Damage Summary Sheet for Major Wood Destroying Organisms (Figures cited are from EB1814)

Carpenter Ants (Primary WDO*)

- Damage appears as galleries which look like the surfaces have been sanded by fine sandpaper.
- There is no frass visible, but sawdust fragments or wood excavations may be present.
- Can be confused with late stages of damage by dampwood termites but 6-sided frass pellets are not present.

See Figure 6

Dampwood Termites (Secondary WDO*)

- Damage may appear carpenter ant-like but usually more ragged.
- There are 6-sided frass pellets present within the feeding galleries, either scattered about singly or stuck together in clumps.
- Can be confused with carpenter ant damage, but sawdust or wood excavations are not present.

See Figures 2a and 2b

Subterranean termites (Primary WDO)

- Damage appears ragged and there will be mud tubes or the remnants thereof integrated into the feeding zones or wood surfaces. (Fig. 7b)
- Internal surfaces of the mud tubes comprised of fecal material and wood bits constructed by foraging workers and these surfaces appear pebbled or "scaly". (Fig. 7a)
- No individual frass pellets apparent.
- Shouldn't be confused with any other WDO.

Moisture Ant (Secondary WDO)

- Damage appears as galleries in wet, usually rotting wood and gallery construction often results in a ribbed appearance to the damaged wood. (Fig. 8a)
- These ants often make a separate carton of wood construction material that they live in (nest). (Fig.8b)
- They have been known to make tubes of roughly constructed wood and debris that serve as protective entryways to their nest. (Fig. 8c)
- No frass pellets apparent, though liquid frass may be incorporated into their nests and tubes.
- Shouldn't be confused with other WDO.

Lyctids - true powder post beetles (Primary WDO)

- Feed only in certain hardwoods that have adequate porosity to accept their ovipositors (e.g. oak, ash, walnut). The wood pores of basswood and maples are too small for their ovipositors thus are not attacked.
- Small emergence holes are eventually apparent (Fig. 3)
- Frass emanating from the emergence holes are talc-like fine powder (Fig.4a)
- Could be confused with anobiid or death watch beetles.
- Will not likely be found in PNW home construction (beams, studs, headers, etc.) because these wood members are almost always made of conifer or soft wood which is unacceptable to lyctids.

Anobiids - death watch beetles (Secondary WDO)

- Feed mostly in conifer or soft wood, but occasionally in hardwoods.
- Small emergence holes eventually become apparent (Fig. 4b)
- Frass emanating from the emergence holes are a gritty macro-powder in texture (Fig.4a)
- Will be found in damp wood usually in poorly vented crawl spaces where wood members (joists, etc.) have a moisture content of 14 - 17% RH (the ideal moisture range for anobiid development).
- Could be confused with Lyctids, but the frass texture is different and lyctids don't live in normal construction wood (conifer) found in PNW homes.

Fungal rots (Secondary WDO)

- Need highly saturated wood to develop
- Wood soil contact is the usual beginnings of the problem.
- Evidenced by right angle cracks or crumbles when dry (Fig. 1)
- No galleries, exit holes, chamber or frass visible in wood.
- Fungal mats sometimes present.
- Shouldn't be confused with other WDO.

*Primary WDO- a wood destroying organism that will attack sound dry wood.
Secondary WDO- a wood destroying organism that attacks only damp wood and will not attack dry wood

1. Excavations (galleries, chambers, exit holes, tunnels) visible in wood. 2

No galleries, chambers, exit holes, or tunnels, visible in wood; lengthwise or right angle cracks in wood; reduced weight; wood may crumble to powder when compressed.

(Fig. 1). Wood Decay Fungi

2. Excavations contain pellets (excrement) of distinct shape and size, (magnification may be needed to identify pellets) 3

Excavations do not contain pellets. 8

3. Pellets are six-sided and grooved with longitudinal ridges. 4

Pellets vary in size or shape, do not have ridges. 5

4. Pellets are $^{1}/_{32}$ inch long; damaged wood appears dry (occasional import to the Pacific Northwest)

(Fig 2b-bottom). Drywood Termite

Pellets are $^{1}/_{16}$* inch long; damaged wood is or has been wet (common in Pacific Northwest)

(Fig. 2a-damage and Fig. 2b-top). Dampwood Termite

5. Small exit "shot" holes in wood ($^{1}/_{32}$–$^{3}/_{32}$ inch); wood often crumbly and full of powdery microscopic pellets **(Fig. 3)**. 6

Larger exit holes ($^{5}/_{32}$–$^{1}/_{4}$ inch); tunnels packed with droppings, fibrous wood shavings often present. 7

6. Pellets granular (gritty); usually in softwoods (Douglas-fir, etc.) which have been damp; very common west of the Cascade Mountains.

