Lansing woods

S-114.4202 Special Course in Computational Engineering II

Ville Väänänen

Aalto University School of Science

February 9, 2012

Outline

Data

Intensity

Intra-species Interaction

Inter-species Interaction

Summary

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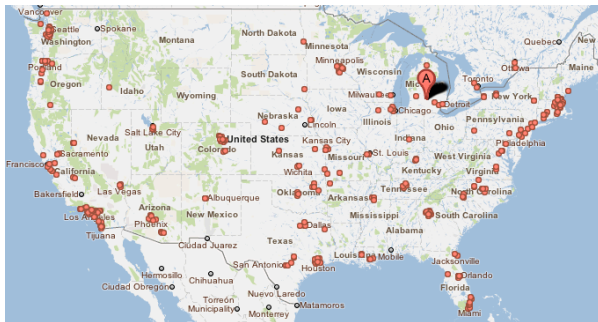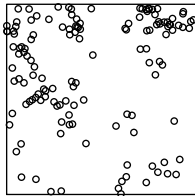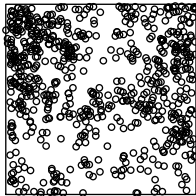**2/11**
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Data

- Forest ecology data

- Spatial locations $\in 282 \times 282$m

- Botanical classification
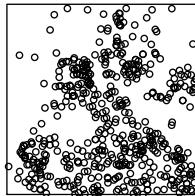
- Lansing Woods, Clinton County, Michigan, USA, 1969

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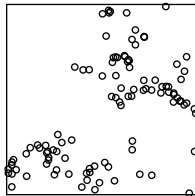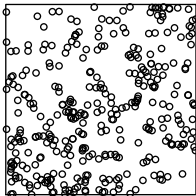
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blackoak   **hickory**   **maple**
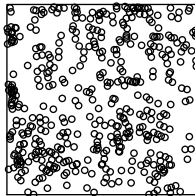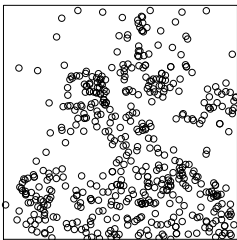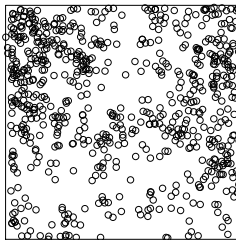
misc   **redoak**   **whiteoak**

Preprocessing

- Drop "misc"
- Combine oaks
- Result:
  - oak, 929
  - hickory, 703
  - maple, 514

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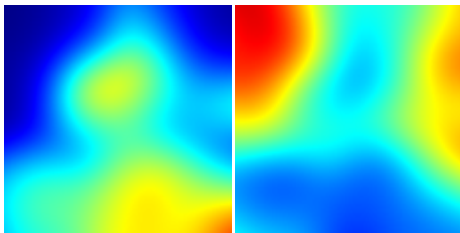February 9, 2012
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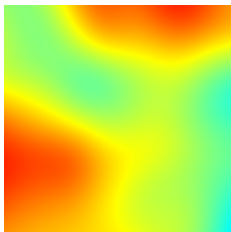**(a)** Maples   **(b)** Hickories
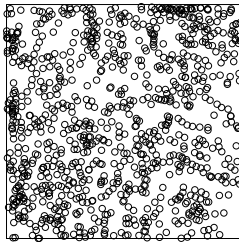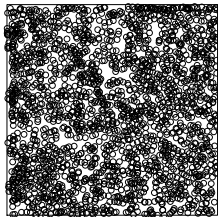
(c) Oaks

Intensity

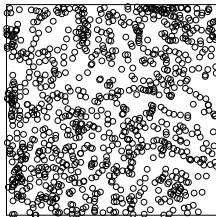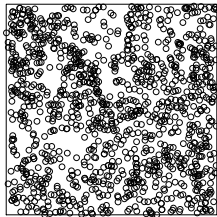(d) Maples   (e) Hickories

(f) Oaks

Figure: Gaussian Kernel smoothed intensity estimates
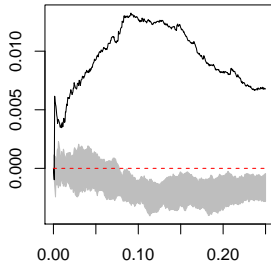
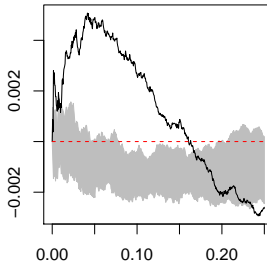**(a)** All trees

(b) Oaks

(c) Hickories & Maples

Figure: Point patterns with different combinations of the marks in the dataset.

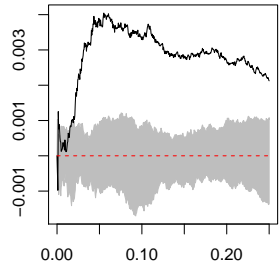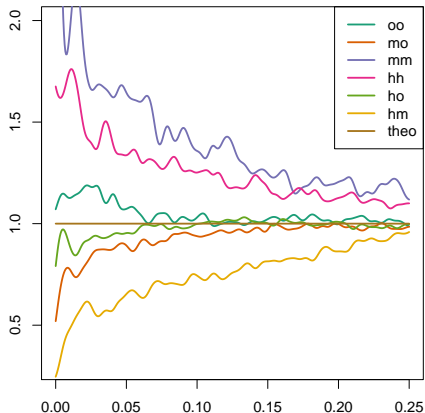# Intra-species interaction

(a) Maples   (b) Hickories   (c) Oaks

Figure: Besag's L-function for the different species

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Inter-species interaction

(a) Mark-connection function   **(b)** PPCF

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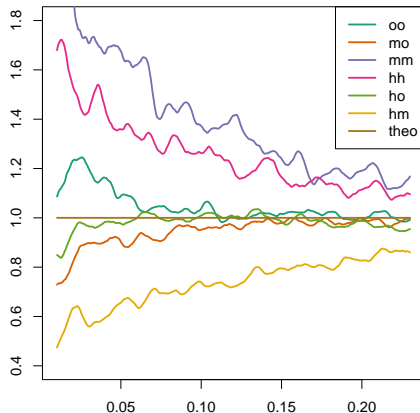
Summary

- Strong segregation between maples and hickories
- Some intra-species clustering
- Discarding the marks, homogenous intensity

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