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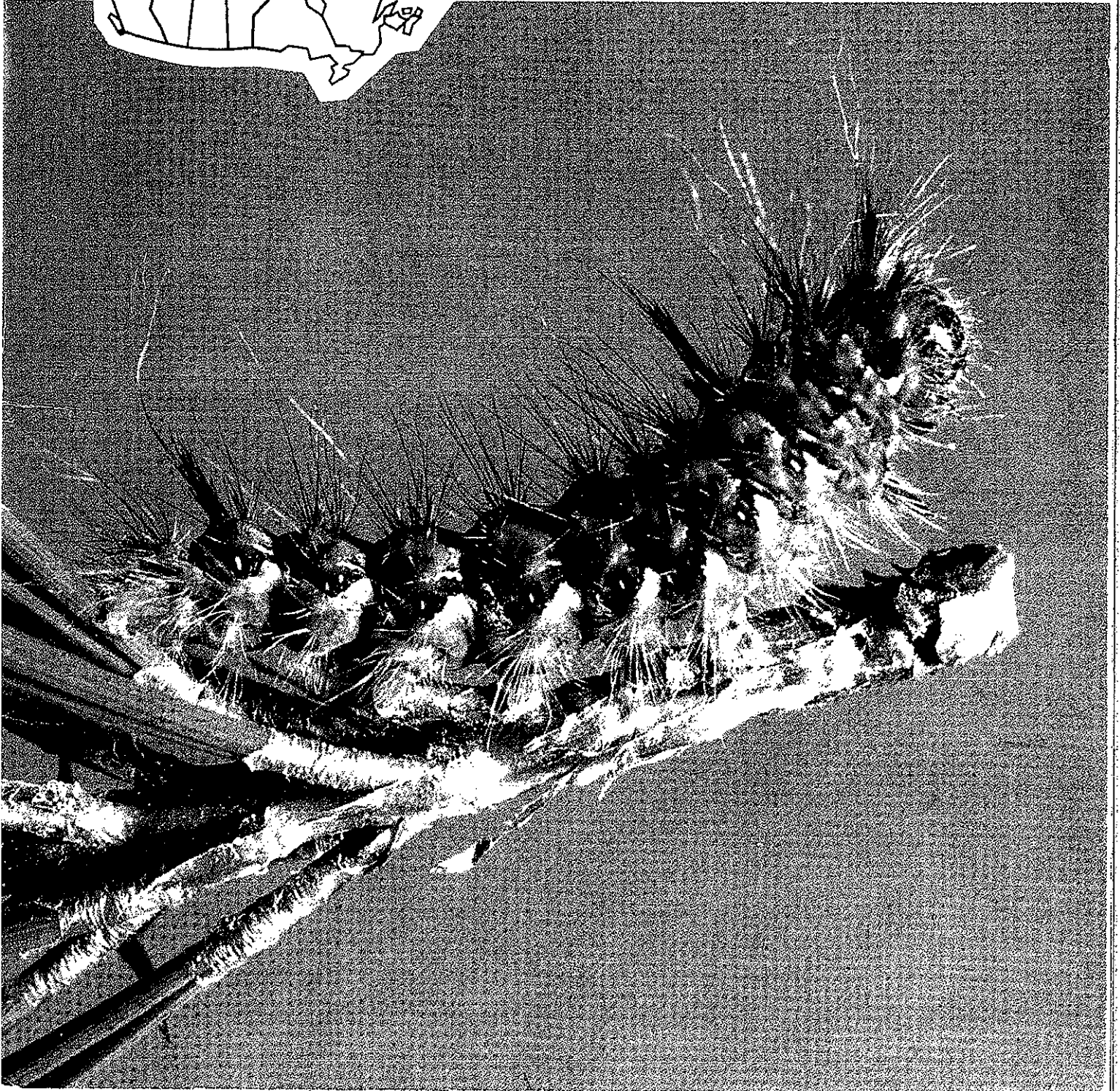
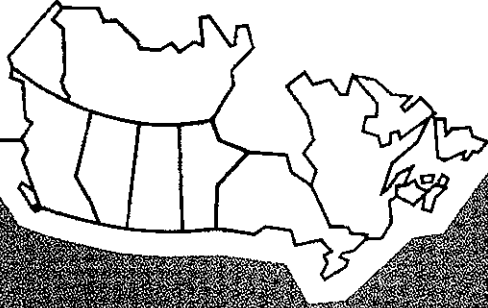
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Annotated checklist of insects associated with native pines in British Columbia

David Evans

Information Report BC-X-244
Pacific Forest Research Centre



Cover photo: A common cutworm larva, *Panthea portlandia*.

**ANNOTATED CHECKLIST OF INSECTS
ASSOCIATED WITH NATIVE PINES
IN BRITISH COLUMBIA**

David Evans

**Environment Canada
Canadian Forestry Service
Pacific Forest Research Centre**

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ABSTRACT

Derived from Forest Insect and Disease Survey data, this annotated checklist contains approximately 1230 insect species associated with native pines in British Columbia, as recorded from 1949-1982. They are catalogued alphabetically by genus under family and order, and an index is provided. Included are the approved common names, feeding habits, general economic status, relative abundance, geographic distribution, and the pine species on which they have been collected. Brief descriptive notes are added to families and important species. Outline maps of forest divisions and tree ranges are **shown**, and a key to the common insect groups, by adult stage, is given.

RÉSUMÉ

Cette liste annotée a été établie à partir des données du Relevé des insectes et des maladies des arbres. Elle comprend environ 1230 espèces d'insectes associées aux pins indigènes de la Colombie-Britannique et mentionnées dans les relevés de 1949 à 1982. Les espèces sont énumérées alphabétiquement selon le genre, la famille et l'ordre et regroupées dans un index. La liste indique également le nom commun officiel, les habitudes alimentaires, l'importance économique générale, l'abondance relative, la distribution géographique et les espèces de pin sur lesquels les insectes ont été récoltés. Les familles et les espèces importantes sont décrites brièvement. Des cartes sont également incluses; elles font état des divisions forestières et de l'extension du domaine des arbres. Enfin, une clé permet de retrouver les principaux groupes d'insectes d'après leur stade adulte.

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ANNOTATED CHECKLIST OF INSECTS ASSOCIATED WITH NATIVE PINES IN
BRITISH COLUMBIA

PREFACE

This publication is a comprehensive checklist of insects associated with pines in British Columbia forests. The data are derived principally from Forest Insect and Disease Survey records 1949-1982, augmented by information from PFRC study projects, particularly "Pine shoot insects common in British Columbia", Evans 1982.¹ More than 1200 species are included.

The insects are listed by scientific name - alphabetically under order, family, genus and species - and an index is provided. Species authors are included, as are common names approved by the Entomological Society of America, which are capitalized; some recent name changes are indicated. Those species recognized as destructive pests of pine are underlined; species known to be capable of causing occasional damage are marked by broken underline. Many of the insects are not actual pine feeders, but utilize the trees for shelter, or are associated with other insects more directly dependent on pines. The relationship to pines is mentioned in the family description or after the insect name, and the following definitions have been used:

- accidental records - recorded in collections off pines, but originating from other sources.
- colonial defoliators - foliage-eating insects living as a group.
 - parasites - parasites of (pine) insects.
 - predators - preying on (pine) insects.
 - sap feeders - insects that suck plant juices.
- sheltering records - insects resting on pines, possibly scavenging some form of food or moisture.
- solitary defoliators - foliage feeders living as individuals, although sometimes in large numbers in close proximity.

General occurrence is shown by plus symbols:

- + = rare, 1 or 2 annual records.
- ++ = usually found in small numbers, several annual records.
- +++ = consistently found in small numbers, and/or sometimes in large numbers in localized areas; 20-30 annual records.
- ++++ = commonly found in large numbers, sometimes over wide areas, but not necessarily causing serious damage.

Distribution (Fig. 1), next in sequence, using lower case letters, is abbreviated according to Forest Divisions as currently recognized by the B.C. Ministry of Forests. In the text, distribution areas are listed alphabetically.

¹/ Environment Canada, Canadian Forest Service, Pacific Forest Research Centre, Victoria, B.C. BC-X-233. 56pp.

- ci - central interior: Cariboo, frequently including the northern margin of Kamloops.
- e - eastern B.C.: usually including most of Nelson, and the eastern halves of Kamloops, Cariboo and Prince George.
- ei - eastern interior: eastern Cariboo and east thereof.
- i - interior B.C.: east of the coastal mountains.
- n - northern B.C.: Prince Rupert and Prince George.
- ne - northeast B.C.: northern and/or eastern Prince George.
- ni - northern interior: Prince George, frequently including Prince Rupert east of the coast mountains.
- nw - northwest B.C.: Prince Rupert, occasionally including a small part of Cariboo.
- s - southern B.C.: Vancouver, including Vancouver Is.; Kamloops and Nelson.
- se - southeast B.C.: Nelson, occasionally including a small part of Kamloops.
- si - southern interior: Kamloops, possibly including a small part of Nelson or Vancouver.
- svi - southern Vancouver Island: primarily south of Alberni Inlet; may include the Gulf Islands.
- sw - southwest B.C.: Vancouver, usually the southern section, and Vancouver Island.
- t - generally throughout B.C.
- w - western B.C.: Vancouver and Prince Rupert, particularly the coast and the western slopes of the Cascade Mtns.

Host tree abbreviations are those used by **BCMF**. Additional convenient categories have been added, including an abbreviation for limber pine. In the text, hosts are listed in preferential order. A host distribution map is provided (Fig. 2). Descriptive annotations are given for the more significant insects.

- C: coniferous hosts other than native pines
- D: deciduous hosts
- O: "other" hosts: shrubs, herbage, mixed coniferous and deciduous, etc.
- Pf: limber pine, *P. flexilis* James
- Pl: lodgepole pine, *P. contorta latifolia* Engelmann
- Ps: shore pine, *P. c. contorta* Douglas
- Pw: western white pine, *P. monticola* Douglas
- Pwb: whitebark pine, *P. albicaulis* Engelmann
- Py: ponderosa pine, *P. ponderosa* Lawson

It must be stressed that most of the data apply to specimen recovery from pines ONLY, in British Columbia. Distribution, occurrence, status and habits may be quite different if other host plants and/or areas are considered.

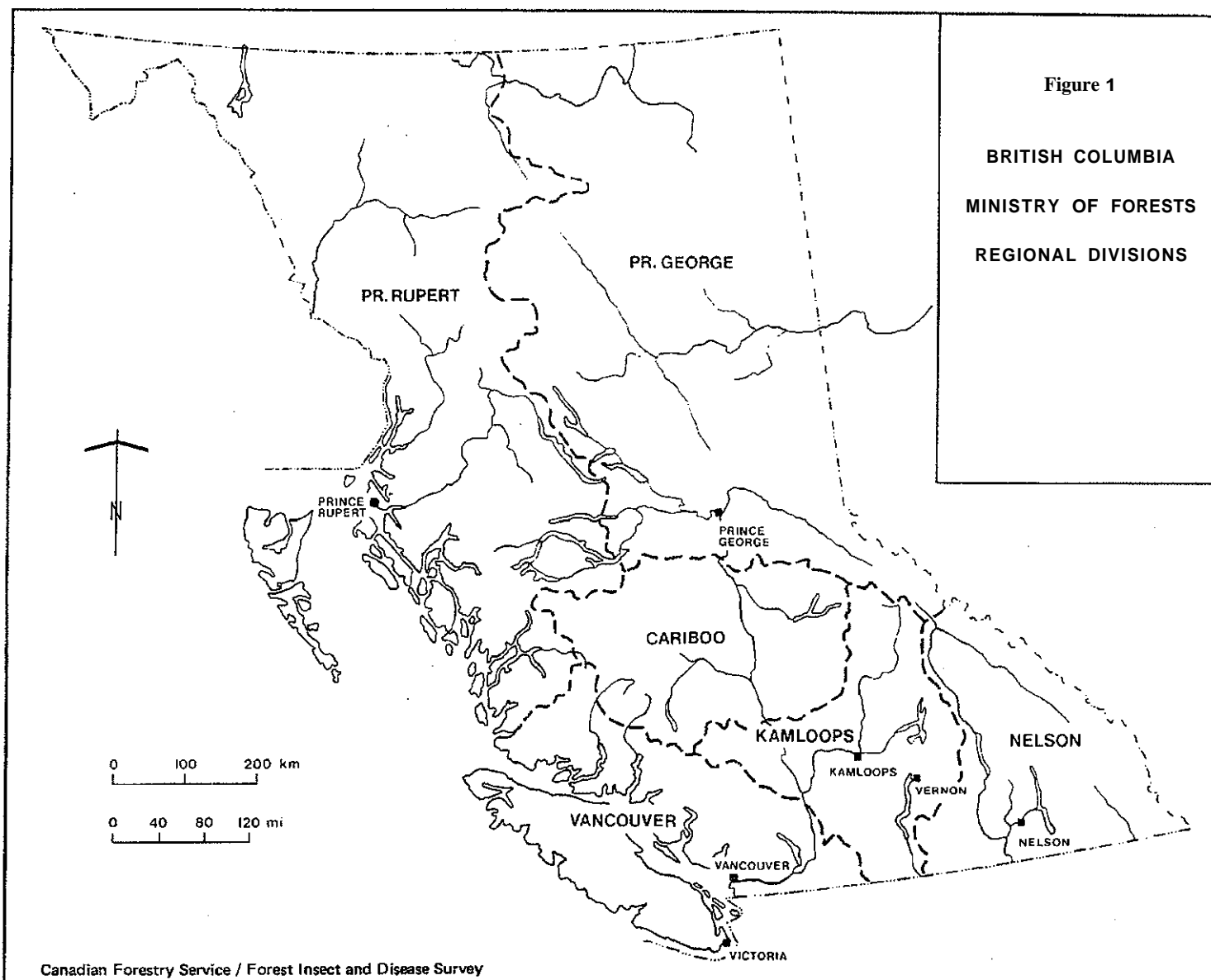
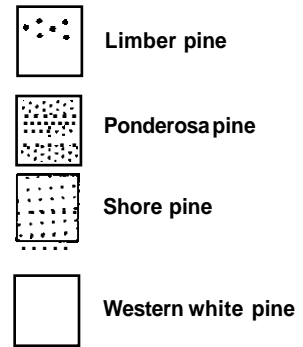
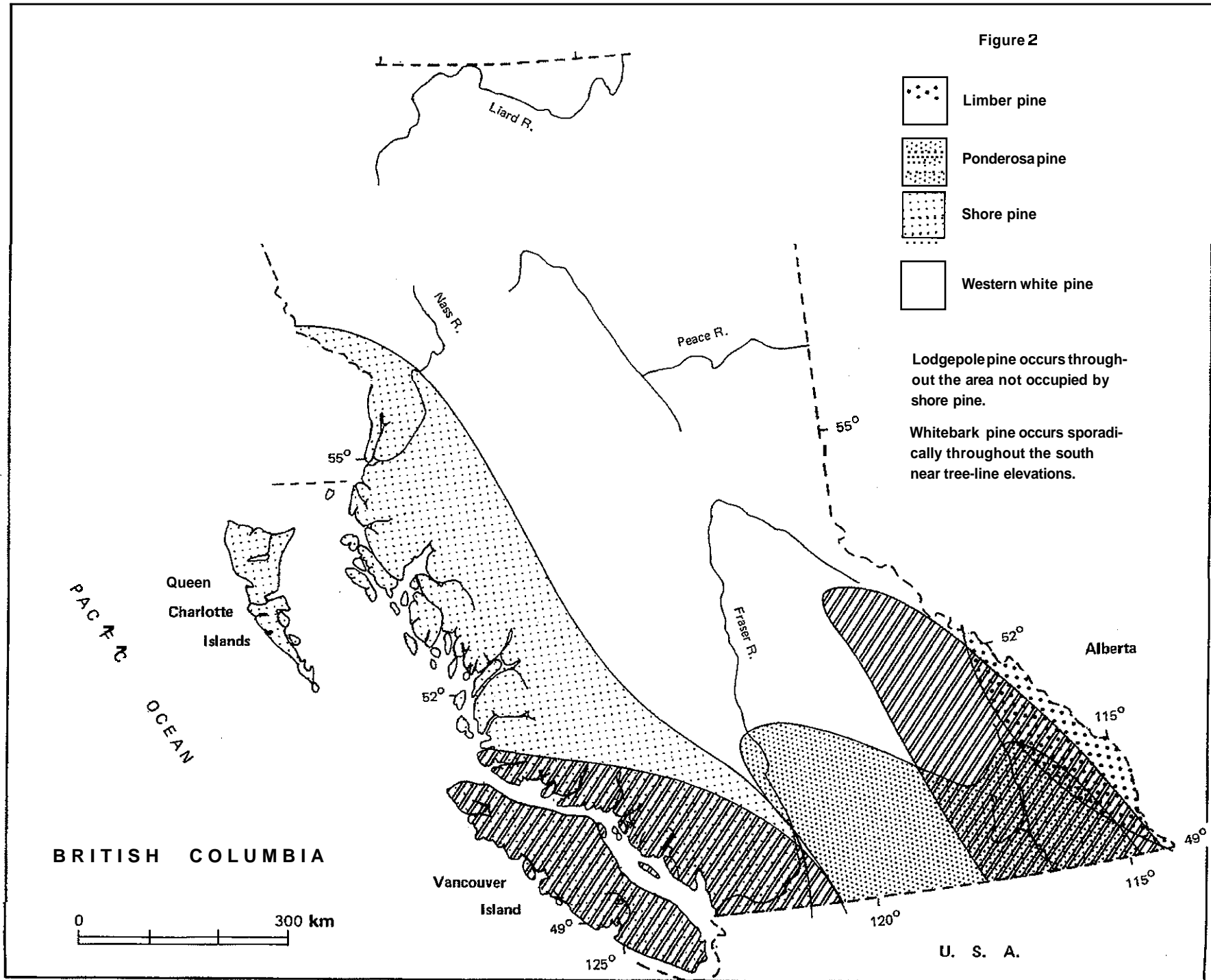


Figure 2



Lodgepole pine occurs throughout the area not occupied by shore pine.

