LEPIDOPTERA OF THE PACIFIC NORTHWEST: CATERPILLARS AND ADULTS

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Identification of Caterpillars and Adults
The Forest Health Technology Enterprise Team (FHTET) was created in 1995 by the Deputy Chief for State and Private Forestry, USDA, Forest Service, to develop and deliver technologies to protect and improve the health of American forests. This book was published by FHTET as part of the technology transfer series.

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DEDICATION AND ACKNOWLEDGMENTS

DEDICATED TO DOUG FERGUSON

This book about Lepidoptera of Pacific Northwest caterpillars and their adults is dedicated to the late Doug Ferguson. Doug played a very important role in the conduct of our studies. He offered his expertise in taxonomy, which was critical to the identification of many of our geometrid species, and encouraged us to keep up the sometimes arduous task of field collecting and rearing caterpillars from various foodplants.

We will miss him.

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Also, this booklet would not have been produced without the encouragement and support of Richard “Dick” Reardon and the USDA Forest Service, National Center of Forest Health Management, Morgantown, West Virginia. This is the sixth book in a series on the Lepidoptera of forests and woodlands. Dick has been the driving force and producer for the entire series. Those in the series written by senior author Dave Wagner covered the species of the northeastern United States, while those written by senior author Jeff Miller covered species of the Pacific Northwest. We are very grateful for the opportunity to produce this book, and extend our sincere thanks to Dick for his support.

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About This Book

The subjects and their accompanying photographs of Lepidoptera are organized alphabetically by family and then by genus within the categories of butterflies, skippers, and moths. While many of the species illustrated here are common, only a small percentage of the species in the Northwest are represented.

If the identity of a macromoth from the western United States cannot be determined by matching a specimen with a description or photo in this book then look in Miller and Hammond 2000 or Covell 1984. Covell 1984 provides an extensive assortment of photographs for species that occur in the eastern United States so the probability of a match to a western species is limited to those species that are widespread across the North American continent. Also, serious students of moths should look in the references following the discussion of all families in the section on macromoths.

For each of the 239 species presented we provide a narrative that includes three sections: Caterpillar, Adult, and Ecology. The caterpillar and adult sections are descriptive for general identification purposes. The ecology section presents information on abundance, foodplants, seasonality, flight, and biogeography.
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Insects are notably abundant in a wide variety of habitats. In particular, the moths and butterflies (Lepidoptera) are some of the most obvious insect species in a variety of environments. The adult moth or butterfly is likely the most familiar life stage to the casual observer. Moths and butterflies are easily seen on the wing during the day while visiting flowers or at night while hovering about lights. However, for every adult there once existed a caterpillar that fed on one or another species of foodplant. The caterpillars are the actively feeding immature stages of moths and butterflies and are less obvious at first glance. But they can be abundant on certain plants at certain times of the year, most notably in the spring. In addition, caterpillars are diverse in the number of species present, their appearance, behavior, and developmental requirements.

Identifying field-collected Lepidoptera to the species level is essential to performing natural history observations and conducting detailed ecological studies on associating caterpillars to their adults, foodplant relationships, parasitoids, and using caterpillars as indicator species to assess environmental impacts. Diagnostic keys are not available for identifying species of caterpillars and their adults, in the Pacific Northwest. In fact, few scientific papers and books can be found that illustrate caterpillars of this region. Prior to Miller (1995), Stevens et al. (1984) was one of the few sources available for illustrations of caterpillars in the Pacific Northwest. Pyle (2002) provides some photographs of caterpillars of Pacific Northwest butterflies. However, many books are available that illustrate the adult butterfly, Pyle (2002) being the most recent. Photographs of moths in Pacific Northwest forests and woodlands were published by Miller and Hammond (2000). Certain books provide excellent photographs of common caterpillar species of regions outside of the Pacific Northwest, including the Canadian Provinces (Ives and Wong 1988), the Appalachians (McCabe 1991), and eastern deciduous forests (Wagner et al. 1995, Wagner et al. 2001). Some of the species illustrated in these books also occur in the Pacific Northwest; however, Oregon alone contains over 2,000 species of Lepidoptera, and a majority of these species do not occur east of the Rocky Mountains.

This booklet is a field guide to assist in the identification of caterpillars and their adult stage, and emphasizes the fauna of the Pacific Northwest. In this work we have revised and expanded the coverage of caterpillars of Pacific Northwest forests and woodlands (Miller 1995) and adults of Pacific Northwest forests and woodlands (Miller and Hammond 2000). We have selected 239 species for diagnostic narratives and photographs of caterpillars and their adults. We have limited the photographic presentation to select taxa of butterflies and macromoths, but have not included the micromoths. The species included here are either common to the forests and woodlands of the Pacific Northwest, or they exhibit a special life history trait, such as endemism or extreme rarity. The geographical range extends beyond the Pacific Northwest States and includes regions west of the Rocky Mountains, from northern California to southern British Columbia. We present a brief section on the natural history of Lepidoptera and describe variations in morphology, color, and pattern that are used to identify caterpillars. Also, we provide details on how to collect and rear caterpillars, and how to photograph and preserve specimens. As well, there is a section on nomenclature and a narrative of the families most commonly found in the Pacific Northwest.

THE PACIFIC NORTHWEST
The Pacific Northwest includes California north of San Francisco, all of Oregon, and Washington, southern British Columbia, the northwest corner of Nevada, most of Idaho, and western Montana. In the context of the flora and fauna of North America, the Pacific Northwest contains portions
CHAPTER 1: INTRODUCTION

The vegetation in the Pacific Northwest is diverse and includes a flora adapted to an array of habitats including coastal, desert, and alpine environments. The prevalent forest trees include the conifers Douglas-fir, ponderosa pine, lodgepole pine, and redwoods. Other conifers include spruce, hemlock, larch, true fir, cedar and numerous species of pine. The prevalent woodland trees include oak, alder, poplar, ash, aspen, maple, and juniper. The understory vegetation in these forests and woodlands is also very rich in species. Included among some of the more prevalent species of flowering trees and shrubs are the genera: *Acer, Alnus, Amelanchier, Arbutus, Arctostaphylos, Artemisia, Baccharis, Ceanothus, Celtis, Cercocarpus, Chrysolepis, Cornus, Corylus, Crataegus, Fraxinus, Gaultheria, Holodiscus, Juniperus, Lithocarpus, Myricaria, Oemleria, Pachistima, Philadelphus, Physocarpus, Populus, Prunus, Pueraria, Quercus, Rhamnus, Rhododendron, Ribes, Rubus, Salix, Sambucus, Sorbus, Spiraea, Symphoricarpos, Umbellularia, and Vaccinium.*

The forests and woodlands of the Pacific Northwest possess many types of habitats based on tree species, geographical location, and climatic conditions. We have placed these habitats into five categories: subalpine forest, rain-wet-moist forest, dry forest, dry woodland, and riparian forest and woodland.

**Subalpine forest** Occurs at high elevation (above 1,500 meters) in the Cascade Mountains, Rocky Mountains, Sierra Nevada Mountains, and on isolated montane islands in the Great Basin and the southwest states. Dominant tree species are Engelmann spruce, subalpine fir, lodgepole pine, and quaking aspen.

**Rain-wet-moist forest** Dominated by conifers, particularly Douglas-fir, western hemlock, redwoods, and Sitka spruce. The major hardwood trees are red alder and big-leaf maple. Forest types transition subtly from one to the other based on precipitation. Rainforests may receive in excess of 254 centimeters (100 inches) of rain per year, wet forests receive between 152 and 254 centimeters (60 to 100 inches), and moist forests receive between 89 and 152 centimeters (35 to 60 inches).

**Dry forest** Dominated by ponderosa pine. The associated hardwood trees are quaking aspen at high elevations and cherry and serviceberry at lower elevations.

**Dry woodland** Characterized by oak woodlands west of the Cascade and Sierra Nevada Mountains, and juniper woodlands to the east of the Cascade Mountains. Dry woodlands in the Southwest and Great Basin are characterized by piñon pine.
Riparian forest and riparian woodland  Occurs in dry regions along rivers, creeks, and gullies. The dominant trees are poplars, willow, alder, cherry, and elderberry.

THE LEPIDOPTERA

The Order Lepidoptera is divided into three groups: butterflies and skippers, macromoths, and micromoths. Each group consists of numerous families. The family as a taxonomic unit is a grouping of genera which are taxonomic units of related species. The differences between groups of Lepidoptera include obvious morphological features, technical anatomical characteristics, and some behavioral ecological traits.

A majority of the described and documented Lepidoptera in the Pacific Northwest are macromoths. Over 1,200 species of macromoths have been recorded to date. Between 180 and 200 species of butterflies and skippers, and 700 to 900 species of micromoths are listed as well. However, the scientific effort that goes into understanding the Lepidoptera fauna is not evenly distributed among the species. Much is known about the presence and identity of butterfly and skipper species in the Pacific Northwest; less is known about the presence and identity of macromoths. Even less is known about the micromoths. The macromoth fauna of the Northwest has never been the subject of a comprehensive study, and many species remain to be discovered and described. As more studies are conducted we expect the butterfly species count will remain nearly the same, but the macromoth species count could increase another 25 percent, to around 1,500 species. The micromoth species count is likely to equal or exceed the number of macromoths.

The butterflies and skippers are known as the Rhopalocera. There are seven families: Hesperiidae, Lycaenidae, Nymphalidae, Papilionidae, Pieridae, Riodinidae, and Satyridae. The butterflies and skippers are distinguished by swollen areas at or near the end of the antennae. Butterflies have a swollen area at the tip of the antennae. Skippers have a swollen area near the end, but the enlargement is slightly expanded and tapers into a hooked tip. Nearly all adult butterflies and skippers are diurnal, meaning they are active during the day. Associated with their diurnal behavior, butterflies and skippers tend to bask in sunlight which is a behavior involved in thermoregulation.

Adults tend to be brightly colored, at least in one of the sexes. Depending on the species, the male or female is the more colorful, and the color serves to attract a mate. For instance, in many of the blue Lycaenidae the male is an iridescent blue/purple and the female is mostly brown. The bright and obvious colors and patterns on the wings might be associated with aposematism, a mechanism which serves to warn predators that the individual is poisonous. While at rest, but not while basking in the sun, the wings of butterflies are typically held pressed together above the body. The underside of a butterfly wing is often marked in colors and patterns that allow the individual to blend into the substrate upon which it is resting, a morphological and behavioral condition known as crypsis. Skippers differ slightly from butterflies in their resting posture. Typically they hold their wings at an oblique angle, or laterally, while at rest.

Adult butterflies and skippers are readily seen at flowers where they are sucking up nectar to obtain the energy required for flight. Caterpillars of butterflies and skippers do not exhibit any general traits that separate them from the caterpillars of macromoths.

Macromoths and micromoths differ from the Rhopalocera in the morphology of the antennae, flight activity patterns, and coloration. The tip of the antennae in macromoths and micromoths is not knobbed or swollen with a hook, although some Sphingidae may exhibit slightly swollen antennae that taper to a point which is curved. Most species of moths fly at night, their nocturnal flight behavior is one of the reasons moths are readily seen at lights. Unlike the Rhopalocera, moths at rest do not press their wings together vertically above their bodies. Rather, they hold their wings flat over their abdomens in a near horizontal position. The top surface of the wings is typically colored and patterned to blend into the environment. Thus, bright colors are the exception rather than the rule in moths. However, in a few species of moths the upper surface of the hindwing is brightly colored; a sudden exposing of the hindwing, which is typically covered by the forewing when at rest, may serve to startle a predator.
Adults of many moth species do not feed. Typically, those that do feed seek the carbohydrate- and energy-rich nectar of flowers.

Contrary to what the names suggest, overall size is not what distinguishes the macromoths from micromoths. Rather, the distinction is in the details of the wing venation and the female reproductive tract. These details are discussed and illustrated in most texts on general entomology (Borror et al. 1989) and in books about Lepidoptera (Covell 1984).

The macromoths in the woodlands and forests of the Pacific Northwest are comprised of 1,200 species in twelve families: Arctiidae, Dioptidae, Drepanidae, Epilemiidae, Geometridae, Lasiocampidae, Lymantriidae, Noctuidae, Notodontidae, Saturniidae, Sphingidae, and Thyatiridae. The micromoths in the woodlands and forests of the Pacific Northwest are represented by at least 500 species in over 20 families, the four most common being the Tortricidae, Pyralidae, Gelechiidae, and Pterophoridae.

**COMMON FAMILIES OF LEPIDOPTERA IN FORESTS AND WOODLANDS OF THE PACIFIC NORTHWEST**

In general, about 21 families of Lepidoptera are common in the Pacific Northwest, and are briefly described, below. Due to the dynamics of name changes, recognized species status, and the nature of incomplete records, species numbers are estimates.

**Butterflies**

- **Hesperiidae** Skippers; 40 species. Caterpillars are external leaf feeders but can be found within tied leaves on broadleaf plants and grasses. The most obvious diagnostic trait for identification of caterpillars is that the first segment of the thorax is constricted. A full grown caterpillar may reach 50 millimeters in length. Adults are day-flying.

- **Lycaenidae** Hairstreaks, elfins, blues and coppers; 60 species. Caterpillars are external leaf feeders, and occur primarily on broadleaf plants. The body is covered with many short hairs, giving a velvet-like appearance. The head is usually concealed from above by the prothorax. The dorsal aspect of the body is humped, a feature best seen in lateral view. A full grown caterpillar may reach 30 millimeters in length. Adults are day-flying.

- **Nymphalidae** Brush-footed butterflies, fritillaries, commas, admirals, crescents, checkerspots, and tortoiseshells; 50 species. Caterpillars are external leaf feeders, and occur primarily on broadleaf plants. Many species have middorsal spines on A7 but not on A9. The head of nymphalid caterpillars may possess non-stinging spines. A full grown caterpillar may reach 75 millimeters in length. Adults are day-flying.

- **Papilionidae** Swallowtails and parnassians; 10 species. Caterpillars are external leaf feeders. Body color in swallowtail caterpillars is a mixture of green, yellow, and black. Body color in Parnassians is black. Caterpillars of Papilionidae possess an osmeterium, which is an eversible forked pouch on the prothorax. A full grown caterpillar may reach 70 millimeters in length. Adults are day-flying.

- **Pieridae** Whites and sulphurs; 20 species. Caterpillars are external leaf feeders, and occur primarily on broadleaf plants. The body is covered with many very short hairs, giving the appearance of velvet. A full grown caterpillar may reach 50 millimeters in length. Adults are day-flying.

- **Satyridae** Satyrs; 12 species. Caterpillars are external leaf feeders, and occur on grasses. The body is covered with many very short hairs, giving a velvet-like appearance. A full grown caterpillar may reach 40 millimeters in length. Adults are day-flying.

**Macromoths**

- **Arctiidae** Woollybear caterpillars, tiger moths; 30 species. Caterpillars are external leaf feeders and occur on conifers and broadleaf plants. Typical arctiid caterpillars have dense coats of long hairs, giving the caterpillars a woolly appearance, hence the common name. Many species are covered with densely packed, wispy hairs that are longer than the width of the body. Some species are covered by densely packed hairs that are shorter than the width of the body. A majority
of the species overwinter in the caterpillar stage. A full grown caterpillar may reach 60 millimeters in length. Caterpillars among the species of arctiids may feed on the foliage of conifers, flowering trees and shrubs, herbs, or grasses. Adult moths of most of the species are night-flying. However, some arctiids fly during the day. One of the day-flying species is the cinnabar moth, *Tyria jacobaeae*, which was intentionally introduced as a biological control agent because the caterpillar feeds on flowers and leaves of the noxious weed tansy ragwort, *Senecio jacobaea*. Adults exhibit a wide range of colors and patterns of markings. Some species have immaculate wings while others show large spots or extensive crisscrossing bands. Some of the species are considered pests, such as the fall webworm and the silver spotted tiger moth. Adult Arctiidae of North America are illustrated in Covell (1984).

**Dioptidae**  
Oak worm moths; 1 species. *Phryganidia californica* is our only species in this family and occurs in forests and woodlands containing live oaks and chinquapin, upon which the caterpillars are leaf feeders. Because caterpillars overwinter, and may feed on warmer days, they require an evergreen host, such as live oaks and chinquapin. The species is considered a pest because it can severely defoliate its hosts. Adults are not strongly attracted to light and may fly during the day or at night.

**Drepanidae**  
Hook-tip moths; 2 species. *Drepana arcuata* is common, *D. bilineata* is not. Caterpillars are external leaf feeders and occur primarily on broadleaf plants, especially elder species. Two features are characteristic in the caterpillar: the rearward projecting knob on A10, and the prolegs on A10 which project backwards and lack crochets. Full grown caterpillars may reach 30 millimeters in length. Adults are night-flying and attracted to light.

**Epiplemidae**  
Epiplemids; 1 species. *Callizzia amorata* is the only species in this family. It is most common in the wet forests in the Pacific Western States, but is widely distributed in North America. Caterpillars feed on the foliage of honeysuckle. Adults fly at night and are attracted to light.

**Geometridae**  
Inchworms, loopers, and geometr moth; 400 species. This family is second only to the noctuids in number of species. Typically, inchworms possess one pair of midabdominal prolegs on segment A6. The presence of two pairs of midabdominal prolegs is less common. If two pair of prolegs do appear, they occur on segments A5 and A6 (see *Campaea perlata*). Also, the presence of four pairs of midabdominal prolegs is very uncommon. If they do appear, they occur on A3-A6 (see *Archiearis infans*). Many species have caterpillars that feed on the foliage of conifers. The most common hosts are species of Pinaceae, but a few moths prefer the Cupressaceae as their primary host. A majority of the inchworm species feed on the foliage of flowering trees and shrubs, and less frequently on herbaceous plants. Adults of most species fly at night and are readily attracted to light. Females of some species (*Phigalia plumagenaria*, *Operopthera bruceata* and *Operopthera danbyi*) are wingless (Figure 2). Generally, filiform antennae are present in both sexes. However, males in certain species have pectinate antennae (see *Protoboarmia porcelaria* or *Drepanulatrix foeminaria*). Full grown caterpillars

![Figure 2 Wingless female adult.](image-url)
in small species may reach only 20 millimeters in length, while large species may reach 80 millimeters. Ferguson (1985) provides detailed illustrations and references to the green geometers, Geometrinae, of North America.

**Lasiocampidae** Tent caterpillars and lappet moths; 6 species. Caterpillars are external leaf feeders, and occur primarily on broadleaf plants. Biordinal crochets of lasiocampids are unique among the common hairy caterpillars of the Pacific Northwest.

Caterpillars of lasiocampids may be found feeding on the foliage of conifers or flowering trees and shrubs. Adults are night-flying. The lappet moth body is notably hairy. Colors and markings on the forewings and hindwings of lappet moths do not create strongly contrasting or intricate patterns. Adults fly at night and are readily attracted to light. Lappet moths do not have functional mouthparts and therefore do not feed. A full grown caterpillar may reach 100 millimeters in length. Franclemont (1973) includes illustrations of North American lappet moths.

**Lymantriidae** Tussock moths; 8 species. Caterpillars are external leaf feeders, and occur on conifers and broadleaf plants. Typically, caterpillars exhibit tufts of dense hairs on middorsal segments A1 through A4, and a brightly colored (red or orange) gland on middorsal segments A6 and A7. An introduced species, *Lacanobia oleracea*, lacks the tufts of dense hairs and thus does not fit the description of a “typical” Pacific Northwest lymantriid caterpillar.

Caterpillars in most of the species feed on the foliage of conifers or flowering trees and shrubs. Many species are considered pests, the most notable being the gypsy moth, *Lymatia dispar*, and the Douglas-fir tussock moth, *Orgyia pseudotsugata*. The gypsy moth has created problems, but has not established permanent residence in the Pacific Northwest. A gypsy moth infestation can prompt an eradication project involving pesticides, which in turn may lead to unintended ecological impacts on other Lepidoptera species (Miller 1990a,b). *Orgyia pseudotsugata* is a native pest of conifer forests. Adults of most species fly at night and are readily attracted to light. However, the males of some species, such as *Orgyia antiqua* and *Orgyia pseudotsugata*, are day flyers. The females of many of the lymantriids are wingless/flightless. A full grown caterpillar may reach between 60 and 70 millimeters in length. Ferguson (1978) provides illustrations and references to the tussock moths of North America.

**Noctuidae** Cutworms, armyworms, semi-loopers, and underwings; 850 species, more than any other family of Lepidoptera in the Pacific Northwest. Habits and habitats vary among species. Some species occur in the soil, others bore in stems, and many are external leaf feeders. Host plants include conifers, broadleaf trees and shrubs, herbs, and grasses. Caterpillars may be hairy, nearly naked, brightly colored or cryptic. All noctuids, except the Plusiinae, have four pairs of midabdominal prolegs. The Plusiinae have only two pairs of midabdominal prolegs, occurring on segments A5 and A6. Most of the caterpillars of noctuid species feed on the foliage of flowering trees, shrubs, or herbs. Numerous species are considered pests of agricultural crops, but none are considered chronic pests of woodlands and forests. Adults range in size from the very small *Nola minna*, with a wingspan of 2.3 centimeters, to the relatively large *Catocala ilia*, with a wingspan of 7.9 centimeters.

Noctuid moths exhibit a broad array of colors and markings, but generally the forewings, hindwings and bodies exhibit varying hues of white, silver, gray, tan, brown, and black. Most noctuid species fly at night and are readily attracted to light. Certain species, such as *Oncocnemis dunbari*, rarely show up at lights at night, yet collections of caterpillars from the foliage of ocean spray, *Holodiscus discolor*, suggest the species is very abundant. Full grown caterpillars of the smaller species reach between 15 and 20 millimeters, while large species may be 70 millimeters in length. Eichlin and Cunningham (1978), Lafontaine (1987), Lafontaine and Poole (1991), Poole (1995), and Lafontaine (1998) provide illustrations and references to the noctuids of North America.
Notodontidae  Prominents; 20 species. With only 20 of the 136 species known to occur in the United States and Canada, the prominents are not well represented in the Pacific Northwest. Typically, caterpillars feed on the foliage of flowering trees and shrubs. On occasion *Schizura concinna* may be a pest on ornamental trees and in orchards. Prolegs of A10 may be either extremely short or extremely long relative to the midabdominal prolegs, and are often elevated above the plant. Caterpillars may reach 60 millimeters when full grown. Adults fly at night and are readily attracted to light.

Saturniidae  Silk moths; 12 species. Although called “silkworms,” these are not the caterpillars used in commercial silk production. Caterpillars are external leaf feeders, occurring primarily on conifers and broadleaf plants. Many species exhibit middorsal scoli on segments A8 and A9, but not A7. Caterpillars of many species have stinging hairs that inflict a sharp pain similar to that inflicted by species of stinging nettle, *Urtica*. The forewings and hindwings of silk moths are very large; wingspans in many of the species can extend between 10 - 15 centimeters. Accordingly, the wingbeat of most silk moths is much like that of most butterflies; it is relatively slow and each beat easily seen. Wing colors and markings typically occur in distinct and sometimes intricate patterns, making identification of certain species rather easy. However, many silk moths are known to have hybrid populations in areas where two closely related species can interbreed. The adults of most species fly at night and are readily attracted to light. A few species, notably *Hemileuca eglanterina* and *Saturnia mendocino*, will fly during the day. The morphology of silk moth antennae is unique; they resemble fern fronds, with two to four branches along their lengths. The branched antennae are particularly noticeable in the males. Adults possess atrophied mouthparts and do not feed. Typically, they are not long-lived. A full grown saturniid caterpillar may exceed 100 millimeters in length. Ferguson (1971, 1972) and Tuskes et al. (1996) provide illustrations and references to the silk moths of North America.

Sphingidae  Hornworms, sphinx moths; 25 species. Caterpillars are external leaf feeders, occurring primarily on broadleaf plants. A notable exception being the caterpillars of *Sphinx sequoiae* which feed on junipers, *Juniperus*, and western red cedar, *Thuja plicata*. A single middorsal horn usually occurs on segment A8.

Caterpillars often rest in a prayer-like pose, with the head and true legs raised above the plant surface. Sphinx moths are very strong fliers; their wingbeat produces a sound similar to that of a hummingbird. The adults of most species fly at night and are readily attracted to light. Sphinx moths are attracted to nectar-producing flowers that have long tubular corollas. Many of these flowers are aromatic, white, and flower at night. A full grown caterpillar may exceed 100 millimeters in length. See Hodges (1971) for illustrations and references to the sphinx moths of North America.

Thyatiridae  Thyatirids; 10 species. Caterpillars are external leaf feeders, and may be found in loosely tied leaves on broadleaf plants. The tail end (prolegs are reduced) is often raised above the plant surface. Line patterns on the forewings and hindwings of thyatirids often are wavy, curled, or zigzagged. Adults of thyatirids fly at night and are attracted to light. When full grown, caterpillars may be 40 millimeters long.

Micromoths

Gelechiidae  Gelechiids; 200 species, but poorly documented. Habits and habitats vary among species. Caterpillars occur on conifers and broadleaf plants. They are external leaf feeders, borers and tunnelers, and leaf tiers, and are found in flowers and seeds. Caterpillars are fairly nondescript, making field identification difficult. Identification is best achieved using keys which rely on the arrangement of hairs. Most full grown caterpillars are less than 15 millimeters long. Adults are night-flying.
Plutellidae  Plutellids or diamondback moths; 25 species, but poorly documented. Caterpillars occur primarily on broadleaf plants, are usually external leaf feeders, and may tie leaves loosely together. Body color varies from yellow to green. They are relatively small, rarely exceeding 15 millimeters when full grown.

Pyralidae  Snout moths; 200 species, but poorly documented. Caterpillars typically occur on conifers, broadleaf plants, and in nests of other insects. They are borers in plant stems and fruits. Identification is best achieved using keys that rely on the arrangement of hairs. The caterpillar is usually less than 30 millimeters long when full grown. Adults are night-flying.

Tortricidae  Leaf-tiers; 300 species, but poorly documented. Caterpillars are typically external leaf feeders but often found in rolled leaves. Many species are leaf miners as early instars, and occur on conifers and broadleaf plants. Some species are distinctively marked and identifiable in the field, but identification is best achieved using keys that rely on the arrangement of hairs. A large, full grown tortricid caterpillar will measure between 20 and 25 millimeters in length. Adults are night-flying.

**NOMENCLATURE**

The common names of Lepidoptera often describe their appearance or where they live. Typical examples are: linden looper, alfalfa semilooper, western spruce budworm, green oak caterpillar, fall webworm, cabbage white, pine white, and chinquapin hairstreak. Whereas a species will have a unique scientific name, a caterpillar, moth, butterfly, or skipper, might have many common names, and some common names might be used for more than one species. The common names used here were found in Essig (1929), Ives and Wong (1988), Hinchliff (1994), and Wagner et al. (1995), and the list of common names that has been officially adopted by the Entomological Society of America (Stoetzel 1989). Most of the moths of western North America do not have recognized common names, whereas butterflies are well known by their common names.

The scientific name of all organisms is derived from Latin or Greek and consists of at least two parts and often a third. Also, the last name of the author who described the species is sometimes included in the presentation of the name (not in this book). The first name refers to the genus and is always capitalized. The second name, not capitalized, represents the species epithet. In combination, the genus and species epithet represent a binomen that is the full name of the species. Some species have a third name that denotes a subspecies. Subspecies status is applied to distinct populations that are geographically separated. Individuals of different subspecies within a species are capable of interbreeding and producing fertile offspring. With few exceptions, individuals of different species do not naturally interbreed or produce fertile offspring.

No two animals are allowed to have the same scientific name. A species might possess a list of invalid scientific names (synonyms) due to a history of taxonomic revisions.

**BIODIVERSITY STUDIES**

Understanding the biodiversity of Lepidoptera is essential to understanding many important ecological issues, such as: recognizing special, rare, or endangered species and habitats; assessing the impact of land management practices; and determining food web relationships and the interdependence of plants, Lepidoptera as herbivores and pollinators, and predators of Lepidoptera.

Two important indicators of biodiversity are species richness (number of species in a community) and abundance of individuals (population numbers). Because Lepidoptera function as defoliators, decomposers and pollinators, and are both prey and hosts to carnivores (Miller 1993), species richness and abundance of individuals should be measured and evaluated within the context of the ecosystems in which they are found. To that end, various sampling techniques can be used, including light traps and aerial net collecting for flying moths and butterflies, and clipping or beating foliage to capture caterpillars.
A list of plant and animal species is the foundation of any biodiversity study. Such a list is most meaningful when the species are evaluated within the context of their ecological functions. That is, a species list can become the foundation for an ecological database. One way to do this would be to relate the life history attributes of the species to each name, and then create functional groups according to those attributes and the number of species exhibiting them.

For example, for western Oregon we have found an average of 350 species of macromoths in a typical forested site dominated by Douglas-fir. Our record high collection of species from a single trap night was 104, but a count of 20-50 species per trap night is more typical. Similarly, a typical forested habitat will support 80 butterfly species, on any good day at the peak of the season up to 32 species may be seen.

By categorizing the listed species of macromoths according to the host plants (an attribute of ecological function) of their respective caterpillar, we can qualify the importance of plant communities on biodiversity of the macromoths (Hammond and Miller 1998, Miller et al. 2003). The macromoth species were assigned to one of three major vegetation groups: conifers, hardwood trees and shrubs, and herbs and grasses. The results showed that conifers supported only 10 to 12 percent of the species, whereas flowering trees and shrubs supported 52 to 66 percent of the species, and herbs-grasses supported 20 to 33 percent of the species.
The typical life cycle follows a holometabolous, four-stage sequence—adult, egg, caterpillar (larva), and pupa—in which development during the pupal stage involves the metamorphosis from a caterpillar to an adult.

ADULT

Moths and butterflies are the sexually mature adult life stage of Lepidoptera. The adult serves three main functions in the life cycle: mating, dispersal, and oviposition. Many moths feed on nectar or a liquid sugar source for energy required for flight. Some species of macromoths do not have functional mouthparts and cannot feed. Consequently, they are relatively short-lived and will exhibit a short flight period.

Dispersal and flight activity Not all moths have wings, and not all moths with wings can fly. Typically, moths with wings have two pairs: a pair of forewings and a pair of hindwings. The forewings are attached to the second thoracic segment, the mesothorax. The hindwings are attached to the third thoracic segment, the metathorax. Individuals that do not have wings do not have flight muscles and are female. The absence of flight muscles is associated with a higher capacity for egg production. The males of species with flightless females have fully developed wings and can fly. Examples of species with wingless females are the lymantriids, Orgyia antiqua and Orgyia pseudotsugata, and the geometrids, Erannis tilaria, Operopthera bruceata, Operopthera danbyi, and Phigalia plumogeraria.

The period for flight may be characteristic for a species. The daily rhythm and the seasonal pattern are the two temporal components to flight behavior. A minority of moth species, and nearly all butterfly and skipper species may fly during the day. Generally, moths fly during the night, but some of the night-flying species fly during the evening. No night-flying butterflies occur in the Pacific Northwest.

The time of season and the length of time for the flight period of a species may also exhibit a diagnostic pattern. Most species fly at certain times of the year and may be active for a period of 3 to 6 weeks, whereas a few species may have individuals in flight throughout much of the year. For instance, the arctiid Lophocampa argentata will be in flight during the last few days of July and the first 3 weeks of August, with a peak in flight around the end of the first week in August. The males of the geometrids Operopthera bruceata and Operopthera danbyi will be in flight only from the middle of November to the last week of December. The geometrid Sabulodes aegrotata has been observed in flight beginning the last week of January through the spring, summer, and fall, and up to the last week in November.

Mating and oviposition Typically, mating occurs soon after adults emerge from the pupae. The search for a mate is facilitated by volatile chemicals, called pheromones, which are emitted by a virgin female and act as a sex attractant. Males detect the pheromone molecules with their antennae and fly upwind to locate the chemical’s female source. The act of mating may take many hours, but a female may begin laying fertile eggs immediately after mating. Pheromones are often species specific and help to isolate closely related species from each other.
CHAPTER 2: LIFECYCLE OF LEPIDOPTERA

LEPIDOPTERA OF THE PACIFIC NORTHWEST

EGG
Females may lay eggs singly or in clusters, depending on the species. Most species attach their eggs to the vegetation that will serve as the foodplant for the caterpillar. For instance, *Phyllodesma americana* will attach a single egg to the leaf of various flowering trees that will then serve as food for the caterpillar. Some species, such as *Orgyia antiqua*, will deposit eggs on the silk surrounding the pupal skin. Other species scatter eggs on the soil surface. Egg production ranges from fewer than 100 eggs to more than 1,000 eggs per female.

CATERPILLAR (Larva)
Caterpillars are the active, feeding, immature stage of moths and butterflies. With few exceptions, caterpillars are herbivorous. Few species of caterpillars are predaceous, feeding on animals. Most caterpillars feed on foliage, but some feed on roots, seeds and flowers, and within branches and woody stems. Caterpillars of many species are monophagous or foodplant specialists, meaning they have restricted ranges of plants upon which they can feed. Specialist species may feed either on only one plant species, or on only a few related plant species, or on many species within one genus of plant.

Many caterpillars are polyphagous, or generalist feeders. That is, the caterpillar can feed upon a wide range of plant species, typically covering five or six plant families, and still develop into a normal-sized adult in the usual period of time.

While caterpillars might be less obvious at first glance, they can be very abundant on certain plants at certain times of the year. Within a given environment caterpillars can be found in a variety of habitats and microhabitats. In general, they may be aquatic or terrestrial. They can be found in fruits, roots and stems as borers or miners; in foliage as miners; on the surface of foliage as skeletonizers or chewers; in galls; or in the nests of other insects, such as ants and bees.

Caterpillars develop in the egg and then emerge through the eggshell, which they sometimes eat. They increase in size each time they molt or shed their skins. The period between molts is termed an instar, and typically a caterpillar passes through five instars as it eats and grows (see Figure 7, page 17). In certain species a caterpillar that will develop into an adult female may develop through an additional instar and thus grow bigger than the male. However, based on external morphology, it is usually very difficult to distinguish between the sexes prior to pupation.

Most caterpillars feed and develop as solitary individuals, but a few species aggregate. Some aggregating caterpillars construct nests. For instance, the caterpillars of *Lophocampa argentata* aggregate on branches of Douglas-fir but do not construct nests. The caterpillars of *Hyphantria cunea* and *Malacosoma californicum* live in large colonies in silk nests they spin among the twigs and branches of trees.

Caterpillar growth rates are strongly influenced by temperature and the nutritional quality of foodplants. Generally, the cooler the temperature, the slower the growth rate. The nutritional value of vegetation depends on its protein (nitrogen), water, and allelochemical content. Most plants
contain between 1% and 7% nitrogen by weight, and the higher the content, the more nutritious it is. The same holds for water content. The closer water content is to the higher end of the plant's normal range, the more nutritious it is. Allelochemicals are plant-derived chemicals—terpenes, alkaloids, phenolics, and various proteins—that can stimulate or deter feeding. Some are toxic to caterpillars and some are not. Some that are not toxic to caterpillars, are toxic to one or more of their predators. In turn, some unaffected caterpillars have developed mechanisms whereby they store toxins as a defense against their predators. Many of the poisonous caterpillars are aposematic, meaning they are brightly colored, with the colors serving to warn away would-be predators. Two examples are the brightly colored caterpillars of the cinnabar moth, *Tyria jacobaeae*, and the monarch butterfly, *Danaus plexippus*.

**PUPA**

Metamorphosis occurs inside the pupa. A butterfly pupa is called a “chrysalis.” A moth pupa, called a “cocoon,” may be covered in silk, or naked, and can be encased in rolled foliage or in the soil. Once a caterpillar has attained a critical size, it changes behavior and stops feeding and begins searching for or creating a site to pupate. Pupation can be quick, lasting 2 to 3 weeks, or prolonged, lasting more than one year. The pupa is the overwintering life stage in many species. Typically, overwintering pupae are in diapause, a state within which development of the adult is arrested or slowed down to a low rate. The adult will not mature and emerge from a pupa in diapause unless the pupa is first exposed to a period of cold, followed by a period of increased warmth.

