



QUICK GUIDE TO FIELD PROCEDURES

This quick guide to field procedures will remind you of the steps you should follow to use the growth intercept method in a silviculture survey. Complete instructions on using the growth intercept method are provided in the report *Growth Intercept Method for Silviculture Surveys* available from the Stand Development Specialist, Forest Practices Branch, Victoria, B.C. (Tel) 250-356-0305 (FAX) 250-387-2136.

To use the growth intercept method to estimate site index for each stratum in an opening, follow these four steps.

1. Pre-stratify the opening:

See the Silviculture Practices Branch manual *Growth Intercept Method for Silviculture Surveys* for details.

2. For each stratum, select the site index species:

Use the leading species (inventory component) as the site index species. See the Silviculture Practices Branch manual *Growth Intercept Method for Silviculture Surveys* for more details.

3. In each stratum, collect growth intercept measurements:

- a. Establish one growth intercept plot per hectare to a maximum of 10 plots per stratum. A sample grid is recommended to achieve uniform coverage of the entire stratum area. Use a plot radius of 5.64 m.
- b. Select one growth intercept sample tree from each plot. Sample tree should have the following characteristics:

| | |
|-----------------------|------------------------------------------------------------------------------|
| Species | Western hemlock |
| DBH | largest DBH western hemlock |
| Stem condition | undamaged stem vigorous, uniform annual height growth above breast height |
| Crown position | dominant or co-dominant crown class not overtopped by trees or brush |
| Ring width | vigorous, uniform ring widths from pith to bark |

c. On each growth intercept sample tree:

- locate breast height (1.3 m above ground level);
- measure total tree height (m);
- determine age at breast height; and
- on the field sheet, record species, total height, and breast height age.

GROWTH INTERCEPT TABLE

Species: Western hemlock (Hw)

Region: Interior B.C.

