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Micro-leps causing mega-trouble: The trials, tribulations, challenges of a new pest.

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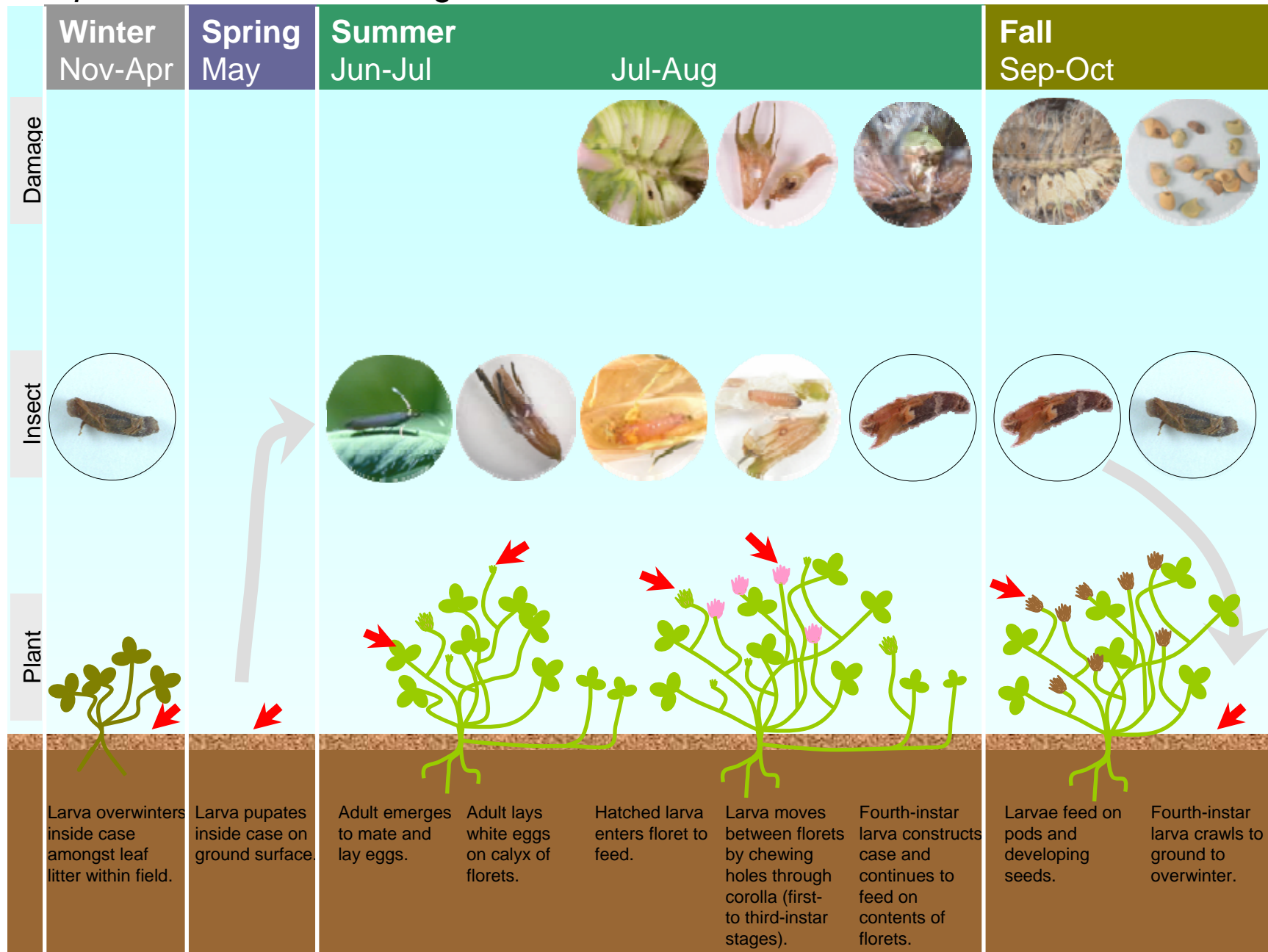
Canada

