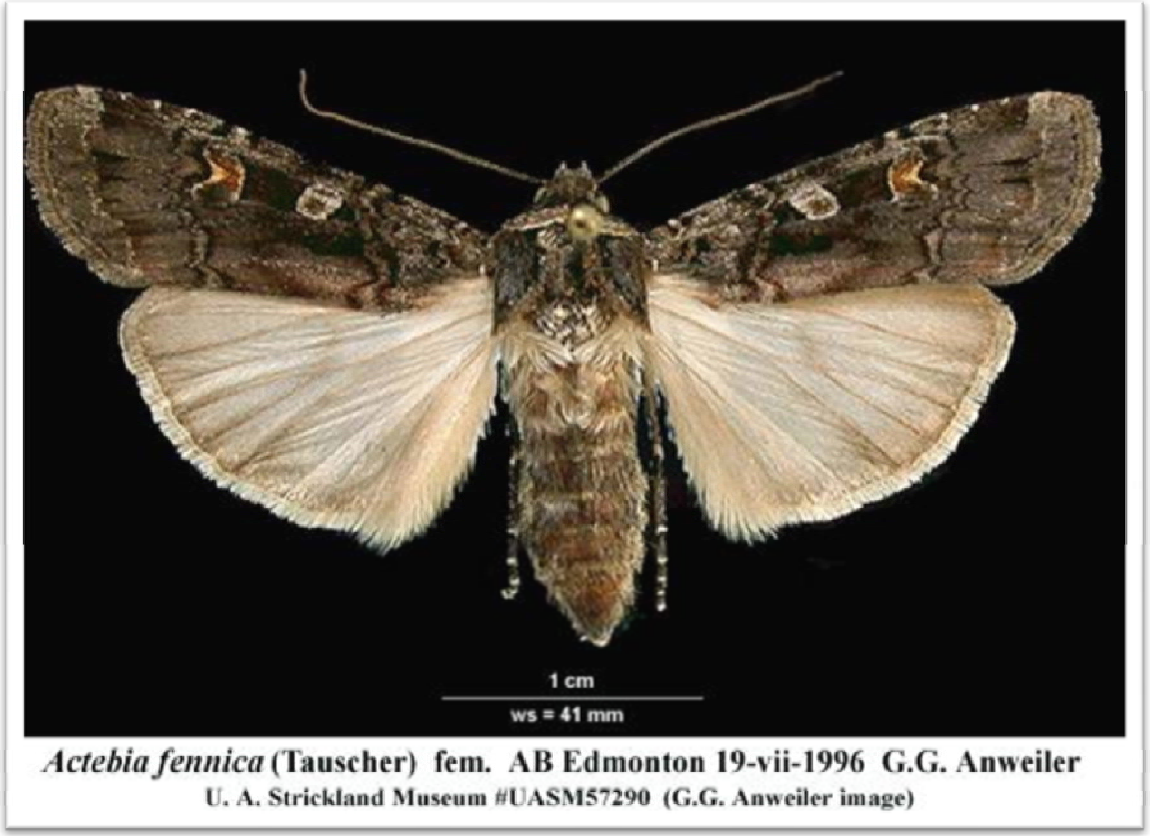
BLACK ARMY CUTWORM

All that is Old – is new again

- Not new pests, BAC was a major pest in the 1980s
  - "consistent association of BAC with recent broadcast burning" FRDA Report 1988
  - moving away from prescribed burning for site prep has decreased impact of this pest
- Moving to increase fire on the landscape means consideration of these pests.

