

TreeMap 2020, 2022, and 2023: Improved species range mapping in a tree-level forest dataset for the conterminous United States

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Figure S1. Map of the 67 LANDFIRE zones in the contiguous United States used in the development of TreeMap 2020, 2022, and 2023.

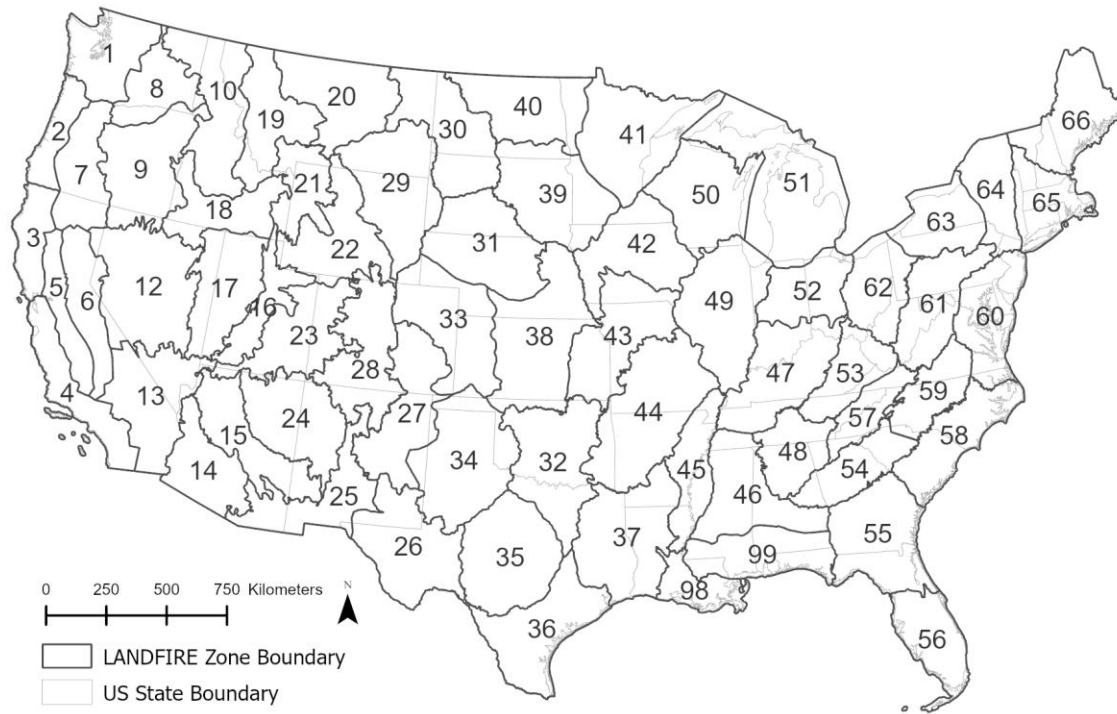


Table S1. Target layer accuracy in each LANDFIRE zone for Existing Vegetation Cover (EVC), Existing Vegetation Height (EVH), Existing Vegetation Type Group (EVT-GP), and disturbance presence in TreeMap 2020. Distance metrics measured how far imputed FIA plots within each LANDFIRE zone originated from their assigned pixels and then calculated mean, minimum, and maximum distances.

