

## STAND LEVEL INVENTORY

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The Stand Level Inventory (SLI) is a forest inventory developed by the Oregon Department of Forestry (ODF) that serves as the information source on forest conditions for all lands managed by the State Forests Division. The information is used for forest management analysis, assessments, activity planning, and status reporting. Field measured sampling occurs in a carefully selected representative portion of forested inventory stands. These inventory cruise results are used to extrapolate inventory information in a supervised way to stands which do not have field-measured data. This provides site-specific information on trees, snags, down woody debris and understory vegetation in the cruised stands, statistically derived information about all stands for forest modeling purposes, and the ability to aggregate the information to report district and state-wide inventory totals for State Forests and lands managed by the Division under agreement.

The ongoing assessment of inventory quality is dependent upon many factors, but inventory investments remain important for efficient and effective forest management decision-making. The long-term goal for SLI is to maintain between 25% and 50% of all stands with relatively recent field measured cruise information. ODF routinely conducts annual inventory cruising projects in order to maintain those targets. Beginning in Fiscal Year 2021 the State Forest Division initiated a transition to a LiDAR based inventory coupled with a densified grid of Forest Inventory and Analysis permanent plots. This LiDAR inventory is part of a strategic investment to provide more statistically robust data across all lands managed by the Division, and will form the basis for planning, monitoring, analysis and reporting in the future. Individual stand exams will continue to be part of the Division's inventory system, used for more localized planning efforts and specific effectiveness monitoring questions. This new inventory is expected to be ready for use in Fiscal Year 2024. In an effort to expedite the fruition of the LiDAR-based inventory, the Stand Level Inventory was updated this year using a linear interpolation of the five-year growth projections calculated during the previous SLI update with depletion calculated using spatial overlays of the sale polygons and SLI stand polygon boundaries.

Actively managed forests are always changing due to a variety of factors including new harvest operations, natural disturbances, reforestation efforts, and tree growth. Regular inventory database updates are necessary in order to keep up with these changes. At this time, those updates are being completed on an annual cycle. This year, all district updates have been completed, with all forest stand data grown forward through June 2022. For most districts, the database has been updated to account for all operations completed through December 2021. The Beachie Creek Fire burned a significant portion of North Cascade District in September, 2020, which coincides with the timeframe captured by the 2021 inventory update. 24,537 acres of North Cascade were within the burn perimeter, and 16,633 acres were impacted by the fire. For stands within the burn perimeter, we adjusted standing inventory to reflect fire induced mortality by applying an area-weighted basal area depletion based on the published relationships between the differenced normalized burn ratio, a remotely-sensed index of burn severity, and basal area mortality.

Due to the dynamic nature of ecological systems and the inherent challenges associated with sampling extensive natural resources, all inventory information, including volume, is an estimate. Annual forest inventory database updates provide snapshots in the form of inventory reports that represent our best estimates of the current forest conditions at a given point in time. Because ODF is constantly working to adjust and improve our inventory system, these annual reports should not be viewed as a monitoring system to report on year-to-year trends. Instead, the changes resulting from the annual update process reflect our change in understanding of the forest as much as actual changes across the landscape. The result is a comprehensive, up-to-date forest inventory that serves as an essential tool for the purposes of stand-level management, landscape-scale planning, and district-wide reporting.

**STAND LEVEL INVENTORY DETAILS FOR ALL LAND OWNERSHIP CATEGORIES**

Statewide, as of the end of June 2022, there are 12,396 SLI stands, 6,212 of which (50%) have field-based measurements. Note, these values are the same as those reported for the 2022 SLI annual report as no spatial edits to stand boundaries were performed in 2023 to allow inventory staff to focus on developing the remotely-sensed Enhanced Forest Inventory. Inventory data for non-measured stands are imputed from the measured stands. Stands are delineated along differences in general timber characteristics – boundaries are drawn to group together areas with similar tree species, size and stocking. SLI boundaries often coincide with administrative boundaries, but individual stands may include more than one land ownership category such as Board of Forestry Lands (BOFL), Common School Fund Lands (CSFL) lands, and Other lands managed by the Division under agreement. The table below shows the total number of SLI stands and acres by ODF District, the number and percentage of stands with field-based measurements, as well as the number of stands (\* having one or more acre) of BOFL, CSFL and Other landowner class lands.

District/Unit	All Lands with SLI				BOFL		CSFL		Other Lands	
	Total SLI Acres	Total Stands	Measured Stands	Measured Stands %	Acres	Stands*	Acres	Stands*	Acres	Stands*
Astoria	136,855	1,957	1,287	65%	134,835	1940	2,005	69	16	1
Coos**	10,985	301	200	66%	8,889	243	2,086	57	10	1
Forest Grove	115,007	1,382	879	63%	114,380	1371	611	22	16	2
Klamath-Lake	105,825	578	502	86%	98,981	501	6,843	81	0	0
North Cascade	47,473	831	175	21%	46,586	810	879	36	8	1
Southwest Oregon**	16,793	327	184	56%	9,350	199	7,443	127	0	0
Tillamook	250,582	5,683	2,210	38%	245,483	5603	5,050	184	49	8
Veneta**	25,256	405	269	66%	24,324	391	932	13	0	0
West Oregon	36,587	932	506	54%	29,813	814	6,748	262	26	8
<b>Totals</b>	<b>745,363</b>	<b>12,396</b>	<b>6,212</b>	<b>50%</b>	<b>712,641</b>	<b>11,872</b>	<b>32,597</b>	<b>851</b>	<b>125</b>	<b>21</b>

\*\*These are units within Western Lane District

CSFL and Other landowner class lands, even though fewer in number and acreage in the SLI, benefit significantly with respect to the quality of inventory information by “participating” in the broader inventory effort done for all lands. Potential for the best application of field-measured stand data to the non-field-measured stands is enhanced by the availability of more numerous field-measured stands from the entire dataset – without incurring the additional expense of measuring them (field-measurement costs are shared on a total acres percentage basis by district).