Whitebark pine occurs sporadically throughout the south near tree-line elevations.



KEY TO INSECT ORDERS

The key applies principally to the adult stages of the common groups in the checklist.

1. Three pairs of legs, or appearing legless;
body usually more than 2 mm long 2
Four pairs of legs;
body usually less than 1 mm long Acarina: mites
2. (1) Sucking/piercing mouthparts 3
Biting/chewing mouthparts 7
3. (2) Mouthparts coiled; wings, if present,
with scaly pattern Lepidoptera: moths & butterflies
Mouthparts beak-like; wings not scaly, often clear 4
4. (3) Mouthparts slender and conspicuously jointed;
usually two pairs of wings 5
Mouthparts not obviously jointed 6
5. (4) Forewings usually divided into a leathery section
and a (clear) membranous section;
folded flat at rest Hemiptera: bugs
Wings, if present, all of similar texture;
held roof-like at rest Homoptera: bugs
6. (4) One pair of wings Diptera: flies
Two pairs of fringed wings; soft slender insects
usually less than 2 mm long Thysanoptera: thrips
7. (2) Hind legs enlarged for jumping Orthoptera: grasshoppers
Hind legs usually not enlarged for jumping 8
8. (7) Forewings shell-like or leathery;
rear wings, if present, membranous 9
Wingless, or all wings of similar texture throughout 10
9. (8) Forcep-like appendages at rear of body;
insect flat, dark brown Dermaptera: earwigs
Body without conspicuous posterior
appendages Coleoptera: beetles (in part)
10. (8) Wingless, or apparently so 11
Obviously winged 14
11. (10) Tiny, dark-colored, soft-bodied, gregarious insects,
usually less than 3 mm long, with very short
antennae; abdomen often with a spring-like
appendage underneath Collembola: springtails
Otherwise, usually larger, no ventral "spring" 12

12. (11) "Wasp-waisted"; antennae obviously
 "elbowed" Hymenoptera (in part): ants
 Thick-waisted; antennae variable 13
13. (12) Soft-bodied insects, pale brown or black,
 with large, slightly flattened heads
 and short, bead-like antennae ■ Isoptera: termites (in part)
 Otherwise Coleoptera: beetles (in part)
14. (10) Rear wings relatively small, about 1/4 size
 of the forewings; soft insects with long
 antennae and abdominal appendages •• Ephemeroptera: Mayflies
 Rear wings relatively much larger, or body .
 without long abdominal appendages 15
15. (14) Rear wings obviously larger than the forewings,
 or at least wider 16
 Rear wings smaller, or about the same width
 as the forewings 17
16. (15) Flat-bodied insects; wings held flat at rest.....
 Plecoptera: stoneflies
 Body cylindrical; wings held roof-like
 at rest Trichoptera: caddisflies
17. (15) All wings approximately the same size, shape,
 texture and pattern 18
 Rear wings smaller than forewings, with much less venation ■ 21
18. (17) Antennae inconspicuous, bristle-like Odonata: dragonflies
 Antennae long, thread-like 19
19. (18) Antennae scarcely longer than width of head;
 insect ochreous-brown or black including
 wing veins Isoptera: termites (in part)
 Antennae usually much longer than head
 width, usually approaching body length 20
20. (19) Large insects, more than 7 cm in wingspan;
 antennae long and tapered Megaloptera: fishflies
 Wingspan usually much less than 7 cm,
 or else antennae club-like or
 relatively short Neuroptera: lacewings
21. (17) Tiny, active, soft-bodied, thick-waisted insects,
 usually less than 3 mm long; long, thread-
 like antennae Psocoptera: barklice
 Otherwise, usually larger; body usually
 shell-like, frequently "wasp-
 waisted" Hymenoptera (in part): bees, wasps

ANNOTATED LIST

	<u>Occurrence</u>	<u>Distribution</u>	<u>Host</u>
ACARINA: mites			
Tiny spider-like creatures utilizing a wide range of habit and hosts, i.e. plant galls, surface predators, scavengers.			
Eriophyidae: gall mites, blister mites			
<u>Setopus flexilis</u> Keiffer Feeds in leaf bases.	+	sw	Ps
<u>Trisetacus camnoder</u> a Keiffer & Saunders Causes wrinkled foliage.	+	sw	Ps
<u>Trisetacus ehmanni</u> Keiffer Forms a bud gall.	+	ni	Pl
<u>Trisetacus</u> sp. Causes deformed needles.	+	sw	Pl
Stigmaeidae			
<u>Zetzellia</u> sp. Predator.	+	sw	Ps
Tetranychidae: spider mites Plant feeders.			
<u>Oligonychus</u> sp.	+	svi	Ps
Tydeidae			
<u>Tydeus</u> sp. ?Predator.	+	si	Py

Occurrence Distribution Host

COLEOPTERA: beetles

Alleculidae: comb-clawed bark beetles
Larvae may feed under dead bark; the dark colored adults are occasionally found on tree surfaces, but they do little feeding. The following records are of adults.

<u>Androchirus</u> sp.	+	nw	P1
<u>Hymenorus caurinus</u> Fall	+	se	P1
<u>Isomira variabilis</u> Horn	+	w	Ps, P1, Pw, Py
<u>Pseudocistela pacifica</u> R. Hopping	+	se, si	Py

Anobiidae: drugstore beetles
Although these insects are often household/structural pests, there is a great variety of species and habit. In pines, the curled white larvae bore in dying or dead parts of the trees, most frequently in the small branches. The feeding of the adults is negligible. Distribution is usually wide but sparse.

<u>Coelostethus quadrulus</u> (Leconte)	+	svi	Ps, Pw
<u>Ernobius marginicollis</u> (Leconte)	+	s	P1, Ps
<u>Ernobius pallitarsis</u> Fall	+	se, si	Py
<u>Ernobius punctulatus</u> (Leconte)	+	svi	Ps
<u>Hadrobregmus gibbicollis</u> (Leconte)	+	svi	Ps
<u>Megorama viduum</u> Fall	+	sw	Ps
<u>Utobium elegans</u> (Horn)	+	w	Ps, P1, Pw
<u>Vrilleta decorata</u> Van Dyke	+	sw	Pw
<u>Xestobium affine</u> Leconte	+	sw	Ps
<u>Xyletinus fucatus</u> Leconte	+	i, sw	P1

Bostricidae: branch/twig borers
Larvae are occasionally found in
woody parts of trees; adults do
little feeding.

Stephanopachys sobrinus Casey + se Pl

Bruchidae: bean weevils
Small weevil-like beetles.

Bruchus brachialis Fahraeus + svi Ps
Vetch bruchid
Sheltering record.

Buprestidae: flat-headed wood borers
Larvae may be bark/wood borers; adults
may be sheltering on the trees or
feeding on plant material.

Agrilus politus (Say) + nw Pl
Sheltering record.

Anthaxia aeneogaster Castelnau + i Pl
Sheltering record.

Anthaxia deleta Leconte + i Pl
Sheltering record.

Buprestis adjecta (Leconte) + s Pl,Ps,C,Pw

Buprestis aurulenta Linnaeus + n,sw C,Pl,Ps
Golden buprestid

Buprestis langii (Mannerheim) + se C,Pl,Pw

Buprestis maculativentris + ci C,Pl

Buprestis nuttalli (Kirby) + se Py

Buprestis rusticorum (Kirby) + ci,sw C,Pl,Ps

Buprestis subornata (Leconte) + si Py

Chalcophora angulicollis Leconte + t C,Pl,Ps
Sculptured pine borer

Chrysobothris carinipennis Leconte + se Py

Chrysobothris caurina Horn + se Py

Chrysobothris dentipes (Germar) + si Pl

Chrysobothris trinervia (Kirby) + e C,Pl,Py,Pw

<u>Dicerca crassicollis</u>	+	se	Py
<u>Dicerca tenebrica</u> Kirby Sheltering record.	+	e	Pl
<u>Dicerca tenebrosa</u> (Kirby)	+	ci, se	C, Pl
<u>Melanophila acuminata</u> (DeGeer)	+	se	Py
<u>Melanophila californica</u> Van Dyke California flat-headed borer	+	se	Py
<u>Melanophila drummondi</u> (Kirby) Flat-headed fir borer	+	t	C, Pl, Ps, Py
<u>Melanophila gentilis</u> Leconte	+	se, si	Py, Pw
<u>Melanophila intrusa</u> Horn	+	se	C, Pl
<u>Poecilonota montana</u> Chamberlin Sheltering record.	+	ci	Pl
<u>Trachykele blondeli</u> Marseul Western cedar borer Sheltering record.	+	sw	Ps

Byrrhidae: pill beetles
Occasionally found as
sheltering adults.

<u>Byrrhus</u> sp.	+	nw	Pl
<u>Morychus oblongus</u> (Leconte)	+	se	Pl
<u>Tylicus subcanus</u> (Leconte)	+	se	Pl

Cantharidae: leather-winged beetles
The predacious black adults may
shelter in foliage, and probably
find food there also. The
following are all sheltering records.

<u>Cantharis oregona</u> Leconte	4	w	Ps, Pw
<u>Malthodes</u> sp.	+	ni	Pl
<u>Podabrus cavicollis</u> Leconte	+	w	Ps, Pl, Pw
<u>Podabrus cinctipennis</u> Leconte	+	nw	Pl
<u>Podabrus confraternus</u> Fall	+	nw	Ps, Pl, Pw

<u>Podabrus excursus</u> Fall	+	e	P1
<u>Podabrus laevicollis</u> (Kirby)	+	ci	P1
<u>Podabrus piceatus</u> Fender	+	sw	P1
<u>Podabrus piniphilus</u> (Eschscholtz)	++++	t	P1, Ps, Pwb
<u>Podabrus pruinosus</u> Leconte	+	t	P1, Ps, Py
<u>Podabrus pustulatus</u> Fender	+	sw	Pw
<u>Podabrus scaber</u> Leconte	+	e, se	P1
<u>Podabrus tetragonoderus</u> Fall	+	nw	P1
<u>Silis cava</u> Leconte	+	ci	Pw
<u>Silis difficilis</u> Leconte	+	w	P1, Ps
<u>Silis lutea filigara</u> Leconte	+	nw	P1
<u>Silis pallida</u> Mannerheim	+	nw	P1

Carabidae: ground beetles
 A large diverse group;
 larvae and adults are
 usually active predators.
 The following are all
 sheltering records.

<u>Agonum decens</u> (Say)	+	ci	P1
<u>Agonum quadripunctatum</u> (Dejean)	+	nw	P1
<u>Amara pallipes</u> (Kirby)	+	sw	Pw
<u>Amara</u> spp.	+	si	P1
<u>Bembidion</u> spp.	+	ci	P1
<u>Calathus ingratus</u> Dejean	+	ni	P1
<u>Dromius piceus</u> Dejean	+	se	P1
<u>Lebia ornata</u> Say	+	sw	Pw
<u>Nebria</u> sp.	+	ci	P1
<u>Notiophilus</u> sp.	+	w	P1
<u>Zezea pallipes</u> Kirby	+	sw	Pw

Cephaloidea: flower beetles
Adults may shelter on foliage.

<u>Cephaloon bicolor</u> Horn	+	n,w	Pl,Ps,Pw,Pwb
<u>Cephaloon lepturides</u> Newman	+	sw	Pw
<u>Cephaloon tenuicorne</u> (Leconte)	++	t	Pl,Ps,Pw

Cerambycidae: long-horned beetles,
round-headed wood borers
An extensive group of relatively large
insects; the white nearly-legless larvae
may bore in the wood or other parts of the
tree; adults do little feeding, but are
found sheltering. Unless otherwise indicated,
the following are all sheltering records;
however, damage descriptions and additional
tree hosts are given for those species
that do bore in pines.

<u>Acmaeops pratensis</u> (Laicharteg)	+	nw	Pl
<u>Acmaeops proteus</u> (Kirby) A bark/wood borer - some feeding records.	+	n	C,Pl
<u>Acmaeopsoides rufula</u> (Haldeman)	+	ci	Pl
<u>Anoploclera amabilis</u> (Leconte)	t	sw	Pl
<u>Anoploclera aspera</u> (Leconte)	+	ci	Pl
<u>Anoploclera canadensis</u> Olivier A wood borer - some feeding records.	+	e	C,Pl,D,Pw
<u>Anoploclera chrysocoma</u> (Kirby) A deadwood borer.	+	ci	Pl,C,D
<u>Anoploclera crassipes</u> (Leconte)	+	sw	Ps,Pl,Pw
<u>Anoploclera dehiscens</u> (Leconte)	+	sw	Ps,Pw
<u>Anoploclera dolorosa</u> (Leconte)	+	sw	Ps,Pw
<u>Anoploclera laetifica</u> (Leconte)	f	i	Pl
<u>Anoploclera mutabilis</u> (Leconte)	t	ci	Pl
<u>Anoploclera nigrella</u> (Say)	+	i	Pl
<u>Anoploclera sanguinea</u> (Leconte)	+	se	Pl

<u>Anoplodera sexmaculata</u> (Linnaeus)	+	i	PI
<u>Anoplodera tibialis</u> Leconte	+	sw	Ps, Pw
<u>Arhopalus foveicollis</u> Haldeman	+	se	Py, Pw
<u>Asemum nitidum</u> Leconte	+	se	Py
<u>Asemum striatum</u> Kirby A wood borer in branches/boles - some feeding records.	+	ni	C, Pl, Ps
<u>Callidium</u> sp. A bark/sapwood borer in dying/ injured trees - some feeding records.	+	w	Pl, C
<u>Centrodera spurca</u> Leconte	+	i	Pl, Ps
<u>Clytus planifrons</u> Leconte	+	sw	PS
<u>Cortodera coniferae</u> Hopping & Hopping	+	i, se	Pl
<u>Cortodera longicornis</u> (Kirby)	++	i, se	Pl
<u>Cortodera subpilosa</u> Leconte	+	i	Pl
<u>Ergates spiculatus</u> Leconte A large borer in old wood, Particularly at ground level.	+	ci	Py
<u>Evodinus vancouveri</u> Casey	+	i, w	Pl, Ps
<u>Grammoptera filicornis</u> (Casey)	+	nw	Pl, Ps
<u>Grammoptera subargentata</u> (Kirby)	+	e	Pl
<u>Holopleura marginata</u> Leconte	+	se	Pw
<u>Leptalia frankenhauseri</u> (Mannerheim)+		se	Py
<u>Leptalia macilentata</u> (Mannerheim)	+	se, si	Pw, Py
<u>Leptura obliterateda</u> (Haldeman) A wood borer, usually in decayed wood; some feeding records.	+	t	C, Pl, Ps, Pw

<u>Megasemum asperum</u> (Leconte)	+	se	Pl
<u>Molorchus longicollis</u> Leconte	+	se, si	Py
<u>Monochamus maculosus</u> Haldeman Spotted pine sawyer A large bark/wood borer in dying/dead trees,	+	s	Pl, Ps, C
<u>Monochamus notatus</u> (Drury) Northeast sawyer A large bark/wood borer in dying/dead trees.	+	se	Pw
<u>Monochamus oregonensis</u> Leconte Oregon fir sawyer A large bark/wood borer in dying/dead trees. The near- black adults, 13-35 mm body length, have conspicuously long antennae.	+	+ t	C, Pl, Ps
<u>Monochamus scutellatus</u> (Say) White-spotted sawyer A large bark/wood borer - some feeding records.	+	i	C, Pl
<u>Neacanthocinus obliquus</u> (Leconte)	+	s	Py
<u>Neoclytus muricatus</u> (Kirby) A bark/wood borer - some feeding records.	+	ci	C, Pl
<u>Opsimus quadrilineatus</u> Mannerheim A wood borer - some feeding records.	+	w	C, Ps
<u>Pachyta lamed</u> (Linnaeus) A deadwood borer.	+	ni	C, Pl
<u>Phymatodes decussatus</u> Leconte	+	se	Py
<u>Phymatodes dimidiatus</u> (Kirby)	+	se	Pl
<u>Phymatodes nitidus</u> Leconte	+	sw	PS
<u>Pidonia scripta</u> Leconte	+	sw	PS
<u>Plectrura spinicauda</u> Mannerheim	+	sw	Ps, Pl, Pw
<u>Pogonocherus pictus</u> Fall	+	ni	Pl
<u>Pogonocherus propinquus</u> Fall	+	se	Pl

<u>Prionus californicus</u> Motschulsky	+	ci,sw	Pl,Ps
California prionus			
A root borer - some feeding records.			
<u>Rhagium inquisitor</u> (Linnaeus)	+	s,w	Pl,Ps,C,Pw
A bark/wood borer in dead trees.			
<u>Rhagium obtusum</u> (Leconte)	+	si	Pl
<u>Saperda concolor</u> Leconte	+	sw	Py
<u>Semanotus</u> sp.	+	se	C,Pl
A bark/sapwood borer in dying trees - Some feeding records.			
<u>Spondylis upiformis</u> Mannerheim	+	ni,se	Pl
Probably a root borer.			
<u>Tetropium velutinum</u> Leconte	+	se	C,Pl
A bark/wood borer in weakened trees - some feeding records.			
<u>Tragosoma depsarium</u> (Linnaeus)	+	sw	Py
A wood borer in old wood.			
<u>Xestoleptura tibialis</u> (Leconte)	++	i	Pl
<u>Xylotrechus undulatus</u> (Say)	+	i	Pl
A wood borer.			

Chrysomelidae: leaf beetles
Small colorful plant feeders, but
the adults found on pine are
usually sheltering.

