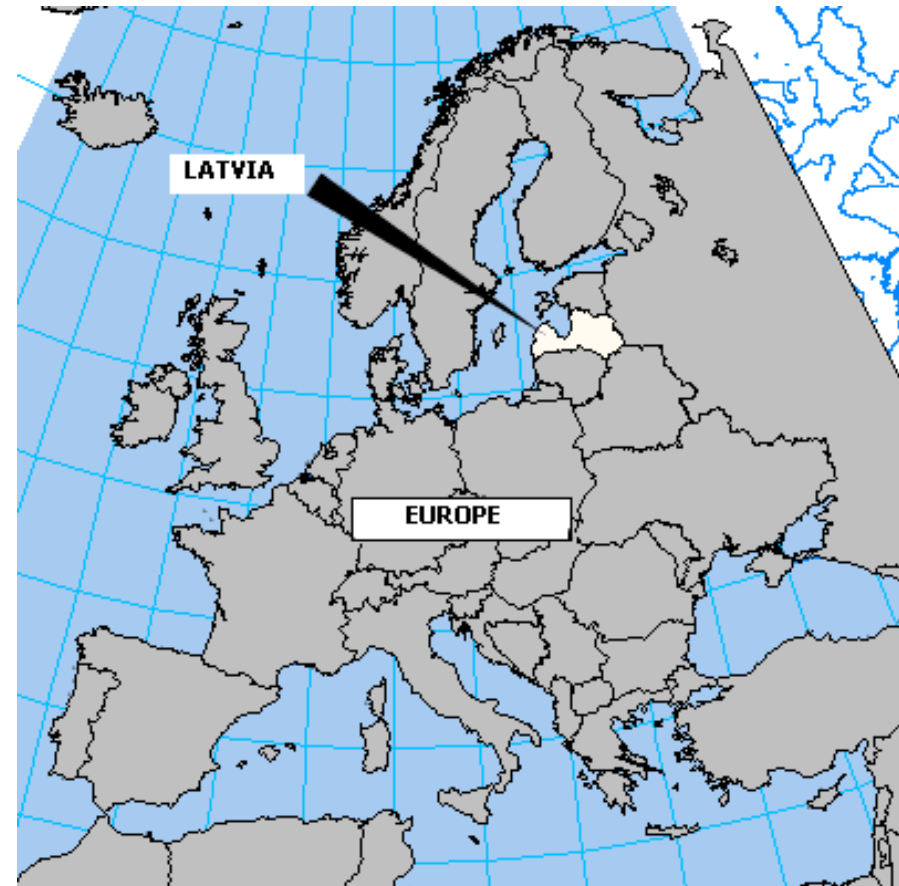




*Silvicultural systems, stated  
visual preferences and forest  
recreation in Latvia*