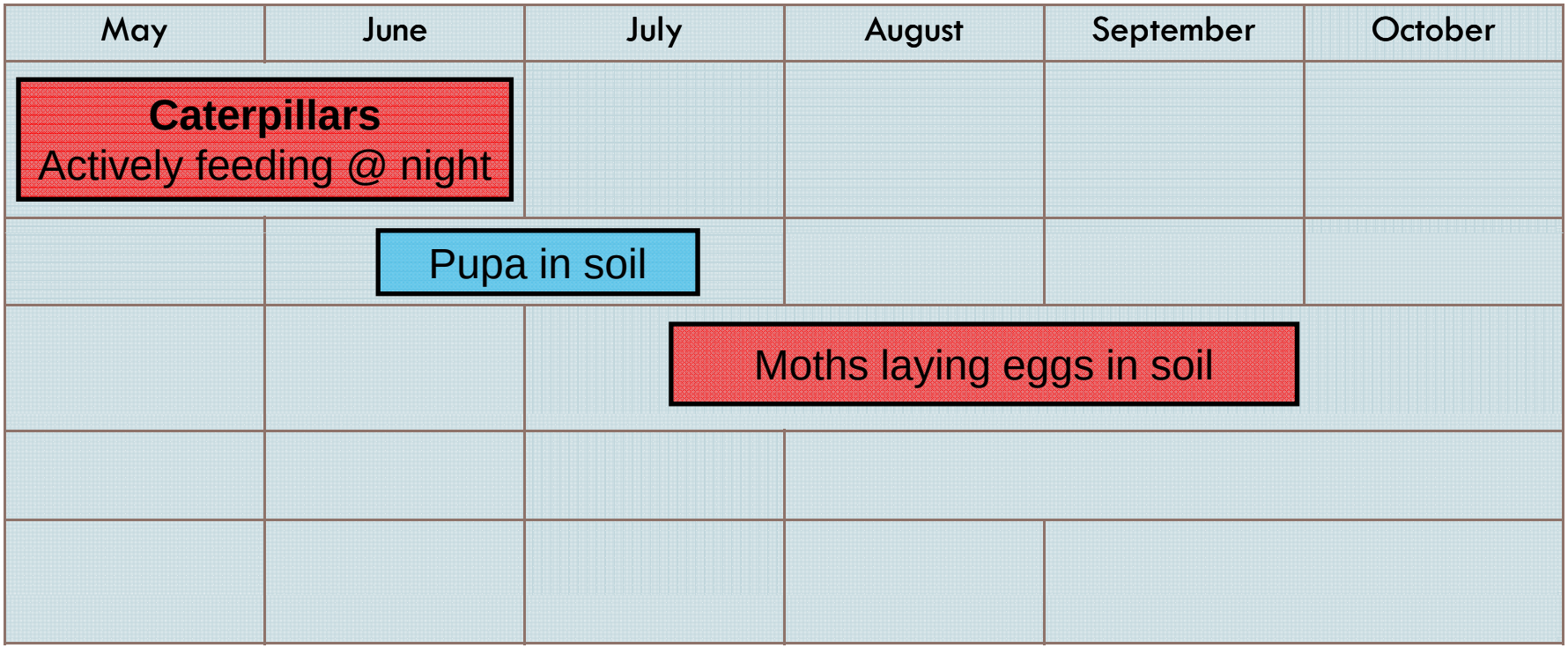
Where to Start?