(Fig. 4a-pellets-right; Fig. 4b-exit holes; Fig. 4c-anobiid frass expelled from hole). Anobiid Beetles

Pellets indistinct powdery or talclike (like flour); in dry hardwoods (oak, etc. or bamboo)

(Fig. 4a-pellets-left; Fig. 3-exit holes; Fig. 4d-damage). Lyctid Beetles

7. Tunnels in wood flattened; 3 times as wide as high; oval exit holes; concentric arc pattern present in gallery.

(Fig. 5a and b). Buprestid (flat-headed) Borers

Tunnels in wood no more than twice as wide as high; exit holes more or less circular; galleries similar to buprestids, but lack concentric patterns.

Cerambycid (round-headed) Borers

8. Excavations lined with white calcareous (calcium) materials found only in wood that spent time in salt water.

(Fig. 9). Teredo or Shipworm

** When wood is very wet, dampwood termite pellets may be clumped and indistinct and may lose their normal shape.*

Excavations not lined with white calcareous material; wood has not spent time in salt water. 9

9. Excavations larger (about 1/4 inch), very smooth and clean.
(Fig. 6). Carpenter Ants

Excavations smaller (about 1/8 inch) containing masses of soil particles or fragments of sawdust in rotted wood. 10

10. Excavations usually in sound wood; scale-like speckling in galleries; no sawdust present; mud tubes on wood.
(Figs. 7 a, b, and c). Subterranean Termites

Excavations in wet, rotted wood; no scale-like speckling in galleries; dark discolored sawdust, sometimes used to form protective tubes.
(Figs. 8 a, b, and c). Moisture Ants

Fig. 1.
Wood decay fungi in a support beam damaged by rain leakage.

Fig. 2a.
Damage and fecal pellets of dampwood termites.

The following list of references will provide most of what you need to know about wood destroying organisms in the Pacific Northwest, their identification, biology and management:

Pest Management Study Manual for Pest Control Operators. WSU-MISC0096. 154pp.
Termites: Biology, Prevention, and Control. WSU-EB0787. 8pp.
The Golden Buprestid—A Wood Boring Beetle. OSU-EC713. 4pp.
Preventing and Controlling Powderpost Beetles in and Around Homes. PNW326. 3pp.
Moisture Ants. WSU-EB1382. 4pp.
Carpenter Ants: Their Biology and Control. WSU-EB0818. 6pp.
Anobiid Beetles in Structures. WSU-EB1577. 3pp.

Fig. 2b.
Fecal pellets of dampwood termites—top; drywood termites—bottom. Standard 1 1/4-inch-long paper clip shown for scale.

Fig. 3.
Shot holes in wood. (Lyctid or powderpost beetle exit holes.)

Fig. 4a.
Fecal pellets (frass) of lyctid beetles—left; fecal pellets of anobiid beetles—right.

Fig. 4b.
Anobiid or deathwatch beetle exit holes.

Fig. 4c.
Anobiid frass expelled from hole.

Fig. 4d.
Lyctid beetle damage.

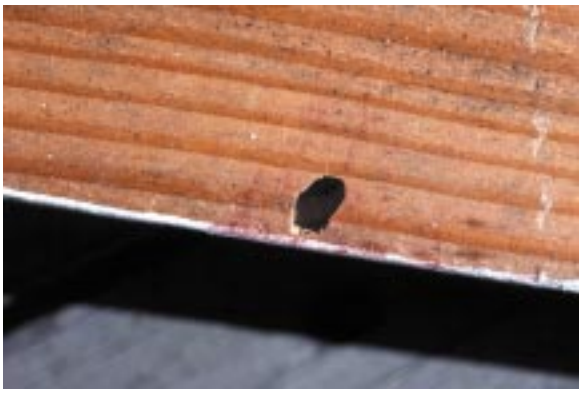

Fig. 5a.
Buprestid beetle exit hole.

Fig. 5b.
Buprestid beetle larval mines.

Fig. 6.
Carpenter ant galleries (note sawdust fragments in lower right quadrant).

Fig. 7a.
Subterranean termite "scaling."

Fig. 7b.
Subterranean termite damage.

7c.
Subterranean termite mud tubes.

Fig. 8a.
Moisture ant damage.

Fig. 8b.
Moisture ant galleries made from damaged pressboard.

Fig. 8c.
Moisture ant colony on a mudsill in crawl space.

