Monitoring blueberry gall midge (*Dasineura oxycoccana* Johnson) and mapping the distribution of the midge and its parasitoids in rabbiteye blueberries

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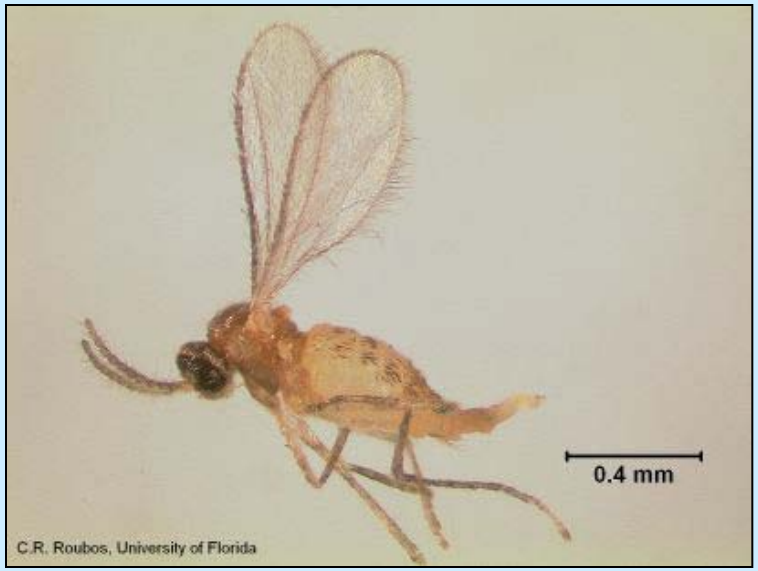
Blueberry gall midge

- *Dasineura oxycoccana* Johnson
- Pupae overwinter in soil
- Adult females lay eggs in developing buds
- Up to 80% yield loss



Injury


C.R. Roubos, University of Florida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Monitoring

- Bucket emergence trap
  - Roubos 2009
- Clear panel trap
  - Cook et al. 2011

Control

- Few insecticides
- Parasitoids
  - Most common genera:
    - *Platygaster* (flower buds)
    - *Aprostocetus* (leaf buds)
  - Other genera:
    - *Synopeas*
    - *Telenomus*

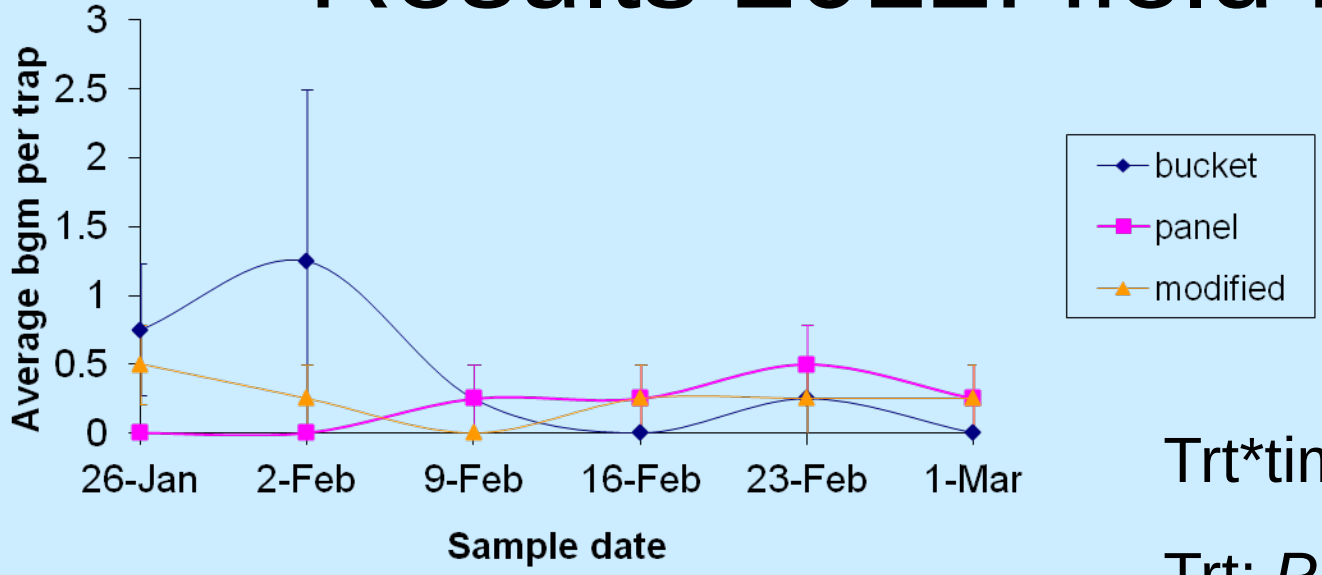
Objectives

- To compare the efficacy of bucket emergence traps and clear panel traps in midge monitoring
- To examine the distribution of midge and its parasitoids in a rabbiteye planting using SADIE analysis