<u>Altica ambiens</u> (Leconte)	+	ci	Pl
Alder flea beetle			
<u>Altica tombacina</u> Mannerheim	+	t	Pl,Ps,Pw
Altica spp.	+	t	Pl,Ps
<u>Bromius (Adoxus) obscurus</u> (Linnaeus)+		t	Pl,Ps,Pw
Western grape rootworm			
<u>Chalcoides fulvicornis</u> (Fabricius)	+	nw	PS
<u>Chrysolina quadrigemina</u> (Suffrian)	+	se	Pl
Klamathweed beetle			
<u>Chrysomela mainensis littorea</u> Brown	+	nw	Pl

<u>Chrysomela scripta</u> Fabricius Cottonwood leaf beetle	t	nw	Pl,Ps
<u>Cryptocephalus notatus</u> Fabricius	+	se	Py
<u>Donacia proxima</u> Kirby	+	ci	Pl
<u>Glyptoscelis longior</u> Leconte	+	i,se	Pl,Pw,Py
<u>Gonioctena americana</u> (Schaeffer) American aspen beetle	t	ni	Pl
<u>Gonioctena notmani</u> (Schaeffer)	t	ne	Pl
<u>Luperodes lecontei</u> Crotch	+	ci	Py
<u>Luperodes varipes</u> Leconte	+	si	Py
<u>Orsodacne atra</u> (Ahrens)	t	n	Pl
<u>Phratora purpurea purpurea</u> Brown	+	nw	Pl
<u>Pyrrhalta decora carbo</u> (Leconte) Pacific willow leaf beetle	+	n,sw	Pl,Ps,Pw
<u>Pyrrhalta punctipennis</u> (Mannerhei)	+	w	Ps,Pl
<u>Syneta albida</u> Leconte	+	nw	Pl
<u>Syneta carinata</u> Mannerheim	+	t (except se)	Pl,Ps
Syneta hamata Horn	+	nw	Pl,Ps
Syneta pilosa Brown	++	w	Pl,Ps
<u>Trirhabda pilosa</u> Blake	+	ce	Py

Cleridae: checkered beetles
Common active predators; the pink/brown
larvae may be found under dead bark in
association with bark boring insects,
adults may occur anywhere on the trees.

<u>Corinthiscus fasciatum</u> (Leconte)	+	sw	Pw
<u>Enoclerus humeralis</u> Schaeffer	+	s	Pw,Py
<u>Enoclerus lecontei</u> (Wolcott) Black-bellied clerid	+	ci	Py
<u>Enoclerus moestus</u> Klug	t	ci,se,si	Py,Pw

<u>Enoclerus schaefferi</u> Barr	+	ci	Py
<u>Enoclerus spegeus</u> Fabricius	+	t	Pl, Ps, Pw
<u>Phyllobaenus californicus</u> Van Dyke	+	sw	Pl
<u>Phyllobaenus subfasciata</u> Leconte	+	se	Py
<u>Thanasimus nigriventris</u> Leconte	+	se, si	Py
<u>Thanasimus undulatus</u> Say	+	ci	Pl

Coccinellidae: ladybird beetles
Common predators.

<u>Adalia annectans</u> Crotch	+	se	Py
<u>Adalia bipunctata</u> (Linnaeus) Two-spotted lady beetle	+	se, si	Py, Pw
<u>Adalia frigida</u> (Schneider)	+	t	Pl
<u>Anatis mali</u> (Say)	+	se	Pl
<u>Anisocalvia 14-guttata</u> (Linnaeus)	++	t	Pl
<u>Brachycantha ursina</u> Fabricius	+	se	Py
<u>Chilocorus stigma</u> (Say) Twice-stabbed lady beetle	++	e, s,	Pl, Ps, Pw
<u>Chilocorus tricyclus</u> Smith	+	se	Py
<u>Coccinella fulgida</u> Watson	+	svi	Ps
<u>Coccinella johnsoni</u> Casey	++	svi	Ps
<u>Coccinella monticola</u> Mulsant	+	sw	Pw
<u>Coccinella oregona</u> Casey	+	ci	Py
<u>Coccinella transversoguttata richardsoni</u> Brown Transverse lady beetle	+	ni	Pl
<u>Coccinella trifasciata</u> Linnaeus	+	sw	Ps, Pw
<u>Cycloneda sanguinea</u> Linnaeus	++	sw	Ps, Pl, Pw
<u>Exochomus septentrionis</u> Weise	+	e	Pl
<u>Hippodamia caseyi</u> Johnson	+	si	Py

<u>Hippodamia convergens</u> Guérin-Meneville Convergent lady beetle	+	se	Py
<u>Hippodamia oregonensis</u> Crotch	+	si	Py
<u>Hippodamia parenthesis</u> (Say)	+	ne,sw	Pl,Ps
<u>Hippodamia quinquesignata quinquesignata</u> Kirby	+	i,ne	Pl
<u>Hippodamia sinuata spuria</u> Leconte Sinuate lady beetle	+	se	Pl
<u>Hippodamia tredecimpunctata tibialis</u> (Say) 13-spotted lady beetle	++	sw	Pw
<u>Hyperaspis postica</u> Leconte	+	se	Pl
<u>Microweisia misella</u> (Leconte)	+	se	Pl
<u>Mulsantina hudsonica</u> (Casey)	+	n	Pl
<u>Mulsantina picta minor</u> (Casey)	+++	t	Pl,Ps,Py
<u>Neomysia horni</u> (Crotch)	+	ci,se	Py,Pl
<u>Neomysia montana</u> Casey	+	s	Pw,Py,Pl,Ps
<u>Neomysia pullata</u> (Say)	+	nw,se	Pl,Py,Ps
<u>Neomysia subvittata</u> (Mulsant)	+	se	Pl
<u>Psyllobora viginti-maculata</u> (Say)	+	sw	Ps,Pl,Pw
<u>Scymnus ardelio</u> Horn	+	s	Ps,Pl,Py
<u>Scymnus coniferarum</u> Crotch	+	s	Pw,Py
<u>Scymnus lacustris</u> Leconte	+	ni	Pl
<u>Scymnus marginicollis</u> Mannerheim	+	s	Pl,Pw,Py
<u>Scymnus phelpsi</u> Crotch	+	sw	Ps,Pw

Colydiidae: cylindrical Barkbeetles
Diverse feeding habits; occasionally
found under dead bark, or on the surface.

<u>Aulonium longum</u> Leconte	+	ci,se	Py,Pl
<u>Coxelus pacificus</u> Horn	+	sw	Pw

<u>Lasconotus complex</u> Leconte	+	s	Pl,Ps
<u>Lasconotus laqueatus</u> Leconte	+	se,si	Pl,Py,Pw
<u>Lasconotus pertenus</u> Casey	+	se	Pl

Cucujidae: flat barkbeetles
Omnivorous feeders, usually found under
dead bark.

<u>Cucujus clavipes</u> Fabricius	+	s	Py,Pw
<u>Dendrophagus cygnaei</u> Mannerheim	+	se	Pl

Cupesidae:
Small plant-feeding beetles,
little **known**.

<u>Priacma serrata</u> (Leconte)	+	se	Pl
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Curculionidae: weevils, snout beetles
A large group with diverse plant-feeding
habits. Larvae may be found boring in
most parts of the trees, and adults
are commonly found on the surface,
where they can cause noticeable
defoliation. Most of the following
records are for adults sheltering/feeding
on the foliage; more definite status to
pines is given if it is known.

<u>Cimberis bombifrons</u> (Leconte)	+	ci	Pl
<u>Cimberis</u> sp.	+	s	Ps,Pwb
<u>Gnemognonus lecontei</u> Dietz	+	se	Py
<u>Cossonus pacificus</u> Van Dyke	+	se	Pw
<u>Cossonus piniphilus</u> Boheman	+	s	Pw,Py
<u>Cryptorhynchus (Sternochetus) lapathi</u> (Linnaeus) Poplar and willow borer	+	s	O,Ps,Pl,Pw
<u>Cylindrocopturus deleoni</u> Buchanan	+	e,sw	Pl,Ps
<u>Diodyrhynchus byturoides</u> Leconte	+	si	Py
<u>Dorytomus</u> sp.	+	nw	Ps
<u>Dyslobus granicollis</u> (Leconte)	+	sw	Ps
<u>Dyslobus luteus</u> Horn	+	se	Py
<u>Dyslobus verrucifer</u> Casey	+	s	Ps,Pl,Pw,Py

<u>Grypus equiseti</u> (Fabricius)	+	se	Pl
<u>Gymnaetron tetrum</u> (Fabricius)	+	ci	Py
<u>Hylobius pinicola</u> Couper The larvae feed in roots.	+	nl, se	Pl, Py
<u>Hylobius warreni</u> Wood The larvae feed in roots.	++	i	Pl, Pw
<u>Lechriops californicus</u> (Leconte) The larvae feed in bark.	++	t	Pl, Pw, Ps, Py
<u>Lepyrus gemellus</u> Kirby	+	nw	Pl
<u>Magdalis aenescens</u> Leconte Bronze apple tree weevil	+	sw	O, Ps
<u>Magdalis alutacea</u> Leconte	+	ci	Pl, Py
<u>Magdalis decepta</u> Sleeper	+	se, si	Py
<u>Magdalis gentilis</u> Leconte	++	t	Pl, Ps, Py
<u>Magdalis hispoides</u> Leconte	++	s	Pl, Py, Ps, Pw
<u>Magdalis lecontei</u> Horn The larvae feed in twigs.	++	si	Py, Pl
<u>Magdalis striata</u> Fall	+	si	Py
<u>Magdalis subtinctoria</u> Leconte	+	se	Pl
<u>Miccotrogus (Tychius) picirostris</u> (Fabricius)	+	se	O, Pl, Pw
<u>Nemocestes horni</u> Van Dyke	+	sw	Ps, Pw
<u>Otiorhynchus (Brachyrhinus) ovatus</u> (Linnaeus) Strawberry root weevil	+	se	O, Pl, Pw
<u>Otiorhynchus (Brachyrhinus) singularis</u> (Linnaeus)	+	sw	Ps
<u>Panscopus gemmatus</u> (Leconte)	+	sw	Pl, Pw
<u>Panscopus pallidus</u> Buchanan	+	se	Pl, Pw
<u>Phyllobius oblongus</u> Linnaeus	+	sw	Ps

<u>Pissodes affinis</u> Randall (<u>curriei</u> Hopkins)	++	t	Pl,Ps,Pw,Py
<u>Pissodes alascensis</u> Hopkins	+	sw	Ps,Pw
<u>Pissodes burkei</u> Hopkins	+	sw	O,Pw,Ps
<u>Pissodes dubius</u> Randall	+	ci	O,Pl
<u>Pissodes fasciatus</u> Leconte	+	t	O,Pl,Ps,Pw,Py
<u>Pissodes radiatae</u> Hopkins Monterey pine weevil A bark borer.	+	w	Ps,Pl,Pw
<u>Pissodes rotundatus</u> Leconte	+	nw,se	Pl,Py
<u>Pissodes schwarzi</u> Hopkins Yosemite bark weevil A bark borer.	++++	t	Pw,Pl,Py
<u>Pissodes similis</u> Hopkins	+	e	Pl
<u>Pissodes strobi</u> (Peck) (<u>engelmanni</u> Hopkins, <u>sitchensis</u> Hopkins) White Pine weevil The larvae feed in terminal wood.	+	s	Pl,Ps,Pw
<u>Pissodes terminalis</u> (Hopping) Lodgepole terminal weevil The larvae bore in terminals.	++++	t	Pl,Ps,Py,Pw
<u>Rhynchaenus (Orchestes) parvicollis</u> (Leconte)	+	si	Py
<u>Rhynchaenus (Orchestes) sp.</u>	+	se	Pl
<u>Rhynchites bicolor wickhami</u> Cockerell Rose curculio	+	se	O,Py
<u>Rhyncolus brunneus</u> Mannerheim	+	si	Pl,Py,Pw
<u>Rhyncolus oregonensis</u> Horn	+	ci,se	Py
<u>Sciopithes obscurus</u> Horn	+	n,w	Pl,Ps,Pw
<u>Scythropus californicus</u> Horn The adults can cause noticeable defoliation.	++	t	Pl,ps
<u>Scythropus elegans</u> (Couper) The adults can cause noticeable defoliation.	+++	t	Pl,Ps

Sitona hispidulus (Fabricius) + sw Pw
Clover root curculio

Sthereus quadrituberculatus Motschulsky + se,w Ps,Pl,Pw,Py

Strophosoma melanogrammum Forster + s Pl,Ps

Tachypterellus quadrigibbus (Say) + se Py

Trichalophus seriatus (Mannerheim) + si Py

Dascillidae: soft-bodied plant beetles
Adults occasionally found sheltering.

Araeopidius monachus Leconte + nw,se Ps,Py

Macropogon cribricollis Brown + nl,w Pl,Ps,Pw

Macropogon piceus Leconte + s,w Ps,Pl,Pw,Py

Dermostidae: skin beetles, larder beetles
Adults occasionally found sheltering;
probably some feeding on diverse material.

Anthrenus verbasci (Linnaeus) + ci Py
Varied carpet beetle

Attagenus piceus Olivier + ci Py

Attagenus spp. + nw Ps

Megatoma nevadica Casey + se Py

Megatoma sp. + nw Pl

Derodontidae: tooth-necked fungus beetles
Larvae and adults may be found in pine
fungi/rusts; adults may shelter/scavenge
on the pine surface.

Peltastica tuberculata Mannerheim + nw PW

Dytiscidae: predaceous diving beetles
These beetles develop in fresh water,
but the adults are good fliers, and
pines are sometimes used as temporary
shelter.

Agabus sp. + nw Pl

Elateridae: click beetles, wireworms
 A large group; the adults are commonly
 found on trees, particularly in the
 foliage, on which they occasionally feed.

<u>Agriotella columbiana</u> Brown	+	sw	Pl,Ps
<u>Agriotella occidentalis</u> Brown	+	t	Pl,Ps,Py
<u>Agriotes ferrugineipennis</u> Leconte	++	t	Pl,Ps,Pw,Py
<u>Agriotes limosus</u> (Leconte)	+	ci	Pl
<u>Agriotes tardus</u> Brown	+	ci	Pl,Py
<u>Agriotes thevenetii</u> Horn	+	si	Py
<u>Alaus melanops</u> Leconte	+	ci	Py
<u>Ampedus apicatus</u> (Say)	+	se	Py
<u>Ampedus bimaculatus</u> (Van Dyke)	+	svi	Ps
<u>Ampedus carbonicolor</u> (Eschscholtz)	+	ci,sw	Ps,Py
<u>Ampedus columbianus</u> Brown	+	si,sw,	Ps,Py,Pw
<u>Ampedus nigrinus</u> Herbst	++	t	Pl,Ps,Py
<u>Ampedus phoenicopterus</u> (Germar)	+	w	Pl,Pw
<u>Ampedus pullus</u> (Germar)	+	sw	Pl,Ps
<u>Ampedus rhodopus</u> (Leconte)	+	ci,sw	Ps,Pl,Pw
<u>Ampedus ursinus</u> Van Dyke	+	ci	Py
<u>Athous brevis</u> Van Dyke	+	sw	Ps,Pw
<u>Athous imitans</u> Fall	+	sw	Pl,Ps
<u>Athous nigripilis</u> Morschulsky	+	sw	Ps
<u>Athous pallidipennis</u> Mannerheim	+	w	Ps,Pl,Pw
<u>Athous rufiventris</u> Eschscholtz	++	t	Pl,Ps,Pw
<u>Athous scissus</u> Leconte	+	t	Pl,Ps,Pw
<u>Athous vittiger</u> Leconte	+	w	Ps,Pl,Pw

<u>Cardiophorus edwardsi</u> Horn	+	se	Py
<u>Cardiophorus fenestratus</u> Leconte	+	t	Pl, Py, Ps
<u>Cardiophorus latiusculus</u> Eschscholtz	+	s	Pl, Py, Pw
<u>Cardiophorus longior</u> Leconte	+	se	Py
<u>Cardiophorus tenebrosus</u> Leconte	+	se	Pl, Py
<u>Cardiophorus tumidicollis</u> Leconte	+	se	Py
<u>Ctenicera aereipennis aereipennis</u> (Kirby) Puget Sound wireworm	++	t	Pl, Py, Ps, Pw
<u>Ctenicera angusticollis</u> (Mannerheim)	+	i, sw	Pl, Ps, Pw, Py
<u>Ctenicera arata</u> (Leconte)	+	ci	Pl
<u>Ctenicera bombycina</u> (Germar)	+++	t	Pl, Ps, Py, Pw
<u>Ctenicera callida</u> (Brown)	++	t	Pl, Pw, Ps
<u>Ctenicera comes</u> (Brown)	+	nw	Pl, Ps
<u>Ctenicera cruciata</u> (Leconte)	+	ci	Pl, Ps
<u>Ctenicera glauca</u> Germar	+	se	Pl, Py
<u>Ctenicera hoppingi</u> (Van Dyke)	+	ne	Pl, Pw
<u>Ctenicera insidiosa</u> (Leconte)	+	t	Pl, Pw, Ps, Py
		(except se)	
<u>Ctenicera kendalli</u> (Kirby)	+	ne	Pl
<u>Ctenicera leucaspis</u> Leconte	+	sw	Pl
<u>Ctenicera lobata</u> Eschscholtz	+	w	Pl, Py, Ps, Pw
<u>Ctenicera moerens</u> Leconte	+	sw	Ps, Pw
<u>Ctenicera morula</u> (Leconte)	+	ci	Pl
<u>Ctenicera nebraskensis</u> (Bland)	+	t	Pl, Py, Ps, Pw
		(except nw)	