**Overwintering** A majority of the species of Lepidoptera in the Pacific Northwest overwinter either in the pupal or egg stage. Only a few of the common species in the Pacific Northwest overwinter as caterpillars, including the arctiids *Gnophaela vermiculata*, *Lophocampa argentata*, and *Pyrrharctia isabella*; the geometrid *Neoalcis californiaria*; and the dioptid *Phryganidia californica*. Species with overwintering caterpillars tend to occur in regions with a mild winter. Some species, such as the mourning cloak butterfly, *Nymphalis antiopa*, overwinter in the adult stage.

![Figure 4](image)

*Figure 4* Pupae of Lepidoptera. The pupa of a butterfly (A) is known as a chrysalis. The chrysalis of *Danaus plexippus* hangs head down: the chrysalis of *Papilio zelicaon* is recumbent, head up, and held by a silken belt. The pupa of a moth (B) may be naked (no silk), or variously enveloped in silk (cocoon). The noctuid pupa lacks silk, and could be found in leaf litter on the ground, buried in the soil in a small cell, or in a rolled leaf. The cocoon of *Nola minna* is attached to a twig of its foodplant.
Natural Enemies  Lepidoptera have many natural enemies including predators and pathogens. Predators of many types devour Lepidoptera, often in great quantities. These predators include rodents, reptiles, bats, birds, spiders, nematodes, beetles, true bugs, and parasitoids. Pathogens cause fatal diseases in Lepidoptera. The more important pathogens are viruses, bacteria, protozoa, microsporidia, and fungi.

Lepidoptera are equipped with physical and physiological defense mechanisms against such natural enemies, including stinging hairs on caterpillars, as in *Hemileuca eglanterina*, camouflage, or crypsis, evidenced in the white, gray, and black tones in the forewings and hindwings of adults such as *Semiothisa* and *Itame*. Behavioral protective features include flashing bright colors or eyespots, which startle predators and are evidenced in the hindwings of the noctuid *Catocala opelia*, the sphingid *Paonias excaccatus*, and the saturniid *Antheraea polyphemus*. 

Figure 5  Parasitoids of Lepidoptera. (A) A female *Cotesia yakutatensis* laying eggs in an early instar of *Autographa californica*; (B) larvae of *Cotesia yakutatensis* emerging from the host caterpillar; (C) pupae within a silken mass, spun by the parasitoid larvae, around the shriveled remains of the host caterpillar.
Figure 6  Parasitoids of Lepidoptera.  (A) A pair of tachinid eggs on *Papilio bairdii*; (B) larvae of an ectoparasitic wasp on the caterpillar of *Drepanulatrix* sp.; (C) a trio of tachinid maggots (note swollen areas) inside the caterpillar of *Trichoplusia ni* (note dark spots where respiratory funnels of the parasitoid larvae have pierced the caterpillar’s exoskeleton); (D) solitary pupa of a parasitoid that had fed on the hemolymph and internal organs of *Papilio zelicaon*; (E) quartet of pupae attached to the exoskeleton of *Nadata gibbosa*; (F) a multitude of pupae of *Copidosoma* sp. inside the cadaver of *Euxoa* sp.
MORPHOLOGY OF LEPIDOPTERA

CATERPILLAR

Initially, caterpillars develop in the egg then emerge (eclose) from the egg. After emergence, the caterpillar is called a first instar until it molts. The caterpillar enters the second instar after the molt and increases in size. Each molt distinguishes another instar. Typically, a caterpillar passes through five instars as it eats and grows. The general appearance of the caterpillar can change dramatically from one instar to the next. For instance, typically the first instar is unmarked and simple in body form. The second instar may exhibit varied colors and alterations deviating from a simple cylindrical shape. Thereafter, caterpillars of certain species exhibit broad shifts in color patterns between the third and fourth, or fourth and fifth instars (see Figure 7).

Caterpillars can be distinguished from other immature insects by a combination of the following features:

- **Adfrontal suture** on the head capsule;
- **Six stemmata** (eyespots) on the head capsule;
- **Silk gland** on the labium (mouthparts);
- **Prolegs** on abdominal segments A3, A4, A5, A6, and A10; or A5, A6, and A10; or A6 and A10;
- **Crochets** (hooks) on prolegs.

There are other terrestrial, caterpillar-like insects that feed on foliage. These are the larvae of sawflies. Sawflies usually have only one or a few stemmata, no adfrontal suture, and no crochets on the prolegs, which may occur on abdominal segments A1, A2 through A8, and A10 (see Figure 9, page 19).
The variety of form in the body parts plays an important role in distinguishing among and identifying caterpillar species. The caterpillar’s body is divided into three sections: head, thorax, and abdomen.

**Head**  Caterpillars have a well sclerotized head capsule, which in most species is marked with an adfrontal suture and typically contains six stemmata or eyespots. The head has one pair of small, three-segmented antennae located close to the base of the mouthparts.

Mouthpart components include a labrum, mandibles, maxillae, and a labium. The labrum serves as an upper lip and may be notched to function as a leaf guide and assist in orienting food between the mandibles. The mandibles, located below the labrum, are paired, opposable, hardened tooth-like structures used to bite and crush food. The maxillae are located behind the mandibles and contain sensory organs that distinguish between food and non-food foliage. The labium is located behind the maxillae and contains the silk gland, which emits a strand of silk used for producing pads, life lines (see *Pero mizon*), and cocoons. The overall shape of the head capsule, color patterns, the location of hairs on the head, and the morphology of the mouthparts are helpful in identifying species of caterpillars. However, these features require the aid of a microscope and will not be emphasized here.

**Thorax** The three thoracic segments include the prothorax, nearest the head (T1); mesothorax, in the middle (T2); and metathorax, which connects to the abdomen (T3). Each thoracic segment has a pair of segmented legs. The thoracic legs assist in locomotion and clinging to substrates. Some caterpillars—in particular certain leaf mining species—have no segmented legs on the thorax. Each side of the prothorax has a spiracle, which is an external opening of the respiratory system. The presence or absence and shape of sclerotized plates, the location of primary setae (and setal clusters), the location, color and shape of the prothoracic spiracle, and morphology of the legs also aid in identifying caterpillar species (see Peterson [1962] and Stehr [1987] for further details).

**Abdomen** Typically, the abdomen has ten segments, A1-A10. Segments A1-A8 possess spiracles, and an anal plate may occur on A10. Depending on the family group, certain abdominal segments have fleshy prolegs bearing crochets (hooks). The typical pattern for
prolegs is one pair per segment on A3-A6 (midabdominal prolegs), and A10 (anal prolegs). Exceptions include the Plusiinae of the Noctuidae, which have prolegs only on A5, A6 and A10, and the Geometridae, which have prolegs on A6 and A10. Some leaf mining caterpillars have reduced prolegs, the remnants of which are merely crochets on the abdominal wall, while other leaf miners may have no prolegs. If prolegs occur on segments A1, A2 or A7-A9, the specimen is most likely a sawfly (Figure 9).

**Projections** An array of projecting features may occur on various caterpillars. The location and number of many of the following traits may allow for a quick and accurate identification of a particular caterpillar. The projections may be attached to the body wall such as soft and flexible hairs, or modified hairs that are sclerotized and hard or stiffened into spines. Also, projections may be extensions of the body wall in the form of warts, tubercles, or horns.

**Hairs** The types and arrangements of hairs are helpful in identifying caterpillars. Hairs may be multicolored; short or long; single in clusters (hair pencils) or tufts (tussocks); end in a tapered point or a “club”. In most of the Noctuidae and Geometridae, a few single, short hairs (the primary setae) may be the only hairs present; in these species the caterpillar is essentially naked.

The primary setae occur in specific locations on the body segments. Secondary setae do not occur in specific locations and are scattered over the body. Caterpillars of certain families, e.g., Lycænidae and Satyridae, are covered by a dense pile of very short secondary setae, giving them a velvet-like appearance. The presence of long hairs usually is indicative of a relatively dense array of hairs. Also, long hairs may occur in clusters or in densely packed tufts in the middorsal area. Tufts usually are associated with glands, serving as a wick for the gland exudate. Species of Arctiidae, Lasiocampidae and Lymantriidae have notably hairy caterpillars.

**Spines** A single pointed spine is a chalaza; a spine with multiple points is a scolus. Spines typically occur at defined positions along a certain region of the body, e.g. dorsal, subdorsal, lateral, at the locations of the primary setae. Numerous species, such as Saturniidae and Nymphalidae, have spines of various kinds and colors.

**Warts** Small bumps or very short finger-like projections that extend from the body wall are called warts. In caterpillars warts can occur in specific locations and exhibit recognizable patterns which assist in identification.
**Tubercles**  The length and location of extensions of longer finger-like projections (tubercles) of the body wall also assist in identification. Tubercles will often occur in pairs or in a series encircling one or more segments.

**Horns**  The body wall can be drawn into relatively short, pointed, fleshy projections (horns). As found in sphingid caterpillars, commonly called hornworms, the horn occurs singly, typically in the middorsal area of segment A8.

**Body Shape**

Typically, caterpillars are cylindrical. Variations in this shape include bodies that are flattened, humped, otherwise swollen, or constricted. The flattened shape is indicative of a leaf-mining habit while the cylindrical shape is characteristic of borers, tunnelers, and external leaf-feeders. The humps, swellings, and constrictions serve as camouflage and help caterpillars blend into their surroundings. The location and size of humps and constrictions help identify certain species.

**Humps**  Obvious bulges in the body profile can be found in many species. Large, dorsal, pyramid-like, posterior swellings are typical of *Amphipyra pyramidoides* and *Feralia februalis*. Thoracic and midabdominal swellings are typical of *Catocala*, *Schizura*, and *Zale lunata*.

**Constrictions**  A distinctive narrowing of the body. The neck region is noticeably constricted among the Hesperiidae.

**Colors and Patterns**

Caterpillars display a wide range of colors and patterns. The location of a color and its pattern is helpful in identifying caterpillars. Common colors are brown, tan, cream, white, silver, gray, black, red, pink, orange, yellow, green, blue, and purple. These colors are displayed in a wide assortment of patterns that can be categorized as bands, lines, rings, streaks, dashes, circles, dots, saddles, and patches. However, the pattern may differ subtly or markedly from one instar to another. The most common locations of definitive patterns are middorsal, subdorsal, lateral, sublateral, and ventral.

**Middorsal longitudinal bands**  Wide lines extending from head to tail along the middle of the back.

**Lateral longitudinal bands**  Wide lines extending from head to tail along the sides where the spiracles occur. In some species the top edge of the band barely touches the spiracles and may appear to be a subspiracular band.

**Middorsal longitudinal lines**  Narrow lines extending from head to tail along the middle of the back.

**Subdorsal longitudinal lines**  Narrow lines extending from head to tail more or less halfway between the middle of the back and the spiracular area.

**Lateral longitudinal lines**  Narrow lines extending from head to tail along the sides where the spiracles occur. In some species the top edge of the line barely touches the spiracles and may appear to be a subspiracular line.

**Rings**  Bands of color around the body segment, often in two or three alternating colors, typically black, white, and or orange. Also, the intersegmental area may be colored in a manner that shows a faint ring pattern.

**Streaks**  Narrow lines of color longer than half the width of a body segment.

**Middorsal dashes**  Narrow lines of color shorter than half the width of a body segment and located along the middle of the back.

**Subdorsal dashes**  Narrow lines of color shorter than half the width of a body segment and located along the subdorsal area of the body.

**Middorsal line of circular or elliptical spots**  Relatively large spots of a solid color (or middle of spot of variable color) located along the middle of the back.
Scattered speckles  Small dots or specks, usually white or black, randomly and usually densely scattered over the body. Some species may show black specks at the base of primary hairs, which are not scattered.

Midabdominal saddles  Irregularly shaped patches of color extending across multiple segments along the middorsal area.

Dorsal transverse bands or lines  Colored bands or lines that extend from side to side across the back but not all the way around the body.

Anal transverse bands or lines  Colored bands or lines that extend from side to side across the dorsum of A9 or A10.

Oblique lines on midabdominal segments  Lines, usually white, yellow, or black, that extend between anterior lateral areas, and posterior subdorsal or dorsal areas.

ADULT

The field identification of adult Lepidoptera is done by comparing combinations of features including colors, patterns, wingspan and shape, head, thorax, and abdomen (Figure 10). Taxonomists rely strongly on the morphology of genitalia and, more recently, DNA sequences.

Wings  Two general criteria distinguish wings among species: span/size and color/pattern. For the purposes of this guide, wingspan measurements were taken from properly spread specimens of representative size for each species. The distance from the tip of the left forewing to the tip of the right forewing was used and is presented with a resolution to within 1 millimeter. We did not attempt to assess the statistical distribution of wingspan values for each species; in general most species exhibit a size range of 15 - 20 percent above and below the average value. Thus, it would not be unusual to collect a specimen slightly smaller or larger than the dimensions presented in the species diagnostic traits. (Note: The photographs in Chapter 5 of this guide were printed to maximize the size of the individual to the print dimensions of the image. In print the small species appear to be the same size as the large species. Thus, it is not possible to directly compare sizes among the species. Numerical measurements of a typical wingspan are included for each species.)

The specific terms we use to describe wing patterns, and their usefulness in distinguishing species, are dashes, lines, bands, patches, special spots, and special areas.

Dashess  Narrow, short marks extending less than half the distance along the width or length of the wing.

Lines  Narrow marks extending more than half the distance along the width or length of the wing, and associated with a specific area on the wing. The postmedian line may be broken or continuous and occurs distal to the reniform spot (see below) and demarks the proximal edge of the postmedian band. The submarginal line may be broken or continuous and is proximal to the outer margin.
Bands Wide areas typically extending more than half the distance along the width or length of the wing, often demarked by lines, and associated with a specific area on the wing.

Patches Small, restricted areas of the wing demarked by distinct colors but not delimited by lines. Basal patches occur in the basal area.

Special spots The orbicular spot is a single irregularly shaped (typically near-round shaped) spot that occurs just short of half way along the front edge of the forewing. The reniform spot is a single irregularly shaped (often kidney shaped) spot that occurs just past half way along the front edge of the forewing. The discal spots are the combination of the reniform and orbicular spots.

Special areas The basal area is the area of the wing nearest the thorax. The midcostal area is in the center of the front edge of the wing below the costal margin. The discal area is bounded by the orbicular and reniform spots. The median area is the central area of the wing. The postmedian area is distal to the reniform spot and proximal to the subapical area. The subapical area is proximal to the apical area. The apical area is immediately below the apex of the wing. The submarginal area is proximal to the outer margin. The anal area is between the outer margin and the inner margin, proximal to the anal angle. The subanal area is proximal to the anal area.

Head The most obvious features are the eyes, mouthparts, and antennae. However, with the exception of pectinate antennae, which aid in identifying similar-looking species, these features are not the most useful for field identification.

Thorax Three segments: prothorax, nearest the head; mesothorax, in the middle; and metathorax, connecting to the abdomen. Forewings attach to the mesothorax, hindwings attach to the metathorax. Like-colored hairs of similar lengths might be arranged in collars and tufts on the thorax. Each thoracic segment has one pair of legs. The colors of leg hairs vary among species. In some species, the forelegs are shorter than the mid- and hindlegs.

Abdomen The general size and shape of the abdomen is useful in identifying families. For example, the abdomen of geometrids is typically thin and appears small relative to the wing area, whereas the abdomen of sphingids is robust and distinctly tapered. The abdomen is the body segment that contains the genitalia, which are used in describing and differentiating species.
COLLECTING

Caterpillars

There are many techniques for collecting caterpillars. The most basic approach is to visually search through plants where feeding damage and perhaps feces (frass) are evident. Another method of search involves clipping and collecting foliage and inspecting it indoors, under controlled lighting, with a magnifying glass or perhaps a microscope. Other collection techniques require sifting soil to find pupating or root-feeding caterpillars, or the use of sweep nets, beating sheets, burlap skirts, and funnel traps. The sweep net is similar to an aerial net, and is used to brush over vegetation and dislodge and capture caterpillars. Beating sheets are held under plants and collect caterpillars as they fall from shaken or beaten foliage. Burlap skirts can be tied around tree trunks to trap caterpillars while they are moving between feeding, resting or hiding places. Funnel traps can be set under plants to collect caterpillars as they drop from the foliage.

An excellent means of acquiring caterpillars is to capture live adult females and rear the caterpillars from their eggs. This can be difficult, however. Many species require specific and unique conditions of light, temperature, humidity, flying space, and a substrate for oviposition before the female will lay her eggs.

Adults

There are many ways to observe and collect moths and butterflies. The best way to collect day-flying moths is with an aerial net similar to one used to collect butterflies. One of the simplest and most productive methods is to place a white sheet under or behind an ultraviolet, white or halide light at night. Moths will rest on the sheet after being attracted to the light. Light traps can be purchased or assembled to collect moths throughout the night (Figure 11). Attractants other than light include fermented baits, commercially available (manufactured) pheromones, and live virgin females.

As with caterpillars, a good way to acquire adults—and in excellent condition—is to capture live adult females and rear the caterpillars that hatch from their eggs through metamorphosis to emergence. Another way is to locate caterpillars on host plants in the field and either (1) place screen sleeves over the foliage, or (2) collect them from host plants and rear them through emergence indoors in containers. In either case, caterpillars will require suitable foliage for feeding, an appropriate site for
pupation, and frequent observation to note the time of adult emergence to prevent the moths from damaging their wings while being contained.

In all cases, take care to protect Lepidoptera habitat. Avoid trampling plants and disturbing unstable soils. Try to grow the foodplants the caterpillars need. If you can’t, prune wild foodplants with care and an eye to the future; you might need to return to the plants for more food. Collect as few moths as your study requires for accurate and proper documentation. If possible, upon completing your study, release specimens back into the environment from which they came. Be aware of any Federal and local regulations regarding collecting and releasing Lepidoptera. Take extra care to protect rare and endangered species, and do not release exotic species into the wild.

REARING

The rearing of caterpillars is helpful in: associating field-collected larvae with the adult, testing foodplants for suitability, or associating parasitoids and diseases with the caterpillar stage of respective species. Caterpillars can be reared in cages in the field or indoors.

There are advantages and disadvantages to rearing caterpillars indoors. One advantage is that you are not likely to lose the specimen. Another is that, because of warmer temperatures, caterpillars will likely grow faster indoors. Faster growth will allow you to observe changes in size and color patterns for each instar sooner than you might observe them in the field. A disadvantage to indoor rearing is that food must be provided by potted plants, clipped foliage from the field, or replaced through artificial diets. Another is that unsuitable rearing conditions will result in high mortality. Temperature control, dehydration, fungal growth, starvation, cannibalism, and overcrowding are common problems. Closed containers may cause problems due to excessive condensation and poor sanitation. Cannibalism and disease may be reduced by raising the caterpillars individually. Placing slightly moistened peat moss in containers will provide a suitable medium within which the caterpillar can bury itself prior to pupation, and the moisture helps to prevent desiccation, a common and avoidable problem when rearing in dry indoor conditions.

PRESERVING

Caterpillars

Preserved specimens are useful for eventual study of traits that photographs do not reveal. (Note: Improperly preserved caterpillars will rot and turn black, a condition unsuitable for archival material and identification.) The simplest method for preservation is a two-step process involving hot water and ethyl alcohol. Step one: heat water to 180°C. If you do not have a thermometer you can obtain an appropriate temperature by bringing the water to a boil, removing it from heat, and letting it stand for a couple of minutes. Place the caterpillar in the hot water for 3 to 4 minutes. (Note: Extremely hot water may cause the caterpillar to burst.) Remove the caterpillar and place it in a specimen vile filled with 70% ethyl alcohol (isopropyl alcohol is less desirable). Although this technique will provide a properly inflated specimen, an unfortunate side effect is that the caterpillar will lose most or all of its color. “Color” is best preserved through photographs (see Photographing, page 24). Labels placed inside the specimen vials should include information on place, date, and foodplant at time of collection. Additional information regarding preserving caterpillars, including freeze drying and blow drying, is presented in Peterson (1962) and Stehr (1987).

Adults

A properly mounted specimen involves placing an insect pin through the top of the thorax and spreading the forewings and hindwings: the hind edge of the forewing should be at a 90° angle to the body; the front edge of the hindwing should be under the forewing, such that the tip of the hindwing creates a small notch with the outer edge of the forewing (See chapter 5).

The pinned and spread moth or butterfly must be allowed to dry for a few days at room temperature on a spreading board. Once dried the forewings and hindwings will stay in place and the moth may be removed from the spreading board and placed in an enclosed drawer or cabinet for storage or display. A note of caution is in order—the specimens will rot if they are damp when placed in compartments; some colors will fade if subjected to direct sunlight; and museum beetles (dermestids),
which eat dead insects, may turn perfect specimens to dust. These and
other problems can be minimized if the adults are stored in sealed
containers and kept in a dark and dry location. Labels on the pinned
specimens should include at least the details of the place and date that the
specimen was collected. Additional label information could include
collecting and rearing facts, such as emergence dates, and who collected
the specimen. See Covell (1984) for additional information on preserving
moths.

PHOTOGRAPHING

A color slide or print will provide a record of adults and caterpillars at
various times of development. An excellent photograph can be acquired
by using all of the following: (1) A 35 mm, single lens reflex camera with
exchangeable lenses. Instamatic type cameras will not allow the
photographer to get close to the subject or to fill the frame with the
subject. A majority of the photographs presented here were taken with a
50 mm macro lens mounted on a 25 mm extension tube. (2) Film with a
low ASA rating. A majority of the photographs in this handbook were
taken with color slide film ASA 25. This film speed provides superior
quality in grain but requires more light than faster films. (3) A flash system,
either a bracket or a ring flash. 1 (JCM) use a bracket system which consists
of two flash units that are mounted on opposite sides of the camera. The
easy, film, and flash units allow shooting pictures at f/16 and f/22 at a
distance of about 20 mm from camera lens to caterpillar. Photographs
can be taken in the field but shadows, wind, cluttered backgrounds, and
other unwanted features (like other insects) may interfere with obtaining
the best picture. Most of the caterpillars illustrated in this booklet were
field-collected but photographed in a staged indoor setting. Some of the
photographs of adult Lepidoptera were obtained by using a digital camera
equipped with a 90mm macro lens. The butterflies and moths were placed
on a spreading board and properly mounted on a pin and dried. The
spread adult was then photographed in a studio setting.
The photographs of Lepidoptera are organized alphabetically by family and then by genus within the categories of skippers, butterflies, and moths. While many of the species illustrated here are common, only a small percentage of the species in the Northwest are represented.

If the identity of a macromoth from the western United States cannot be determined by matching a specimen with a description or photo in this book, then look in Miller and Hammond (2000) or Covell (1984). Covell (1984) provides an extensive assortment of photographs for species that occur in the eastern United States so the probability of a match to a western species is limited to those species that are widespread across the North American continent. Also, serious students of moths should look in the references cited at the end of the discussion of each family in the section on macromoth families. If the identity of a butterfly from the Pacific Northwest cannot be determined by matching a specimen with a description or photo in this book, then look in Pyle (2002) or Neill (2001).

For each of the 239 species presented with a photograph of the caterpillar/adult we provide a narrative that includes three sections: Caterpillar, Adult, and Ecology. The caterpillar and adult sections are descriptive for general identification purposes. The ecology section presents information on abundance, foodplants, seasonality, flight, and biogeography. (Note: The photographs contained in this guide were printed to maximize the size of the subject to the print dimensions of the image. Thus, in print the small species appear to be the same size as the large species. Therefore, it is not possible to compare sizes among the species. Numerical measurements of a typical wingspan are included for each species.)

A note about the organization. Black type in the chapter title heading indicates whether you are on a page containing information about a skipper, butterfly, or moth.
Hesperiidae

_Epargyreus clarius_ - Silverspotted Skipper

**Caterpillar** Yellow with transverse subdorsal black streaks; T1 black and narrower than head and T2; true legs and midabdominal prolegs orange. Head black with two prominent anterior orange spots.

**Adult** Wingspan 4.5 centimeters. Forewings dark brown; each forewing has a large yellow-orange medial patch. Hindwings dark brown, ventrally each hindwing with a large silver medial patch.

**Ecology** Caterpillars are uncommon in most of our area; feed on Fabaceae, particularly lotus, in the Pacific Northwest during July and August. Adults are diurnal; fly from early to midsummer. Found in open wet forests and riparian habitats at lower elevations; widely distributed throughout North America.
HESPERIIDAE

PROPERTIUS DUSKY WING - ERYNNIS PROPERTIUS

CATERPILLAR  Pale green with white speckles and a faint yellow subdorsal longitudinal line.  Head brown with tan patches.

ADULT  Wingspan 4.2 centimeters.  Forewings dark black-brown with extensive pale gray scales and a row of small white postmedian spots.  Hindwings dark black-brown.

ECOLOGY  Caterpillars are common; feed on oak and chinquapin during late spring.  Adults are diurnal; fly in spring.  Found in dry, open forests and oak woodlands from southern California to British Columbia.
**Hesperiidae**

*Pyrgus communis* - *Checkered Skipper*

**Caterpillar** Light brown with small white dots and densely covered with short white hairs; T1 black and narrower than head and T2. Head black.

**Adult** Wingspan 2.6 centimeters. Forewings black with white discal spots, a white median band, and white submarginal spots. Hindwings black with a white median band and white submarginal spots.

**Ecology** Caterpillars are common; feed on Malvaceae during late spring. Adults are diurnal; fly throughout the summer. Found in open meadows and disturbed forest habitat at lower elevations; widely distributed in western North America.
**LYCAENIDAE**

**GREAT PURPLE HAIRSTREAK - *ATLIDES HALESUS***

**CATERPILLAR** Blue-green with short, fine, white hairs; a white diamond-shaped blaze middorsally on T2.

**ADULT** Wingspan 3.5 centimeters. Wings iridescent blue with black borders. Hindwings have thin wispy tails of nearly equal length; two-tailed in female and one-tailed in male.

**ECOLOGY** Caterpillars are uncommon; feed on mistletoe growing on oaks during spring. Adults are diurnal; fly from late spring to midsummer. Found in oak woodlands of the Southwest and the Pacific western states.
**Lycaenidae**

**Celastrina argiolus - Echo Blue**

**Caterpillar**  White, each segment slightly swollen, immaculate.

**Adult**  Wingspan 2.8 centimeters. Wings violet-blue. Hindwings ventrally white with small, black, median spots and submarginal spots.

**Ecology**  Caterpillars are common; feed on many broadleaf trees, such as snowbrush and spiraea, during spring. Adults are diurnal; fly in spring and summer. Found in forest and riparian habitats; widely distributed in western North America.
CHINQUAPIN HAIRSTREAK - \textit{Habrodais grunus}

\textbf{CATERPILLAR} Yellow-green with a pale-yellow subdorsal line.

\textbf{ADULT} Wingspan 3.0 centimeters. Forewings yellow-orange with a black apical border. Hindwings ventrally yellow with rows of fine brown spots; each hindwing has a short, wispy tail.

\textbf{ECOLOGY} Caterpillars are common; feed during spring on evergreen Fagaceae, such as chinquapin, canyon live oak, and tan oak. Adults are diurnal; fly from mid- to late summer. Found in oak woodlands and distributed from Arizona and southern California to western Oregon.
Lycaenidae

Icaricia icarioides - Lupine Blue

**Caterpillar** Light green, immaculate.

**Adult** Wingspan 3.0 centimeters. Wings are violet-blue with a silver sheen. Hindwings ventrally white to gray with rows of black median and submarginal spots.

**Ecology** The subspecies *I. icarioides fenderi* (featured in the photos) is rare (listed as an endangered species) and endemic to the Willamette Valley of Oregon; *I. i. fenderi* only feeds on a rare lupine, *Lupinus sulphureus kincaidii*, during April and May. Adults are diurnal; fly in early summer.

Caterpillars of the nominate species are common; feed on lupines during the spring. Adults are diurnal; fly from spring to midsummer. Found in montane meadows, open forests, and sagebrush rangelands; widely distributed in western North America.


**Western Brown Elfin - *Incisalia augustinus***

**CATERPILLAR** Light green; subdorsally off-white to golden triangular patches with pale red shading, similar coloring laterally in streaks.

**ADULT** Wingspan 2.6 centimeters. Wings gray-brown to red-brown. Hindwings ventrally red-brown with black median spots and patches, and black postmedian spots.

**ECOLOGY** Caterpillars are common; feed on snowbrush and manzanita during spring. Adults are diurnal; fly in spring. Found in montane forests; widely distributed in western North America.
LYCÆNIDÆ

**LYCÆIDES MELISSA - MELISSA BLUE**

**CATERPILLAR** Green with a white lateral line, otherwise immaculate.

**ADULT** Wingspan 2.6 centimeters. Wings are violet-blue. Hindwings ventrally light gray with rows of black discal, median, postmedian, and submarginal spots, and a broad red-orange submarginal band.

**ECOLOGY** Caterpillars are common; feed on various Fabaceae, such as lupine, during spring. Adults are diurnal; fly from spring to midsummer. Found in montane meadows, riparian habitats, and sagebrush rangelands; widely distributed east of the Cascade Mountains.
**CATERPILLAR**  Green, with prominent, anterior middorsal white dashes.

**ADULT**  Wingspan 3.0 centimeters. Wings copper to purple-brown. Hindwings ventrally gray with small black spots, white postmedian and submarginal spots; each hindwing has a thin, wispy tail.

**ECOLOGY**  Caterpillars are uncommon; feed on currant during late spring. Adults are diurnal; fly from mid- to late summer. Found in dry woodlands, canyon lands, and riparian habitats; widely distributed in western North America.

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**LYCAENIDAE**

**TAILED COPPER - LYCAENA AROTA**
Lycaenidae

*Mitoura grynea* - Cedar Hairstreak

**Caterpillar** Green with chevron or circular subdorsal patches of white; lateral white streaks.

**Adult** Wingspan 2.7 centimeters. Wings gray-brown to red-brown. Hindwings ventrally red-brown to purple-brown with a white and black median line, black postmedian spots, and blue submarginal patches; each hindwing has a small, wispy tail.

**Ecology** Caterpillars are common; feed on western juniper, incense cedar, and western red cedar during spring. Adults are diurnal; fly from spring to midsummer. Found in conifer forests and juniper woodlands; widely distributed in western North America.
**CATERPILLAR**  Tan-brown to green-brown with rosy-red, subdorsal chevron markings, and lateral patches of rosy-red spots.

**ADULT**  Wingspan 2.7 centimeters. Wings dull steel blue with black borders. Hindwings ventrally dark brown with a white and black median line, black postmedian spots; each hindwing has two, thin, wispy tails of unequal length.

**ECOLOGY**  Caterpillars are common, and during spring feed on dwarf mistletoe growing on conifers, such as ponderosa pine. Adults are diurnal; fly from spring to midsummer. Found in conifer forests; widely distributed in western North America.
**Lycaenidae**

*Satyrium behrii* - Behr’s Hairstreak

**CATERPILLAR** Various shades of green with white hue and white streaks; dorsal segments ridged; lateral dashed line and subdorsal oblique lines with pale yellow shading above.

**ADULT** Wingspan 2.7 centimeters. Wings yellow-orange with black borders broadened at the apex into a large patch. Hindwings ventrally gray with rows of black median, postmedian, and submarginal spots.

**ECOLOGY** Caterpillars are uncommon; feed on bitterbrush during late spring. Adults are diurnal; fly from early to late summer. Found in open, dry, pine forests, juniper woodlands, and sagebrush rangelands east of the Cascade Mountains; widely distributed in western North America.
**CA**LIFORNIA HA**R**STREAK - *SATYRIUM CALIFORNICUM*

**CATERPILLAR** Mix of dark and light brown; discontinuous dorsal gray-green longitudinal band; discontinuous subdorsal white longitudinal line; lateral oblique white lines.

**ADULT** Wingspan 3.2 centimeters. Wings gray-brown. Hindwings with an orange spot near the subanal margin, ventrally gray-brown with a row of small black median spots, red submarginal spots; each hindwing has two, thin, wispy tails of unequal length.

**ECOLOGY** Caterpillars are common; feed on bitterbrush during late spring. Adults are diurnal; fly from early to late summer. Found in dry forests and woodlands; widely distributed in western North America.
**LYCAENIDAE**

*SATYRIUM SAEPIUM* - **RUSSET HAIRSTREAK**

**CATERPILLAR**  Green with subdorsal and lateral discontinuous yellow line.

**ADULT**  Wingspan 3.0 centimeters. Wings red-brown. Hindwings ventrally red-brown, with a narrow black median line, small black postmedian spots, blue subanal spots; each hindwing has a short, thin, wispy tail.

**ECOLOGY**  Caterpillars are very common; feed on species of *Ceanothus* during spring. Adults are diurnal; fly from early to late summer. Found in dry forests and woodlands; widely distributed in western North America.
**CATERPILLAR**  Light green to pink-brown, with lighter-colored to nearly white, subdorsal, oblique dashes.

**ADULT**  Wingspan 3.0 centimeters. Wings dark gray. Hindwings with a red-orange subanal spot containing a black spot; ventrally light gray with a black and white median line, small black postmedian spots, a red subanal spot, and a pair of thin wispy tails of unequal length.

**ECOLOGY**  This caterpillar will tend to be the same color as the foodplant (The photograph here used a caterpillar removed from a pink-red flower and placed on the stem of the same plant.) Caterpillars are common and during spring feed on many flowering plants, such as legumes and mallows, during spring. This species may cause economic damage in commercial bean production. Adults are diurnal; fly from spring to fall. Found in open areas associated with oak woodlands and agricultural habitats; widely distributed in western North America.
Nymphalidae

Adelpha bredowii - California Sister

**Caterpillar** Dorsum green with fine white speckles; ventrally light brown; elongate light brown scoli on T2, T3, A2, A4, A7, and A9. Head light brown with multiple small spines, including one pair of spines at the top of the head capsule.

**Adult** Wingspan 6.3 centimeters. Forewings black-brown, each with a narrow white median band, and a large, round, orange apical patch. Hindwings black-brown, each with a white median band.

**Ecology** Caterpillars are common; feed on oak during late spring. Adults are diurnal; fly throughout the summer. Found in montane forests and oak woodlands in the Pacific western states from southern California to western Oregon.
**NYMPHALIDAE**

**MONARCH BUTTERFLY - Danaus plexippus**

**CATERPILLAR**  Black, white, and yellow rings; a distinctive pair of long, thin, black tubercles on T2 and A8. Head with oblique bands of black and yellow.

**ADULT**  Wingspan 9.5 centimeters. Forewings elongate, orange with black veins, a black submarginal border, and small white submarginal spots.

**ECOLOGY**  This caterpillar sequesters cardiac glycosides from its milkweed hostplant and is poisonous to potential vertebrate predators; the adult is migratory. Caterpillars are common east of the Cascade Mountains, very uncommon on the west side; feed on milkweed during early summer. Adults are diurnal; fly from spring to fall when they migrate south. Found in open habitats, particularly along roadsides and fencerows; widely distributed in North America.
**Nymphalidae**

*Euphydryas chalcedona* - Chalcedon Checkerspot

**Caterpillar** Mottled with black and white markings; three longitudinal rows of short black spines on an orange base. Head black.

**Adult** Wingspan 4.4 centimeters. Wings are black with white discal, median, and postmedian spots; red marginal spots. Hindwings ventral with alternating red and white bands or spots.

**Ecology** Caterpillars are common; feed on penstemon and snowberry in spring. Adults are diurnal; fly from early to midsummer. Found in open forests, riparian habitats, and mountain meadows in the Pacific western states and northern Rocky Mountains.
**Lorquin’s Admiral - *Limenitis lorquini***

**Caterpillar**  Dorsum with humps on T1 (white), T2 (white), A2 (orange and large), A3 (orange and small), A7, and A8, and white patches most extensive on T1, T2, A4 through A6; laterally white patches extend from T1 through A10 along the lateral line; a pair of prominent scoli on T1.