Red clover pest species

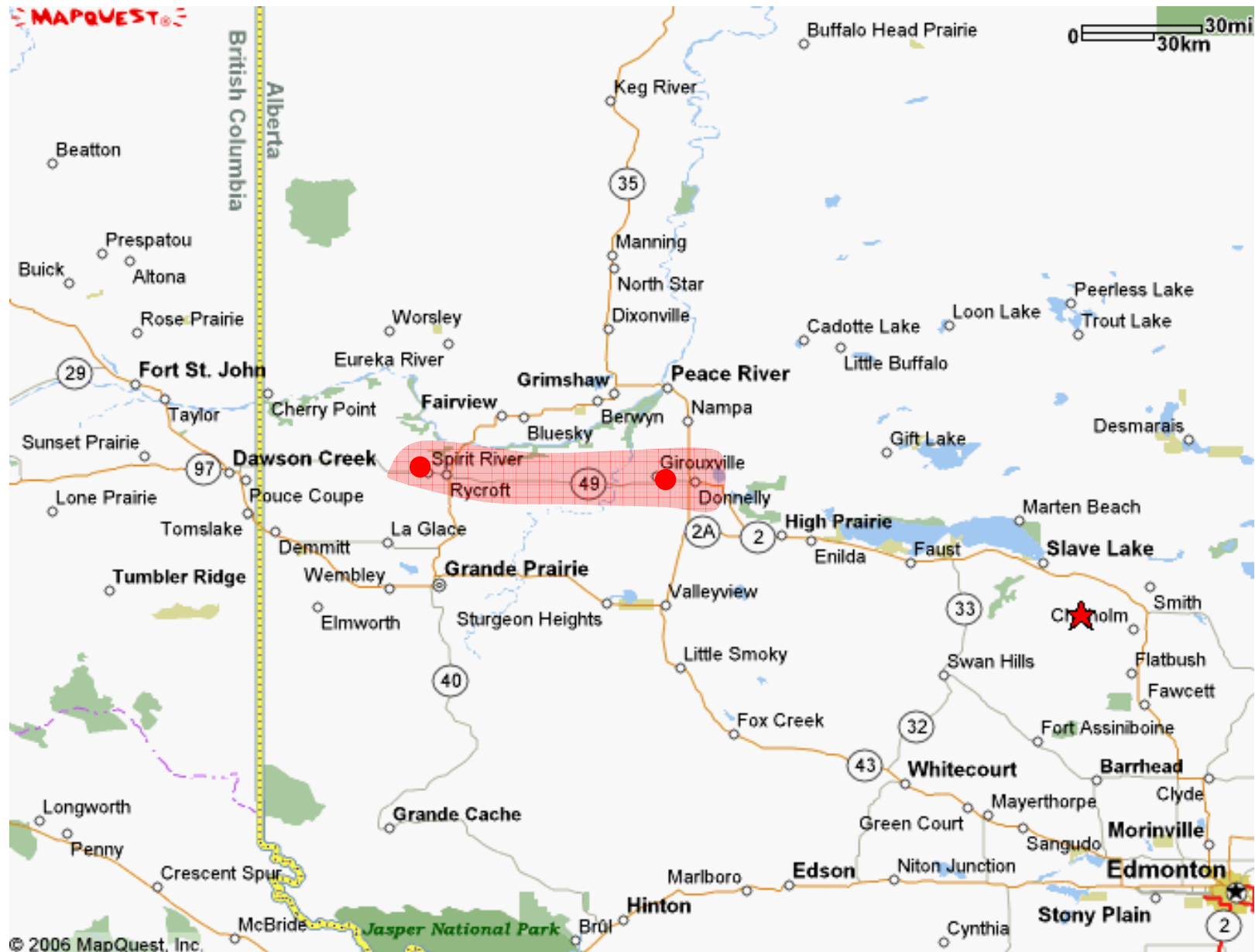
- Casebearers
 - *Coleophora deauratella*
 - *Coleophora mayrella*
 - *Coleophora trifolii*
- Weevils
 - *Hypera nigrirostris*
 - *Tychius picirostris*, *T. meliloti*
- Plant bugs
 - *Lygus keltoni*, *L. lineolaris*
 - *Adelphocoris lineolatus*



