Taking Stock of Your Forest: Beyond Timber

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Tree School 2013

What we will cover

- Managing woodlands for multiple values
- What is an inventory and how is it used
- What to measure in a multiple resource inventory
- Types of inventory methods

Why is your land important to you? How do you use it?

- A nice place to live
- Produce timber
- Maintain biodiversity
- A place for wildlife
- Recreation
- Edible products
- Pass it on to my kids
- Plant more trees

Practice Question:
Which of the following is a fruit?
1. Apple
2. Banana
3. Tomato
4. Hamburger
5. Peach

What is an inventory?

- A measure of what you have and where it is
- May be based on a sample or a census
- Methods and measurements must match your objectives and constraints
- An important part of your management plan

Which are priorities for you and your woodland?

1. Walking trails
2. Watching birds and wildlife
3. Grow, harvest and sell timber
4. Reduce invasive weeds
5. Maintain biodiversity
6. Produce firewood
7. Pick mushrooms or other edibles
8. Family gatherings
Do you have a management plan?

1. Yes
2. No

Response Counter

Have you ever done a forest inventory on your property?

1. Yes
2. No

Response Counter

Your inventory should reflect how you use your land:

- Tree species
- Size
- Volume
- Growth rate
- A place for wildlife
- Trails and roads
- Favorite spots
- Mushroom patches
- Berries
- Soil condition
- Existing vegetation
- Native plants
- Invasive plants
- Recreation
- Native trees
- Edible products, wildcrafting
- Maintain biodiversity
- Plant more trees

Response Counter

Inventory methods:

- Aerial photo/map
- Drive-by
- Walk around
- Sampling – plots or transects

What information to collect?
It depends on your objectives!

- A good inventory is time consuming.
- Decide what information you want before you start.
- Collect information on multiple resources in one visit to save time and effort.
If you are interested in **wildlife habitat**...

- Snags & Down Wood
- Deciduous Trees & Shrubs

**Snags and Down Wood**

- 93 species of wildlife use snags (mostly birds)
- Down logs provide hiding cover and travel corridors
- Rule of thumb: **bigger is better** (most species will use snags >25" dbh)

**Snag Types**

- **Hard Snag**
  - Limbs and bark retained, top often intact
- **Soft Snag**
  - Limbs and bark shed, decaying, may have holes, top often broken out

**Downed Woody Material**

- **Solid**
- **Decayed**

**How much dead wood?**

- It depends, but here are some examples...
- Forest Practices Rules:
  - OR: 2 snags, 2 down logs/acre (25 ac+)
  - W. WA: 2 down logs, 3 wildlife trees/acre
- ODF State Forest management:
  - At least 2 hard snags/acre
  - “Older Forest Structure” = 6 snags/acre
  - 2 must be 24” DBH
  - 600-900 cubic ft/acre downed logs retained in harvest
Deciduous trees and shrubs

- Important food source
- Mast-producing shrubs

Wildlife Signs to look for

- Pellets/Scat
- Tracks/Trails
- Nests
- Burrows/holes
- Tree Cavities

Inventory methods

- Aerial photo/map
- Drive-by
- Walk around
- Sampling – plots or transects

Aerial Photos and maps can tell you a lot

- Oregon Explorer – www.oregonexplorer.info
- Google Earth – http://earth.google.com

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If you wanted to build a trail, what can this map tell you?

The "Drive By" looks like it’s alder.

The walk through shows it is mainly cottonwood and willow with some alder by the road.

If you can’t tell what you have for sure and you need more information – consider sampling – put in some plots or transects.
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4/8/2013

Inventory Tools

Your most important tools

Pacing is an efficient method of measuring the distance you travel.

Transects

• Linear sampling method
• Traverse the sampling area at designated intervals
• Record observations at designated intervals

Transect Layout

• Start from a known linear reference
  – Road
  – Property boundary
• Lay out on map or aerial photo WITH known scale or legend
  – Does not have to be exact, but helps you determine how many transects you need and relationship to landmarks

Transect Layout (continued)

• Determine direction of transect using map/photo and compass

Photos: Virtual Cruiser Vest, forestandrange.org
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If property lines are well marked
Minimizes uphill/downhill travel

The property line is the reference point

The road is the reference point
At each stopping point, record observations to right and left.

Quantitative data can be subjective...

Hi Tech is cool

Low Tech is just as useful
What could you inventory with transects?

- Weeds
- Other plants of interest —
  - Shrubs with wildlife food value
  - Non-timber forest products
- Snags
- Root disease evidence
- Canopy structure —
  - One story, two-story, shrubs/no shrubs, hardwoods, etc

Root disease — what to look for

- Canopy gaps
- Openings dominated by shrubs/hardwoods
- Trees in progressive states of decline
- Downed trees with no root ball

Vertical structure

![Image](https://example.com/image.png)

Example Forest Structure Types

<table>
<thead>
<tr>
<th>One Story</th>
<th>Two Stories</th>
<th>Three Stories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Patchy</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Sample Plots — the next step

- At designated sample points along a transect, establish area plots and record observations within them.
- This is the conventional inventory method for timber.
- Useful if you want more quantitative data, or when what you are observing is hard to measure from a distance.
Combines timber & other resources into a single inventory

Record DBH by species and condition

<table>
<thead>
<tr>
<th>Timber</th>
<th>Snags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Good Tree</td>
</tr>
<tr>
<td>D-fir</td>
<td>14</td>
</tr>
<tr>
<td>Hemlock</td>
<td>9</td>
</tr>
<tr>
<td>Grand fir</td>
<td>7</td>
</tr>
</tbody>
</table>

What size plots?

Choose a plot size such that around 5 to 8 trees fall within your plot.

Seedlings/shrubs: 1/100 to 1/200 ac
Saplings (less than 7” DBH): 1/50 to 1/100 ac
Small timber (7-12” DBH): 1/50 ac
Medium timber (13-20” DBH): 1/20 ac
Large timber (21+): 1/10 ac

Vegetation Cover

- % of ground covered
- Shrubs
- Herbs & forbs
- Grasses
- Noxious weeds

Summary

An inventory...
- can provide concrete data on your forest resources and their spatial context
- can be as simple or complex as you want it to be
- should be tailored to your management objectives – in scope and scale
- is a great way to explore your property but it is a lot of work – plan ahead!
Resources for more help

- Basic Forest Inventory Techniques for Family Forest Owners: PNW 630
  [http://extension.oregonstate.edu/catalog](http://extension.oregonstate.edu/catalog)
- Trail Design for Small Properties: U. Minnesota Extension Service
  [https://shop-secure.extension.umn.edu/](https://shop-secure.extension.umn.edu/)

The content of this class was...

1. Not useful to me
2. Somewhat useful to me
3. Very useful to me

Which information covered was most useful to you?

1. Online mapping tools
2. How to use a compass
3. Wildlife habitat elements
4. How to do transect sampling
5. How to do plot sampling

Did you like using the clickers?

1. Yes
2. No

Thanks for attending!