**Adult**  Wingspan 6.0 centimeters. Forewings black with a white discal bar, a white median band, and an orange apical margin. Hindwings black with a white median band.

**Ecology**  Caterpillars are common; feed on willow, poplar, and certain Rosaceae, during spring. Adults are diurnal; fly throughout the summer. Found in moist forests and riparian habitats; distributed throughout the Pacific western states and the northern Rocky Mountains.
**NYMPHALIDAE**

**NYMPHALIS ANTIOPA - MOURNINGCLOAK BUTTERFLY**

**CATERPILLAR** Black with fine white hairs; middorsal longitudinal black line, red-orange spots, numerous small white spots and black spines.

**ADULT** Wingspan 7.0 centimeters. Wings black-burnt brown with a tint of purple; metallic blue postmedian spots within a black band, and a broad yellow submarginal border. Hindwings ventrally black, mottled with fine lines, and yellow borders.

**ECOLOGY** Caterpillars are common on willows from May to July. Adults are diurnal; fly throughout the year. Found in moist forests and riparian habitats; widely distributed in western North America.
**Nymphalidae**

**California Tortoiseshell - Nymphalis californica**

**Caterpillar** Mostly black with two pale yellow dorsal stripes and dense short white hairs; yellow-orange dorsal spines from A1 through A7 and laterally from A1 through A6; remaining spines black.

**Adult** Wingspan 6.0 centimeters. Forewings yellow-orange with black spots and bars and a black border. Hindwings ventrally dark black-brown and mottled with fine lines.

**Ecology** This species will occasionally occur in very large numbers, defoliating snowbrush over many acres. Caterpillars are common; feed on various broadleaf shrubs, particularly snowbrush, from June to August. Adults are diurnal; fly in midsummer. Found in conifer forests; widely distributed in western North America.
**Nympalidae**

*Phyciodes pulchellus* - Field Crescent

**Caterpillar**  Black with a white lateral band containing red-brown speckles; faint white subdorsal line. Head black.

**Adult**  Wingspan 3.4 centimeters. Wings are mostly black with yellow and orange bands or spots. Hindwings ventrally yellow-orange with fine brown lines and spots.

**Ecology**  Caterpillars are common; feed on asters during June and July. Adults are diurnal; fly from early to midsummer. Found in montane meadows; widely distributed in western North America.
NYMPHALIDAE

FAUN ANGLEWING - POLYGONIA FAUNUS

CATERPILLAR  Yellow-orange with an extensive dorsal patch of white, irregularly bordered in black, on A3 through A9. Multi-branched spines occur from T2 through A9. Dorsal spines on T2 through A2 are light orange; dorsal spines are mostly white on A3 through A9, and the subspiracular spines on A1 through A9. Head black and mottled with orange.

ADULT  Wingspan 4.5 centimeters. Forewings yellow-orange with black median spots, yellow postmedian spots, and a broad black margin. Hindwings yellow-orange with black median spots, yellow postmedian spots, and a broad black margin, ventrally mottled gray-brown with green postmedian spots.

ECOLOGY  Caterpillars are common; feed on Salicaceae and Betulaceae, particularly willows, during June and July. Adults are diurnal; fly throughout the year. Found in moist montane and riparian forests; widely distributed in western North America.
Nymphalidae

Polygonia gracilis - Zephyr Anglewing

Caterpillar
Yellow-orange with separate dorsal patches of white on A3 through A9; multi-branched spines occur from T2 through A9; dorsal spines on T2 through A2 are light orange; dorsal spines are mostly white on A3 through A9 and the subspiracular spines on A1 through A9. Head black and mottled with orange.

Adult
Wingspan 4.8 centimeters. Forewings yellow-orange with black median spots, yellow postmedian spots, black margin. Hindwings yellow-orange with black median spots, yellow postmedian spots, margin mostly orange, ventrally mottled gray-brown with yellow postmedian spots.

Ecology
Caterpillars are common; feed on currant during June and July. Adults are diurnal; fly throughout the year. Found in dry forests, woodlands, riparian habitats, and sagebrush rangelands; widely distributed in western North America.
**ATLANTIS FRITILLARY - *Speyeria atlantis***

**CATERPILLAR**  Black with faint off-white streaks; a dual longitudinal line along the middorsum; subdorsal and lateral scoli gray to tan. Head black.

**ADULT**  Wingspan 5.5 centimeters. Wings are orange with heavy black basal suffusion and rows of black spots and bars. Hindwings ventrally black-brown or red-brown with a narrow, yellow, submarginal band, and metallic silver or cream-white spots.

**ECOLOGY**  Caterpillars are common; feed on violets, particularly *Viola adunca*, *V. nuttallii*, and *V. canadensis*, during spring. Adults are diurnal; fly in midsummer. Found in wet forests, bogs, and meadows at high elevations; widely distributed in western North America.
**Nymphalidae**

*Speyeria cybele* - **Great Spangled Fritillary**

**CATERPILLAR** Black with tan middorsal, subdorsal, and lateral scoli. Head black.

**ADULT** Wingspan 7.0 centimeters. Wings orange with heavy black basal suffusion and rows of black spots and bars. Hindwings ventrally dark red-brown with a wide, yellow, submarginal band, and small metallic silver spots.

**ECOLOGY** Caterpillars are common; feed on violets, particularly *Viola glabella*, *V. palustris*, and *V. adunca*, during spring. Adults are diurnal; fly in midsummer. Found in wet forests and riparian habitats at lower elevations; widely distributed in western North America.
Zerene Fritillary - Speyeria zerene

**CATERPILLAR** Light black to dark gray with faint off-white mottling; gray-black dorsal and subdorsal scoli; lateral scoli on A1 through A8 cream-white. Head black.

**ADULT** Wingspan 6.0 centimeters. Wings orange with wide black discal and median bars, and rows of black postmedian and submarginal spots. Hindwings ventrally variable red-brown, purple-brown, or yellow, with metallic silver or white spots; narrow yellow to lavender submarginal band.

**ECOLOGY** This species has many described subspecies. Among them, S. zerene hippolyta, the Oregon silverspot, is a federally listed endangered species. Regarding the nominate species: caterpillars are common; feed on violets, particularly Viola adunca and V. nuttallii, during spring. Adults are diurnal, fly from mid- to late summer. Found in montane forests, juniper woodlands, and sagebrush rangelands; widely distributed in western North America.
NYMPHALIDAE

VANESSA ATALANTA - RED ADMIRAL

CATERPILLAR  Dorsum black with white speckles; base of primary setae (which are spines in this species) black; venter black; broken yellow lateral line.

ADULT  Wingspan 5.8 centimeters. Forewings black with a red-orange median band and white subapical spots. Hindwings black with a red-orange submarginal band and small black submarginal spots; ventrally mottled black, gray, and brown with dark postmedian spots.

ECOLOGY  Caterpillars are common; feed on nettles during spring. Adults are diurnal; fly from spring to fall. Found in open habitats and along woodland edges; widely distributed in western North America.
NYMPHALIDAE

PAINTED LADY - VENABLE CARDUI

CATERPILLAR  Dorsum black with small white spots; base of primary setae (which are spines in this species) orange; venter gray white with irregular black markings; white hairs covering the body.

ADULT  Wingspan 6.0 centimeters. Forewings orange with black median spots and a black apex with white subapical spots. Hindwings ventrally mottled green-brown with white spots, and blue postmedian eyespots ringed with yellow.

ECOLOGY  Caterpillars are common; feed on thistles, lupines, and various Malvaceae during July and August. Adults are diurnal; fly from spring to fall. Found in open grassland, roadsides, and montane meadows; widely distributed in western North America.
Papilionidae

Battus philenor - Pipevine Swallowtail

Caterpillar  Black with distinct orange tubercles of varying lengths along rows positioned subdorsally, laterally, and sublaterally. The lateral pair of tubercles on the prothorax is much longer than the others. Head orange-black.

Adult  Wingspan 8.0 centimeters. Forewings black with white submarginal spots. Hindwings metallic blue with white submarginal spots and a scalloped wing margin; each hindwing has a single tail.

Ecology  Caterpillars are common south of the Pacific Northwest; feed on Dutchman’s pipevine during spring and fall. Adults are diurnal; fly from spring to late fall. Larvae are found in riparian habitats where the hostplant grows; adults are strong fliers and can be found far from rivers and streams. Widely distributed in the Southwestern States; locally distributed in northern and central California, straying into southwest Oregon.
**Papilionidae**

**Oregon Swallowtail - *Papilio bairdii***

**Caterpillar** Light green, shades of blue green in dorsal, subdorsal, and lateral patches; alternating black dashes with yellow spots create a broken transverse band across the middle of each thoracic and abdominal segment. Head green with oblique black lines encompassing a yellow patch with a black dash in the center.

**Adult** Wingspan 8.0 centimeters. Forewings yellow with black discal bars and a black border. Hindwings yellow, with blue postmedian spots, yellow submarginal spots, a scalloped wing margin; each hindwing has one long tail, and lacks a black median stripe.

**Ecology** Caterpillars are common; feed on green sagebrush during late spring. Adults are diurnal; fly from spring to fall. Found in dry canyon lands east of the Cascade Mountains and typically distributed near patches of the hostplant; widely distributed in western North America.
**Papilionidae**

**Papilio eurymedon - Pale Tiger Swallowtail**

**Caterpillar**  Dorsum yellow-green transitioning to a light blue tone laterally and ventrally; thorax enlarged; T2 with a broken transverse band of yellow marked with a black line and circle encompassing a blue spot; the intersegmental region between A1 and A2 with a broad black band counter-shaded with yellow along the anterior edge; A1 with light blue spots dorsally and subdorsally; A4 with a subdorsal dark blue spot; A5 to A7 with dark blue spots dorsally and subdorsally; A2 to A7 with dark blue dots below the spiracles.

**Adult**  Wingspan 8.5 centimeters. Forewings white with broad black discal bars and a black border. Hindwings white with a black median stripe, blue postmedian spots, white submarginal spots, a scalloped wing margin; each hindwing has one long tail.

**Ecology**  Caterpillars are common; feed on many species of hardwoods, particularly *Ceanothus*, during the spring. Adults are diurnal; fly from late spring to early summer. Found in montane forests; widely distributed in western North America.
**Papilionidae**

**Indra Swallowtail - Papilio indra**

**Caterpillar**  Contrast white and black rings with a small spot of orange dorsally.

**Adult**  Wingspan 6.5 centimeters. Forewings black with a yellow median band and submarginal spots. Hindwings black with a broad yellow median band, blue postmedian spots, yellow submarginal spots, and a scalloped wing margin; each hindwing has one short tail.

**Ecology**  Caterpillars are common; feed on Apiaceae, particularly Lomatium and Cymopterus, during late spring. Adults are diurnal; fly from late spring to early summer. Found in dry, rocky habitats east of the Cascade Mountains, where it is widely distributed.
Papilionidae

*Papilio rutulus* - *Western Tiger Swallowtail*

**CATERPILLAR** Dorsum yellow-green with only a subtle transition into a light blue tone ventrally; thorax enlarged; T2 with a broken transverse band of yellow marked with a brown line and black circle encompassing a faint blue spot; A1 with a transverse yellow band along the anterior edge; A1 with blue spots dorsally and subdorsally; A4 with a subdorsal faint blue spot; A5 to A7 with blue spots dorsally and subdorsally; A2 to A7 with faint blue dots below the spiracles.

**ADULT** Wingspan 8.5 centimeters. Forewings yellow with black discal bars and a black border. Hindwings yellow with a black median stripe, blue postmedian spots, yellow submarginal spots, a scalloped wing margin; each hindwing has one long tail.

**ECOLOGY** Caterpillars are common; feed on many hardwoods, particularly poplar, willow, alder, and maple, during late spring. Adults are diurnal; fly from late spring to late summer. Found in montane and riparian forests; widely distributed in western North America.
**Papilionidae**

**Anise Swallowtail - *Papilio zelicaon***

**Caterpillar** Variable color depending on age. Early instars are mostly black with some white markings, and have the appearance of bird droppings. Later instars, as shown here, are green with black streaks between orange spots on T1 through A8; midabdominal prolegs with black spots.

**Adult** Wingspan 7.5 centimeters. Forewings yellow with black discal bars and a black border. Hindwings yellow, with blue postmedian spots, yellow submarginal spots, and a scalloped wing margin; each hindwing has one long tail and no black median stripe.

**Ecology** Caterpillars are common; feed on Apiaceae, including cow parsnip and fennel, during late spring. Adults are diurnal; fly from early spring to fall. Found in coastal forests, subalpine meadows, and sagebrush rangelands; widely distributed in western North America.
Papilionidae

Parnassius clodius - Clodius Parnassian

**Caterpillar**  
Black; single row of yellow subdorsal spots on A1 through A8.

**Adult**  
Wingspan 6.5 centimeters. Forewing white with elongate black discal bars and a black border. Hindwings white with round red spots.

**Ecology**  
Caterpillars are not commonly seen, but adults can be very common. Caterpillars feed on bleeding heart during late spring to early summer. Adults are diurnal; fly from early to midsummer. Found in coastal rainforests, riparian forests, and subalpine meadows; widely distributed in western North America.
Papilionidae

Smintheus Parnassian - Parnassius smintheus

Caterpillar

Black; single row of yellow subdorsal spots on A1 through A8; another single row of a triplet of yellow subdorsal spots on A1 through A8, the anterior spot with a smaller yellow dot to the lateral side.

Adult

Wingspan 6.0 centimeters. Forewings white with round black discal spots, a pair of red spots. Hindwings white with round red spots.

Ecology

Caterpillars are not commonly seen, but adults can be very common. Caterpillars feed on stonecrop during late spring to early summer. Adults are diurnal; fly from early to midsummer. Found in montane meadows and along rocky ridge tops; widely distributed in western North America.
**Pieridae**

*Anthocaris sara* - *Sara Orangetip*

**Caterpillar** Two tones of green, dorsally light green ventrally dark green, separated by a white lateral band. Head green.

**Adult** Wingspan 4.0 centimeters. Forewings white with a black discal bar and a red-orange subapical patch. Hindwings white with marginal brown-black markings.

**Ecology** Caterpillars are common; feed on Brassicaceae, particularly rockcress and tumblemustard, during spring. Adults are diurnal; fly in spring. Found in wet forests, subalpine meadows, and sagebrush rangelands; widely distributed in western North America.
PIERIDAE

PINE WHITE - *NEOPHASIA MENAPIA*

**CATERPILLAR** Dark velvet green over entire body; subdorsal cream-white longitudinal line; a sublateral white line may be present. Head green.

**ADULT** Wingspan 4.5 centimeters. Forewings white with a curved black discal bar and black apical patch with white spots. Hindwings white, immaculate.

**ECOLOGY** The pine white is the most abundant butterfly in mixed Douglas-fir/western hemlock forests. Caterpillars are very common but normally not encountered, because they occur in the higher reaches of the forest canopy; feed on conifers, such as Douglas-fir and pines, during late spring. Adults are diurnal; fly in late summer. Found in coniferous forests; widely distributed in western North America.
**Pieridae**

*Pieris rapae - Cabbage White*

**Caterpillar**  Velvet green appearance over entire body with a middorsal yellow longitudinal line and a broken yellow lateral line.

**Adult**  Wingspan 4.2 centimeters.  Forewings white with two black median spots and a black apical patch.  Hindwings white; each hindwing has a marginal black spot.

**Ecology**  This species is an exotic pest of vegetable crops.  Caterpillars are very common; feed on Brassicaceae during spring and summer.  Adults are diurnal; fly from early spring to fall.  Found in agricultural and urban areas; widely distributed in western North America.
Satyrinae

Large Wood Nymph - Cercyonis pegala

Caterpillar Light green with a dense covering of short hairs; lateral line yellow; faint subdorsal longitudinal yellow lines; light orange spiracles.

Adult Wingspan 4.8 centimeters. Wings dark brown with variably sized postmedian black spots encompassing a central small white dot. Hindwings ventrally dark brown with a row of small postmedian spots and fine wavy lines.

Ecology Caterpillars are common; feed on grasses in June and July. Adults are diurnal; fly from mid- to late summer. Found in dry forests and woodlands, riparian environments, and wet meadows; widely distributed in western North America.
ARCTIIDAE

ARCTIA CAJA - GARDEN TIGER MOTH

CATERPILLAR  Thoracic and lateral abdominal hairs mostly golden orange; dorsal and subdorsal abdominal hairs black with numerous longer white hairs.

ADULT  Wingspan 6.5 centimeters. Forewings brown with irregular white bands. Hindwings orange with round black spots. Abdomen orange with middorsal black markings.

ECOLOGY  Caterpillars are common, generalist feeders on foliage of herbaceous plants and small flowering shrubs, such as vetch and willow; present in fall; overwintering, with development completed by May or June. Adults are nocturnal; fly in midsummer. Found in open habitats, such as meadows and forest edges; widely distributed at lower elevations in western North America.
**Arctiidae**

**Cisseps fulvicollis**

**Caterpillar**
Hairs gray-white with longer lateral black tufts. Head orange.

**Adult**
Wingspan 3.6 centimeters. Forewings brown. Hindwings brown along outer margin with a light blue tint in the middle of the wing. Body is black with an orange-yellow collar behind the head.

**Ecology**
Caterpillars are common; feed on foliage of grasses, sedges, and rushes during late spring. Adults are diurnal; fly from early to midsummer. Found in grasslands among coniferous forests; widely distributed in western North America.
Arctiidae

Clemensia albata

Caterpillar Cryptically patterned with mottled green and black; thin middorsal white line.

Adult Wingspan 2.4 centimeters. Forewings white with a mottled pattern of fine black lines and spots. Hindwings off-white and diffusely mottled with light brown.

Ecology Caterpillars are common; feed on lichens in trees and large shrubs during spring; most common on Oregon white oak upon foliage they might eat, as well. Adults are nocturnal; fly in late summer. Found in woodlands and forests west of the Cascade Mountains.
**CTENUCHA RUBROSCAPUS**

**CATERPILLAR**  White hairs on a black and white body.  Head orange.

**ADULT**  Wingspan 4.5 centimeters.  Wings black, edged with white distally.  Thorax black, laterally with two red longitudinal lines, prothorax with a red apical patch.  Head red and black.  Abdomen iridescent blue.

**ECOLOGY**  Caterpillars are common; feed on grasses during spring.  Adults are diurnal; fly in midsummer.  Found in wet meadows along the West Coast in California and Oregon.
**Arctiidae**

**Gnophaela latipennis**

**Caterpillar** Yellow with dorsal, lateral, and ventral black patches; clusters of white hairs originate from black bases with blue spots. Head red-brown.

**Adult** Wingspan 5.4 centimeters. Wings black with white markings in a distinctive pattern. Each forewing with a single, small, basal, white spot; the medial and distal clusters consist of four white spots. Each hindwing with one medial cluster of three white spots, and one distal cluster of two white spots.

**Ecology** Caterpillars are common; feed on foliage of hound’s tongue during late spring and early summer. Adults are diurnal; fly from mid- to late summer. Found in open pine forests from California to western Oregon.
**GRAMMIA ORNATA**

**CATERPILLAR** Longer white hairs interspersed among black hairs located dorsally and laterally; ventrally hairs orange. Head black.

**ADULT** Wingspan 4.3 centimeters. Forewings black with narrow yellow streaks. Hindwings red-orange with a black border and central black spots of variable proportions. Head is yellow with the thorax striped in yellow and black.

**ECOLOGY** Caterpillars are common, generalist feeders on foliage of herbaceous plants during spring. Adults are nocturnal; fly in early summer. Found in meadows and clearcuts; widely distributed in western North America.
**Arctiidae**

**Hemiyalea edwardsii**

**Caterpillar**  Tan hairs on thorax; long white hairs interspersed among black abdominal hairs dorsally and tan hairs laterally.

**Adult**  Wingspan 6.5 centimeters. Wings semitransparent, creamy yellow-orange with faint black markings. Thorax yellow; abdomen red-pink.

**Ecology**  Caterpillars are not commonly encountered; feed on oak foliage during late spring and summer. Adults very common at lights, nocturnal, fly in late summer. Found in oak woodlands in California and western Oregon.
CATERPILLAR  Long white hairs originate from red spots on a black body with yellow markings.

ADULT  Wingspan 3.4 centimeters. Wings white with no other markings. Abdomen yellow-white; ventral side of prothorax and femur of foreleg with orange hairs.

ECOLOGY  The communal caterpillars are very common, forming large silk tents on the branches of broadleaf trees; at times considered a pest. Caterpillars feed on numerous plants, particularly willow, alder, and black cottonwood, during August and September. Adults are nocturnal; fly in midsummer. Found in woodlands, riparian, and urban environments; widely distributed in western North America.
Lophocampa argentata - Silver Spotted Tiger Moth

**Caterpillar** Clusters of short yellow hairs are concentrated subdorsally with clusters of short orange hairs located laterally; middorsal clusters of short black hairs. Body black.

**Adult** Wingspan 4.1 centimeters. Forewings gold-brown with silvery white spots. Hindwings off-white, nearly immaculate. Abdomen yellow.

**Ecology** This species is abundant, sometimes considered a pest. Caterpillars are very common; feed on conifers, particularly Douglas-fir. Early instars are gregarious, present in August; overwintering, with development complete by May or June the following spring. Adults are nocturnal; fly from late July to early August. Found in moist conifer forests along the West Coast from California to British Columbia.
CATERPILLAR (Mid instars) This is one of many caterpillars that develops through more than one color phase, either by stage of development, genetic polymorphism, or other environmental factors; in this species color phases differ according to age. Mid instar: Midabdominal segments with middorsal clusters of red hairs among bright yellow hairs; anterior and posterior with long wisps of white hairs and shorter yellow and black hairs.
**Arctiidae**

*Lophocampa maculata* - *Spotted Tussock Moth (Last Instar)*

**Caterpillar**  
(Last instar) midabdominal segments with wisps of long white hairs among red-orange hairs; anterior and posterior with long wisps of white hairs among short black hairs.

**Adult**  

**Ecology**  
Caterpillars are very common; feed on many broadleaf trees, such as big-leaf maple, oak, and red alder, during July and August. Adults are nocturnal; fly in midsummer. Found in low elevation woodlands and wet forests; widely distributed in western North America.
**CATERPILLAR** Black with orange hairs at the anterior and posterior ends; middle portion of the body with long white hairs.

**ADULT** Wingspan 6.2 centimeters. Forewings black with many large, round, pale-yellow to off-white spots. Hindwings variable, either orange with black bands or mostly black with orange spots. Thorax black with dorsal-anterior patches of yellow.

**ECOLOGY** Caterpillars are common; feed on herbs and grasses, present in fall; overwintering, with development completed by June the following spring. Adults are diurnal; fly in early summer. Found in wet meadows of coniferous and hardwood forests throughout western North America.
**Arctiidae**

*Pyrrharctia isabella* - Banded Woollybear

**Caterpillar** Dense cover of hairs over body, midabdominal segments with reddish orange hairs, anterior and posterior segments with black hairs.

**Adult** Wingspan 5.3 centimeters. Forewings mustard-yellow with numerous small, dark spots. Hindwings yellow-orange with a few small, dark spots.

**Ecology** This is the species of folklore in predicting the weather based on the extent of the orange band; the more black covering the body (less orange), the colder the upcoming winter. Caterpillars are very common; feed on herbs, such as nettles, during fall and spring; overwintering, with development completing in the spring. Adults are nocturnal; fly in midsummer. Found at lower elevations in woodlands and wet forests; widely distributed in western North America and particularly common west of the Cascade Mountains.
**Spilosoma vestalis**

**Caterpillar** Black hairs dorsally; white hairs laterally. Head black.

**Adult** Wingspan 5.2 centimeters. Wings and abdomen white with small black spots. Femur of foreleg with red hairs.

**Ecology** Caterpillars are common, generalist feeders on foliage of flowering trees, particularly oak, during spring. Adults are nocturnal; fly from late May through June. Found in moist hardwood and coniferous forests west of the Cascade Mountains.
**Spirosoma virginica - Yellow Woollybear**

**Caterpillar**
Long hairs white; short hairs white and yellow-orange; colors uniformly dispersed over body except for lateral region of A4 through A6 where hairs appear white.

**Adult**
Wingspan 4.2 centimeters. Wings white with a few small spots toward the outer margin. Hindwings white with submarginal spots. Femur orange-yellow on foreleg. Abdomen white and orange with dorsal patches of black spots.

**Ecology**
Caterpillars are common; feed on herbs, such as dandelion and Queen Anne’s lace, present in fall; overwintering, with development completed by June or July. A second generation occurs during the summer. Adults are nocturnal; fly in midsummer. Found in wet forests and meadows; widely distributed in western North America.
CATERPILLAR Hairs are sparse, atypical for arctiids. Alternating orange and black rings occur along the entire length of the body.

ADULT Wingspan 3.7 centimeters. Forewings dark gray-black, each forewing with a red costal stripe and two red submarginal spots. Hindwings nearly all red with gray margins. Abdomen black.

ECOLOGY This species feeds on tansy ragwort, a noxious weed for which it was intentionally introduced into the western United States as a biological control agent. Caterpillars are very common, and with rare exception feed only on species of Senecio, particularly S. jacobaea, during July and August. The gregarious caterpillars are poisonous to vertebrate predators due to the sequestration of pyrrolizidine alkaloids from the hostplant. Adults are diurnal; fly in May and June. Found in open habitats west of the Cascade Mountains.
**Dioptidae**

**Phryganidia californica - California Oakworm**

**Caterpillar**  Two middorsal white bands bordered in purple; yellow subdorsal and spiracular bands separated by a gray-purple band bordered in black; transverse black stripe on T1, A1, and A8; A5 with a middorsal black spot. Head tan with a faint tint of orange.

**Adult**  Wingspan 4.0 centimeters. Forewings tan-light brown with a yellow median patch. Hindwings tan and immaculate.

**Ecology**  This species is an occasional pest on live oak and chinquapin. Caterpillars are common; feed on live oak and chinquapin during fall, winter, and spring. Adults are nocturnal; fly in midsummer. Found in dry woodlands in western Oregon and California.
DREPA N I D A E

ARCHED HOOK TIP - *DREPANA ARCUATA*

**CATERPILLAR** Dorsum with shades of brown, purple, and black on green; knobby warts most prominent on T2 through A2.; anal segment extended into a single point. Head white-tan with two dark brown transverse bands.

**ADULT** Wingspan 3.7 centimeters. Forewings pale yellow-brown with smooth outer margins and noticeably hooked (falcate) at the apex, postmedian line is narrow.

**ECOLOGY** Caterpillars are uncommon; feed on red alder during July and August. Adults are nocturnal; fly from May to August. Found in riparian habitats and moist forests; widely distributed in North America.
Geometridae

Aethaloida packardaria

Caterpillar  Uniformly gray; dorsal tubercles on A2, A4, and A8; ventral tubercle on A3. Third pair of true legs much larger than other true legs. Head silver-gray, slightly cleft.

Adult  Wingspan 3.5 centimeters. Wings dark gray with fine black wavy lines.

Ecology  Caterpillars are common on buckbrush during June and July. Adults are nocturnal, typically with two observable flight periods; the first from March to June, the second in August and September. Found in dry forests in California and southwestern Oregon.
**Geometridae**

**Anacamptodes clivinaria**

**Caterpillar** Silver-gray; a subtle hump on dorsum of A2 and A8.

**Adult** Wingspan 4.0 centimeters. Forewings mottled white and gray, wavy black and yellow medial lines. Hindwings with nearly straight medial lines.

**Ecology** Caterpillars are common; feed on snowbrush and bitterbrush during late spring. Adults are nocturnal; fly from late spring to early summer. Found in open dry forests and woodlands; widely distributed in western North America.
**Geometridae**

*Anagoga occiduaria* - American Bared Umber

**Caterpillar**  Yellow-tan with diffuse red-brown shading; small hump on middorsum of A5.

**Adult**  Wingspan 2.8 centimeters. Forewings pale yellow to brown with a jagged dark brown median band.

**Ecology**  Caterpillars are common; feed on flowering trees and shrubs, particularly maple, blueberry, and ocean spray. Adults are nocturnal; fly in early summer. Found in wet conifer forests; widely distributed in western North America.
CATPILLAR  Green with a wide middorsal white band.

ADULT  Wingspan 3.5 centimeters. Forewings mottled dark gray or brown with two wavy dark medial lines and a row of black postmedian spots.

ECOLOGY  Caterpillars are uncommon; feed on Ceanothus during spring. Adults are nocturnal; fly from late summer to fall. Found in moist coniferous forests; widely distributed in western North America.
Geometridae

Archiearis infans

Caterpillar  Green; dorsally with yellow spots at the location of primary setae (pinaculae); subdorsally two faint yellow longitudinal lines; laterally a distinct yellow line. The presence of four pairs of midabdominal prolegs is a very unusual feature for inchworms. Head yellow-green.

Adult  Wingspan 3.5 centimeters. Forewings dark red-brown to black with a white median band and white subapical patch. Hindwings red-orange with a black anal band and discal spot.

Ecology  Caterpillars are uncommon; feed on alder during late spring. Adults are diurnal; fly in early spring. Found in wet forests; widely distributed in northern North America.
**CATERPILLAR**  Intermixed shades of tan and light green; cone-like humps on head and T1.

**ADULT**  Wingspan 4.8 centimeters. The wings are variable in color from pale gray to a dark black-brown, with wavy black lines and heavily speckled with dark gray spots.

**ECOLOGY**  This species is the pepper moth that has been cited as an example of industrial melanism in England. Caterpillars are common, generalist feeders on flowering trees and shrubs, particularly alder, willow, and chinquapin. Adults are nocturnal; fly from early to midsummer. Found in wet forests and riparian habitats; widely distributed in western North America.
**Geometridae**

**Campaea perlata - FringedLooper**

**Caterpillar** The presence of two pairs of midabdominal prolegs is an unusual feature for inchworms. In this species the prolegs on A5 are slightly reduced. In contrast, the midabdominal prolegs on A5 and A6 in plusiines (Noctuidae) are nearly equal in size (see Autographa californica). The body color is variable in this species but is generally drab, such as the gray-brown depicted here. The ventral fringe of knobby hairs is unique among inchworms in the Pacific Northwest.

**Adult** Wingspan 3.9 centimeters. Forewings pale green-white with two white lines counter-shaded with darker green.

**Ecology** Caterpillars are common; feed on many broadleaf trees, such as serviceberry, red and mountain alder, and hazel, during April and May. Adults are nocturnal; fly in summer. Found in moist forests; widely distributed in western North America.
CHESIADOIDES CINEREA

**CATERPILLAR** Yellow-green; middorsal white band encompassing a golden central longitudinal line with black edged gray dashes on A2 through A8; broken scalloped white lateral line.

**ADULT** Wingspan 3.0 centimeters. Forewings elongate, light to dark gray with thin black lines.

**ECOLOGY** Caterpillars are common; feed on rabbitbrush during June and July. Adults are nocturnal; fly in midsummer. Found in dry sagebrush rangelands and juniper woodlands; widely distributed in western North America.
**Geometridae**

*Chlorochlamys triangularis*

**Caterpillar**
Yellow-green. Head more strongly yellow.

**Adult**
Wingspan 1.9 centimeters. Forewings pale green with thin white lines that may fade to yellow as the moth ages.

**Ecology**
Caterpillars are common; feed on rabbitbrush during June and July. Adults are nocturnal; fly in late summer. Found in dry sagebrush rangelands and juniper woodlands; widely distributed in western North America.
**CATERPILLAR**  The lateral flanges on A2 through A5 are characteristic of three common inchworms (see *Nemoria darwiniata*, the third species, *Synchlorella aerata*, is not illustrated in this volume). Green with minute white dots and oblique yellow-white stripes; enlarged lateral flanges on A2 through A5.

**ADULT**  Wingspan 3.4 centimeters. Wings green with a single white line. This moth may be distinguished from other green geometers by its large size and the single white line.

**ECOLOGY**  Caterpillars are common; feed on ocean spray during May and June. Adults are nocturnal; fly in midsummer. Found in wet and dry forests; widely distributed in western North America.
**Geometridae**

*Cochisia sinuaria*

**Caterpillar** Yellow with an undertone of green; T1 with a pair of minute bumps. Head red-brown with two cone-like projections.

**Adult** Wingspan 5.0 centimeters. Wings pale gray with narrow wavy black lines.

**Ecology** Caterpillars are common; feed on manzanita during late spring to early summer. Adults are nocturnal; fly in fall. Found in dry woodlands and forests from western Oregon to Arizona.
**CATERPILLAR**  The colors of this inchworm vary in the intensity of contrast between light and dark markings. Colors range from tan, to brown, to gray, but always with the darker middorsal semicircle countered by the anterior lateral light markings, particularly on A2 through A5.

**ADULT**  Wingspan 2.4 centimeters. Wings yellow to pale brown with fine black speckles and a small round white spot near the discal cell.

**ECOLOGY**  Caterpillars are common; feed on white oak during July and August. Adults are nocturnal; fly in summer. Found in oak woodlands ranging from California to British Columbia.
**Geometridae**

*Dasyfidonia avuncularia*

**Caterpillar** Red-brown with shades of dark pink; broken yellow spiracular line; lateral patches of dark red-brown on each abdominal segment.

**Adult** Wingspan 3.0 centimeters. Forewings brown with black lines and a white subapical spot. Hindwings red-orange, each with two black lines.

**Ecology** Caterpillars are uncommon; feed on bitter cherry during late spring to early summer. Adults are diurnal; fly in spring. Found in montane forests; widely distributed in western North America.
**Caterpillar** Yellow-green with pale-yellow speckles; multiple discontinuous, longitudinal lines, and ten middorsal red spots.

**Adult** Wingspan 2.5 centimeters. The wings vary from cream-white, to pink or orange; each forewing has three narrow, nearly straight red lines.

**Ecology** Caterpillars are uncommon; feed on *Ceanothus* during July and August. Adults are nocturnal; fly in early summer. Found in wet and dry forests; widely distributed in western North America.
**Geometridae**

*Drepanulatrix falcataria*

**Caterpillar** A patchwork of white, silver, gray, tan, and black; a thin yellow spiracular line, counter shaded with black patches, is broken by patches of gray-white.

**Adult** Wingspan 3.0 centimeters. Forewings slightly falcate, red-orange to pink, each with three lines. Hindwings white.

**Ecology** Caterpillars are common; feed on *Ceanothus* during spring. Adults are nocturnal; fly in early spring. Found in wet and dry forests; widely distributed in western North America.
**DREPAFULATRIX FOEMINARIA**

**CATERPILLAR**  Body color variable, green or brown; lateral yellow band with ragged edges on light green body with faint white longitudinal markings; spiracles orange.

**ADULT**  Wingspan 3.1 centimeters. Wings brown, speckled with black, and show amorphous gray-black markings.

**ECOLOGY**  Caterpillars are common; feed on *Ceanothus* from June through August. Adults are nocturnal; fly in spring. Found in wet and dry forests; widely distributed in western North America.
**Geometridae**

*Drepanulatrix monicaria*

**Caterpillar** Green with a velvet appearance; small middorsal white spots or patches may occur on midabdominal segments; middorsal red-brown streak on thorax and anterior abdomen.

**Adult** Wingspan 2.8 centimeters. Forewings pink to light red, finely mottled with black flecks, postmedian line of black spots.

**Ecology** Caterpillars are common; feed on species of *Ceanothus* from May through July. Adults are nocturnal; fly from spring to fall. Found in wet and dry forests; distributed along the West Coast from southern California to British Columbia.
**Geometridae**

_**Drepanulatrix unicalcararia**_

**Caterpillar** Mottled brown and gray-black; faint scalloped subspiracular line.

**Adult** Wingspan 4.0 centimeters. Forewings gray to red-orange with a narrow, sharply angled postmedian line.

**Ecology** Caterpillars are common; feed on _Ceanothus_ during spring. Adults are nocturnal; fly during two distinct periods: late spring to early summer and late summer to fall. Found in wet and dry forests; widely distributed in western North America.
**Geometridae**

*Dysstroma citrata*

**Caterpillar**  Yellow-green; no other markings.

**Adult**  Wingspan 3.2 centimeters. Forewings with a black median band, a dark brown basal band, and a yellow apical patch.