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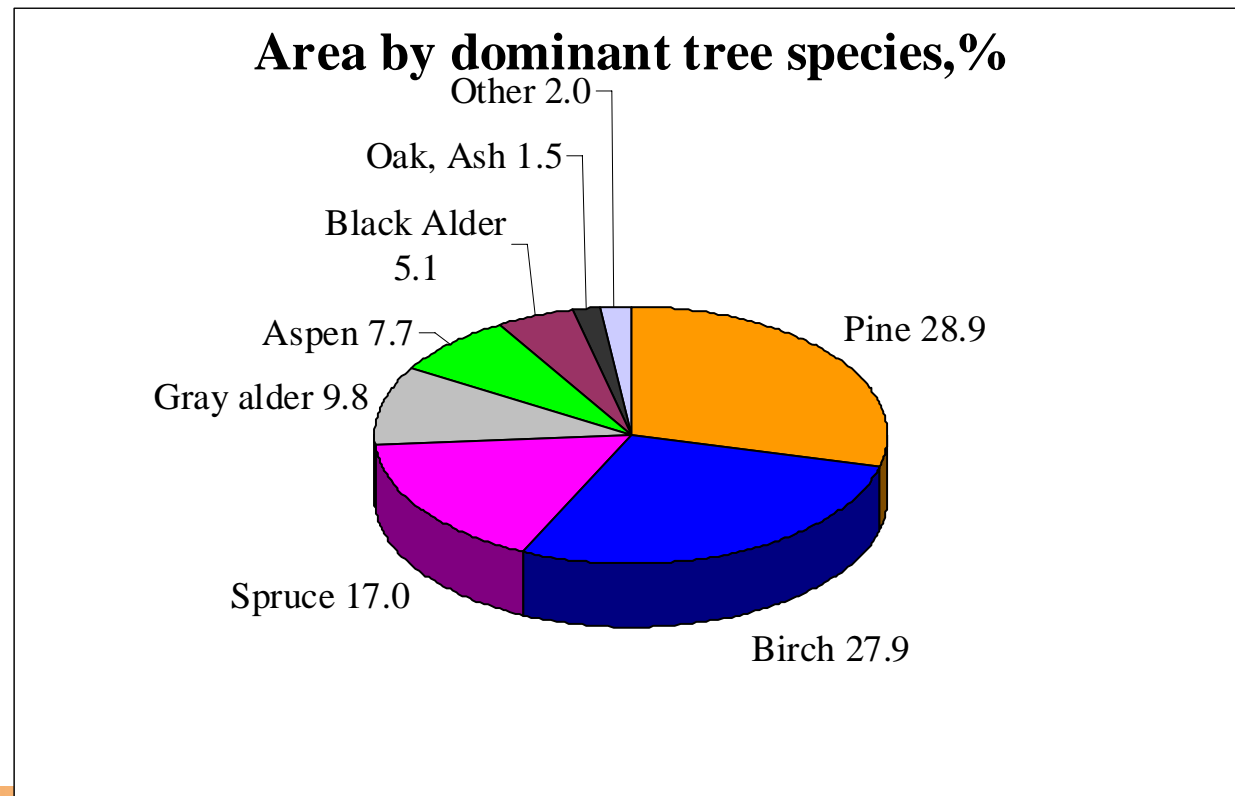
- Background information
  - about Latvia's forests
  - silvicultural systems
  - and inhabitants
- Material and methods
- Results



# *Background information about Latvia's forests*



- Forests cover more than 3.22 million ha out of 6.45 million ha of total area (50%)
- Dominant tree species







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# *Dominant silvicultural systems in Latvia*

- Clear cut
  - with ecological trees (5-10 per ha)
  - with seed trees (20 -40 per ha)
- Shelterwood or Selection cutting
  - Stripes,
  - Groups
  - Regular

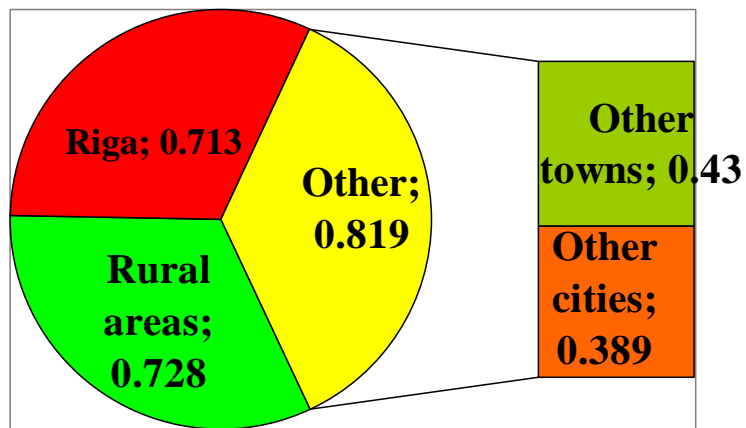




# *Background information about Latvia's inhabitants*

- Total population -2.26 million people
- Urban population 1.53 million people (7 cities and 70 towns)

**Inhabitants by types of settlements, millions**



# *Goal of investigation*

- to evaluate how structures created by different silvicultural systems are preferred from visual point of view by adult (15-74) population in Latvia
- and to get some insight about use of forests for recreation purposes by adult (15-74) population in Latvia

