

# Urban forests of Riga, Latvia – pressures, naturalness, attitudes and management

## *Factors affecting vegetation*

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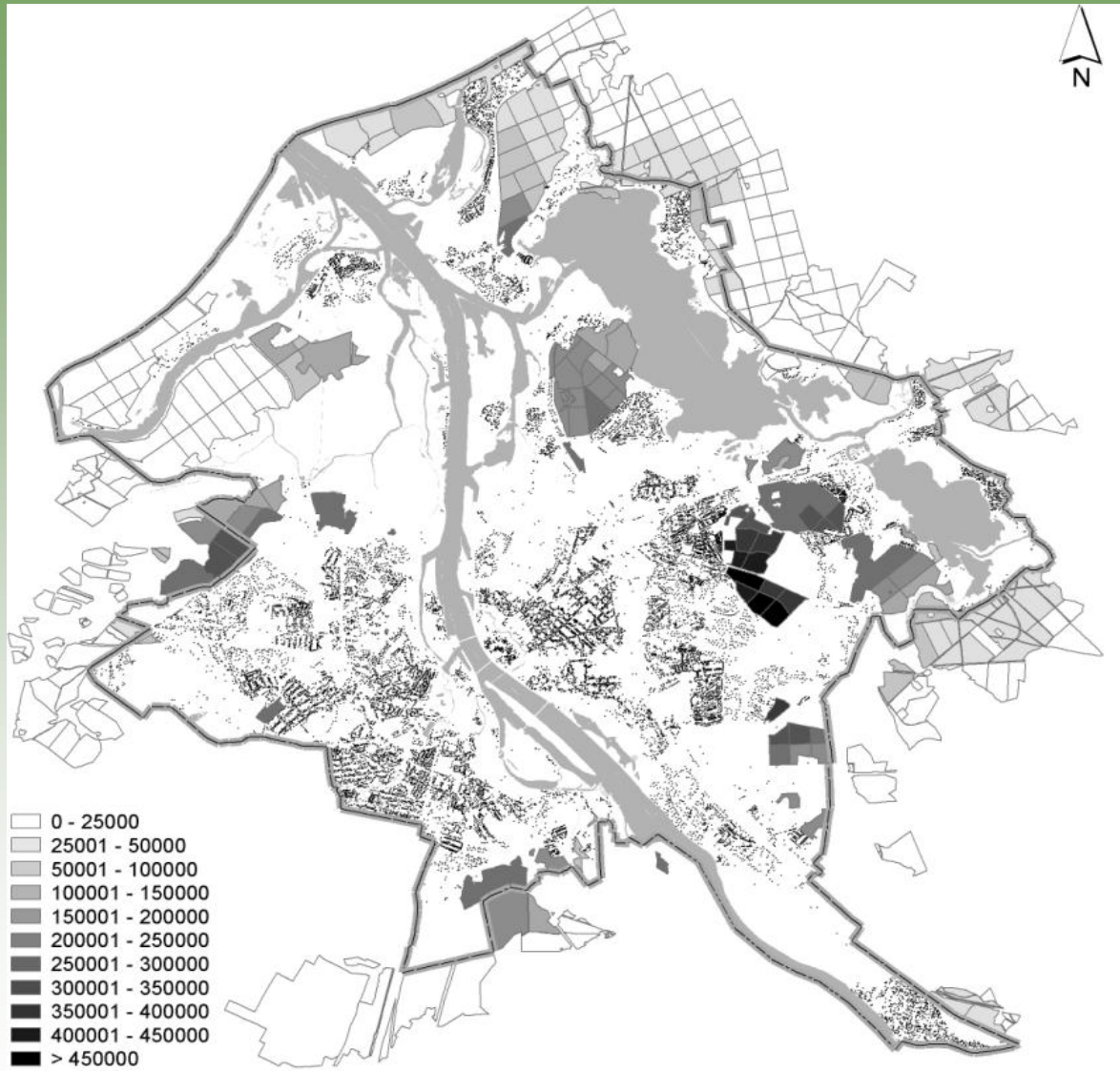
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## Aims

