



THE LARCH COMPANY

ANDY KERR, CZAR

OFFICES IN ASHLAND, OREGON, AND WASHINGTON, DC

503.701.6298 CELL/TEXT

ANDYKERR@ANDYKERR.NET • WWW.ANDYKERR.NET

TO: Interested Parties
FROM: Andy Kerr
RE: Extent of Forested Lands Administered by the Bureau of Land Management
DATE: 19 May 2023 (Revision 10)

The Bureau of Land Management, an agency of the Department of the Interior, administers 244.3 million acres of surface lands or 14.3 percent (one-seventh) of the total land (not including saltwater) area of the United States. (The BLM also administers 57.2 million acres of “split estate”—only underground minerals.)¹

Most Americans—if they are even aware of BLM public lands—are not aware that a significant portion of BLM lands are actually “forested.” Many mistakenly think that all federal forestlands are part of the National Forest System, administered by the USDA Forest Service. Oh, if only that were the case.



Figure 1. *Who knew that BLM had forests, let alone a grove of giant sequoia?! Source: Bureau of Land Management.*

Amount of “Forested” Land on Bureau of Land Management Holdings

Different sources differ on how much of BLM’s estate is “forested.” This paper compares and contrasts the estimates of:

¹ USDI Bureau of Land Management. 2022. [Public Land Statistics 2021](#), Table 1-3.

- USDI Bureau of Land Management (*Public Land Statistics*);
- USDA Forest Service (FIA; Forest Inventory and Analysis);
- Defenders of Wildlife et al. (GIS analysis);
- USDI Bureau of Land Management (webpages); and
- USFS-BLM (Mature and Old-Growth Forest [MOG] Inventory)

Summary

Table 1 summarizes the reported acreages by source. See “Why the Discrepancies?” below for an analysis of the differences.

Source	11 Western States	Alaska	Total	Underlying Data*
BLM <i>Public Lands Statistics</i>	16,392,831	12,011,545	28,404,376	NLCD
Forest Service FIA	20,569,000	16,989,000	37,558,000	FIA
Defenders of Wildlife	28,876,719	(missing)	??	USNVC
BLM Webpages	28,570,000- 29,070,000	20,000,000- 30,000,000	48,570,000- 59,070,000	(not discernable)
USFS-BLM MOG Inventory	(not reported)	(not inventoried)	34,169,897	FIA

* National Land Cover Database²; Forest Inventory and Analysis³; United States Natural Vegetation Classification.⁴

USDI Bureau of Land Management’s *Public Land Statistics*

Published annually, *Public Land Statistics* is the official compendium of BLM resources and outputs. According to the BLM’s *Public Land Statistics 2021* report, ~28.4 million acres are “forested”⁵ (Table 2).

BLM Administrative State	Deciduous Forest	Evergreen Forest	Mixed Forest	Woody Wetlands	Total By State
Alaska	1,969,388	9,820,450	221,707		12,011,545
Arizona	5,230	540,310	801	22,399	568,740
California	10,837	623,368	78,927	17,179	730,311
Colorado	441,912	2,741,987	24,749	26,799	3,235,447
Idaho	18,600	539,849	2,855	17,392	578,696
Montana	8,556	756,646	5,359	9,445	780,006
Nevada	19,062	3,911,196	8,735	42,070	3,981,063
New Mexico	881	650,847	456	6,785	658,969
Oregon	9,953	12,225	2,232,205	45,069	171,851
Utah	64,411	3,207,416	6,493	41,303	3,319,623
Wyoming	27,074	432,184	9,707	21,688	490,653
Eastern States*	--	--	--		0
Totals	2,575,904	23,236,478	2,591,994	250,129	28,404,376

* BLM administers 40,000 surface acres in the eastern states.
Source: USDI BLM. 2021. [Public Land Statistics \(Tables 2-5 & 2.6\)](#)

² Multi-Resolution Land Characteristics Consortium. [National Land Cover Database Class Legend and Description](#) (pdf)

³ USDA Forest Service, [Forest Inventory and Analysis National Program](#) (web page).

⁴ United States Natural Vegetation Hierarchy Explorer. [Explore the Classification](#).

⁵ USDI Bureau of Land Management. June 2022. [Public Land Statistics 2021](#), Tables 2-5 and 2-6.

BLM’s *Public Land Statistics* inventory of its forested lands is based on the USGS National Land Cover Database⁶ (NLCD), which defines different kinds of forests as follows:⁷

Deciduous Forest—areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.

Evergreen Forest—areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.