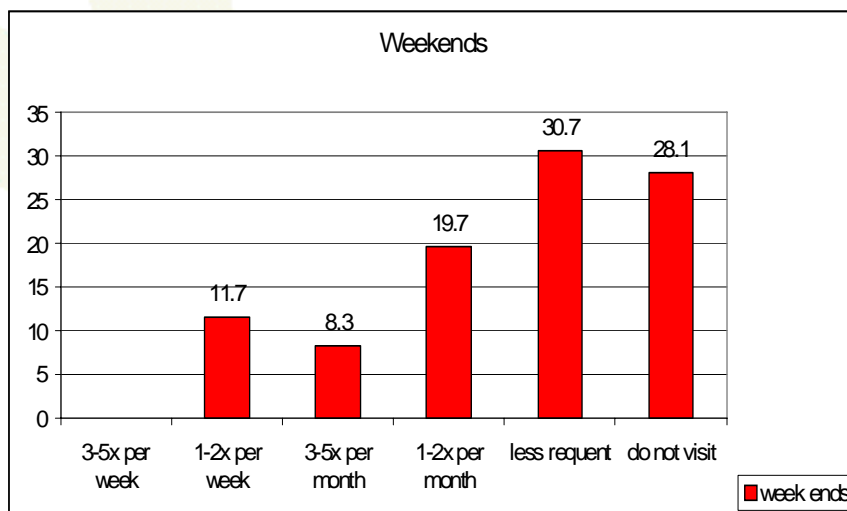
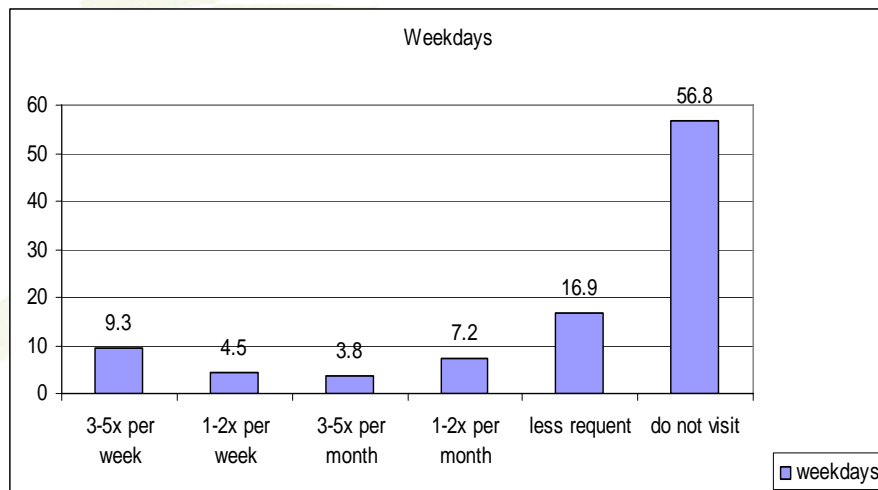
# *Material and Methods*

- 45 pictures
  - Clear cut with ecological trees or seed trees
  - “evenaged” - height 3, 6, 12, 18, 24 (28)m with /without thinning
  - First stage of Group, Stripe, (i) Regular shelterwood or selection cutting
  - Species composition: Pine, Spruce, Birch, Mixed

- 45 pictures in pairs (Alho, et al. 2001)
  - Randomised pictures
  - 1>2; 1>3; 2>3; 2>4 etc.
  - Randomised pairs (block of 9 pairs)
  - Scale - equal, probably better, better
- Survey Face to Face interviews (TNS Latvia, KPS)
  - Each respondent evaluated 9 pairs of pictures
  - Each pair of pictures evaluated by 180 to 220 persons
  - Use of forests for recreation (1004 persons) (frequency, length of stay, activities, distance to forest)
- Quantitative methods vs Qualitative methods
  - Assuming normal distribution
  - Wilcoxon Signed Ranks Test, Two-Sample Kolmogorov-Smirnov Test