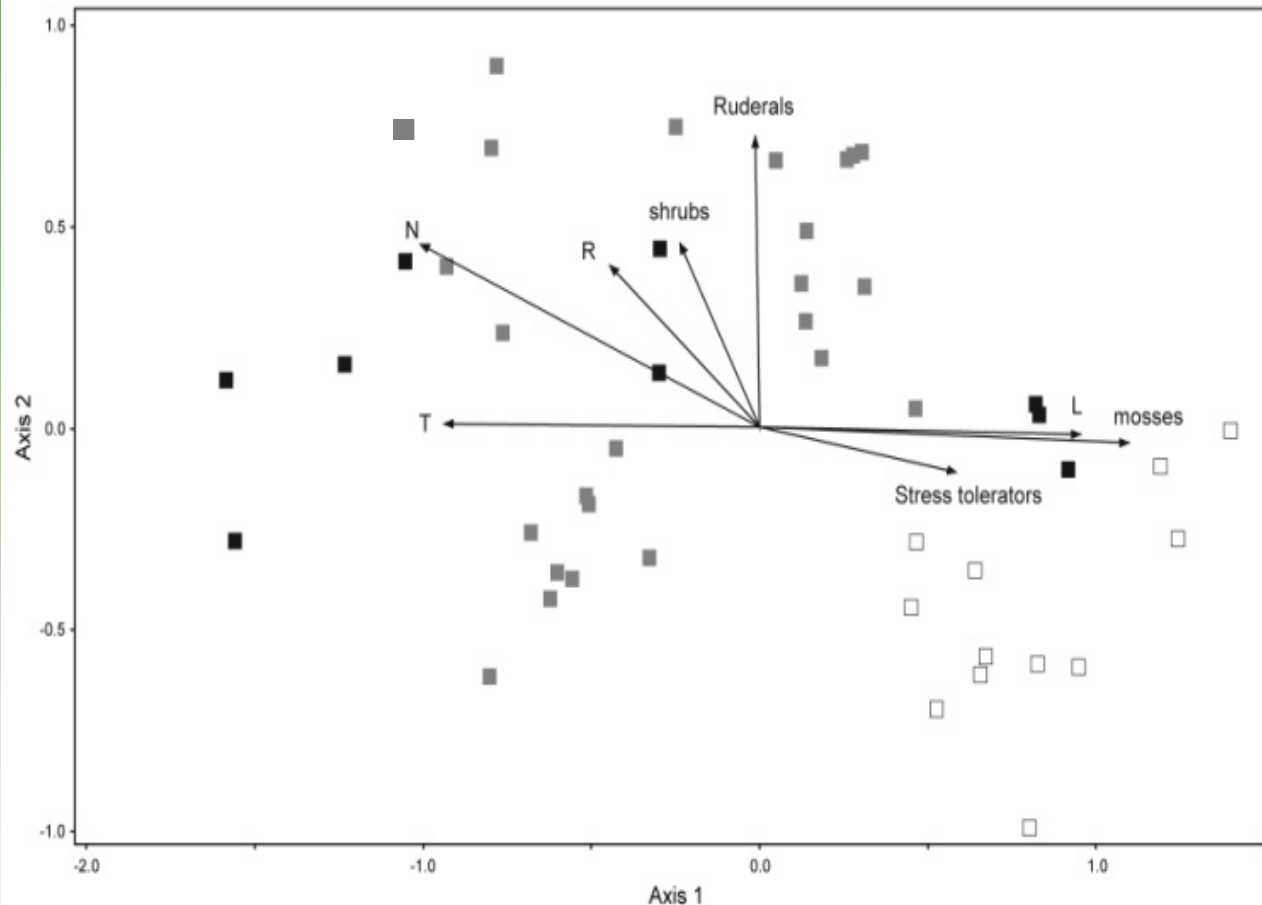
- Assessment of recreational loads: social interviews and analysis with GIS software, to predict impact loads;
- Determine relationships between recreational loads and vegetation composition and stand structure.

1. Questionnaire to determine recreation targets showed that on average, residents daily travel 1.5 km on foot to forests
2. ESRI ArcMap 9.3 GIS software was used as follows:
  - to generate the areas around residential neighbourhoods in a given distance (1,5 km);
  - to generate the buffers around forest blocks in a given distance (1,5 km);
  - to spatially join number of inhabitants in buffer zones with forest stands;
  - to calculate average number of visits/per year to forest stands within tracts;
  - to present the data spatially.



## **Relationships of vegetation and recreational load**

1. Design – 45 sample plots (3 in each of 15 forest tracts). The area of each sample plot was 400 m<sup>2</sup> (20x20m);
2. Description of vegetation (percent cover of species);
3. NMS ordination of vegetation to derive main gradients in community composition.