Mixed Forest—areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.

Woody Wetlands—areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

USDA Forest Service’s Forest Inventory and Analysis (FIA)

The US Forest Service produces other another figures. According to its Forest Inventory and Analysis⁸ (FIA), the BLM has 37,559,000 “forested” acres (Table 3),⁹ ~15% of all BLM lands. FIA data is derived from a nationwide network of forest plots and other sources. Forest type-groups information by state was not available.

Table 3. BLM Forest and Woodland Area by State (FIA Data)

State	Acres	State	Acres	State	Acres
Alaska	16,989,000	Missouri	6,000	Oregon	3,573,000
Arizona	462,000	Montana	1,218,000	South Dakota	21,000
California	1,407,000	Nevada	4,756,000	Utah	2,832
Colorado	3,594,000	New Mexico	1,169,000	Washington	55,000
Idaho	780,000	North Dakota	13,000	Wyoming	668,000
Minnesota	6,000	Oklahoma	9,000	TOTAL	37,558,000

Source: Oswalt, et al. 2019. [Forest Resources of the United States, 2017](#). USDA Forest Service. Gen. Tech. Rep. WO-97, Washington DC: USDA Forest Service.

Defenders of Wildlife et al. Analysis

An analysis of BLM forested landscapes by Defenders of Wildlife found 28,876,719 (Table 4; and Maps 1, 2 & 3). Nineteen forest types were identified. The Defenders analysis mapped Alaska (Map 1), but Defenders did not provide acreage breakdowns for the four forest types they identified for that state (North American boreal flooded forest, North American boreal swamp forest, North American subalpine and subarctic woodland, and Western North American boreal conifer & hardwood forest).¹⁰

⁶ USDI Geological Survey, [National Land Cover Database](#) (web page).

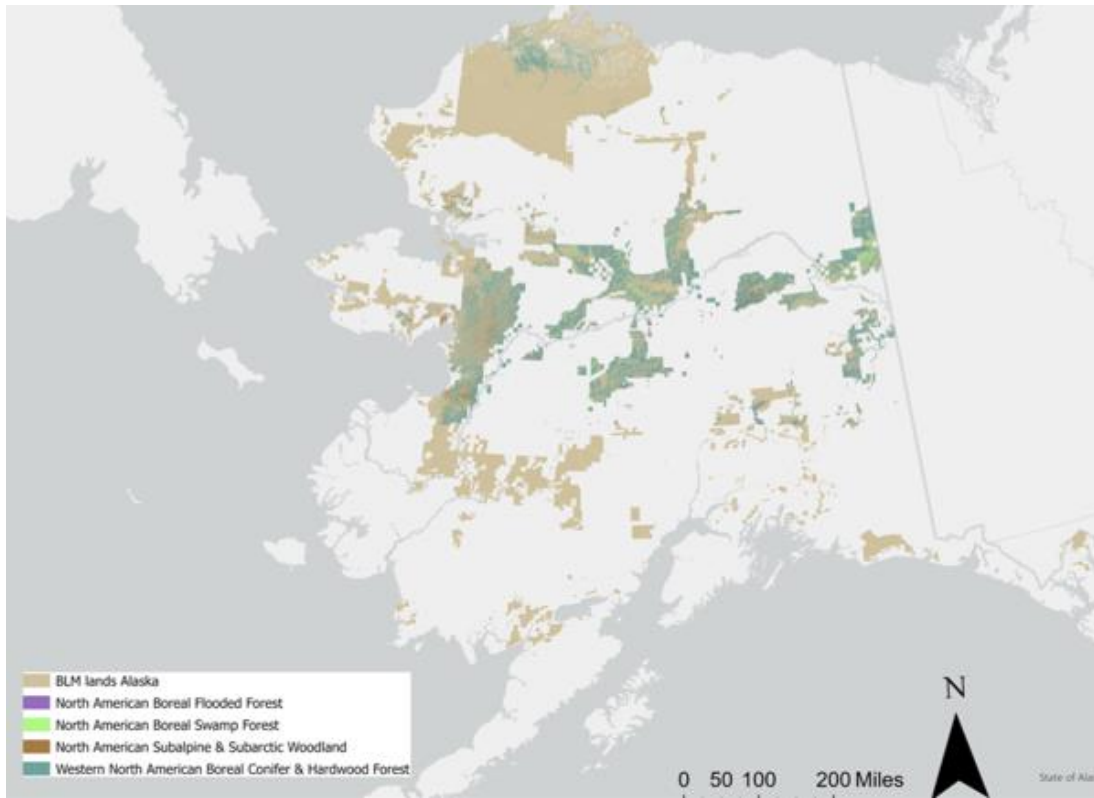
⁷ Multi-Resolution Land Characteristics Consortium, [National Land Cover Database Class Legend and Description](#) (web page).

