



Black army cutworm and Larch casebearer

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Black Army Cutworm (*Actebia fennica*)

Defoliator, increased pest with wildfire activity – reforestation issues

Not a new pest, major pest in 1980s (associated with broadcast burning)

Defoliation inhibits root growth and reduces the establishment of new roots into the soil

Seedlings should not be planted on infested sites if those sites are prone to drought.

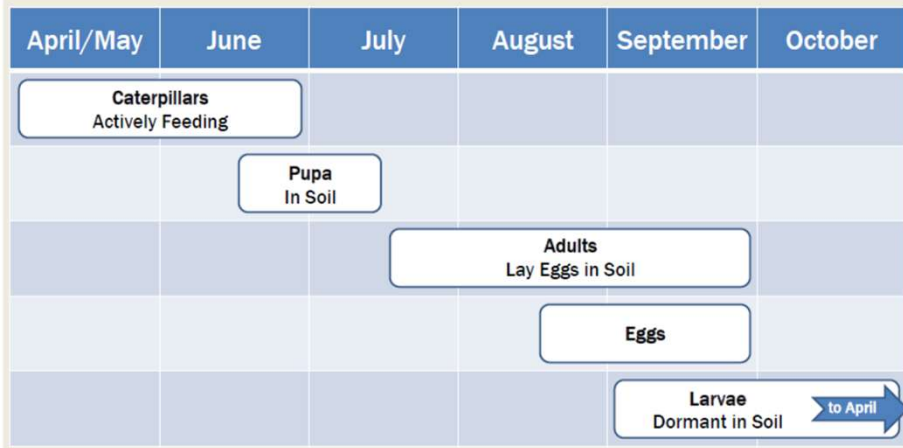
If feasible, planting should be delayed until after pupation, which usually occurs about June 15 at low elevations, and up to 3 weeks later at higher elevations.

Black army cutworm life cycle

BLACK ARMY CUTWORM



■ One generation / year



Black army cutworm damage

- **Low pop:** Lw
- **Mod pop:** Lw + Fd, Sx, Pl
- **Outbreak pop:** all conifer seedlings

B.A.C. FEEDING PREFERENCES



Valerian
Western meadowrue
Common horsetail
Fireweed
False hellebore
Heart-leaved arnica
False solomon's seal
Hooker's fairybelle
Rosy twistedstalk
Honeysuckle
Western Larch

Saskatoon berry
Rose
Currants
Thimbleberries
Birch leaved spirea
Bunchberry
Soopolallie
Aspen, Willow
Douglas-fir
Engelmann/hybrid spruce
Lodgepole pine



Damage

- Most seedlings can sustain moderate defoliation (<60%) with limited impact on growth or survival
- Defoliation often occurs in patches
- Majority of defoliation occurs during year 1

B.A.C. OUTBREAKS



When would we expect an outbreak?

- Late season fires = outbreak 2 years after
- Early season fires = outbreak 1 year after

Year	April/May	June	July	August	September	October
N			Late Season Fires			
N+1	Early Season Fires		Moth Invasion 			
N+2	Outbreak 					
N+3	Safe to Plant					

Black army cutworm impacts



IMPACTS



- >60% defoliation
 - Expect ~10% mortality due to BAC alone – can be higher with compounding factors such as poor planting quality or drought
 - Height growth also reduced in year of defoliation
 - Moist sites = height growth recovers better/quickly and approaches normal 2 years post-defoliation
 - Dry sites = height growth may only partially recover
 - Defoliation reduces root growth resulting in increased moisture stress - impacts on drier sites much greater



B.A.C. MANAGEMENT



■ Identify 'High Risk Sites'

- Burned openings = preferred for egg laying
- Severe burns = less/no vegetation in following year which leads to higher risk of defoliation
- ESSF, MS, SBS, ICH, IDF are highest risk but doesn't exclude other BEC zones
- Drought-prone sites



- High risk sites



B.A.C. MANAGEMENT



- Delay planting for 1 - 2 years
- Avoid spring planting
- Most importantly...
 - Survey for BAC damage on natural veg in the spring
 - Pheromone Monitoring the spring/summer before planting