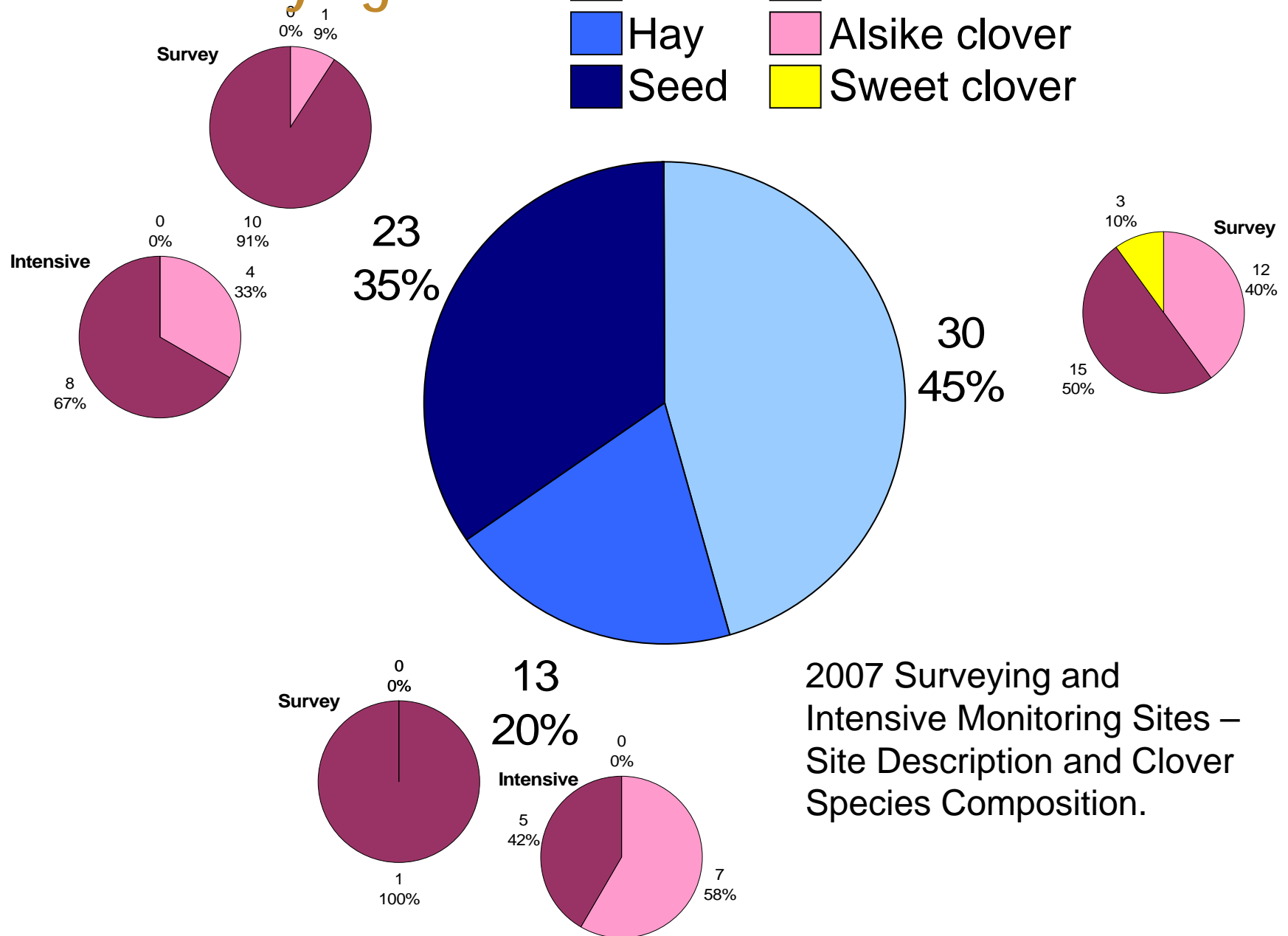
Coleophora deauratella Lienig & Zeller



2005 Damage Reports