Methods: trap comparison

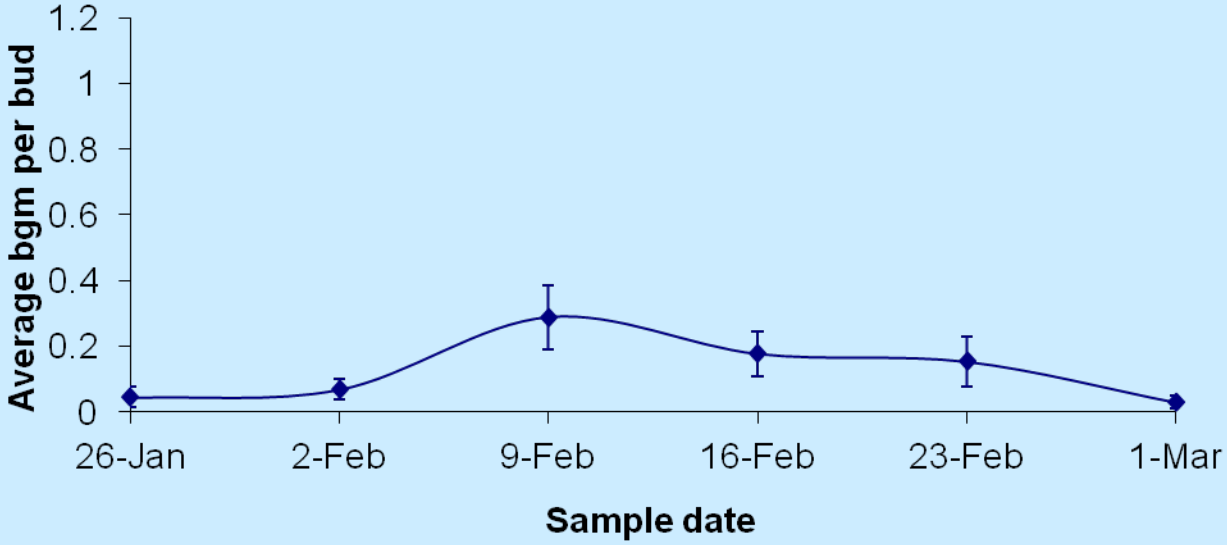
- 3 experimental plots (2 in 2012, 1 in 2013)
- 4 replicates of 3 treatments in RCBD
  - Bucket emergence trap
  - Clear panel trap
  - Modified clear panel trap
- Traps checked weekly
- Buds collected weekly to monitor larval population