<u>Ctenicera nigricollis</u> (Bland)	+	i	Pl,Py
<u>Ctenicera nitidula</u> Leconte	+	i	Pl,Py
<u>Ctenicera ochreipennis</u> (Leconte)	+	i	Pl,Pw
<u>Ctenicera propola</u> (Leconte)	++	t	Pl,Ps,Py,Pw
<u>Ctenicera pudica</u> (Brown)	+	s	Pl,Py,Pw,Ps
<u>Ctenicera resplendens</u> Eschscholtz	+	i	Pl,Py,Pw
<u>Ctenicera rotundicollis</u> (Say)	+	sw	Pw
<u>Ctenicera sagiticollis</u> (Eschscholtz)	+	si	Pw
<u>Ctenicera semimetallica</u> (Walker)	+	i	Py,Pl,Pw
<u>Ctenicera suckleyi</u> (Leconte)	+	w	Pl,Pw,Ps,Py
<u>Ctenicera sylvatica</u> (Van Dyke)	+	t	Pl,Pw,Ps
<u>Ctenicera triundulata</u> (Randall)	++	ci,se	Pl,Py,Pw
<u>Ctenicera umbricola</u> (Eschscholtz)	+	s	Pl,Pw,Ps
<u>Ctenicera umbripennis</u> (Leconte)	+	w	Ps,Pl,Pw
<u>Ctenicera vidua</u> Brown	+	se	Py
<u>Ctenicera volitans</u> (Eschscholtz)	+	ci	Pl
<u>Dalopius suspectus</u> Brown	+	se	Pl,Pw
<u>Dalopius tristis</u> Brown	++	t	Pl,Pw,Ps,Py
<u>Denticollis denticornis</u> (Kirby)	+	ce	Pl
<u>Drasterius debilis</u> Leconte	+	n	Pl,Ps
<u>Eanus decoratus</u> (Mannerheim)	+	ni	Pl
<u>Eanus granicollis</u> Van Dyke	+	ni	Pl
<u>Hemicrepidius morio</u> (Leconte)	+	s	Pl,Pw,Py
<u>Hypolithus nocturnus</u> Eschscholtz	+	sw	Pw
<u>Hypolithus</u> sp.	+	ci	Pl
<u>Lacon profusus</u> Candeze	+++	t	Pl,Pw,Ps,Py
<u>Lacon rorulentus</u> Laconte	+	se	Py

<u>Limonius aeger</u> Leconte	+++	t	Pl,Ps,Pw
<u>Limonius crotchi</u> Horn	+	ci	Pl
<u>Limonius maculicollis</u> Motschulsky	+	sw	Pl
<u>Limonius nitidulus</u> Horn	+	t	Ps,Pl,Py,Pw
<u>Limonius pectoralis</u> Leconte	+	ni	Pl
<u>Limonius rufihumerals</u> Lane	+	se	Py
* <u>Limonius venablesi</u> (Wickham)	+	se	Py
<u>Megapenthes caprella</u> Leconte	+	nw	Pl
<u>Megapenthes nigriventris</u> Leconte	+	i,nw	Pl,Py,Pw
<u>Megapenthes stigmatosus</u> (Leconte)	++	t	Pl,Pw,Ps,Py (except se)
<u>Megapenthes tartareus</u> (Leconte)	+	se	Py
<u>Negastrius tumescens</u> (Leconte)	+	i,nw	Pl,Py
<u>Sericus brunneus</u> (Leconte)	+	ni,sw	Pl,Pw

Endomychidae
Plant scavengers.

<u>Mycetina idahoensis</u> Fall Sheltering/scavenging.	+	si	Py
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Erotylidae: fungus beetles
Associated with fungus on pines.

<u>Triplax californica</u> Leconte	+	ci	Pl
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Helodidae: soft-bodied plant beetles
Adults occasionally found sheltering.

<u>Cyphon brevicollis</u> (Leconte)	+	sw	Ps,Pw,Pl
<u>Cyphon concinnus</u> (Leconte)	+	w	Ps,Pl,Pw
<u>Cyphon variabilis</u> (Thunberg)	+	t	Pl,Pw,Ps

Heteroceridae: Mud-loving beetles
Adults found sheltering.

<u>Hetaerius tristriatus</u> Horn	+	se	Py
<u>Isolomalus mancus</u> Casey	+	t	Pl,Pw,Ps

<u>Platysoma coarctatum</u> Leconte	+	se	Py
<u>Platysoma punctigerum</u> Leconte	+	ci,se	Pl,Py

Lampyridae: fireflies
The predaceous larvae may be found under old bark; adults, also predacious, may be found on the tree surface.

<u>Lucidota californica</u> (Motschulsky)	+	w	Pl,Ps
<u>Lucidota corrusca</u> (Linnaeus)	+	ni,se	Pl,Pw

Lathridiidae: minute scavenger beetles
Tiny elongate brown beetles sometimes found in dead bark.

<u>Corticaria dentigera</u> Leconte	+	s	Pl,Pw,Ps
<u>Corticaria serrata</u> (Paykull)	+	sw	Ps
<u>Melanophthalma gibbosa</u> Herbst	+	w	Ps,Pl
<u>Melanophthalma similata</u> Gyllenhal	+	se	Pl

Lucanidae: stag beetles

<u>Platycerus marginalis</u> Casey Sheltering record.	+	se	Pw
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Lycidae: net-winged beetles
The predaceous larvae **may** be found under dead bark. The adults, also predators, may be in the foliage for shelter or food.

<u>Dicryopterus aurora</u> Herbst	+	si	Py
<u>Dictyopterus hamatus</u> (Mannerheim)	+	se	Pw
<u>Dictyopterus simplicipes</u> (Mannerheim)	+	se	Pw

Melandryidae: bark-loving beetles
Elongate dark colored scavenger beetles.

<u>Prothalia holmbergi</u> (Mannerheim)	+	w	Pl,Ps,Pw
<u>Scotochroa basalis</u> Leconte	+	t i	Pl,Pw,Py
<u>Serropalpus substriatus</u> Haldeman	+	ni,se	Pl,Py,Pw
<u>Stenotrachelus aeneus</u> (Fabricius)	+	nw	Pl
<u>Tetratoma concolor</u> Leconte	+	nw	Pl,Ps

~~Xylita livida~~ Sahlberg + nw Pl,Ps

Melasidae: false click beetles
Although the larvae are wood/bark
borers, most local records are of
sheltering adults.

Anelastes sp. + ni Pl

Meloidae: blister beetles
Usually herbage feeders; adults
are sometimes found sheltering
in the foliage

Epicauta sp. + ci Pl

Meloe montanus Leconte + si Pw

Melyridae: soft-winged flower beetles
Predators; adults **may** use pines as shelter.

Anthocomus antennatus (Hopping) + se Py

Anthocomus auritus (Leconte) + ci Pl

Anthocomus moerens (Leconte) + ci Py

Anthocomus montanus Leconte + se Py

Attalus nigrellus (Leconte) + w Ps,Pl,Pw

Eurelymis atra (Leconte) + se Py

Hoppingiana hudsonica Leconte +++ t Pl,Ps,Py,Pw,Pwb
(mostly ni)

Hypebaeus bicolor (Leconte) + se,si Py

Listrus plenus Casey + sw Ps,Pw

Malachius aeneus (Linnaeus) + si Py

Malachius mirandis (Leconte) + si Py

Trichochrous sp. + nw Pl

Mordellidae: tumbling flower beetles
Small silky beetles often found on flowers.

Anaspis atrata Champion + t Pl,Py,Ps,Pw

Anaspis rufa Say + t Pl,Pw,Ps

<u>Mordella scutellaris</u> Fabricius	+	sw	Pw
Nitidulidae: sap-feeding beetles May be feeding or sheltering on the trees.			
<u>Brachypterus</u> sp.	+	nw	Ps
<u>Eपुरaea avara</u> (Randall)	+	se	Pl
<u>Eपुरaea truncatella</u> Mannerheim	+	w	Pl, Pw, Py, Ps
<u>Glischrochilus sanguinolentus</u> (Olivier)	+	nw	Pw
<u>Glischrochilus vittatus</u> (Say)	+	i	Pl
<u>Nitidula rufipes</u> Linnaeus	+	nw	Pl
Oedemeridae: dampwood borers Adults sometimes found sheltering.			
<u>Asclera discolor</u> Leconte	+	si	Py
<u>Calopus angustus</u> Leconte	+	se	Pl
<u>Ditylus</u> sp.	+	svi	Ps
<u>Xanthochroa testacea</u> Horn	+	w	Pl, Pw, Ps
Orthoperidae: Tiny dark plant scavenger beetles.			
<u>Sacium</u> sp.	+	nw	Pl
Ostomidae: grain- and bark-gnawing beetles Scavengers/predators, found on both the tree surface and in bark cavities.			
<u>Calitys scabra</u> Thunberg Scavenger/predator .	+	ci	Pl
<u>Eronyxa pilosulus</u> (Crotch) Predator/scavenger.	+	svi	Ps
<u>Ostoma ferruginea</u> (Linnaeus)	+	se	Pl
<u>Ostoma pippingskoeldi</u> (Mannerheim)	+	sw	Pl, Ps
<u>Temnochila chlorodia</u> (Mannerheim) An active predator.	+	s	Pw, Py

Pedilidae: ant-like beetles
Usually on flowers.

Eurygenius campanulatus Leconte + ni Pl

Ptinidae: spider beetles
Scavengers, and sometimes borers,
in dead plant material.

Ptinus fur Leconte + sw Pw
White-marked spider beetle

Ptinus villiger Reitter + se Py
Hairy spider beetle

Pythidae: narrow-waisted barkbeetles
Dark colored predators sometimes
under dead bark.

Lecontia discicollis (Leconte) + se Pw

Myceterus concolor Leconte + sw Ps

Pytho americanus (Kirby) + w Pl, Pw

Pytho planus Herbst + sw Pw

Rhizophagidae: root-eating beetles
Tiny slender dark beetles found
under dead bark.

Rhizophagus dimidiatus Mannerheim t w Pl, Ps, Pw

Scarabaeidae: June beetles,
cockchafer
Adults may feed on foliage
and may sometimes cause minor
damage; most pine data are of
adults. Most larvae live in
the soil as root feeders on
small plants.

Aphodius canadensis Garnett + se Py

Aphodius hamatus Say + sw Pw

Aphodius sp. + i Pl, Py

Cremastocheilus armatus Walker + se Py

Dichelonyx backii Kirby +++ t Pl, Pw, Ps, Py, Pwb
Green rose chafer
Sporadic localized needle
damage.

<u>Dichelonyx fulgida</u> Leconte	++	t	P1,Py,Pw
<u>Dichelonyx truncata</u> Leconte	+	se	Py
<u>Dichelonyx vincina</u> Fall	+	ci,se,si	P1,Py,Pw
<u>Diplotaxis brevicollis</u> Leconte	+	w	P1,Ps
<u>Onthophagus nuchicornis</u> (Linnaeus)	+	si	Py
<u>Phyllophaga anxia</u> Leconte	+	nw	P1
<u>Polyphylla crinita</u> Leconte	+	s	Ps,P1,Py
<u>Serica</u> sp.	+	ei	P1,Py

Scolytidae: barkbeetles,
 ambrosia beetles,
 engraver beetles
 These insects utilize a wide range of
 tree hosts, and include some of
 the most important forest pests.
 Typical barkbeetles bore tunnels
 in the bark, where they lay eggs,
 and the larvae make extensive
 galleries between the bark and the
 wood. The larvae of others, like
 the ambrosia beetles, bore into
 the sapwood, and some scolytids
 tunnel in buds, cones, twigs, etc.
 Although larval feeding habits may
 be indicated here, most of the
 records are of adult retrieval.

<u>Conophthorus monticolae</u> Hopkins A destructive borer in young cones.	+	s	Pw,P1,Ps
<u>Dendroctonus brevicomis</u> Leconte Western pine beetle A bark borer, typically in overmature trees.	+	e	Py,P1,Pw
<u>Dendroctonus murrayanae</u> Hopkins Lodgepole pine beetle A bark borer in weakened and overmature trees.	++	ni,nw	P1,Pw

Dendroctonus ponderosae Hopkins (monticolae Hopkins)

Mountain pine beetle +++++ t Pl, Pw, Py, Ps
 The most important pine pest in the (seldom at
 province, often of a primary nature; immediate
 on trees of all sizes, particularly coast areas)
 mature growth. The cylindrical near-black
 beetles, 4-7 mm long, create vertical
 egg galleries of 8-250 cm that lead
 to alternate clusters of larval mines.
 Infested trees usually have conspicuous
 boring dust and pitch tubes. There is
 one generation annually, overwintering
 usually as young larvae, but such an
 overlap exists that all stages may be
 found during summer.

Dendroctonus pseudotsugae Hopkins + s C, Pl, Ps
 Douglas-fir beetle
 A bark borer.

Dendroctonus punctatus Leconte + sw C, Pl
 Allegheny spruce beetle
 A bark borer.

Dendroctonus rufipennis (Kirby) (borealis Hopkins, engelmanni
 Spruce beetle Hopkins, obesus (Mannerheim))
 A bark borer. + nw, se C, Pl

Dendroctonus valens Leconte + ci, se, si Py, Pl
 Red turpentine beetle
 A bark borer, distinctive by its
 large size, about 8 mm long,
 and its red-brown color; usually
 attacks weakened trees.

Dolorgus pumilus (Mannerheim) + sw C, S, Pw, P
 A bark borer.

Dryocoetes affaber (Mannerheim) + ci C, Pw
 A bark borer, particularly of spruces.

Dryocoetes autographus (Ratzeburg) + sw C, Ps, Py
 A bark borer, primarily of other
 conifers.

Gnathotrichus retusus (Leconte) + se C, Pl, Pw
 A sapwood borer.

Gnathotrichus sulcatus (Leconte) + i C, Pl, Pw
 A sapwood borer, occasionally
 significant in other conifers.

<u>Hylastes macer</u> Leconte A root collar feeder.	+	sw	Ps,C
<u>Hylurgops porosus</u> (Leconte) A bark borer in the tree base.	+	s	Pl,Py,Pw,Ps
<u>Hylurgops rugipennis</u> (Mannerheim) A bark borer in the tree base.	++	t	Pl,C,Pw,Py
<u>Hylurgops subcostulatus</u> (Mannerheim) A bark borer in the tree base.	+	se,si	Py,Pw
<u>Ips borealis</u> Swaine Sheltering record.	+	se	C,Py,Pw
<u>Ips concinnus</u> (Mannerheim) Sheltering record.	+	ci,se	C,Ps,Py
<u>Ips emarginatus</u> (Leconte) A bark borer in tree stems, occasionally causing mortality; frequently associated with	+	si,sw	Py,Pw
<u>Dendroctonus ponderosae</u> . A 4-spined species.			
<u>Ips integer</u> (Eichoff) A bark borer in the boles of weakened trees.	+	se	Py
<u>Ips latidens</u> Leconte A bark borer in mature crown growth or in young boles; often associated with <u>Dendroctonus ponderosae</u> . A 3-spined species.	+	s	Pl,Ps,Py,Pw
<u>Ips mexicanus</u> (Hopkins) A bark borer in the stems of weakened trees.	+	i	Pl,Ps
<u>Ips montanus</u> (Eichoff) A bark borer in weakened aged trees.	+	sw	Ps,Pw
<u>Ips perroti</u> Swaine A bark borer.	+	ne	Pl
<u>Ips perturbatus</u> (Eichoff) Sheltering record.	+	I	C,Pl,Ps

<u>Ips pini</u> (Say) Pine engraver A bark borer in both weakened and healthy trees, and capable of causing mortality. The longitudinal egg galleries are the foci of many short lateral larval mines. A 4-spined species.	+++	t	Pl,Ps,Py
<u>Ips plastographus</u> (Leconte) A bark borer in the boles of weakened trees. Usually associated with other bark beetles.	+	se,si	Py
<u>Ips tridens</u> (Mannerheim) Sheltering record.	+	ni	C,Pl,Ps
<u>Orthotomicus caelatus</u> (Eichhoff) A bark borer.	+	n,se	C,Pl,Pw
<u>Orthotomicus latidens</u> Leconte A bark borer.	+	nw	Pl
<u>Orthotomicus ornatus</u> Swaine A bark borer.	+	si	Py
<u>Orthotomicus vicinus</u> (Leconte) A bark borer.	+	si	C,Pw
<u>Pityogenes carinulatus</u> (Leconte) A small bark borer in weakened trees; occasionally on young healthy trees.	+	ci,nw,se	Pl,Py,Pw
<u>Pityogenes fossifrons</u> (Leconte) A small bark borer in weakened trees.	+	t (except nw)	Pl,Pw,C,Ps
<u>Pityogenes knechteli</u> Swaine A small bark borer in weakened and/or young trees.	+	e,n	Pl
<u>Pityokteines elegans</u> Swaine A small bark borer.	+	nw	Pl
<u>Pityophthorus absonus</u> Blackman A small bark borer.	+	se	Pwb
<u>Pityophthorus aplanatus</u> Schedl A twig borer.	+	se	Pl

<u>Pityophthorus (Myeloborus) boycei</u> Swaine			
A small twig borer.	+	n	Pl
<u>Pityophthorus carinulatus</u> Swaine	+	n	Ps,Pl,C
A small twig borer.			
<u>Pityophthorus confertus</u> Swaine	+	s	C,Py,Ps,Pl,Pw
A small twig borer.			
<u>Pityophthorus confinis</u> Leconte	+	el,se,si	Pl,Py
A small twig borer.			
<u>Pityophthorus consimilis</u> Leconte	+	ci	Pl,C
A small twig borer.			
<u>Pityophthorus gracilis</u> (Swaine)	+	nw	Pl
A small bark borer.			
<u>Pityophthorus idoneus</u> Blackman	+	se	Py
A small bark borer on small branches.			
<u>Pityophthorus murrayanae</u> Blackman	+	nw	Pl
A small bark borer.			
<u>Pityophthorus nitidulus</u> (Mannerheim)			
A small bark borer.	+	nw	Pl,C
<u>Pityophthorus nitidus</u> Swaine	+	nw	C,Pl,Ps
Sheltering record.			
<u>Pityophthorus pseudotsugae</u> Swaine	+	sw	C,Pl,Ps
Sheltering record.			
<u>Pityophthorus pulchellus tuberculatus</u> Eichhoff			
A small twig borer.	+	t	C,Pl,Ps
<u>Polygraphus rufipennis</u> (Kirby)	+	nw,se	C,Pl,Py
A barkbeetle.			
<u>Pseudohylesinus grandis</u> Swaine	+	w	Pl,Ps,Pw
Sheltering record.			
<u>Pseudohylesinus nebulosus</u> (Leconte)	+	w	C,Pl,Ps,Pw
A small common bark borer; a secondary pest in the thin bark of damaged weakened trees.			
<u>Pseudohylesinus tsugae</u> Swaine	+	sw	Ps
Sheltering record.			
<u>Scierus</u> sp.	+	ni,se	C,Pl,Pw
A bark borer.			