TreeMap 2020							
LANDFIRE Zone	EVC	EVH	EVT-GP	Disturbance Presence	Mean Distance (km)	Minimum Distance (km)	Maximum Distance (km)
1	0.879	0.978	0.984	0.998	109.372	0.001	1,925.090
2	0.877	0.980	0.975	0.994	95.839	0.002	1,402.190
3	0.841	0.988	0.970	0.997	84.261	0.001	1,723.410
4	0.692	0.959	0.820	0.985	195.856	0.003	1,731.760
5	0.817	0.974	0.772	0.990	71.745	0.005	1,411.260
6	0.883	0.970	0.965	0.996	140.685	0.002	1,557.540
7	0.920	0.990	0.977	0.995	87.006	0.000	1,712.440
8	0.917	0.951	0.909	0.997	199.639	0.007	1,646.920
9	0.965	0.988	0.984	0.994	106.953	0.002	1,623.600
10	0.970	0.998	0.986	0.999	89.442	0.001	1,690.270
12	0.990	0.994	0.989	0.998	128.969	0.001	1,408.050
13	0.962	0.997	0.962	0.999	289.669	0.004	1,433.680
14	0.929	0.997	0.939	0.997	156.198	0.012	1,519.760
15	0.937	0.984	0.976	0.991	107.835	0.001	1,529.220
16	0.931	0.998	0.964	0.996	186.773	0.001	1,375.220
17	0.992	0.999	0.990	0.999	146.325	0.003	1,274.930
18	0.914	0.998	0.891	0.989	251.592	0.002	1,303.500
19	0.976	0.998	0.978	0.999	95.593	0.000	1,396.420
20	0.924	0.970	0.932	0.996	130.316	0.003	1,588.880
21	0.981	0.999	0.987	0.999	82.307	0.000	1,294.730
22	0.942	0.992	0.856	0.999	210.355	0.002	1,179.010
23	0.978	0.999	0.984	0.999	123.125	0.001	1,422.070
24	0.988	0.998	0.983	0.995	74.582	0.001	1,407.080
25	0.936	0.993	0.950	0.991	132.749	0.004	1,580.810
26	0.979	0.976	0.936	0.986	225.182	0.001	1,933.940
27	0.989	0.998	0.987	0.998	111.545	0.002	1,652.300
28	0.950	0.997	0.964	0.997	111.699	0.000	1,681.640
29	0.949	0.988	0.968	0.984	89.811	0.002	1,364.320
30	0.923	0.836	0.962	0.988	141.527	0.008	1,384.390
31	0.864	0.993	0.909	0.995	155.862	0.001	1,754.530
32	0.917	0.999	0.963	0.998	82.207	0.002	1,781.800
33	0.755	0.999	0.909	0.999	181.780	0.007	1,888.780
34	0.886	0.998	0.869	0.998	242.865	0.036	1,321.890

35	0.896	0.997	0.968	0.999	47.308	0.001	1,446.110
36	0.885	0.989	0.914	0.998	60.892	0.001	1,854.870
37	0.995	0.999	0.989	1.000	53.047	0.001	1,653.560
38	0.863	0.996	0.926	0.998	127.759	0.003	1,539.170
39	0.903	0.988	0.953	0.999	233.371	0.008	1,809.570
40	0.910	0.986	0.891	0.996	122.940	0.003	2,603.990
41	0.990	1.000	0.990	0.996	52.997	0.002	1,855.740
42	0.994	1.000	0.999	1.000	102.987	0.002	1,463.620
43	0.997	1.000	0.995	0.999	79.539	0.002	1,554.480
44	0.998	1.000	0.994	1.000	62.021	0.000	1,808.730
45	0.986	1.000	0.981	0.999	73.528	0.002	1,425.650
46	0.997	1.000	0.995	0.999	73.836	0.000	1,690.340
47	0.999	1.000	0.997	1.000	92.119	0.001	1,415.670
48	0.993	0.999	0.984	0.999	94.574	0.001	1,451.240
49	0.995	1.000	0.995	1.000	110.452	0.002	1,463.590
50	0.992	1.000	0.988	0.999	65.683	0.000	1,561.280
51	0.974	1.000	0.930	0.994	87.671	0.001	1,621.950
52	0.989	1.000	0.977	1.000	141.817	0.007	1,271.120
53	0.996	1.000	0.999	1.000	81.488	0.001	1,712.000
54	0.996	0.999	0.981	0.999	127.072	0.000	1,528.560
55	0.977	0.997	0.949	0.999	84.212	0.001	1,501.640
56	0.797	0.968	0.900	0.996	69.423	0.004	1,562.520
57	0.996	0.999	0.998	0.999	85.953	0.001	1,622.980
58	0.980	0.999	0.829	0.999	91.358	0.001	1,877.670
59	0.982	0.998	0.991	1.000	114.249	0.005	1,711.140
60	0.984	0.996	0.976	0.996	87.030	0.001	2,194.570
61	0.995	0.998	0.994	0.999	77.611	0.001	2,031.520
62	0.985	0.997	0.996	1.000	100.670	0.002	1,523.720
63	0.952	0.992	0.978	0.999	99.463	0.001	1,792.420
64	0.966	0.996	0.972	1.000	105.518	0.001	2,260.750
65	0.951	0.991	0.939	0.992	81.024	0.002	2,245.680
66	0.929	0.991	0.981	0.999	52.324	0.001	2,300.620
98	0.994	0.975	0.965	0.998	148.916	0.002	1,568.230
99	0.989	0.999	0.972	1.000	93.188	0.002	1,389.510

Table S2. Target layer accuracy in each LANDFIRE zone for Existing Vegetation Cover (EVC), Existing Vegetation Height (EVH), Existing Vegetation Type Group (EVT-GP), and disturbance presence in TreeMap 2022. Distance metrics measured how far imputed FIA plots within each LANDFIRE zone originated from their assigned pixels and then calculated mean, minimum, and maximum distances.