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**STAND LEVEL INVENTORY TIMBER VOLUME ESTIMATE FOR BOFL LANDS**


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The table below shows the SLI-based estimate of merchantable net board foot volume by species for BOFL lands as of June 30, 2023. Note, estimates of net merchantable volume have been linearly interpolated from five-year projections performed during the previous sli update, and depletions calculated by intersecting sale polygons with stand polygons, rather than a manual spatial update of stand polygons. The acres information is net of area in roads – other non-forested acres are not removed, but the volume estimate does reflect the effect of low or non-stocked acres outside of roads.

Timber Inventory Estimate for State Forests Board of Forestry Lands, June 30, 2022											
District	Net Acres	Total Net Scribner Board Foot Volumes (MBF)									MBF/Acre
		Douglas fir	Cedar	True Fir	Hemlock	Pine	Spruce	Alder	Other	Total	
Astoria	129,926	2,185,053	20,011	49,554	773179	316	123,088	372613	49176	3,572,990	27.5
Coos	8,687	293,010	5,528	60	18640	8	1,689	41124	16921	376,980	43.4
Forest Grove	111,438	3,194,290	18,414	69,959	187716	265	132	210152	56997	3,737,925	33.5
Klamath-Lake	98,981	15,258	4,797	48,680	0	481885	0	0	4948	555,568	5.6
North Cascade	45,268	912,829	22,935	25,434	116954	478	0	22517	26986	1,128,133	24.9
Southwest Oregon	9,111	176,120	3,862	7,172	1447	5172	0	583	31617	225,973	24.8
Tillamook	241,094	3,228,439	31,688	40,629	894804	103	230,496	1493844	70702	5,990,705	24.8
Western Lane	23,789	774,213	5,383	310	84426	0	0	69201	82086	1,015,619	42.7
West Oregon	28,773	900,059	2,285	256	19723	162	1,780	67484	23776	1,015,525	35.3
<b>Totals</b>	<b>697,067</b>	<b>11,679,271</b>	<b>114,903</b>	<b>242,054</b>	<b>2,096,889</b>	<b>488,389</b>	<b>357,185</b>	<b>2,277,518</b>	<b>363,209</b>	<b>17,619,418</b>	<b>25.3</b>

\*\*These are units within Western Lane District

SLI data is updated annually, typically just prior to the end of June each year – in time for using the updated data for this report. This report reflects operational activities including regeneration harvests, thinnings, and reforestation on all districts between January 1 2022 , and December 31, 2022. The Beachie Creek Fire burned a significant portion of North Cascade District in September, 2020, which coincides with the timeframe captured by the 2021 inventory update. 24,537 acres of North Cascade were within the burn perimeter, and 16,633 acres were impacted by the fire. For stands within the burn perimeter, we adjusted standing inventory to reflect fire induced mortality by applying an area-weighted basal area depletion based on the published relationships between the differenced normalized burn ratio, a remotely-sensed index of burn severity, and basal area mortality.

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**STAND LEVEL INVENTORY TIMBER VOLUME ESTIMATE FOR CSFL LANDS**


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The table below shows the SLI-based estimate of merchantable net board foot volume by species for CSFL lands as of June 30, 2023. Note, estimates of net merchantable volume have been linearly interpolated from five-year projections performed during the previous sli update, and depletions calculated by intersecting sale polygons with stand polygons, rather than a manual spatial update of stand polygons. The acres information is net of area in roads – other non-forested acres are not removed, but the volume estimate does reflect the effect of low or non-stocked acres outside of roads.

Timber Inventory Estimate for State Forests Common School Fund Lands, June 30, 2022											
District	Net Acres	Total Net Scribner Board Foot Volumes (MBF)									MBF/Acre
		Douglas fir	Cedar	True Fir	Hemlock	Pine	Spruce	Alder	Other	Total	
Astoria	1,933	31,300	305	532	10,103	6	4,169	4,405	495	51,315	26.5
Coos	2,055	44,104	982	415	4,090	551	13,108	1,009	5,278	69,537	33.8
Forest Grove	597	15,068	3	17	1,030	0	0	1,439	286	17,843	29.9
Klamath-Lake	6,843	55	1,284	11,106	0	38,880	0	0	2,668	53,993	7.9
North Cascade	857	21,601	81	23	911	0	0	912	1,415	24,943	29.1
Southwest Oregon	7,353	101,534	2,561	4,919	90	13,257	0	102	21,631	144,094	19.6
Tillamook	4,965	85,322	1,467	1,604	43,317	10	13,437	17,423	1,007	163,587	32.9
Western Lane	916	17,916	383	1,089	2,833	0	0	847	1,939	25,007	27.3
West Oregon	6,559	218,358	792	0	10,353	4	2,002	18,577	8,784	258,870	39.5
<b>Totals</b>	<b>32,078</b>	<b>535,258</b>	<b>7,858</b>	<b>19,705</b>	<b>72,727</b>	<b>52,708</b>	<b>32,716</b>	<b>44,714</b>	<b>43,503</b>	<b>809,189</b>	<b>25.2</b>

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