



## Introduction

- This study was carried out in Endau-Rompin Estate, Pahang, Malaysia to identify the spatio-temporal pattern of ants in a perfectly gridded oil palm plantation landscape.
- In ecological research, spatial analysis is critical in order to study and understand in detail the ecological processes
- Spatio-temporal analysis of ants in oil palm also would give the pictures of ants' distribution and movement in order to control the herbivores population.



Figure 1 The exact location of Endau Rompin Estate is 2° 36'N, 103° 34'E

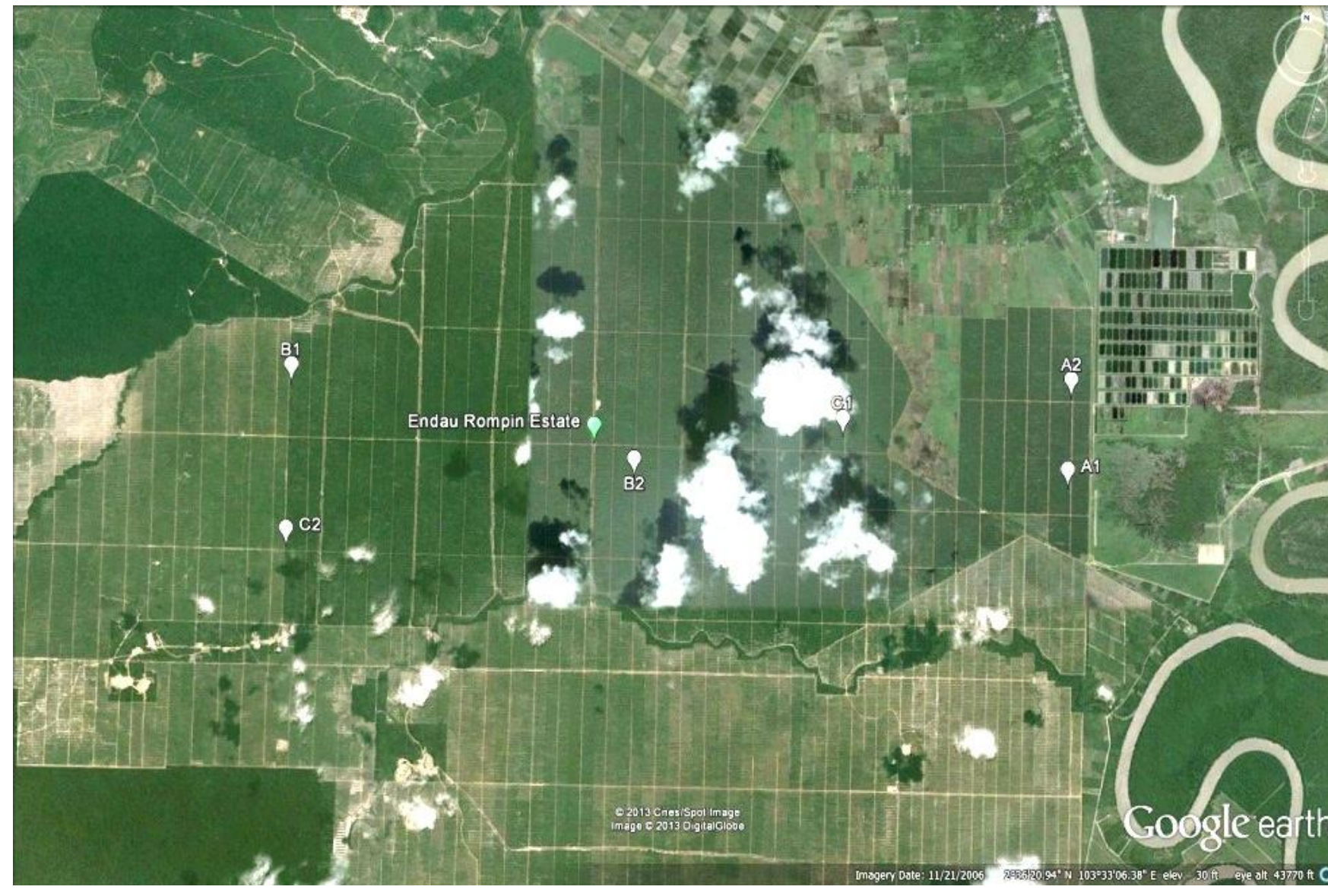


Figure 2 Endau-Rompin Estate is perfectly gridded by north-south and east-west