<u>Scolytus piceae</u> (Swaine) Sheltering record.	+	nw	Pl
<u>Scolytus unispinosus</u> Leconte Douglas-fir engraver An engraver beetle.	t	sw	C, Ps, Pw
<u>Trypodendron lineatum</u> (Olivier) Striped ambrosia beetle This common insect is the most destructive of the western ambrosia beetles. The stubby cylindrical adults are about 3 mm long, shiny dark brown with two paler stripes along the back. "Ambrosia" refers to the sooty fungus that develops in their tunnels, which extend well into the sapwood. The annual generation usually begins in the spring, on dying trees, e.g. fire-killed, wind- thrown, felled, barkbeetle infested, etc.	+	t	CPl, Ps, Pw, Py

Silphidae: burying beetles
 ' carrion beetles
 sexton beetles
Larvae **are** scavengers on dead organic
material, but adults, which fly, may
use pine trees as temporary shelter.

<u>Microphorus vespilloides</u> Herbst	+	ci	Pl
<u>Pelatines latus</u> (Mannerheim)	+	ni	Pl

Staphylinidae: rove beetles
A large group, many of them predaceous as
both larvae and adults. Most occurrences
on pine represent shelter records, but
in some instances the adults would be
feeding on plant material such as pollen
or sap, or on other insects.

<u>Acrolocha megarthroides</u> (Fauvel)	+	svi	PS
<u>Amphichroum maculatum immaculatum</u> Hatch	+	w	Ps
<u>Eusphalerum pothos</u> (Mannerheim)	+	n	Pl, Ps
<u>Pelecomalium testaceum</u> Mannerheim	+	ni	Pl

<u>Quedius fulgidus</u> Horn	+	nw	Ps,Ps
<u>Quedius simplex</u> Hatch	+	nw	Pl
<u>Quedius velox</u> Smetana	+	nw	Pl

Tenebrionidae: darkling beetles
The nocturnal adults are scavengers on
vegetation.

<u>Corticeus praetenuissus</u> (Fall)	+	nw	Pl
<u>Corticeus substriatus</u> Leconte	+	i	Pl,Py
<u>Eleates explanatus</u> Casey	+	svi	Ps
<u>Eleodes humeralis</u> Leconte	+	si	Py
<u>Helops californicus</u> Mannerheim	+	sw	Pl,Py
<u>Helops pernitens</u> Leconte	+++	cl,sw	Pw,Ps,Pl,Py
<u>Helops regulus</u> Blaisdell	+	sw	Ps
<u>Phellopsis porcata</u> (Leconte)	+	w	Pl,Pw
<u>Platydema oregonense</u> Leconte	+	sw	Ps
<u>Scaphidema aeneolum</u> (Leconte)	+	ni	Pl
<u>Tribolium</u> sp.	+	nw	Pl

Throscidae: pseudo click beetles
Dark colored beetles sometimes found
on the trees.

<u>Pactopus horni</u> Leconte	+	sw	Ps
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Occurrence Distribution Host

COLLEMBOLA: springtails, snow fleas
Small wingless scavengers, usually in
damp habitat; often occurring in large
numbers.

Entomobryidae

<u>Entomobrya triangularis</u> Schott	t	sw	Ps
<u>Orchysellays</u> sp.	t	sw	Ps

DERMAPTERA: earwings
Omnivorous feeders, considered
as garden pests.

Forficulidae

<u>Forficula auricularia</u> Linnaeus European earwig Scavenging/sheltering record.	+	svi	Ps,Py
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Occurrence Distribution Host

DIPTERA: flies, mosquitoes, gnats, etc.
The larvae are maggots, usually feeding
in damp organic material or water.

Acroceridae:

Believed to be parasites of spiders.
The following records would be
scavenging/shelter.

<u>Ogcodes melampus</u> Loew	+	se	Pw
<u>Pterodontia flavipes</u> Gray	+	sw	Ps
<u>Pterodontia misella</u> Osten Sacken	+	nw	Pl

Anthomyidae: stable flies, root maggots
Shelter records.

<u>Calythea micropteryx</u> (Thomson)	+	si	Py
<u>Hylemya anthracina</u> (Czerny)	+	ci	Py
<u>Scatophaga frigida</u> Coquillett	+	sw	Ps

Asilidae: robber flies. assassin flies
Active, often large, predators. The
following records could be shelter/
scavenging.

<u>Callinicus pollentius</u> (Cole)	+	si	Py
<u>Chirosia idahensis</u> Stein	+	sw	Ps
<u>Dioctria</u> sp	+	se	Py
<u>Heteropogon ludis</u> (Coquillett)	+	se	Pl
<u>Laphsia sadales</u> Walker	+	s	Pw, Ps

Bibionidae: March flies
Sheltering records.

<u>Biblio utahensis</u> Hardy	+	sw	Ps
<u>Dilophus caurinus</u> McAtee	+	sw	Ps

Blephariceridae: net-winged midges
Aquatic feeders.

<u>Bibiocephala</u> sp.	+	si	Py
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Bombyliidae: bee flies
Probably parasites; sheltering records.

<u>Bombylius</u> spp.	+	sw	Ps
<u>Oligodranes</u> sp.	t	sw	Ps

Calliphoridae: flesh flies
Sheltering records.

<u>Eucalliphora lilaea</u> (Walker)	+	se	Pl
<u>Pollenia rudis</u> (Fabricius) Cluster fly	+	svi	Ps

Cecidomyiidae: gall midges
The tiny larvae, sometimes orange in color, feed in small galls which may be individual or grouped; frequently found on shoots or young twigs.

<u>Anaretella defecta</u> (Winnertz) Shoot gall.	+	se	Py
<u>Asynapta hopkinsi</u> Felt Bud/cone feeder.	t	ci	Py
<u>Asynapta keeni</u> (Foote) Associated with weevil galleries.	+	se,w	Pl,Py
<u>Cecidomyia</u> spp. Some of the several known species cause twig/tip distortion/mortality.	++++	t	Pl,Py,Ps,Pw
<u>Contarinia</u> spp. Twig galls.	+	s	Ps,Py,Pl
<u>Lestodiplosis</u> sp. Twig/bark gall.	+	sw	Ps
<u>Rhabdophaga</u> sp. Shoot gall.	+	sw	Pl

Ceratopogonidae: biting midges

<u>Forcipomyia</u> sp.	+	sw	Ps
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Chamaemyiidae:
The larvae are usually predaceous.

<u>Leucopis</u> sp. Sheltering/predator record.	+	s	Pl
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Chironomidae: midges
Sheltering records.

<u>Einfeldia</u> sp.	+	svi	Ps
<u>Glyptotendipes</u> sp.	+	sw	Ps
<u>Micropsectra</u> sp.	+	svi	Ps
<u>Polypedilum</u> sp.	+	si	Py

Chloropidae: frit flies

<u>Chlorops</u> sp. Sheltering record.	+	sw	Ps
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Culicidae: mosquitoes
Larvae are aquatic.

<u>Aedes hendersonii triseriatus</u> Cockerall Sheltering record.	+	svi	Ps
<u>Culiseta minnesotae</u> Barr Sheltering record.	+	se	Py

Dolichopidae: long-headed flies
Adults are usually predaceous;
larvae have a wide range of
habitat, including dying bark.

<u>Campsicnemus</u> sp.	+	ci	Pl
<u>Medetera</u> spp.	+	s	Py, Ps

Empididae: dance flies
Predators.

<u>Drapetis</u> sp.	+	sw	Ps
<u>Hilara</u> sp.	+	svi	Ps
<u>Rhamphomyia</u> sp.	+	sw	Ps

Lauxaniidae
Plant feeders.

<u>Minettia flaveola</u> (Coquillett) Sheltering record.	+	si	Py
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Lonchaeidae

The following records are associated with barkbeetle galleries.

<u>Lonchaea johnseyi</u> McAlpine	+	ci	P1
<u>Lonchaea reidi</u> McAlpine	+	ci	P1
<u>Lonchaea watsoni</u> Curran	+	sw	Pw

Muscidae: house flies
Sheltering records,

<u>Phaonia harti</u> Malloch	+	sw	Ps, P1
<u>Schoenomyza litorella</u> (Fallen)	+	svi	Ps

Odiniidae:

<u>Odinia betulae</u> Sabrosky Probably a scavenger.	+	ci	P1
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Otitidae: pictured-wing flies
Plant feeders.

<u>Physiphora demandata</u> (Fabricius) Sheltering record.	+	ci	Py
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Rhagionidae: snipe flies

<u>Bolbomyia macgillisi</u> Chilcott Predator.	+	sw	Ps
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Sarcophagidae: flesh flies
The following records are of parasites.

<u>Blaesoxipha savoryi</u> (Parker)	+	si	Py
<u>Pseudosarcophaga affinis</u> (Fallen)	+	sw	Ps

Sciaridae: dark-winged fungus gnats

<u>Bradysia</u> sp.	+	svi	Ps
<u>Lycoriella</u> sp.	+	sw	Pw

Simulidae: black flies
Adults are blood feeders.

Simulium venustum Say + sw Pl
Sheltering record.

Stratiomyidae: soldier flies
Adults are blood feeders.

Stratiomys normula Loew + se Py
Sheltering record.

Syrphidae: flower flies
Some larvae are predaceous on small
insects such as aphids.

Eristalis compactus + ci Pl
Sheltering record.

Eristalis nemorum (Linnaeus) + ci Pl
Sheltering record.

Eristalis obscurus Loew + ci Pl
Sheltering record.

Metasyrphus lapponicus (Zetterstedt) + se Pl,Py
Predator.

Metasyrphus spp. + nw Pl
Predator.

Scaeva pyrastris (Linnaeus) + sw Ps,Pl
Predator.

Sphaerophoria sp. + sw Pl
Predator.

Syrphus ribesii (Linnaeus) + ci Pl
Predator.

Tabanidae: horse flies

Tabanus sp. + ci Py
Sheltering record.

Tachinidae: tachinid flies
The larvae are parasitic.

Aplomya sp. + si Py

Chaetophlepsis orbitalis Webber + sw Ps

Chaetophlepsis semiothisae Brooks + sw Pw

Diplostichus lophyri (Townsend) + sw Ps,Pl

Hemisturmia tortricis (Coquillett) + sw Ps

Peleteria sp. + si Py

Periscepsia laevigata (Wulp) + svi Ps

<u>Phyrxe pecosensis</u> (Townsend)	+	sw	Ps
<u>Psalidopteryx nuda</u> Brooks	+	sw	Ps
<u>Spathimeigenia aurifrons</u> Curran	+	si	Py
<u>Tsugaea nox</u> Hall	+	si	Py
<u>Uramya halisidotae</u> Townsend)	+	sw	Pl
<u>Xanthoepalpus bicolor</u> (Williston)	+	nw	Pl
<u>Xanthophyto antennalis</u> Townsend	+	si	Py

Tephritidae
Plant feeders; the following are probably shelter records.

<u>Eutreta pollinosa</u> Curran	+	ci	Py
<u>Paracantha culta</u> (Wiedemann)	+	sw	Ps, Pl
<u>Paroxyna</u> sp.	+	ci	Py

Therevidae: stillnet flies
Predators.

<u>Thereva</u> spp.	+	nw	Pl
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Tipulidae; crane flies
Larvae are plant feeders.

<u>Molophus</u> spp. Sheltering records.	+	ci	Pl
<u>Nephrotoma</u> sp. Sheltering record.	+	sw	Pl

	<u>Occurrence</u>	<u>Distribution</u>	<u>Host</u>
<p>EPHEMEROPTERA: Mayflies Aquatics.</p> <p>Ephemeridae</p> <p>Caenis sp. + sw Pm</p>			
<p>HEMIPTERA ("half-wings"); bugs True bugs, with sucking mouthparts. A large group of diverse habit - primarily sap suckers or predators.</p> <p>Alydidae: Broad-headed bugs Some are plant feeders.</p> <p><u>Alydus conspersus</u> Montandon + se Py Possibly a plant feeder.</p> <p><u>Harmostes reflexulus</u> Say + se Py A plant feeder.</p> <p><u>Tollius curtulus</u> (Staal) + se Py Likely a plant feeder.</p> <p>Anthocoridae: minute pirate bugs Small active predators.</p> <p><u>Anthocoris antevolens</u> White + nw Pl</p> <p><u>Elatophilus pullus</u> Kelton & Anderson + s Py</p> <p><u>Lyctocoris tuberosus</u> Kelton & Anderson + se Py</p> <p><u>Tetraphleps</u> sp. + ni Pl</p> <p>Aradidae: flat bugs Predators, often found on/under bark.</p> <p><u>Aradus cinnamoneus</u> Panzer + sw Pl, Ps</p> <p><u>Aradus funestus</u> Bergroth + sw Pw</p> <p><u>Aradus tuberculifer</u> Kirby + sw Pl</p> <p>Coreidae: squash bugs Plant feeders.</p> <p><u>Coriomeris humilis</u> Uhler + se Pl</p>			

Leptoglossus occidentalis Heidemann + s Pl,Ps
 This pest sucks the juices from developing seeds; significant damage has been noted.

Corimelaenidae: negro bugs
 Small, stout, black plant feeders.

Corimelaena anthrocina White + si Pl

Thyreocoris montanus (Van Duzee) + si Py

Lygaeidae: plant bugs, chinch bugs
 Plant feeders.

Gastrodes pacificus Provancher + sw Pl,Ps
 Predator.

Kleidocerys resedae geminatus Say + se Py
 Plant feeders

Ligyrocoris sp. + se Pl
 Predator.

Lygaeus bicrucis Say + sw Pl
 Plant feeder.

Lygaeus reclivatus Linnaeus + si Py
 Plant feeder.

Miridae: leaf bugs, plant bugs
 Most are plant feeders but some are predators.

Ceratocapsus pilosulus Knight + se Pl
 Plant feeder.

Ceratocapsus punctulatus Reuter + sw Pl,Ps
 Plant feeder.

Deraeocapsus fraternus Van Duzee + se Pl
 Plant feeder.

Deraeocoris albigulus Knight + ci Pl
 Predator.

Deraeocoris brevis Uhler + ci,nw,se Pw
 Predator.

Deraeocoris ingens Van Duzee + ci,se Py
 Predator.

Deraeocoris piceicola Knight + nw Pl,Ps
 Predator.

<u>Dichroscytus convexifrons</u> Knight Plant feeder.	+	si	Pl
<u>Dichroscytus suspectus</u> Reuter Plant feeder.	+	s,w	Pl, Pw, Ps
<u>Irbisia nigripes</u> Knight Sheltering record/sap feeder	+	si	Py
<u>Labops hirtus</u> Knight Plant feeder.	+	se	Pl
<u>Largidea davisii</u> Knight Probably predacious.	+	ci	Pl
<u>Largidea rubida</u> Uhler Probably predacious.	+	se	Py
<u>Leptopterna dolabratus</u> (Linnaeus) Meadow plant bug Plant feeder.	+	ci	Pl
<u>Litomiris</u> sp. Plant feeder.	+	se	Py
<u>Lygidea rubecula</u> Uhler Plant feeder.	+	ci	Pl
<u>Lygus approximatus</u> Staal Sheltering record/plant feeder.	+	ci	Pl
<u>Lygus columbiensis</u> (Knight) Sheltering record/plant feeder.	+	t	Ps, Py, Pl
<u>Lygus convexicollis</u> Knight Sheltering record/plant feeder.	+	ni	Pl
<u>Lygus elisae</u> Van Duzee Pale legume bug Sheltering record/plant feeder,	+	w	Pl
<u>Lygus shulli</u> Knight Sheltering record/plant feeder.	+	ni	Pl
<u>Lygus varius</u> Knight Sheltering record/plant feeder.	+	ci	Pl
<u>Megaloceroea debilis</u> Uhler Plant feeder.	+	se	Py
<u>Melanocornis nigricornis</u> Knight Probably a plant feeder.	+	se	Py

<u>Phytocoris commissuralis</u> Van Duzee Probably predacious.	+	se	Pl
<u>Phytocoris conspersipes</u> Reuter Predator.	+	si,w	Pl
<u>Phytocoris neglectus</u> Knight Predator.	t	si	Py
<u>Pilophorus clavatus</u> (Linnaeus) Likely a plant feeder.	+	ni	Pl
<u>Pilophorus uhleri</u> Knight Likely a plant feeder.	+	ci,se	Pl,Pw
<u>Pilophorus vanduzeei</u> Knight Likely a plant feeder.	+	se	Py
<u>Plagiognathus suffuscipennis</u> Knight Plant feeder.	+	nw	Pl
<u>Platylygus grandis</u> Knight Plant feeder.	t	ci,ni,sw	Pl,Py
<u>Platylygus luridus</u> (Reuter) Plant feeder.	+	sw	Pl
<u>Psallus piceicola</u> Knight Plant feeder.	t	sw	Ps,Pl
<u>Stenodema virens</u> (Linnaeus) Possibly a plant feeder.	t	ci	Pl
<u>Xenoborus commisuralis</u> Reuter Plant feeder.	t	se	Pl

Nabidae: damsel bugs
Small predators.

