






















Common Natural Enemies in Washington Tree Fruits

Vince Jones and Shawn Steffan, WSU-Tree Fruit Research and Extension Center

Predator/Prey	Adults	Immatures
<p>Green Lacewings <i>Chrysopa nigricornis</i> <i>Chrysoperla plorabunda</i></p> <p><i>Prey:</i> aphids, scale crawlers, mealybugs pear psylla, thrips, soft bodied insects and insect and mite eggs</p>		
<p>Convergent ladybird beetle, <i>Hippodamia convergens</i></p> <p>Transverse ladybird beetle <i>Coccinella transversogutta</i></p> <p><i>Prey:</i> aphids, scale crawlers, soft bodied insects</p>		
<p>Spider mite destroyer <i>Stethorus picipes</i></p> <p><i>Prey:</i> specialized on spider mites, most commonly at higher density</p>		
<p>Hover flies/Syrphid Flies</p> <p><i>Prey:</i> aphids</p>		
<p>Predatory Bug <i>Deraeocoris brevis</i></p> <p><i>Prey:</i> Spider mites, aphids, scale crawlers, leafhoppers, pear psylla</p>		
<p>Minute Pirate Bug <i>Orius tristicolor</i></p> <p><i>Prey:</i> Spider mites, aphids, scale crawlers, leafhoppers, pear psylla, insect and mite eggs</p>		









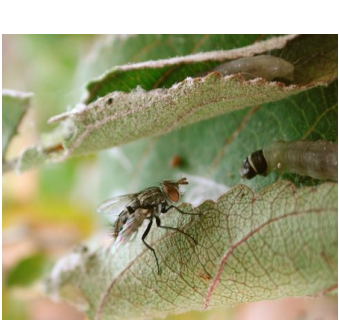

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Predator/Prey	Adults	Immatures
<p>Predatory Bug <i>Anthocoris nemoralis</i></p> <p>Prey: Spider mites, aphids, scale crawlers, leafhoppers, pear psylla, insect eggs</p>		
<p>Western orchard predatory mite <i>Typhlodromus occidentalis</i></p> <p>Prey: spider mites of all stages</p>		
<p>Earwigs <i>Forficula auricularia</i></p> <p>Prey: aphids, pear psylla, mites, insect eggs</p>		
Parasitoid/host	Adult	Immatures
<p><i>Mastrus ridibundus</i></p> <p>Host: Codling Moth</p> <p>Attacks cocooned last instar larvae</p>		
<p><i>Ascogaster quadridentata</i></p> <p>Host: Codling Moth</p> <p>Attacks egg stage, emerges from last instar caterpillar and spins cocoon</p>		
<p><i>Colpoclypeus florus</i></p> <p>Host: <i>Pandemis</i> and Oblique-banded leafrollers</p> <p>Attacks caterpillars older than 3rd instar, feeds externally on the caterpillar until completes development</p>		











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Parasitoid/host	Adult	Immatures
<p><i>Macrocentrus spp.</i></p> <p><i>Host:</i> <i>Pandemis</i> and Oblique-banded leafrollers</p> <p>Attacks wide range of sizes, but mostly > 3rd instar caterpillars. Immatures feed inside the caterpillar</p>		
<p><i>Apanteles</i></p> <p><i>Host:</i> <i>Pandemis</i> and Oblique-banded leafrollers</p> <p>Attacks wide range of sizes, but mostly > 3rd instar caterpillars. Immatures feed inside the caterpillar</p>		
<p><i>Pnigalio flavipes</i></p> <p><i>Host:</i> Western Tentiform Leafminer</p> <p>Lays its eggs in the tissue-feeding larvae. Adults feed on sap-feeding larvae to obtain nourishment that allows them to lay more eggs.</p>		
<p><i>Aphelinus mali</i></p> <p><i>Host:</i> Woolly apple aphid</p> <p>Attacks late instar aphids; Adult parasitoids also puncture aphids and host feed to obtain nourishment for egg production.</p>		
<p>Tachinid flies <i>Nilea erecta</i> <i>Nemorilla pyste</i></p> <p><i>Prey:</i> <i>Pandemis</i> and oblique-banded leafrollers</p> <p>Attacks 4th-6th instar caterpillars</p>		

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Spider/Prey	Example Species	
<p>Jumping Spiders</p> <p>Family: Salticidae</p> <p><i>Prey:</i> white apple leafhopper, western tentiform leafminer, aphids, thrips, caterpillars, pear psylla, ants, various flies, earwigs, other spiders, and various predatory and parasitic insects</p>		
<p>Lynx Spiders</p> <p>Family: Oxyopidae</p> <p><i>Prey:</i> white apple leafhopper, western tentiform leafminer, aphids, <i>Campylomma</i>, various flies, ants, other spiders, and parasitoid wasps.</p>		
<p>Crab Spiders</p> <p>Family: Thomisidae</p> <p><i>Prey:</i> white apple leafhopper, aphids, thrips, European red mite, pear psylla, stink bugs, syrphids, various flies, bees, wasps, and other spiders.</p>		
<p>Hunting Spider (sac spider)</p> <p>Family: Clubionidae</p> <p><i>Prey:</i> very good predator of leafroller larvae; it also consumes leafroller egg masses</p>		
<p>Running Crab Spider</p> <p>Family: Philodromidae</p> <p><i>Prey:</i> white apple leafhopper, European red mite, aphids, pear psylla, various flies, and other spiders</p>		

Lacewing, ladybird beetle, hover flies, Western orchard predatory mite, *Anthocoris* immature and immature *Aphelinus* by Betsy Beers, *Macrocentrus* and *Apanteles* photos by Vince Jones,, Tachinid photos by Nik Wiman, Earwig and *Pnigalio* immature photos by Jay Brunner, all WSU-TFREC. Spider mite destroyer, minute pirate bug photos by Helmut Riedl, OSU-MCAREC. *Pnigalio* adult photo by J. Houghland. All spider photos by Gene Miliczky, USDA-ARS Wapato. *Aphelinus* adult picture from hortnet.co.nz. *Mastrus* and *Ascogaster* photos courtesy of Tom Unruh, USDA-ARS Wapato. *Deraeocoris* pictures by Brad Higbee, Paramount Farming.