Results 2012: field 1

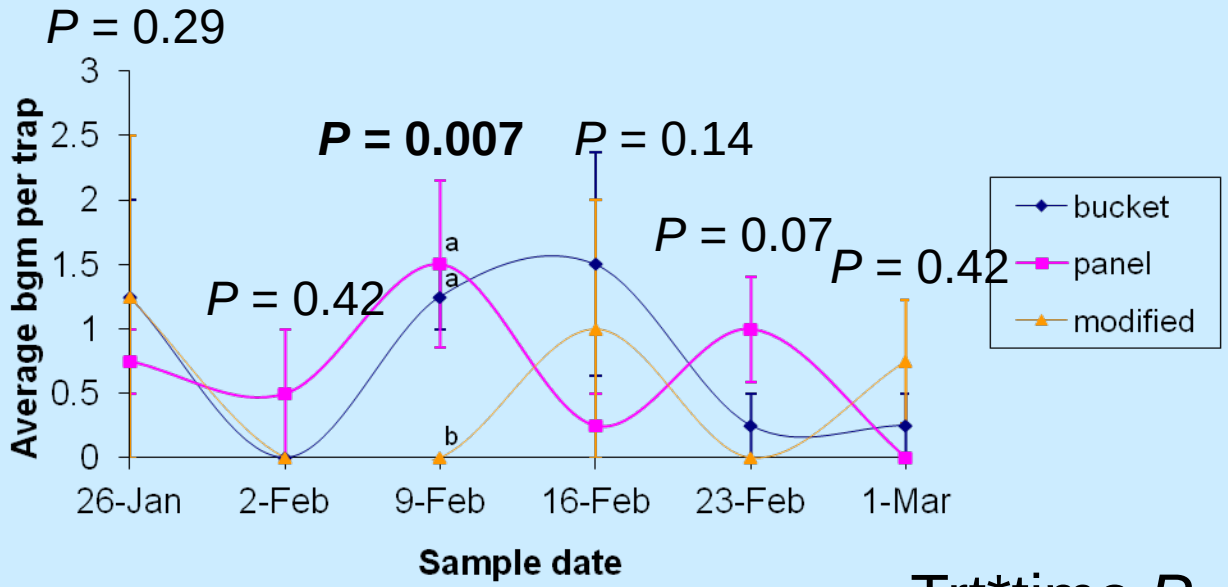


Trt*time *P* = 0.63

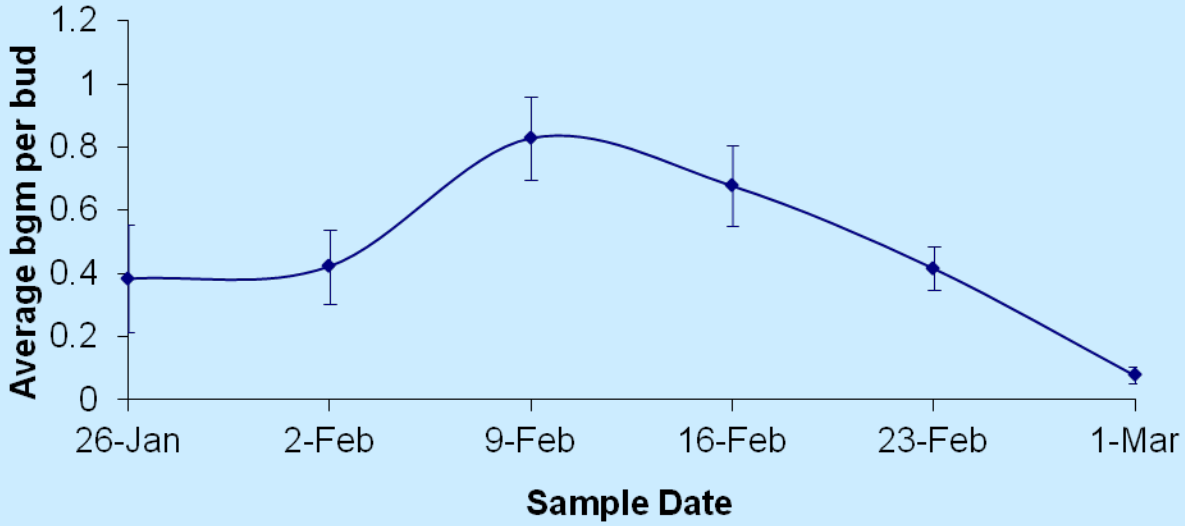
Trt: *P* = 0.62



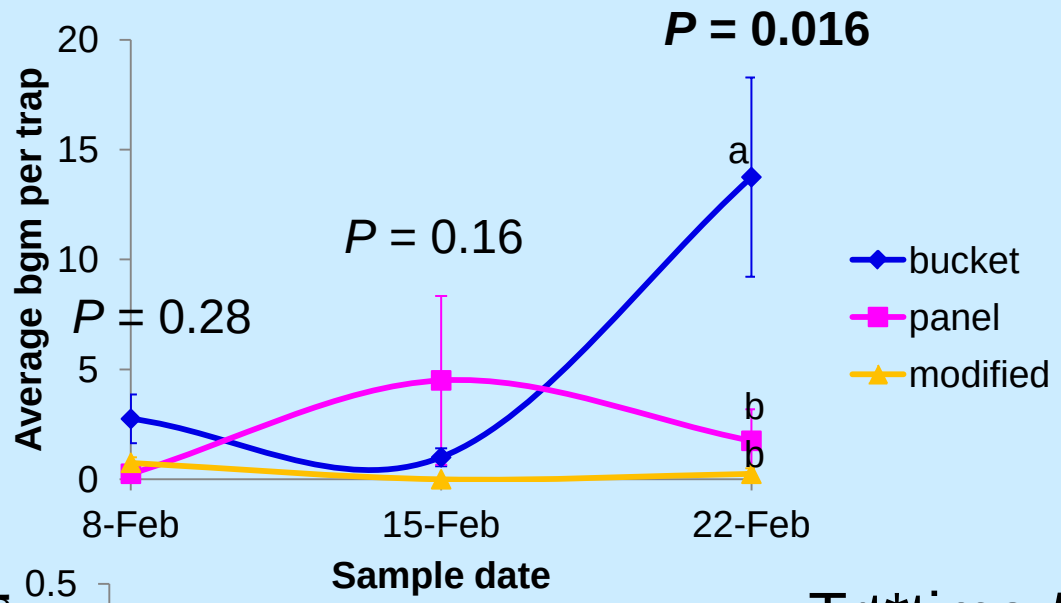
Results 2012: field 2

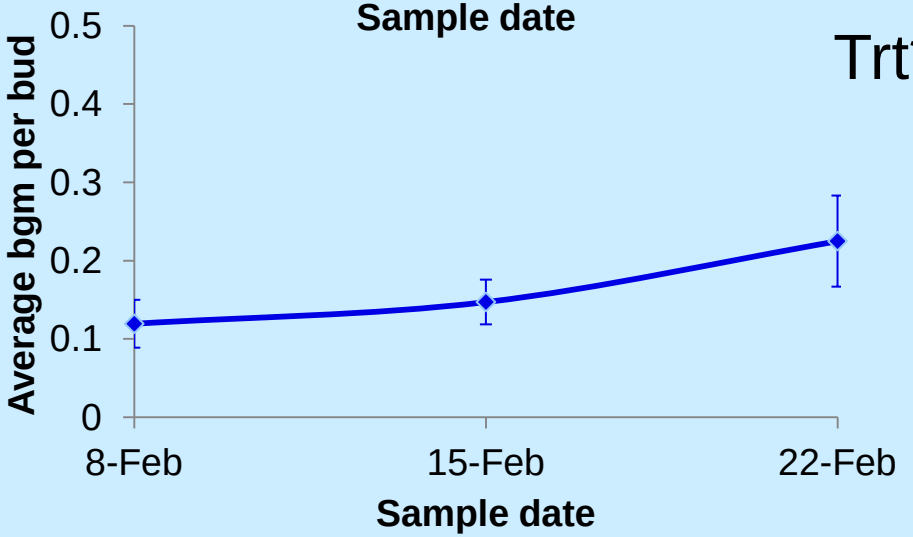


Trt*time *P* = 0.02



