Douglas-fir

(Pseudotsuga menziesii)

OSU Extension Benton County
4077 SW Research Way
Corvallis Oregon 97333, 541-766-6750
http://extension.oregonstate.edu/benton/

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Phenophase: Breaking Needle Buds

Not Yet

Report This

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Not Yet

Report This

Phenophase: Breaking Needle Buds

Not Yet

Report This

Phenophase: Breaking Needle Buds

Not Yet

Report This

Douglas-fir (Pseudotsuga menziesii)

Phenophase: Breaking Needle Buds

Record/Report:

One or more breaking needle buds are visible on the plant. A needle bud is considered "breaking" once a green needle tip is visible at the end of the bud, but before the first needle from the bud has unfolded and spread away at an angle from the developing stem.

1. Buds are hard reddish brown, thin & firm—report **NO**
2. Buds swollen, tip of bud becomes light brown or yellow—report **NO**
3. Bud break, green leaf tips visible at end of open bud—report **YES**
4. Bud break, young green needles visible—report **YES**

Douglas-fir (Pseudotsuga menziesii)

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4. Bud break, young green needles visible—report **YES**

Phenophase: young needles

Not Yet

Report This

Phenophase: young needles

Not Yet

Report This

Phenophase: young needles

Not Yet

Report This

Phenophase: young needles

Not Yet

Report This

Douglas-fir (Pseudotsuga menziesii)

Phenophase: Young Needles

Record/Report:

One or more young, unfolded needles are visible on the plant. A needle is considered "young" and "unfolded" once it has spread away from the developing stem enough that its point of attachment to the stem is visible, but before it has reached full size or turned the darker green color or tougher texture of mature needles on the plant.

1. & 2. Young needles visible not spreading yet—report **NO**
3. & 4. Young needles expanding, shoot elongating, needle attachment to stem visible— report **YES**

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1. & 2. Young needles visible not spreading yet—report **NO**
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Phenophase: pollen cones

Report

This

Phenophase: pollen cones

Report

This

Phenophase: pollen cones

Report

This

Phenophase: pollen cones

Report

This

Douglas-fir (Pseudotsuga menziesii)

Phenophase: pollen cones

One or more fresh, male pollen cones (strobili) are visible on the plant. Cones have overlapping scales that are initially tightly closed, then spread apart to open the cone and release pollen. Include cones that are unopened or open, but do not include wilted or dried cones that have already released all of their pollen.

1. —report **YES**
2. —report **YES**
3. —report **YES**

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3. —report **YES**

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1. —report **YES**
2. —report **YES**
3. —report **YES**

Phenophase: open pollen cones

Not Yet

Report This

Phenophase: open pollen cones

Not Yet

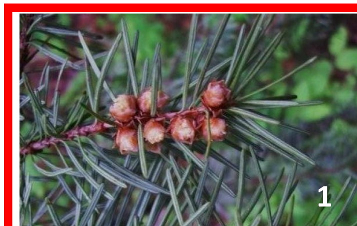
Report This

Phenophase: open pollen cones

Not Yet

Report This

Phenophase: open pollen cones



Not Yet

Report This

Douglas-fir (Pseudotsuga menziesii)

Phenophase: open pollen cones

Record/Report:
One or more open, fresh, male pollen cones (strobili) are visible on the plant. Cones are considered "open" when the scales have spread apart to release pollen. Do not include wilted or dried cones that have already released all of their pollen.