⁸ USDA Forest Service, [Forest Inventory and Analysis National Program](#) (web page).

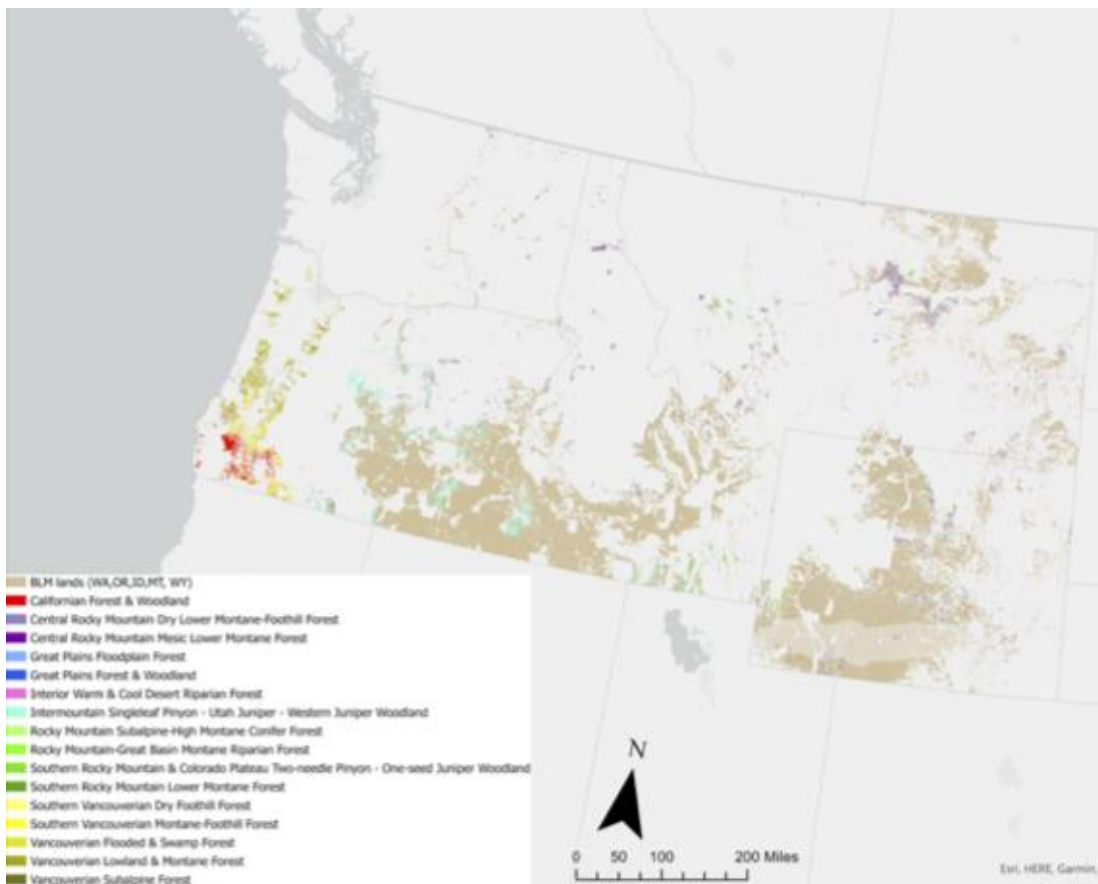
⁹ Oswalt, Sonja N., W. Brad Smith, Patrick D. Miles, and Scott A. Pugh, coordinators. 2019. [Forest Resources of the United States, 2017](#). Gen. Tech. Rep. WO-97. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office.

¹⁰ Defenders of Wildlife, et al. August 30, 2002. Re: Request for Information on Federal Old-Growth and Mature Forests, 87 FR 42493. Letter to Deb Haaland, Secretary of the Interior. Appendix 1.