<u>Nabis alternatus</u> Parshley Western damsel bug	+	se	Pl
<u>Nabis ferus</u> (Linnaeus)	+	se	Py
<u>Nabis roseipennis</u> Reuter	t	se	Pl
<u>Nabis rufusculus</u> Reuter	t	w	Pl,Ps

Neididae: stilt bugs
Very slender, long legged,
brown insects.

<u>Neides muticus</u> (Say) Predator.	t	s	Pw
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Pentatomidae: stink bugs
 Large distinctive insects; some are
 predators, some are sap suckers.

<u>Banasa dimidiata</u> Say Plant feeder.	+	w	Pl,Ps,Pw
<u>Banasa sordida</u> Uhler Plant feeder.	+	nw	Pl
<u>Chlorochroa ligata</u> Say Conchuela Plant feeder.	+	s	Pl,Pw,Py,Ps
<u>Chlorochroa sayi</u> Staol Sav stink bug Plant feeder.	+	ci	Py
<u>Chlorochroa uhleri</u> Staol Plant feeder.	+	sw	Ps
<u>Dendrocoris pini</u> Montandon Plant feeder.	+	se	Py
<u>Elasmotherus cruciatus</u> Say Plant feeder.	+	t	Pl,Ps
<u>Elasmotherus interstinctus</u> Linnaeus Plant feeder.	+	se	Pl
<u>Euschistus variolarius</u> Palisot de Beauvois One-spotted stink bug Plant feeder.	+	s	Py,Pl,Ps
<u>Meadorus lateralis</u> Say Plant feeder.	+	w	Pl,Pw,Ps
<u>Neortiglossa undata</u> (Say) Plant feeder.	+	sw	Pw
<u>Peribalus piceus</u> (Dallas) Predator.	+	ci	Pl
<u>Podisus modestus</u> (Dallas) Predator.	+	nw	Pl
<u>Podisus serieventris</u> Uhler Predator.	+	sw	Pl
<u>Thyanta custator</u> (Fabricius) Plant feeder.	+	sw	Pl

Reduviidae: assassin bugs, pirate bugs
Large active predators.

<u>Rhynocoris americanus</u> Bergroth	+	ci,se	Py
<u>Zelus audax</u> Banks	+	sw	P1
Zelus socius Uhler	+	se	Py,P1

Tingididae: lace bugs
Small flat sap-sucking insects,
often white and black.

<u>Corythuca</u> sp.	+	se	Pw
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Occurrence Distribution Host

HOMOPTERA: bugs
True bugs, with sucking mouthparts;
all wings similarly textured;
feeders on plant juices.

Achilidae: lanternflies
The following are all feeders
on plant juices, although some data
may represent shelter records.

<u>Catonia grisea</u> Van Duzee	+	se	Pl
<u>Catonia nemoralis</u> Van Duzee	+	s	Ps, Pl, Pw
<u>Epiptera brittoni</u> Metcalfe	+	se	Py
<u>Epiptera confusa</u> Beirne	+	s	Pl, Pw, Ps
<u>Epiptera henshawi</u> Van Duzee	+	s	Ps, Py
<u>Epiptera pallida</u> Say	+	ci	Pl
<u>Epiptera septentrionalis</u> (Provancher)	+	w	Pl

Adelgidae (Phylloxeridae): aphids
A large common family; many species
capable of causing damage to trees
and other plants. All data are from
feeding records.

<u>Pineus coloradensis</u> Gillette	+	s,w	Pl, Ps, Pw
<u>Pineus pinifoliae</u> Pitch Pine leaf adelgid	+	se	Pw
<u>Pineus similis</u> Gillette	+	w	Ps, Pl
<u>Pineus sylvestris</u> Annand	+	sw	Pw

Aphididae: aphids, plant lice
There are many species on a wide
variety of host plants. Most of the
following are feeding records.

<u>Aphis pomi</u> DeGeer Apple aphid Sheltering record.	+	sw	Ps
<u>Asiphum</u> sp.	+	ci	Py

<u>Cinara banksiana</u> Pepper and Tissot	+	se	Py
<u>Cinara braggii</u> Gillette	+	sw	Pl
<u>Cinara brevispinosa</u> (Gillette & Palmer)	++	t	Ps, Pl
<u>Cinara ferrisi</u> Hottes	+	s	Ps, Pw
<u>Cinara medispinosa</u> (Gillette & Palmer)	++	s	Pl, Py, Pw, Pwb
<u>Cinara murrayanae</u> Gillette & Palmer	+	ci, sw	Pl, Pw, Ps
<u>Cinara ponderosae</u> Williams	+	si	Py
<u>Essigella gillettei</u> (Hottes)	+	si	Py
<u>Euceraphis gillettei</u> Davidson	+	se	Py
<u>Mindarus abietinus</u> Koch Balsam twig aphid	+	ci, s	Pl, Ps
<u>Schizolachnus curvispinosus</u> HEK	+	si	Py
<u>Schizolachnus piniradiatae</u> (Davidson)	+	si	Py

Cercopidae: spittlebugs

The nymphs of some species form sheltering "spit" bubbles on plant stems/leaves.

<u>Aphrophora annulata</u> Ball	+	ci	Pl
<u>Aphrophora parallela</u> (Say)	+	ci, se	Pl, Py
<u>Aphrophora permutata</u> Uhler	++	t	Pl, Ps, Py, Pw
<u>Aphrophora signoreti</u> Fitch	+	ci	Pl
<u>Glastoptera obtusa</u> (Say) Alder spittlebug	+	se	Pw
<u>Philaenus spumarius</u> (Linnaeus) Meadow spittlebug	+	sw	Pw, Pl
<u>Philaronia bilineata</u> (Say)	+	nw	Pl

Cicadellidae: leafhoppers

Slender bugs that can move by jumping.

<u>Aqalliopsis novellina</u> Oman	+	sw	Pw
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<u>Cuerna costalis</u> Fabricius	+	ci	P1
<u>Cuerna striata</u> Walker	+	ci	P1
<u>Draeculacephala antica</u> Walker	+	se	P1
<u>Draeculacephala</u> sp.	+	nw	P1
<u>Idiocerus alternatus</u> Fitch	+	svi	PS
<u>Idiocerus populi</u> (Linnaeus)	+	w	Ps,Pl
<u>Oncometopia lateralis</u> Fabricius	+	nl,sw	P1
<u>Stenocolelidia lineata</u> (Baker)	+	se	Py

Cicadidae: cicadas

Some species oviposit in twigs, causing localized damage, occasionally considered as beneficial to the trees. Larvae feed in the ground. The following are shelter data.

<u>Okanagana bella</u> Davis	+	ci	Py
<u>Okanagana occidentalis</u> (Walker)	+	sw	Ps
<u>Okanagana rimosa</u> (Say)	+	w	Pl,Ps,Pa
<u>Platypedia areolata</u> (Uhler)	+	s	Pl,Ps,Pw

Coccidae: Scale insects, mealybugs
A large diverse family; the adults are usually sessile. Many species cause significant damage.

<u>Chionaspis corni</u> Cooley	+	se	Py
<u>Chionaspis (Phenacaspis) pinifoliae</u> Fitch			
Pine needle scale	++++	t	Py,Pl,Ps,C,Pw
This white scale is most common in the ponderosa pine region of the province. It infests both foliage and stems, and can, in some instances, cause mortality.			
<u>Nuculaspis californica</u> Coleman	+	si	Py,P1
Black Pine-leaf Scale			

<u>Phenacoccus aceris</u> Signoret	†	sw	Ps
<u>Physokermes</u> sp .	†	si	Py
<u>Puto. cupressi</u> (Coleman)	†	ci, si	Py, Pl, C
Cixiidae			
<u>Cixius meridionalis</u> Beirne	†	se	Pl
Membracidae: tree hoppers			
<u>Stictocephala basalis</u> (Walker)	†	ci	Pl

Occurrence Distribution Host

HYMENOPTERA: bees, wasps, ants,
sawflies, horntails

Andrenidae: burrowing bees
Sheltering records.

Andrena erecta Viereck + se Py

Andrena sp. + si Py

Apidae: honeybees, bumblebees
The following are sheltering records,

Bombus spp. + se Py

~~Nomada~~ ~~lepida~~ Cresson + si Py

Nomada nigrocincta Smith + sw Pl

Argidae: sawflies
Usually feeders on deciduous foliage.

Arge clavicornis (Fabricius) + ci,nw Pl
Accidental record.

Braconidae: braconid wasps
The following are all parasites, but
could also be sheltering/scavenging
records.

Agathis atripes Cresson + si Py

Allodorus crassigaster (Provancher) + ni Pl

Apanteles cingiliae Muesebeck + sw Pw,Ps

Apanteles fumiferanae Viereck + sw PS

Apanteles spp. + ci,se Pl

Ascogaster sp. + ci Py

Bracon pini (Muesebeck) + sw PS

Bracon xanthonotus Ashmead + sw Pw

Chelonus acutigaster McComb + sw Pl

Chelonus eximius McComb + si Pl,Py

Chelonus petrovae McComb + si Py

<u>Coeloides</u> sp.	+	se	Py
<u>Ephedrus</u> sp.	+	sw	Py
<u>Habrobracon gelechia</u> (Ashmead)	+	si	Py
<u>Macrocentrus irridescens</u> French	+	si	Pl
<u>Meteorus hyphantriae</u> Riley	+	sw	Ps
<u>Meteorus trachynotus</u> Viereck	+	sw	Ps
<u>Microgaster peroneae</u> Walley	+	sw	Ps
<u>Ragas</u> sp.	+	sw	Ps, Pw
<u>Zebe</u> sp.	+	sw	Pw, Ps

Chalcidae: chalcid wasps
Small parasites.

<u>Spilochalcis albifrons</u> (Walsh)	+	si	Py
<u>Spilochalcis flavopicta</u> (Cresson)	+	se	Py

Chysididae: cuckoo wasps, gold wasps
Metallic green/blue wasps whose larvae
live as parasites in other wasp nests.
The following records would be shelter/
scavenging.

<u>Chrysis</u> spp.	+	se	Py
<u>Holopyga</u> sp.	+	s	Py, Ps
<u>Omalus aeneus</u> (Fabricius)	+	w	Pl, Ps
<u>Omalus glomeratus</u> (du Buysson)	+	se	Py

Cynipidae: gall wasps

<u>Charips</u> sp. Sheltering record.	+	svi	Ps
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Cimbicidae: cimbicid sawflies
Large colorful defoliators, more
frequently on deciduous plants.

<u>Cimbex americana</u> Leach Elm sawfly Accidental record.	+	s	D, Pl, Ps
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Trichiosoma triangulum Kirby + t D, P1, Pw
A solitary defoliator.

Zaraea americana Cresson + ci, se O, Py, P1
A solitary defoliator.

Diprionidae: sawflies
Common defoliators, often occurring
in large numbers.

Diprion sp. + sw O, Pm

Neodiprion abietis (Harris) + se, w C, P1, Py, Ps
Balsam fir sawfly
A semi-colonial defoliator

Neodiprion fulviceps (Cresson) + se, si O, Py

Neodiprion nanulus concertae Ross + i Py, P1, Pw
semi-colonial defoliator.

Neodiprion tsugae Middleton + ci, si, sw C, Ps, P1, Pw
Hemlock sawfly
A semi-colonial defoliator.

Elasmidae

Elasmus sp. + sw Ps
Hyperparasite.

Encyrtidae: encyrtid wasps
Small metallic parasites.

Copidosoma deceptor Miller + sw Pw

Microterys claripennis Compere + sw Ps

Eulophidae: eulophid wasps
Small parasitic wasps.

Di cladocerus sp. + svi Ps

Elachertus cacoeciae Howard + nw P1

Euplectrus melipes Provancher + sw Ps

Melittobia sp. + si Py

Tetrastichus sp. + ci P1

Eupelmidae

Eupelmus sp. + si Py
Parasite.

Eurytomidae: eurytomid wasps
Small dark wasps of varying habit.

Eurytoma pissodis Glrault + se Pl
Predator/scavenger.

Eurytoma sp. + si Py

Formicidae: ants
Although pine trees might be used
for shelter, most of the following
records represent predator/
scavenger data.

Camponotus herculeanus (Linnaeus) + ci, s Pl, Ps, Py

Camponotus laevigatus (Smith) + si, sw Ps, Py

Camponotus pennsylvanicus (DeGeer) + sw Ps
Black carpenter ant

Camponotus vicinus Mayr + ci, s Py, Ps

Formica argentea Wheeler + si Pl

Formica fusca Linnaeus + s Pl, Ps
Silky ant

Formica haemorrhoidalis Emery + si Py

Formica hewitti Wheeler + ci Pl

Formica integroides Emery + si Py

Formica lasioides Emery + sw Ps

Formica microgyna Wheeler + w Pl

Formica neoclara Emery + nw Pl

Formica neorufibarbis Emery + nw Pl

Formica obscuripes Forel + s Pl
Western thatching ant

Formica subnuda Emery + s Pl

<u>Lasius alienus</u> (Foerster) Cornfield ant	+	sw	Ps,PI
Lasius niger <u>sitkaensis</u> Pergande	+	s	Ps,Pl
<u>Leptothorax nevadensis rudis</u> Wheeler	+	sw	Ps
<u>Myrmica incompleta</u> Provancher	+	si	Pl
<u>Myrmica</u> sp.	+	se	Pl
<u>Tapinoma sessile</u> (Say) Odorous house ant	+	se	Py

Ralictidae: sweat bees

<u>Lasioglossum sisymbrii</u> (Cockerell)	+	si	Py
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Ichneumonidae: ichneumon wasps
Some of these parasitic wasps have a wide host range. The following data could represent shelter/scavenger records or predator/host preference.

<u>Agrypon (Labrochychus) boreale</u> Ashmead	+	si	Py
<u>Agrypon provancheri</u> (Dalla Torre) (<u>Gravenhorstia alaskensis</u> Ashmead)	+	sw	Ps
<u>Aoplus cestus</u> (Cresson)	+	sw	Pw,Ps
<u>Campoplex crassatus</u> (Viereck)	+	ni	Pl
<u>Coccygomimus (Pimpla) pedalis</u> (Cresson)	+	sw	Ps
<u>Dladesma interruptum pterophorae</u> (Ashmead)	+	s	Py,Pl
<u>Dolichomitus terebrans nubilipennis</u> (Viereck)	+	sw	Ps
<u>Dusona pilosa</u> (Walley)	+	sw	Pw
<u>Enicospilus merdarius</u> (Gravenhorst)	+	s	Py,Ps
<u>Enytus eureka</u> (Ashmead)	+	si	Py,Pl
<u>Enytus</u> sp.	+	sw	Pl
<u>Ethelurgus syrphicola</u> (Ashmead)	+	sw	Ps

<u>Exenterus tsugae</u> Cushman	+	s	Pl, Ps
<u>Exeristes comstockii</u> (Cresson)	+	sw	Ps
<u>Exochus evetriae</u> Rohwer	+	sw	PS
<u>Gelis (Alegina) apantelis</u> Cushman	+	sw	Pw, Pl
<u>Gelis taenellus</u> (Say)	+	si	Py
<u>Glypta fumiferanae</u> Viereck	+	sw	Ps
<u>Gravenhorstia</u> sp.	+	si	Py
<u>Helictes</u> sp.	+	svi	Ps
<u>Homaspis slossonae</u> Cushman	t	si	Py
<u>Hyposoter fuscitarsis</u> (Viereck)	+	sw	Ps
<u>Idiogramma contortae</u> Townes	+	ci, si	Pl
<u>Itoplectis conquisitor</u> (Say)	+	sw	PS
<u>Itoplectis quadricingulata</u> (Provancher)	+	s	Ps, Pl
<u>Lamachus angularius</u> (Davis)	+	sw	Pw, Ps
<u>Lamachus lophyri</u> (Ashmead)	+	sw	Py
<u>Lissonota</u> sp.	+	svi	PS
<u>Mesochorus</u> spp.	+	sw	PS
<u>Nemeretis</u> sp.	+	si	Py
<u>Orsebius tsugae</u> (Cushman)	+	nw	Ps
<u>Phaeogenes maculicornis hariolus</u> (Cresson)	+	sw	Ps
<u>Phytodietus fumiferanae</u> Rohwer	+	se	Pl
<u>Protichneumon effigies</u> Heinrich	+	si	Py
<u>Scambus aplopappi</u> (Ashmead)	+	si	Py
<u>Scambus hispae</u> (Harris)	+	sw	Pl
<u>Scambus transgressus</u> (Holmgren)	+	sw	Ps

Megachilidae: leaf cutting bees

Osmia lignaria propinqua Cresson + s Pl,Ps
Sheltering record.

Pamphiliidae: web-spinning sawflies
The relatively large defoliating larvae
are distinctive by their legless
appearance. All but one of the
following species are usually solitary
defoliators.

Acantholyda atrata (Cresson) + w C,Pl,Pw
Acantholyda balanata (MacGillivray) + t C,Py,Pl
Acantholyda brunneicans (Norton) ++ ci,sl,sw Py,Ps,Pl
Acantholyda crocina Middlekauff + se Pl,Py
Acantholyda maculiventris (Norton) + se,w C,Py,Pl,Pw
Acantholyda ruficeps (Harrington) + ci Py
Acantholyda verticalis (Cresson) ++ s Py,Pl,Ps,Pw
Cephalcia californica Middlekauff + ci,s Pl,Ps,Pw
Usually a colonial web/feeder.
Cephalcia provancheri (Huard) + s Py,Pl,C

Platygasteridae

Small parasitic wasps.

Platygaster sp. + sw Pl

Pompilidae: spider wasps

Pompilus scelestus Cresson + ci Pl
Predator.