Adult Moths



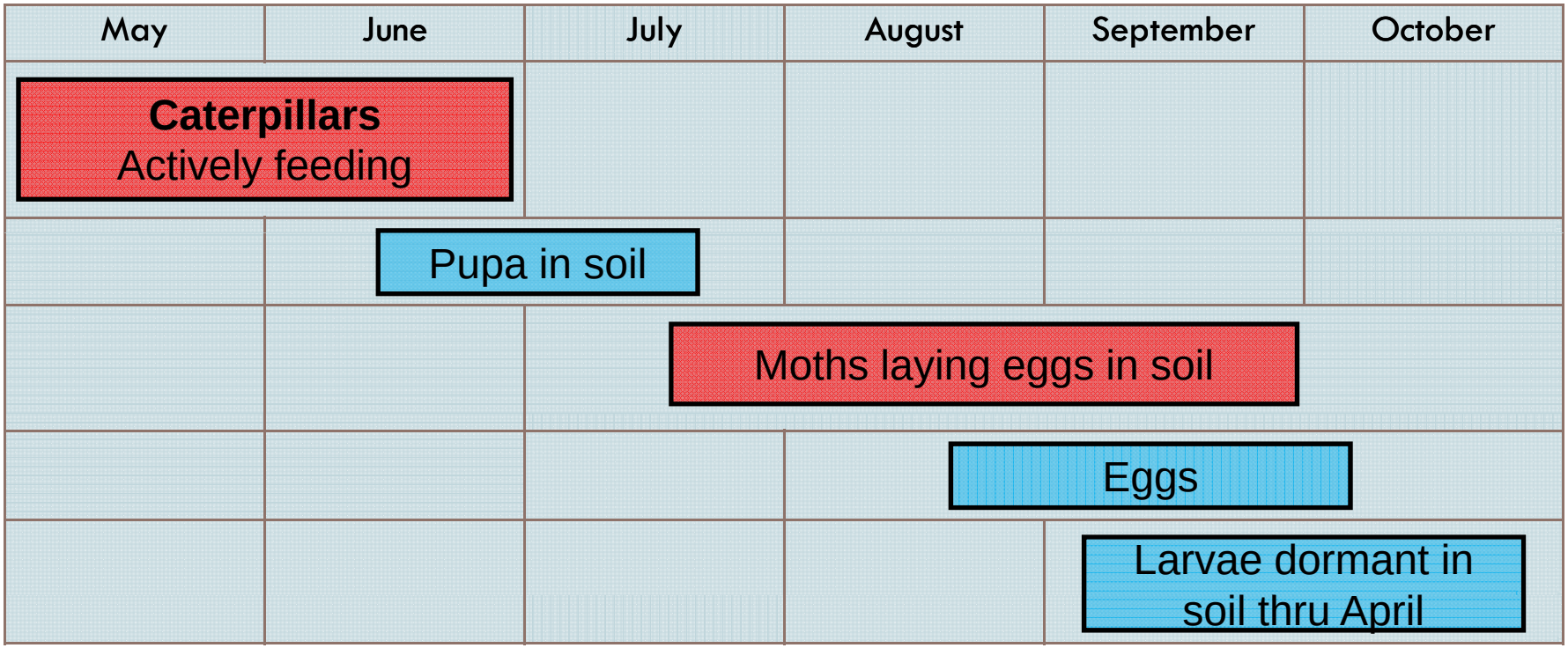
Actebia fennica (Tauscher) fem. AB Edmonton 19-vii-1996 G.G. Anweiler
U. A. Strickland Museum #UASM57290 (G.G. Anweiler image)

Key Life Stages



Black Army Cutworm is the Kevin Costner of the insect world:
"If lay my eggs here and the food will come....."

Key Life Stages



Sequence of Outbreak

YEAR	May	June	July	August	Sept	Oct
N						
N+1						
N + 2						

Greer Fire - Vanderhoof

YEAR	May	June	July	August	Sept	Oct
2010		Greer Fire		Moth Invasion!		
2011	Plant	Outbreak				
2012						
2013	Plant	☺				

- Planted spring of 2011 and seedlings were stripped.
- Additional blocks planted 2013, so far no damage has been observed (2 blocks surveyed Sept 2013).

Greer Fire: June 2010
Planted: May 2011
Photos: Robert Hodgkinson

Binta Fire, Nadina

YEAR	May	June	July	August	Sept	Oct
2010				Binta Fire		
2011				Moth Invasion!		
2012	Plant	Outbreak		Moth Invasion!		
2013	Outbreak part II					