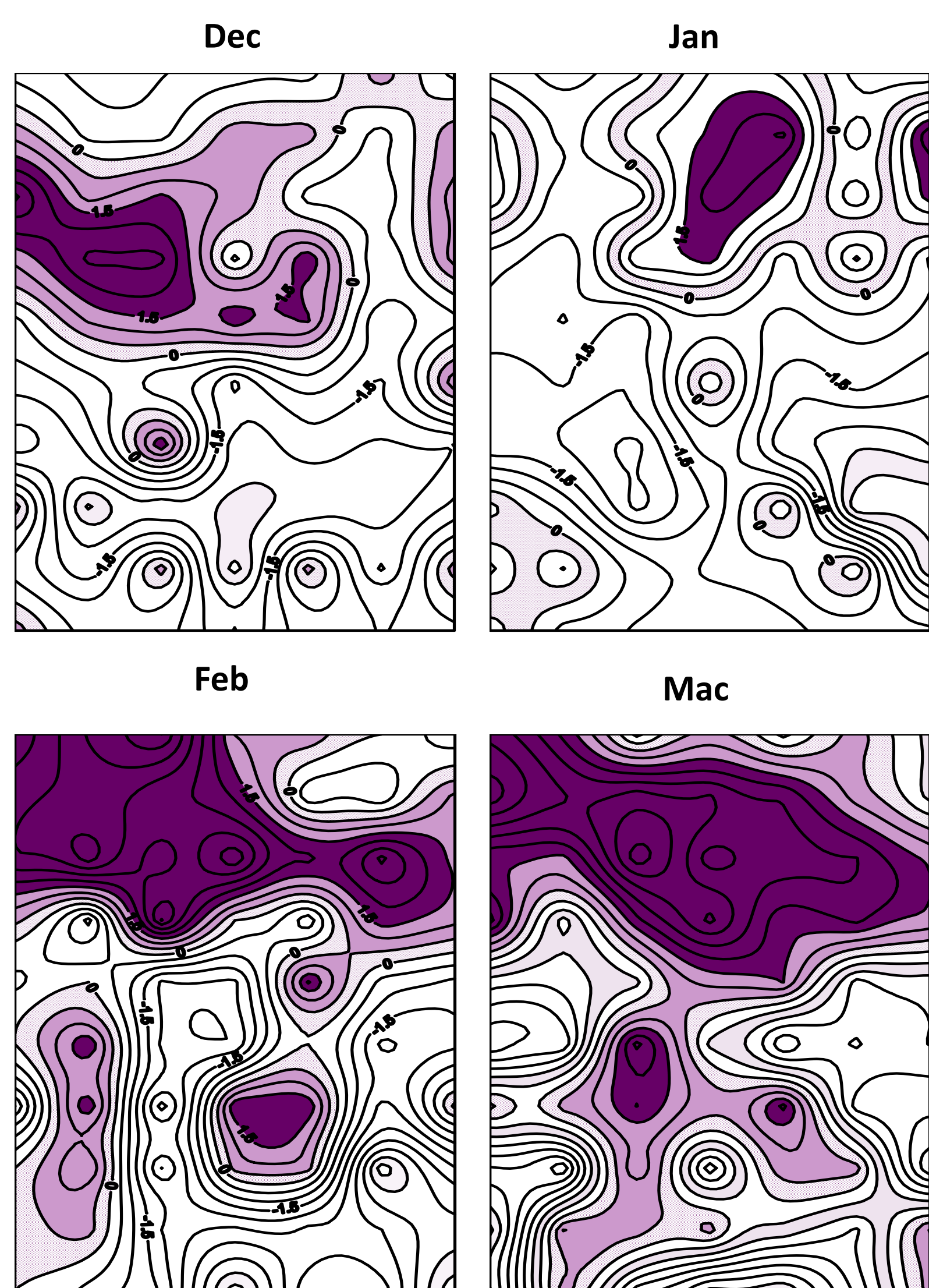
## Ants Collection and Mapping

- Pit fall sampling was carried out from Dec 2011-Mar 2012
- spatial analysis by distance indices (SADIE) was performed to identify the overall ( $I_a$ ) and local clustering pattern into patches ( $V_i$ ) and gaps ( $V_j$ ).
- Clustering pattern are significant when  $I_a > 1.5$  for the overall pattern.
- Surfer was used to krigged indices of aggregation to generate representative contour of local clusters and SURFER was used to generated map to visualize the ants spatio-temporal patterning.
- We used different clustered colour to differentiate subfamilies