TreeMap 2022							
LANDFIRE Zone	EVC	EVH	EVT-GP	Disturbance Presence	Mean Distance (km)	Minimum Distance (km)	Maximum Distance (km)
1	0.874	0.974	0.983	0.997	109.797	0.001	1,925.094
2	0.870	0.969	0.969	0.992	98.794	0.002	1,392.698
3	0.834	0.987	0.970	0.997	85.867	0.001	1,723.408
4	0.693	0.959	0.818	0.984	195.262	0.003	1,731.758
5	0.819	0.975	0.770	0.989	72.328	0.005	1,411.256
6	0.871	0.968	0.962	0.996	143.595	0.000	1,557.540
7	0.912	0.987	0.976	0.993	90.006	0.000	1,712.435
8	0.916	0.950	0.907	0.997	201.961	0.008	1,646.924
9	0.963	0.988	0.984	0.994	108.006	0.002	1,623.599
10	0.970	0.998	0.985	0.999	90.573	0.001	1,690.265
12	0.990	0.994	0.989	0.998	129.121	0.001	1,408.051
13	0.963	0.997	0.962	0.999	290.222	0.004	1,433.676
14	0.929	0.996	0.939	0.996	158.839	0.012	1,519.760
15	0.937	0.984	0.975	0.991	110.045	0.001	1,528.772
16	0.931	0.998	0.962	0.996	188.374	0.001	1,375.216
17	0.983	0.999	0.989	0.998	137.504	0.001	1,274.925
18	0.914	0.998	0.891	0.990	250.177	0.002	1,316.255
19	0.975	0.998	0.978	0.999	97.537	0.000	1,396.422
20	0.923	0.968	0.931	0.995	130.800	0.003	1,588.883
21	0.980	0.999	0.986	0.999	83.059	0.000	1,294.731
22	0.942	0.992	0.856	0.999	210.534	0.002	1,205.868
23	0.978	0.999	0.983	0.999	123.517	0.001	1,425.329
24	0.987	0.997	0.982	0.993	77.147	0.001	1,406.731
25	0.935	0.993	0.951	0.990	134.572	0.004	1,580.805
26	0.979	0.976	0.936	0.986	225.481	0.001	1,933.939
27	0.989	0.998	0.986	0.998	112.908	0.002	1,652.301
28	0.949	0.996	0.964	0.996	114.130	0.000	1,681.639
29	0.948	0.986	0.968	0.983	90.564	0.002	1,347.615
30	0.921	0.835	0.962	0.985	141.866	0.008	1,384.393
31	0.863	0.993	0.908	0.995	158.956	0.001	1,754.533
32	0.916	0.999	0.963	0.998	82.698	0.002	1,781.797
33	0.749	0.999	0.907	0.993	190.870	0.007	1,888.779
34	0.883	0.998	0.869	0.997	243.278	0.036	1,321.890