**Ecology**  Caterpillars are common; feed on flowering trees and shrubs, such as alder and thimbleberry. Adults are nocturnal; fly from midsummer to fall. Found in moist forests; widely distributed in western North America.
**SYSTROMA FORMOSA**

**CATERPILLAR** Light green with a white hue, and white subdorsal longitudinal lines.

**ADULT** Wingspan 3.1 centimeters. Forewings with a gray median band and a dark brown basal band.

**ECOLOGY** This species is the most common inchworm on currants and gooseberries; feeds on many species of *Ribes* during June and July. Adults are nocturnal; fly in midsummer. Found in dry forests; widely distributed in western North America.
**Dysstroma sobria**

**Caterpillar**  Head and body yellow green with ten middorsal red spots.

**Adult**  Wingspan 3.8 centimeters. Forewings with a white median band and dark brown basal and postmedian bands.

**Ecology**  Caterpillars are uncommon; feed on species of Ericaceae, such as salal and rhododendron, during April and May. Adults are nocturnal; fly in midsummer. This species is limited to moist forests of the Pacific West.
SADDLEBACK LOOPER - *ECTROPIS CREPUSCULARIA*

**CATERPILLAR**  Mottled white, gray, tan, brown, and golden; a black subdorsal dual striped longitudinal line extends from the head to A8; A8 with a pair of small dorsal warts.

**ADULT**  Wingspan 4.1 centimeters. Forewings white with fine, dentate black lines.

**ECOLOGY**  Caterpillars are very common, generalist feeders occurring in the spring and early summer on numerous flowering trees and shrubs, such as alder, willow, and snowberry, and conifers, such as Douglas-fir and western hemlock. Adults are nocturnal; fly in spring. Found in wet forests, riparian habitats and woodlands; widely distributed in western North America.
Geometridae

Elpiste lorquinaria

**Caterpillar**  Body may be either green or brown; prominent lateral yellow band and faint yellow longitudinal markings are consistent in both body colors.

**Adult**  Wingspan 2.8 centimeters. Forewings with falcate apex, pale yellow or brown; each forewing has two narrow lines and three black marks in the submarginal area.

**Ecology**  Caterpillars are common; feed on red alder and willow from June through August. Adults are nocturnal; fly in late summer. Found in rain forests of the Pacific Northwest.
**Maple Spanworm - Ennomos magnaria**

**Caterpillar**  Green with yellow shading; tan-brown circumsegmental swellings around the posterior edge of A2, A3, and A5. Head green.

**Adult**  Wingspan 5.2 centimeters. Forewings yellow-orange with many small dark spots and a sharply angular outer margin.

**Ecology**  Caterpillars are uncommon; feed on alder and willow in late spring. Adults are nocturnal; fly in fall. Found in moist forests; widely distributed in western North America.
**Geometridae**

*Erannis tiliaria - Linden Looper*

**Caterpillar**  Dorsum brown with black longitudinal lines; yellow laterally with faint to distinct red-brown shading around the spiracles; ventral part of body off-white.

**Adult**  Females are wingless. Male wingspan 4.0 centimeters. The wings are cream colored to pale yellow with fine speckles and dark wavy bands, the outer bands varying from solid black to pale brown.

**Ecology**  Caterpillars are very common; feed on many broadleaf trees and shrubs, such as serviceberry, white oak, and hazel, during May and June. Adults are nocturnal; fly in late fall. Found in oak woodlands; widely distributed in western North America.
**Euchlaena johnsonaria**

**Caterpillar** Small dorsal warts on A1 and A5, body with swirls of cream and light brown colors.

**Adult** Wingspan 4.0 centimeters. Forewings falcate with a scalloped margin, dark brown to pale yellow with thin lines and black postmedian spots. Hindwings with a strongly scalloped margin.

**Ecology** Caterpillars are uncommon; feed on cascara and mock orange during May and June. Adults are nocturnal; fly in midsummer. Found in moist forests; widely distributed in western North America.
**Geometridae**

**Euchlaena tigrinaria**

**Caterpillar**  Silver and gray with dorsal patches of red-brown; posterior of A1 and A5 with a subdorsal wart.

**Adult**  Wingspan 3.9 centimeters. Wings pale orange and speckled with many dark spots.

**Ecology**  Caterpillars are common; feed on many broadleaf trees and shrubs, particularly serviceberry and hazel, during April and May. Adults are nocturnal; fly in midsummer. Found in moist forests; widely distributed in western North America.
**Eudrepanulatrix rectifascia**

**Caterpillar**  Brown head and light green body with faint white lines; small middorsal reddish brown spots or patches may occur on midabdominal segments; middorsal reddish brown streak on thorax and anterior abdomen.

**Adult**  Wingspan 2.8 centimeters. Forewings white to pink with fine gray mottling and a narrow postmedian line.

**Ecology**  Caterpillars are common; feed on species of *Ceanothus* from June through August. Adults are nocturnal; fly from early to late summer. Found in wet and dry forests; widely distributed in western North America.
Geometridae

Eulithis xylina

Caterpillar  Red-brown-amber; black collar around T2; intersegmental rings are pale gray-brown.

Adult  Wingspan 3.4 centimeters. Forewings with a dark brown median band with a smooth outer margin.

Ecology  Caterpillars are very common; feed on many broadleaf trees and shrubs, such as ocean spray, red stem osier, ninebark, and azalea, during June and July. Adults are nocturnal; fly in midsummer. Found in moist forests and riparian habitats; widely distributed in western North America.
**CATERPILLAR**  Golden-yellow-green dorsally and laterally; venter olive green, no other markings.

**ADULT**  Wingspan 2.3 centimeters. Forewings gray-brown with faint dark bands and a black discal spot. Hindwings with a checkered margin.

**ECOLOGY**  Caterpillars are common; feed on conifers, such as hemlock and Douglas-fir, during late spring and early summer. Adults are nocturnal; fly in early spring. Found in coastal rain forests of the Pacific western states.
Geometridae

Eupithecia gilvipennata

Caterpillar  Yellow-green with a dark red middorsal line from the head to A10.

Adult  Wingspan 2.6 centimeters. Forewings black, often with orange medial spots and an orange subapical patch.

Ecology  Caterpillars are common; feed on manzanita during late spring and early summer. Adults are nocturnal; fly in early spring. Found in dry forests and oak woodlands in the Pacific western states.
**CATERPILLAR** Color variable from solid green, a rosy pink, to red-pink, typically matching color with the hostplant.

**ADULT** Wingspan 2.3 centimeters. Forewings brown with a red-yellow cast; each forewing has an elongate, black discal spot.

**ECOLOGY** Caterpillars are common; feed on manzanita and madrone from April through June. Adults are nocturnal; fly in summer. Found in dry forests and woodlands; widely distributed in western North America.
**Geometridae**

*Eupithecia maestosa*

**Caterpillar**  Light green throughout; immaculate.

**Adult**  Wingspan 2.0 centimeters. Forewings with brown basal and medial lines; each forewing has a faint transverse yellow band.

**Ecology**  Caterpillars are common, generalist feeders occurring in the spring on hardwood trees and shrubs, such as serviceberry, ash, ocean spray, and elderberry. Adults are nocturnal; fly from spring to midsummer. Found in moist forests; widely distributed in western North America.
**Eupithecia misturata**

**Caterpillar** Variable in color from white to rosy brown; A1 through A6 with distinct darker transverse band that is expanded anteriorly in the center and along each side near the subdorsal area.

**Adult** Wingspan 1.8 centimeters. Forewings pale gray; each forewing has a small black discal spot.

**Ecology** Caterpillars are very common, generalist feeders occurring in late spring and early summer on the foliage and flowers of flowering trees and shrubs, particularly ocean spray, manzanita, snowberry, and oak. Adults are nocturnal; fly in summer. Found in woodlands and wet and dry forests; widely distributed in western North America.
**Eupithecia nevadata**

**Caterpillar** Darker green dorsally with small white dots; lighter green ventrally with a white hue and small white dots; lateral off-white band bordered with streaks of red, mostly on thorax and posterior abdominal segments.

**Adult** Wingspan 2.6 centimeters. Forewings white to gray with red to brown costal and submarginal patches.

**Ecology** Caterpillars are common; feed on bitterbrush and species of *Ceanothus* during June and July. Adults are nocturnal; fly in early spring. Found in dry forests and juniper woodlands; widely distributed in western North America.
**Eupithecia ravocostaliata**

*Caterpillar*  Dorsum and venter green; lateral off-white band bordered by a solid red line below.

*Adult*  Wingspan 2.3 centimeters. Forewings elongate and pointed with white and black costal and submarginal patches.

*Ecology*  Caterpillars are common; feed on cascara from June to August. Adults are nocturnal; fly in early spring. Found in woodlands and wet and dry forests in the Pacific western states.
**Geometridae**

**Eupithecia unicolor**

**Caterpillar**  Green with shades of yellow, matching foliage of the foodplant for a cryptic appearance.

**Adult**  Wingspan 2.5 centimeters. Forewings red-brown to yellow-orange with a thin black medial line, often with black streaks along the submarginal border.

**Ecology**  Caterpillars are common; feed on western red cedar from May to July. Adults are nocturnal; fly in late summer. Found in wet coniferous forests from southern California to British Columbia.
**Geometridae**

**Eustroma semiatrata**

**Caterpillar**  Red-brown; T3 with a transverse black line.

**Adult**  Wingspan 3.3 centimeters. Forewings with a black median band that has a jagged outer margin.

**Ecology**  Caterpillars are common; feed on herbaceous plants, such as fireweed, during spring. Adults are nocturnal; fly in fall. Found in open habitats associated with wet and dry forests; widely distributed in western North America.
**Geometridae**

**Gabriola dyari**

**Caterpillar** Mostly brown, dorsum with light caramel-colored patches; subdorsally and laterally abdomen with slightly swollen areas; white dorsal patches on A1, A3, and A8. This caterpillar can contort its body into a configuration that looks like a male cone of conifers.

**Adult** Wingspan 2.8 centimeters. Forewings dark, mottled gray to black; each forewing has a narrow, wavy, black median line and a curved, black basal line.

**Ecology** Caterpillars are uncommon; feed on conifers, such as Douglas-fir and western hemlock, during late spring. Adults are nocturnal; fly in summer. Found in wet and dry coniferous forests; widely distributed in western North America.
**CATERPILLAR**  Gray mixed with white-gray; small dorsal tubercles on A2 and A2 slightly bulging laterally; small ventral tubercles on A3.

**ADULT**  Wingspan 3.5 centimeters. Forewings a uniform pale gray; each forewing has a narrow, sharply dentate median line.

**ECOLOGY**  Caterpillars are common; feed on ocean spray and currants during spring. Adults are nocturnal; fly in midsummer. Found in wet and dry forests; most common west of the Cascade Mountains, ranging from California to British Columbia.
**Geometridae**

**Hesperumia sulphuraria**

**Caterpillar** The body color of this species is highly variable, often matching its background. The subdorsal wart on A2 is the best trait for tentative field identification.

**Adult** Wingspan 3.5 centimeters. Forewings pale to dark yellow with purple-brown median and basal bands and a broad purple-brown discal spot; markings are variable from very prominent bands to nearly no marks except for the discal spot.

**Ecology** Caterpillars are very common; feed on many broadleaf trees and shrubs, such as species of *Ceanothus*, manzanita, ocean spray, and bitterbrush, from May through July. Adults are nocturnal; fly in midsummer. Found in woodlands and wet and dry forests; widely distributed in western North America.
**Geometridae**

*Hydriomena manzanita*

**CATERPILLAR** Off-white, almost translucent; middorsal black line from T2 through A9. Head light brown.

**ADULT** Wingspan 3.2 centimeters. Forewings elongate and pale gray with obscure markings forming dark curved bands.

**ECOLOGY** Caterpillars are common; feed on manzanita and madrone during June and July. Adults are nocturnal; fly in spring. Found in dry conifer forests and oak woodlands along the West Coast from California to British Columbia.
**Hypagyrtis unipunctata**

**Caterpillar**  Tan and brown; A4 and A5 with a diffuse patch of white.

**Adult**  Wingspan 3.3 centimeters. Forewings white, mottled with yellow and brown; each forewing has a small black discal spot. Hindwings with margin slightly scalloped.

**Ecology**  Caterpillars are common; feed on alder during spring. Adults are nocturnal; fly in late summer. Found in wet forests; widely distributed in western North America.
**IRIDOPSIS EMASULATA**

**CATERPILLAR** Dorsal red markings with irregular borders, noticeably expanded and constricted on A3 through A6; subdorsally and laterally green.

**ADULT** Wingspan 3.5 centimeters. Forewings pale gray-cream with narrow wavy black lines and a brown patch bordered by two black tooth-like marks in the subapical area.

**ECOLOGY** Caterpillars are common; feed on maple, alder, and *Vaccinium* during spring. Adults are nocturnal; fly in midsummer. Found in woodlands, riparian habitats, and wet and dry forests; widely distributed in western North America.
Geometridae

Itame bitactata

**Caterpillar** Green to gray-brown with white and brown shading on each segment separated at an oblique angle.

**Adult** Wingspan 3.1 centimeters. Forewings gray with black dashes and lines.

**Ecology** Caterpillars are common; feed on currants and gooseberries during late spring. Adults are nocturnal; fly in midsummer. Found in dry forests; widely distributed in western North America.
**Geometridae**

*Itame colata*

**Caterpillar**  Mottled silver, gray, and white; darker patch near spiracles.

**Adult**  Wingspan 2.3 centimeters. Forewings gray; each forewing has a broad brown postmedian band curved and outlined in black.

**Ecology**  Caterpillars are common; feed on bitterbrush and sagebrush during spring. Adults are nocturnal; fly from mid- to late summer. Found in pine forests and juniper woodlands; widely distributed in western North America.
Geometridae

Itame guenearia

**Caterpillar**  Light red to orange-pink; lateral yellow patches on A1 and A2.

**Adult**  Wingspan 2.8 centimeters. Forewings pale gray; each forewing has a yellow postmedian band outlined with brown. Hindwings white to yellow.

**Ecology**  Caterpillars are common; feed on California coffeeberry during spring. Adults are nocturnal; fly in midsummer. Found in dry open forests and woodlands; distributed in the Pacific western states and the Southwestern states.
**CATERPILLAR**  Green with dark brown patches sublaterally.

**ADULT**  Wingspan 2.8 centimeters. Forewings gray with fine dark lines; each forewing has a bright yellow patch along the costal margin on the venter (not shown) of the forewing.

**ECOLOGY**  Caterpillars are common; feed on snowbrush during spring. Adults are nocturnal; fly in midsummer. Found in wet and dry forests; widely distributed in western North America.
**Geometridae**

*Lambdina fiscellaria* - *Oak (Hemlock) Looper*

**Caterpillar** Color highly variable, typically white, gray, and light brown; longitudinal lines in different shades of typical body colors; paired black dorsal spots.

**Adult** Wingspan 3.7 centimeters. Forewings slightly falcate, gray to yellow-tan, each with narrow black postmedian and basal lines edged with orange, and a small black discal spot.

**Ecology** This caterpillar is very common and may cause heavy defoliation of its principal host, white oak; present from June to September. Adults are nocturnal; fly in fall. Found in oak woodlands and coniferous forests; widely distributed in western North America.
CATERPILLAR  Green with multiple white lines creating a middorsal longitudinal band; lateral white line extends from T1 to A10.

ADULT  Wingspan 3.7 centimeters.  Forewings a dull mottled brown with narrow wavy lines and small black marginal spots.

ECOLOGY  Caterpillars are common; feed on Pinaceae, particularly Douglas-fir, during spring and early summer.  Adults are nocturnal; fly in early spring.  Found in wet and dry coniferous forests; widely distributed in western North America.
Geometridae

Nematocampa resistaria - Filament Bearer

Caterpillar Mottled caramel, brown, and gray-white. Two very long filaments middorsal on A2 an A3, each forked creating two smaller filaments with white tips.

Adult Wingspan 2.5 centimeters. Forewings falcate, pale cream to deep yellow with broad purple-brown borders and narrow wavy lines.

Ecology Caterpillars are common; feed on the foliage of flowering trees, shrubs, and herbaceous plants such as maple, alder, snowberry, oak, and mint, during spring and early summer. Adults are nocturnal; fly in late summer. Found in open habitats, woodlands, and forests; widely distributed in western North America.
**CATERPILLAR** The lateral flanges on A2 through A5 are characteristic of three common inchworms (see *Chlorosea banksaria*; the third species, *Synchlora aerata*, is not illustrated). Coloration in this species varies among light green, yellow, tan, and brown.

**ADULT** Wingspan 2.9 centimeters. Wings green with narrow, curved, white basal and median lines.

**ECOLOGY** Caterpillars are common; feed on many broadleaf trees and shrubs, such as white oak, myrica, ocean spray, bitterbrush, and snowbrush, during March to September. Adults are nocturnal; fly in midsummer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
Neocalcis californiaria

**Caterpillar** This caterpillar is variable in color (shades of off-white, brown, and gray) and pattern. In fact, the lack of notable features in combination with the presence of mature larvae occurring in early spring serve as the best clue to the identity of this species.

**Adult** Wingspan 3.6 centimeters. Forewings mottled cream to dark brown with wavy dark median and basal lines.

**Ecology** This is the most abundant moth species that is capable of feeding extensively on foliage of numerous species of conifers and angiosperms in the fall and into the early summer of the following year. Caterpillars are very common; feed on broadleaf trees, such as big-leaf maple and serviceberry; shrubs, such as myrica and blueberry; as well as many conifers, such as pines and Douglas-fir. Adults are nocturnal; fly from late summer into fall. Found in woodlands, and wet and dry forests, particularly common west of the Cascade Mountains; distributed from California to British Columbia.
**Nepytia umbrosaria**

**Caterpillar**  Middorsal white band edged with a thin black line; laterally golden brown with a faint white spiracular line.

**Adult**  Wingspan 3.6 centimeters. Forewings mostly gray with jagged median and basal lines; each forewing has a small black discal spot.

**Ecology**  This is one of the most abundant conifer-feeding caterpillars in western forests. Caterpillars are very common; feed on conifers in spring. Adults are nocturnal; fly from mid- to late summer. Found in wet and dry coniferous forests; widely distributed in western North America.
**Geometridae**

*Operophtera bruceata* - *Bruce Spanworm*

**Caterpillar** Green; prominent subdorsal white bands.

**Adult** Females are wingless. The male wingspan is 2.9 centimeters. Forewings solid dark gray to pale cream with fine dark lines.

**Ecology** This species was previously known as *O. occidentalis* and is very similar in appearance to an exotic pest, *O. brumata*, the winter moth. This is one of just a few species of moths exhibiting a limited flight period restricted to November and December. Caterpillars are very common; feed on many broadleaf trees, such as big-leaf maple, oak, red alder, bitter cherry, hazel, and willow, from March to June. Adults are nocturnal, males fly in early winter. Found in low elevation woodlands and wet forests; widely distributed in western North America.
**CATERPILLAR**  Green with white spots demarking the location of primary setae and three dorsal white longitudinal lines, lateral line light yellow.

**ADULT**  Females are wingless. The male wingspan is 3.4 centimeters. Forewings elongate and gray with dark lines.

**ECOLOGY**  This is one of just a few species of moths exhibiting a limited flight period restricted to November and December. Caterpillars are uncommon, generalist feeders on the foliage of flowering trees and shrubs, particularly ash, cherry, and oak, during the spring. Adults are nocturnal, males fly in early winter. Found in woodlands in the Pacific Northwest.
Perizoma costiguttata

**Caterpillar**  Red-brown; immaculate.

**Adult**  Wingspan 2.5 centimeters. Forewings gray with three black costal bars.

**Ecology**  Caterpillars are common; feed on ocean spray during spring. Adults are nocturnal; fly from spring to midsummer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
CATERPILLAR  Body color is highly variable, often gray with faint black markings; A2 through A4 swollen ventrally. Head slightly cleft.

ADULT  Wingspan 4.1 centimeters. Forewings pale red-brown with a darker median area, wing edge dentate.

ECOLOGY  Caterpillars are common; feed on many broadleaf trees, such as snowbrush, hazel, Pacific dogwood, and madrone, from April to August. Adults are nocturnal; fly from mid- to late summer. Found in wet conifer forests of the Pacific Northwest, especially abundant west of the Cascade Mountains.
Geometridae

Pero occidentalis

**Caterpillar**  Mottled light yellow, tan, and brown; no other distinctive markings.

**Adult**  Wingspan 3.4 centimeters. Forewings dark gray-brown, wing edges dentate; each forewing with a red-black median band. Males have slightly dentate antennae with minute antennal branches.

**Ecology**  Caterpillars are common; feed on the foliage of Pinaceae and some hardwood shrubs, such as ocean spray, during spring. Adults are nocturnal; fly from late spring to midsummer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
CATERPILLAR  Gray-brown; lateral golden yellow patches on A1 through A3 apparent, faint on A4 through A7; a pair of small dorsal warts on A1 through A3, and A8.

ADULT  Females are wingless. Male wingspan 4.5 centimeters. Forewings pale gray; each forewing with four thin black lines. Hindwings pale gray, each with a small black discal spot. Antennae pectinate.

ECOLOGY  Caterpillars are common; feed on oak and serviceberry during spring. Adults are nocturnal, males fly in early spring. Found in oak woodlands along the Pacific coast from California to British Columbia.
**Geometridae**

*Probole amicaria*

**Caterpillar**  Pale green and brown to red-brown; A5 with a slightly raised transverse ridge.

**Adult**  Wingspan 3.5 centimeters. Forewings falcate, pale mottled brown with a darker brown submarginal area, the subapical part of the median line extends to the wing margin in an abrupt, concave curve.

**Ecology**  Caterpillars are common; feed on dogwood and huckleberry during spring. Adults are nocturnal; fly from late spring to early summer. Found in wet conifer forests of the Pacific Northwest.
Protitame matilda

**CATERPILLAR** Yellow-green to light red-brown; no other notable markings.

**ADULT** Wingspan 2.1 centimeters. Forewings white to pale yellow with a thin, straight basal line and postmedian line. Hindwings with a curved postmedian line.

**ECOLOGY** Caterpillars are common; feed on willow and poplar during spring. Adults are nocturnal; fly from spring to midsummer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
**Geometridae**

*Rheumaptera subhastata*

**Caterpillar**  Black; prolegs and spiracular area pale orange. Head orange.

**Adult**  Wingspan 3.1 centimeters. Forewings white with black borders and mottled black basal and median areas.

**Ecology**  This caterpillar lives in folded leaf tents and is common on mountain alder during August and September. Adults are diurnal; fly from late spring to midsummer. Found in montane forests; widely distributed in western North America.
CATERPILLAR  Dorsum and lateral region of T1 through A9 with longitudinal stripes of black, orange, gray, and white; mostly light yellow below the spiracular line. Head orange with a pair of black spots near the top of the head capsule.

ADULT  Wingspan 4.4 centimeters. Forewings slightly falcate, pale yellow to darker brown with converging, dentate median and postmedian lines.

ECOLOGY  This is one of just a few species that may occur ‘on the wing’ any month of the year, a behavior connected to its distribution along relatively mild coastal environments. Caterpillars are common; feed on red elderberry, salmonberry, red alder, and ocean spray, from May to September. Adults are nocturnal; fly throughout the year. Found in wet coastal forests in the Pacific western states.
Geometridae

*Selena alciphearia*

**Caterpillar**  Head, thorax and parts of A5 and A6 streaked with white and gray; A1 through A4 golden yellow; A6 through A10 darker brown; A5 and A6 with a pair of dorsal humps.

**Adult**  Wingspan 4.2 centimeters.  Forewings falcate, mottled pale yellow to brown; each forewing has three narrow, black lines and an apical orange patch.

**Ecology**  The caterpillar in this photo was reared in the lab from eggs obtained from a female moth field-collected live at a blacklight and then placed in a container for a couple of days.  Caterpillars are uncommon; feed on the foliage of maple, alder, and birch.  Adults are nocturnal; fly from early spring to midsummer.  Found in wet forests; widely distributed in western North America.
**Semiorthisa burneyata**

**CATERPILLAR** Green mottled with white patches and spots, the dark and light green hues of the caterpillar result in a remarkable example of cryptic coloration.

**ADULT** Wingspan 3.0 centimeters. Forewings light red-pink-brown; each forewing has two to three nearly straight black lines.

**ECOLOGY** Caterpillars are common; feed on cedars during late spring and early summer. Adults are nocturnal; fly from early to late summer. Found in wet coniferous forests; distributed in the Pacific western states.
**Geometridae**

*Semiothisa subminiata*

**CATERPILLAR** Green with faint white dorsal longitudinal lines; cream-white lateral line.

**ADULT** Wingspan 2.8 centimeters. Forewings pink to red-pink; each forewing has a broad, curved, black postmedian band and a smaller black basal band.

**ECOLOGY** Caterpillars are uncommon; feed on willow during late spring. Adults are nocturnal; fly in midsummer. Found in riparian habitats of dry forest and woodlands; widely distributed in western North America.
Geometridae

Sericosema juturnaria

Caterpillar  Poorly defined patches of alternating light and dark gray-brown; minute warts subdorsally on A2 through A5; yellow spiracles.

Adult  Wingspan 3.5 centimeters. Forewings pale tan with a curved black postmedian line and a variable black submarginal border.

Ecology  This species may be the most abundant moth in post-fire regeneration habitats, where snowbrush is the dominant vegetation. Caterpillars are very common; feed on Ceanothus from May to July. Adults are nocturnal; fly in midsummer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
Geometridae

Sicya crocearia

**Caterpillar**  Green with red-brown highlights; middorsum of A3 and A5 with a dual pronged horn the length of which is equal to the body width; a third shorter horn occurs middorsally on A8.

**Adult**  Wingspan 3.4 centimeters. Forewings slightly falcate, yellow with narrow basal and median lines, pink-red in the postmedian areas.

**Ecology**  Caterpillars are uncommon; feed on red alder during June and July. Adults are nocturnal; fly in midsummer. Found in wet conifer forests; widely distributed in western North America.
**SPARGANIA MAGNOLIATA**

**CATERPILLAR**  Yellow-green with a lateral diffuse band of rosy red.

**ADULT**  Wingspan 3.0 centimeters. Forewings gray with wavy black lines and bands; each forewing has a small black discal spot. Hindwings pink-gray.

**ECOLOGY**  Caterpillars are common; feed on fireweed during spring. Adults are nocturnal; fly from spring to late summer. Found in open habitats associated with wet forests; widely distributed in western North America.
**Geometridae**

*Stamnodes coenonymphata*

**Caterpillar**  Green with a tint of yellow along a subdorsal longitudinal band.

**Adult**  Wingspan 3.1 centimeters. Forewings pale yellow with a white postmedian band and gray-black median and apical patches.

**Ecology**  Caterpillars are common; feed on mountain mahogany during late spring. Adults are nocturnal; fly in early spring. Found in dry oak woodlands; distributed in southern California and southwestern Oregon.
**CATERPILLAR** Light green to green-brown to red-orange; dorsally T2 swollen into a transverse ridge; minute middorsal wart on A4 and A8.

**ADULT** Wingspan 4.3 centimeters. Forewings strongly falcate, red-brown to gray, with narrow basal and median lines.

**ECOLOGY** Caterpillars are common; feed on willow, cascara, bitterbrush, and species of *Ceanothus* from June to August. Adults are nocturnal; fly from spring to midsummer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
**Geometridae**

*Synaxis formosa*

**Caterpillar** Dorsally gray-brown with thin longitudinal lines; ventrally gray-yellow with patches of gray-brown; a pair of small dorsal warts on A2 through A5; A8 with a small hump.

**Adult** Wingspan 4.2 centimeters. Forewings gray with jagged black postmedian and basal lines outlined in white. Hindwings white with a scalloped gray margin.

**Ecology** Caterpillars are common; feed on rabbit brush during late spring. Adults are nocturnal; fly in fall. Found in dry juniper woodlands and sagebrush rangelands in western North America.
**SYNAXIS JUBARARIA**

**CATERPILLAR** Mottled gray to light brown-red; a pair of prominent dorsal warts on T1, A4, and A5; a pair of very small warts on A3, A6, and A7.

**ADULT** Wingspan 4.0 centimeters. Forewings strongly falcate, pale yellow to orange, with narrow basal and median lines.

**ECOLOGY** Caterpillars are common; feed on many broadleaf trees and shrubs, such as big-leaf maple, ash, red alder, and snowberry, during late spring. Adults are nocturnal; fly in fall. Found in wet conifer forests; widely distributed in western North America.
**Geometridae**

*THALLOPHAGA TAYLORATA*

**CATERPILLAR** One of very few species found on sword fern. This caterpillar is easily identified by its orange, brown, and tan body with faint white subdorsal longitudinal lines; midabdominal intersegmental areas orange brown.

**ADULT** Wingspan 3.3 centimeters. Forewings slightly falcate, lightly speckled brown with a dark brown median band and postmedian line, or separate small postmedian spots.

**ECOLOGY** This is the most abundant caterpillar on sword fern. Caterpillars are common; feed on sword fern during May and June. Adults are nocturnal; fly in early spring. Found in wet conifer forests in the Pacific western states.
**Triphosa californiata**

**Caterpillar** Numerous longitudinal lines and bands of pink-gray, black, yellow, and light brown; the most distinctive trait is the lateral yellow band edged dorsally by a black line.

**Adult** Wingspan 3.3 centimeters. Forewings dark gray with a wavy median band and thin lines. Hindwings white with gray borders and scalloped margins.

**Ecology** Caterpillars are common; feed on coffeeberry during late spring and early summer. Adults are nocturnal; fly in early spring. Found in open habitats, woodlands, and wet forests in the Pacific western states.
**Geometridae**

*Triphosa haesitata*

**Caterpillar** Translucent green; lateral off-white band; dorsal and lateral cream-white lines.

**Adult** Wingspan 3.9 centimeters. Forewings variable red-brown with darker and lighter wavy bands. Hindwings with the margin strongly dentate.

**Ecology** This is the most abundant caterpillar on cascara. Caterpillars are common; feed on cascara during June and July. Adults are nocturnal, overwinter, fly from late summer into next spring. Found in woodlands and wet conifer forests; widely distributed in western North America.
Lasiocampidae

Western Tent Caterpillar - Malacosoma californicum

**CATERPILLAR** White dorsal patches bordered in black surrounded by orange; an off-white spiracular line with two blue patches per segment above it; dense white hairs laterally.

**ADULT** Wingspan 2.9 centimeters. Forewings of male (see photo) variably red-brown to yellow with two thin lines. Hindwings of male red-brown. Female wings are more yellow than those of the male, with red-brown shading.

**ECOLOGY** The extensive blue coloring is unusual in caterpillars and typical of the genus Malacosoma. Caterpillars are very common; feed on many broadleaf trees, such as big-leaf maple, oak, and red alder, during early summer. Adults are nocturnal; fly in midsummer. Found in a wide variety of habitats, particularly oak woodlands; widely distributed in western North America.
Lasiocampidae

Malacosoma constrictum - Pacific Tent Caterpillar

Caterpillar  Blue and black; dense white hairs laterally.

Adult  Wingspan 3.0 centimeters. Forewings of male (see photo) variably yellow with two thin dark lines. Hindwings of male yellow. Female wings with red-brown shading.

Ecology  Caterpillars are very common; feed on oak during late spring to early summer. Adults are nocturnal; fly in midsummer. Found in oak woodlands from southern California to western Oregon.
**LASCIOCAMPIDAE**

**FOREST TENT CATERPILLAR - MALACOSOMA DISSTRIA**

**CATERPILLAR**  Blue and black; silvery-white dorsal patches bordered in black; a yellow orange subdorsal and lateral longitudinal line also bordered in black; dense white hairs laterally.

**ADULT**  Wingspan 2.8 centimeters. Forewings of male (see photo) variably yellow to red-brown with two thin lines; female forewings are darker red-brown than those of male. Hindwings of male and female red-brown.

**ECOLOGY**  This species does not construct a tent. Caterpillars are very common; feed on many broadleaf trees such as madrone, oak, and red alder, during early summer. Adults are nocturnal; fly in midsummer. Found in a wide variety of habitats, particularly oak woodlands; widely distributed in western North America.
Lasiocampidae

Phylloidesma americana - Lappet Moth

CATERPILLAR  Silver and gray with black tones; soft, fuzzy, gray hairs; transverse orange yellow line across A1 and A2; small middorsal raised area on A8.

ADULT  Wingspan 3.6 centimeters. Forewings red-brown with fine spots and a deeply notched anal margins. Hindwings small with dentate margins.

ECOLOGY  Caterpillars are very common; feed on many broadleaf trees, such as white oak, serviceberry, alders, chinquapin, and willows, during spring. Adults are nocturnal; fly between late spring and early summer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
LASIOCAMPIDAE

TOLYPE DISTINCTA

CATERPILLAR  Dark gray and bronze brown; soft, fuzzy, silver white hairs; transverse black line with orange spots across the intersegmental area between A1 and A2.

ADULT  Wingspan 3.3 centimeters. Forewings pale gray with dark gray bands and white veins.

ECOLOGY  The caterpillar in this photo was reared during the spring from eggs collected from a female attracted to a blacklight in October. Caterpillars are uncommon; feed on Pinaceae during spring. Adults are nocturnal; fly in late summer and fall. Found in wet and dry coniferous forests; widely distributed in western North America.
**Lymantriidae**

*Dasychira grisefacta*

**Caterpillar** Dense covering of white, gray, and black hairs of varying lengths, including thick tufts of gray hairs on A1 through A4; a pair of long tufts of black hairs project laterally anterior from A1 and laterally posterior from A8; also a single tuft of long black hairs projects dorsally posterior from A8; clusters of short white clubbed hairs occur dorsally and laterally; bright red glands middorsal on A6 and A7; a row of single long, black, clubbed hairs point laterally.

**Adult** Wingspan 4.2 centimeters. Forewings light gray to black with a small white subanal spot in the postmedian area.

**Ecology** We have reared field-collected larvae that resulted in the emergence of wingless females. Caterpillars are uncommon; feed on Pinaceae, particularly Douglas-fir and grand fir, during April and May. Adults are nocturnal; fly from mid- to late summer. Found in coniferous forests; widely distributed in western North America.
**Lymantriidae**

**Variable Tussock Moth - Dasychira vagans**

**Caterpillar** Dense covering of white, gray, and black hairs of varying lengths, including thick tufts of gray hairs on A1 through A4; a pair of long tufts of black hairs project laterally anterior from A1 and laterally posterior from A8; also a single tuft of long black hairs projects dorsally posterior from A8; clusters of short white clubbed hairs occur dorsally and laterally; red middorsal glands on A6 and A7; a row of paired long, black, clubbed hairs point laterally.

**Adult** Wingspan 4.5 centimeters. Forewings gray with pale mottling, no white subanal spot.

**Ecology** Caterpillars are common on many species of broadleaf trees, particularly white oak, during May and June. Adults are nocturnal; fly from early to late summer. Found in oak woodlands and low elevation forests; widely distributed in western North America.
LYMANTRIIDAE

LEUCOMA SALICIS - SATIN MOTH

**CATERPILLAR** Creamy yellow highlighted with black; midline of dorsum with irregular yellow circles; subdorsally a broken stripe of yellow bordered in black; laterally and ventrally light creamy color speckled with irregular black markings; base of hair tufts red-orange; dorsal hairs red-orange; lateral and ventral hairs mostly white.

**ADULT** Wingspan 5.2 centimeters. Wings with a silk white, satin sheen, and light yellow costal and basal areas. Leg hairs colored in black and white rings.