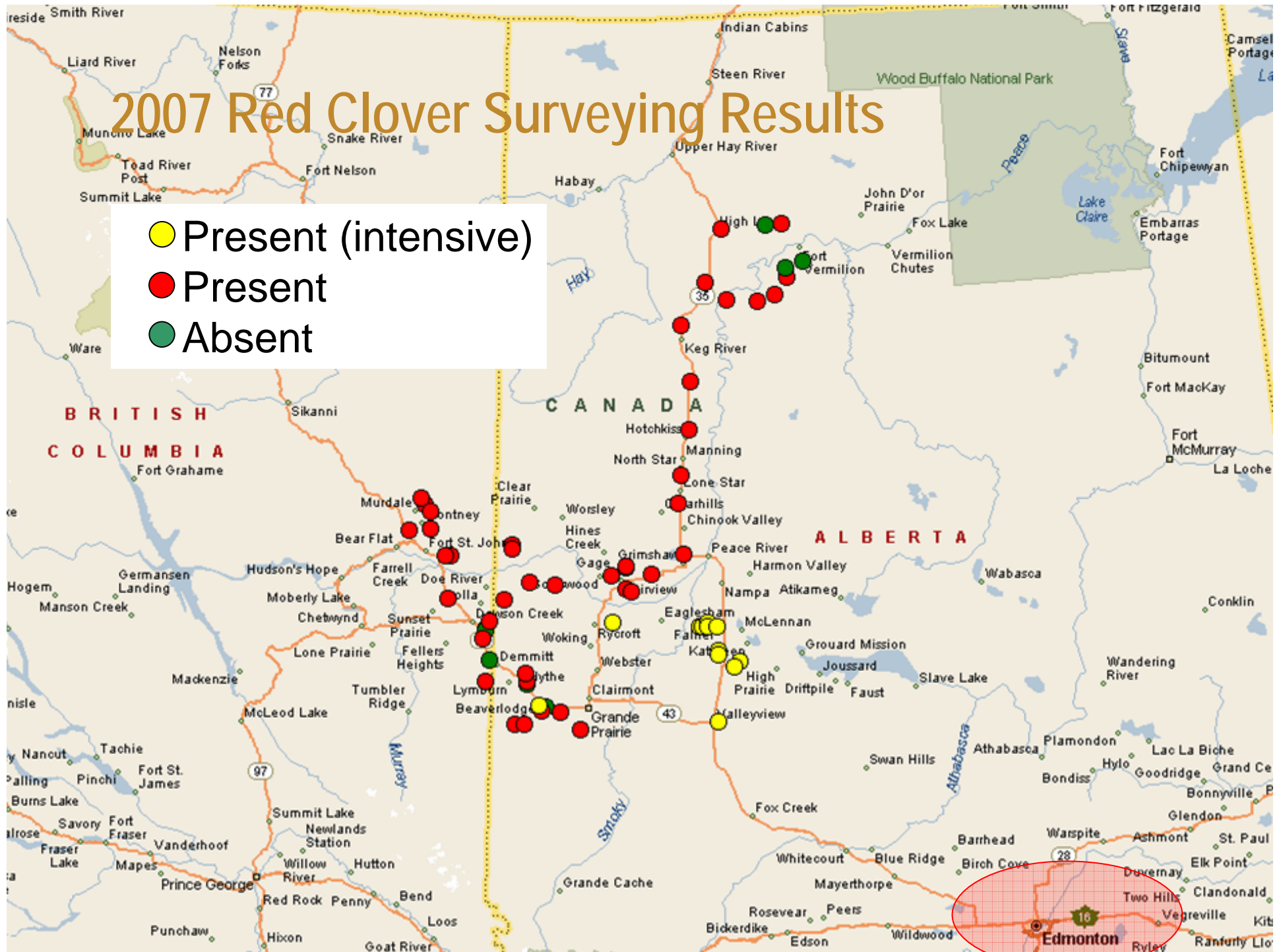
2007 Surveying



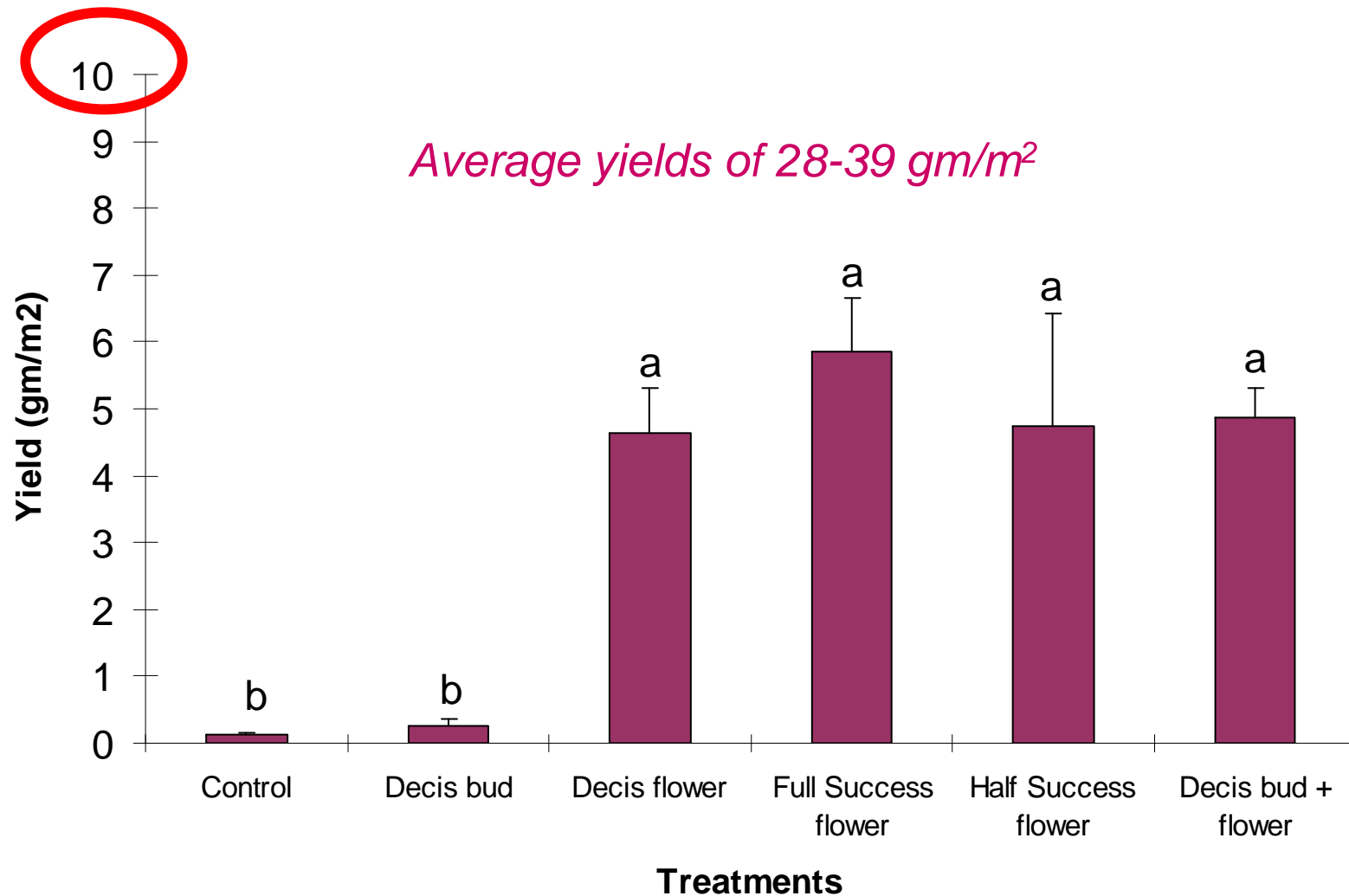
2007 Surveying and Intensive Monitoring Sites – Site Description and Clover Species Composition.