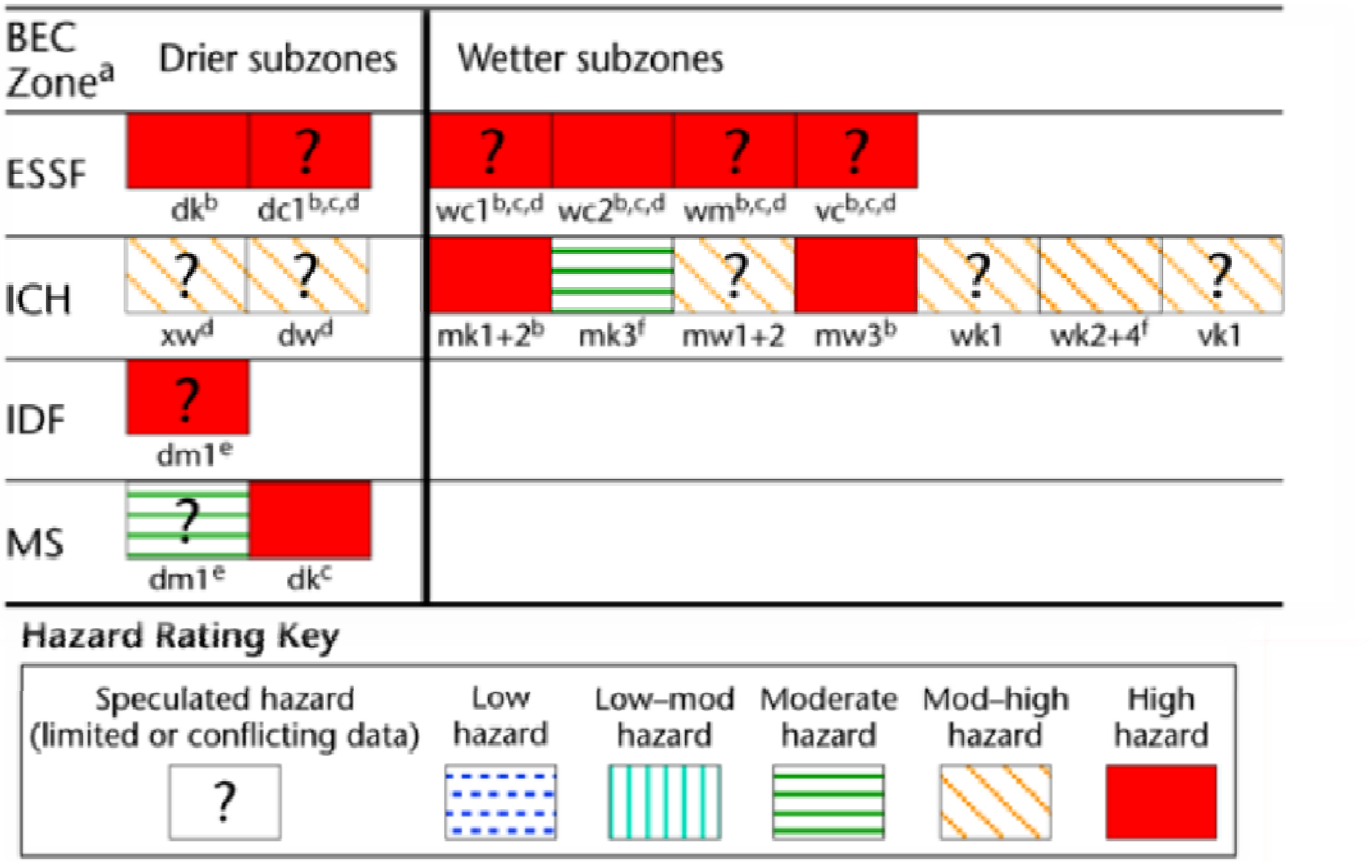
Spring of 2013 planted & seedlings were heavily defoliated.

- BCTS blocks heavily defoliated (ie "was this planted"?)
  - 1 block will not require fill plant – trees flushed new buds
  - 1 block will be completely replanted: higher elevation, earlier plant, vegetation had not emerged