35	0.894	0.997	0.967	0.999	47.570	0.001	1,446.114
36	0.884	0.990	0.914	0.997	61.232	0.001	1,854.868
37	0.994	0.999	0.989	1.000	53.587	0.001	1,653.557
38	0.862	0.997	0.927	0.997	128.202	0.003	1,573.091
39	0.901	0.988	0.949	0.998	235.650	0.008	1,816.075
40	0.909	0.986	0.891	0.995	123.635	0.003	2,603.994
41	0.986	1.000	0.987	0.992	55.107	0.002	1,855.742
42	0.993	0.999	0.998	0.999	104.732	0.002	1,463.619
43	0.997	1.000	0.994	0.999	81.618	0.002	1,554.478
44	0.998	1.000	0.993	1.000	62.546	0.000	1,808.729
45	0.986	1.000	0.980	0.999	73.824	0.002	1,425.651
46	0.996	1.000	0.995	0.999	74.836	0.000	1,690.344
47	0.999	1.000	0.997	1.000	92.404	0.001	1,386.004
48	0.993	0.999	0.983	0.999	95.205	0.001	1,451.238
49	0.995	1.000	0.995	1.000	111.580	0.002	1,463.590
50	0.992	1.000	0.987	0.999	66.440	0.000	1,613.629
51	0.972	1.000	0.928	0.987	94.180	0.001	1,621.948
52	0.989	1.000	0.977	1.000	141.970	0.007	1,271.119
53	0.996	1.000	0.999	1.000	81.755	0.001	1,711.997
54	0.995	0.999	0.981	0.999	127.709	0.000	1,528.559
55	0.978	0.997	0.946	0.999	84.863	0.001	1,495.837
56	0.793	0.969	0.893	0.995	71.429	0.004	1,562.524
57	0.996	0.999	0.998	0.999	86.250	0.001	1,622.981
58	0.979	0.999	0.829	0.999	91.822	0.001	1,877.666
59	0.981	0.998	0.991	1.000	115.159	0.005	1,711.139
60	0.983	0.996	0.973	0.994	94.097	0.001	2,194.571
61	0.995	0.998	0.994	0.999	79.450	0.001	2,031.522
62	0.985	0.997	0.996	1.000	101.183	0.002	1,523.715
63	0.949	0.991	0.975	0.999	103.193	0.001	1,792.805
64	0.965	0.996	0.971	0.999	108.668	0.001	2,260.754
65	0.949	0.990	0.937	0.990	81.761	0.002	2,245.680
66	0.928	0.991	0.980	0.999	53.082	0.001	2,300.617
98	0.994	0.973	0.966	0.996	145.330	0.002	1,568.226
99	0.989	0.999	0.971	1.000	94.313	0.002	1,389.506

Table S3. Target layer accuracy in each LANDFIRE zone for Existing Vegetation Cover (EVC), Existing Vegetation Height (EVH), Existing Vegetation Type Group (EVT-GP), and disturbance presence in TreeMap 2023. Distance metrics measured how far imputed FIA plots within each LANDFIRE zone originated from their assigned pixels and then calculated mean, minimum, and maximum distances.

TreeMap 2023							
LANDFIRE Zone	EVC	EVH	EVT-GP	Disturbance Presence	Mean Distance (km)	Minimum Distance (km)	Maximum Distance (km)
1	0.865	0.961	0.982	0.998	111.504	0.001	1,925.094
2	0.853	0.958	0.971	0.991	99.902	0.002	1,643.883
3	0.847	0.978	0.971	0.997	85.951	0.001	1,723.408
4	0.695	0.961	0.837	0.985	203.304	0.002	1,731.758
5	0.817	0.978	0.766	0.989	68.226	0.005	1,413.436
6	0.880	0.952	0.962	0.994	149.260	0.002	1,629.896
7	0.891	0.979	0.972	0.995	95.388	0.001	1,712.435
8	0.894	0.949	0.904	0.999	197.131	0.008	1,646.924
9	0.955	0.987	0.984	0.998	109.829	0.002	1,623.599
10	0.957	0.992	0.981	0.999	101.968	0.001	1,690.265
12	0.992	0.994	0.989	0.999	125.978	0.001	1,408.051
13	0.961	0.997	0.964	0.999	293.249	0.004	1,433.676
14	0.929	0.997	0.937	0.997	161.372	0.012	1,519.723
15	0.932	0.996	0.977	0.993	102.284	0.001	1,664.570
16	0.930	0.998	0.955	0.997	184.667	0.001	1,375.216
17	0.984	0.999	0.987	0.999	131.730	0.001	1,274.684
18	0.915	0.998	0.876	0.995	242.244	0.002	1,303.497
19	0.969	0.995	0.975	0.999	101.635	0.000	1,510.009
20	0.917	0.982	0.933	0.998	136.790	0.003	1,588.883
21	0.981	0.997	0.983	0.998	89.512	0.000	1,324.992
22	0.943	0.992	0.859	0.999	205.980	0.002	1,179.009
23	0.977	0.999	0.983	0.998	122.599	0.001	1,437.213
24	0.988	0.999	0.983	0.994	76.892	0.002	1,335.226
25	0.944	0.996	0.950	0.991	130.040	0.004	1,583.626
26	0.977	0.989	0.938	0.988	236.062	0.001	1,933.939
27	0.988	0.998	0.986	0.997	112.259	0.002	1,652.301
28	0.951	0.998	0.961	0.995	117.070	0.000	1,679.207
29	0.933	0.989	0.969	0.987	96.252	0.002	1,470.472
30	0.926	0.833	0.962	0.991	142.669	0.014	1,384.393
31	0.845	0.991	0.907	0.995	172.152	0.001	1,795.517
32	0.923	0.999	0.964	0.996	83.204	0.001	1,781.797
33	0.756	0.996	0.901	0.991	199.324	0.007	2,232.054
34	0.898	0.998	0.877	0.994	243.404	0.036	1,320.902