Source: Nigh, 1997b

| Breast height age (yr) | Site index (m) | | | | | | | | | | | | | | | |
|------------------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | Tree total height (m) | | | | | | | | | | | | | | | |
| 3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.4 |
| 4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.4 | 2.5 | 2.7 |
| 5 | 1.4 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.7 | 2.8 | 3.0 |
| 6 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 2.0 | 2.1 | 2.2 | 2.4 | 2.6 | 2.7 | 2.9 | 3.1 | 3.4 |
| 7 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.8 | 3.0 | 3.2 | 3.5 | 3.7 |
| 8 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.2 | 2.4 | 2.6 | 2.8 | 3.1 | 3.3 | 3.6 | 3.9 | 4.2 |
| 9 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.2 | 2.4 | 2.6 | 2.8 | 3.0 | 3.3 | 3.6 | 3.9 | 4.2 | 4.6 |
| 10 | 1.5 | 1.5 | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 | 2.5 | 2.8 | 3.0 | 3.3 | 3.6 | 3.9 | 4.2 | 4.6 | 5.0 |
| 11 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.3 | 2.5 | 2.7 | 3.0 | 3.2 | 3.5 | 3.9 | 4.2 | 4.5 | 4.9 | 5.3 |
| 12 | 1.5 | 1.7 | 1.8 | 2.0 | 2.2 | 2.4 | 2.7 | 2.9 | 3.2 | 3.5 | 3.8 | 4.1 | 4.5 | 4.9 | 5.3 | 5.7 |
| 13 | 1.6 | 1.8 | 1.9 | 2.1 | 2.4 | 2.6 | 2.9 | 3.1 | 3.4 | 3.8 | 4.1 | 4.4 | 4.8 | 5.2 | 5.6 | 6.0 |
| 14 | 1.7 | 1.8 | 2.0 | 2.3 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 4.4 | 4.8 | 5.1 | 5.5 | 6.0 | 6.4 |
| 15 | 1.7 | 1.9 | 2.2 | 2.4 | 2.7 | 3.0 | 3.3 | 3.6 | 3.9 | 4.3 | 4.7 | 5.1 | 5.5 | 5.9 | 6.3 | 6.8 |
| 16 | 1.8 | 2.0 | 2.3 | 2.6 | 2.9 | 3.2 | 3.5 | 3.8 | 4.2 | 4.6 | 5.0 | 5.4 | 5.8 | 6.2 | 6.7 | 7.2 |
| 17 | 1.9 | 2.2 | 2.4 | 2.7 | 3.0 | 3.4 | 3.7 | 4.1 | 4.5 | 4.9 | 5.3 | 5.7 | 6.1 | 6.6 | 7.0 | 7.5 |
| 18 | 2.0 | 2.3 | 2.6 | 2.9 | 3.2 | 3.6 | 3.9 | 4.3 | 4.7 | 5.1 | 5.6 | 6.0 | 6.4 | 6.9 | 7.4 | 7.9 |
| 19 | 2.1 | 2.4 | 2.7 | 3.0 | 3.4 | 3.8 | 4.1 | 4.5 | 5.0 | 5.4 | 5.8 | 6.3 | 6.8 | 7.2 | 7.7 | 8.2 |
| 20 | 2.2 | 2.5 | 2.8 | 3.2 | 3.5 | 3.9 | 4.4 | 4.8 | 5.2 | 5.7 | 6.1 | 6.6 | 7.1 | 7.6 | 8.1 | 8.6 |
| 21 | 2.2 | 2.6 | 2.9 | 3.3 | 3.7 | 4.1 | 4.6 | 5.0 | 5.5 | 5.9 | 6.4 | 6.9 | 7.4 | 7.9 | 8.5 | 9.0 |
| 22 | 2.3 | 2.7 | 3.1 | 3.5 | 3.9 | 4.3 | 4.8 | 5.3 | 5.7 | 6.2 | 6.7 | 7.2 | 7.8 | 8.3 | 8.8 | 9.4 |
| 23 | 2.4 | 2.8 | 3.2 | 3.6 | 4.1 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.6 | 8.1 | 8.7 | 9.2 | 9.8 |
| 24 | 2.5 | 2.9 | 3.3 | 3.8 | 4.3 | 4.7 | 5.2 | 5.7 | 6.3 | 6.8 | 7.3 | 7.9 | 8.5 | 9.0 | 9.6 | 10.2 |
| 25 | 2.6 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.6 | 7.1 | 7.7 | 8.2 | 8.8 | 9.4 | 10.0 | 10.6 |
| 26 | 2.7 | 3.2 | 3.6 | 4.1 | 4.7 | 5.2 | 5.7 | 6.3 | 6.8 | 7.4 | 8.0 | 8.6 | 9.2 | 9.8 | 10.4 | 11.0 |
| 27 | 2.8 | 3.3 | 3.8 | 4.3 | 4.9 | 5.4 | 6.0 | 6.5 | 7.1 | 7.7 | 8.3 | 8.9 | 9.5 | 10.1 | 10.7 | 11.4 |
| 28 | 2.9 | 3.4 | 3.9 | 4.5 | 5.0 | 5.6 | 6.2 | 6.8 | 7.4 | 8.0 | 8.6 | 9.2 | 9.8 | 10.5 | 11.1 | 11.7 |
| 29 | 3.0 | 3.5 | 4.1 | 4.7 | 5.2 | 5.8 | 6.4 | 7.0 | 7.6 | 8.3 | 8.9 | 9.5 | 10.2 | 10.8 | 11.5 | 12.1 |
| 30 | 3.1 | 3.7 | 4.2 | 4.8 | 5.4 | 6.0 | 6.6 | 7.3 | 7.9 | 8.5 | 9.2 | 9.8 | 10.5 | 11.2 | 11.8 | 12.5 |

How to use the table to get a site index estimate from measured height and age.

Step 1: Look down the breast height age column to find the row corresponding to the breast height age of your sample tree.

Step 2: Look across the row to find the total height that is closest to the total height of the sample tree.

Step 3: Look up the column to find the site index estimated by sample tree height and age.

GROWTH INTERCEPT TABLE

Species: Western hemlock (Hw)

Region: Interior B.C.