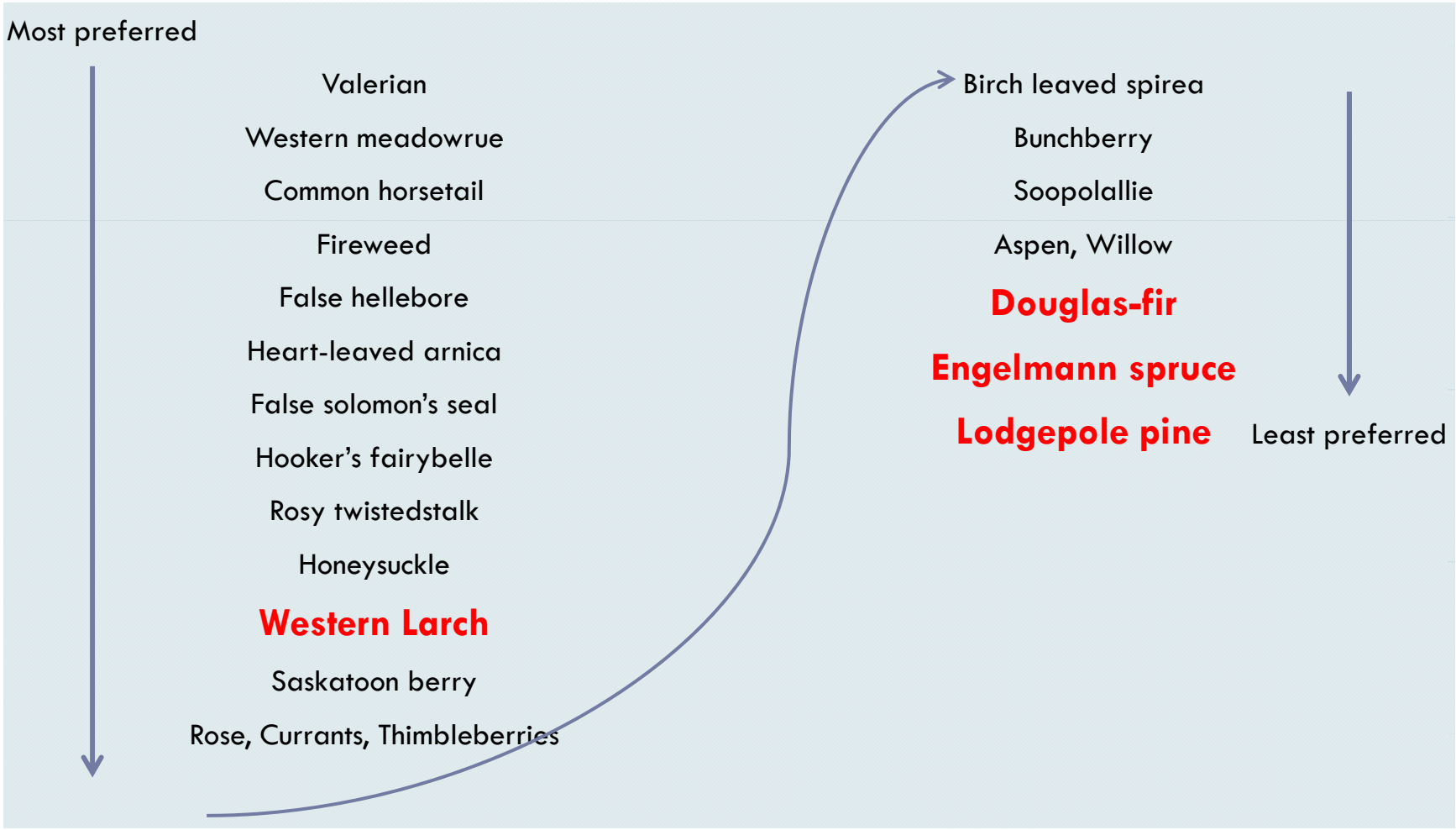
Binta Fire, August 2010
Planted May 1st 2013
Photos: Tim Cartmell