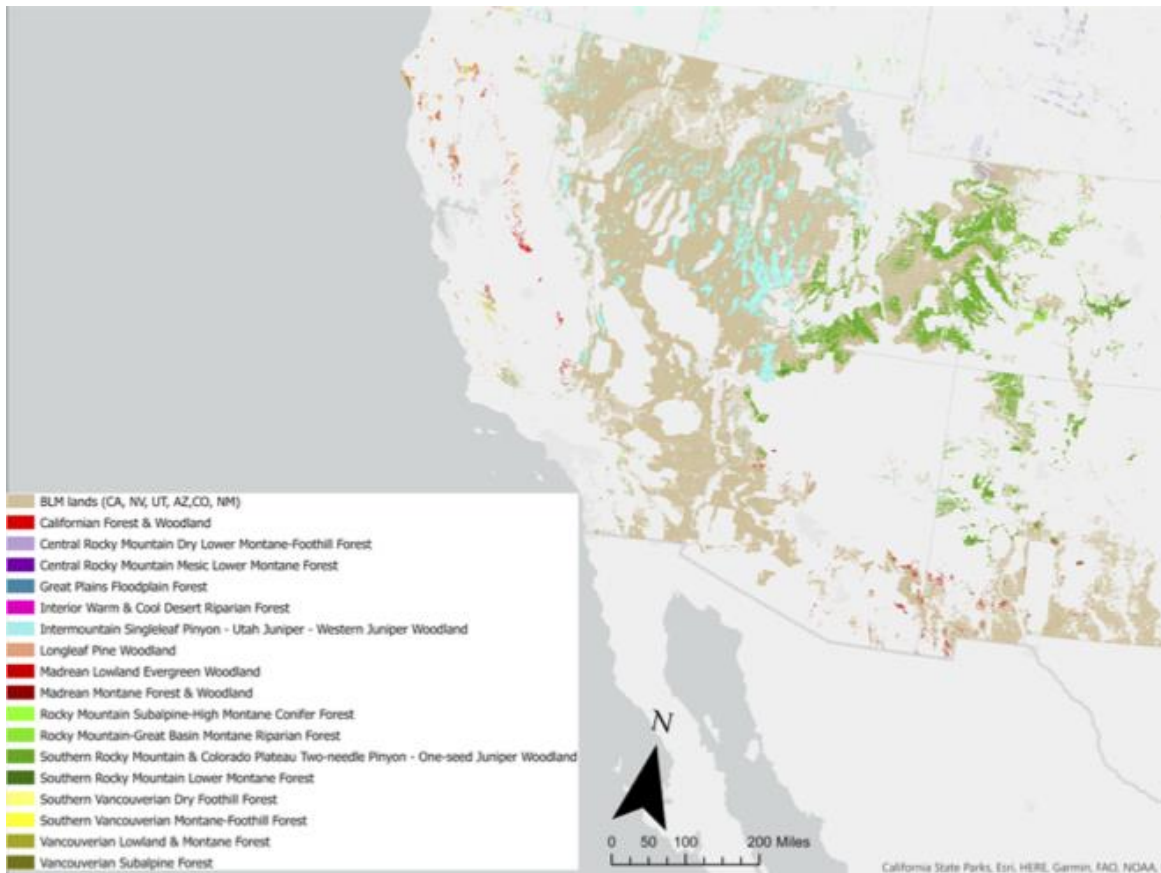
Table 4. Forests on BLM-Managed Lands By State and Forest Type (11 Western States)											
Forest Type	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Californian Forest & Woodland	0	592,949	0	0	0	0	0	437,671	0	0	0
Central Rocky Mountain Dry Lower Montaine-Foothill Forest	0	3,756	88,353	290,989	858,021	300	0	203,925	65,221	54,279	643,687
Central Rocky Mountain Mesic Lower Montane Forest	0	0	1,780	37,239	29	0	0	11,959	2,486	2,963	61
Great Plains Floodplain Forest	28	1	1,191	0	55,465	32	10,297	0	1,962	0	207,189
Great Plains Forest and Woodland				0	28,005			0		0	632
Interior Warm & Cool Desert Riparian Forest	3,283	23,343	0	0	0	1,478	9,385	22,253	2,216	0	0
Intermountain Singleleaf Pinyon - Utah Juniper - Wester Juniper Woodland	654,078	851,477	74,009	388,461	5,960	6,133,211	67,829	919,069	1,827,746	173	55,585
Longleaf Pine Woodland	0	0	0	0	0	7	0	0	0	0	0
Madrean Lowland Evergreen Woodland	215,205	0	0	0	0	0	341,961	0	0	0	0
Madrean Mountain Forest & Woodland	5,062	0	0	0	0	0	2,586	0	0	0	0
Rocky Mountain Subalpine-High Montane Conifer Forest	68	6,474	450,587	192,137	199,322	49,033	1,261	37,766	73,454	1,261	234,750
Rocky Mountain-Great Basin Montane Riparian Forest	441	8,012	14,651	39,780	5,638	1,567	15,040	15,156	27,889	1,610	2,523
Southern Rocky Mountain & Colorado Plateau Two-Needle Pinyon - One-seed Juniper Woodland	614,381	2,542	2,810,805	175	0	6,547	1,793,174	0	4,448,117	0	95
Southern Rocky Mountain Lower Motane Forest	31,386	2	379,151	25,355	218	20,252	82,910	0	198,706	0	42,605
Southern Vancouverian Dry Foothill Forest	0	2,757	0	0	0	0	0	138,053	0	3,764	0
Southern Vancouverian Montane-Foothill Forest	0	348,995	0	0	0	1	0	372,774	0	0	0
Vancouverian Flooded & Swamp Forest				0	0			115		46	0
Vancouverian Lowland & Montane Forest	0	76,257	0	0	0	0	0	883,747	0	1,520	0
Vancouverian Subalpine Forest	0	5,135	0	0	0	41	0	3,826	0	0	0
Total (11 Western States)	1,523,932	1,921,700	3,820,527	974,136	1,152,658	6,212,469	2,324,443	3,046,314	6,647,797	65,616	1,187,127
GRAND TOTAL (11 Western States): 28,876,719 acres											
<i>Source: Defenders of Wildlife, et al. August 30, 2002. Re: Request for Information on Federal Old-Growth and Mature Forests, 87 FR 42493. Letter to Deb Haaland, Secretary of the Interior. Appendix 1.</i>											