- Pheromone monitoring: July 1- Sept 15 post fire, 1-3 years



B.A.C. MANAGEMENT



■ Pheromone Monitoring

- Early warning system the fall before planting
- Traps put up July 1st
- Traps collected mid-September



May	June	July	August	September	October
Feeding Caterpillars					
	Pupa In Soil				
		Adults Laying Eggs in Soil			
			Eggs		
				Larvae Dormant in Soil to April	

- Lower risk once more susceptible species present on burn site



B.A.C. MANAGEMENT

■ Pheromone Monitoring

- Early warning system the fall before planting
- Traps put up July 1st
- Traps collected mid-September
- Check every two weeks if possible
- Multipher Traps:
 - <350 moths/trap = low risk
 - >350 moths/trap = moderate risk
 - >1200 moths/trap = high risk
- Can also use Unitraps but not different thresholds



The aim is to have traps out near the end of June. Contact your Regional Entomologist or Provincial Entomologist or Solida (distributor) if you need help sourcing traps or for further guidance or BAC information.



Check thresholds before planting

B.A.C. MANAGEMENT



On recently burned sites:

- Delay planting for 1 – 2 years
- Pheromone Monitoring
- Avoid spring planting / survey for BAC damage on natural veg

Monitoring may also
need to be completed
on back-up planting
sites



Date & Time: Tue, Jun 15, 2021, 11:56:17 MDT
Position: +050°06'59.49" / -116°06'18.20"
Altitude: 1627m
Datum: WGS-84
Azimuth/Bearing: 199° S19W 3538mils (True)
Elevation Grade: +402%
Horizon Grade: +003%
Zoom: 1X
Id: 1092891 -1.white

BEC Zone ^a	Drier subzones	Wetter subzones
ESSF	<div> <div>dk^b</div> <div>dc1^{b,c,d}</div> </div>	<div> <div>wc1^{b,c,d}</div> <div>wc2^{b,c,d}</div> <div>wm^{b,c,d}</div> <div>vc^{b,c,d}</div> </div>
ICH	<div> <div>xw^d</div> <div>dw^d</div> </div>	<div> <div>mk1+2^b</div> <div>mk3^f</div> <div>mw1+2</div> <div>mw3^b</div> <div>wk1</div> <div>wk2+4^f</div> <div>vk1</div> </div>
IDF	<div>dm1^e</div>	
MS	<div> <div>dm1^e</div> <div>dk^c</div> </div>	
Hazard Rating Key <div> <div>Speculated hazard (limited or conflicting data)</div> <div>Low hazard</div> <div>Low-mod hazard</div> <div>Moderate hazard</div> <div>Mod-high hazard</div> <div>High hazard</div> </div>		



Larch Casebearer

Larch casebearer moth (Lepidoptera: *Coleophora laricella*) IDC

- **Host: eastern and western larch**
- Introduced from Europe (in NA 1886; by mid-1960s W Canada), spread to BC from N Washington, Idaho, and Montana.
- Historically large populations caused defoliation in Nelson and Kamloops areas
- Caused extensive defoliation in NA before it was brought under biological control (2 parasitoids):
 1. braconid *Agathis pumila* (Ratzburg)
 2. eulophid *Chrysocharis laricinellae* (Ratzburg)
- Infestations occur fairly regularly, usually on a cycle of about **eight years**.
- AOS 2021 TSA: Arrow **8.96 ha**; KL **24.01 ha**



Detection

- Spring:
 - light brown foliage
 - tiny, cigar-shaped cases on needles
 - overwinter in needle cases attached to twigs near buds, larvae feed into needles
- Summer:
 - small silver gray moths
- Autumn:
 - after needles shed, presence of cases easily seen on twigs near buds



Damage

- New Needles:
 - Drying out/ browning
- Defoliation:
 - Severe defoliation can slow tree's growth and even kill twigs
 - but rarely kills the trees because most larches are able to produce new foliage





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UGA4



Larch casebearer