Results 2013





Trt*time *P* = 0.009

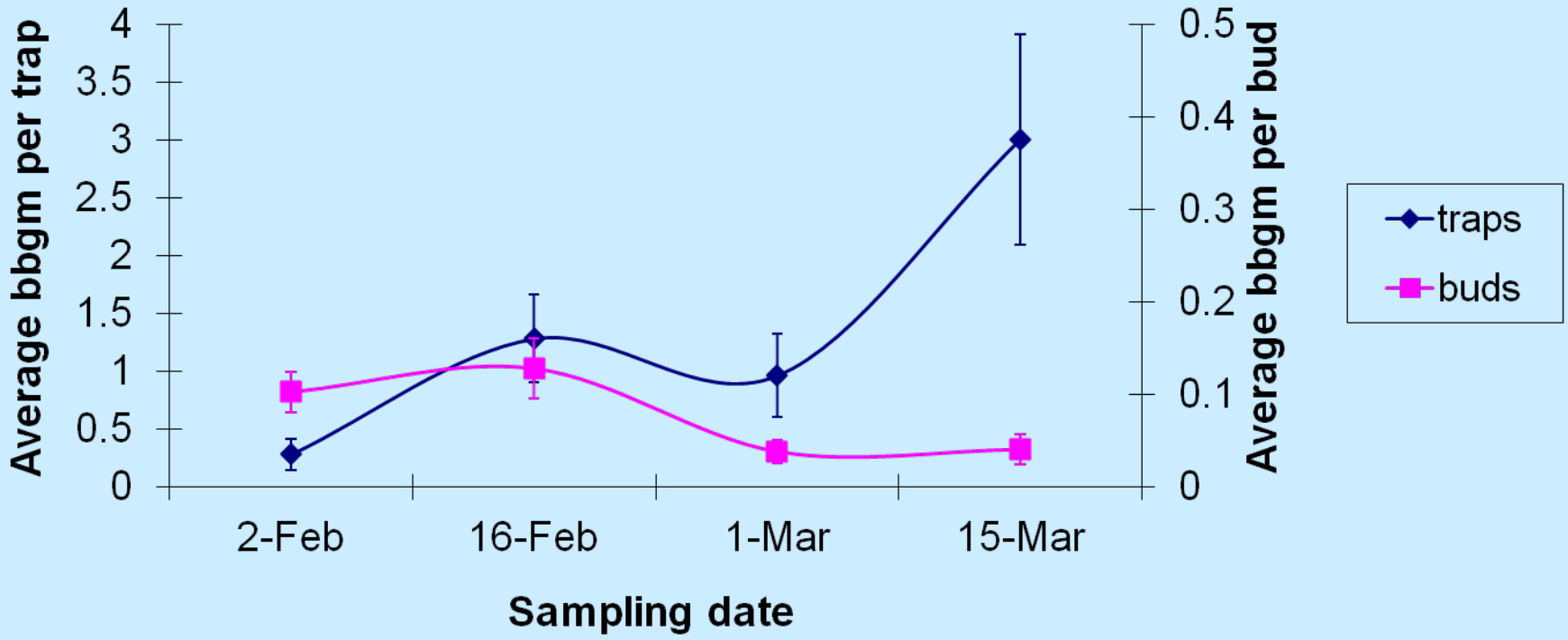
Summary

- When midge numbers were low, only the bucket trap was effective
- At moderate numbers both bucket and panel traps were effective
- Modified panel was ineffective