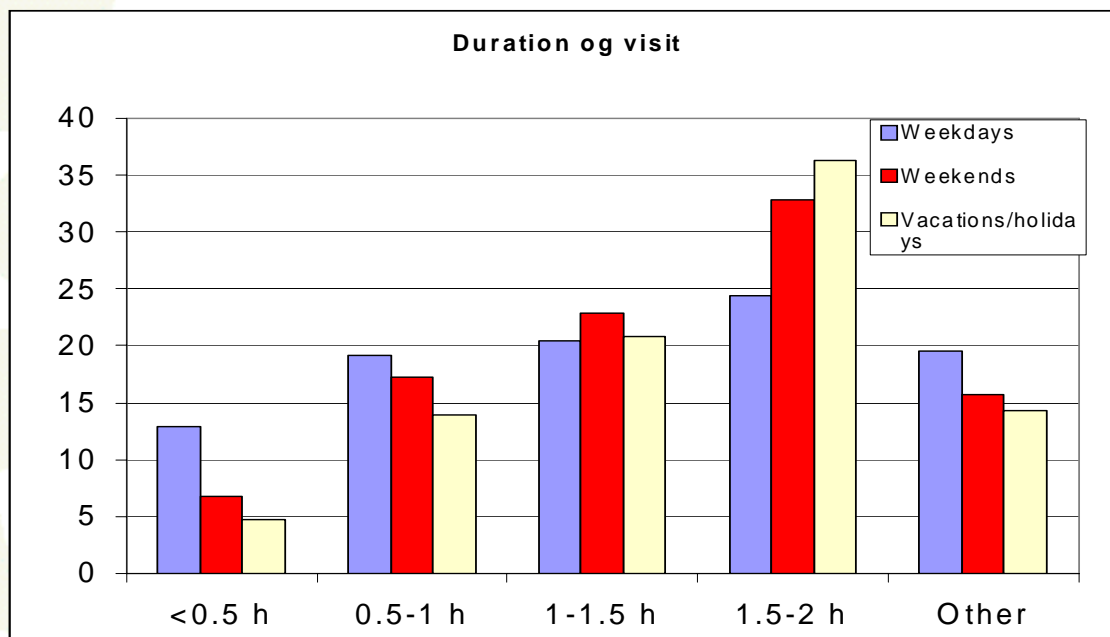
# Results: Forest recreation (frequency)



Frequency of forest visits during last 6 month

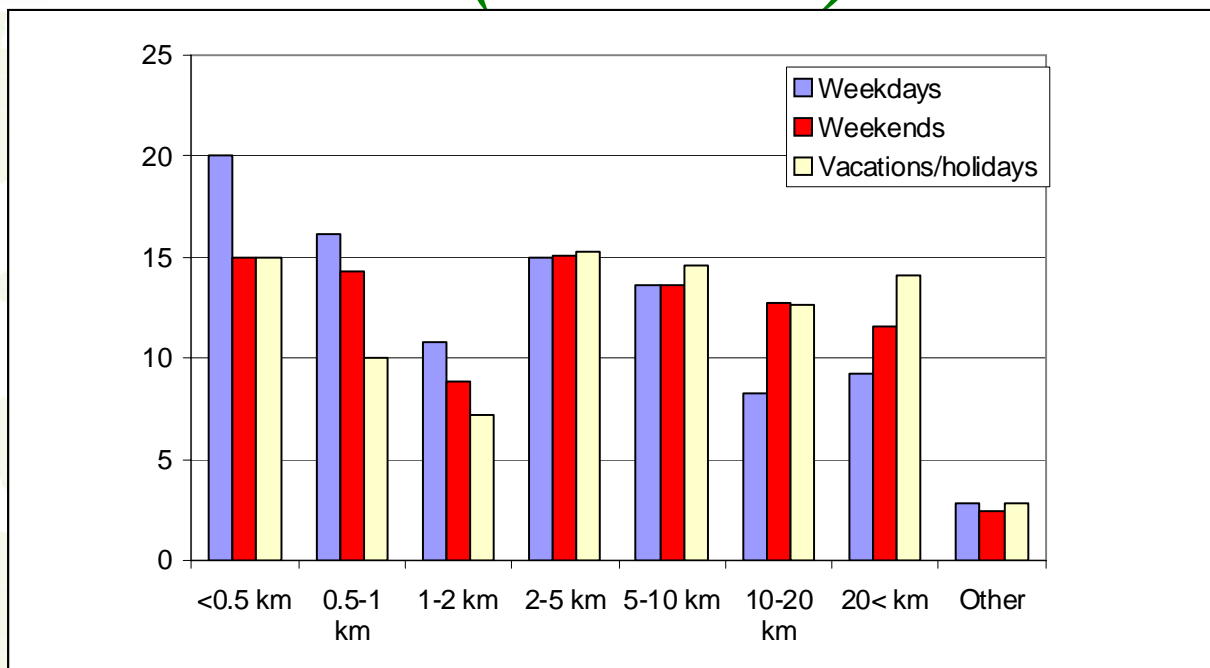
|                | n=1004   |           |                    |
|----------------|----------|-----------|--------------------|
| Frequency      | weekdays | week ends | vacations/holidays |
| 3-5x per week  | 9.3      |           | 6.7                |
| 1-2x per week  | 4.5      | 11.7      | 6.6                |
| 3-5x per month | 3.8      | 8.3       | 5.9                |
| 1-2x per month | 7.2      | 19.7      | 10.7               |
| less frequent  | 16.9     | 30.7      | 23.2               |
| do not visit   | 56.8     | 28.1      | 42.1               |
| n/a            | 1.6      | 1.6       | 4.9                |
| Total          | 100      | 100       | 100                |