1. Pollen cones visible but scales not spread—report **NO**

2. & 3. Pollen cones scales spread apart, not wilted —report **YES**

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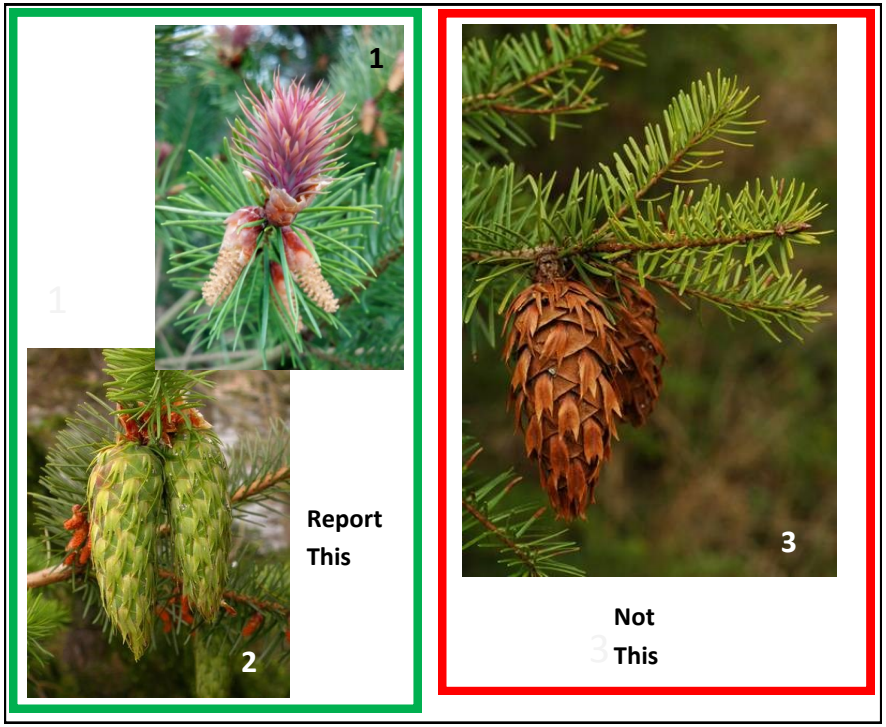
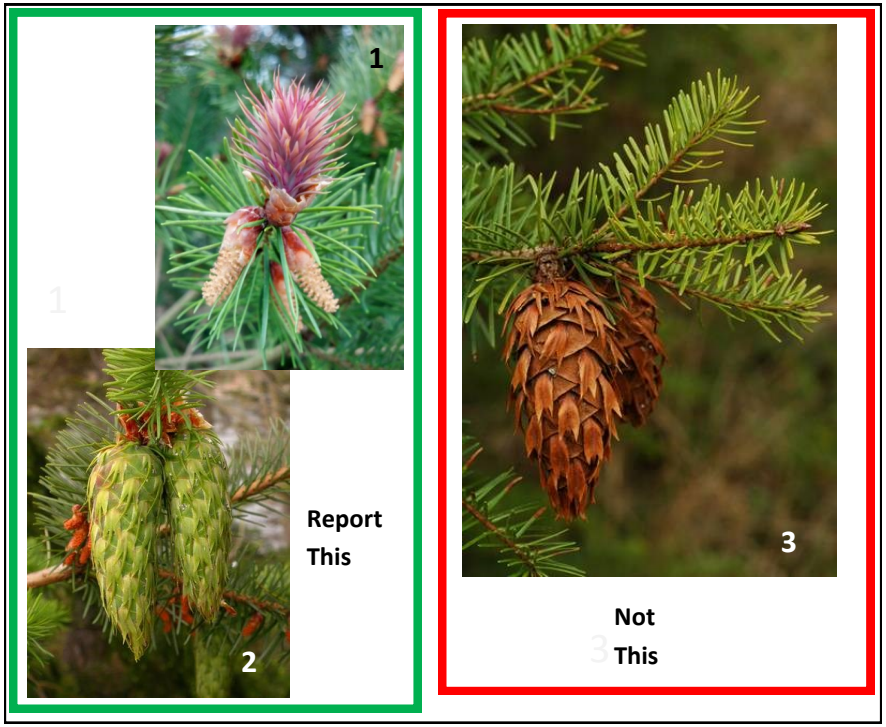
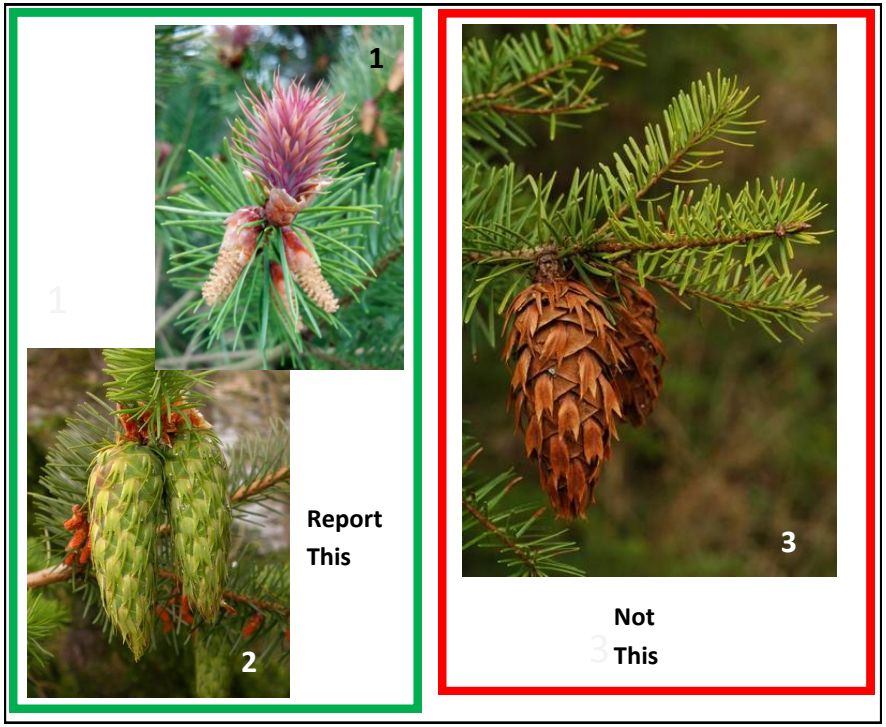
Phenophase: unripe seed cones