**ECOLOGY** This is an accidentally introduced species and on occasion is considered a pest on quaking aspen in Oregon’s central Cascade Mountains. Caterpillars are common on willow and quaking aspen during late spring. Adults are nocturnal; fly in midsummer. Found in urban areas, riparian habitats, and montane forests; widely distributed in North America.
**LYMANTRIIDAE**

**GYPSY MOTH - LYMANTRIA DISPAR**

**CATERPILLAR** Long tan hairs rise from subdorsal tufts; T1 through A2 with a pair of dorsal blue warts; A3 through A7 with a pair of dorsal red warts. Head with two wide, black, oblique lines and mottled with black spots.

**ADULT** Male (see photo): Wings brown with prominent zigzag black lines on the forewings; each forewing has a single discal spot. Female: Wings white with prominent zigzag black lines on the forewings; each forewing has a single discal spot.

**ECOLOGY** Introduced from Europe, the gypsy moth is now widely distributed in North America. This species is a notorious pest, which is why we have illustrated it here. Although it is not established in the Pacific Northwest, it is a chronic pest problem in the region. Caterpillars feed on numerous broadleaf trees, particularly oaks, as well as some conifers, including Douglas-fir and Colorado blue spruce, likely to occur during May and June. Adults are diurnal; females possess wings but are flightless, males fly in midsummer. Historically, the gypsy moth in the Pacific Northwest has been found in metropolitan and rural areas, including orchards and surrounding low elevation oak woodlands and conifer forests.
Lymantriidae

Orgyia antiqua - Rusty Tussock Moth

Caterpillar  Densely covered with light yellow hairs originating from a pale red base; middorsal tufts of off-white hairs on A1 through A4; tufts of long black hairs project forward and laterally from A1; a single tuft of long black hairs projects dorsally and posterior from A8; pale red middorsal glands on A6 and A8.

Adult  Females are wingless; the male wingspan is 3.0 centimeters. Forewings red-brown with a large white subanal spot in the postmedian area. Hindwings red-orange to orange-brown.

Ecology  Caterpillars are very common on many broadleaf trees and shrubs, such as willow, white oak, and black cottonwood, during June and July. Adults are nocturnal, males fly from late summer to fall. Found in low elevation woodlands and forests; widely distributed in North America.
**Lymantriidae**

**Douglas-fir Tussock Moth - *Orgyia pseudotsugata***

**Caterpillar** Densely covered with white hairs that originate from a red base; middorsal tufts of golden-tipped white hairs on A1 through A4 and A8; tufts of long black hairs project laterally and anterior from A1; a single tuft of long black hairs project dorsally and posterior from A8; bright red middorsal glands on A6 and A7.

**Adult** Females are wingless. The male wingspan is 3.3 centimeters. Forewings gray to black with a small subanal spot. Hindwings dark red-brown.

**Ecology** This species is known as the Douglas-fir tussock moth and is considered a forest pest causing severe defoliation of certain conifer species. Caterpillars are very common; feed on Pinaceae during late spring. Adults are diurnal, males fly from late summer to fall. Found in coniferous forests; widely distributed in western North America.
Noctuidae

Abagrotis duanca

**Caterpillar**  Gray, brown, and black with subdorsal patches of orange; white scalloped spiracular band (mostly on A4 through A6) with brown markings within the band.

**Adult**  Wingspan 2.4 centimeters. Forewings dark gray-black with a pale gray postmedian border, and small reniform and orbicular spots that are obscure or outlined in white.

**Ecology**  Caterpillars are common; feed on big sagebrush during spring. Adults are nocturnal; fly from mid- to late summer. Found in dry juniper woodlands and sagebrush rangelands; widely distributed in western North America.
**ABAGROTIS GLENNI**

**CATERPILLAR** Variable shades of green to pink-brown, later instars mostly pink-brown; white dashed line below black shading along dorsum of T1 through A10 and laterally on T1 through T3.

**ADULT** Wingspan 3.4 centimeters. Forewings pale gray-brown with a large white reniform spot and black basal and discal streaks.

**ECOLOGY** Caterpillars are uncommon; feed on western juniper during early summer. Adults are nocturnal; fly in late summer. Found in juniper woodlands; widely distributed in western North America.
**Noctuidae**

*Achytonix epipaschiae*

**Caterpillar**  Green, middorsal, subdorsal, and subspiracular white longitudinal bands extend from T1 through A10. Head green.

**Adult**  Wingspan 3.4 centimeters. Forewings dark gray to black with gray to red-brown discal spots and the reniform spot at the end of the discal cell slightly curved.

**Ecology**  Caterpillars are uncommon; feed on various conifers, including Douglas-fir, during early summer. Adults are nocturnal; fly in late summer. Found in moist conifer forests; widely distributed in western North America.
ACRONICTA CYANESCENS

CATERPILLAR  Extremely long and dense white hairs obscure the green body.

ADULT  Wingspan 4.7 centimeters. Forewings gray with black basal and subanal streaks.

ECOLOGY  Only one individual caterpillar of this species has been field-collected during the fifteen years of our projects. Caterpillars are rare; feed on snowbrush during late spring. Adults are nocturnal; fly in midsummer. Found in dry forests of western North America.
Noctuidae

Acronicta funeralis

Caterpillar Early instars brown with white markings; fourth instar black with middorsal light yellow markings triangular to elliptical with transverse black streaks in the center and black sparse long hairs with flattened tips.

Adult Wingspan 3.4 centimeters. Forewings pale gray with an irregular black band across the inner wing margin.

Ecology Caterpillars are uncommon; feed on broadleaf plants, such as blueberry, hazel, and white oak, during early summer. Adults are nocturnal; fly from late spring to early summer. Found in low elevation forests west of the Cascade Mountains; widely distributed in western North America.
GRAY DAGGER MOTH - ACRONICTA GRIGEA

CATERPILLAR  Green, dorsal brown patch wider on T1 and A4 through A8; outside edge of dorsal brown patches counter-shaded with yellow. Head brown with two conical points.

ADULT  Wingspan 4.0 centimeters. Forewings dark gray with black basal and anal margin dashes, postmedian band with a sharply dentate margin. Hindwings white.

ECOLOGY  Caterpillars are common; feed on red alder during late summer. Adults are nocturnal; fly in midsummer. Found in moist forests; widely distributed in western North America.
Noctuidae

Acronicta hesperida

Caterpillar Covered with tufts of dense orange hairs on dorsum and white hairs laterally; anterior and posterior a few longer white and black “wild” hairs stick out beyond the tufts of shorter hairs.

Adult Wingspan 5.3 centimeters. Forewings pale gray with reniform and orbicular discal spots strongly outlined.

Ecology Caterpillars are uncommon; feed on red alder and mountain alder during late summer. Adults are nocturnal; fly in midsummer. Found in moist forests; widely distributed in western North America.
CATERPILLAR  Two prominent tufts of hairs on thorax, partially encircled with white hair tufts; two gray hair pencils on dorsum of A8.

ADULT  Wingspan 4.8 centimeters. Forewings dark black-gray with the postmedian band outlined as small white spots.

ECOLOGY  Caterpillars are uncommon; feed on red alder during spring. Adults are nocturnal; fly in early summer. Found in coastal rainforests; widely distributed in western North America.
ACRONICTA IMPRESSA - IMPRESSED DAGGER MOTH

**CATERPILLAR** The brown-black color of the body provides a strong contrast to the clusters of white hairs that originate from reddish orange spots.

**ADULT** Wingspan 3.8 centimeters. Forewings dark, mottled with gray, discal spots outlined and filled with darker gray. Hindwings gray.

**ECOLOGY** Caterpillars are common; feed on wild roses and bitterbrush during midsummer. Adults are nocturnal; fly in early summer. Found in many forest habitats; widely distributed in western North America.
**ACRONICTA MARMORATA**

**CATERPILLAR**  Yellow and brown; dark brown middorsal line. Head dark brown.

**ADULT**  Wingspan 4.3 centimeters. Forewings mottled black, gray, and white with black basal and subanal dashes.

**ECOLOGY**  Caterpillars are very common; feed on oak during midsummer. Adults are nocturnal; fly from spring to early summer. Found in oak woodlands; widely distributed in Pacific western states.
**Noctuidae**

*Acronicta perdita*

**Caterpillar** A broad white spiracular band constricts at each spiracle from T1 through A8; clusters of off-white and black hairs originate from pale orange-yellow spots on a brown-black body.

**Adult** Wingspan 4.4 centimeters. Forewings gray and heavily suffused with black. Hindwings white in male (shown here) and gray in female.

**Ecology** Caterpillars are common; feed on bitterbrush during midsummer. Adults are nocturnal; fly from late spring to early summer. Found in dry forests including oak and juniper woodlands; widely distributed in western North America.
CATERPILLAR  Yellow-orange with irregular black markings on a white body; relatively long primary setae; dorsum of A9 with a brighter yellow streak.  Head yellow with black spots.

ADULT  Wingspan 3.0 centimeters.  Forewings black; each forewing has two round, cream-yellow spots.  Hindwings also with one or two round cream-yellow spots.

ECOLOGY  Caterpillars are common; feed on fireweed during midsummer.  Adults are diurnal; fly from late spring to midsummer.  Found in open habitats associated with montane forests; widely distributed in western North America.
Noctuidae

Amphipyra pyramidoides - Copper Underwing

Caterpillar  Light green with sparse white spots; black spiracles; white spiracular line with shades of yellow; A8 with large dorsal hump.

Adult  Wingspan 5.1 centimeters. Forewings light brown to black-brown with a pale submarginal border and the discal spots greatly reduced. Hindwings orange to red-copper.

Ecology  Caterpillars are common; feed on many broadleaf trees and shrubs, particularly big-leaf maple and manzanita, during spring. Adults are nocturnal; fly from late summer to fall. Found in wet conifer forests in western regions of California to British Columbia.
**ANDROPOLIA AEDON**

**CATERPILLAR** Light brown and a shade of light green, with a black scalloped sublateral line; A8 with a transverse black line; venter light gray.

**ADULT** Wingspan 4.6 centimeters. Forewings gray with distinct discal spots outlined in black, including a jagged, dentate black submarginal line.

**ECOLOGY** Caterpillars are common; feed on alder, maple, ocean spray, and ninebark during spring. Adults are nocturnal; fly from mid- to late summer. Found in wet conifer forests in the Pacific West.
**Noctuidae**

*Andropolia diversilineata*

**Caterpillar**  Gray-brown with a black scalloped sublateral line; thoracic and abdominal segments with a subdorsal black patch; A8 with a transverse black line; venter gray-brown.

**Adult**  Wingspan 4.4 centimeters. Forewings gray with very obscure markings except for a jagged, dentate black submarginal line. Males have pectinate antennae.

**Ecology**  Caterpillars are common; feed on bitterbrush during early summer. Adults are nocturnal; fly in late summer. Found in pine forests and juniper woodlands; widely distributed in western North America.
**Andropolia theodori**

**Caterpillar** Dark brown with a black scalloped sublateral line; A8 with a transverse black line; venter pink-white.

**Adult** Wingspan 5.2 centimeters. Forewings gray with shades of red and a black, sharply dentate submarginal line. Hindwings faint red-tan; each hindwing has a dark medial line and discal spot.

**Ecology** Caterpillars are common; feed on snowbrush and ocean spray during spring. Adults are nocturnal; fly from mid- to late summer. Found in dry forests and woodlands in western North America.
Noctuidae

Aspektis binotata

**Caterpillar**  Dark green dorsum and light green venter with off-white speckles; white spiracular band, dorsal edge with a red line; faint discontinuous off-white subdorsal line. Head green.

**Adult**  Wingspan 3.4 centimeters. Forewings dark brown; each forewing has a round yellow mark on the outer margin of the reniform spot.

**Ecology**  This species possesses the broadest foodplant range among the Pacific Northwest Lepidoptera. Caterpillars are very common, generalist feeders on numerous flowering trees and shrubs, such as maple, alder, madrone, hazelnut, Indian plum, ocean spray, currant, willow, and snowberry, during spring. Adults are nocturnal; fly in midsummer. Found in moist forests; widely distributed in western North America.
ASEPTIS ETHNICA

CATERPILLAR  Body and head mottled in shades of green; a yellow-white spiracular band extends from A7 to anal prolegs. Head green.

ADULT  Wingspan 3.9 centimeters. Forewings dark brown to black with the only noticeable markings the white flecks along the postmedian line.

ECOLOGY  Caterpillars are common; feed on manzanita and madrone during spring. Adults are nocturnal; fly in midsummer. Found in dry forests and woodlands in western Oregon and California.
**Noctuidae**

**Aseptis fumosa**

**Caterpillar** Dark green dorsum and light green venter; white spiracular line, dorsal edge with a red line; faint discontinuous yellow longitudinal line and oblique subdorsal lines. Head green.

**Adult** Wingspan 3.8 centimeters. Forewings brown with the reniform and orbicular spots distinctly outlined in dark brown.

**Ecology** Caterpillars are common; feed on bitterbrush and species of *Ceanothus* during spring. Adults are nocturnal; fly in midsummer. Found in dry forests in the Pacific Northwest.
**CATERPILLAR**  Two pair of midabdominal prolegs, a trait indicative of the Plusiinae. Green; distinct white spiracular line and faint discontinuous longitudinal dorsal white lines.

**ADULT**  Wingspan 4.2 centimeters. Forewings mottled gray with a large white comma-shaped stigma. Hindwings yellow with a broad black submarginal border.

**ECOLOGY**  This species is an economic pest in vegetable crops and also occurs on native plants in forests and woodlands. Caterpillars are common; feed on numerous herbaceous plants from early spring to midsummer. Adults are nocturnal; fly from spring to fall. Found in agricultural and urban areas, and open habitats associated with lowland and montane forests; widely distributed in western North America.
Catocala aholibah - Aholibah Underwing

**Caterpillar**
Gray-tan with a subtle rosy pink hue and covered with minute black speckles; small tubercles middorsum on A5 and A8; ventral row of short whisker-like hairs; true legs pink-red. Head is cream colored with reticulated lines.

**Adult**
Wingspan 7.9 centimeters. Forewings mottled black, gray, and red-brown with jagged black lines. Hindwings rosy red with a black median band narrowly constricted in the center and broad black submarginal borders.

**Ecology**
Caterpillars are common; feed on white oak during spring. Adults are nocturnal; fly in late summer. Found in oak woodlands; widely distributed in western North America.
**CATERPILLAR** Gray and tan with finely reticulated markings; A5 and A8 with small warts tipped in orange; subdorsal orange spots in a line; intersegmental area between A5 and A6 with an orange and black patch; ventral row of short whisker-like hairs. Top of head with two orange spots; a black arc extends from the base of the mandibles over the top of the head.

**ADULT** Wingspan 6.8 centimeters. Forewings gray-black, often with white markings, and a jagged postmedial line. Hindwings red with black submarginal borders and black median bands that are not narrowly constricted.

**ECOLOGY** Caterpillars are uncommon; feed on willow during late spring. Adults are nocturnal; fly in late summer. Found in wet forest and riparian habitats; widely distributed in northern North America, southernmost portion of its distribution extending into the northern Rocky Mountains and the Pacific Northwest.
**Noctuidae**

*Catocala ilia* - Ilia Underwing

**Caterpillar**  Mottled with green and black.

**Adult**  Wingspan 7.9 centimeters. Forewings mottled black and gray with jagged black lines. Hindwings orange, the black median band and submarginal border with wavy undulations.

**Ecology**  Cryptic coloration and pattern match the lichens on oak branches. Caterpillars are uncommon; feed on white oak during late spring. Adults are nocturnal; fly in late summer. Found in oak woodlands ranging from California to the Pacific Northwest.
**CATERPILLAR** Uniformly gray white with a pale pink hue; middorsum of A5 and A8 with tubercles; ventral row of short whisker-like hairs. Head same color as body but with reticulated lines.

**ADULT** Wingspan 4.6 centimeters. Forewings pale gray with jagged black lines. Hindwings orange-red with the black median band constricted in the center and a broad black submarginal border with red marginal patches.

**ECOLOGY** Caterpillars are common; feed on oak during spring. Adults are nocturnal; fly in late summer. Found in oak woodlands in the Pacific western states.
**Noctuidae**

*Ciussa indiscreta*

**Caterpillar** Mottled with silver, gray, and black; subdorsal and lateral longitudinal lines scalloped and nearly entire.

**Adult** Wingspan 4.0 centimeters. Forewings light to dark brown with fine wavy lines and a black discal bar.

**Ecology** Caterpillars are common; feed on oak during spring. Adults are nocturnal; fly in early spring. Found in dry oak woodlands from southern California to western Oregon and Washington.
**Cosmia calami**

**Caterpillar**  Green with extensive faint white markings; single white middorsal stripe. Head pale green.

**Adult**  Wingspan 3.2 centimeters. Forewings pale yellow to light brown with small discal spots, basal line strongly transverse and nearly touching the postmedian line along the inner margin. Hindwings white.

**Ecology**  Caterpillars are very common; feed on oak during late spring. Adults are nocturnal; fly in midsummer. Found in oak woodlands in the Pacific western states.
**Noctuidae**

*Cucullia pulla*

**Caterpillar**  Green with six prominent longitudinal white lines; the lateral line with a yellow dot just below and posterior to the spiracle.

**Adult**  Wingspan 4.2 centimeters. Forewings elongate and sharply pointed, black with fine gray streaks and jagged lines. Hindwings black.

**Ecology**  This species was previously placed in the genus *Lathosea*. Caterpillars are uncommon; feed on rabbitbrush during late spring. Adults are nocturnal; fly in early spring. Found in dry juniper woodlands and sagebrush rangelands; widely distributed in western North America.
CATERPILLAR  Color highly variable, mottled silver, gray, and black to bi-colored with rosy pink-red; dorsum darker than venter separated at the lateral line. Head red.

ADULT  Wingspan 4.0 centimeters. Forewings gray with a small orbicular spot and a broken line of black postmedian dashes.

ECOLOGY  Caterpillars are common; feed on numerous trees and shrubs, including alder, snowbrush, bitterbrush, and oak, during spring. Adults are nocturnal; fly in spring. Found in moist forests; widely distributed in western North America.
Noctuidae

Egira curialis

**Caterpillar**  Mottled with silver, gray, and black; lateral longitudinal band white with mottled markings between faint black borders. Head mottled tan, brown, and black.

**Adult**  Wingspan 4.0 centimeters. Forewings dark gray with obscure markings. Hindwings mostly white.

**Ecology**  Caterpillars are common; feed on bitter cherry and hackberry during spring. Adults are nocturnal; fly in spring. Found in dry forests; widely distributed in western North America.
**EGIRA FEBRUALIS**

CATERPILLAR  White with blue-gray shading; subdorsal yellow streaks; black spots; black spiracles. Head mottled tan and black with a dorsal black triangular patch.

ADULT  Wingspan 3.7 centimeters. Forewings mottled black and white. Hindwings pale cream.

ECOLOGY  Caterpillars are uncommon; feed on oak during late spring. Adults are nocturnal; fly in early spring. Found in dry forests in the Pacific western states.
**Noctuidae**

*Egira perlubens*

**Caterpillar**  Color highly variable, mottled silver, gray, and black to bi-colored with rosy tan-brown; dorsum faintly darker than venter. Head mottled tan and black.

**Adult**  Wingspan 4.0 centimeters. Forewings dark gray-black with a red subapical patch and a white or pale gray orbicular spot. Hindwings white.

**Ecology**  Caterpillars are common; feed on many broadleaf trees, such as manzanita, snowbrush, bitterbrush and ocean spray, during spring. Adults are nocturnal; fly in spring. Found in dry forests; widely distributed in western North America.
CATERPILLAR  Green with subdorsal and lateral white longitudinal lines; the lateral line broken with dashes of red along the upper border; white dashes sublaterally on T1 through A8. Head green.

ADULT  Wingspan 4.0 centimeters. Forewings dark green with black and white markings. Hindwings solid black.

ECOLOGY  Caterpillars are uncommon; feed on Douglas-fir during late spring. Adults are nocturnal; fly in early spring. Found in wet coastal forests in the Pacific western states.
**Noctuidae**

*Feralia februalis*

**Caterpillar** Light green with sparse white spots; tan spiracles; white spiracular line with red dorsal edge which is more obvious on T1; A8 with large dorsal hump; true legs red.

**Adult** Wingspan 3.4 centimeters. Forewings pale green with large discal spots. Hindwings white.

**Ecology** Caterpillars are uncommon; feed on white oak, during spring. Adults are nocturnal; fly from late winter to early spring. Found in dry forests and oak woodlands in the Pacific western states.
CATERPILLAR  Green to rosy brown; dorsum dark green with a faint white subdorsal longitudinal line; a thin off-white spiracular line; venter light green.

ADULT  Wingspan 4.3 centimeters. Forewings elongate, dark gray; each forewing has a red median patch and the submarginal line strongly dentate. Hindwings mostly white in males, gray in females.

ECOLOGY  Caterpillars are common; feed on many broadleaf trees and shrubs, such as manzanita, snowbrush, cherry, bitterbrush, and elderberry, during late spring. Adults are nocturnal; fly in fall. Found in dry forests; widely distributed in western North America.
**Hypena californica**

**Caterpillar**  Dark green with longitudinal subdorsal white line.

**Adult**  Wingspan 3.4 centimeters. Forewings narrow and highly variable in color, mottled yellow and brown or solid red-brown with small black discal spots. Labial palps long.

**Ecology**  Caterpillars are common; feed on nettles during late spring. Adults are nocturnal; fly from early spring to fall. Found in wet forests from California to British Columbia.
LACANOBIA LILACINA

CATERPILLAR  Yellow-green with a prominent subdorsal yellow longitudinal line; gray-green lateral longitudinal line; venter yellow. Head mostly yellow with two gray-green lines.

ADULT  Wingspan 3.5 centimeters. Forewings pale violet-brown with obscure markings or with black spots and pale streaks.

ECOLOGY  Caterpillars are common; feed on red alder during spring. Adults are nocturnal; fly in midsummer. Found in riparian habitats and wet forests; widely distributed in western North America.
**Noctuidae**

*Lithomoia germana*

**Caterpillar** Dark brown; white lateral band. Head tan with two black oblique bands.

**Adult** Wingspan 5.0 centimeters. Forewings pale gray with gray streaks; each forewing has a large white reniform spot. Hindwings light to dark gray.

**Ecology** Caterpillars are common; feed on blueberries during spring. Adults are nocturnal; fly in fall. Found in wet forests and bogs across the northern regions of North America, extending south into the northern Rocky Mountains and the Pacific Northwest.
**CATERPILLAR** Light green with a frosty white hue; lateral line off-white; faint dorsal and subdorsal white line. Head with white spots.

**ADULT** Wingspan 4.0 centimeters. Forewings pale gray; each forewing has an orange subapical patch and red-brown submarginal spots. Hindwings pale brown.

**ECOLOGY** Caterpillars are common; feed on willow during spring. Adults are nocturnal; fly in fall and early spring. Found in wet forests and bogs across the northern regions of North America, extending south into the northern Rocky Mountains and the Pacific Northwest.
**Noctuidae**

*Lithophane atara*

**Caterpillar** Green with a velvet appearance; sublateral yellow longitudinal band. Head green.

**Adult** Wingspan 4.6 centimeters. Forewings dark gray-black with well defined streaks. Hindwings pink with a dark submarginal band and discal spot.

**Ecology** Caterpillars are common; feed on conifers, such as ponderosa pine, during late spring. Adults are nocturnal; fly in fall and early spring. Found in coniferous forests; widely distributed in western North America.
**LITHOPHANE CONTENTA**

**CATERPILLAR** Dark green with white mottled spots; spiracular band white to yellow, with an uneven bottom edge, and pink patches around the spiracles in later instars. Head green; labrum and area around stemmata white.

**ADULT** Wingspan 4.1 centimeters. Forewings gray with obscure discal spots. Hindwings pale gray.

**ECOLOGY** Caterpillars are common; feed on oak during spring. Adults are nocturnal; fly in fall and early spring. Found in oak woodlands in Pacific western states.
**Noctuidae**

*Lithophane georgii*

**Caterpillar**  Green; lateral line white to yellow with parallel edges.

**Adult**  Wingspan 4.8 centimeters. Forewings pale gray with a submarginal line of small black spots. Hindwings dark gray.

**Ecology**  Caterpillars are common; feed on many broadleaf trees and shrubs, such as spiraea, hawthorn, maple, oak, red alder and ocean spray, during spring. Adults are nocturnal; fly in fall and early spring. Found in a wide variety of habitats; widely distributed in western North America.
**LITHOPHANE INNOMINATA**

**CATERPILLAR** Mottled yellow, gray, and light green. Head tan with two darker gray-green patches dorsally.

**ADULT** Wingspan 3.8 centimeters. Forewings yellow to light brown with black medial and submarginal spots. Hindwings black.

**ECOLOGY** Caterpillars are common; feed on many broadleaf trees, such as red alder, hawthorn, ocean spray, and willow, during spring. Adults are nocturnal; fly in fall and early spring. Found in woodlands and wet forests; widely distributed in North America.
**Noctuidae**

*Lithophane longior*

**Caterpillar**  Irregularly shaped white spots forming a discontinuous dorsal and subdorsal band; laterally white spots behind the spiracles with patches of light green above; white circles at the base of each true leg and midabdominal prolegs.

**Adult**  Wingspan 4.2 centimeters. Forewings pale gray with obscure markings and a dark median band. Hindwings light to dark gray.

**Ecology**  Caterpillars are uncommon; feed on western juniper during late spring and early summer. Adults are nocturnal; fly in fall and early spring. Found in juniper woodlands; widely distributed in western North America.
LITHOPHANE THAXTERI

CATERPILLAR  Green with a thin subdorsal yellow longitudinal line; yellow speckles. Head green.

ADULT  Wingspan 4.2 centimeters. Forewings gray with black basal and medial dashes and a jagged black submarginal line. Hindwings dark pink-gray.

ECOLOGY  Caterpillars are uncommon; feed on spiraea during spring. Adults are nocturnal; fly in fall and early spring. Found in wet forests and bogs across northern regions of North America, extending south into the northern Rocky Mountains and the Pacific Northwest.
**Noctuidae**

*Litocala sexsignata*

**Caterpillar**  Brown with subdorsal scalloped dashes; a fluffy fringe of hairs along the sublateral area.

**Adult**  Wingspan 3.3 centimeters. Forewings gray-black with white medial and subapical spots. Hindwings black; each hindwing has three white spots, thereby providing the basis for the specific epithet “sexsignata,” meaning six-spotted.

**Ecology**  Caterpillars are common; feed on oak and chinquapin during spring. Adults are diurnal; fly in spring. Found in oak woodlands from the Southwestern states to Washington.
MESOGONA RUBRA

**CATERPILLAR**  Mottled gray, silver, black, and pink to dark brown; a distinct dark brown prothoracic shield. Head brown.

**ADULT**  Wingspan 4.2 centimeters. Forewings red, pink-gray, or pale pink, with obscure discal spots. Hindwings red.

**ECOLOGY**  Caterpillars are common; feed on manzanita during spring. Adults are nocturnal; fly in fall. Found in dry forests in the Pacific western states.
**Noctuidae**

*Nola minna*

**Caterpillar**  Mottled pink-white, gray, and green-brown; clusters of hairs originate from raised areas.

**Adult**  Wingspan 2.3 centimeters. Forewings elongate, pale gray; each forewing has a black basal spot and a narrow black postbasal line.

**Ecology**  Caterpillars are common; feed on *Ceanothus* during late spring. Adults are nocturnal; fly in early spring. Found in wet forests in the Pacific western states.
OLIGIA ILLOCATA

**CATERPILLAR** Orange-tan to green-gray with dorsum darker than the venter; lateral line off-white.

**ADULT** Wingspan 4.0 centimeters. Forewings mottled red-brown; each forewing has a large white reniform spot and a black medial bar.

**ECOLOGY** Caterpillars are common; feed on red alder, rhododendron, and red blueberry during spring. Adults are nocturnal; fly in late summer and fall. Found in wet forests across northern regions of North America, extending south into the northern Rocky Mountains and the Pacific Northwest.
**Noctuidae**

**Oncocnemis chalybdis**

**Caterpillar** Golden brown with faint off-white wavy longitudinal lines; middorsum of T1 with white streak bordered by dark brown; A8 and A9 swollen dorsally.

**Adult** Wingspan 3.4 centimeters. Forewings pale gray; each forewing has a black median band and irregular black submarginal band. Hindwings white with broad black submarginal borders.

**Ecology** We previously believed this species to be the closely related species *Oncocnemis piffardi* of northeastern North America. The abdomen for the moth shown here is missing because it was used for dissection of genitalia to provide confirmation of the species identity. Caterpillars are uncommon; feed on spiraea during late spring. Adults are nocturnal; fly in late summer. Found in moist montane forests and bogs of the Pacific Northwest.
CATERPILLAR  Gray to light brown; longitudinal lines discontinuous and with irregular edges; dorsum of A8 swollen.

ADULT  Wingspan 3.8 centimeters. Forewings light to dark gray with small discal spots and thin black basal and postmedial lines. Hindwings white with gray submarginal borders.

ECOLOGY  We previously believed this specimen to be Oncocnemis columbia but Jim Troubridge suggests it is an undescribed species. Caterpillars are common; feed on ocean spray during late spring and early summer. Adults are nocturnal; fly in late summer. Found in dry forests ranging from northern California to Washington.
**Noctuidae**

*Oncocnemis Dunbari*

**Caterpillar**  Light green with faint discontinuous white markings along longitudinal lines; intersegmental area pale yellow. Top of head with lateral red dash.

**Adult**  Wingspan 3.4 centimeters. Forewings mottled gray with large round discal spots. Hindwings white with gray submarginal borders.

**Ecology**  Moths of this species are not attracted to UV blacklight. Caterpillars are common; feed on ocean spray during late spring and early summer. Adults are nocturnal; fly in late summer and fall. Found in wet coastal forests west of the Cascade Mountains.
**CATERPILLAR** Light green with small white spots; white dorsal, subdorsal, and spiracular longitudinal lines. Head green.

**ADULT** Wingspan 3.8 centimeters. Forewings with a varying mix of colors of pale lavender, purple-gray, and dark red-brown with large round discal spots. Hindwings gray.

**ECOLOGY** This species is an occasional pest in orchards. Caterpillars are very common; feed on many broadleaf trees and shrubs, such as maple, cherry, oak, and willow. Adults are nocturnal; fly in early spring. Found in orchards, woodlands, and forests; widely distributed in western North America.
Orthosia mys

CATERPILLAR  Brick red with dark brown shading; faint transition demarcation between a darker dorsum and a lighter venter on A7 through A10. Head black.

ADULT  Wingspan 3.5 centimeters. Forewings falcate, pale to dark red with few markings. Hindwings pink-white. Males with pectinate antennae.

ECOLOGY  Caterpillars are common; feed on manzanita during spring. Adults are nocturnal; fly in fall. Found in dry forests in the Pacific western states.
ORTHOSSIA PACIFICA

**CATERPILLAR** Green with many small white spots; broad transverse white streak on A8; white spiracular line thicker at posterior; small black spots mark the primary setae.

**ADULT** Wingspan 3.9 centimeters. Forewings mottled yellow-brown with a narrow dark reniform spot. Hindwings pale brown.

**ECOLOGY** Caterpillars are common; feed on white oak, madrone, and snowbrush during late spring. Adults are nocturnal; fly in early spring. Found in dry forests in the Pacific western states.
ORTHOSIA PULCHELLA

**CATERPILLAR**  Mottled cream, pink, and tan, otherwise nearly immaculate; black prothoracic shield. Head dark reddish brown.

**ADULT**  Wingspan 3.6 centimeters. Forewings falcate and highly variable in color and pattern, gray, red, or brown, often with a black median band. Hindwings dark gray. Male antennae are strongly pectinate.

**ECOLOGY**  Caterpillars are common; feed on manzanita during late spring. Adults are nocturnal; fly in early spring. Found in dry forests; widely distributed in western North America.
**ORTHOSSIA TRANSPARENS**

**CATERPILLAR**  Golden-yellow and green-brown, middorsum lighter than subdorsum. Head orange-brown.

**ADULT**  Wingspan 3.7 centimeters. Forewings falcate, light red to dark red-brown with a black reniform spot. Hindwings dark gray to black. Males with filiform antennae.

**ECOLOGY**  Caterpillars are common; feed on madrone and rhododendron during spring. Adults are nocturnal; fly in early spring. Found in dry forests in the Pacific western states.
PANTHEA PORTLANDIA

**CATERPILLAR** Black with red spots and light brown hairs. Head black.

**ADULT** Wingspan 5.0 centimeters. Forewings white to dark black-gray with jagged, dentate black lines. Hindwings white with a dark submarginal band or pure gray. Males with pectinate antennae.

**ECOLOGY** Caterpillars are common; feed on conifers, such as Douglas-fir, during spring. Adults are nocturnal; fly in summer. Found in coniferous forests; widely distributed in western North America.
PERIGONICA ANGULATA

**CATERPILLAR** Body color may be a mixture of shades from green to yellow; faint off-white to yellow longitudinal lines, barely apparent at the subdorsal and lateral position; a few small black spots mark the primary setae.

**ADULT** Wingspan 3.6 centimeters. Forewings strongly falcate, pale yellow to red with faint markings. Hindwings white. Males with filiform antennae.

**ECOLOGY** Caterpillars are common; feed on live oak, tan oak, and chinquapin during late spring. Adults are nocturnal; fly in spring. Found in dry forests in the Pacific western states.
PERIGONICA PECTINATA

**CATERPILLAR** Green with faint white longitudinal lines and black pinaculae.

**ADULT** Wingspan 3.5 centimeters. Forewings slightly falcate, variable pale yellow, pink, orange or gray, often with a black reniform spot. Hindwings black. Males with pectinate antennae.

**ECOLOGY** Caterpillars are common; feed on chinquapin and canyon live oak during late spring. Adults are nocturnal; fly in early spring. Found in dry forests in the Pacific western states.
**PHLOGOPHORA PERICULOSA**

**CATERPILLAR** Color varies from a bright green to tan-brown; middorsal dashed white line with subdorsal white spots.

**ADULT** Wingspan 4.5 centimeters. Forewings pale pink-orange with a darker red-brown median band and the discal spots joined together.

**ECOLOGY** Caterpillars are common; feed on sword fern and many broadleaf trees shrubs, such as red alder, and willow, during early spring. Adults are nocturnal; fly in midsummer. Found in wet coastal forests.
Noctuidae

*Platyptilia contadina*

**Caterpillar**  Green with a subtle tone of yellow and mottled with white; subdorsal longitudinal line dotted white and faint; lateral longitudinal line white. Head pale green.

**Adult**  Wingspan 4.0 centimeters. Forewings black with large discal spots and other markings strongly outlined in white; submarginal line strongly dentate. Hindwings black; populations in wet coastal forests have a white postmedian band, but populations from the high Cascade Mountains east to the Rocky Mountains have a black postmedian band.

**Ecology**  Caterpillars are uncommon; feed on the foliage of flowering trees and shrubs, particularly huckleberry, during spring. Adults are nocturnal; fly in fall. Found in wet conifer forests; widely distributed in western North America.
**PLEROMELLOIDA CINEREA**

**CATERPILLAR**  Dark brown with parallel wavy white and brown lines laterally on A2 through A6; dorsum with middorsal white line most distinct on A7 and A8; A7 and A8 swollen.

**ADULT**  Wingspan 3.3 centimeters. Forewings with pale gray streaks and a thin black postmedian line and submarginal spots.

**ECOLOGY**  Caterpillars are common; feed on snowberry during spring. Adults are nocturnal; fly in fall. Found in woodlands, and wet and dry forests; widely distributed in western North America.
Noctuidae

Pseudorthodes irrata

CATERPILLAR  Light brown and tan coloration slightly darker above the spiracles; dorsum of A1 through A8 with white streaks. Colors are variable during development and among individuals. Therefore, noctuids with this appearance should be reared for reliable identification of the species.