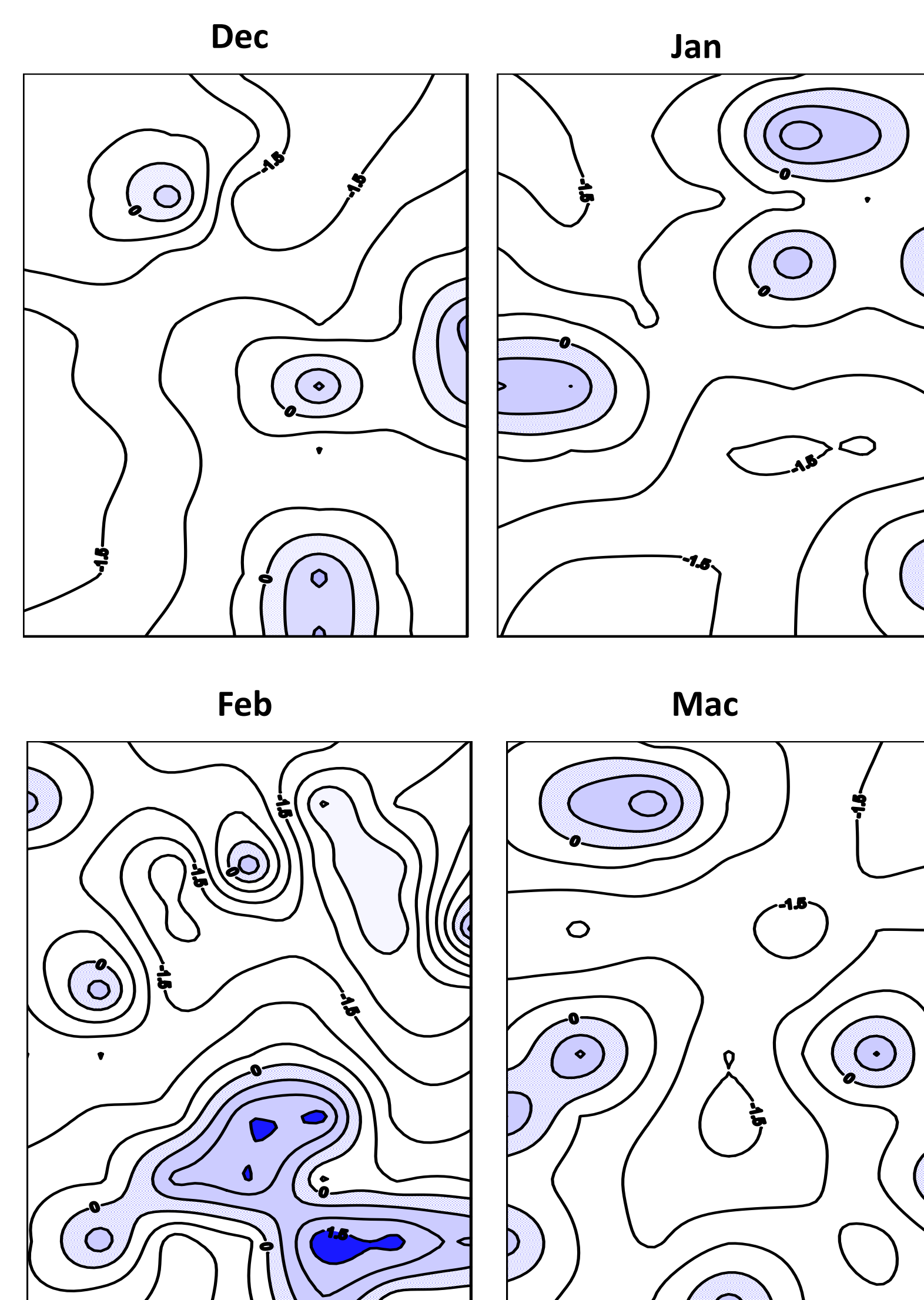
Figure 3 Pitfall traps were positioned at 10 x 7 grid within a plantation block at 30 m x 10 m spacing.