35	0.897	0.998	0.967	0.999	47.848	0.001	1,446.114
36	0.881	0.987	0.905	0.995	65.497	0.001	1,710.136
37	0.992	0.999	0.987	0.999	53.312	0.001	1,653.557
38	0.864	0.996	0.922	0.996	130.422	0.003	1,583.697
39	0.899	0.984	0.926	0.997	252.118	0.008	1,816.075
40	0.904	0.971	0.877	0.995	131.484	0.003	2,603.994
41	0.986	0.995	0.980	0.988	59.927	0.002	1,923.153
42	0.984	0.991	0.997	0.999	110.124	0.002	1,463.619
43	0.988	0.999	0.990	0.999	86.171	0.003	1,554.478
44	0.998	1.000	0.992	1.000	62.916	0.000	1,806.297
45	0.985	0.999	0.977	0.999	81.207	0.002	1,502.722
46	0.997	1.000	0.995	0.999	75.073	0.000	1,690.196
47	0.999	0.999	0.997	1.000	93.820	0.001	1,386.004
48	0.994	0.999	0.985	0.999	95.036	0.001	1,429.367
49	0.993	0.997	0.994	0.998	119.783	0.002	1,621.287
50	0.990	0.995	0.984	0.997	70.609	0.000	1,690.448
51	0.970	0.995	0.922	0.984	100.232	0.001	1,683.958
52	0.988	0.997	0.978	1.000	150.155	0.007	1,271.119
53	0.998	1.000	0.999	1.000	81.368	0.001	1,711.997
54	0.994	0.999	0.980	0.999	129.898	0.000	1,528.559
55	0.978	0.993	0.945	0.999	88.093	0.001	1,495.898
56	0.765	0.958	0.909	0.994	73.597	0.002	1,562.524
57	0.997	0.999	0.998	0.999	86.303	0.001	1,627.622
58	0.981	0.998	0.809	0.998	86.026	0.001	1,978.216
59	0.992	0.999	0.995	1.000	109.917	0.005	1,711.139
60	0.987	0.997	0.975	0.990	92.315	0.001	2,194.559
61	0.996	0.998	0.993	0.999	78.897	0.001	2,031.522
62	0.986	0.997	0.995	1.000	100.904	0.002	1,514.085
63	0.953	0.991	0.974	0.998	104.258	0.001	1,812.399
64	0.968	0.996	0.970	0.999	106.388	0.001	2,246.249
65	0.958	0.992	0.934	0.989	79.041	0.002	2,245.680
66	0.948	0.992	0.980	0.999	51.516	0.001	2,300.617
98	0.995	0.976	0.974	0.973	109.332	0.002	1,573.282
99	0.987	0.995	0.972	1.000	96.689	0.002	1,390.949

Table S4. Confusion matrix for TreeMap 2020 existing vegetation cover (EVC). Columns represent observed EVC classes from LANDFIRE target data and rows represent imputed EVC classes from TreeMap 2020. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2020 EVC	LANDFIRE 2020 EVC											
		15	25	35	45	55	65	75	85	95	Sum	Accuracy (%)
	15	122,190,116	2,985,560	2,388,172	1,233,207	500,798	171,915	29,125	2,577	0	129,501,470	94.35
	25	3,245,976	162,772,375	5,820,195	3,070,428	1,140,213	517,225	55,880	10,594	22	176,632,908	92.15
	35	1,509,323	4,470,052	213,858,184	6,274,480	2,068,997	731,081	112,223	22,355	41	229,046,736	93.37
	45	964,614	2,237,302	7,601,595	306,245,316	3,549,599	1,382,568	156,209	54,125	1,084	322,192,412	95.05
	55	528,644	1,753,207	3,344,051	5,995,143	371,260,812	3,230,388	424,529	96,790	3,954	386,637,518	96.02
	65	422,096	1,063,216	2,361,057	3,263,081	4,223,726	475,880,265	729,756	192,311	64,777	488,200,285	97.48
	75	202,892	498,651	1,475,638	2,210,708	1,890,813	1,754,125	668,580,765	884,151	300,117	677,797,860	98.64
	85	160,141	436,808	1,083,497	1,055,603	956,395	1,492,112	926,175	267,870,844	489,170	274,470,745	97.60
	95	120,795	296,151	687,002	937,629	808,345	880,910	560,250	221,555	8,250,656	12,763,293	64.64
	Sum	129,344,597	176,513,322	238,619,391	330,285,595	386,399,698	486,040,589	671,574,912	269,355,302	9,109,821	2,697,243,227	
	Accuracy (%)	94.47	92.22	89.62	92.72	96.08	97.91	99.55	99.45	90.57		96.28