2007 Red Clover Surveying Results

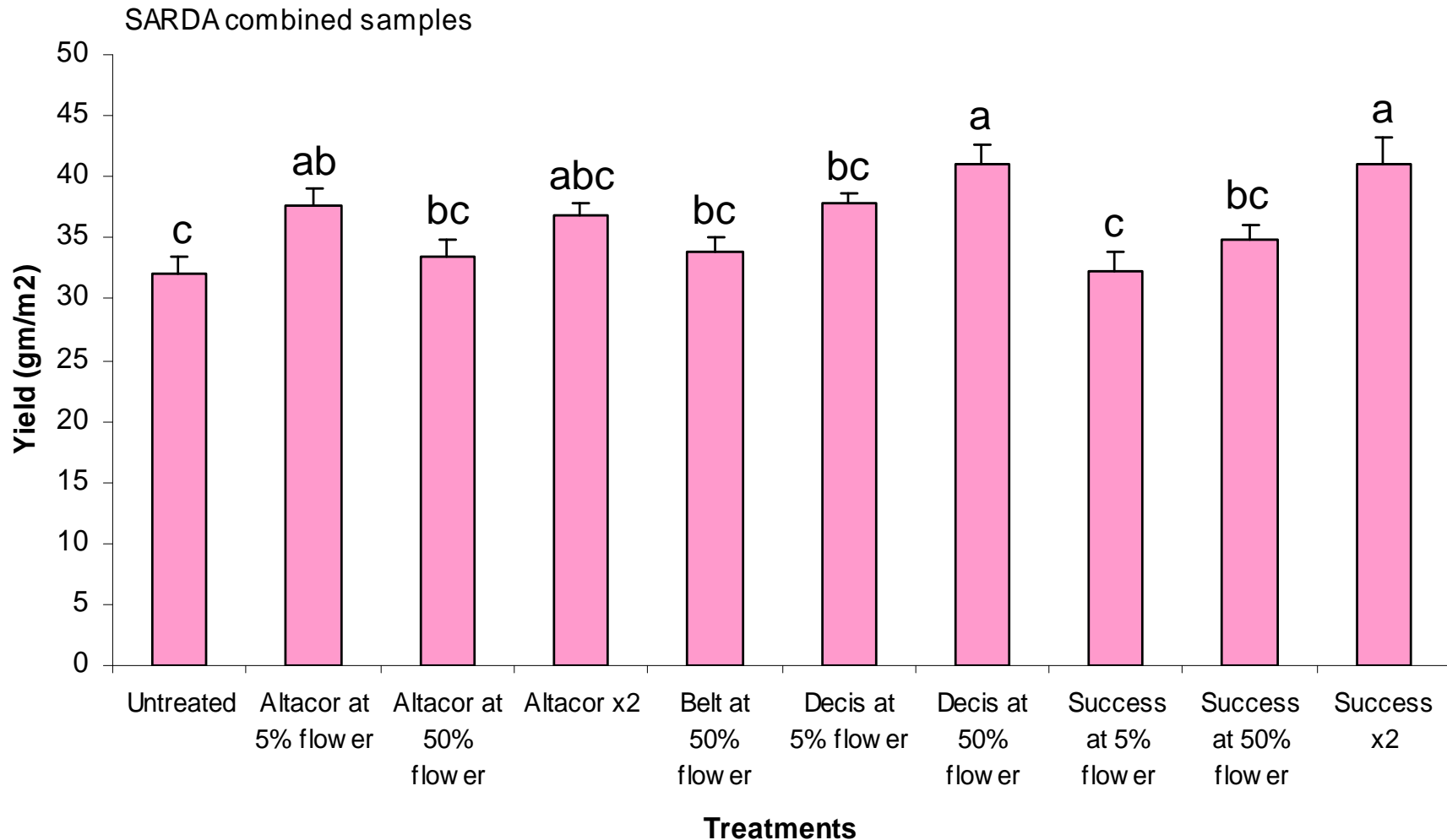
- Present (intensive)
- Present
- Absent



2006 YIELD in 2nd-Year Seed Atlaswede



2007 YIELD in 1st-Year Seed Altaswede



Summary

- Biology
 - Monitoring → *Coleophora deauratella*
→ *Coleophora mayrella*
→ Adults 6-7 week flight period
→ Larvae bud to seed
→ Feed and reproduce on red and alsike
→ Throughout Peace River region
 - Natural enemies?



Summary

- Pest Management

- Yield
 - Seed protection (chemical control)?
 - Concealed larvae
 - Protect pollinators
 - Yield losses up to 99.5% in 2nd yr seed
 - Removal of stands (cultural control)
 - 2-3 red clover flowers per day (Hammer 1937)
 - "severe infestations" >1 larva per 4 heads of red clover (Markkula and Myllymäki 1960)
- Honey
 - Nectary consumed



Acknowledgements

- Peace Region Forage Seed Association
- AAFC – Matching Investment Initiative
- **Producer Cooperators**
- Calvin Yoder, AAFRD
- Vance Yaremko, SARDA
- Technical Staff
 - Amie Nemecz
 - Erna Villiger
 - Thomas Villiger
 - SARDA staff
 - Ross Weiss
 - Tom Cramer
 - Kelly Wilson
 - Bronwyn Ragetli
 - Meghan Engel
 - Joe Unruh
 - David Giffen
 - Jean Beaudoin



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Photo courtesy of Calvin Yoder

Characteristics of Silvertop

- Appears after head emerges from boot
- Bleaching of stem and seed head
 - Sterile or no seed production
 - Economic losses
 - 12-14% losses
- Unpredictable
- Irreversible
- More frequent in older stands

Cause of Silvertop?

Green grass bug
Black grass bug
Leafhoppers

Thrips
Mites



Photos: J. Soroka
Saskatoon Research Centre



Beneficial arthropods