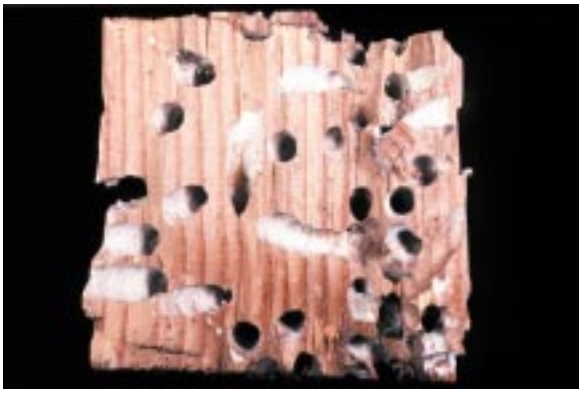

Fig. 9.
Teredo or shipworm damage.

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COOPERATIVE EXTENSION
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Pacific Dampwood Termites Read more - online pdf



Pacific Dampwood Termites winged reproductives, worker, soldier and 6 sided fecal pellets

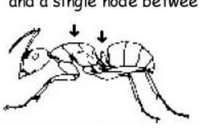
Subterranean Termites Read more - online pdf




Subterranean termites workers, winged reproductives, damage (scale-like speckling in galleries) and mud tubes

Carpenter Ants Read more - online pdf

Carpenter arts have evenly convex thoracic dorsum and a single node between their thorax and abdomen



The reproductives have wings.

The damage from these have smooth galeries with shavings expelled from the nest. (below)

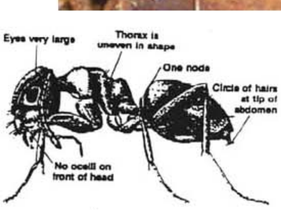
Carpenter ants are polymorphic with winged reproductives and 3 sized workers

Moisture Ants Read more - online pdf


Moisture Ant

Lasius spp.

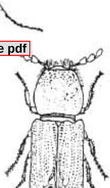
Identifying Characters: The moisture ants (called cornfield ants in other parts of the country) is light to dark brown in color. It resembles a carpenter ant but does not have even shaped thorax in profile. This ant has one node. Our western species will have ocelli, other species may not have ocelli.



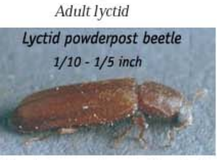
Wood Boring Beetles Read more - online pdf

Adult lyctid

Adult anobiid



Adult bostrichid



Dark brown to nearly black larval feeding produces a frass as fine as face powder, attack only large pored hardwoods such as oak, ash, hickory etc. Adults emerge by chewing a small circular hole 2 to 3 mm in diameter

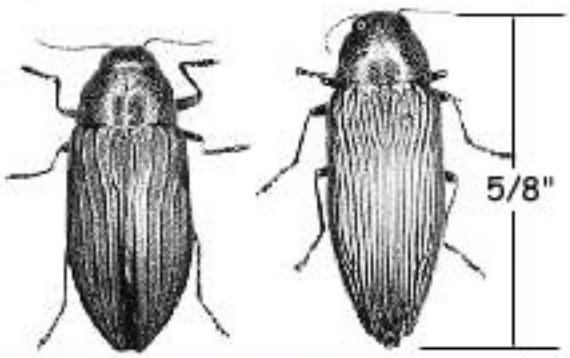
Anobiid powderpost beetles attack sapwood reduce wood to pellets, with a slightly gritty feel instead of a fine powder. Adults range from 3 to 7 mm long,reddish-brown to nearly black. Adult exit holes are round and range from 1.6 to 3 mm in diameter.

Bostrichids cause fewer problems then lyctids and anobiids in the NW. They feed on hardwoods and softwood. Typically 3 to 6 mm long and reddish-brown to black color. Frass is meal like, no pellets, tightly packed in their galeries.

Buprestid Read more - online pdf

Golden Buprestid

Average Size: 16mm One of the most damaging flatheaded borers in western North America. Larvae can also survive up to 50 years in green timber, logs or poles. (not kiln dried wood)