# Results: Forest recreation (duration of visit)



| Lenght of stay | Weekdays | Weekends | Vacations/holidays |
|----------------|----------|----------|--------------------|
| <0.5 h         | 12.9     | 6.8      | 4.7                |
| 0.5-1 h        | 19.1     | 17.3     | 13.9               |
| 1-1.5 h        | 20.5     | 22.9     | 20.8               |
| 1.5-2 h        | 24.4     | 32.8     | 36.3               |
| Other          | 19.6     | 15.7     | 14.3               |
| n/a            | 3.5      | 4.6      | 10                 |
| Total #        | 434      | 722      | 581                |

# Results: Forest recreation (distance)



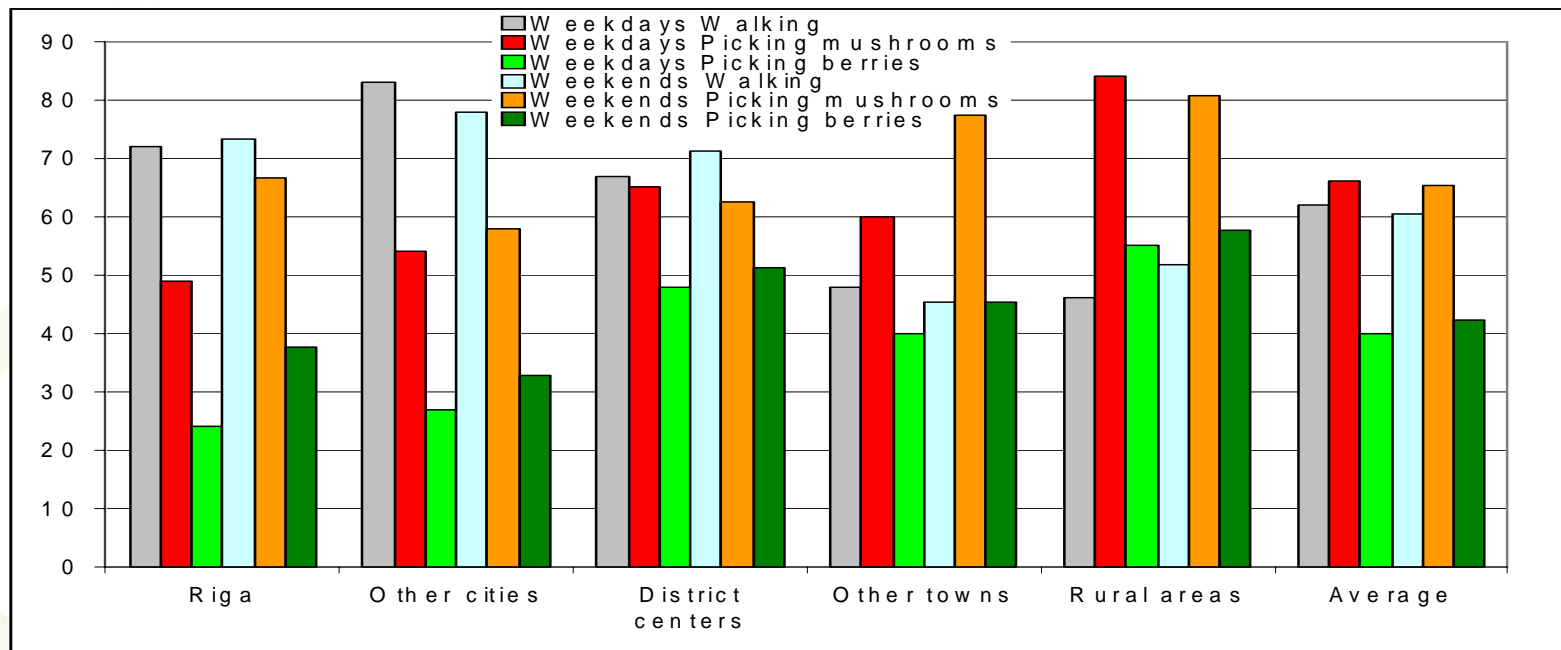
| Distance | Week days | Week ends | Vacations/holidays |
|----------|-----------|-----------|--------------------|
| <0.5 km  | 20        | 15        | 15                 |
| 0.5-1 km | 16.1      | 14.3      | 10                 |
| 1-2 km   | 10.8      | 8.9       | 7.2                |
| 2-5 km   | 15        | 15.1      | 15.3               |
| 5-10 km  | 13.6      | 13.6      | 14.6               |
| 10-20 km | 8.3       | 12.7      | 12.6               |
| 20< km   | 9.2       | 11.6      | 14.1               |
| Other    | 2.8       | 2.4       | 2.8                |
| n/a      | 4.1       | 6.5       | 8.4                |
| Total #  | 434       | 722       | 581                |





