

Introduction

The tropical rainforest contains the world's highest biodiversity and complexity. The mechanisms under the ability of maintaining such species rich area is still poorly understood.

Natural tree-fall gaps are important disturbances that create specific habitats, completely different from the understory. Fruit-feeding neotropical Nymphalids are useful bio-indicators, most known, most common, easily catchable.



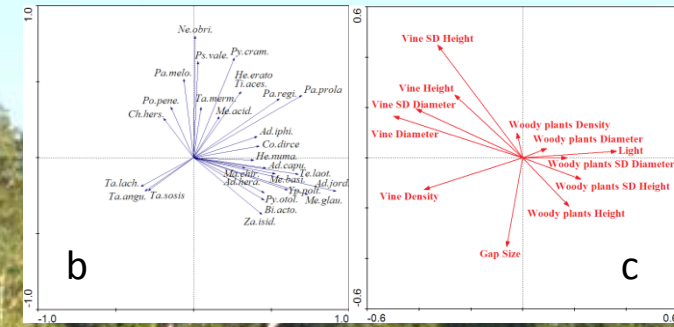
Results & Discussion

1531 individuals (47% in G)
82 species (71 in G, 50 in U)
4.3% recaptures 2.7% unidentified

PCA: Species distribution based on environmental components, identified according to the direction & length of the arrows

(a) Distribution explained partly by habitat (G/U) & light (PC1=17.5%, PC2=10.7%)
Species richer in lighted G

The dissimilarity between traps increases significantly with the augmentation of the gap size ($p=0.057$)



Figures b-c: PCA of Nymphalid assemblages (b) & environmental variables (c) among 15 gaps in Manu, Peru. The 90% of the species that contribute the most to the model are shown

(b-c) PCA among gaps: Influence of the size, vegetation & amount of light on the Nymphalid distribution (PC1=22.0%, PC2=11.3%)
Species richer in small open lighted gaps
Importance of vegetation structure:
Woody plants/Vines, Density, Height

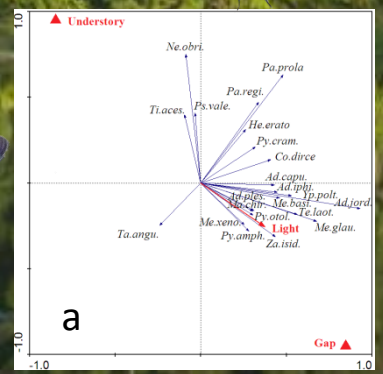



Figure a: Principal Component Analysis (PCA) of Nymphalid assemblages & environmental variables between G/U in Manu, Peru. The 90% of the species that contribute the most to the model are shown. The first principal component (PC1: x axis) accounts for as much of the variability in the Nymphalids distribution as possible, and each succeeding component (PC2: y axis,...) accounts for as much of the remaining variability as possible. The environmental variables (red) are the possible explanatory variables for the distribution of the species (blue)

Hypothesis

Different Nymphalid assemblages between

- Gap/Understory (G/U)
- Gaps (size gradient)

Conclusion
Species are habitat specialized
Gaps contain the highest biodiversity compared to understory
Variation in disturbances matters
Importance of **heterogeneity**
Other parameters



Material & Methods

Tropical rainforest, Cocha Cashu biological station, Manu National Park, Southeastern Peru

10km² study site, in lowland amazon bassin
15 Gaps (G) from 100 to 1000m² & 15 randomly taken paired Understory (U) (30 sites)


50m between G & U, 100m between sites

Neotropical fruit-feeding Nymphalids

60 butterfly traps baited with rotten banana, emptied daily during 13 weeks

Mark-recaptured study

Environmental variables measurements: light level, gap size, vegetation density, type, height, diameter



References

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Contact

Sylvia Pardonnet suzenko@gmail.com
+46 765 828 727

Visit the homepage

http://cms.ifm.liu.se/edu/biology/master_projects/2010/student-presentation-of-t/sylvia-pardonnet



Effect of Tree-Fall Gaps on Fruit-Feeding Nymphalidae Assemblages in a Peruvian Rainforest

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Sylvia Pardonnet

Supervisors:
Karl-Olof Bergman,
Per Milberg & Harald Beck