Table S5. Confusion matrix for TreeMap 2022 existing vegetation cover (EVC). Columns represent observed EVC classes from LANDFIRE target data and rows represent imputed EVC classes from TreeMap 2022. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2022 EVC	LANDFIRE 2022 EVC											
		15	25	35	45	55	65	75	85	95	Sum	Accuracy(%)
	15	124,510,379	3,147,101	2,483,711	1,208,786	469,963	183,489	28,088	2,410	0	132,033,927	94.30
	25	3,472,472	164,793,002	6,012,626	3,004,499	1,106,168	490,851	54,801	10,863	27	178,945,309	92.09
	35	1,721,517	4,931,666	217,201,613	6,290,144	2,039,049	763,096	119,060	22,628	44	233,088,817	93.18
	45	1,072,236	2,381,825	7,764,251	305,279,123	3,619,447	1,386,361	158,491	52,758	1,070	321,715,562	94.89
	55	647,888	1,904,281	3,419,139	6,215,442	367,912,915	3,098,693	438,158	98,916	4,064	383,739,496	95.88
	65	527,971	1,203,592	2,489,167	3,347,788	4,578,825	472,307,778	770,369	212,586	62,166	485,500,242	97.28
	75	228,523	558,485	1,566,432	2,321,065	1,960,043	1,798,644	661,193,141	894,716	355,107	670,876,156	98.56
	85	218,724	493,113	1,126,533	1,104,183	959,687	1,486,258	957,890	263,226,438	486,676	270,059,502	97.47
	95	124,127	307,418	702,214	941,304	784,196	849,945	574,640	217,042	8,039,328	12,540,214	64.11
	Sum	132,523,837	179,720,483	242,765,686	329,712,334	383,430,293	482,365,115	664,294,638	264,738,357	8,948,482	2,688,499,225	
	Accuracy(%)	93.95	91.69	89.47	92.59	95.95	97.91	99.53	99.43	89.84		96.13

Table S6. Confusion matrix for TreeMap 2023 existing vegetation cover (EVC). Columns represent observed EVC classes from LANDFIRE target data and rows represent imputed EVC classes from TreeMap 2023. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2023 EVC	LANDFIRE 2023 EVC											
		15	25	35	45	55	65	75	85	95	Sum	Accuracy(%)
	15	106,025,939	3,915,738	2,866,647	1,266,888	380,993	148,766	26,158	2,305	0	114,633,434	92.49
	25	2,509,209	161,862,327	7,128,569	3,289,691	991,907	363,778	46,608	10,125	20	176,202,234	91.86
	35	1,009,349	4,589,997	237,447,227	6,133,576	1,756,983	585,160	82,022	11,105	40	251,615,459	94.37
	45	693,478	2,135,124	8,267,223	296,051,589	3,547,433	1,292,586	126,217	33,449	1,068	312,148,167	94.84
	55	383,198	2,332,951	4,156,081	6,890,627	373,053,138	3,060,217	365,245	91,507	3,590	390,336,554	95.57
	65	315,865	1,246,233	2,894,087	3,806,516	4,456,153	471,184,524	926,311	185,376	58,465	485,073,530	97.14
	75	136,518	639,381	1,782,261	2,319,432	2,099,484	1,904,755	687,464,215	1,059,889	274,006	697,679,941	98.54
	85	99,343	416,471	1,148,920	1,173,673	1,003,200	1,444,213	901,224	274,284,757	433,155	280,904,956	97.64
	95	92,825	218,520	761,884	1,003,888	837,349	886,996	620,201	224,642	7,601,158	12,247,463	62.06
	Sum	111,265,724	177,356,742	266,452,899	321,935,880	388,126,640	480,870,995	690,558,201	275,903,155	8,371,502	2,720,841,738	
	Accuracy(%)	95.29	91.26	89.11	91.96	96.12	97.99	99.55	99.41	90.8		96.11