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# Forest recreation (activities)



|                  | Weekdays |                   |                 | Weekends |                   |                 |
|------------------|----------|-------------------|-----------------|----------|-------------------|-----------------|
|                  | Walking  | Picking mushrooms | Picking berries | Walking  | Picking mushrooms | Picking berries |
| Riga             | 72       | 49                | 24              | 73       | 67                | 38              |
| Other cities     | 83       | 54                | 27              | 78       | 58                | 33              |
| District centers | 67       | 65                | 48              | 71       | 63                | 51              |
| Other towns      | 48       | 60                | 40              | 45       | 77                | 45              |
| Rural areas      | 46       | 84                | 55              | 52       | 81                | 58              |
| Average          | 62       | 66                | 40              | 60       | 65                | 42              |



# *Visual preferences*





# *Visual preferences* 😊





# *Visual preferences* 😊





# *Visual preferences* ☹️





# *Visual preferences*



# *Visual preferences*





## Desired forest landscape

| Description of forest landscape  | Rank |     |     |     | Average |   |
|--|------|-----|-----|-----|---------|---|
|  | 1    | 2   | 3   | 4   |         |   |
| Untouched forests (forests not affected by forestry activities (no cuttings, no planting)) | 249  | 171 | 191 | 393 | 2.7     | 3 |
| Managed forests with maintained road network   | 245  | 304 | 320 | 135 | 2.3     | 2 |
| Relatively natural forests with some recreation infrastructure                             | 304  | 334 | 270 | 96  | 2.2     | 1 |
| Park like forests with recreational infrastructure   | 206  | 195 | 223 | 380 | 2.8     | 4 |

# Conclusions

- *During last 6 month forest for recreation have used 70% of respondents, of those 80 % visit forest for less than 2 hours, and closer than (5) 20 km from residence*
- *Mature stands and stands with first stage of group or regular shelterwood cuttings are most preferred*
- *Clear cuts, stripe cuttings are less preferred*



# *Further research*

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- *Difference between urban and rural population in use of forests for recreation*
- *Differences between urban and rural population in visual preferences*
- *Elaborate quantitative model for decision support systems*

A photograph of a dense forest of tall, thin trees, likely pines or cypresses, with green foliage. The trees are arranged in a somewhat regular pattern, and the background is a bright, overcast sky. The text "Thank you!" is overlaid in the center of the image.

**Thank you!**