ADULT  Wingspan 3.0 centimeters. Forewings red-brown; each forewing has a small white or gray reniform spot and a thin black submarginal line. Hindwings black.

ECOLOGY  Caterpillars are common; feed on hazel and red alder during spring. Adults are nocturnal; fly from spring to late summer. Found in wet forests in Pacific western states.
**CATERPILLAR**  Green with white lateral line.

**ADULT**  Wingspan 4.7 centimeters. Forewings strongly falcate, scalloped, gray to pale brown with a red-orange median band and white postmedian line.

**ECOLOGY**  Caterpillars are common; feed on willow and black cottonwood during spring. Adults are nocturnal; fly throughout the year, hibernating in winter. Found in woodlands, riparian habitats, and wet and dry forests; widely distributed in western North America.
**Noctuidae**

**Stretchia muricina**

**Caterpillar**  Green with a dorsal and subdorsal longitudinal white line.  Head yellow-green.

**Adult**  Wingspan 3.2 centimeters.  Forewings with the orbicular and reniform spots fused together to form a large, white v-shaped spot, the median area dark gray to red with the discal spots outlined in black, the postmedian and submarginal area white to pale gray.  Males with pectinate antennae.

**Ecology**  Caterpillars are common; feed on currant and gooseberry during late spring.  Adults are nocturnal; fly in early spring.  Found in wet conifer forests; widely distributed in western North America.
CATERPILLAR  Longitudinal bands of various shades of yellow and tan bordered in darker shaded lines, especially the subdorsal band. Head with six distinct bands.

ADULT  Wingspan 4.6 centimeters. Forewings light to dark brown with a narrow black reniform spot. Hindwings orange; each hindwing has a black median band, submarginal border, and discal spot.

ECOLOGY  Caterpillars are common; feed on blue and red elderberry during spring. Adults are nocturnal; fly in midsummer. Found in wet forests west of the Cascade Mountains and in riparian woodlands and forests east of the Cascade Mountains.
**Noctuidae**

**Syngrapha Rectangula**

**Caterpillar**  Green with five white distinct longitudinal white bands; midabdominal prolegs only on A5 and A6. Head green.

**Adult**  Wingspan 3.5 centimeters. Forewings black; each forewing has contrasting white basal and submarginal areas and a large white, bifurcate stigma. Hindwings pale brown with broad black submarginal borders.

**Ecology**  Caterpillars are common; feed on conifers, primarily Pinaceae such as Douglas-fir, during spring. Adults are nocturnal; fly in midsummer. Found in wet conifer forests of the Pacific Northwest and northern Rocky Mountains, and is common in wet coastal forests.
**TESAGROTIS CORRODERA**

**CATERPILLAR** Light brown and green-brown with a darker green-brown scalloped lateral line edged in white below; dorsum with oblique dark green-brown bands edged in white behind. Head tan.

**ADULT** Wingspan 4.0 centimeters. Forewings with red-brown streaks with a yellow streak at the reniform spot. Hindwings white with gray margin.

**ECOLOGY** Caterpillars are uncommon; feed on bitterbrush during late spring. Adults are nocturnal; fly in late summer. Found in open pine forests, juniper woodlands, and sagebrush rangelands; widely distributed in western North America.

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*Photographs of the Species: Skippers, Butterflies, & Moths: Chapter 5*
**Xestia mustelina**

**CATERPILLAR**  Brown; broad white lateral band.

**ADULT**  Wingspan 3.6 centimeters. Forewings pink-gray with very large gray discal spots outlined in black.

**ECOLOGY**  Previously known as *Anomogyna mustelina*. Caterpillars are common; feed on many broadleaf trees and conifers, such as Douglas-fir, madrone, huckleberry, and myrica, during spring. Adults are nocturnal; fly in late summer. Found in wet conifer forests; widely distributed in western North America.
XYLENA BRUCEI

CATERPILLAR  Brown with lateral white line edged in black above; dorsum mottled with white streaks and a faint subdorsal longitudinal white line; venter light brown to brown-green. Head tan with two oblique black lines.

ADULT  Wingspan 5.2 centimeters. Forewings pale gray with discal spots and wing margins outlined in black. Hindwings dark brown.

ECOLOGY  Caterpillars are uncommon; feed on bitterbrush during spring. Adults are nocturnal; fly from fall, through the winter, and into the spring. Found in open pine forests and juniper woodlands; widely distributed in western North America.
Noctuidae

Zale lunata - Lunata Moth

Caterpillar  Gray with shades of brown to solid tan; A1 and A8 swollen dorsally with two minutely pointed tips; middorsally a light longitudinal band bordered by a darker band.

Adult  Wingspan 4.8 centimeters. Forewings may have a varying mix of yellow, red-brown and black mottled with fine dark lines, apical part of the postmedian line is strongly dentate.

Ecology  Caterpillars are common; feed on blackberry and willow during spring. Adults are nocturnal; fly in spring and late summer. Found in wet coastal forests west of the Cascade Mountains and in riparian environments east of the Cascade Mountains.
**ZALE TERMINA**

**CATERPILLAR**  Light gray with dark gray longitudinal lines; subdorsal line nearly black and scalloped; prolegs on A3 smaller than on A6.

**ADULT**  Wingspan 3.7 centimeters.  Forewings dark gray with fine lines and black basal and postmedian bands.  Hindwings dark gray with fine black lines and scalloped margins.

**ECOLOGY**  Caterpillars are common; feed on live oak and chinquapin during spring.  Adults are nocturnal; fly from early to midsummer.  Found in dry forests and oak woodlands of the southwest and Pacific western states.
**Noctuidae**

*Zotheca tranquilla*

**CATERPILLAR** Middorsal line of yellow circles bordered in black; subdorsal pale purple band; lateral-ventral area solid yellow with black spots.

**ADULT** Wingspan 3.6 centimeters. Forewings white with green highlights and a (very) few tan tones (more on the thorax), with a background of off-white with faint, light green tones. Hindwings are whiter than the forewings.

**ECOLOGY** Caterpillars are common; feed on blue and red elderberry during spring. Adults are nocturnal; fly in midsummer. Found in wet coastal forests west of the Cascade Mountains and in riparian habitats associated with coniferous forests east of the Cascade Mountains.
**Notodontidae**

*Furcula cinerea*

**Caterpillar** Yellow-green; dorsum with brown saddles edged in red on T1, A4, A5, A8, and A9; elongate anal prolegs create the appearance of a forked tail and ringed with brown, green and red.

**Adult** Wingspan 4.0 centimeters. Forewings pale to dark gray with dark gray or black bands and fine black spots along the margins.

** Ecology** Caterpillars are uncommon; feed on willow during July and August. Adults are nocturnal; fly from spring to midsummer. Found in wet forests and riparian habitats; widely distributed in western North America.
**Notodontidae**

*Furcula scolopendra*

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**Caterpillar**  Yellow; dorsum with brown black saddles on T1 through T3, A2 through A7, and A8 through A10; elongate anal prolegs create the appearance of a forked tail.

**Adult**  Wingspan 3.5 centimeters. Forewings elongate and white with black bands and fine black spots along the wing margins.

**Ecology**  Caterpillars are uncommon; feed on willow and poplar during spring. Adults are nocturnal; fly throughout the summer. Found in wet forests; widely distributed in North America.
CATERPILLAR  Late instar: green with yellow spots; red spiracles; transverse yellow streak across A9; pale yellow middorsal longitudinal line.

ADULT  Wingspan 5.6 centimeters. Forewings yellow with brown-tan shading; each forewing has an orange discal cell; the reniform spot consists of two small white dots, and narrow dark basal and postmedian lines.

ECOLOGY  This is one of many caterpillars that exhibit more than one color phase, either by stage of development, genetic polymorphism, or other environmental factors. Color phases differ according to age. Caterpillars common on white oak during July and August. Adults are nocturnal; fly in midsummer. Found in oak woodlands; widely distributed in North America.
**Notodontidae**

*SCHIZURA CONCINNA - REDHUMPED CATERPILLAR*

**CATERPILLAR**  Yellow with multiple white bands separated by black stripes along the subdorsal region; white streaks bordered in black at the base of the midabdominal prolegs; middorsum of T3 red. Head red.

**ADULT**  Wingspan 3.5 centimeters. Forewings pale yellow with shades of lavender and few markings except for a dark purple band across the inner margin. Hindwings white in males (see photo) and brown in females.

**ECOLOGY**  Early instars are gregarious and solid yellow with black spines. When agitated the odor of glacial acetic acid is emitted from the larvae. Caterpillars are common on many broadleaf trees and shrubs, particularly snowbrush and white oak, during July and August. Adults are nocturnal; fly in midsummer; moths are not as commonly collected relative to the common presence of caterpillars. Found in oak woodlands and forests; widely distributed in western North America.
**CATERPILLAR**  Head, T1, and A1 through A10 tan or light brown with red veined markings; T2 and T3 a distinctive green with a reddish middorsal line; A1, A5, and A8 with dorsal humps tipped with a pair of small wart-like tubercles; A1 through A4, and A6 with middorsal white patch; A7 with an oblique middorsal white band; small spots of yellow at the base of dorsal setae on A2 through A4, A6, and A8; primary setae long.  Head tan with two oblique bands.

**ADULT**  Wingspan 4.5 centimeters.  Forewings a mottled brown and pale gray; each forewing has a small pale reniform spot, narrow dentate basal and postmedian lines, and black marginal dashes.  Hindwings white in males (see photo) and brown in females.

**ECOLOGY**  Caterpillars are common on white oak, madrone, dogwood, and hawthorn from July to September.  Adults are nocturnal; fly from late spring to late summer.  Found in woodlands, and wet and dry forests; widely distributed in North America.
Notodontidae

Schizura unicornis - Unicorn Caterpillar

**Caterpillar**  Head, T1, and A1 through A10 dark to gray black; T2 and T3 a distinctive green; A1, A5, and A8 with dorsal humps tipped with a single elongate tubercle; A7 with an oblique middorsal white band; primary setae short.

**Adult**  Wingspan 3.5 centimeters. Forewings pale pink and gray; each forewing has a small black reniform spot, a broad yellow subapical patch, and small black subapical dashes.

**Ecology**  Caterpillars are common; feed on cherry, apple, hawthorn, oak, and dogwood during spring. Adults are nocturnal; fly from late spring to late summer. Found in woodlands, and wet and dry forests; widely distributed in North America.
**SATURNIIDAE**

**POLYPHEMUS MOTH - ANTHERAEA POLYPHEMUS**

**CATERPILLAR**  
Green; base of primary setae red, subdorsal and lateral setae have a silver shading below; end of prolegs with yellow ring and tipped in black; diagonal streak of black and silver on A9. Head and true legs brown.

**ADULT**  
Wingspan 12.2 centimeters. Forewings tan-brown with pink edges to the basal and submarginal lines, reniform spot is round and translucent, apical spot is small and black. Hindwings tan-brown; each hindwing has a broad black submarginal line and a large black, blue, and yellow discal eyespot.

**ECOLOGY**  
Caterpillars are common; feed on many broadleaf trees, such as white oak and big-leaf maple, during late spring. Adults are nocturnal; fly between late spring and early summer. Found in wet forests; widely distributed in western North America.
Saturniidae

*Coloradia pandora* - Pandora Moth

**Caterpillar**  Dark brown with white spots and light yellow-mustard green transverse bands at the anterior of each segment; middorsal, subdorsal and lateral white longitudinal dashed bands.

**Adult**  Wingspan 8.1 centimeters. Forewings black-brown with gray scales, basal and postmedian lines are black and jagged to dentate, reniform spot is small, black, and round. Hindwings pink; each hindwing has a round, black reniform spot and black postmedian line and submarginal border.

**Ecology**  Caterpillars are very common; feed on conifers, particularly ponderosa pine, during late summer; overwintering, with development completed in June. Pupae remain in the soil for one year. Adults are crepuscular/nocturnal, fly in midsummer. Found in dry coniferous forests, particularly abundant in ponderosa pine forests where it is considered a pest; widely distributed in western North America.
**Saturniidae**

**Brown Day Moth - *Hemileuca eglanterina***

**Caterpillar** This brownish black caterpillar has whorls of orange hairs on dorsal and subdorsal black spines. Black spines also occur laterally and sublaterally with off-white hairs; white spiracular band. Gregarious early instars are solid black.

**Adult** Wingspan 6.4 centimeters. Forewings rose-pink and orange; each forewing has black basal and postmedian bands, a round reniform spot and submarginal dashes. Hindwings orange with a similar pattern of black as on forewings. Abdomen orange with black bands. Color variants may lack all black markings, with pure unmarked rose-pink and orange wings or the black markings may be distinct, or greatly enlarged covering most of the wing.

**Ecology** The hairy spines of this caterpillar are urticating. Caterpillars are common, generalist feeders on flowering trees and shrubs, particularly Rosaceae, such as rose, hawthorn, cherry, serviceberry, and bitterbrush, during spring. Adults are diurnal; fly in midsummer. Found in woodlands, and wet and dry forests; widely distributed in western North America.
**Saturniidae**

*Hyalophora euryalus - Ceanothus Silk Moth*

**Caterpillar** This caterpillar changes colors as it develops and molts (see Chapter 3, page 20). Mid-instar are the most brilliantly colored with nine pairs of dorsal yellow spines, the first three pairs with partial to complete black rings; a middorsal yellow spine on A8; two rows of lateral blue spines tipped with white along T1 through A8; white-tipped blue spines also occur on the head, at the base of the true legs, and in the anal region; body ranges from green to white-green. Later instars white-green with white spines.

**Adult** Wingspan 10.3 centimeters. Forewings variable rose-red, purple-red or dark red-brown; each forewing has a large white, comma-shaped reniform spot, white basal and postmedian lines, and a round black subapical spot. Hindwings similar to the forewings, but each hindwing has an extremely elongate reniform spot.

**Ecology** Caterpillars are common on snowbrush and bitterbrush, sometimes found on Douglas-fir, during July and August. Adults are nocturnal; fly in spring. Found in woodlands, and wet and dry forests; widely distributed in the Pacific Northwest.
**Saturniidae**

**Saturnia mendocino**

**Caterpillar** Highly variable through the various instars. Late instars (shown here) are dorsally yellow with fine wispy white hairs and some patches of shorter densely packed orange hairs; ventrally black anterior to the prolegs. Head brown.

**Adult** Wingspan 6.5 centimeters. Forewings dark brown; each forewing has a round black reniform spot. Hindwings yellow-orange; each hindwing has a black postmedian band and round reniform spot.

**Ecology** The hairs on the caterpillar are urticating. Caterpillars are uncommon; feed on the foliage of manzanita, madrone, and species of *Ceanothus*. Adults are diurnal; fly in early spring. Found in dry forests, ranging from California to western Oregon.
Sphingidae

Pachysphinx occidentalis

**Caterpillar**  Light green dotted with white; oblique white band extends from subventral area of A6 to tip of horn on A8; oblique white lines on A1 through A6 extend from in front of the spiracle to the dorsum of the adjacent posterior segment; transverse white band at the base of the anal prolegs.  Head green with converging yellow bands.

**Adult**  Wingspan 12.5 mm.  Forewings pale yellow or gray; each forewing has a brown medial band.  Hindwings have a central patch of purple-red, and a blue anal spot crossed with a black dash.

**Ecology**  Caterpillars are uncommon; feed on willow and black cottonwood during July and August.  Adults are nocturnal; fly from mid- to late summer.  Found in riparian habitats in low elevation desert regions of western North America.
CATERPILLAR  Yellow-green with dense white speckles; oblique yellow line extends from the base of proleg on A6 to dorsal horn on A8; also six oblique yellow lines from A1 through A6; white spiracles with black rim. Head green, edged in white along posterior margin.

ADULT  Wingspan 7.8 centimeters. Forewings pale to dark brown with the outer margins scalloped. Hindwings rose-red; each hindwing has a round black anal spot containing a solid blue pupil.

ECOLOGY  Caterpillars are common; feed on foliage of trees and shrubs, particularly oaks and ocean spray, during July and August. Adults are nocturnal; fly from late spring to midsummer. Found in dry forests west of the Cascade Mountains and in riparian forests east of the Cascade Mountains.
Sphingidae

Smerinthus cerisyi

Caterpillar  Green with white speckles, yellow lines dorsally are longitudinal and laterally they are oblique stripes just above the spiracles; a prominent oblique white stripe extends to the tip of the horn which is purple. Head green with two lateral yellow lines.

Adult  Wingspan 7.8 centimeters. Forewings falcate, pale gray with darker red or black-brown lines and bands, the outer margins not scalloped. Hindwings rose-red with gray-tan margins; each hindwing has a blue ring on a round black anal spot, creating the appearance of an eyespot.

Ecology  Caterpillars are common; feed on the foliage of willow and poplar. Adults are nocturnal; fly from spring to early summer. Found in wet forests in western North America, particularly in coastal forests, riparian forests east of the Cascade Mountains, and quaking aspen forests of the Rocky Mountains.
Sphingidae

Sequoia Sphinx - Sphinx sequoiae

Caterpillar  Dark green with bright white patches dorsally and subdorsally; lateral white patches on thorax without brown shading; lateral white patches on abdomen with brown shading above; black spiracles with white rim. Head green with faint oblique yellow-green lines.

Adult  Wingspan 5.0 centimeters. Forewings gray with narrow black lines. Hindwings solid gray without markings. Thorax gray with two narrow black lines. Abdomen with black and gray lateral spots or bands.

Ecology  Caterpillars are common; feed on foliage of western juniper during July and August. Adults are nocturnal; fly in midsummer. Found in dry forests with cedars in the Pacific West, and particularly abundant in juniper woodlands east of the Cascade Mountains.
Thyatiridae

Ceranemota fasciata

Caterpillar  Mottled white, tan, black, and yellow; tail-end of abdomen typically held above the substrate.

Adult  Wingspan 4.0 centimeters. Forewings white to gray with wavy, black lines in the basal band and postmedian band.

Ecology  Caterpillars are common; feed on serviceberry during late spring. Adults are nocturnal; fly in late fall. Found in coastal wet forests in the Pacific western states.
**LEPIDOPTERA OF THE PACIFIC NORTHWEST**

**PHOTOGRAPHS OF THE SPECIES: SKIPPERS, BUTTERFLIES, & MOTHS: CHAPTER 5**

**THYATIRIDAE**

**LETTERED HABROSYNE - HABROSYNE SCRIPTA**

**CATERPILLAR**  
Tan-golden orange and light brown mottled pattern; abdomen with a middorsal, longitudinal black line and transverse black bands, laterally with slightly curved black dashes. Head gold-orange.

**ADULT**  
Wingspan 3.8 centimeters. Forewings gray-brown with faint pink basal and submarginal lines and a zigzag postmedian line. Hindwings pale gray-brown and immaculate.

**ECOLOGY**  
Caterpillars are uncommon; feed on salmonberry. Adults are nocturnal; fly from midsummer to fall. Found in wet coastal forests; widely distributed in western North America.
**Thyatiridae**

*Pseudothyatira cymatophoroides*

**Caterpillar**  Tan-gold-orange and light brown mottled pattern; abdomen with middorsal longitudinal black line. Head gold-orange.

**Adult**  Wingspan 4.2 centimeters. Forewings angular, pale gray-brown with narrow dentate basal, postmedian, and submarginal lines, some moths with a black basal band and subanal spot. Hindwings transition from light to dark gray toward the margin, immaculate.

**Ecology**  Caterpillars are uncommon; feed on thimbleberry. Adults are nocturnal; fly from late spring to late summer. Found most often in wet coastal forests; widely distributed in western North America.
COMMON AND SCIENTIFIC NAMES OF HOSTPLANTS

A
Abies amabilis - Pacific silver fir
Abies grandis - grand fir
Acer macrophyllum - big-leaf maple
alfalfa - Medicago sativa
Alnus incana - mountain alder
Alnus rubra - red alder
Amelanchier alnifolia - serviceberry
Arabis - rockcress
Arbutus menziesii - madrone
Arceuthobium - dwarf mistletoe
Arctostaphylos manzanita - manzanita
Arctostaphylos viscida - whiteleaf manzanita
Aristolochia californica - Dutchman’s pipevine
Artemisia dracunculus - green sagebrush
Artemisia tridentata - big sagebrush
Asclepias spp. - milkweed
Aster - aster
azalea - Rhododendron occidentale

B
big-leaf maple - Acer macrophyllum
big sagebrush - Artemisia tridentata
bitter cherry - Prunus emarginata
bitterbrush - Purshia tridentata
black cottonwood - Populus trichocarpa
black oak - Quercus kelloggii
bleeding heart - Dicentra formosa
blue elderberry - Sambucus cerulea
blueberry - Vaccinium spp.
buckbrush - Arceuthobium cuneatus

C
cascara - Rhamnus purshiana
Canadian thistle - Cirsium arvense
canyon live oak - Quercus chrysolepis
Ceanothus cuneatus - buckbrush
Ceanothus integrifolius - tobacbrush
Ceanothus velutinus - snowbrush
chinquapin - Chrysolepis chrysophylla
Chrysolepis chrysophylla - chinquapin
Ceanothus cordulatus - snowbush
Cirsium arvense - Canadian thistle
clover - Trifolium
Cornus nuttallii - Pacific dogwood
Cornus stolonifera - red-stem osier
Corylus cornuta - hazel
cow parsnip - Heracleum lanatum
Crataegus douglasii - hawthorn
currant - Ribes spp.
Cusick’s checker-mallow - Sidalcea cusickii
Cymopterus - cymopterus
Cynoglossum occidentale - hound’s tongue

D
Dacus carota - Queen Anne’s lace
dandelion - Taraxacum officinale
Dicentra formosa - bleeding heart
dogwood - Cornus spp.
Douglas-fir - Pseudotsuga menziesii
Dutchman’s pipevine - Aristolochia californica
dwarf mistletoe - Arceuthobium

E
Epilobium angustifolium - fireweed

F
fennel - Foeniculum vulgare
fireweed - Epilobium angustifolium
Foeniculum vulgare - fennel

G
Gaultheria shallon - salal
gooseberry - Ribes spp.
grand fir - Abies grandis
green sagebrush - Artemisia dracunculus

H
hawthorn - Crataegus douglasii
hazel - Corylus cornuta
Heracleum lanatum - cow parsnip
Holodiscus discolor - ocean spray
hound’s tongue - Cynoglossum occidentale

J
Juniperus occidentalis - western juniper

K
Kincaid’s lupine - Lupinus sulphureus kincaidii

L
Lithocarpus densiflorus - tan oak
Lomatium - lomatium
Lonicera ciliosa - orange honeysuckle
Lonicera involucrata - twinberry
lotus - Lotus
Lotus - lotus
Lupinus sulphureus kincaidii - Kincaid’s lupine
APPENDIX 1: Common and Scientific Names of Hostplants

M
madrone - *Arbutus menziesii*
manzanita - *Arctostaphylos manzanita*
Medicago sativa - alfalfa
milkweed - *Asclepias*
mock orange - *Philadelphus lewisii*
mountain alder - *Alnus incana*
myrica - *Myrica californica*
*Myrica californica* - myrica

N
nettle - *Urtica* spp.
ninebark - *Physocarpus capitatus*

O
oak - *Quercus* spp.
ocean spray - *Holodiscus discolor*
Orange honeysuckle - *Lonicera ciliosa*

P
Pacific dogwood - *Cornus nuttallii*
Pacific silver fir - *Abies amabilis*
penstemon - *Penstemon*
*Penstemon* - penstemon
*Philadelphus lewisii* - mock orange
*Phoradendron* - mistletoe
*Physocarpus capitatus* - ninebark
pine - *Pinus* spp.
*Pinus contorta* - lodgepole pine, shore pine
*Pinus monticola* - western white pine
*Pinus ponderosa* - ponderosa pine
*Polystichum munitum* - sword fern
Ponderosa pine - *Pinus ponderosa*
*Populus tremuloides* - quaking aspen
*Populus trichocarpa* - black cottonwood
*Prunus emarginata* - bitter cherry
*Pseudotsuga menziesii* - Douglas-fir
*Purshia tridentata* - bitterbrush

Q
quaking aspen - *Populus tremuloides*
Queen Anne’s lace - *Dacus carota*
*Quercus chrysolepis* - canyon live oak
*Quercus garryana* - white oak

R
red alder - *Alnus rubra*
red elderberry - *Sambucus racemosa*
red stem osier - *Cornus stolonifera*
*Rhamnus purshiana* - cascara
rhododendron - *Rhododendron macrophyllum*
*Rhododendron macrophyllum* - rhododendron
*Rhododendron occidentale* - azalea
*Ribes cereum* - squaw currant
*Ribes viscosissimum* - sticky currant
rockcress - *Arabis*
Rosa - rose
rose - *Rosa*
*Rubus spectabilis* - salmonberry

S
salal - *Gaultheria shallon*
*Salix* - willow
salmonberry - *Rubus spectabilis*
*Sambucus cerulea* - blue elderberry
*Sambucus racemosa* - red elderberry
*Sedum* - stonecrop
*Senecio jacobaea* - tansy ragwort
serviceberry - *Amelanchier alnifolia*
*Sidalcea cusickii* - Cusick’s checker-mallow
*Sisymbrium* - tumblemustard
snowberry - *Symphoricarpos albus*
snowbrush - *Ceanothus velutinus*
snowbush - *Ceanothus cordulatis*
sipraea - *Spiraea douglasii*
Sipraea douglasii - sipraea
sticky currant - *Ribes viscosissimum*
stonecrop - *Sedum* spp.
sword fern - *Polystichum munitum*
*Symphoricarpos albus* - snowberry

tan oak - *Lithocarpus densiflorus*
tansy ragwort - *Senecio jacobaea*
Taraxicum officinale - dandelion
*Thuja plicata* - western red cedar
tobaccobrush - *Ceanothus integerrimus*
*Trifolium* - clover
*Tsuga heterophylla* - western hemlock
tumblemustard - *Sisymbrium*
twinberry - *Lonicera involucrata*

V
vetch - *Vicia villosa*
*Vicia villosa* - vetch

W
western hemlock - *Tsuga heterophylla*
western juniper - *Juniperus occidentalis*
western red cedar - *Thuja plicata*
western white pine - *Pinus monticola*
whiteleaf manzanita - *Arctostaphylos viscida*
white oak - *Quercus garryana*
willow - *Salix*
HOSTPLANTS RECORDED FOR FIELD-REARED CATERPILLARS
(includes species not featured in photographs)

A
ALUCITIDAE
Alucita hexadactyla
Symphoricarpos albus

ARCTIIDAE
Arctia caja
Salix sp.

Cisseps fulvicollis
Poaceae

Clemensia albata
Quercus garryana

Ctenucha rubroscapus
Dactylus glomerata

Gnophaela latipennis
Cynoglossum occidentale

Grammia ornata
Centaurea montana (ornamental)

Hyphantria cunea
Alnus incana
Alnus rubra
Crataegus douglasii
Populus trichocarpa
Salix sp.

Lophocampa argentata
Pinus contorta
Pseudotsuga menziesii
Tsuga heterophylla

Lophocampa maculata
Acer circinatum
Alnus rubra
Holodiscus discolor
Salix sp.

Platyprepia virginalis
Amsinckia retorsa
Poaceae

Spilosoma virginica
Holodiscus discolor
Sambucus cerulea

Tyria jacobaeae
Senecio jacobaeae

COPROMORPHIDAE
Lotisma trigonana
Arctostaphylos columba

COSMOPTERYGIDAE
Sorhagenia nimbosa
Rhus diversiloba

D
DANAIDAE
Danaus plexippus
Asclepias sp.

DIOPTIDAE
Phryganidia californica
Chrysolepis chrysophylla
Lithocarpus densiflorus
Quercus chrysolepis
Quercus garryana

DREPANIDAE
Drepana arcuata
Alnus rubra
Alnus sinuata

G
GELECHIIDAE
Athrips rancidella
Cotoneaster (ornamental)
APPENDIX 2: HOSTPLANTS RECORDED FOR FIELD-REARED CATERPILLARS

LEPIDOPTERA OF THE PACIFIC NORTHWEST

GELECHIIDAE, Chionodes spp. - GEOMETRIDAE, Cochisea sinuaria

Chionodes spp.
Alnus sinuata
Arctostaphylos columbiana
Quercus garryana

Gelechia dromicella
Ribes lobii

Gelechia panella
Arctostaphylos patula

Pseudochelaria manzanitae
Arctostaphylos columbiana
Arctostaphylos patula

Pseudochelaria scabrella
Arctostaphylos columbiana

Telphusa sedulitella
Arctostaphylos sp.
Chrysoplepis chrysophylla
Quercus garryana
Quercus kelloggi

GEOMETRIDAE
Aethaloida packardaria
Ceanothis cuneatus
Ceanothis integerrimus

Aethalura intertexta
Alnus incana
Rhamnus purshiana

Anacamptodes clivinaria
Ceanothis cuneatus
Ceanothis integerrimus

Anagoga occiduaria
Acer cinnatum
Alnus sinuata
Holodiscus discolor
Vaccinium membranaceum

Anavitrinella pampinaria
Ceanothis cuneatus
Ceanothis integerrimus

Apodrepanulatrix litaria
Ceanothis velutinus

Archiearis infans
Alnus incana
Alnus rubra

Besma quercivoraria
Quercus garryana

Biston betularia
Alnus rubra
Holodiscus discolor
Salix sp.
Vaccinium parvifolium

Bistorta sediliberta
Bistorta sediliberta
Ceanothis cuneatus
Ceanothis integerrimus

Cabera erythmearia
Salix spp.

Campaea perlata
Acer cinnatum
Acer macrophyllum
Alnus rubra
Alnus sinuata
Amelanchier alnifolia
Cornus stolonifera
Corylus cornuta
Holodiscus discolor
Prunus emarginata
Quercus garryana
Rhamnus purshiana
Ribes sanguineus
Salix sp.
Sambucus racemosa
Symphoricarpos albus
Vaccinium parvifolium

Caripeta divisata
Pseudotsuga menziesii
Tsuga heterophylla

Chesiododes cinerea
Chrysothamnus viscidiflorus

Chlorochlamys triangularis
Chrysothamnus naseosus
Chrysothamnus viscidiflorus

Chlorosea banksaria
Holodiscus discolor
Purshia tridentata

Cochisea sinuaria
Arctostaphylos viscida
### Hostplants Recorded for Field-reared Caterpillars: Appendix 2

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<th>Lepidoptera of the Pacific Northwest</th>
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**Geometridae, Cyclophora daria - G., Epirrhoe alternata**

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<th>Species</th>
<th>Hostplants</th>
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</thead>
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<td>Cyclophora daria</td>
<td>Chrysolepsis chrysophylla, Quercus chrysolepis, Quercus garryana</td>
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<tr>
<td>Cyclophora pendulinaria</td>
<td>Alnus rubra, Alnus sinuata</td>
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<td>Dasyfidonia avuncularia</td>
<td>Prunus emarginata</td>
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<td>Drepanulatrix carnearia</td>
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<td>Drepanulatrix falcatoria</td>
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<td>Dysstroma brunneata</td>
<td>Ribes cereum, Ribes sanguineus, Ribes viscosissimum</td>
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<td>Dysstroma citrata</td>
<td>Alnus sinuata, Rubus parviflorus</td>
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<tr>
<td>Dysstroma formosa</td>
<td>Ribes cereum, Ribes cruentum, Ribes sanguineus, Ribes viscosissimum</td>
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<td>Dysstroma ochrofuscaria</td>
<td>Corylus cornuta</td>
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<td>Dysstroma sobria</td>
<td>Gaultheria shallon, Rhododendron macrophyllum</td>
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<td>Dysstroma quadraria</td>
<td>Ceanothus velutinus</td>
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<td>Dysstroma secundaria</td>
<td>Ceanothus sanguineus</td>
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<td>Dysstroma unicalcararia</td>
<td>Ceanothus cuneatus, Ceanothus integerrimus</td>
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<td>Ectropis crepuscularia</td>
<td>Ceanothus integerrimus, Pseudotsuga menziesii, Rhamnus purshiana, Rubus spectabilis, Salix sp.</td>
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<tr>
<td>Dysstroma unicalcararia</td>
<td>Ceanothus cuneatus, Ceanothus integerrimus</td>
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<tr>
<td>Dysstroma unicalcararia</td>
<td>Ceanothus cuneatus, Ceanothus integerrimus</td>
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*Hostplants for Geometridae species are recorded.*
### Geometridae, Erannis tiliaria - G., Eupithecia misturata

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<th>Erannis tiliaria</th>
<th>Eulithis propulsata</th>
<th>Eupithecia georgii</th>
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<tr>
<td>Acer circinatum</td>
<td>Ribes cruentum</td>
<td>Alnus sinuata</td>
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<td>Alnus rubra</td>
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### GEOMETRIDAE, Eupithecia misturata - G., Hydriomena perfracta

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Ceanothus integrerimus  
Ceanothus sanguineus  
Ceanothus velutinus  
Corylus cornuta  
Holodiscus discolor  
Lithocarpus densiflorus  
Quercus garryana  
Rubus discolor  
Salix sp.  
Senecio jacobaea  
Sorbus scopulina  
Spiraea douglasii  
Vaccinium alaskense  
Vaccinium membranaceum |
| Eupithecia nevadata | Eupithecia subcolorata  
Ceanothus cuneatus  
Ceanothus integretrius  
Ceanothus sanguineus  
Ceanothus velutinus  
Corylus cornuta  
Holodiscus discolor  
Lithocarpus densiflorus  
Quercus garryana  
Rubus discolor  
Salix sp. |
| Eupithecia olivacea | Eustroma fasciata  
Abies grandis  
Eustroma semiaratra  
Vaccinium parvifolium |
| Eupithecia ravocostaliata | Gabriola dyari  
Abies grandis  
Pseudotsuga menziesii  
Tsuga heterophylla  
Hesperumia latipennis  
Ceanothus cuneatus  
Ceanothus sanguineus  
Corylus cornuta  
Holodiscus discolor  
Quercus garryana  
Ribes cereum  
Ribes cruentum  
Salix sp.  
Vaccinium alaskense  
Vaccinium membranaceum |
| Eupithecia sabulosata | Hydriomena edenata  
Quercus garryana  
Hydriomena expurgata  
Quercus kellogii  
Hydriomena irata  
Quercus garryana  
Pseudotsuga menziesii  
Hydriomena manzanita  
Arbutus menziesii  
Arctostaphylos patula  
Hydriomena nubilofasciata  
Quercus garryana  
Hydriomena perfracta  
Quercus garryana |
## GEOMETRIDAE, *Hydriomena renunciata* - *G.*, *Neoalcis californiaria*

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LEPIDOPTERA OF THE PACIFIC NORTHWEST
Neocalcis californiaria (continued)

Pinus monticola
Pinus sylvestris
Polystichum munitum
Pseudotsuga menziesii
Quercus chrysolepis
Quercus garryana
Quercus kelloggii
Rhamnus purshiana
Rhododendron macrophyllum
Rosa sp.
Salix sp.
Symphoricarpos albus
Thuja plicata
Tsuga heterophylla
Umbellularia californica
Vaccinium ovatum
Vaccinium parvifolium

Neoterpes trianguliferata
Ribes cereum
Ribes viscosissimum

Nepytia umbrosaria
Abies grandis
Pseudotsuga menziesii
Tsuga heterophylla

Operophtera bruceata
Acer circinatum
Acer macrophyllum
Amelanchier alnifolia
Arbutus menziesii
Arctostaphylos columbiana
Baccharis pilularis
Ceanothus integerimus
Ceanothus sanguineus
Ceanothus velutinus
Cornus nuttallii
Cornus stolonifera

Operophtera danbyi
Fraxinus latifolia
Prunus avium
Quercus garryana

Perizoma costiguttata
Holodiscus discolor

Perizoma curvilinea
Holodiscus discolor

Pero mizon
Acer circinatum
Acer macrophyllum
Amelanchier alnifolia
Arbutus menziesii
Arctostaphylos columbiana
Baccharis pilularis
Ceanothus integerimus
Ceanothus sanguineus
Ceanothus velutinus
Cornus nuttallii
Cornus stolonifera

Pero occidentalis
Abies grandis

Phigalia plumogeraria
Quercus garryana

Plemyria georgii
Acer circinatum
Acer macrophyllum
Alnus sinuata

Probole alienaria
Alnus rubra
Cornus nuttallii

Probole amicaria
Cornus nuttallii
Cornus stolonifera

Protitame matilda
Populus trichocarpa
Salix sp.