COMMON CERAMBYCIDS IN WASHINGTON

(Long horned wood boring beetles) Read more - online pdf

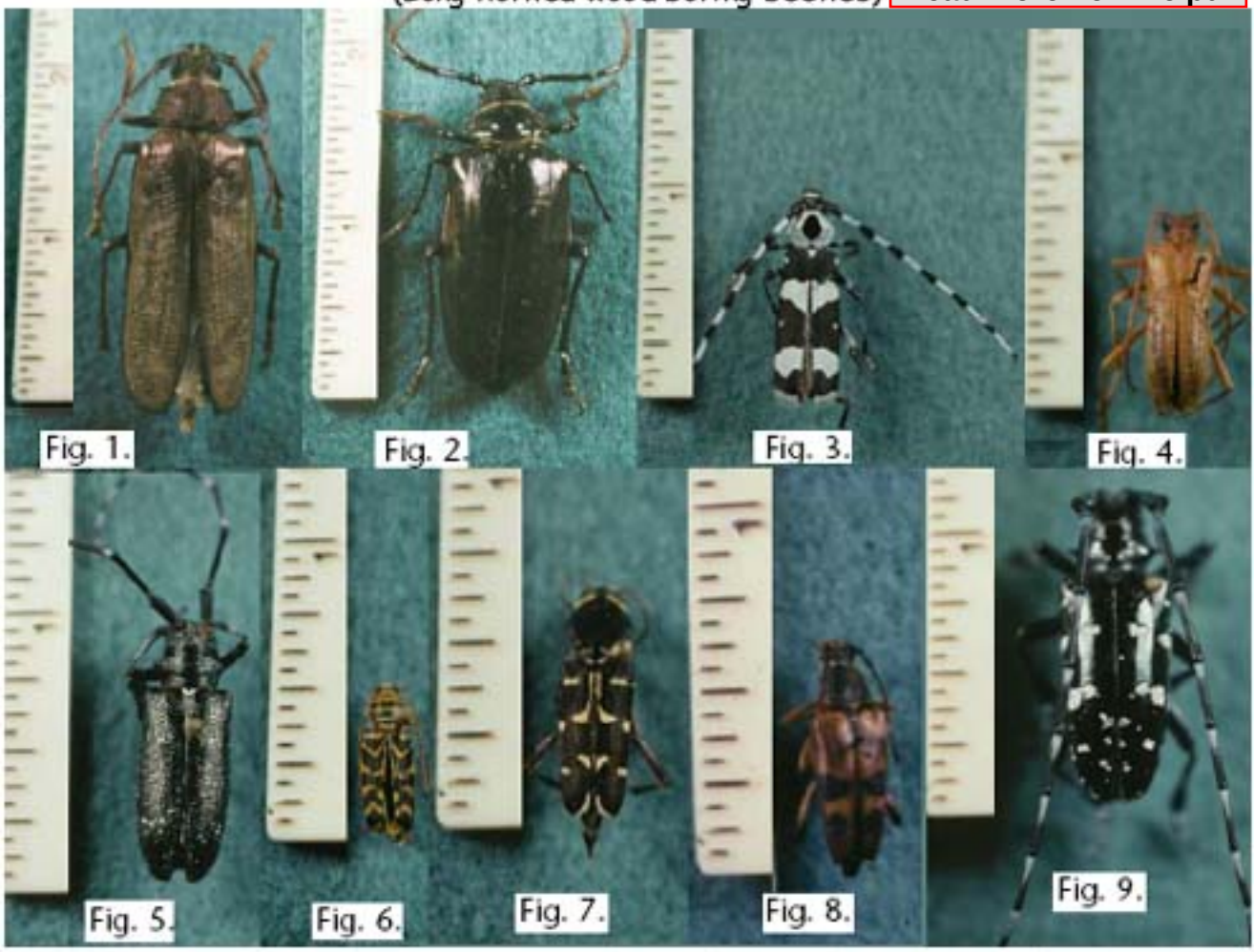


Fig. 1. The pine sawyer, Ergates spiculatus (larvae feed primarily in stressed Douglas-fir and ponderosa pine)
Fig. 2. The California prionus, Prionus californicus (larvae feed on oak and madrone but also in some conifers)
Fig. 3. The banded alder borer, Rosalia funebris (larvae feed in dead maple, alder, oak, willow, etc.)
Fig. 4. The Douglas-fir beetle, Centrodera spruca (larvae feed in dead wood of conifers and hardwoods.)
Fig. 5. The white spotted sawyer, Monochamus scutellatus (larvae feed in injured or dying conifers of all types.)
Fig. 6. The locust borer, Megacylene robinae (larvae feed on stressed oak.)
Fig. 7. A Douglas fir borer, Xylotrechus longitarus (larvae feed in stressed Douglas-fir.)
Fig. 8. A conifer borer, Leptura obliterata (larvae feed in dead or fire-killed conifers of all kinds.)
Fig. 9. Asian longhorn beetle, Anoplophora glabripennis (larvae feed in a variety of living hardwood trees.)