Source: Nigh, 1997b

| Breast height age (yr) | Site index (m) | | | | | | | | | | | | | | |
|------------------------|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
| | Tree total height (m) | | | | | | | | | | | | | | |
| 3 | 2.5 | 2.7 | 2.8 | 3.0 | 3.2 | 3.5 | 3.7 | 3.9 | 4.2 | 4.5 | 4.8 | 5.1 | 5.4 | 5.7 | 6.1 |
| 4 | 2.9 | 3.1 | 3.3 | 3.5 | 3.7 | 4.0 | 4.2 | 4.5 | 4.8 | 5.1 | 5.4 | 5.7 | 6.1 | 6.4 | 6.8 |
| 5 | 3.2 | 3.4 | 3.7 | 3.9 | 4.1 | 4.4 | 4.7 | 5.0 | 5.3 | 5.6 | 5.9 | 6.2 | 6.6 | 6.9 | 7.3 |
| 6 | 3.6 | 3.8 | 4.1 | 4.3 | 4.6 | 4.9 | 5.2 | 5.5 | 5.8 | 6.1 | 6.5 | 6.8 | 7.2 | 7.6 | 8.0 |
| 7 | 4.0 | 4.3 | 4.6 | 4.9 | 5.2 | 5.5 | 5.8 | 6.2 | 6.6 | 7.0 | 7.4 | 7.8 | 8.2 | 8.6 | 9.1 |
| 8 | 4.5 | 4.8 | 5.2 | 5.5 | 5.9 | 6.3 | 6.7 | 7.2 | 7.6 | 8.1 | 8.6 | 9.1 | 9.6 | 10.1 | 10.7 |
| 9 | 4.9 | 5.3 | 5.7 | 6.1 | 6.6 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 9.6 | 10.2 | 10.8 | 11.4 | 12.0 |
| 10 | 5.3 | 5.8 | 6.2 | 6.6 | 7.1 | 7.6 | 8.1 | 8.7 | 9.2 | 9.8 | 10.4 | 11.0 | 11.6 | 12.3 | 12.9 |
| 11 | 5.7 | 6.2 | 6.6 | 7.1 | 7.6 | 8.1 | 8.6 | 9.2 | 9.7 | 10.3 | 10.9 | 11.5 | 12.2 | 12.8 | 13.5 |
| 12 | 6.1 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 9.5 | 10.1 | 10.7 | 11.2 | 11.8 | 12.5 | 13.1 | 13.8 |
| 13 | 6.5 | 6.9 | 7.4 | 7.9 | 8.4 | 8.9 | 9.4 | 9.9 | 10.5 | 11.1 | 11.6 | 12.2 | 12.8 | 13.5 | 14.1 |
| 14 | 6.9 | 7.3 | 7.8 | 8.3 | 8.8 | 9.3 | 9.9 | 10.4 | 11.0 | 11.5 | 12.1 | 12.7 | 13.3 | 14.0 | 14.6 |
| 15 | 7.2 | 7.7 | 8.2 | 8.7 | 9.2 | 9.8 | 10.3 | 10.9 | 11.4 | 12.0 | 12.6 | 13.2 | 13.8 | 14.4 | 15.0 |
| 16 | 7.6 | 8.1 | 8.6 | 9.1 | 9.6 | 10.2 | 10.7 | 11.3 | 11.8 | 12.4 | 13.0 | 13.6 | 14.2 | 14.8 | 15.4 |
| 17 | 8.0 | 8.5 | 9.0 | 9.5 | 10.0 | 10.6 | 11.1 | 11.7 | 12.2 | 12.8 | 13.4 | 14.0 | 14.6 | 15.2 | 15.8 |
| 18 | 8.4 | 8.9 | 9.4 | 9.9 | 10.4 | 11.0 | 11.5 | 12.1 | 12.6 | 13.2 | 13.8 | 14.4 | 15.0 | 15.6 | 16.2 |
| 19 | 8.7 | 9.3 | 9.8 | 10.3 | 10.9 | 11.4 | 12.0 | 12.6 | 13.1 | 13.7 | 14.3 | 14.9 | 15.5 | 16.1 | 16.7 |
| 20 | 9.1 | 9.7 | 10.2 | 10.7 | 11.3 | 11.9 | 12.4 | 13.0 | 13.6 | 14.2 | 14.8 | 15.4 | 16.0 | 16.6 | 17.2 |
| 21 | 9.5 | 10.1 | 10.6 | 11.2 | 11.8 | 12.3 | 12.9 | 13.5 | 14.1 | 14.7 | 15.3 | 15.9 | 16.6 | 17.2 | 17.8 |