Map 1. Forest types of on Bureau of Land Management holdings in Alaska. Source: Defenders of Wildlife.



Map 2. Forest types of on Bureau of Land Management holdings in the northwestern United States. Source: Defenders of Wildlife.



Map 3. Forest types of on Bureau of Land Management holdings in the Southwestern United States. Source: Defenders of Wildlife.

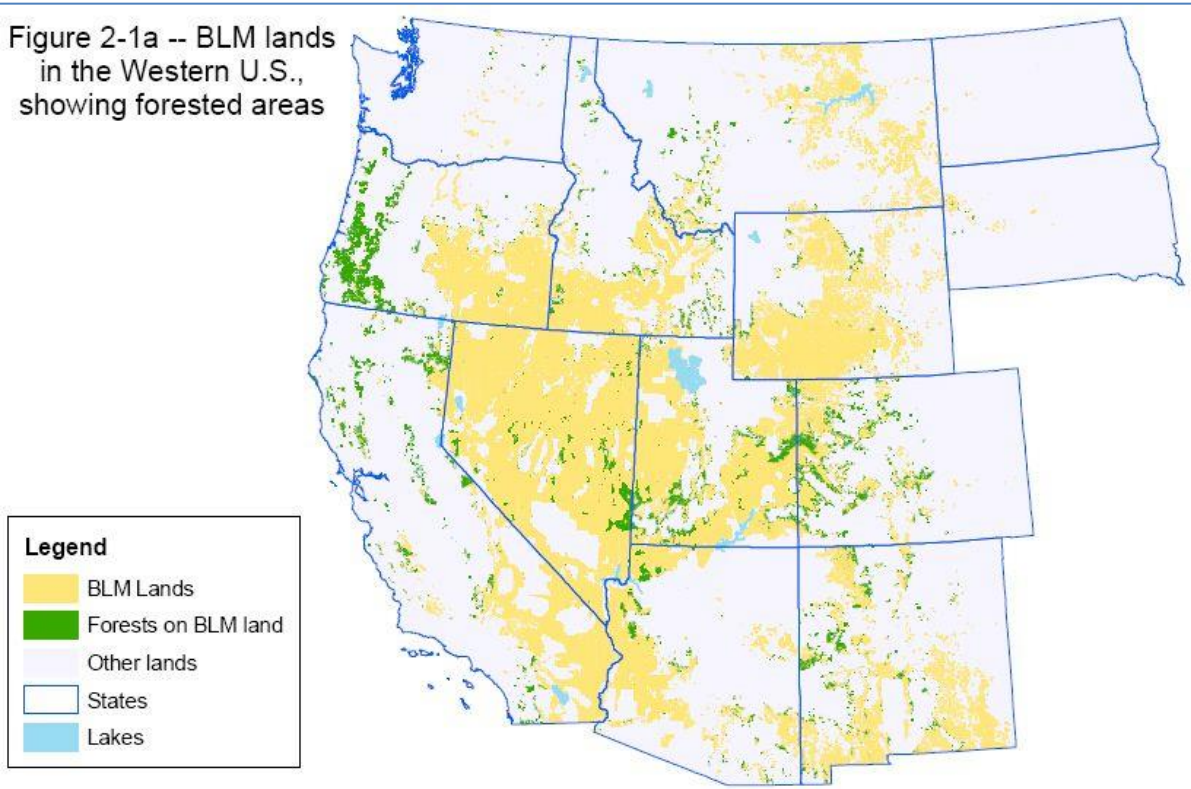
Bureau of Land Management’s Webpages

Another BLM source, it’s “Forests and Woodlands” webpage, says the agency has “close to 58 million acres of forest and woodlands . . . across 12 western states and Alaska,”¹¹ (Maps 4 & 5). Table 5 summarizes the information by state on this webpage. Appendix A details the information by state.

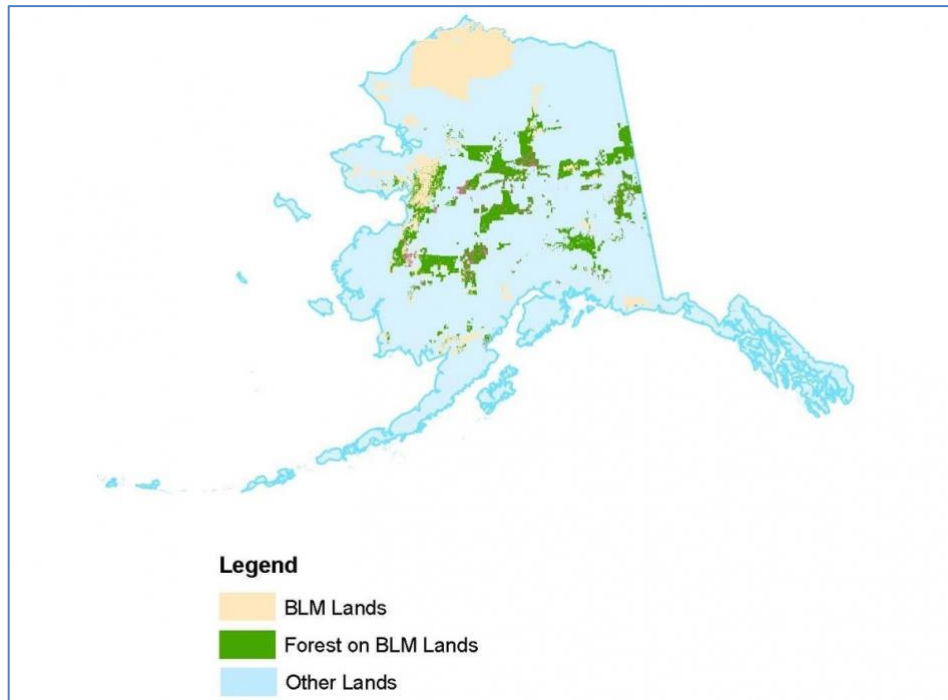
Table 5. Bureau of Land Management Forested Estate By State (source: Forest and Woodlands webpage)	
BLM “State”	Quantity of Forest and/or Woodland
AK	20 to 30 million acres of forests and woodlands.
CA	1.6 million forest acres, of which 900,000 acres are woodlands.
CO	3.5 to 4 million acres of forested lands. More than 2.5 million acres are considered woodlands.
ID	770,000 acres of forest lands and approximately 300,000 acres of woodland.
MT (also ND & SD)	1.3 million acres of forest land, with 900,000 acres of commercial forest land and the rest considered woodlands.
NV	[no acreage given]
NM (also KS, OK, & TX)	2 million acres of forests and woodland.
OR (also WA)	~2.4 million acres of forests.
UT	6 million acres of pinyon-juniper woodlands and another 700,000 acres of diverse forest land.
WY	1.3 million acres of forests and woodlands. Approximately 500,000 acres are considered forest land and the other 800,000 acres are woodland
TOTAL	BLM says “close to 58 million acres.” I totaled the range as 48,570,000 to 59,070,000 acres.

Source: USDI Bureau of Land Management (see Appendix A)

¹¹ USDI Bureau of Land Management, [Forests and Woodlands](#) (web page).



Map 4. *Forested and nonforested Bureau of Land Management holdings in the West, excluding Alaska.* Source: USDI Bureau of Land Management, [Forests Defined](#) (web page).