Quercus chrysolepis
Quercus garryana
Ribes sp.
Rosa sp.
Symphoricarpos albus
Tsuga heterophylla
Vaccinium parvifolium

GEOMETRIDAE, Neoalcis californiaria - G., Protitame matilda
### Appendix 2: Hostplants Recorded for Field-reared Caterpillars

**GEOMETRIDAE, Protoboarmia porcelaria - G., Triphosa californiata**

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<td>Semiothisa respersata, Quercus garryana, Synaxis formosa, Chrysothamnus nauseosus</td>
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<td>Pseudotsuga menziesii</td>
<td>Semiothisa signaria, Tsuga heterophylla, Synaxis jubararia, Acer circinatum, Alnus incana, Amelanchier alnifolia, Ceanothus integrerrimus, Ceanothus cuneatus, Ceanothus macrophyllum, Gaultheria shallon, Holodiscus discolor, Rhododendron macrophyllum, Rhododendron occidentale, Ribes cereum, Sambucus cerulea, Symphoricarpos albus, Vaccinium parvifolium, Vaccinium membranaceum, Thalophaga taylorata, Polystichum munitum, Vaccinium membranaceum, Triphosa californiata, Rhamnus occidentalis, Rhamnus purshiana</td>
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<tr>
<td>Rheumaptera subhastata</td>
<td>Semiothisa subminiata, Salix sp.</td>
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<td>Alnus rubra</td>
<td>Semiothisa subminiata, Salix sp.</td>
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<td>Alnus sinuata</td>
<td>Sericosema juturnaria, Ceanothus cordulatus, Ceanothus cuneatus, Ceanothus integrerrimus, Ceanothus sanguineus, Ceanothus velutinus</td>
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<td>Alnus rubra</td>
<td>Sericosema juturnaria, Ceanothus cordulatus, Ceanothus cuneatus, Ceanothus integrerrimus, Ceanothus sanguineus, Ceanothus velutinus</td>
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<tr>
<td>Holodiscus discolor</td>
<td>Semiothisa continuata, Juniperus occidentalis, Synaxis cervinaria, Ceanothus integrerrimus</td>
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<td>Rubus spectabilis</td>
<td>Semiothisa continuata, Juniperus occidentalis, Synaxis cervinaria, Ceanothus integrerrimus</td>
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<td>Sambucus racemosa</td>
<td>Semiothisa continuata, Juniperus occidentalis, Synaxis cervinaria, Ceanothus integrerrimus</td>
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<td>Spiraea douglasii</td>
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<td>Umbellularia californica</td>
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<td>Selenia alciphearia</td>
<td>Acer circinatum, Acer macrophyllum, Rubus spectabilis, Spargania magnoliat, Epilobium angustifolium, Synaxis pallulata, Picea engelmannii, Pseudotsuga menziesii</td>
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<td>Salonidae</td>
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<tr>
<td>Calocedrus decurrens</td>
<td>Acer circinatum, Acer macrophyllum, Rubus spectabilis, Spargania magnoliat, Epilobium angustifolium, Synaxis pallulata, Picea engelmannii, Pseudotsuga menziesii</td>
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<tr>
<td>Ceanothus cordulatus</td>
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<td>Purshia tridentata</td>
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<td>Salix sp.</td>
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</table>

**Lepidoptera of the Pacific Northwest**
GEOMETRIDAE, *Triphosa haesitata* - LYCAENIDAE, *Mitoura grynea*

**L**

**LASIOCAMPIDAE**

*Malacosoma californicum*
- Acer circinatum
- Alnus rubra
- Arbutus menziesii
- Ceanothus velutinus
- Corylus cornuta
- Physocarpus capitatus
- Populus tremuloides
- Prunus malus
- Quercus garryana

*Malacosoma constrictum*
- Quercus garryana

*Malacosoma disstria*
- Alnus rubra
- Populus trichocarpa
- Quercus garryana
- Salix sp.

*Phyllodesma americana*
- Alnus incana
- Alnus rubra
- Alnus sinuata
- Amelanchier alnifolia
- Ceanothus integerrimus
- Ceanothus velutinus
- Chrysolepis chrysophylla
- Holodiscus discolor
- Populus tremuloides
- Quercus garryana

**LIMACODIDAE**

*Tortricidea testacea*
- Quercus garryana

**LYCAENIDAE**

*Celastrina argiolus*
- Arctostaphylos patula
- Ceanothus integerrimus
- Ceanothus velutinus
- Cornus stolonifera
- Holodiscus discolor
- Physocarpus capitatus
- Prunus virginiana

*Habrodais grunus*
- Chrysolepis chrysophylla
- Quercus chrysolepis
- Quercus vaccinifolia

*Icaricia icarioides fenderi*
- Lupinus sulphureus kinkaidii

*Incisalia augustinus*
- Arctostaphylos patula
- Ceanothus integerrimus
- Ceanothus velutinus
- Prunus emarginata

*Lycaena arota*
- Ribes cruentum

*Mitoura grynea*
- Juniperus occidentalis

---

**Lepidoptera of the Pacific Northwest**

*Triphosa haesitata*
- Rhamnus purshiana

*Venusia pearsalli*
- Alnus rubra
- Chrysolepis chrysophylla
- Quercus garryana

*Xanthorhoe macdunnoughi*
- Symphoricarpos albus

**GRACILARIIDAE**

*Caloptilia diversilobiella*
- Rhamnus purshiana
LYCAENIDAE, *Mitoura spinetorum* - NOCTUIDAE, *Acronicta grisea*

*Mitoura spinetorum*
*Arceuthobium sp.*

*Satyrium behrii*
*Purshia tridentata*

*Satyrium californicum*
*Purshia tridentata*

*Satyrium saepium*
*Ceanothus cuneatus*
*Ceanothus integerrimus*
*Ceanothus velutinus*

*Satyrium sylvimum*
*Salix sp.*

*Strymon melinus*
*Sidalcea cusickii*

LYMANTRIIDAE

*Dasychira grisea*
*Abies grandis*
*Pseudotsuga menziesii*

*Dasychira vagans*
*Acer macrophyllum*
*Alnus rhombifolia*
*Amelanchier alnifolia*
*Corylus cornuta*
*Populus trichocarpa*
*Pyrus malus*
*Quercus garryana*

*Leucoma salicis*
*Populus tremuloides*
*Salix sp. (ornamental)*

*Orgyia antiqua*
*Arctostaphylos uva-ursi*
*Pseudotsuga menziesii*
*Quercus garryana*
*Salix sp.*
*Vaccinium sp.*

*Orgyia pseudotsugata*
*Abies grandis*
*Ceanothus cuneatus*
*Quercus kelloggii*

LYONETIIDAE

*Bucculatrix separabilis*
*Baccharis pilularis*

*Bucculatrix spp.*
*Alnus rhombifolia*
*Quercus garryana*

*Abagrotis erratica*
*Symphoricarpos albus*

*Abagrotis glenni*
*Juniperus occidentalis*

*Abagrotis trigona*
*Arbutus menziesii*
*Vaccinium parvifolium*

*Abagrotis variata*
*Salix sp.*

*Abrostola urentis*
*Urtica dioica*

*Acronicta cyanescens*
*Ceanothus velutinus*

*Acronicta fragilis*
*Prunus sp.*

*Acronicta funeralis*
*Acer macrophyllum*
*Vaccinium parvifolium*

*Acronicta grisea*
*Alnus rhombifolia*
*Alnus rubra*
*Alnus sinuata*
### NOCTUIDAE, *Acronicta hesperida* - N., *Aseptis binotata*

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<thead>
<tr>
<th>Lepidoptera</th>
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<tbody>
<tr>
<td>Acronicta hesperida</td>
<td>Agrochola purpurea, Verbascum thapsus</td>
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<td>Alnus rubra</td>
<td>Anhimella perbrunnea, Holodiscus discolor, Symphoricarpos albus</td>
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<td>Agrotis ipsilon, Medicago sativa</td>
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**APPENDIX 2: HOSTPLANTS RECORDED FOR FIELD-REARED CATERPILLARS**

**NOCTUIDAE, Aseptis binotata - N., Feralia deceptiva**

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## NOCTUIDAE, *Lithophane longior* - *N.*,  *Orthosia pacifica*

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**NOCTUIDAE, Orthosia praeses - N., Synedoida ochracea**

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<th>Phlogophora periculosa</th>
<th>Pseudorthodes irrata</th>
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<tbody>
<tr>
<td>Ceanothus integerrimus</td>
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<td>Papestra invalida</td>
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<td>Quercus garryana</td>
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<td>Spodoptera praefica</td>
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<td>Ribes cruentum</td>
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<td>Symphoricarpos albus</td>
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<td>Sambucus cerulea</td>
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### APPENDIX 2: HOSTPLANTS RECORDED FOR FIELD-REALED CATERPILLARS

**LEPIDOPTERA OF THE PACIFIC NORTHWEST**

<table>
<thead>
<tr>
<th>NOCTUIDAE, <em>Syngrapha rectangula</em></th>
<th>NYMPHALIDAE, <em>Nymphalis californica</em></th>
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<tbody>
<tr>
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<tr>
<td>Purshia tridentata</td>
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<tr>
<td>Tesagrotis corrodera</td>
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<td>Purshia tridentata</td>
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<td>Purshia tridentata</td>
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<td>Trichoplusia ni</td>
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<td>Brassica oleracea</td>
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<td>Medicago sativa</td>
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<td>Pseudotsuga menziesii</td>
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<td>Xylena brucei</td>
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<tr>
<td>Xylena cineritia</td>
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<td>Rosa sp.</td>
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<td>Sambucus cerulea</td>
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<td>Spiraea douglasii</td>
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<td>Zale lunata</td>
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<td>Rubus parviflorus</td>
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<td>Salix sp.</td>
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<td>Zale minerea</td>
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<td>Zale termina</td>
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<td>Sambucus racemosa</td>
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<tr>
<td>Ceanothus velutinus</td>
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</tr>
<tr>
<td>Malus sp. (crabapple)</td>
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<tr>
<td>Quercus garryana</td>
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<td>Schizura ipomoeae</td>
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<td>Cornus nuttallii</td>
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<td>Schizura unicornis</td>
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<td>Cornus nuttallii</td>
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<td>Crataegus douglasii</td>
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<td>Malus sp.</td>
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<td>Prunus sp.</td>
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<td>Quercus garryana</td>
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<td>NYMPHALIDAE</td>
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<td>Adelpha bredowii</td>
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<td>Quercus chrysolepis</td>
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<td>Euphydryas chalcedona</td>
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<td>Penstemon cardwellii</td>
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<td>Limenitis torquini</td>
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<tr>
<td>Populus hybrid</td>
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<td>Salix sp. (pussywillow)</td>
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<tr>
<td>Nympalus antiopa</td>
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<tr>
<td>Salix spp.</td>
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<td>Nympalus californica</td>
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<tr>
<td>Ceanothus cuneatus</td>
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<td>Ceanothus velutinus</td>
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</table>
### NYMPHALIDAE, Nymphalis milberti - PYRALIDAE, Herpetogramma pertextalis

<table>
<thead>
<tr>
<th>Nymphalis milberti</th>
<th>Depressaria pastinacella</th>
<th>Euceratia securella</th>
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<tbody>
<tr>
<td>Urtica dioica</td>
<td>Heracleum lanatum</td>
<td>Lonicera involucrata</td>
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<thead>
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<th>Polygonia faunus</th>
<th>Depressaria sp.</th>
<th>Plutella xylostella</th>
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<td>Salix spp.</td>
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<td>Brassica oleracea</td>
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<table>
<thead>
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<td>Papilio bairdii oregonius</td>
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<td>Ribes watsonianum</td>
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<td>Papilio eurymedon</td>
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<td>Ceanothus velutinus</td>
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<tr>
<td></td>
<td>Papilio zelicaon</td>
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<td></td>
<td>Heracleum lanatum</td>
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</table>

| Vanessa annabella         | Neophasia menapia        |
| Althaea rosa              | Pinus contorta           |
| Urtica dioica             | Pinus ponderosa          |
|                            | Neophasia menapia        |
|                            | Pinus contorta           |
|                            | Pinus ponderosa          |

| Vanessa atalanta          | Pieris rapae             |
| Althaea rosa              | Brassica oleracea        |
| Urtica dioica             | Nausturtium sp.          |

| Vanessa cardiui           | PLUTELLIDAE |
| Althaea rosa              | Euceratia castella      |
| Artemisia vulgaris        | Quercus garryana        |
| Cirsiurn arvense          | Symphoricarpus albus    |

| Vanessa virginiensis      | OECOPHORIDAE |
| Anaphalis margaritacea    | Agonopterix alstroemeriana |
|                            | Convolvulus nysctagineus |

| O                           | PYRALIDAE |
| Agonopterix alstroemeriana  | Acrobasis tricolorella   |
| Convolvulus nysctagineus    | Amelanchier alnifolia    |

| Ambesa walsinghami          | Ambesa walsinghami       |
| Prunus virginiana           | Prunus emarginata        |

| Herpetogramma pertextalis  | Prunus rubra             |
| Alnus rubra                 | Vancouveria hexandra     |
**PYRALIDAE**, *Udea profundalis* - **TORTRICIDAE**, *Archips rosana*

**Udea profundalis**
Mentha piperita  
Sidalce cusickii  
Urtica dioica

**SATURNIIDAE**
Antheraea polyphemus  
Alnus rubra  
Quercus garryana

Coloradia pandora  
Pinus ponderosa

Hemileuca eglanterina  
Ceanothus integerrimus  
Ceanothus sanguineus  
Ceanothus velutinus  
Purshia tridentata

Hyalophora euryalus  
Ceanothus velutinus  
Pseudotsuga menziesii  
Purshia tridentata

**SPHINGIDAE**
Hemaris diffinis  
Symphoricarpus albus

Paonias excaecatus  
Crataegus douglasii

Sphinx sequoiae  
Juniperus occidentalis

**THYATIRIDAE**
Ceranemota fasciata  
Amelanchier alnifolia

Ceranemota improvisa  
Crataegus douglasii  
Prunus sp.

Ceranemota tearlei  
Amelanchier alnifolia  
Sorbus scopulina

Euthyatira lorata  
Cornus stolonifera

Habrosyne scripta  
Rubus spectabilis

Pseudothyatira cymatophoroides  
Rubus parviflorus  
Rubus spectabilis

**TORTRICIDAE**
Acleris cornana (species complex)  
Cornus stolonifera

Acleris gloverana  
Abies amabilis  
Picea engelmannii  
Tsuga heterophylla

Acleris maxima  
Salix sp.

Acleris senescens  
Arctostaphylos patula  
Salix sp.

Amorbia cuneana  
Arctostaphylos patula

Archips argyrospila  
Alnus incana  
Ceanothus cuneatus  
Ceanothus velutinus  
Cornus stolonifera  
Holodiscus discolor  
Quercus kelloggi  
Salix sp.

Archips rosana  
Acer circinatum  
Acer macrophyllum  
Alnus rubra  
Amelanchier alnifolia  
Arctostaphylos patula  
Ceanothus velutinus  
Cornus stolonifera  
Corylus cornuta  
Crataegus douglasii  
Quercus garryana  
Vaccinium parvifolium

**PYRALIDAE**, *Udea profundalis* - **TORTRICIDAE**, *Archips rosana*
### Lepidoptera of the Pacific Northwest

**Hostplants Recorded for Field-reared Caterpillars: Appendix 2**

#### Tortricidae, Argyrotaenia citrana - T., Pseudexentera habrosana

<table>
<thead>
<tr>
<th>Species</th>
<th>Plants/Species</th>
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<tbody>
<tr>
<td>Argyrotaenia citrana</td>
<td>Baccharis pilularis, Rubus discolor, Rubus spectabilis</td>
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<tr>
<td>Argyrotaenia dorsalana</td>
<td>Pinus ponderosa</td>
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<tr>
<td>Cacocemorpha pronubana</td>
<td>Arctostaphylos columbiana, Arctostaphylos patula</td>
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<tr>
<td>Choristoneura occidentalis</td>
<td>Abies grandis, Picea engelmannii, Picea sitchensis, Pseudotsuga menziesii</td>
</tr>
<tr>
<td>Choristoneura rosaceana</td>
<td>Acer circinatum, Betula sp., Fraxinus latifolia, Holodiscus discolor, Mentha piperita, Physocarpus capitatus, Prunus sp., Quercus garryana, Salix sp.</td>
</tr>
<tr>
<td>Clepsis persicana</td>
<td>Corylus cornuta, Ribes lacustre</td>
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<tr>
<td>Croesia curvalana</td>
<td>Vaccinium membranaceum</td>
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<tr>
<td>Decodes montanus</td>
<td>Chrysolepis chrysophylla</td>
</tr>
<tr>
<td>Ditula angustiorana</td>
<td>Abies grandis, Corylus cornuta, Quercus garryana</td>
</tr>
<tr>
<td>Epinotia albangulana</td>
<td>Alnus rubra, Alnus sinuata</td>
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<td>Epinotia arctostaphylana</td>
<td>Arctostaphylos patula</td>
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<td>Epinotia emarginana</td>
<td>Heracleum lanatum, Quercus garryana, Quercus kelloggi</td>
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<td>Epinotia fumoviridiana</td>
<td>Chrysolepis chrysophylla, Quercus vaccinifolia</td>
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<td>Epinotia johnsonana</td>
<td>Holodiscus discolor</td>
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<td>Epinotia rectiplicana</td>
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<td>Epinotia signiferana</td>
<td>Ceanothus velutinus</td>
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<td>Epinotia solandriana</td>
<td>Alnus rubra</td>
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<td>Epinotia subplicana</td>
<td>Arctostaphylos columbiana, Arctostaphylos manzanita, Arctostaphylos patula</td>
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<td>Epinotia terracottana</td>
<td>Arbutus menziesii, Arctostaphylos columbiana, Arctostaphylos patula</td>
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<tr>
<td>Epinotia vagana</td>
<td>Ribes viscosissimum, Rosa sp.</td>
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<tr>
<td>Griselda radicana</td>
<td>Tsuga heterophylla</td>
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<tr>
<td>Melissopus latiferreanus</td>
<td>Quercus garryana (in galls of Besbiccus mirabilis)</td>
</tr>
<tr>
<td>Pandemis pyrusana</td>
<td>Alnus incana, Alnus rubra, Cornus stolonifera, Physocarpus capitatus, Quercus sadleriana, Salix sp.</td>
</tr>
<tr>
<td>Pseudexentera habrosana</td>
<td>Quercus garryana</td>
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</tbody>
</table>
TORRICIDAE, Sparganothis senecionana - YPONOMEUTIDAE, Zelleria gracilariella

Sparganothis senecionana
   Holodiscus discolor
   Quercus garryana
   Ribes cereum
   Ribes lobbi
   Ribes viscosissimum

Sparganothis tunucana
   Purshia tridentata

Spilonota ocellana
   Crataegus douglasii
   Prunus avium
   Quercus garryana

Synnona lynosynana
   Chrysothamnus viscidiflorus

YPONOMEUTIDAE
Zelleria gracilariella
   Ribes lacustra
   Ribes viscosissimum
HOSTPLANTS BY FAMILY AND SPECIES

Abies amabilis [Pinaceae]
Pacific silver fir
Tortricidae
Acleris gloverana

Abies grandis [Pinaceae]
Grand fir
Geometridae
Enypia packardata
Eupithecia annulata
Eupithecia olivacea
Eustroma fasciata
Gabriola dyari
Neoalcis californiaria
Neptia umbrosaria
Pero occidentalis
Lymantriidae
Dasychira griseafocta
Orgyia pseudotsugata
Tortricidae
Choristoneura occidentalis
Ditula angustiorana

Acer circinatum [Aceraceae]
Vine maple
Arctiidae
Lophocampa maculata

Geometridae
Anagoga occiduaria
Campaea perlata
Erannis tilaria
Eupithecia misturata
Iridopsis emasculata
Itame exauspicata
Lambdinia fiscellaria
Neoalcis californiaria
Operophtera bruceata
Pero mizon
Plemyria georgii
Selenia alciphearia
Synaxis jubararia

Lasiocampidae
Malacosoma calendricum

Noctuidae
Amphipyra pyramidoides
Aseptis binotata
Lithophane georgii
Notodontidae
Nadata gibbosa
Selenia alciphearia
Sunira decipiens

Acer glabrum [Aceraceae]
Rocky Mountain maple
Geometridae
Itame plumosata

Noctuidae
Northophtera bruceata

Acer macrophyllum [Aceraceae]
Big-leaf maple
Geometridae
Campaea perlata
Hypagyrtis unipunctata
Nematocampa resistaria
Operophtera bruceata

Achlys triphylla [Berberidaceae]
Vanilla leaf
Noctuidae
Autographa corusca

Adenocalon bicolor [Asteraceae]
Pathfinder
Geometridae
Eupithecia formosa

Pterophoridae
unknown spp.
**Alnus incana - Alnus sinuata**

**Alnus incana** [Betulaceae]
Mountain alder
- Arctiidae
  - Hyphantria cunea
  - Lophocampa maculata

- Geometridae
  - Aethalura intertexta
  - Archiearis infans
  - Elpiste lorquinaria
  - Eulthis xylina
  - Synaxis jubararia

- Lasiocampidae
  - Phylloidesma americana

- Noctuidae
  - Acronicta grisea
  - Andropolia aedon
  - Egira crucialis
  - Lithophane dilatolucula

**Alnus rubra** [Betulaceae]
Red alder
- Arctiidae
  - Hyphantria cunea
  - Lophocampa maculata

- Drepanidae
  - Drepana arcuata

- Geometridae
  - Archiearis infans
  - Biston betularia
  - Campaea perlata
  - Cyclophora pendulinaria
  - Elpiste lorquinaria
  - Ennomos magnaria
  - Erannis tiliaria
  - Hydriomena renunciata
  - Hypagyrtis unipunctata
  - Iridopsis emasculata
  - Lambdana fiscellaria
  - Nematocampa resistaria
  - Neocalcis californiar
  - Plagodis phlogosaria
  - Probole alienaria
  - Rheumaptera subhastata
  - Sabulodes aegrotata
  - Sicca crocearia
  - Venusia pearsalli

- Gracillariidae
  - Caloptilia sp.

- Lasiocampidae
  - Malacosoma californicum
  - Malacosoma disstria
  - Phylloidesma americana

**Noctuidae**
- Acronicta grisea
- Acronicta hesperida
- Amphipyra pyramidoide
- Andropolia aedon
- Aseptis binotata
- Egira crucialis
- Lacanobia lilacina
- Lacanobia lutra
- Lithophane georgii
- Lithophane innominata
- Lithophane petulca
- Oligia ilococata
- Orthosia hibisci
- Polia discalis
- Pseudorthodes irrorata

**Pyralidae**
- Herpetogramma pertextalis

**Saturniidae**
- Antheraea polyphemus

**Tortricidae**
- Acleris sp.
- Archips rosana
- Epinotia albangulana
- Epinotia solandriana
- Pandemis pyrusana

**Alnus rhombifolia** [Betulaceae]
White alder
- Lymantriidae
  - Dasychira vagans

- Lyonetiidae
  - Bucculatrix sp.

- Noctuidae
  - Acronicta grisea

**Alnus sinuata** [Betulaceae]
Sitka alder
- Choreutidae
  - Choreutis diana

- Drepanidae
  - Drepana arcuata
**Alnus sinuata** [Betulaceae] (continued)

**Gelechiidae**
- Chionodes sp.

**Geometridae**
- Anagoga occiduaria
- Campaea perlata
- Cyclophora pendulinaria

**Noctuidae**
- Acleris senescens
- Epinotia albangulana

**Lasiocampidae**
- Phyllophaga americana

**Lymantriidae**
- Dasychira vagans

**Tortricidae**
- Acleris senescens
- Caloptilia spp.
- Epinotia albangulana

**Althaea rosa** [Rosaceae]

**Hollyhock**
- Vanessa annabella
- Vanessa cardui

**Amelanchier alnifolia** [Rosaceae]

**Serviceberry**

**Geometridae**
- Campaea perlata
- Erannis tiliaria
- Euchlaena tigrinaria
- Eulithis xyline
- Eupithecia maestosa
- Eupithecia misturata
- Hesperumia sulphuraria
- Hypagyrtis unipunctata
- Neocalcis californiaria
- Operophthera bruceata
- Pero mizon
- Synaxis jubararia

**Lasiocampidae**
- Phyllophaga americana

**Lymantriidae**
- Dasychira vagans

**Noctuidae**
- Aseptis binotata
- Dryotype opina
- Lithophane georgii

**Pyralidae**
- Acrobasis tricolorella

**Thyatiridae**
- Ceranemota fasciata
- Ceranemota tearlei

**Tortricidae**
- Archips rosana

**Amsinckia retrorsa** [Boraginaceae]

**Rigid fiddleneck**

**Arctiidae**
- Platyprepia virginialis

**Anaphalis margaritacea** [Asteraceae]

**Pearly-everlasting**

**Nymphalidae**
- Vanessa virginiensis

**Arbutus menziesii** [Ericaceae]

**Madrone**

**Geometridae**
- Eupithecia graefii
- Eupithecia subapicata
- Eupithecia subulosata
- Hesperumia sulphuraria
- Hydriomena manzanita
- Neocalcis californiaria
- Pero mizon
- Synaxis cervinaria

**Lasiocampidae**
- Malacosoma californica

**Lymantriidae**
- Orgyia vetusta

**Noctuidae**
- Abagrotis apposita
- Abagrotis trigona
- Aseptis binotata
- Aseptis ethnica
- Orthosia pacifica
- Orthosia transparens
- Xestia mustelina
**Arbutus menziesii** - *Arctostaphylos* spp.

*Arbutus menziesii* [Ericaceae] (continued)
- Notodontidae
  - Schizura ipomoeae
- Tortricidae
  - Epinotia terracoctana

*Arceuthobium* spp. [Loranthaceae]
- Dwarf mistletoe
  - Lycaenidae
    - Mitoura spinetorum

*Arctostaphylos columbiana* [Ericaceae]
- Bristly manzanita
  - Copromorphidae
    - Lotisma trigonana
- Gelechiidae
  - Pseudochelaria manzanitae
  - Pseudochelaria scabrella
- Geometridae
  - Eupithecia gilvipennata
  - Eupithecia miratula
  - Hesperia sulphuraria
  - Hydriomena manzanita
  - Nemoria darwiniata
- Lycaenidae
  - Celastrina argiolus
  - Incisalia augustinus
- Noctuidae
  - Abagrotis trigona
  - Asepthis ethnica
  - Orthosia mys
- Pterophoridae
  - unidentified species
- Tortricidae
  - Cacoecimorpha prunubana
  - Chionodes sp.
  - Epinotia subplicana
  - Epinotia terracoctana

*Arctostaphylos manzanita* [Ericaceae]
- Manzanita
  - Noctuidae
    - Orthosia mys
  - Tortricidae
    - Epinotia subplicana

*Arctostaphylos patula* [Ericaceae]
- Green-leaf manzanita
  - Gelechiidae
    - Gelechia panella
    - Pseudochelaria manzanitae
  - Geometridae
    - Eupithecia gilvipennata
    - Eupithecia misturata
    - Hesperia sulphuraria
    - Hydriomena manzanita
    - Nemoria darwiniata
  - Lycaenidae
    - Celastrina argiolus
    - Incisalia augustinus
  - Noctuidae
    - Abagrotis trigona
    - Asepthis ethnica
    - Orthosia mys
  - Pterophoridae
    - unidentified species
  - Sphingidae
    - unidentified species

*Tortricidae* (continued)
- Acleris senescens
- Amorbia cuneana
- Archips rosana
- Cacoecimorpha prunubana
- Epinotia arctostaphylana
- Epinotia subplicana
- Epinotia terracoctana

*Arctostaphylos uva-ursi* [Ericaceae]
- Kinnikinnick
  - Lymantriidae
    - Orgyia antiqua

*Arctostaphylos viscosa* [Ericaceae]
- Whiteleaf manzanita
  - Geometridae
    - Cochisea sinuaria
    - Hesperia sulphuraria
    - Neoalcis californiaria
  - Noctuidae
    - Abagrotis trigona
    - Asepthis ethnica
    - Orthosia mys

*Arctostaphylos* spp. [Ericaceae]
- Manzanita
  - Gelechiidae
    - Telphusa sedulitella
  - Geometridae
    - Nematocampa resistaria
    - Neoalcis californiaria
    - Synaxis cervinaria
  - Heliozelidae
    - Coptodisca arbutiella
Arctostaphylos spp. [Ericaceae] (continued)
Noctuidae
Amphipyra pyramidoides
Orthosia pacifica

Artemisia douglasiana [Asteraceae]
Douglas’ sagebrush
Oecophoridae
Depressaria sp.

Artemisia dracunculus [Asteraceae]
Dragon sagebrush
Papilionidae
Papilio bairdii oregonius

Artemisia tridentata [Asteraceae]
Big sagebrush
Geometridae
Itame colata
Noctuidae
Abagrotis duanca

Artemisia vulgaris [Asteraceae]
Mugwort
Nymphalidae
Vanessa cardui

Asclepias sp. [Asclepiadaceae]
Milkweed
Danaiidae
Danaus plexippus

B
Baccharis pilularis [Asteraceae]
Coyotebrush
Cochylidae
Cochylis sp.
Geometridae
Elpiste metanemaria
Eupithecia misturata
Pero mizon
Lyonetiidae
Bucculatrix separabilis
Pterophoridae
unidentified species
Tortricidae
Argyrotaenia citrus

Balsamorhiza sagittata [Asteraceae]
Arrowleaf balsamroot
Geometridae
Euchlaena tigrinaria

Betula sp. [Betulaceae]
Birch
Tortricidae
Choristoneura rosaceana

Brassica oleracea [Brassicaceae]
Mustards
Noctuidae
Autographa californica
Trichoplusia ni
Pieridae
Pieris rapae

Plutellidae
Plutella xylostella

C
Chrysopis chrysophylla [Fagaceae]
Chinquapin
Dioptidae
Phryganidia californica
Gelechiidae
Telphusa sedulitella
Geometridae
Cyclophora dataria
Hydriomena irata
Nemoria darwiniata
Neoalcis californiaria
Venusia pearsalli
Lasiocampidae
Phylodexema americana
Lycaenidae
Habrodais grunus
Noctuidae
Lithophane georgii
Litocala sexsignata
Perigonia angulata
Perigonia pectinata
Zale termina
Nymphalidae
Adelpha bredowii
Tortricidae
Decodes montanus
Epinitia fumoviridana
**Calocedrus decurrens - Ceanothus integerrimus**

**Calocedrus decurrens** [Cupressaceae]
- Incense-cedar
  - Geometridae
    - Eupithecia sabulosata
    - Neocalcis californiaria
    - Semiothisa burneyata
  - Noctuidae
    - Lithophane gausapatap

**Ceanothus cordulatus** [Rhamnaceae]
- Snow bush
  - Geometridae
    - Drepanulatrix foeminaria
    - Sericoosema juturnaria
  - Noctuidae
    - Nola minna

**Ceanothus cuneatus** [Rhamnaceae]
- Common buckbrush
  - Geometridae
    - Aethaloida packardaria
    - Anacamptodes clivinaria
    - Anavitrinella pampinaria
    - Drepanulatrix falcataaria
    - Drepanulatrix foeminaria
    - Drepanulatrix monicaria
    - Drepanulatrix unicalcararia
    - Eupithecia maestosa
    - Eupithecia misturata
    - Eupithecia ravocostaliata
    - Hesperumia latipennis
    - Hesperumia sulphuraria
    - Nemoria darwinia
e
    - Sericoosema juturnaria
    - Synaxis jubararia

**Lycaenidae**
- Satyrium saepium

**Lymantanriidae**
- Orgyia vetusta

**Noctuidae**
- Acronicta perdita
- Aseptis binotata
- Egira sp.
- Lacanobia lutra
- Nola minna
- Palthis angulalis

**Nymphalidae**
- Nymphalis californica

**Sphingidae**
- unidentified species

**Tortricidae**
- Archips argyrospila

**Calocedrus decurrens** - **Ceanothus integerrimus**

**Calocedrus decurrens** [Cupressaceae]
- Incense-cedar

**Geometridae**
- Eupithecia sabulosata
- Neocalcis californiaria
- Semiothisa burneyata

**Noctuidae**
- Lithophane gausapatap

**Ceanothus cordulatus** [Rhamnaceae]
- Snow bush

**Geometridae**
- Drepanulatrix foeminaria
- Sericoosema juturnaria

**Noctuidae**
- Nola minna

**Ceanothus cuneatus** [Rhamnaceae]
- Common buckbrush

**Geometridae**
- Aethaloida packardaria
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- Anavitrinella pampinaria
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- Hesperumia sulphuraria
- Nemoria darwinia
- Sericoosema juturnaria
- Synaxis jubararia

**Sphingidae**
- unidentified species

**Tortricidae**
- Archips argyrospila

**Lepidoptera of the Pacific Northwest**
### Ceanothus sanguineus - Celtis reticulata

<table>
<thead>
<tr>
<th><strong>Ceanothus sanguineus</strong> [Rhamnaceae]</th>
<th><strong>Oregon tea tree</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geometridae</strong></td>
<td></td>
</tr>
<tr>
<td>Drepanulatrix falcataria</td>
<td></td>
</tr>
<tr>
<td>Drepanulatrix foeminaria</td>
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<tr>
<td>Drepanulatrix secundaria</td>
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<tr>
<td>Eudrepanulatrix rectifascia</td>
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<tr>
<td>Eupithecia harveyata</td>
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<td>Eupithecia misturata</td>
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<td>Hesperia latipennis</td>
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<td>Hesperia sulphuraria</td>
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<tr>
<td>Nemoria darwiniata</td>
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<tr>
<td>Neoalcis Californiaria</td>
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<tr>
<td>Pero mizon</td>
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<tr>
<td>Sericoessa juturnaria</td>
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<tr>
<td><strong>Noctuidae</strong></td>
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<tr>
<td>Abagrotis apposita</td>
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<tr>
<td>Aseptis binotata</td>
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<tr>
<td>Egira crucialis</td>
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<tr>
<td><strong>Saturniidae</strong></td>
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<tr>
<td>Hemileuca eglanterina</td>
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<table>
<thead>
<tr>
<th><strong>Ceanothus thyrsiflorus</strong> [Rhamnaceae]</th>
<th><strong>Blue brush</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Geometridae</strong></td>
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<tr>
<td>Drepanulatrix monicaria</td>
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<td>Drepanulatrix quadracaria</td>
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<td>Eudrepanulatrix rectifascia</td>
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<td>Hesperia latipennis</td>
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<td>Hesperia sulphuraria</td>
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<tr>
<td>Sericoessa juturnaria</td>
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<tr>
<td><strong>Lasiocampidae</strong></td>
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<tr>
<td>Malacosoma Californicum</td>
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<tr>
<td>Phyllocladia americana</td>
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<table>
<thead>
<tr>
<th><strong>Ceanothus velutinus</strong> [Rhamnaceae]</th>
<th><strong>Tobacco-brush</strong></th>
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<tbody>
<tr>
<td><strong>Geometridae</strong></td>
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<tr>
<td>Drepanulatrix carnearea</td>
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<td>Drepanulatrix falcataria</td>
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<td>Drepanulatrix foeminaria</td>
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<tr>
<td>Acronicta cyanescens</td>
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<td>Acronicta perditia</td>
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<td>Adelphagrotis stellars</td>
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<td>Andropalia theodori</td>
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<td>Aseptis binotata</td>
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<td>Bomolocha bijugalis</td>
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<td>Egira crucialis</td>
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<thead>
<tr>
<th><strong>Cedrus atlanticus</strong> [Pinaceae]</th>
<th><strong>Atlantic cedar</strong></th>
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<tbody>
<tr>
<td><strong>Geometridae</strong></td>
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<tr>
<td>Nealcis Californiaria</td>
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<tr>
<th><strong>Celtis reticulata</strong> [Rosaceae]</th>
<th><strong>Hackberry</strong></th>
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<td>Egira curialis</td>
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### Centaurea montana - Corylus cornuta