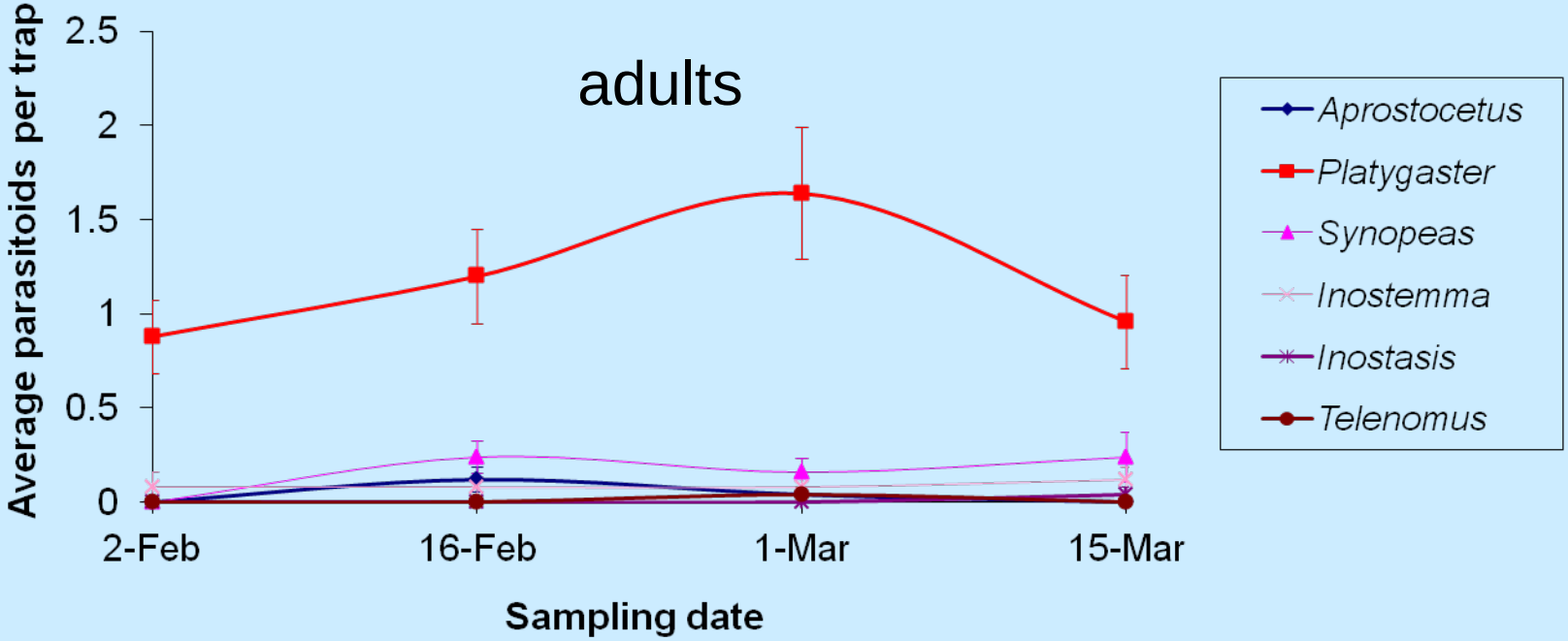
Methods: distribution

- 5 x 5 grid of 25 sampling locations
- 2012: Sampled every other wk for 8 wks
- 2013: Sampled every wk for 3 wks
  - Adult midges: petri dish traps
  - Adult parasitoids: yellow sticky cards
  - Larvae: bud samples
- SADIE analysis

Results 2012: Midge



Results 2012: Parasitoids



larvae (total)

Date	***Aprostocetus***	***Platygaster***	***Synopeas***
2/2/2012	6	4	2
2/16/2012	5	1	0
3/1/2012	0	0	0
3/15/2012	0	0	0

Results 2012: SADIE

Midge

larvae

date	Ia	P
2-Feb	1.38	0.0323
16-Feb	1.044	0.341
1-Mar	0.783	0.9353
15-Mar	0.994	0.4443