Map 5. *Forested and nonforested Bureau of Land Management holdings in Alaska.* Source: USDI Bureau of Land Management, [Forests Defined](#) (web page).

USFS-BLM Mature and Old-Growth Forest Inventory

President Biden’s Executive Order 14072, “Strengthening the Nation’s Forests, Communities, and Local Economies,” directs the USDA Forest Service and the USDI Bureau of Land Management (BLM) to “develop policies . . . to institutionalize.... conservation strategies that

address threats to mature and old-growth forests on Federal lands.”¹² It also directed the agencies, to within one year, inventory mature and old-growth forests, which the agencies issues on Earth Day 2023.¹³

Table 6 breaks out BLM forests by forest stages and major conservation classifications.

Table 6. National total area (acres) of mature and old-growth forest lands* on Forest Service and BLM lands, shown by Congressionally designated land use allocations. “Other” category includes all remaining land use allocations.							
Agency & Land Use Allocation	Younger Forest		Mature Forest		Old-Growth Forest		Total Forest Land
	<i>acres</i>	<i>SE**</i>	<i>acres</i>	<i>SE**</i>	<i>acres</i>	<i>SE**</i>	<i>acres</i>
Bureau of Land Management	13,212,751	2%	12,698,776	2%	8,258,370	2%	34,169,897
Wilderness	589,153	10%	495,233	11%	494,901	11%	1,579,287
Wilderness Study Areas	1,111,718	7%	982,506	8%	1,231,592	8%	3,325,816
National Conservation Lands	575,959	10%	91	9%	837,732	9%	2,141,492
Other	10,935,922	2%	10,493,235	3%	5,694,145	3%	27,123,302
* Forest land includes areas meeting the FIA forest land definition, https://www.fia.fs.usda.gov/ . Sample area excludes 3.4 million acres of forested land managed by the Forest Service and 27.5 million acres of potentially forested land managed by the BLM in Alaska; permanent field plot monumentation is prohibited in Alaska. Forest Service wilderness areas and Interior Alaska have not yet been inventoried by FIA but are in progress for inclusion in future inventories.							
** SE% is percent sampling error. Estimate plus and minus one sampling error gives a 68 percent confidence interval.							
*** Forest Service Wilderness includes both Wilderness and Wilderness Study Areas. National Conservation Lands include National Monument, National Conservation Area, and other similar designations, collectively referred to as NM/NCAs.							
Source: USDA Forest Service and USDI Bureau of Land Management. 2023. Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management: Fulfillment of Executive Order 14072 . FS-1215a. Washington, DC							

Appendix B compares and contrasts the USFS-BLM MOG Forest Inventory’s analysis of pinyon-juniper woodlands with that of other other sources.

Why the Discrepancies?

There are multiple reasons the varying results as to the total amount of “forested” BLM lands. (Table 1). The primary factor is the underlying data relied upon, of which there are three:

- National Land Cover Database¹⁴ (BLM *Public Land Statistics*) ;
- Forest Inventory and Analysis (Forest Service FIA & USFS-BLM MOG Inventory)¹⁵; and
- United States Natural Vegetation Classification (Defenders of Wildlife, et al.).¹⁶

The underlying source of BLM’s Webpages estimate is not discernable.

FIA requires a minimum of 10% forest cover, while NLCD requires a minimum of 20%.

¹² Biden, Joseph R. April 21, 2023. [Strengthening the Nation’s Forests, Communities, and Local Economies](#). Executive Order (EO) 14072.

¹³ USDA Forest Service and USDI Bureau of Land Management. 2023. [Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management: Fulfillment of Executive Order 14072](#). FS-1215a. Washington, DC.

¹⁴ Multi-Resolution Land Characteristics Consortium. [National Land Cover Database Class Legend and Description](#) (pdf)

¹⁵ USDA Forest Service, [Forest Inventory and Analysis National Program](#) (web page).

¹⁶ United States Natural Vegetation Hierarchy Explorer. [Explore the Classification](#).

Why the USFS-BLM MOG Inventory and Forest Service FIA, both of which rely upon FIA data, differ by ~10% could not be discerned.

Definitions of what is a “forest” or “woodland” vary among the sources. For example, the NLCD definition of “woody wetlands” likely overlaps with the FIA definition of “woodland.”

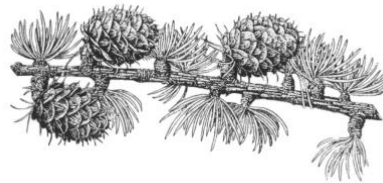
FIA uses plot data extrapolated to total area. NLCD appears to rely on satellite imagery interpretation as does the USNVC.

