




<b>Region One</b> <b>Vegetation Classification, Mapping,</b> <b>Inventory and Analysis Report</b>					$\bar{x} = \frac{\sum x}{n}$
Report 06-06 v1.0				November 27, 2006	
<b>Estimates of Old Growth for the Clearwater National Forest</b>					
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## Introduction

This document provides estimates of the percent of old growth for the Clearwater National Forest and by 5<sup>th</sup> code HUC using Forest Inventory and Analysis (FIA) data. All plots that had forested<sup>1</sup> conditions on the plot that were located on the Clearwater National Forest were used. Those plots, in which wildfire or harvest have occurred since the 2000 – 2001 inventory until 2003, were coded to not meet the old growth definition.

As background to this report and for detailed information on FIA sampling methods and data, analysis techniques used, Northern Region old growth criteria, percent of old growth in the Region and by National Forests, see *Estimates of Old Growth for the Northern Region and National Forests* (Bush and others, 2006)

## Percent Old Growth in the Clearwater National Forest

Table 1 provides a summarization of the estimates of percent old growth on forest-lands for the Clearwater National Forest as per the Northern Region’s Green and others 2005 definition of old growth.

<sup>1</sup> “..land at least 10 percent stocked, or currently nonstocked but formerly having such stocking, with timber and/or woodland trees, and where human activity on the site does not preclude natural succession of the forest (i.e., the site will be naturally or artificially regenerated).” *Interior West Forest Land Resource Inventory Field Procedures, 1995-1996.*

These estimates have changed since those reported in the July 14, 2005 report titled *Detailed Estimates of Old Growth, Clearwater National Forest*. The change in estimates are a result in a modification to how age to 4.5 feet tall is calculated. The Northern Region's definition of old growth takes into account the total age of a tree that meets or exceeds a diameter threshold. FIA protocols for large-trees dictate to record age at 4.5 feet tall. Therefore estimates of the years a tree takes to reach 4.5 feet tall, for trees that are currently mature, are needed to determine total age. At the time of the 2005 report, a regression-based estimate of years to reach 4.5 feet tall was used based upon species, geographic location, and site characteristics. Currently, a more conservative estimate of years to reach 4.5 feet tall is now used, based on the 20<sup>th</sup> percentile age of trees that are likely to reach maturity. For further information on the technique presently used, see *Estimates of Years to Breast Height for Large Conifer Tree Species in the Northern Region*, (Berglund and others, in preparation).

Since 2003, Interior West FIA re-measures 10% of its plots each year. As these re-measured plots accumulate, the Region will periodically update this old growth report.

**Table 1: Clearwater National Forest estimates of percent of old growth, standard error, and 90%-confidence intervals.**

Forest	Estimated Percent Old Growth	90%-Confidence Interval - Lower Bound	90%-Confidence Interval - Upper Bound	Total Num PSUs	Num Forested PSUs
Clearwater	9.4%	7.3%	11.8%	305	300

**Table 2** provides a summarization of the estimates of percent old growth on forest-lands for the Clearwater National Forest by Hydrologic Unit Code (HUC) level 5.

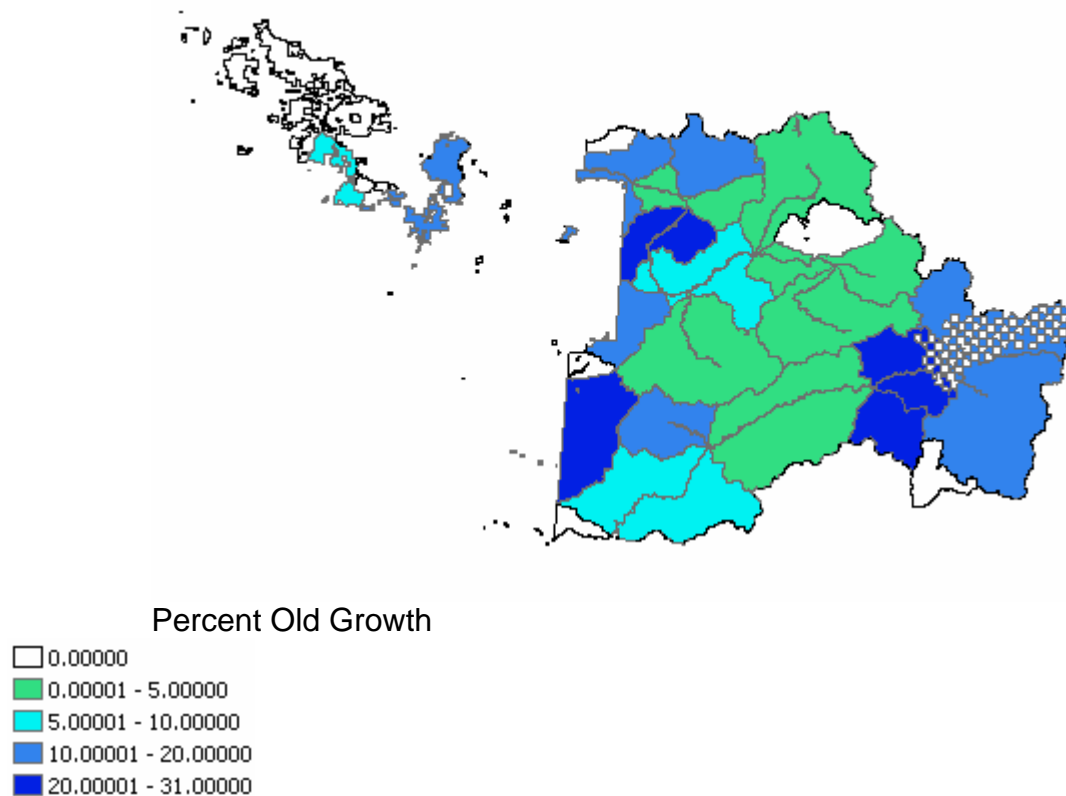
**Table 2: Percent of Old Growth by 5<sup>th</sup> code HUC**