Pteromalidae: pteromalid wasps

Small parasitic wasps.

Amblymerus sp. + sw Ps
Capella rufiventris (Girault) + sw Py
Catolaccus aeneoviridis (Girault) + se Py
Chlorocytus sp. + sw Ps
Euneura lachni (Ashmead) + si Py,Pl

<u>Pteromalus</u> sp.	+	si	Py
<u>Mesopolobus verditer</u> (Norton)	+	svi	Ps
<u>Rhopalicus pulchripennis</u> (Crawford)	+	sw	Ps

Siricidae: horntail wasps
Large robust insects; the larvae bore
in wood at wound areas.

<u>Sirex cyaneus</u> Fabricius Blue horntail Sheltering record.	+	w	Pl, Ps
<u>Sirex juvencus californicus</u> (Ashmead) A wood borer.	+	ci, se	Pl
<u>Urocerus albicornis</u> (Fabricius) A wood borer.	+	s	C, Pl, Pw
<u>Urocerus californicus</u> Norton A wood borer.	+	sw	C, Py
<u>Urocerus gigas flavicornis</u> (Fabricius) A wood borer.	+	w	C, Pl, Ps

Sphecidae: thread-waisted wasps,
mud wasps

<u>Ilanthus batus</u> Cresson adator/sitinger d.	+	se	Py
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Tenthredinidae: sawflies
A large family with many different
host plants and feeding habits.

<u>Amauronematus fallax</u> (Lepelletier) Usually a colonial defoliator.	+	ci	Pl
<u>Amestegia</u> sp. Accidental record.	+	ci	O, Pl
<u>Anoplonyx laricivorus</u> (Rohwer & Middleton) A semi-colonial defoliator.	+	se, si	C, Pl, Py
<u>Anoplonyx luteipes</u> (Cresson) A solitary defoliator.	+	ci	Pl
<u>Anoplonyx occidentis</u> Ross A semi-colonial defoliator.	+	se	C, Pl, Pw
<u>Blennocampa</u> sp. A solitary defoliator.	+	se	O, Pw

<u>Endelomyia aethiops</u> (Fabricius) Roses lug Accidental record.	+	sw	O, P1
<u>Hemichroa crocea</u> (Geoffroy) Striped alder sawfly Accidental record.	+	sw	D, Pw
<u>Nematus oligospilus</u> Foerster Accidental record.	+	se	D, P1
<u>Pachynematus</u> sp. Accidental record.	+	si	Py
<u>Pikonema alaskensis</u> (Rohwer) Yellow-headed spruce sawfly A solitary defoliator.	+	t	C, P1
<u>Pikonema dimmockii</u> (Cresson) Green-headed spruce sawfly A solitary defoliator.	+	w	C, P1, Pw
<u>Pristiphora bivittata</u> (Norton) A solitary defoliator.	+	ci	C, P1
<u>Pristiphora erichsonii</u> (Hartig) Larch sawfly A colonial defoliator.	+	ci, se	C, P1
<u>Pristiphora leechi</u> Wong & Ross A colonial defoliator.	+	se	C, Py
<u>Rhogogaster viridis</u> (Linnaeus) A solitary defoliator.	+	ci	D, P1
<u>Strongylogaster distans</u> Norton Sheltering record.	+	sw	Pw
<u>Strongylogaster tibialis</u> Cresson Sheltering record.	+	sw	P1
<u>Tenthredo xantha</u> Norton Sheltering record.	+	se	P1

Tiphiidae: parasitic wasps

<u>Tiphia bakeri</u> Allen Sheltering record.	+	sw	P1
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Trichogrammatidae

<u>Trichogramma minutum</u> Riley Minute egg parasite Egg parasite.	+	si	Py
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Vespidae: yellow-jackets, hornets,
paper wasps
Predators/scavengers

<u>Polistes fuscatus aurifer</u> Saussure Golden paper wasp	+	si	Py
<u>Vespula acadica</u> (Sladen)	+	svl	Ps
<u>Vespula maculata</u> (Linnaeus)	+	si	Py
<u>Vespula</u> spp.	+	s	Pl, Ps, Py

Xyelidae: flower-feeding sawflies
The small yellow larvae are commonly
found feeding in male flowers.

<u>Xyela cheloma</u> Burdick	+	se	Py, C
<u>Xyela obscura</u> (Strobl) (<u>pini</u> Rohwer)	+	s	Py, Ps

ISOPTERA: termites
Subterranean feeders.

Rhinotermitidae

<u>Reticulitermes hesperus</u> Banks Western subterranean termite Sheltering record.	+	ci	Py
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LEPIDOPTERA: moths/butterflies
 All host data are feeding records,
 unless otherwise noted.

Agaristidae: forester moths

	<u>Occurrence</u>	<u>Distribution</u>	<u>Host</u>
<u>Alypia langtoni</u> Couper accidental record	+	nw	D, Pl

Arctiidae: tiger moths, woolly bears
 The hairy bristled larvae of these
 relatively large moths commonly feed on
 herbage or deciduous plants; they are
 sometimes vividly colored.

<u>Asmella roseata</u> Walker A solitary defoliator.	+	sw	C, Ps
<u>Estigmene acraea</u> Drury Salt marsh caterpillar A herbage defoliator.	+	se	O, Py
<u>Halisidota argentata</u> Packard Silver spotted tiger moth A colonial defoliator.	++	w	C, Pl, Ps, Pw, Py
<u>Leptarctia californiae</u> Walker A solitary defoliator.	+	sw	D, Ps
<u>Lexis bicolor</u> Grote Usually a lichen feeder.	+++	i	Pl, Py, C, Pw
<u>Parasemia yarrowii</u> Stretch Sheltering record.	+	ci	D, Pl
<u>Pyrrharctia isabella</u> J.E. Smith Banded woollybear Sheltering record.	+	ci	D, Pl

Blastobasidae: small webbing caterpillars

<u>Holcocera immaculella</u> McDunnough A solitary leaf binder.	+	t	C, Pl, Ps, Py
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Drepanidae: hooktip moths

<u>Drepana arcuata</u> Walker A solitary defoliator	-†	i,sw	D,Pw,Ps
<u>Drepana bilineata</u> Packard A solitary defoliator.	+	t	D,Pl

Ethmidae

<u>Ethmia coloradella</u> Walsingham A needle miner.	+	i	Pl,Py,Pw
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Gelechiidae: small leaf miners
Many species are feeders on herbage
or deciduous plants.

<u>Chionodes continuella</u> (Zeller) A needle-binder.	++	t	C,Ps,Pl,Py
<u>Chionodes retiniella</u> (Barnes & Busck) A needle-tier/miner. The brown larvae bind the needles into long tubes; localized defoliation can occur.	+++	si	Py,C,Pw
<u>Coleotechnites atrupictella</u> (Dietz) A needle-miner/defoliator.	++	se,w	C,Py,Ps,Pl,Pw
<u>Coleotechnites florae</u> (Freeman) A needle miner.	+	se	Pl
<u>Coleotechnites starki</u> (Freeman) A needle miner. The small green larvae usually require 2 years to mature, and each caterpillar mines at least 3 needles. Damage is usually limited to discolored foliage, but prolonged infestation can weaken the tree significantly.	++++	se	Pl,Py
<u>Compsolechia niveopulvella</u> Chamber. Sometimes a mistletoe feeder	+	nw	D,Pl
<u>Filatima demissae</u> Kiefer A bud miner.	+	i	C,Pl,Py,Pw
<u>Pulicalvaria canusella</u> (Freeman) A needle miner.	++	i	Pl

Geometridae: looper, inchworms
 A larva of this large common family is characterized by a long slender body that is usually smooth, with only one pair abdominal prolegs. Unless otherwise noted, all the following species are solitary defoliators.

<u>Aethalura anticaria</u> Walker	+	se	Pw
<u>Anagoga occiduaria</u> Walker	+	si	O, Pl, Pw
<u>Anavitrinella pampinaria</u> Guenee	+	i	C, Pl, Py, Pw
<u>Anthelia hyperborea</u> Hulst	++	w	C, Ps, Pw
<u>Biston cognataria</u> (Guenee)	+	t	D, Pl, Pw, Py
<u>Cabera</u> sp. Accidental record.	+	se	D, Pl
<u>Campaea perlata</u> Guenee	+	t	O, Pl, Pw, Py
<u>Caripeta aequaliaria</u> Grote	++	t	Pl, Py, Ps, Pw, C
<u>Caripeta angustiorata</u> Walker	++	t	Pl, C, Ps, Py, Pw
<u>Caripeta divisata</u> (Walker) This medium-sized grey and yellow looper is consistently found on other conifers.	++	t	C, Pw, Py
<u>Cyclophora pendulinaria griseor</u> (McDunnough)	+	t	C, Pl, Pw, Ps
<u>Ectropis crepuscularia</u> Schiffermuel Populations occasionally 1 infestation proportion on other conifers.	-	t	C, Pl, Pw, Py
<u>Enypia griseata</u> Blackmore	++	i	C, Pl, Py
<u>Enypia packardata</u> Taylor	++	sw	C, Ps, Pw
<u>Enypia venata</u> Grote	++	s	C, Pw, Ps, Py
<u>Epirrhanthis substriataria</u> (Hulst)	+	se	D, Pl, Pw
<u>Epirrita autumnata</u> (Guenee) Occasionally found in large numbers on other conifers.	+	t	C, Pl
<u>Epirrita pulchraria</u> (Taylor)	++	w	C, Ps, Pw

<u>Erannis vancouverensis</u> Hulst	+	t	D,Py,Pw
Sometimes found in large numbers on deciduous hosts.			
<u>Euchlaena tigrinaria sirenaria</u> Strecker	+	se	O,Pl
Sheltering record.			
<u>Euchlaena vinulentaria</u> Grote & Robinson	+	i	O,Pl
<u>Eufidonia notataria</u> Walker	+	i	Pl,Pw
<u>Eupithecia albicapitata</u> Packard	+	nw	C,Pl
<u>Eupithecia annulata</u> Hulst	++	t	C,Ps,Pl,Pw,Py
<u>Eupithecia bryanti</u> Taylor	+	se	Py
<u>Eupithecia filmata</u> Pearsall	+	nw	Pl,C,Pw
<u>Eupithecia fletcherata</u> Taylor	+	se	D,Pw
<u>Eupithecia harrisonata</u> MacKay	+	w	C,Ps,Pw
<u>Eupithecia longipalpata</u> Packard	+	w	C,Ps
<u>Eupithecia luteata bifasciata</u> Dyar	++	t	C,Pl,Ps,Pw
<u>Eupithecia maestosa harlequinaria</u> Dyar	+	sw	D,Ps
<u>Eupithecia niphadophilata</u> Dyar	+	w	C,Ps
<u>Eupithecia ornata</u> Hulst	++	s	Pl,Ps,Pw,Py
<u>Eupithecia palpata</u> Packard	++	n,se	C,Pl,Ps,Pw
<u>Eupithecia placidata</u> Taylor	+	i	C,Pl
<u>Eupithecia sobrinata</u> Hubner	+	se	C,Pw
<u>Eupithecia transcanadata</u> MacKay	+	nw,se	C,Ps,Pw,Py
<u>Gabriola dyari</u> Taylor	++	t	C,Pw,Py,Pl
<u>Glena nigricaria</u> Barnes & McDunnough	+++	i	Py,C
<u>Hesperumia sulphuraria ochreatea</u> Packard	+	se	D,Pw,Pl
<u>Hydriomena albimontanata</u> McDunnough	+	i	C,Pl,Py
<u>Hydriomena californiata</u> Packard	+	w	C,Ps
<u>Hydriomena irata</u> Swett	++	ni	C,D,Ps,Pl

<u>Hydriomena speciosata</u> Packard	++	sw	C, Ps, Pw
<u>Hypagyrtis nubecularia</u> (Guenee)	++	t	C, Pl, D, Pw
<u>Hypagyrtis piniata</u> (Packard)	++	t	C, Pl, Py, Pw, Ps
<u>Iridopsis emasculata</u> (Dyar)	+	sw	Ps, C, Pw
<u>Isturgia truncataria</u> Walker Sheltering record.	+	se	O, Pl
<u>Itame loricaria</u> Everson Accidental record.	+	ni	D, Pl
<u>Itame quadrilinearis</u> Packard Accidental record.	+	se	D, Pl
<u>Lambdina fiscellaria lugubrosa</u> (Hulst) Western hemlock looper	++	t	C, Pl, Ps, D, Pw, Py
<u>Lygris destinata</u> Moeschler	+	s	D, Ps, Pl, Pw
<u>Lygris xyliana</u> Hulst	+	t	D, Pw
<u>Melanolophia imitata</u> Walker	*	t	C, Pl, Py, Pw, Ps
<u>Metanema inatomaria</u> Guenee	+	i	C, Pl
<u>Nematocampa filamentaria</u> Guenee Filament bearer	+	t	C, Pl, Pw, Py
<u>Nemoria</u> sp. Accidental record.	+	se	D, Pl
<u>Neoalcis californiaria</u> Packard	+	t	C, Pw, Py
<u>Nepytia freemani</u> Munroe Although an important pest of other conifers, this looper seldom damages pines.	++	se	C, Pl, Pw, Py
<u>Nepytia phantasmaria</u> Strecker Phantom hemlock looper Occasionally a problem on other conifers.	+	sw	C, Ps, Pw, Py
<u>Nepytia umbrosaria nigrovenaria</u> Packard	+	sw	C, Ps, Pw
<u>Nyctobia limitaria</u> Walker	++	t	C, Ps, Pl, Pw, Py
<u>Operophtera bruceata</u> Hulst Bruce spanworm Sheltering record.	+	cl	D, Pl

<u>Pero behrensarius</u> Packard	++	s	C, Pl, Ps, Pw, Py
<u>Pero mizon</u> Rindge	+	t	C, Pl, Pw
<u>Pero morrisonarius</u> Henry Edwards	+	t	C, Ps, Pl
<u>Phaeoura magnificans</u> (Dyar)	+	se	Py
<u>Phaeoura mexicanaria</u> (Grote)	+	se	Py
<u>Phengommataea edwardsata</u> Hulst	++	s	C, Ps, Py, Pw
<u>Plemyria georgii</u> Hulst	+	t	D, Pl
<u>Protoboarmia porcelaria indicataria</u> Walker	++	t	C, Ps, Pl, Pw, Py
<u>Rheumaptera hastata</u> (Linnaeus)	+	t	D, Pl
<u>Semiothisa adonis</u> Barnes & McDunnough	+++	t	Py, Pl, Pw, Ps
<u>Semiothisa perplexa</u> McDunnough	++	sa, w	C, Ps, Pw, Py
<u>Semiothisa setonana</u> McDunnough	++	t	C, Pl
<u>Semiothisa saxmaculata</u> Packard	++	si	C, Pl, Pw, Py
<u>Semiothisa signaria unipunctaria</u> Wright	+++	t	C, Pl, Ps, Py, Pw
<u>Semiothisa triviata</u> Barnes & McDunnough	+	ci	C, Py
<u>Stenoporpia albescens</u> Hulst	+	s	C, Ps, Pw, Py
<u>Stenoporpia excelsaria</u> Strecker	+	i	D, Py, Pl, Pw
<u>Stenoporpia satisfacta</u> Barnes & McDunnough	+	t	C, Py, Pw
<u>Synaxis pallulata</u> Hulst	+	t	Pl, C, D, Pw
<u>Thera</u> sp.	+	i	C, Pl
<u>Venusia pearsalli</u> Dyar	+	nw	D, Pl
<u>Xystrota rubromarginaria</u> Packard	+	se	O, Py
<u>Zenophleps lignicolorata</u> Packard	+	sw	O, Ps

Gracillariidae: leaf blotch miners

Phyllocnistis populiella Chambers + ci Pl
Sheltering record.

Laslocampidae: tent caterpillars, lappet moths

Malacosoma californicum pluviale (Dyar) + t D,Pw,Py
Western tent caterpillar
A colonial defoliator.

Malacosoma disstria Hubner + t D,Pw,Py
Forest tent caterpillar
A colonial defoliator.

~~Telypoda~~ Blacknore ++ s C,Py,Ps,Pw
A solitary defoliator.

Lycaenidae: **small** butterflies -
hairstreaks, coppers, meadow-blues
Larvae are very plump, with inconspicuous
head and legs; often appearing fuzzy
green. The following are all
solitary defoliators.

Incisalia eryphon (Boisduval) ++ i,sw C,Pl,Pw,Ps,Py

Incisalia nelsoni (Boisduval) ++ i C,Pl

Incisalia spinetorum Hewett ++ i Py,C

Lymantriidae: tussock moths
The larvae are characterized by a
"toothbrush" of pale hairs on top
of the back.

Dasychira grisefacta (Dyar) ++ t C,Pl,Pw,Py
A solitary defoliator.

Dasychira styx (Barnes & McDunnough) + sw C,Pw
A solitary defoliator.

Orgyia antiqua badia (Henry Edwards) + t C,D,Pl,Ps,Pw,Py
Rusty tussock moth
A solitary defoliator.
Occasionally this insect
reaches infestation proportions,
usually on hosts other than pines.

Orygia pseudotsugata (McDunnough) ++ s C,Py,P1
 Douglas-fir tussock moth
 A solitary defoliator.
 Defoliation of pine can result when
 the more usual host plants are in
 short supply.

Lyonetiidae: leaf miners

Lyonetia salicella Busck + se D,P1
 Sheltering record.

Noctuidae: cutworms

These stout medium-sized insects
 have a wide range of habit, and
 occur as pests primarily on
 agricultural crops or herbage.
 Larvae are usually smooth-bodied,
 with four pairs of abdominal prolegs.
 The following species are **all**
 solitary defoliators.

