



Volume and Growth of Classified Forest and Wildland Program Lands  
Indiana Division of Forestry  
October 8, 2008

The approximately 450,000 acres of forest in the Classified Forest and Wildlands Program throughout Indiana contain approximately 108 FIA plots. These plots are measured on a continuous basis, with 1 panel or one-fifth of the plots measured each year. FIA plots in Indiana were most recently measured during the 2003 – 2007 period. The total number of plots found within the CFP system is 108.

The Division of Forestry forwarded a shapefile outlining the CFP lands to the USFS FIA unit. The USFS produced a list of FIA plots to be included in the analysis. The 108 plots provide excellent information on volume and growth across the system. For attributes such as total acreage and gross volume, all 108 plots were used. For change data, such as growth, mortality, removals, etc, only the plots visited during the current cycle (4 panels, 2004-2007) were used, resulting in approximately 86 plots.

We used the USFS EVALIDator tool to interpret the data from the 108 plots. Some interesting information:

**Total acres** of forest land: According to FIA, 452,449 acres plus or minus 10.04 percent. FIA expansion of plots would indicate total acreage involved in this query to be between 407,023 and 497,874 acres, a range within which the GIS acreage would fall. The shapefile contained a total of 413,932 acres, a figure that is within the error range of the FIA expansion. DoF staff is currently updating the CFP shapefile; we will send an updated CFP shapefile to the USFS for a new plot list when it becomes available.

**Total volume of sawtimber** on CFP lands is 3,749,135,572 board feet, Int.  $\frac{1}{4}$  scale,  $\pm 11.48\%$ . When converted to Doyle using USFS conversion factors by dbh class, the Doyle volume is 2,424,264,162 board feet, Doyle.

**Net growth of sawtimber** on forestland is 110,346,482 board feet, Int.  $\frac{1}{4}$  scale,  $\pm 16.17\%$ , resulting in a range of 91,951,723 to 128,189,508 bd ft. Net growth is that growth above mortality but includes removals. Converted to Doyle scale, the total annual net growth is 63,386,689 board feet, Doyle. If removals equal net growth, a reasonable interpretation would be that we are harvesting (or removing) 100% of growth. Net growth is a positive

number for all species groups except Elm-Ash-Cottonwood which is -664,580 Int.  $\frac{1}{4}$  scale  $\pm 374.45\%$  (range is -3,153,100 to +1,823,939 bd ft per year).

**Sawtimber mortality** is 24,240,360 bd. ft per year, Int.  $\frac{1}{4}$  scale,  $\pm 33.39\%$ . Sawtimber mortality is 0.65% of total standing volume

**Removals of sawtimber** is 47,440,232 board feet Int.  $\frac{1}{4}$  per year  $\pm 48.75\%$ , resulting in a range of 24,313,117 bd ft to 70,567,345 bd feet annually. Converting these values to Doyle, the total is 30,674,854 board feet Doyle with a range of 15,720,861 bd ft Doyle to 45,628,845 bd ft Doyle. Comparing the upper limit of this range (45.6 mmbf Doyle) to the lower end of the range of net annual growth (59.5 mmbf) it should be a safe interpretation that **sawtimber growth exceeds harvest**. The higher sample error here (48.75%) is because of the lower number of plots in the sample that had trees removed between cycles. The average annual harvest reported by CFP landowners of around 30 mmbf, Doyle, which falls within the range error range (15.7 mmbf to 45.6 mmbf).

### **Conclusion**

Average annual net growth of CFP lands is estimated to be 63.4 mmbf Doyle scale. This growth exceeds the FIA estimated annual removal of 30.7 mmbf Doyle and the CFP landowner reported harvest level of 30 mmbf.

**Table 1. Total Volume and Annual Growth of CFP lands, Indiana**

**Volume of sawtimber on forestland(bd. ft.)**

DBH	Total	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0-30.9	31+
Int 1/4 Vol	3,749,135,572	15,641,832	486,808,328	481,965,585	650,015,092	703,959,567	498,985,771	371,105,005	234,113,933	236,706,000	0	0	69,834,464
Doyle	2,424,264,162	0	203,096,434	246,669,986	382,338,877	462,431,040	358,271,784	290,538,108	194,876,438	206,786,362	0	0	79,255,133

Int to Doyle Conversions	0	0.4172	0.5118	0.5882	0.6569	0.7180	0.7829	0.8324	0.8736	0.9473	1.1349	0
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**Net growth of sawtimber on forestland(bdft per year)**

DBH	Total	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0-30.9	31+
Int 1/4 Vol	110,346,482	1,463,835	45,784,104	8,682,926	13,481,363	17,334,238	8,191,909	5,294,050	5,287,402	5,921,120	0	0	814,710
Doyle	63,386,689	0	19,101,128	4,443,922	7,929,738	11,386,861	5,881,791	4,144,712	4,401,233	5,172,690	0	0	924,614