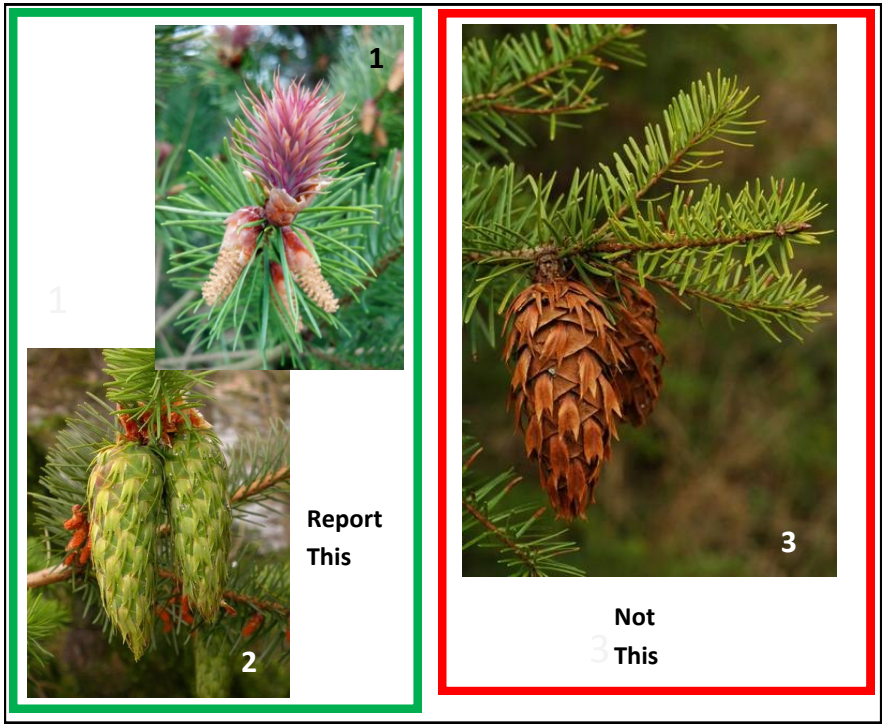
Phenophase: unripe seed cones



Phenophase: unripe seed cones



Phenophase: unripe seed cones



Douglas-fir (Pseudotsuga menziesii)

Phenophase: unripe seed cones

Record/Report:
One or more unripe, female seed cones are visible on the plant.
For *Pseudotsuga menziesii*, an unripe seed cone is green or brown with scales closed together'

1. Young female seed cone, reddish—report **YES**
2. Female seed cone, green with tightly closed scales —report **YES**
3. Seed cone brown with open scales— report **NO**

Douglas-fir (Pseudotsuga menziesii)

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Phenophase: ripe seed cones

Report This

Not This

Phenophase: ripe seed cones

Report This

Not This

Phenophase: ripe seed cones

Report This

Not This

Phenophase: ripe seed cones

Report This

Not This

Douglas-fir (Pseudotsuga menziesii)

Phenophase: ripe seed cones

Record/Report:

One or more ripe, female seed cones are visible on the plant. For *Pseudotsuga menziesii*, a seed cone is considered ripe when it has turned brown and the scales have begun to spread apart to expose the seeds inside' Do not include empty cones that have already dropped all of their seeds'

1. Brown cone, looks fresh, just beginning to spread scales—report **YES**
2. Brown cone, looks old, scales well spread, most seeds dropped—**NO**

Douglas-fir (Pseudotsuga menziesii)

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2. Brown cone, looks old, scales well spread, most seeds dropped—**NO**

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1. Brown cone, looks fresh, just beginning to spread scales—report **YES**
2. Brown cone, looks old, scales well spread, most seeds dropped—**NO**

Phenophase: recent cone or seed drop

Report
This

Not
This

Phenophase: recent cone or seed drop

Report
This

Not
This

Phenophase: recent cone or seed drop

Report
This

Not
This

Phenophase: recent cone or seed drop

Report
This

Not
This

Douglas-fir (Pseudotsuga menziesii)

Phenophase: recent cone or seed drop

Record/Report:

One or more seed cones or seeds have dropped or been removed from the plant since your last visit. Do not include empty seed cones that had long ago dropped all of their seeds but remained on the plant.

1. Fresh viable seed drop—report **YES**
2. Old weathered cone, no seed, —report **NO**

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Douglas-fir (Pseudotsuga menziesii)

Phenophase: pollen release

Record/Report:

One or more male cones (strobili) on the plant release visible pollen grains when gently shaken or blown into your palm or onto a dark surface.

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