adults

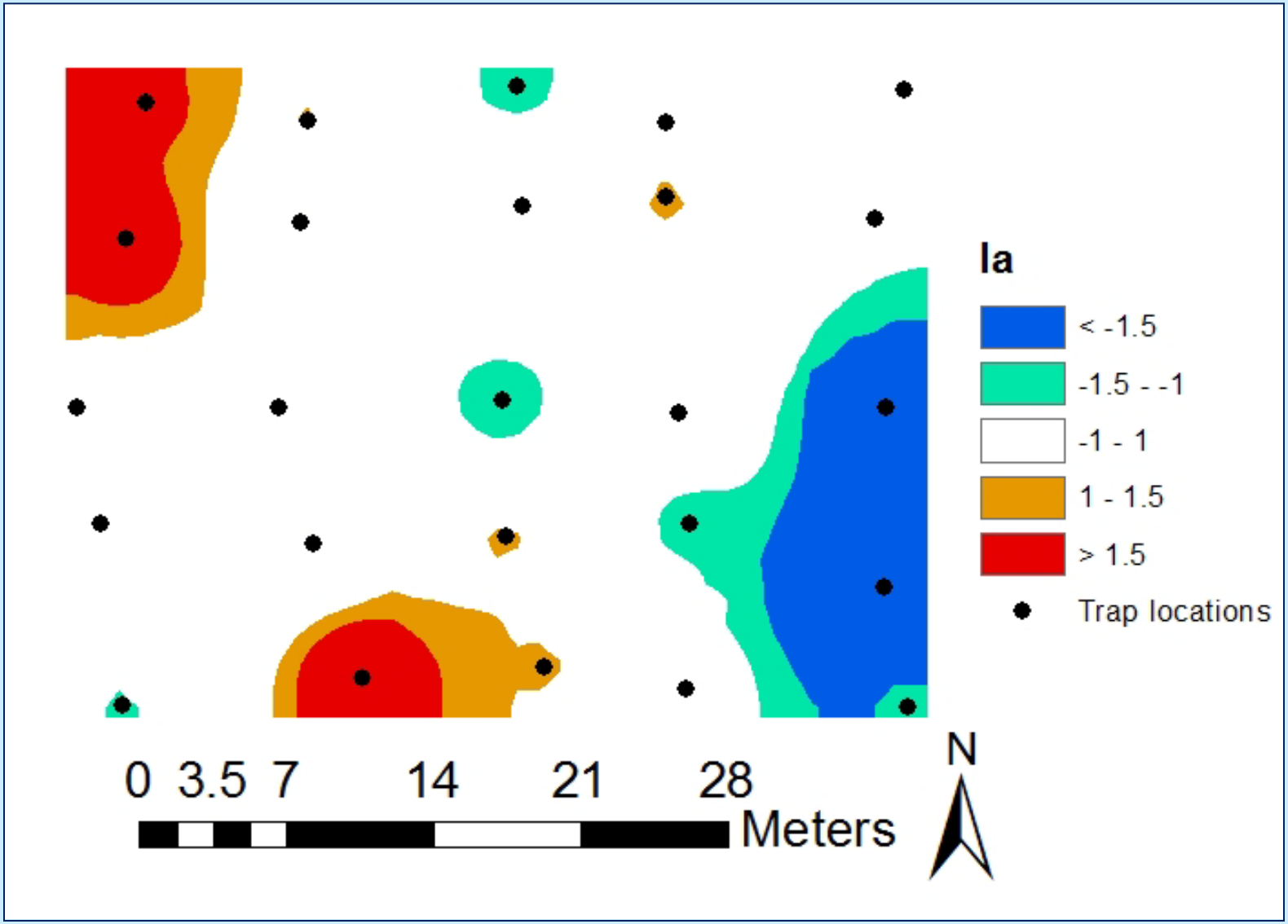
date	Ia	P
2-Feb	1.149	0.1709
16-Feb	0.884	0.7218
1-Mar	1.124	0.2026
15-Mar	0.776	0.9558