Table S7. Confusion matrix for TreeMap 2020 existing vegetation height (EVH). Columns represent observed EVH classes from LANDFIRE target data and rows represent imputed EVH classes from TreeMap 2020. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2020 EVH	LANDFIRE 2020 EVH							
		3	8	18	38	70	Sum	Accuracy(%)
	3	148,391,623	605,733	101,499	854	0	149,099,709	99.53
	8	4,311,769	233,397,437	609,345	67,888	0	238,386,439	97.91
	18	1,024,517	3,891,998	2,178,513,009	980,615	0	2,184,410,139	99.73
	38	206,721	1,221,998	882,194	122,876,781	0	125,187,694	98.15
	70	5,480	63,870	41,004	48,892	0	159,246	0.00
	Sum	153,940,110	239,181,036	2,180,147,051	123,975,030	0	2,697,243,227	
	Accuracy(%)	96.40	97.58	99.93	99.11	0.00		99.48

Table S8. Confusion matrix for TreeMap 2022 existing vegetation height (EVH). Columns represent observed EVH classes from LANDFIRE target data and rows represent imputed EVH classes from TreeMap 2022. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2022 EVH	LANDFIRE 2022 EVH							
		3	8	18	38	70	Sum	Accuracy(%)
	3	148,275,549	600,365	72,800	680	0	148,949,394	99.55
	8	4,432,689	235,674,674	592,026	69,690	0	240,769,079	97.88
	18	1,101,256	4,498,748	2,167,557,969	977,116	0	2,174,135,089	99.70
	38	216,842	1,581,164	950,970	121,648,528	0	124,397,504	97.79
	70	5,219	114,958	57,751	70,231	0	248,159	0.00
	Sum	154,031,555	242,469,909	2,169,231,516	122,766,245	0	2,688,499,225	
	Accuracy(%)	96.26	97.20	99.92	99.09	0.00		99.43

Table S9. Confusion matrix for TreeMap 2023 existing vegetation height (EVH). Columns represent observed EVH classes from LANDFIRE target data and rows represent imputed EVH classes from TreeMap 2023. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2023 EVH	LANDFIRE 2023 EVH							
		3	8	18	38	70	Sum	Accuracy(%)
	3	139,945,071	779,258	58,043	597	0	140,782,969	99.4
	8	4,513,689	271,824,720	564,234	47,289	0	276,949,932	98.15
	18	1,595,208	7,246,955	2,174,791,346	657,948	0	2,184,291,457	99.57
	38	391,269	2,885,880	977,985	114,274,004	0	118,529,138	96.41
	70	18,517	193,516	39,775	36,434	0	288,242	0
	Sum	146,463,754	282,930,329	2,176,431,383	115,016,272	0	2,720,841,738	
	Accuracy(%)	95.55	96.07	99.92	99.35	0		99.26

Table S10. Confusion matrix for TreeMap 2020 disturbance presence. Columns represent observed disturbance from LANDFIRE target data and rows represent imputed disturbance classes from TreeMap 2020. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2020 Disturbance	LANDFIRE 2020 Disturbance				
		Absent	Present	Sum	Accuracy(%)
	Absent	2,454,594,769	6,107,312	2,460,702,081	99.75
	Present	85,248	236,455,898	236,541,146	99.96
	Sum	2,454,680,017	242,563,210	2,697,243,227	
	Accuracy(%)	100.00	97.48		99.77

Table S11. Confusion matrix for TreeMap 2022 disturbance presence. Columns represent observed disturbance from LANDFIRE target data and rows represent imputed disturbance classes from TreeMap 2022. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2022 Disturbance	LANDFIRE 2022 Disturbance				
		Absent	Present	Sum	Accuracy(%)
	Absent	2,397,078,893	8,055,064	2,405,133,957	99.67
	Present	77,722	283,287,546	283,365,268	99.97
	Sum	2,397,156,615	291,342,610	2,688,499,225	
	Accuracy(%)	100.00	97.24		99.70

Table S12. Confusion matrix for TreeMap 2023 disturbance presence. Columns represent observed disturbance from LANDFIRE target data and rows represent imputed disturbance classes from TreeMap 2023. Values represent pixel counts and row accuracies reflect the proportion of pixels correctly imputed within each class.