5th Code HUC	Estimated Percent Old Growth	90%-Confidence Interval - Lower Bound	90%-Confidence Interval - Upper Bound	Total Num PSUs	Num Forested PSUs
1701030601	0.0%	0.0%	0.0%	2	2
1706010801	5.4%	0.0%	12.5%	14	14
1706030201	0.0%	0.0%	0.0%	5	5
1706030204	0.0%	0.0%	0.0%	1	1
1706030301	11.1%	0.0%	25.0%	10	9
1706030302	16.7%	7.5%	26.9%	25	24
1706030303	20.8%	6.3%	37.5%	12	12
1706030304	22.2%	0.0%	50.0%	6	6
1706030305	5.4%	0.9%	11.4%	28	28

5th Code HUC	Estimated Percent Old Growth	90%-Confidence Interval - Lower Bound	90%-Confidence Interval - Upper Bound	Total Num PSUs	Num Forested PSUs
1706030306	12.5%	0.0%	28.1%	10	10
1706030307	10.2%	2.9%	19.2%	23	22
1706030401	0.0%	0.0%	0.0%	1	1
1706030603	29.5%	10.0%	50.0%	11	11
1706030605	0.0%	0.0%	0.0%	3	3
1706030609	0.0%	0.0%	0.0%	5	5
1706030610	6.3%	0.0%	25.0%	4	4
1706030611	0.0%	0.0%	0.0%	1	1
1706030701	2.4%	0.0%	6.7%	21	21
1706030702	2.2%	0.0%	8.3%	16	15
1706030703	1.5%	0.0%	5.4%	17	17
1706030704	0.0%	0.0%	0.0%	8	8
1706030705	9.6%	0.0%	22.7%	13	13
1706030706	1.2%	0.0%	4.3%	22	21
1706030707	16.7%	0.0%	38.9%	6	6
1706030708	31.3%	5.0%	59.4%	8	8
1706030709	4.8%	0.0%	16.7%	7	7
1706030710	13.6%	0.0%	32.1%	11	11
1706030801	11.1%	0.0%	22.9%	9	9
1706030803	50.0%	0.0%	100%	1	1
1706030804	0.0%	0.0%	0.0%	1	1
1706030808	18.8%	0.0%	53.1%	4	4

Figure 1 displays the spatial distribution across the Clearwater National Forest.

**Figure 1. Distribution of Old Growth by HUC5**



## Relationship to Project-level Analysis

These broad-level estimates of old growth are intended to be used in conjunction with project-level estimates on the Clearwater National Forests. These broad-level estimates are intended to allow land managers to assess forest-plan compliance and to set the context for old growth management and project-level estimates which are useful tools for project design and implementation.

## Literature Cited

Bush, Renate, D. Berglund, A. Leach, R. Lundberg, A. Zack. 2006. Estimates of Old Growth for the Northern Region and National Forests. Region 1 Vegetation, Classification, Inventory, and Analysis Report #06-03, 2006, [http://fsweb.r1.fs.fed.us/forest/inv/fia\\_data/analysis.htm](http://fsweb.r1.fs.fed.us/forest/inv/fia_data/analysis.htm).