Conclusion

On all tested lichens species, the most important factor overall was oak density predicted at almost all the considered scales (28-1225m). This work highlighted the importance of spatial scales, and land use and environmental factors that affect the occurrence and richness patterns of epiphytic lichens.

C. Phaeocephala

C. corrugatum

R. baltica

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Spatial pattern of occurrence of eleven epiphytic lichen species in a heterogeneous landscape

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Introduction:. Large growth oaks associated lichens are now being widely distributed at different spatial scales, and several factors affected at their spatial patterns.

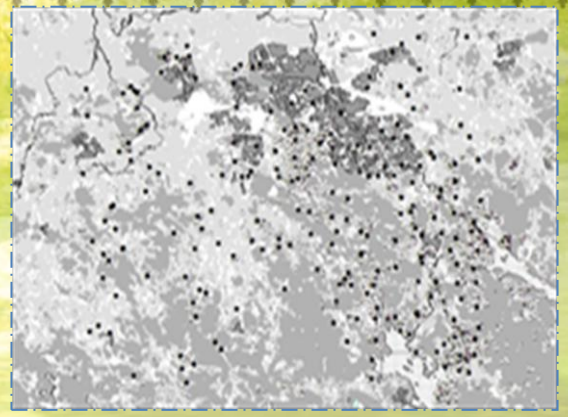
Aim: Investigate eleven epiphytic lichens preferring large old-oaks in a heterogeneous landscape, and to identify the spatial scales, in the range of 30m to 1200m, that different environmental and landscape factors affect species occurrence on.

Method:.

✓The study was conducted in Östergötland, described a 20 km * 20 km square, further divided into 400 grid squares, each grid square was 1 km^2.

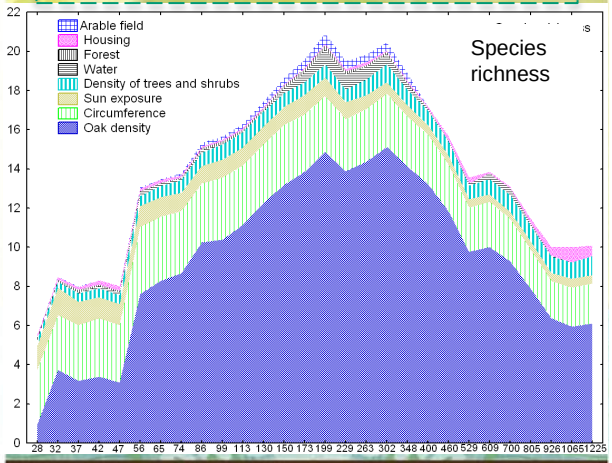
✓5 land use types (consisted of oak density, forest, water, housing and arable lands) were measured, and 3 tree variables (Sun exposure, Circumference in between 3.1-4.1m, trees and shrubs near oaks) were estimated on 213 oaks.

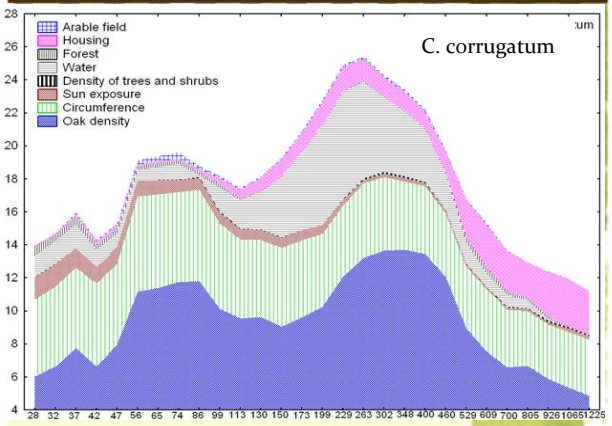
Figure: Spatial distribution of oaks



Data analysis: Three most frequent lichens and richness of species on oaks were analyzed, and 28 models (with tree and land use variables) were run, and best explained model was selected according to the Akaike Information Criterion (AIC) values.

Effects of tree and land use variables on the species richness at spatial scale (28-1225m).





Discussion: Land use and tree variables affected occurrence of different lichen species and richness differently and at different scales. Oak density was the single most important factor. Occurrence of *C. corrugatum* was best explained by the oak density at 400m, and *C. phaeocephala* best explained at 302m. However, *R. baltica* was best explained by oak density at smaller scale 263m. While, species richness was best explained by the oak density at 302m. Circumference was also affected positively on richness and the occurrence of individual lichens.