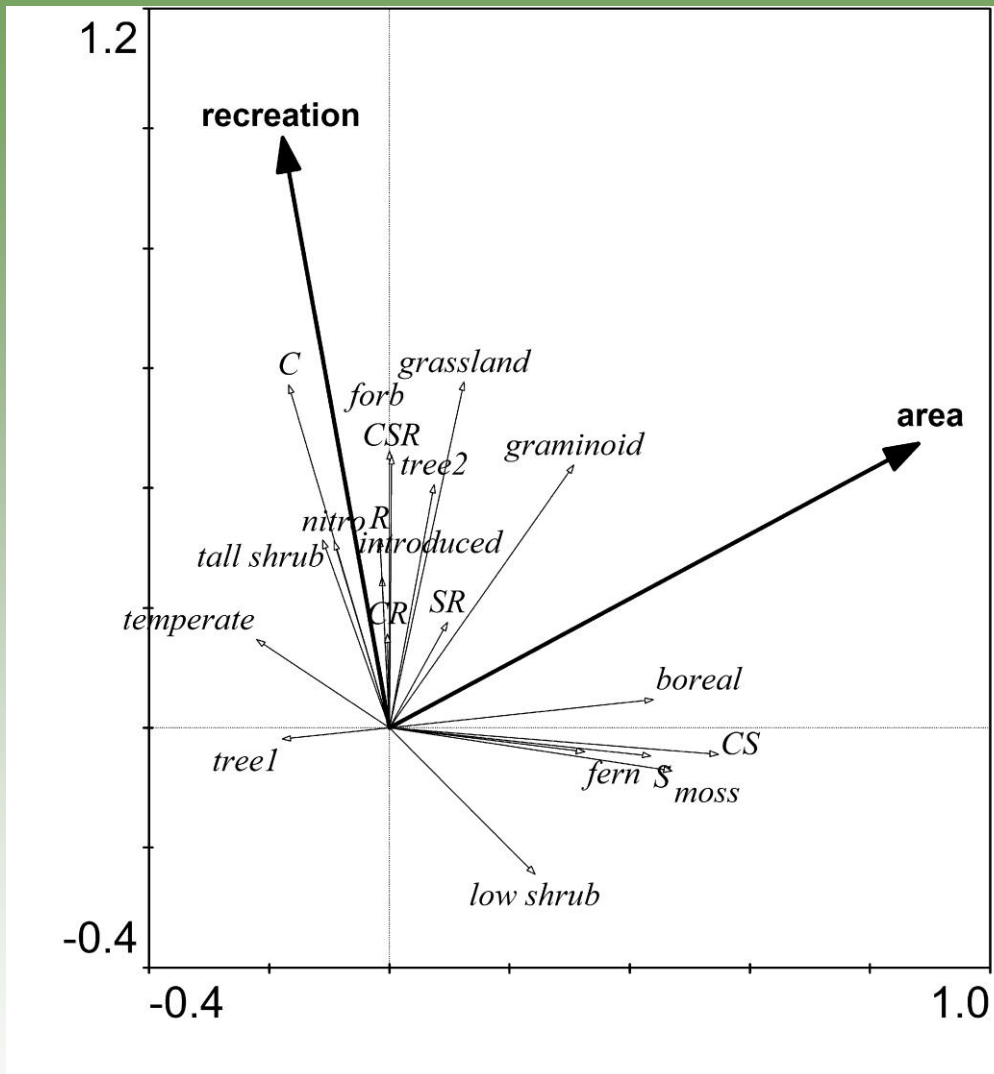
Traditional vegetational analysis - NMS analysis showed a weak link between recreational pressure and vegetation

Not so important to describe vegetation by species latin names!

Describe vegetation by plant ecological attributes

Calculate total cover of plants by:

- life form;
- plant strategy;
- trophic group;
- typical habitat where found.



RDA ordination of plots described by plant attributes constrained on environmental variables (recreation load and forest tract area).





[http://www.rigasmezi.lv/lv/atputas\\_iespejas/piejuras\\_dabas\\_parks/Piejuras-dabas-parks/](http://www.rigasmezi.lv/lv/atputas_iespejas/piejuras_dabas_parks/Piejuras-dabas-parks/)

## Conclusions

1 - The biggest potential recreation load is characteristic mainly in isolated and small forest tracts that are located closer to the city centre and subcentres.

2 - The lowest diversity of species was found in the most affected forest tracts.

3 - More boreal and moss species were found in large forests. These need management for ecological values. Greater recreational pressure was associated with more grassland, nitrophilous, tall-shrub, and temperate zone species. Conversion to oak might be warranted in those stands.



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