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<tr>
<th>Host Plant</th>
<th>Lepidopteran Family</th>
<th>Species</th>
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<tr>
<td><strong>Centaurea montana</strong> [Asteraceae]</td>
<td></td>
<td>Bachelor’s button</td>
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<td><strong>Arctiidae</strong></td>
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<td>Grammia ornata</td>
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<td><strong>Cercocarpus montanus</strong> [Rosaceae]</td>
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<td>Mountain mahogany</td>
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<td><strong>Geometridae</strong></td>
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<td>Stamnodes coenonympha</td>
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<td><strong>Chamaecyparis lawsoniana</strong></td>
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<td>Port Orford cedar</td>
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<td><strong>Chrysothamnus nauseosus</strong></td>
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<td>Rubber rabbit-brush</td>
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<td><strong>Geometridae</strong></td>
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<td>Chandragupta curvata</td>
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<tr>
<td><strong>Chrysothamnus viscidiflorus</strong></td>
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<td>Lanceleaf rabbit-brush</td>
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<td>Draudtia lunata</td>
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<td><strong>Corylus cornuta</strong> [Betulaceae]</td>
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<td>Lithophane georgii</td>
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<td>Orthosia hibisci</td>
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<td><strong>Tortricidae</strong></td>
<td></td>
<td>Acleris cornana (spp. complex)</td>
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<td>Archips argyrospila</td>
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<td>Archips rosana</td>
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<td><strong>Corylus avellana</strong> [Betulaceae]</td>
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<td><strong>Corylus cornuta</strong> [Betulaceae]</td>
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<td>Pandemis pyrusana</td>
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</tbody>
</table>
**Corylus cornuta - Fraxinus latifolia**

*Corylus cornuta* [Betulaceae] (continued)

**Geometridae**
- Euchlaena tigrinaria
- Eulithis xylina
- Hesperium latipennis
- Hesperium sulphuraria
- Hypagyrtis unipunctata
- Mesoleuca gratulata
- Neoalcis Californiaria
- Pero mizon

**Lasiocampidae**
- Malacosoma Californicum

**Lymantriidae**
- Dasychira vagans

**Noctuidae**
- Amphipyra pyramidoides
- Aseptis binotata
- Cosmia calami
- Egira hiemalis
- Orthosia hibisci

**Notodontidae**
- Schizura ipomoeae
- Schizura unicornis

**Sphingidae**
- Paonias excacaecatus

**Thyatiridae**
- Ceranemota improvisina

**Tortricidae**
- Archips rosana
- Clepsis persicana
- Ditula angustiorana

**Cotoneaster sp. [Rosaceae]**

**Ornamental cotoneaster**

**Gelechiidae**
- Athrips rancidella

**Crataegus douglasii [Rosaceae]**

**Hawthorn**

**Arctiidae**
- Hyphantria cunea

**Geometridae**
- Erannis tiliaria
- Euchlaena tigrinaria
- Eulithis xylina
- Eupithecia nevadata
- Neoalcis Californiaria

**Noctuidae**
- Lithophane georgii
- Lithophane innominata
- Mesogona olivata
- Orthosia hibisci

**Notodontidae**
- Schizura ipomoeae
- Schizura unicornis

**Sphingidae**
- Paonias excacaecatus

**Thyatiridae**
- Ceranemota improvisina

**Tortricidae**
- Archips rosana
- Spilonota ocellana

**Cynoglossum occidentale [Boraginaceae]**

**Hounds tongue**

**Arctiidae**
- Gnophaela latipennis

**D**

**Dactylus glomerata [Poaceae]**

**Orchard grass**

**Arctiidae**
- Ctenucha rubroscapbus

**Dicentra formosa [Fumariaceae]**

**Bleeding hearts**

**Noctuidae**
- Platypolia contadina

**E**

**Epilobium angustifolium [Onagraceae]**

**Fireweed**

**Geometridae**
- Spargania magnoliata

**Noctuidae**
- Alypia langtoni

**F**

**Fraxinus latifolia [Oleaceae]**

**Oregon white ash**

**Geometridae**
- Eupithecia maestosa
- Operophtera danbyi
- Synaxis jubbararia

**Noctuidae**
- Egira hiemalis
- Lithopane georgii

**Tortricidae**
- Choristoneura rosaceana
Gaultheria shallon - Juniperus occidentalis

**G**

**Gaultheria shallon** [Ericaceae]

Salal

**Geometridae**
- Dysstroma sobria
- Lambda fiscellaria
- Neocalcis californiaria
- Synaxis jubariana

**Heliozelidae**
- Coptodisca arbutiella

**Galium spp.** [Rubiaceae]

Bedstraw

**Geometridae**
- Epirrhoe alternata

**H**

**Heracleum lanatum** [Apiaceae]

Cow-parsnip

**Noctuidae**
- Lithophane georgii

**Oecophoridae**
- Depressaria pastinacella

**Papilionidae**
- Papilio zelicaon

**Totricidae**
- Epinotia emarginana

**Holodiscus discolor** [Rosaceae]

Ocean-spray

**Arctiidae**
- Lophocampa maculata
- Spilosoma virginica

**Geometridae**
- Anagoga occiduaria
- Biston betularia
- Campaea perlata
- Chlorosea banksaria
- Eulithis xyлина
- Eupithecia maestosa
- Eupithecia misturata
- Hesperumia latipennis
- Hesperumia sulphuraria
- Lambda fiscellaria
- Neocalcis californiaria
- Operophtera bruceata
- Perizoma costiguttata
- Perizoma curvilinea
- Pero mizon
- Sabulodes agrotata
- Synaxis jubariana

**Lasiocampidae**
- Phylloodesma americana

**Lycaenidae**
- Celastrina argiolus

**Noctuidae**
- Adelphirotis indeterminata
- Adelphirotis stellaris
- Amphipyla pyramidoidea
- Andropolia aedon
- Andropolia theodori
- Anhimelis perbrunnea
- Aseptis binotata
- Egira perlubens
- Egira rubrica
- Lacanobia subjuncta
- Lithophane georgii

**Lithophane innominata**
**Lithophane pertorrida**
**Oncocnemis nr. columbia**
**Oncocnemis dunbari**
**Oncocnemis homogena**
**Oncocnemis youngi**
**Pseudorthodes irrorata**

**Pterophoridae**
- unidentified species

**Tortricidae**
- Archips argyrospila
- Choristoneura rosacea
- Epinotia johnsonana
- Sparganothis senecionana

**J**

**Juniperus occidentalis** [Cupressaceae]

Juniper

**Geometridae**
- Semiothisa continuata

**Lycaenidae**
- Mitoura grynea

**Noctuidae**
- Abagrotis glenni
- Lithophane longior

**Sphingidae**
- Sphinx sequoiae
Lithocarpus densiflorus - Oemleria cerasiformis

L
Lithocarpus densiflorus [Fagaceae]
Tan oak
   Dioptidae
      Phryganidia californica
   Geometridae
      Eupithecia misturata
Notctuidae
   Perigonia angulata

Lonicera ciliosa [Caprifoliaceae]
Orange honeysuckle
Notctuidae
   Aseptis binotata
   Orthosia hibisci

Lonicera involucrata [Caprifoliaceae]
Twinberry
   Plutellidae
      Euceratia securella

Lotus crassifolius [Fabaceae]
Big deervetch
   Hesperidiae
      Epargyreus clarus

Lupinus sulphureus kincaidii [Fabaceae]
Sulfur lupine
   Lycaenidae
      Icaricia icarioides fenderi

M
Malus sp. [Rosaceae]
Crabapple
   Notodontidae
      Schizura concinna
      Schizura unicornis

Medicago sativa [Fabaceae]
Alfalfa
   Noctuidae
      Agrotis ipsilon
      Amphipyra tragopoginis
      Autographa californica
      Caenurgina ericheta
      Dargida procincta
      Mamestra configurata
      Melanchra picta
      Pseudaletia unipuncta
      Rhynchagrotis anchoeioides
      Spodoptera praefica
      Trichoplusia ni
      Xestia dolosa

Pieridiae
   Colias philodice

Mentha piperita [Lamiaceae]
Peppermint
   Noctuidae
      Autographa californica
      Dargida procincta
      Euxoa ochrogaster
      Euxoa olivia
      Euxoa recula
      Heliothis phloxiphagus

O
Oemleria cerasiformis [Rosaceae]
Osoberry
   Geometridae
      Operophtera bruceata
Notctuidae
   Aseptis adnixa
   Aseptis binotata

Lepidoptera of the Pacific Northwest
Pachistima myrsinites - Populus tremuloides

**Pachistima myrsinites** [Celastraceae]
Oregon boxwood  
**Geometridae**  
Pero mizon

**Penstemon cardwelli** [Scrophulariaceae]
Cardwell’s penstemon  
**Nymphalidae**  
Cardwell’s penstemon

**Philadelphus lewisii** [Rosaceae]
Mock orange  
**Geometridae**  
Euchlaena johnsonaria

**Physocarpus capitatus** [Rosaceae]
Pacific ninebark  
**Geometridae**  
Eulithis xylena  
Hypagyrtis unipunctata  
Itame anataria  
Itame exauspicata  
Itame quadrilinearia

**Lasiocampidae**  
Malacosoma californicum

**Lycaenidae**  
Celastrina argiolus

**Noctuidae**  
Adelphagrotis stellaris  
Andropolia aedon  
Lomographa semiclarata  
Orthosia hibisci

**Tortricidae**  
Pandemis pyrusana

**Picea engelmannii** [Pinaceae]
Engelms’ spruce  
**Geometridae**  
Synaxis pallulata

**Tortricidae**  
Acleris gloverana  
Choristoneura occidentalis

**Picea sitchensis** [Pinaceae]
Sitka spruce  
**Geometridae**  
Neoalcis californiaria

**Tortricidae**  
Choristoneura occidentalis

**Pinus contorta** [Pinaceae]
Lodgepole/shore pine  
**Arctiidae**  
Lophocampa argentata

**Geometridae**  
Neoalcis californiaria

**Pieridae**  
Neophasia menapia

**Saturniidae**  
Coloradia pandora

**Tortricidae**  
Argyrotaenia dorsalana

**Pinus sylvestris** [Pinaceae]
Scotch pine  
**Geometridae**  
Neoalcis californiaria

**Polystichum munitum** [Aspidiaceae]
Sword fern  
**Geometridae**  
Neoalcis californiaria  
Thallophaga taylorata

**Noctuidae**  
Diarsia esurialis  
Phlogophora periculosa  
Pseudorthodes irrorata

**Populus tremuloides** [Salicaceae]
Quaking aspen  
**Geometridae**  
Elpiste lorquinaria

**Lasiocampidae**  
Malacosoma californicum  
Phylodesma americana

**Lymnaerididae**  
Leucoma salicis

**Noctuidae**  
Enarga infumata  
Homoglaea carbonaria  
Homoglaea dives
**Populus hybrid - Pseudotsuga menziesii**

**Populus hybrid [Salicaceae]**
Plantation cottonwood
Nymphalidae
- Limenitis lorquini

**Populus trichocarpa [Salicaceae]**
Black cottonwood
Arctiidae
- Hyphantria cunea
Geometridae
- Eulithis xyлина
- Lasiocampa disstria
Lymantriidae
- Dasychia vagans
Noctuidae
- Homoglaea dives
- Scoliopteryx libatrix

**Prunus avium [Rosaceae]**
Sweet cherry
Geometridae
- Operophtera bruceata
- Operophtera danbyi
Tortricidae
- Spilonota ocellana

**Prunus emarginata [Rosaceae]**
Bittercherry
Geometridae
- Campaea perlata
- Erannis filiaria
- Eulithis xyлина
- Lambdina fiscellaria

**Lycaenidae**
- Incisalia augustinus

**Noctuidae**
- Aseptis binotata
- Lithophane georgii
- Orthosia hibisci
- Phlogophora periculosa

**Pyralidae**
- Ambesa walsinghami

**Prunus virginiana [Rosaceae]**
Bittercherry
Geometridae
- Anavitrina fampina
- Dasyffonia avuncularia
- Eulithis xyлина
- Operophtera bruceata
Lycaenidae
- Celastrina argiolus
Noctuidae
- Egora curialis
- Fishia evelina
- Lithophane pertorrida
- Orthosia hibisci
Plutellidae
- Ypsolopha walsinghamiella

**Prunus spp. [Rosaceae]**
Cherry
Geometridae
- Eulithis xyлина
Noctuidae
- Acronicta fragilis
Notodontidae
- Schizura unicoinesis

**Thyatiridae**
- Ceranemota improvisa
**Tortricidae**
- Choristoneura rosaceana

**Pseudotsuga menziesii [Pinaceae]**
Douglas-fir
Arctiidae
- Lophocampa argentata
Geometridae
- Caripeta divisata
- Ectrops crepuscularia
- Enypia packardata
- Eupithecia sabulosata
- Gabriola dyari
- Hydriomena irata
- Neoealcis californiaria
- Nepytia umbrosaria
- Pero mizon
- Protoboarmia porcellaria
- Synaxis pallulata
Lymantriidae
- Dasychia griseafacta
- Orgyia antiqua
Noctuidae
- Achyonix epipaschia
- Anomogyna mustelina
- Feralia deceptiva
- Panthea portlandia
- Platypolia loda
- Syngrapha rectangula
**Pseudotsuga menziesii - Quercus garryana**

**Pseudotsuga menziesii** [Pinaceae] (continued)

**Saturniidae**
- Hyalophora euryalus

**Tortricidae**
- Choristoneura occidentalis

**Purshia tridentata** [Rosaceae]

**Bitter-brush**

**Geometridae**
- Anacamptodes clivinaria
- Anavitrinella pampinaria
- Chlorosea banksaria
- Eupithecia nevadata
- Hesperumia sulphuraria
- Itame colata
- Nemoria darwinia
- Pero mizon
- Semiothisa denticulata
- Synaxis cervinaria

**Lasiocampidae**
- Malacosoma californicum

**Lycæniidae**
- Satyrium behrii
- Satyrium californicum

**Noctuidae**
- Acronicta impressa
- Acronicta perdita
- Andropolia diversilineata
- Aseptis fumosa
- Egira crucialis
- Egira perlubens
- Fishia evelina
- Lithophane georgii
- Mesogona olivata
- Polia purpurissata
- Tesagrotis atrifrons
- Tesagrotis corrodera
- Tesagrotis piscipellis
- Xylena brucei

**Plutellidae**
- Ypsolophopa walsinghamiella

**Saturniidae**
- Hemileuca eglanterina
- Hyalophora euryalus

**Tortricidae**
- Sparganothis tunicana

**Pyrus malus** [Rosaceae]

**Crabapple**

**Lasiocampidae**
- Malacosoma californicum

**Lymantriidae**
- Dasychira vagans

**Q**

**Quercus chrysolepis** [Fagaceae]

**Canyon live oak**

**Dioptidae**
- Phryganidia californica

**Geometridae**
- Cyclophora dataria
- Euchaena tigrinaria
- Neocalsis californiaria
- Pero mizon

**Hesperiidae**
- Erynnis propertius

**Lycaenidae**
- Habrodais grunus

**Lymantriidae**
- Orgyia vetusta

**Noctuidae**
- Catocala ophelia
- Litocola sexsignata
- Perigonica angulata
- Zale termina

**Quercus garryana** [Fagaceae]

**Oregon white oak**

**Arctiidae**
- Clemensia albata

**Dioptidae**
- Phryganidia californica

**Gelechiidae**
- Chionodes sp.
- Telphusa sedutilleta

**Geometridae**
- Anacamptodes clivinaria
- Besma quercivoraria
- Campaea perlata
- Cyclophora dataria
- Erannis tiliaria
- Eupithecia columbiata
- Eupitheciaolumbrata
- Eupithecia luteata
- Eupithecia misturata
- Hesperumia latipennis
- Hydriomena edenata
- Hydriomena irata
- Hydriomena nubilofasciata
- Hydriomena perfracta
- Hydriomena renunciata
- Hypagyrtis unipunctata
**Quercus garryana** [Fagaceae] (continued)

**Geometridae**
- *Lambdina fiscellaria*
- *Nematocampa resistaria*
- *Nemoria darwiniata*
- *Nemoria pulcherrima*
- *Neoalcis californiaria*
- *Operophtera danbyi*
- *Pero mizon*
- *Phigalia plumogeraria*
- *Semiothisa respersata*
- *Venusia pearsalli*

**Gracillariidae**
- *Caloptilia* sp.

**Hesperiidae**
- *Erynnis propertius*

**Lasiocampidae**
- *Malacosoma californica*
- *Malacosoma constrictum*
- *Malacosoma disstria*
- *Phyllodesma americana*

**Limacodidae**
- *Tortricidea testacea*

**Lymantriidae**
- *Dasychira vagans*
- *Orgyia antiqua*
- *Orgyia vetusta*

**Lyontiidae**
- *Bucculatrix* sp.

**Noctuidae**
- *Acronicta marmorata*
- *Agrochola pulchella*
- *Aseptis binotata*
- *Catocala aholibah*
- *Catocala verilliana*
- *Cissusa indiscreta*
- *Cosmia calami*
- *Egira crucialis*
- *Egira februalis*
- *Lithophane contenta*
- *Meganola miniscula*
- *Mesogona olivata*
- *Mesogona rubra*
- *Orthosis hibisci*
- *Orthosis pacifica*
- *Perigonia tertia*
- *Pleromelloida obliquata*
- *Pseudorthodes irrorata*

**Notodontidae**
- *Nadata gibbosa*
- *Nadata oregonensis*
- *Schizura concinna*
- *Schizura ipomoeae*
- *Schizura unicornis*

**Plutellidae**
- *Euceratia castella*
- *Ypsolopha cervella*

**Pyralidae**
- *Epinotia emarginana*
- *Epinotia rectiplicana*

**Saturniidae**
- *Antheraea polyphemus*

**Tortricidae**
- *Archips rosana*
- *Choristoneura rosaceana*
- *Ditula angustiorana*
- *Melissopus latiferreanus*
- *Pseudexentera habrosana*
- *Sparganothis senecionana*
- *Spilonota ocellana*

**Quercus kellogii** [Fagaceae]

- **Black oak**
  - *Telphusa sedulitella*

**Geometridae**
- *Hydriomena expurgata*
- *Neoalcis californiaria*

**Noctuidae**
- *Lithophane contenta*

**Plutellidae**
- *Ypsolopha cervella*

**Tortricidae**
- *Archips argyrospila*
- *Epinotia emarginana*

**Quercus sadleriana** [Fagaceae]

- **Sadlers oak**
  - *Pandemis pyrusana*

**Quercus vaccinifolia** [Fagaceae]

- **Huckleberry oak**
  - *Habrodais grunus*

**Noctuidae**
- *Perigonia angulata*

**Tortricidae**
- *Epinoita emarginana*
- *Epinotia rectiplicana*
- *Epinotia fumoviridana*
Rhamnus occidentalis - Ribes lacustre

Rhamnus occidentalis [Rhamnaceae]
Coffee berry
Geometridae
Eupithecia nevadata
Itame guenearia
Triphosa californiata

Rhamnus purshiana [Rhamnaceae]
Cascara
Geometridae
Aethalura intertexta
Campaea perlata
Ectropis crepuscularia
Euchlaena johnsonaria
Euchlaena tigrinaria
Eupithecia ravocostaliata
Neoalcis caulonotaria
Synaxis jubararia
Triphosa californiata
Triphosa haesitata

Ribes aureum [Grossulariaceae]
Golden currant
Geometridae
Eulithis xylina
Synaxis jubararia

Ribes cereum [Grossulariaceae]
Squaw currant
Geometridae
Dysstroma formosa
Eupithecia sp.
Neoteles trianguliferata
Operophtera bruceata
Synaxis jubararia

Lasiocampidae
Malacosoma sp.

Noctuidae
Aseptis binotata

Rhododendron occidentale [Ericaceae]
Azalea
Geometridae
Eulithis xylina
Synaxis jubararia

Ribes diversiloba [Anacardiaceae]
Poison oak
Cosmopterygidae
Sorhagenia nimbosa

Ribes aureum [Grossulariaceae]
Golden currant
Geometridae
Aseptis binotata

Ribes cereum [Grossulariaceae]
Squaw currant
Geometridae
Dysstroma brunneata
Dysstroma formosa
Dysstroma walkerata
Hesperumia latipennis
Hesperumia sulphuraria
Itame bitactata
Neoterpes trianguliferata
Operophtera bruceata
Synaxis jubararia

Lycaenidae
Lycaena arota

Noctuidae
Stretchia muricina
Stretchia plusiaeformis

Ribes cruentum [Grossulariaceae]
Shineyleaf currant
Lasiocampidae
Malacosoma sp.

Noctuidae
Aseptis binotata

Ribes lacustre [Grossulariaceae]
Swamp currant
Noctuidae
Platypolia contadina
Tortricidae
Clepsis persiciana

Yponomeutidae
Zelleria gracilariella
**Ribes lobbii** [Grossulariaceae]

**Lobb’s gooseberry**
- Gelechiidae
  - Gelechia dromicella
- Geometridae
  - Nematocampa resistaria
- Tortricidae
  - Sparganothis senecionana

**Ribes niveum** [Grossulariaceae]

**Snow gooseberry**
- Noctuidae
  - Aseptis binotata

**Ribes sanguineus** [Grossulariaceae]

**Red currant**
- Geometridae
  - Campaea perlata
  - Dysstroma bruneatea
  - Dysstroma formosa

**Ribes velutinum** [Grossulariaceae]

**Plateau gooseberry**
- Noctuidae
  - Mesogona olivata

**Ribes viscosissimum** [Grossulariaceae]

**Sticky currant**
- Geometridae
  - Dysstroma bruneatea
  - Dysstroma formosa
  - Itame bitactata
  - Neoterpes trianguliferata

**Ribes watsonianum** [Grossulariaceae]

**Spiny gooseberry**
- Noctuidae
  - Aseptis binotata
- Nymphalidae
  - Polygonia gracilis zephyrus

**Ribes** spp. [Grossulariaceae]

**Currants**
- Noctuidae
  - Pero mizon
- Geometridae
  - Dysstroma citrata

**Rosa** spp. [Rosaceae]

**Roses**
- Noctuidae
  - Acronicta impressa
  - Lithophane georgii
  - Xylena cineritina
- Tortricidae
  - Epinotia vagana

**Rubus discolor** [Rosaceae]

**Himalayan blackberry**
- Geometridae
  - Eupithecia misturata
- Noctuidae
  - Adelphagrotis stellaris
  - Graphiphora haruspica
  - Hemigraphiphora plebeia
- Tortricidae
  - Argyrotaenia citrana

**Rubus parviflorus** [Rosaceae]

**Thimbleberry**
- Geometridae
  - Dysstroma citrata
- Noctuidae
  - Aseptis binotata
  - Zale lunata
- Thyatiridae
  - Pseudothyatira cymatophoroides

**Rubus spectabilis** [Rosaceae]

**Salmonberry**
- Geometridae
  - Ectropis crepuscularia
  - Sabulodes aegrotata
  - Selenia alciphearia
Rubus spectabilis - Sambucus racemosa

*Rubus spectabilis* [Rosaceae] (continued)

**Noctuidae**
- Aseptis binotata
- Pseudorthodes irrata

**Thyatiridae**
- Habrosyne scripta
- Pseudothyatira cymatophoroides

**Tortricidae**
- Argyrotaenia citrana

**S**

**Salix hookeriana** [Salicaceae]

*Coast willow*
- Arctia caja
- Hyphantria cunea
- Lophocampa maculata

**Geometridae**
- Biston betularia
- Cabera erythemaria
- Campaea perlata
- Ectropis crepuscularia
- Elpiste lorquinaria
- Ennomos magnaria
- Erannis tiliaaria
- Euchlaena tigrinaria
- Eulithis xylena
- Eupithecia misturata
- Hesperumia sulphuraria
- Neoalcis Californiaria
- Protilame matilda
- Semiotha neptaria
- Subminiata snowiata
- Synaxis cervinaria

**Lasiocampidae**
- Malacosoma disstria

**Lycaenidae**
- Satyrium sylvium

**Lymantriidae**
- Leucoma salicis
- Orgyia antiqua

**Noctuidae**
- Abagrotis variata
- Aseptis binotata
- Catocala briseis
- Homoglaea carbonaria
- Homoglaea dives
- Lacaonobia lutra
- Litholomia napaea
- Lithophage amanda
- Lithophage innominata
- Nycteola columbiana
- Nycteola frigidana
- Orthosia hibisci
- Phlogophora periculosa
- Scoliopteryx libatrix
- Zale lunata

**Notodontidae**
- Clostera apicalis

**Nymphalidae**
- Nymphalis antiopa
- Polygonia faunus

**Tortricidae**
- Acleris maximana
- Acleris senescens
- Archips argyrospila
- Choristoneura rosaceana
- Epinotia columbica
- Pandemis pyrusana

**Sambucus cerulea** [Caprifoliaceae]

*Blue elderberry*
- Spilosoma virginica

**Geometridae**
- Eupithecia maestosa
- Hesperumia latipennis
- Synaxis jubararia

**Noctuidae**
- Fishia evelina
- Orthosia hibisci
- Synedoida divergens
- Synedoida ochracea
- Xylena cineritata

**Sambucus racemosa** [Caprifoliaceae]

*Red elderberry*

**Geometridae**
- Campaea perlata
- Sabulodes aegrotata

**Noctuidae**
- Zotheca tranquilla
**Senecio jacobaea** [Asteraceae]
*Senecio jacobaea* [Asteraceae]
*Tansy ragwort*
**Arctiidae**
*Tyria jacobaeae*
**Geometridae**
*Eupithecia harveyata*
*Eupithecia misturata*
**Sidalcea cusickii** [Malvaceae]
*Cusick’s checker-mallow*
**Hesperidae**
*Pyrgus communis*
**Lycaenidae**
*Strymon melinus*
**Pyralidae**
*Udea profundalis*
**Sorbus scopulina** [Rosaceae]
*Mountain ash*
**Geometridae**
*Eulithis xyлина*
*Eupithecia misturata*
**Lasiocampidae**
*Phyllodesma americana*
**Noctuidae**
*Lithophane georgii*
*Lithophane innominata*
**Notodontidae**
*Ceranemota tearlei*
**Spiraea douglasii** [Rosaceae]
*Douglas’ spiraea*
**Geometridae**
*Eulithis xyлина*
*Eupithecia misturata*
*Sabulodes aegrotata*
**Noctuidae**
*Alypia langtoni*
*Egira crucialis*
*Lithophane georgii*
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abdomen  one of the three primary body segments, along with the
head and thorax, characteristic of insects. The abdomen in moths
is typically elongate and contains the reproductive organs.

adfrontal suture  a seam-like line on the frontal area of the caterpillar
head capsule.

allelochemical  a chemical derived from plants that may stimulate
or deter feeding by caterpillars.

anal angle  the angle along the edge of the wing created by the
transition from the outer margin to the inner margin.

anal area  see area, anal.

anal proleg  a proleg on the last segment of the abdomen.

antenna (pl. antennae)  variously shaped filamentous sensory
organs located on the head.

anterior  to be in front; the area that is the forward-most section of a
body part.

apical area  see area, apical.

aposomatic  a brightly colored organism that is typically poisonous.

area, anal  the area on the wing between the outer margin and the
inner margin, proximal to the anal angle.

area, apical  the area on the wing below the apex.

area, basal  the area at the base of the wing where the wing is attached
to the thorax.

area, median  the central area of the wing.

area, midcostal  the area in the center of the front edge of the wing.

area, postmedian  the area on the wing immediately distal to the
median area and proximal to the submarginal area.

area, subanal  the area on the wing proximal to the anal area.

area, subapical  the area on the wing proximal to the apical area.

area, submarginal  the area on the wing proximal to the outer margin.

band  a wide area typically extending more than half the distance
along the width or length of the wing and often demarked by lines
and associated with a particular area on the wing.

basal area  see area, basal.

basal line  see line, basal.

biordinal  the tips of the crochets occur in a pattern of two rows.

biserial  the base of the crochets occur in a pattern of two rows.

bivoltine  two generations per year.

butterfly  the adult of a species of Lepidoptera with knobbed
antennae, day-flying, and typically brightly colored.

caterpillar  the larva of Lepidoptera; one of four life stages of
skippers, butterflies, and moths.

cardiac glycoside  an allelochemical found in certain plants such
as milkweed and poisonous to most animals.

cell, discal  an area of the wing delineated by the discal veins in the
discal area.
chalaza (pl. chalazae) a single hair arising from an elevated base.

chrysalis the pupa of a butterfly.

cleft notched.

cocoon the pupa of moths wrapped in silk.

costal margin see margin, costal.

crochets hooks present on the ends of the prolegs.

cryptic an organism that blends into its surroundings.

dash a narrow short mark extending less than half the distance along the width or length of the wing.

dentate tooth-like markings, typically along one side of a line.

diapause a condition of arrested development.

discal area see area, discal.

discal cell see cell, discal.

discal spots see spots, discal.

diurnal active during the day.

dorsal the top or back area of the body.

dorsum the upper side of the body.

eclose to emerge from.

eyespot a round multi-colored spot on the forewing or hindwing.
falcate curved into a sickle-shape, often used to describe a wing with the tip extended into an subtle or elongate, curved point.

foreleg the first pair of true legs nearest the head. The forelegs are ventrally attached to the first thoracic segment.

forewing(s) the wing(s) attached to the second thoracic segment, the first pair of wings from the head.

frass insect feces.

gregarious living in a group.

head one of the three primary body segments characteristic of insects, along with the thorax and abdomen. The head contains the antennae, mouthparts, eyes, and brain.

head capsule the sclerotized (hardened) part of the head.

herbivorous feeding on foliage.

hindwing(s) the wing(s) attached to the third thoracic segment, the second pair of wings from the head.

holometabolous an insect whose development involves a pupal stage.

inchworm the caterpillar of geometrids which has only one pair of midabdominal prolegs, occurring on sixth abdominal segment.

inner band see band, inner.

inner margin see margin, inner.

instar an immature insect between molts.

labial palps see palps, labial.

labium the bottom-most part of the mouthparts upon which the caterpillar silk gland is located.

labrum a flap-like part of the mouthparts just below the face used as a feeding guide.
larva  one of the immature stages in the life cycle of a holometabolous insect, a caterpillar is the larval life stage of Lepidoptera.

lateral  an area along the side of a body part.

line  a narrow mark extending more than half the distance along the width or length of the wing and associated with a particular area on the wing.

line, basal  a line in the basal area near to where the wing attaches to the thorax.

line, postmedian  a line in the postmedian area.

line, submarginal  a line in the submarginal area.

macromoth  the adult of a species of Lepidoptera with the tips of antennae tapered, in the Pacific Northwest the species occur in one of the following families: Arctiidae, Dioptidae, Drepanidae, Epiplemidae, Geometridae, Lasiocampidae, Lymantriidae, Noctuidae, Notodontidae, Saturniidae, Sphingidae, and Thyatiridae.

mandible  a component of the mouthparts used for cutting and chewing food.

margin, costal  the front edge of the wing.

margin, inner  the back edge of the wing.

margin, outer  the distal edge of the wing.

median area  see area, median.

median line  see line, median.

mesothorax  the second (middle) segment of the thorax from the head, abbreviated as T2.

metathorax  the third (last) segment of the thorax from the head, abbreviated as T3.

micromoth  the adult of a species of Lepidoptera with the tips of antennae tapered, typically small bodied, many families of micromoths occur in the Pacific Northwest; not a butterfly or a macromoth.

midabdominal proleg  prolegs on the middle abdominal segments.

midcostal area  see area, midcostal.

middorsal  an area in the middle of the top region of a body part.

monophagous  feeding on only one kind of plant.

multiserial  the base of the crochets occur in a pattern of multiple rows.

multivoltine  more than two generations per year.

nocturnal  active during the night.

occiput  the top portion of the head capsule.

omnivorous  feeding on both plants and animals, and perhaps detritus.

orbicular spot  see spot, orbicular.

osmeterium  an eversible forked pouch in Papilionidae located middorsally on the prothorax.

outer margin  see margin, outer.

oviposition  the laying of an egg.

palps, labial  small, segmented, filamentous appendages attached to the labium on the mouthparts.

parasitoid  a specialized insect predator whose young develop entirely on a single host and kill the host.

patch  a small restricted area of the wing demarked by a distinct color but not delimited by lines.
**pectinate** comb-like, often used to describe antennae with numerous fine branches arranged asymmetrically along one side of antennal segments.

**plumose** feather-like, often used to describe antennae with numerous fine branches arranged in opposition along the antennal segments.

**plusiine noctuids** a group of moths whose caterpillar typically has two pair of midabdominal prolegs, occurring on the fifth and sixth abdominal segments.

**polyphagous** feeding on many plant species.

**posterior** to be behind; the area that is the back end of a body part.

**postmedian area** see area, postmedian.

**postmedian line** see line, postmedian.

**predaceous** feeding on live animals.

**proleg** fleshy protuberance of body wall; creates a nonjointed leg.

**prothoracic shield** a sclerotized plate on the first thoracic segment.

**prothorax** the first segment of the thorax behind the head, abbreviated as T1.

**pupa** the life stage of a holometabolous insect that follows the larval stage and within which metamorphosis occurs.

**reniform spot** see spot, reniform.

**sclerotized** a hardened area of the body skin.

**scolus (pl. scoli)** a spine with multiple points.

**semilooper** the caterpillar of plusiine noctuids.

**setae** hairs.

**silk gland** a silk-excreting gland in caterpillars on the underside of the labium.

**skipper** the adult of a species of Lepidoptera in the family Hesperiidae, antennae with a hooked-tip, day-flying, closely related to butterflies.

**spiracle** the opening of the respiratory system located along the lateral side of the body.

**spot, orbicular** a single near round-shaped spot that occurs just short of half way along the front edge of the forewing within the discal cell.

**spot, reniform** a single irregularly shaped spot, often kidney-shaped, that occurs just past half way along the front edge of the forewing at the distal end of the discal cell.

**spots, discal** a combination of the reniform and orbicular spots.

**stemma (pl. stemmata)** the eyes on the head capsule, also called eyespots.

**stigma** a distinct marking in the median area, of variable shape, often comma or v-shaped, usually silver or white, characteristic of Plusiinae: Noctuidae.

**subanal area** see area, subanal.

**subapical area** see area, subapical.

**subdorsal** the body area part way between dorsal and lateral.

**sublateral** the area below the lateral region of a body part.

**submarginal area** see area, submarginal.

**submarginal line** see line, submarginal.

**subspiracular** the body area immediately below the spiracles.
thorax  one of the three primary body segments characteristic of insects, along with the head and abdomen. The thorax consists of three segments with a pair of wings attached dorsally to the second and third segments, and a pair of jointed legs attached ventrally to each segment.

triordinal  the tips of the crochets occur in a pattern of three rows.

triserial  the base of the crochets occur in a pattern of three rows.

uniordinal  the tips of the crochets occur in one row.

uniserial  the base of the crochets occur in one row.

univoltine  one generation per year.

ur ticating  stinging (hairs).

venter  the underside of the body.

ventral  the area on the underside of a body part.

warts  small bumps or short finger-like projections extending from the body wall.

wingspan  the distance between the tips of the front wings in a properly spread specimen.


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