Hazard Ratings

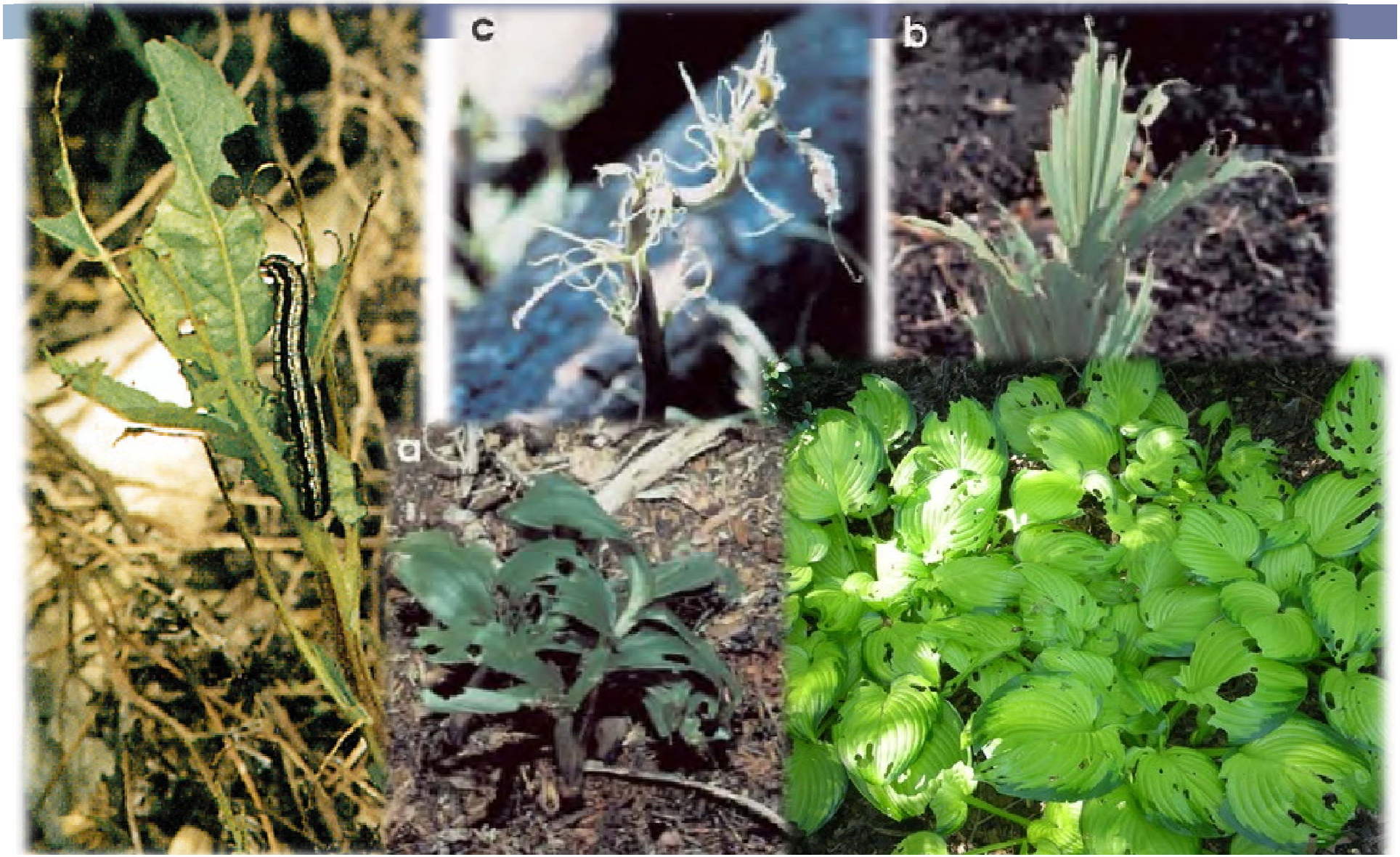
- Drier sites higher risk
- Sites with low levels of vegetation are higher risk



Feeding Preferences



Damage to Vegetation



Impacts

- Majority of mortality occurs year 1 (>90%)
- Most seedlings can sustain <60% defoliation with limited impact on growth or survival
  - >60% defoliation saw only 9% mortality due to BAC feeding alone (40-50% with poor planting/drought)
  - poor planting or drought conditions dramatically increases mortality

Impacts - >60% defoliation

- Height growth reduced in year of feeding, if terminal bud is killed, top dieback to a latent bud usually occurs.
  - Sx and Fdi are preferred, Pli and Lx suffer greater damage.
  - Newer reports: Sx was preferred, but where Pli was damaged – entire seedling was consumed
  - Lx is preferred over many succulents!

Impacts - >60% defoliation

- Severe defoliation significantly reduces root growth, increased moisture stress
  - impacts on drier sites much greater
  - poorly planted seedling will dramatic increased water stress, even on mesic sites
- On dry sites, height growth partially recovers
- On moist sites, height growth recovers quickly, approaching normal at the of the 2 year after defoliation.

Considerations

- South or west facing slopes seem to be preferred for egg-laying = first areas to see defoliation
- Severe burns = less vegetation in following year = higher risk of damage from BAC
- Early planting (before vegetation is out) increases impact

May	June	July	August	September	October
Caterpillars Actively feeding					

Tools

Pheromone Monitoring

- Early warning system the fall before planting!