## Spatio-temporal Pattern Of Ants



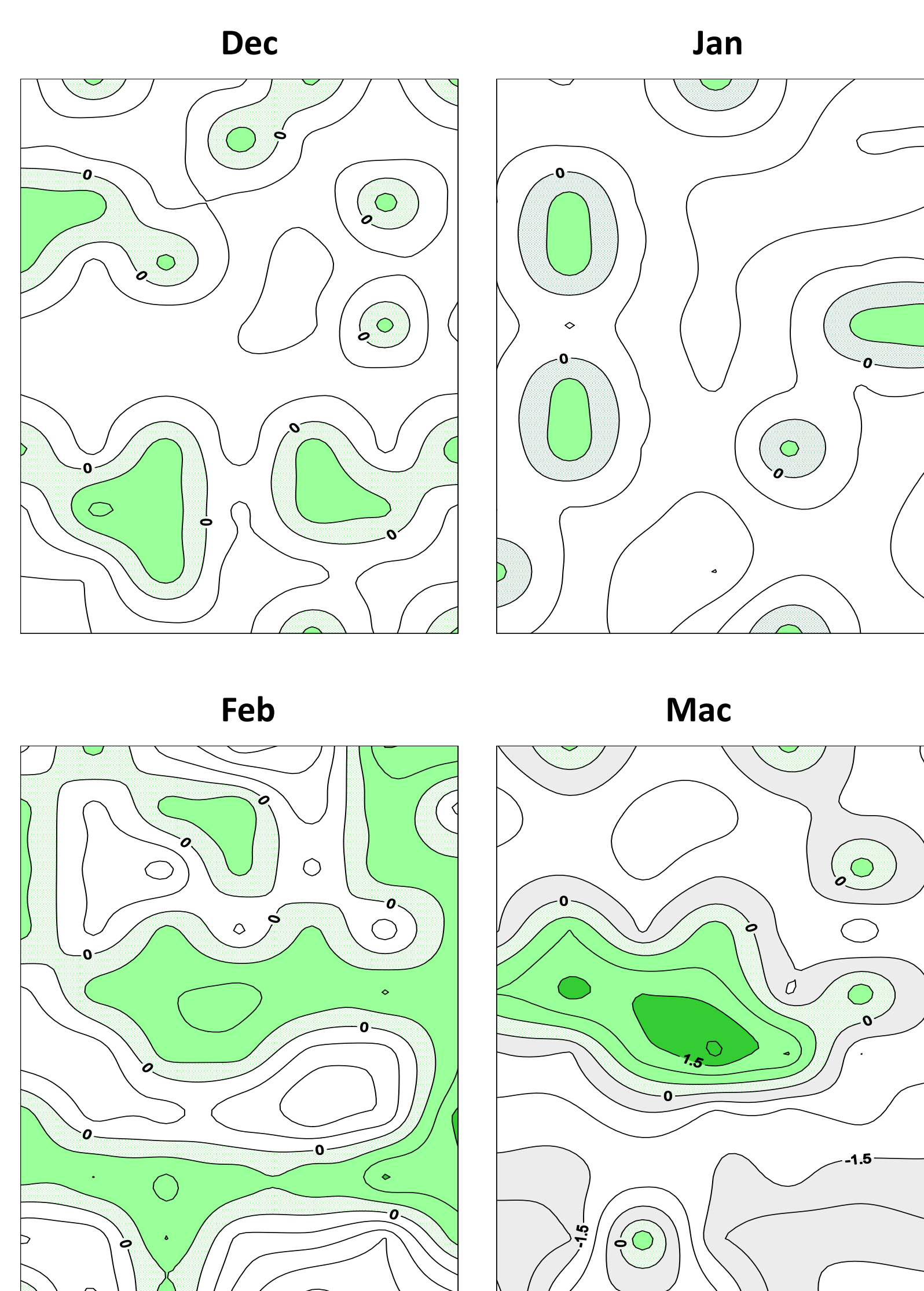
### Formicinae

- Formicinae showed clustered pattern in distribution in all sampling months with average aggregation indices  $I_a = 1.759$