| 22 | 9.9 | 10.5 | 11.1 | 11.7 | 12.2 | 12.8 | 13.4 | 14.1 | 14.7 | 15.3 | 15.9 | 16.6 | 17.2 | 17.8 | 18.5 |
| 23 | 10.4 | 11.0 | 11.6 | 12.2 | 12.8 | 13.4 | 14.0 | 14.6 | 15.3 | 15.9 | 16.5 | 17.2 | 17.8 | 18.5 | 19.2 |
| 24 | 10.8 | 11.4 | 12.0 | 12.6 | 13.2 | 13.9 | 14.5 | 15.1 | 15.8 | 16.4 | 17.1 | 17.8 | 18.4 | 19.1 | 19.8 |
| 25 | 11.2 | 11.8 | 12.4 | 13.1 | 13.7 | 14.3 | 15.0 | 15.6 | 16.3 | 17.0 | 17.6 | 18.3 | 19.0 | 19.7 | 20.3 |
| 26 | 11.6 | 12.2 | 12.9 | 13.5 | 14.1 | 14.8 | 15.4 | 16.1 | 16.8 | 17.4 | 18.1 | 18.8 | 19.5 | 20.1 | 20.8 |
| 27 | 12.0 | 12.6 | 13.3 | 13.9 | 14.6 | 15.2 | 15.9 | 16.6 | 17.2 | 17.9 | 18.6 | 19.3 | 20.0 | 20.7 | 21.4 |
| 28 | 12.4 | 13.0 | 13.7 | 14.4 | 15.0 | 15.7 | 16.4 | 17.0 | 17.7 | 18.4 | 19.1 | 19.8 | 20.5 | 21.2 | 21.9 |
| 29 | 12.8 | 13.4 | 14.1 | 14.8 | 15.5 | 16.2 | 16.8 | 17.5 | 18.2 | 18.9 | 19.6 | 20.3 | 21.0 | 21.8 | 22.5 |
| 30 | 13.2 | 13.9 | 14.6 | 15.3 | 15.9 | 16.6 | 17.3 | 18.1 | 18.8 | 19.5 | 20.2 | 20.9 | 21.6 | 22.4 | 23.1 |

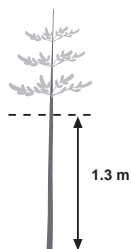
How to use the table to get a site index estimate from measured height and age.

Step 1: Look down the breast height age column to find the row corresponding to the breast height age of your sample tree.

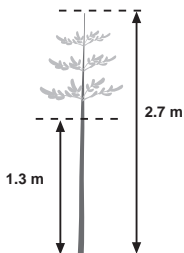
Step 2: Look across the row to find the total height that is closest to the total height of the sample tree.

Step 3: Look up the column to find the site index estimated by sample tree height and age.

Step 1: Locate breast height



Step 2: Measure total height



Step 3: Determine breast height age by one of two methods

1. fell tree and count rings



4 years old

2. count rings on increment core



4 years old

Step 4: Record species, height, and age on field card

| Plot no. | Species | Total height (m) | Breast height age (yr) |
|----------|---------|------------------|------------------------|
| 1 | Hw | 2.7 | 4 |

4. For each stratum, calculate the average site index:

- For each sample tree, look up site index in the Growth Intercept Table based on total height and breast height age; and
- Average the site index values from all plots in the stratum.

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