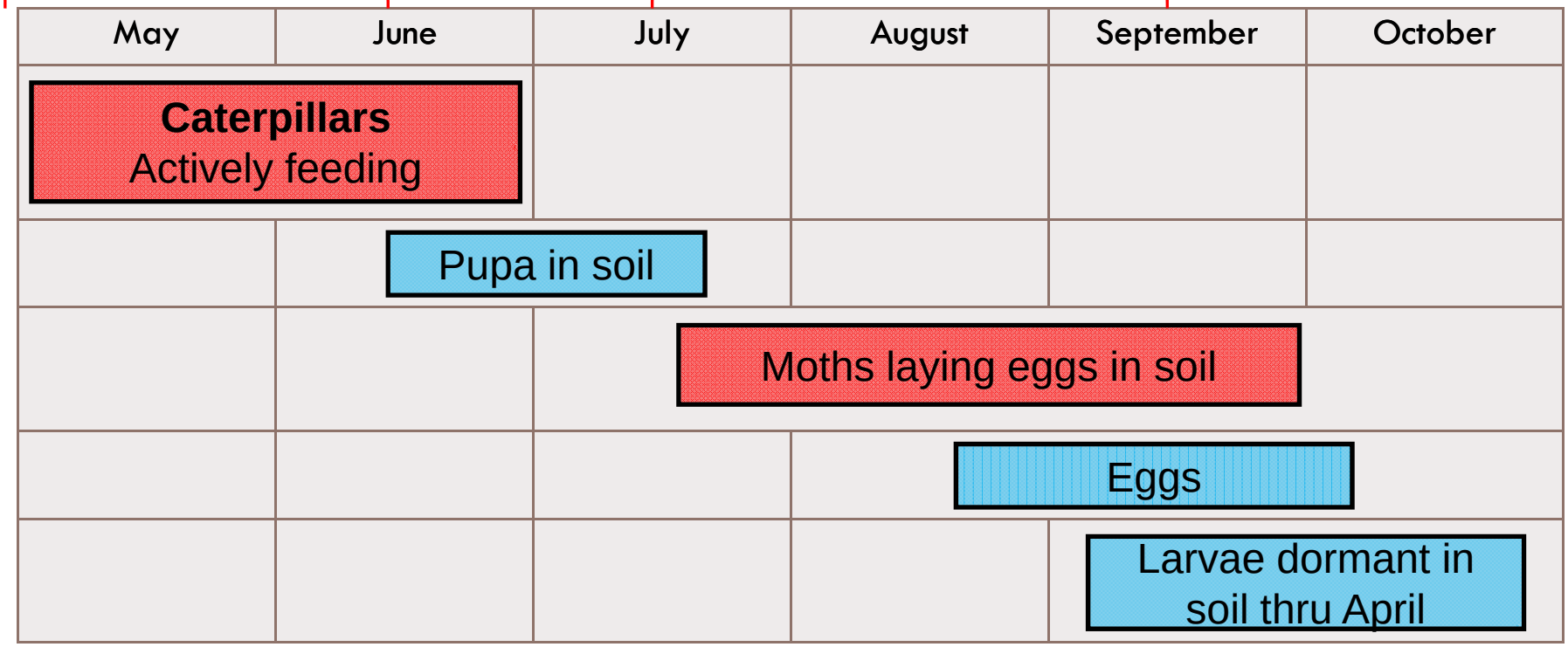
May	June	July	August	September	October
		Moths laying eggs in soil			

- Place traps July 1st – Sept. 15th
  - Detailed protocols available online
- Based on results:
  - Delay planting for 1-2 years
  - Survey for larvae and damage on herbs in spring
  - Schedule summer plant to avoid larval feeding

Opportunities to Assess Risk

Monitor Blocks:
Assess larval populations

Pheromone Monitoring:
Assess risk for next spring



Opportunities to Assess Risk

- Education is key!
  - Provide planting foremen, supervisors and planters with training to identify signs of BAC feeding on vegetation (shot-hole feeding)
- Walk the blocks in the spring – if it is warm enough to plant, it is warm enough for BAC to be active