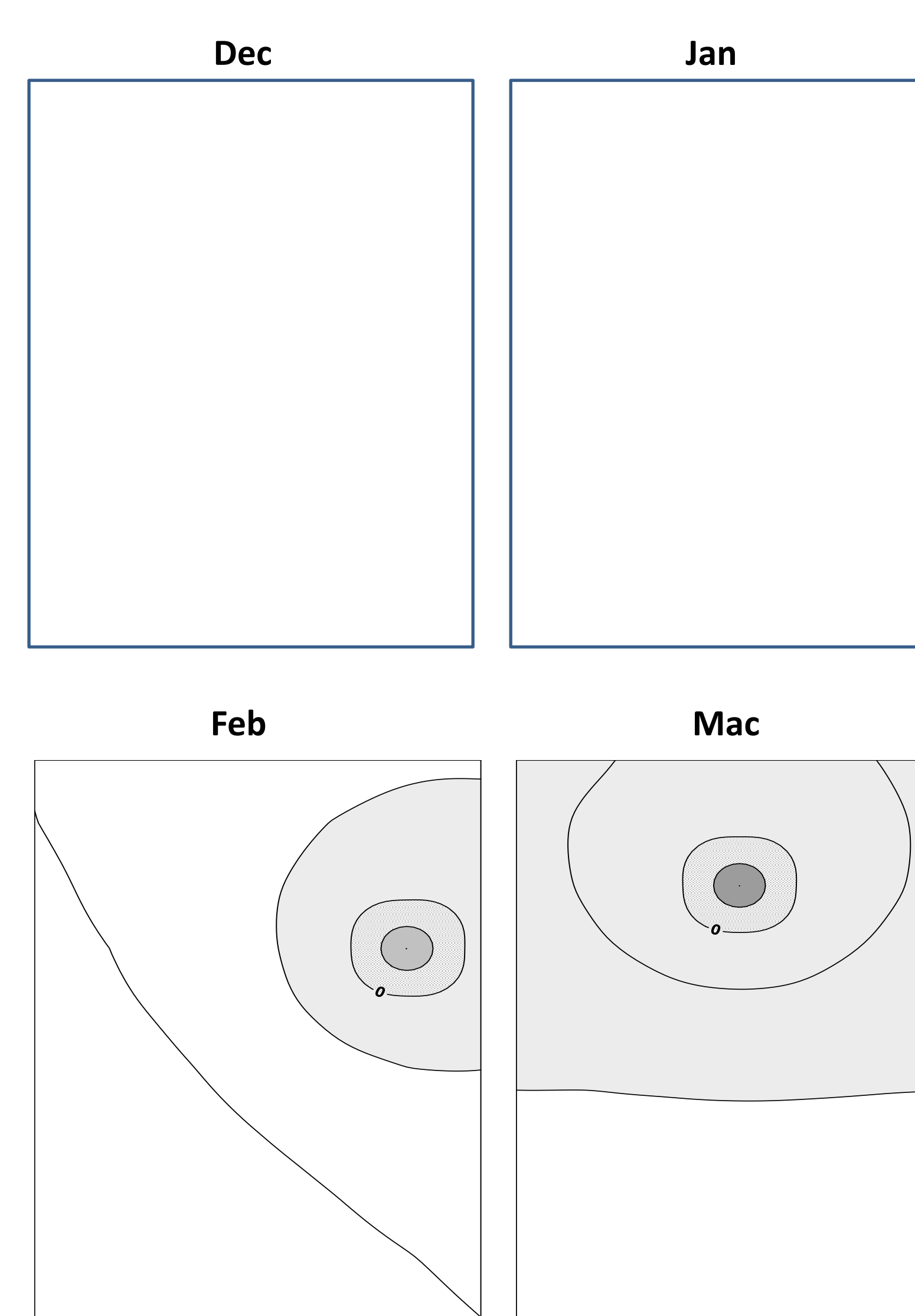
### Ponerinae

- No significant cluster pattern showed.
- Ponerinae showed random pattern of distribution.
- Average aggregation indices  $I_a = 1.046$



### Myrmicinae

- Myrmicinae showed random distribution pattern.
- Average aggregation indices  $I_a = 0.943$



### Ecitoninae

- In Dec and Jan, no individual of Ecitoninae found.
- Ecitoninae showed random distribution pattern in Feb ( $I_a = 0.882$ ) and Mac ( $I_a = 0.865$ )

## Conclusion

In general, Formicinae showed clustered pattern of distribution ( $I_a > 1.5$ ) meanwhile Ponerinae, Myrmicinae and Aenictinae showed random distribution pattern ( $I_a \leq 1.5$ ). In addition, perfectly gridded landscape might also contribute in shaping the overall pattern.

## Acknowledgement

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