TreeMap 2023 Disturbance	LANDFIRE 2023 Disturbance				
		Absent	Present	Sum	Accuracy(%)
	Absent	2,423,790,268	9,207,053	2,432,997,321	99.62
	Present	85,746	287,758,671	287,844,417	99.97
	Sum	2,423,876,014	296,965,724	2,720,841,738	
	Accuracy(%)	100.00	96.90		99.66

Table S13. Percent of Willamette National Forest area in TreeMap 2016 and 2020 classified to forest types not observed in FIA plots in the Cascade ecoregion.

Forest Type	Year	Percent of Area
Aspen	2016	0.172
Aspen	2020	0.005
Balsam fir	2016	0.162
Balsam fir	2020	NA
Balsam poplar	2016	0.004
Balsam poplar	2020	NA
Black locust	2016	0.001
Black locust	2020	NA
Black spruce	2016	0.011
Black spruce	2020	NA
Blue oak	2016	0.0001
Blue oak	2020	0.002
California laurel	2016	0.013
California laurel	2020	0.0001
California mixed conifer	2016	0.071
California mixed conifer	2020	0.015
Cercocarpus (mountain brush) woodland	2016	NA
Cercocarpus (mountain brush) woodland	2020	0.0001
Cherry / white ash / yellow-poplar	2016	0.005
Cherry / white ash / yellow-poplar	2020	NA
Coast live oak	2016	NA
Coast live oak	2020	0.0001
Deciduous oak woodland	2016	NA
Deciduous oak woodland	2020	0.0001
Eastern redcedar / hardwood	2016	0.007
Eastern redcedar / hardwood	2020	NA
Eastern white pine	2016	0.0001
Eastern white pine	2020	NA
Eastern white pine / northern red oak / white ash	2016	0.0001
Eastern white pine / northern red oak / white ash	2020	NA
Elm / ash / black locust	2016	0.033
Elm / ash / black locust	2020	NA
Gray pine	2016	0.0001
Gray pine	2020	0.006

Hard maple / basswood	2016	0.007
Hard maple / basswood	2020	NA
Interior live oak	2016	NA
Interior live oak	2020	0.0001
Intermountain maple woodland	2016	NA
Intermountain maple woodland	2020	0.002
Jeffrey pine	2016	0.011
Jeffrey pine	2020	0.003
Juniper woodland	2016	NA
Juniper woodland	2020	0.0001
Miscellaneous western softwoods	2016	0.0001
Miscellaneous western softwoods	2020	0.103
Mixed upland hardwoods	2016	0.038
Mixed upland hardwoods	2020	NA
Northern white-cedar	2016	0.001
Northern white-cedar	2020	NA
Other exotic hardwoods	2016	0.001
Other exotic hardwoods	2020	NA
Paper birch	2016	0.065
Paper birch	2020	0.001
Paulownia	2016	0.0001
Paulownia	2020	NA
Pin cherry	2016	0.0001
Pin cherry	2020	NA
Pinyon / juniper woodland	2016	0.0001
Pinyon / juniper woodland	2020	NA
Port Orford cedar	2016	0.003
Port Orford cedar	2020	0.0001
Post oak / blackjack oak	2016	0.001
Post oak / blackjack oak	2020	NA
Red maple / upland	2016	0.001
Red maple / upland	2020	NA
Sugar maple / beech / yellow birch	2016	0.043
Sugar maple / beech / yellow birch	2020	NA
Sugarberry / hackberry / elm / green ash	2016	0.0001
Sugarberry / hackberry / elm / green ash	2020	NA

Swamp chestnut oak / cherrybark oak	2016	0.0001
Swamp chestnut oak / cherrybark oak	2020	<i>NA</i>
Sycamore / pecan / American elm	2016	0.0001
Sycamore / pecan / American elm	2020	<i>NA</i>
Tanoak	2016	0.021
Tanoak	2020	0.037
Western juniper	2016	0.0001
Western juniper	2020	0.007
Western white pine	2016	0.057
Western white pine	2020	0.011
White oak / red oak / hickory	2016	0.009
White oak / red oak / hickory	2020	<i>NA</i>
White spruce	2016	0.018
White spruce	2020	<i>NA</i>
Willow	2016	0.0001
Willow	2020	<i>NA</i>