Ia = index of aggregation

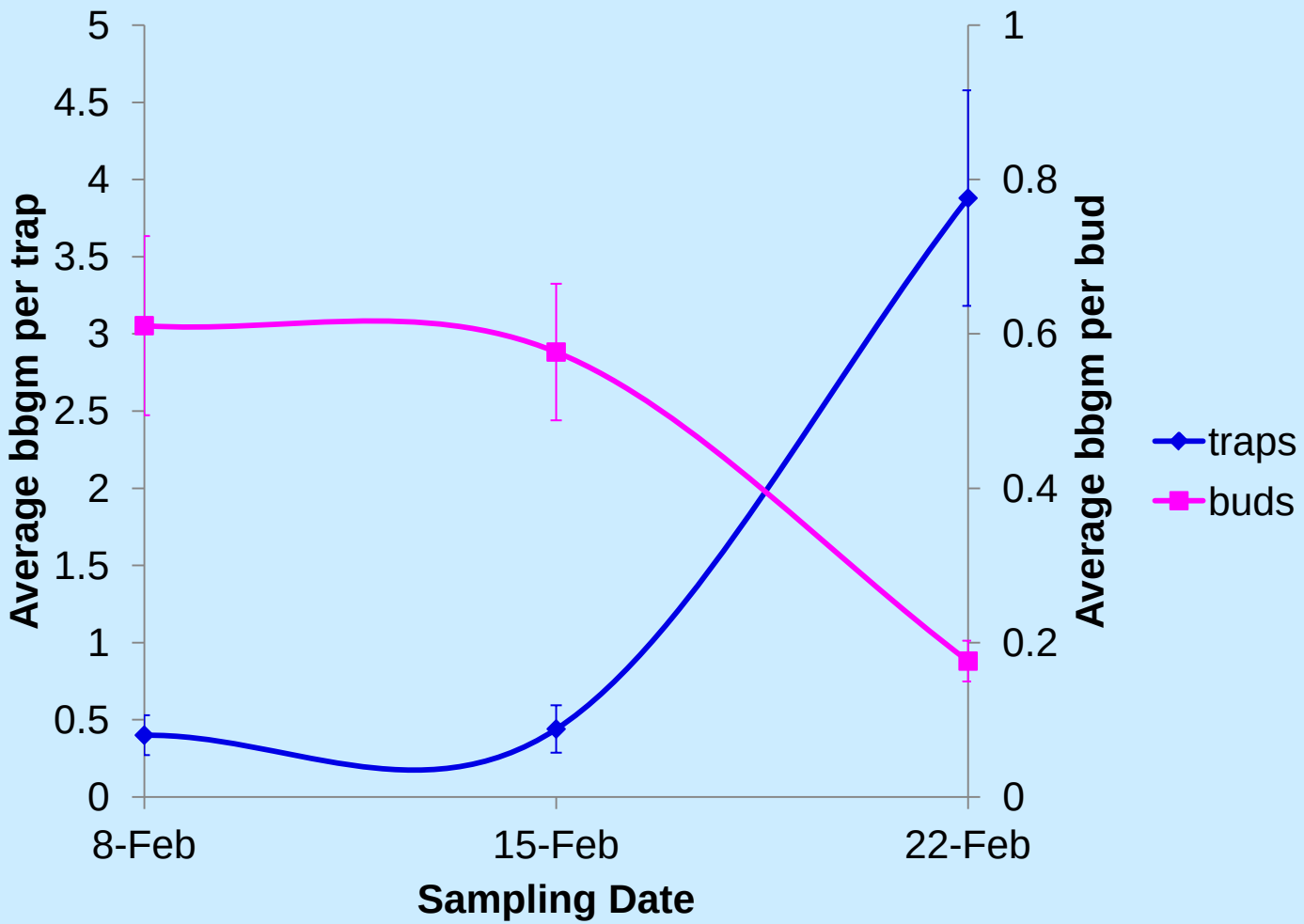
Platygaster adults

date	Ia	P
2-Feb	0.911	0.6358
16-Feb	0.87	0.7471
1-Mar	1.247	0.0917
15-Mar	1.037	0.3638

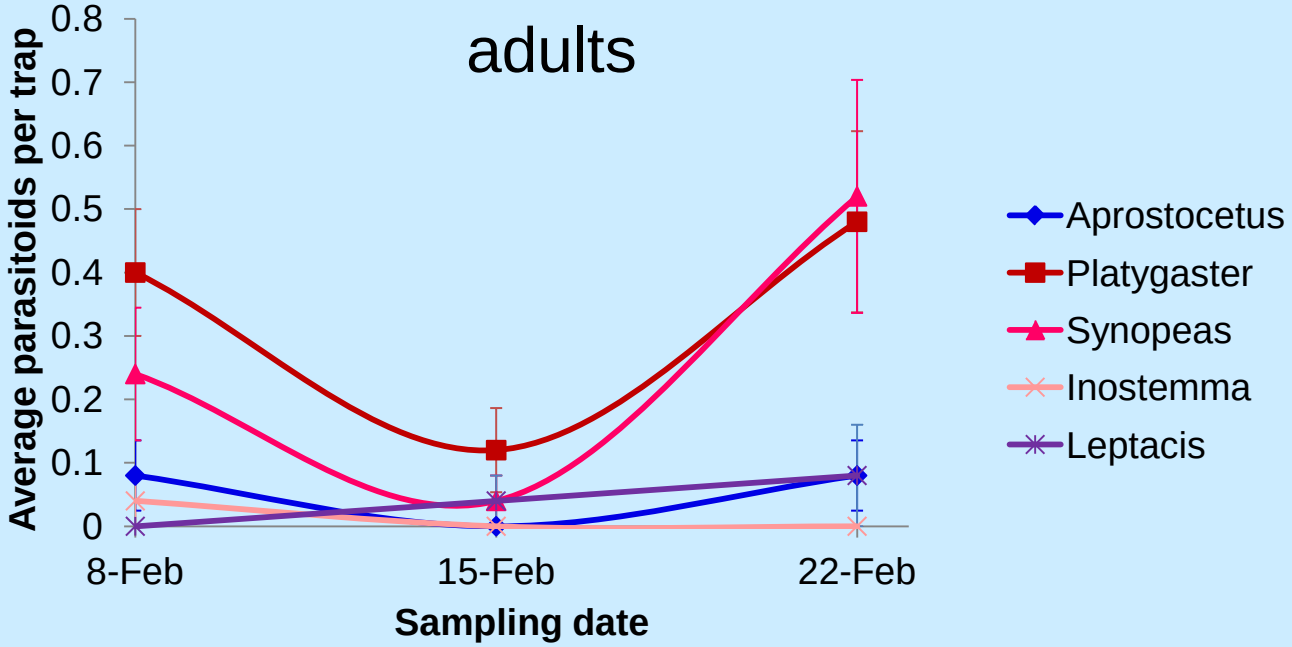
Ia for larvae per bud Feb. 2



Results 2013: Midge



Results 2013: Parasitoids



larvae (total)

Date	*Aprostocetus*	*Platygaster*	*Synopeas*
8-Feb	2	0	5
15-Feb	0	2	1
22-Feb	0	2	1