Ababrotis mirabilis Grote + si Py
Achytonix praeacuta Smith ++ t C,Ps,Py,Pw,P1
Acronicta grisea Walker + t O,P1
Acronicta impleta Walker + se
Actebia fennica (Tauscher) f i C,P1
 Black army cutworm
 A near-ground defoliator, often
 a herbage/nursery pest.
Amphipyra pyramidoides Guenee + se D,Py
Andropolia aedon Grote + ci D,P1
 Sheltering record.
Anomogyna dilucida Morrison + i C,P1
Anomogyna elinata Guenee + i P1,C,Py
Anomogyna mustelina Smith ++ t C,Pw,Py
Diarsia calgary Smith + ne P1
Enargia decolor Walker + ci D,P1
 Accidental record,

<u>Eurois occulta</u> Linnaeus	+	t	O,Pl
<u>Euxoa ochrogaster</u> Guenee Red-backed cutworm	+	sw	D,Pw,Py
<u>Feralia comstocki</u> Grote	++	t	C,Pl,Ps,Pw
<u>Feralia deceptiva</u> McDunnough	+	i	C,Pl,Pw,Py
<u>Feralia jocosus</u> Guenee	++	t	C,Ps,Pw,Pl,Py
<u>Graphiphora haruspica</u> Grote	+	i	O,Pl
<u>Ipimorpha pleonectusa</u> (Grote) Sheltering record.	+	ci	D,Pl
<u>Lithophane ferrealis</u> (Grote)	++	sw	C,Ps
<u>Lithophane georgii</u> Grote	+	si	D,Py
<u>Lithophane innominata</u> Smith	+	se	O,Pl
<u>Lithophane lepida</u> (Lintner)	++	s	Pl,Py,Ps,Pw
<u>Lithophane thaxteri</u> Grote	+	se	D,Pl
<u>Orthosia hibisci</u> Guenee	+	w	D,Ps
<u>Orthosia revicta</u> Morrison	+	se	O,Pw
<u>Orthosia transparens</u> Grote	+	sw	C,D,Ps
<u>Palthis angulalis</u> Hubner	++	sw	C,D,Ps,Pl,Pw
<u>Panthea portlandia</u> Grote	++	t	Pl,Pw,C,Ps,Py
<u>Peridroma saucia</u> Hubner Variegated cutworm	+	t	D,C,Pl
<u>Dolia adjuncta</u> Boisduval	+	se	Pw
<u>Dolia imbrifera</u> Guenee	+	i	C,Pl
<u>Dolia lutra glaucopis</u> Hampton	+	t	C,D,Pl,Ps
<u>Dolia pulverulenta</u> Smith	+	w	D,Pl
<u>Raphia frater</u> Grote Sheltering record.	+	ci	D,Pl
<u>Scoliopteryx libatrix</u> Linnaeus	+	ci,ni	D,Pl

<u>Synedoida</u> sp.	+	t	D,Pl
<u>Syngrapha</u> <u>alias</u> <u>interalia</u> Ottolengui	+	t	C,Pl,Pw
<u>Syngrapha</u> <u>celsa</u> Henry Edwards	+	t	C,Pw
<u>Syngrapha</u> <u>epigaea</u> Grote	+	t	C,Pl
<u>Syngrapha</u> <u>selecta</u> Walker	++	t	C,Pl,Ps,Pw
<u>Xylena</u> sp. Sheltering record.	+	ci	D,Pl
<u>Xylomyges</u> <u>candida</u> Smith	+	sw	C,Ps,Pl
<u>Xylomyges</u> <u>crucialis</u> Harvey	+	t	D,Pl,Py
<u>Xylomyges</u> <u>curialis</u> Grote	+	se	C,Py
<u>Xylomyges</u> <u>dolosa</u> Grote	+	se	O,Py
<u>Xylomyges</u> <u>hiemalis</u> Grote	+	sw	C,Ps
<u>Xylomyges</u> <u>perlubens</u> Grote	+	sw	C,Ps
<u>Zale</u> <u>duplicata</u> <u>largera</u> Smith	+++	t	Pl,Ps,Pw,Py
Nolidae			
<u>Celama</u> <u>minna</u> Butler A solitary defoliator.	+	sw	O,Ps
Notodontidae: prominents			
<u>Gluphisia</u> <u>septentrionalis</u> Walker Accidental record.	+	ci	D,Pl
<u>Ichthyura</u> <u>apicalis</u> Walker Accidental record.	+	mw	D,Pl
<u>Schizura</u> sp. Accidental record.	+	ci	D,Pl

Nymphalidae: brush-footed butterflies

Limenitis lorquini burrisonii Maynard
Lorquin's admiral + se D,Pl
Accidental record.

Nymphalis antiopa Linnaeus + ci D,Pl
Mourning cloak butterfly
Sheltering record.

Nymphalis j-album Boisduval & Leconte
Sheltering record. + ci D,Pl

Oecophoridae

Agonopterix costosa Haworth + sw O,Ps
A leaf-binder.

Olethreutidae: bud moths
This large group of small insects
includes many species of diverse
feeding habits.

Aphania spinulana McDunnough + se D,Pl
Sheltering record.

Aphania tertiana McDunnough + t D,Ps
A solitary leaf roller.

Epinotia emarginana Walsingham + ci D,Py
A solitary leaf roller.

Epinotia hopkinsana (Kearfott) +++ sw C,Ps,Pl,Py
A bud borer.
This insect mines needles when it
is small; on pines it is often confused
with the European pine shoot moth.

Epinotia subplicana Walsingham + svi Ps
A needle miner.

Eucosma ponderosa Powell ++ i Py
A cone/bud borer.

Eucosma perfusana Heinrich + si Pl
A borer.

Eucosma rescissoriana Heinrich ++ i Pl,Pw,Py
A cone/bud borer.
Occasionally causes localized damage.

Eucosma sonomana Kearfott ++ s Py,Pl,Ps
Western pine shoot borer
A shoot borer.
The small white larva of this
localized pest bores down the
central stem of an expanding shoot,
which flags and later becomes brown.

<u>Griselda radicans</u> Walsingham	++	t	C,Pl,Py
<u>Laspeyresia candana</u> Forbes A solitary leaf roller .	+	si	C,Py
<u>Laspeyresia miscitata</u> Heinrich A cone borer.	++	i	Py
<u>Laspeyresia piperana</u> Kearfott A cone borer.	++	i	Py
<u>Laspeyresia rana</u> Forbes A bark borer.	+	i	Pl,Pw
<u>Laspeyresia resinosae</u> Freeman A bark borer.	+	i	Py
<u>Melissopus latiferreanus</u> Walsingham + Filbertworm A seed borer.	+	t	D,Pl
<u>Olethreutes</u> sp. A needle-webber.	t	t	C,Pl
<u>Petrova albicapitana</u> Busck Northern pitch twig moth A bark feeder. This insect may be common in localized areas. The grey-brown larvae create large pitch nodules on the small branches, and their feeding can stunt or kill the growth.	+++	t	Pl,Py,Ps
<u>Petrova metallica</u> Busck A bark feeder. Less common than <u>P. albicapitana</u> ; more frequent on ponderosa pine.	++	s	Py,Pl,Ps
<u>Rhyacionia buoliana</u> Schiffermueller ++ European pine shoot moth This insect is an important pine pest, but mostly of exotic species, and transplant trees or those under managed environment. The small dark brown larvae overwinter in the buds and later destroy them.	++	s	C,Ps,Py,Pl,Pw
<u>Rhyacionia busckana</u> Heinrich A tip defoliator.	++	si	Py
<u>Rhyacionia subcervinana</u> Walsingham A needle miner.	++	si	Py

<u>Xhyacionia zozana</u> (Kearfott) A bud borer.	+	si	Py
<u>Sciaphila duplex</u> Walsingham Sheltering record.	+	sw	Ps
<u>Zeiraphera destitutana</u> (Walker) A bud borer/leaf roller.	++	nw	C, Ps, Pl
<u>Zeiraphera fortunana</u> (Kearfott) A bud miner/defoliator.	+	se	Pl, C
<u>Zeiraphera pacifica</u> Freeman A bud miner/defoliator.	++	w	C, Ps

Papilionidae: swallowtail butterflies

<u>Papilio</u> sp. Accidental record.	+	sw	D, Ps
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Phalonidae

<u>Phalonia</u> sp. A solitary defoliator.	+	sw	O, Ps
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Pieridae: butterflies - sulphurs, whites

<u>Neophasia menapia</u> Felder & Felder Pine butterfly A colonial defoliator. Although large numbers of these white butterflies are conspicuous in late summer, the larvae are only occasionally found in infestation proportions in B.C. Caterpillars are green with yellow-white stripes.	++++	t	Py, C, Pl, Ps, Pw
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Pyralidae: small borers in stems,
seeds, cones, fruits, bark, etc.

<u>Dasypyga alternosquamella</u> Ragonot A small defoliator usually associated with mistletoe.	++	w	Pw
<u>Dioryctria abietivorella</u> (Grote) The large brown larvae are shoot borers of diverse habit, sometimes in cones and rusts.	+++	t	C, Pl, Ps, Pw
<u>Dioryctria auranticilla</u> (Grote) The large grey larvae are cone borers and sometime6 serious seed pests.	+++	si	Py

Dioryctria cambicola (Dyer) +++ s Py, Pl, Ps
A shoot borer, frequently in an untidy pitch **mass** at a twig tip.

Dioryctria contortella Mutuura & Munroe
A stem borer, usually in (rust) cankers, ++ si Pl, Py

Dioryctria pentictonella Mutuura, Munroe & Ross
A borer in buds and twigs. +++ s Pl, Py, Ps

Dioryctria raniculalloides Mutuura & Munroe
Spruce coneworm
A twig and cone borer. ++ s C, Py

Dioryctria rossi Munroe + si Py
A cone borer.

Myelopsis coniellea Ragonot + se D, Pw
A solitary feeder.

Pyrausta tuolumnalis Barnes & McDunnough
A leaf-binder. + i C, Pl

Sesiidae: clearwing moths; stem borers

Albuna pyramidalis Walker + nw O, Pl
Sheltering record.

Synanthedon sequoiae (Vespa) (Henry Edwards)
Sequoia pitch moth +++ s Ps, Py, Pl, Pw, Pwb, C
The white larvae bore in the bark/cambium and create conspicuous masses of pitch, often at branch axils; branches are weakened.

Thamnosphesia americana Beutenmueller
Sheltering record, + si Pl

Tortricidae: leaf-rollers
A large group of small drab insects, many species considered pests because of their boring, mining and defoliating habits.

Acleris gloverana Walsingham ++ t C, Ps, Pl, Py, Pw
Western black-headed budworm
a budworm/defoliator.
This noted pest is common over large areas, but prefer other coniferous hosts such as hemlock, **spruces**, Douglas-fir, etc.

<u>Acleris logiana</u> (Linnaeus) Accidental record.	+	se	D,Pl
<u>Archippus albertus</u> (McDunnough) A solitary leaf-roller/defoliator.	f	i	C,Pl
<u>Archippus packardianus</u> (Fernald) A solitary defoliator.	++	t	C,Pl,Ps
<u>Archips argyrospilus</u> Walker Fruit tree leaf-roller A leaf-roller.	+	t	D,Py,Pw
<u>Archips gogana</u> Kearfott A leaf-roller.	+	n,w	C,Pl
<u>Archips rosanus</u> Linnaeus A solitary leaf-roller.	+	sw	O,Ps,Py
<u>Argyrotaenia citrana</u> (Fernald) Orange tortrix A leaf-roller.	++	ci,sw	D,Ps,Pl,Py,Pw
<u>Argyrotaenia dorsalana</u> (Dyar) A solitary leaf-roller.	+	s	O,Py
<u>Argyrotaenia occultana</u> Freeman A solitary defoliator.	++	t	C,Pl,Ps,Py
<u>Argyrotaenia tabulana</u> Freeman A leaf-roller. The small green larvae begin as needle miners, and then bind the needles into irregular cube shelters; localized defoliation occasionally results.	+++	t	C,Pl,Pw,Ps
<u>Argyrotaenia velutinana</u> Walker Red-banded leaf-roller. A solitary leaf-roller.	+	se	C,Pl,Py
<u>Batodes angustiorana</u> Haworth A bud/leaf miner.	+	sw	O,Ps,Py
<u>Choristoneura fumiferana</u> (Clemens) Eastern spruce budworm A defoliating leaf roller. The spotted brown larvae are important defoliators on other conifers.	+++	ne	C,Pl

<u>Choristoneura biennis</u> Freeman A defoliating leaf-roller.	++	e,n	C,L
<u>Choristoneura lambertiana</u> (Busck) A defoliating leaf-roller.	+	i	Pl,Py
<u>Choristoneura occidentalis</u> Freeman Western spruce budworm A defoliating leaf-roller. This major pest of coniferous forests is more commonly found on Douglas-fir, hemlock, and true firs. The dark brown larvae are distinctive by their pale setal bases: 2 conspicuous pairs on top of each body segment.	++++	sw	C,Pl,Ps,Pw,Py
<u>Choristoneura orae</u> Freeman A defoliating leaf-roller.	+	nw	C,Ps,Pl
<u>Choristoneura osaceana</u> (Harrison) Oblique-bande leaf-roller	t	t	D,Pl
<u>Clepsis persicana</u> (Fitch) A leaf-roller.	+	t	Pl,Ps,Py
<u>Tortrix</u> sp. A leaf-roller.	+	t	C,Pl

Yponomeutidae: leaf/twig miners

<u>Argyresthia flexilis</u> Freeman A needle miner.	+	se	Pf
<u>Argyresthia</u> spp. Needle miners.	++	i	O,Pl
<u>Ocnorostoma piniariella</u> Zeller A needle miner. Occasionally a pest in very localized areas.	++	sw	Ps,Pw
<u>Zelleria haimbachi</u> Busck Pine needle sheath-miner A needle miner/defoliator. These slender insects can cause localized defoliation, twig damage and occasional tree mortality. The thin brown larvae overwinter as needle miners, then defoliate at sheath level from silk tunnels.	++++	t	Pl,Py,Ps

Occurrence Distribution Host

MEGALOPTERA: fishflies
Aquatics.

Corydalidae

<u>Protochauliodes spenceri</u> Munroe	+	sw	Ps
Sheltering record.			

NEUROPTERA: lacewings
Larvae and adults are active predators
on small insects.

Chrysopidae: green lacewings

<u>Chrysopa oculata</u> Say	+	ni	Pl
Goldeneye lacewing			
<u>Chrysopa</u> spp.	+	ci,s	Py,Pl,Ps,Pw

Hemerobiidae: brown lacewings

<u>Hemerobius dorsatus</u> Banks	+	ni	Pl
<u>Hemerobius</u> spp.	+	s	Py,Pl,Ps
<u>Klaminzia</u> sp.	+	se	Pl

Polystoechotidae: giant lacewings

<u>Polystoechotes punctatus</u> (Fabricius)	+	si	Py
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Raphidiidae: snakeflies

<u>Agulla adnixa</u> Hagen	+	s	Pm,Pl,Pa,Py
<u>Agulla assimilis</u> Albarda	+	s	Py,Pl,Ps,Pw

	<u>Occurrence</u>	<u>Distribution</u>	<u>Host</u>
ODONATA: dragonflies, damselflies			
The fast-flying adults are predaceous.			
Agrionidae: damselflies			
<u>Agrion</u> sp.	+	ci	Py
Aeschnidae: dragonflies			
<u>Aeschna</u> sp.	+	sw	Ps
Coenagrionidae: damselflies			
<u>Enallagma boreale</u> (Selys)	+	si	Pl
ORTHOPTERA: grasshoppers, crickets			
Acrididae: grasshoppers			
Herbage feeders.			
<u>Acrydium brunneri</u> (Bolivar)	+	svi	Ps
Tettigoniidae: camel crickets			
<u>Ceuthophilus</u> sp.	+	si	Py
<u>Cirotettix</u> sp.	+	sw	Pm
<u>Cyphoderris monstrosa</u> Uhler	+	sw	Ps
<u>Neduba</u> sp.	+	si	Py
<u>Scudderia</u> sp.	+	si	Py
<u>Stenopelmatus longispina</u> Brunner	+	sw	Ps
Gryllidae: field crickets			
<u>Gryllus</u> sp.	+	sw	Ps

Occurrence Distribution Host

PLECOPTERA: stoneflies
Aquatic insects; sheltering records.

Perlidae

<u>Acroneuria</u> sp.	+	si	Py
<u>Alloperla coloradensis</u> (Banks)	+	si	Py
<u>Isogenoides frontalis colubrinus</u> Hagen	+	si	Py
<u>Isoperla ebria</u> Hagen	+	sw	Pw

Nemouridae

<u>Nemouria</u> sp.	+	se	Pw
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PSOCOPTERA: bark lice
Small active scavengers, sometimes
occurring in large numbers.

Psocidae

<u>Amphigerontia bifasciatus</u> (Latrielle)	+	se	Pw
<u>Caecilius perplexus</u> Chafius	+	se	Pw
<u>Ectopsocus californicus</u> (Banks)	+	sw	Ps
<u>Graphopsocus conterminus</u> (Walsh)	+	sw	Ps
<u>Mesopsocus unipunctatus</u> (Mueller)	+	s	Pw, Ps

THYSANOPTERA: thrips
Small plant feeders.

Phloeothripidae

<u>Gnophothrips fucus</u> (Morgan)	+	sw	Ps
<u>Haplothrips mali</u> (Fitch)	+	sw	Ps

Occurrence Distribution Host

TRICHOPTERA: caddisflies
Aquatic "case-bearers".

Limnephilidae

The following are sheltering records.

<u>Clistoronia magna</u> Banks	†	se	Pw
<u>Dicosmoecus unicolor</u> Banks	†	sw	Ps
<u>Hesperophylax incisus</u> Bank6	†	ci	Pl
<u>Limnephilus</u> sp.	†	ne	Pl
<u>Nemotaulinus hostilis</u> (Hagen)	†	ci	Pl

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