



Western Spruce Budworm

(*Choristoneura freeman*)



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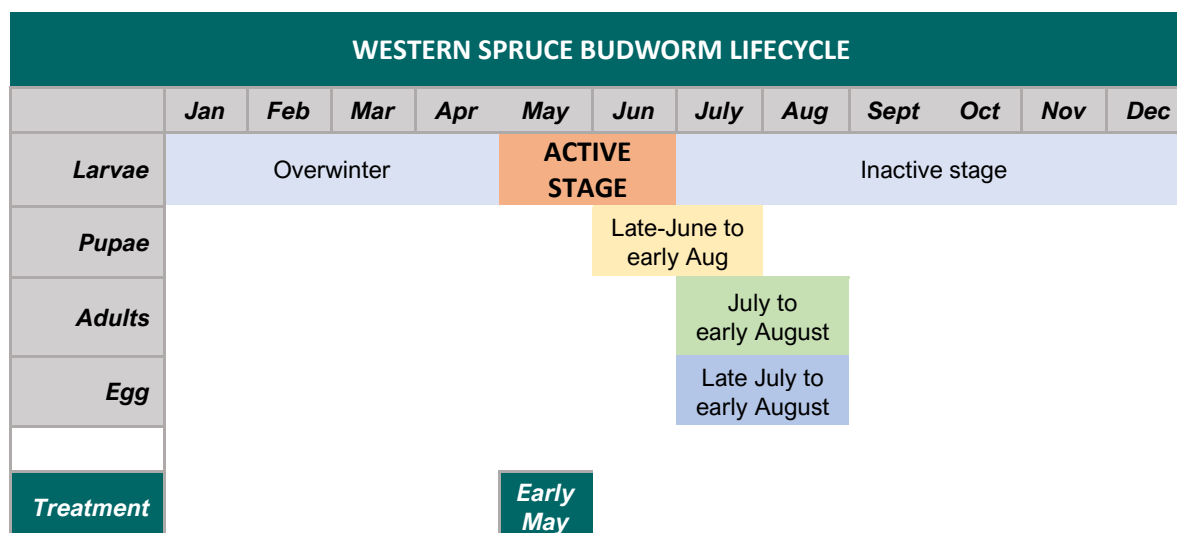
Western spruce budworm is a destructive pest that has begun to increase along the Front Range

General	<p>Family: Lepidoptera: Tortricidae Native</p> <p>Natural predators (wasps and viruses) usually control the population</p> <p>Outbreaks occur every 7-10 years, may last a number of years and then the population returns to non-damaging levels</p>
Damage	<p>Eggs hatch in May</p> <p>Young caterpillars feed on new growth</p> <p>Caterpillars move to older foliage as they mature</p> <p>Trees may survive if the damage is not heavy</p> <p>Trees may be weakened and be vulnerable to attack by other insects.</p>
Habitat	Douglas-fir, true fir (e.g., subalpine fir and white fir) and spruce trees

INSECT INFORMATION

Identification	<p>Adult: Nondescript orange to brown wings with white dot. 1/2 inch long with wingspan to 1 1/8 inches wide.</p> <p>Larva/caterpillar: 6 instars, about 1 inch long at oldest stage, brownish green with lighter stripes on body. Head black to orange with collar behind.</p> <p>Eggs: Small, green, overlapping. Usually in groups of up to 40.</p>
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Lifecycle	<p>One generation per year.</p> <p>Eggs – Laid in late July-early August. Hatch about 10 days later.</p> <p>Larvae – Emerge from eggs in July-August. Create silken chambers under bark and lichen where they hibernate until spring. Early instars do not feed. Starting in spring, usually May, the larvae begin to feed on young foliage. This stage lasts for about 30-40 days.</p> <p>Pupae – Larvae form a thin cased pupa. Pupation lasts for about 10-15 days during late-June through early-August.</p> <p>Adults – Emerge from pupa in July to early August. Live for about 10 days.</p>
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CONTROL		
CULTURAL	Maintain a well-thinned, mixed species forest. During outbreaks, consider removing younger trees in the understory.	
CHEMICAL	<i>Pesticide</i>	<i>Timing</i>
	Permethrin (Astro) Bacillus thuringiensis (Foray, Dipel) Carbaryl (Sevin, Sevimol)	Early May - shortly after larvae have become active.
Use all chemicals according to the manufacturer's label. No specific recommendation or endorsement is made or implied by listing the above methods or products.		

Other Info	<p>CSFS Quick Guide https://csfs.colostate.edu/media/sites/22/2014/02/Western_Spruce_Budworm_QG_10May2016.pdf</p> <p>CSFS https://csfs.colostate.edu/forest-management/common-forest-insects-diseases/western-spruce-budworm/</p> <p>Forest Insect and Disease Leaflet https://www.fs.usda.gov/foresthealth/docs/fidls/FIDL-53-WesternSpruceBudworm.pdf</p> <p>Forest Pest Insects in North America: a Photographic Guide http://forestpests.org/vd/198.html</p>
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