Results 2013: Midge SADIE

larvae

date	Ia	*P*
8-Feb	1.02	0.46
15-Feb	0.34	0.79
22-Feb	0.49	0.63

Ia = index of aggregation

adults

date	Ia	*P*
8-Feb	0.78	0.66
15-Feb	1.03	0.08
22-Feb	0.54	0.61

Results 2013: Parasitoid SADIE

Platygaster

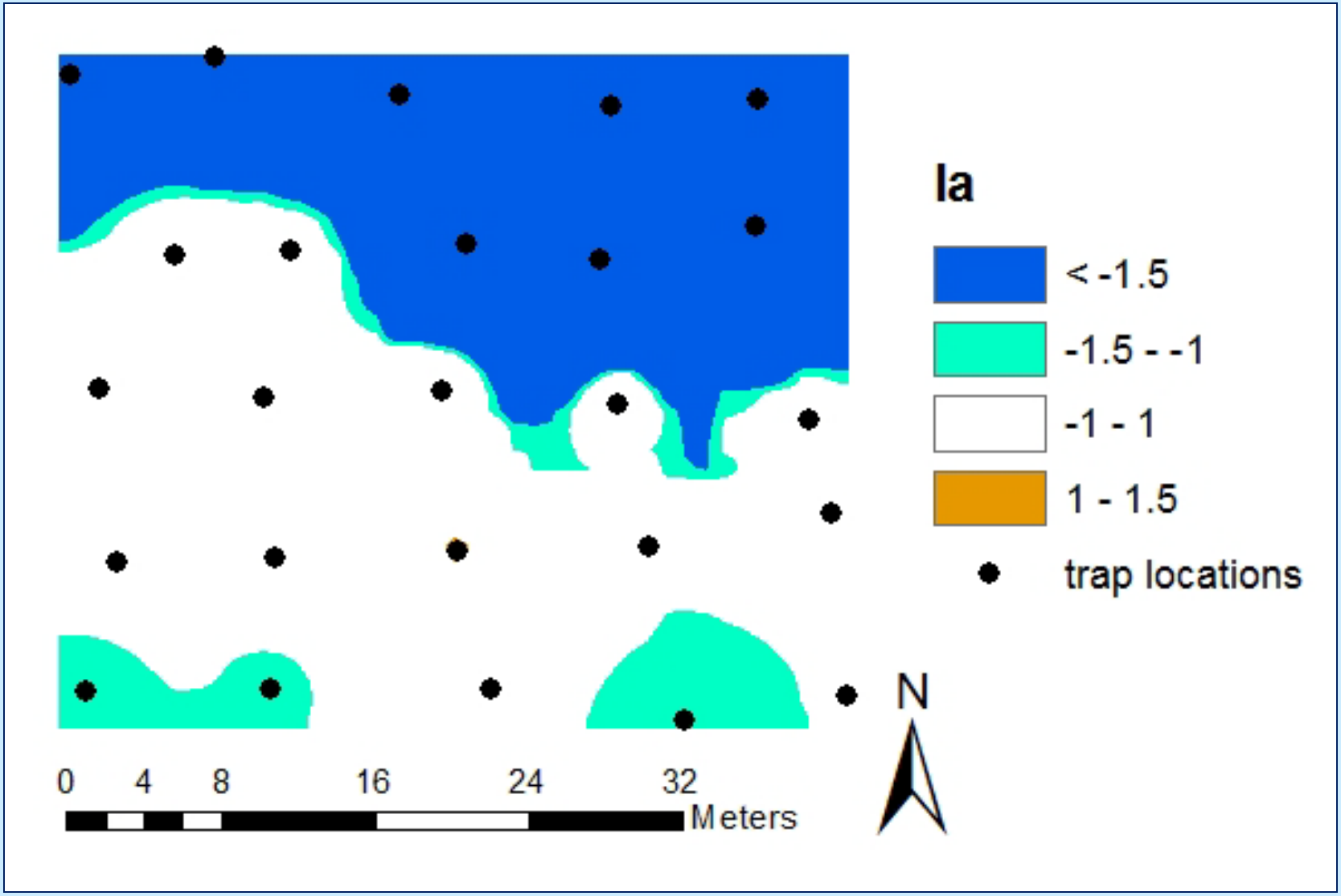
date	Ia	*P*
8-Feb	0.824	0.999
15-Feb	0.666	0.222
22-Feb	0.821	0.974

Ia = index of aggregation

Synopeas

date	Ia	*P*
8-Feb	4.07	0.022
15-Feb	0.61	0.8
22-Feb	0.81	0.54

Ia for *Synopeas* per trap Feb. 8



Summary

- Midge and parasitoid adults were randomly distributed
- Midge larvae were aggregated at first in 2012
- *Platygaster* (both years) and *Synopeas* (2013) were the most abundant parasitoid genera

Conclusions

- Panel trap as effective as bucket trap except at very low midge infestation levels
- Some gall midge and parasitoids come from within the field

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