The USFS-BLM MOG Inventory did not sample “27.5 million acres of potentially forested land managed by the BLM in Alaska.”

Interestingly, Defenders number of 28.9 million acres in the eleven western states tracks closely with BLM’s webpage numbers. However, it’s clear that Defenders did a rigorous analysis, while the BLM webpages text suggests a far more casual approach.

BLM’s website numbers could be twice of what BLM’s *Public Land Statistics* reports. I first suspected that, needing to populate a webpage, the BLM webpage numbers were gathered by national staff querying field forestry staff, who inflated their acreages as to inflate their bureaucratic domains. However, as the Defenders numbers for the 11 western states comports closely with the BLM webpage number, I now suspect BLM’s *Public Land Statistics*.

From the perspectives of climate mitigation (carbon storage and sequestration), biological diversity conservation, and watershed protection, the more generous definitions and acreages are appropriate.



DEDICATED TO THE CONSERVATION AND RESTORATION OF NATURE, THE LARCH COMPANY IS A NON-MEMBERSHIP FOR-PROFIT ORGANIZATION THAT REPRESENTS SPECIES THAT CANNOT TALK AND HUMANS NOT YET BORN, A DECIDUOUS CONIFER, THE WESTERN LARCH HAS A CONTRARY NATURE.

Appendix A
Bureau of Land Management Narrative of Forested Holdings By State

Extent of BLM Forestlands by State

The information below was reported from BLM “state” offices.

Alaska: 20 to 30 million acres of forests and woodlands.¹⁷

California: 1.6 million forest acres, of which 900,000 acres are woodlands, 200,000 acres are commercial forest, and 100,000 acres are noncommercial forest. Throughout the state the major species are Douglas-fir, giant sequoia, Jeffery pine, numerous oak species, pinyon pine, ponderosa pine, quaking aspen, redwood, and western juniper.¹⁸

Colorado: 3.5 to 4 million acres of forested lands. More than 2.5 million acres are considered woodlands, dominated by piñon, juniper, and oak. The remaining forested acres consist of traditional commercial tree species such as ponderosa pine, lodgepole pine, and Douglas-fir.¹⁹

Idaho: 770,000 acres of forest lands and approximately 300,000 acres of woodland (pinyon-juniper), including whitebark pine trees over four hundred years old, which BLM considers “common.”²⁰

Montana (also North Dakota and South Dakota): 1.3 million acres of forest land, with 900,000 acres of commercial forest land and the rest considered woodlands. The major tree species found throughout the region include Douglas-fir, ponderosa pine, lodgepole pine, spruce, subalpine fir, limber pine, whitebark pine, aspen, and juniper.²¹

Nevada: No specific acreage given.²²

New Mexico (also Kansas, Oklahoma, and Texas): 2 million acres of forests and woodlands, ranging from mixed conifer and aspen in the southern Rocky Mountains near Taos to ponderosa pine in western New Mexico, to oak and juniper savannahs along the border with Mexico.²³

Oregon (also Washington): The acreage of BLM forestlands in Washington is extremely low. For Oregon, BLM administers ~2.4 million acres.²⁴ There are also a few hundred thousand acres of BLM lands in eastern Oregon not included in above figure. While a few states have more forested acres than Oregon, on a per-acre basis, the Oregon acres contain the most carbon.

Utah: 6 million acres of pinyon-juniper woodlands and another 700,000 acres of diverse forest land.²⁵

Wyoming: 1.3 million acres of forests and woodlands. Approximately 500,000 acres are considered forest land and the other 800,000 acres are woodlands. Includes 11,000 acres of whitebark pine stands.²⁶

¹⁷ USDI Bureau of Land Management, [BLM Alaska Forests and Woodlands](#) (web page).

¹⁸ USDI Bureau of Land Management, [California Forests and Woodlands](#) (web page).

¹⁹ USDI Bureau of Land Management, [BLM Colorado Forests and Woodlands](#) (web page).

²⁰ USDI Bureau of Land Management, [BLM Idaho Forests and Woodlands](#) (web page).

²¹ USDI Bureau of Land Management, [BLM Montana-Dakotas Forests and Woodlands](#) (web page).

²² USDI Bureau of Land Management, [BLM Nevada Forests and Woodlands](#) (web page).

²³ USDI Bureau of Land Management, [BLM New Mexico Forests and Woodlands](#) (web page).

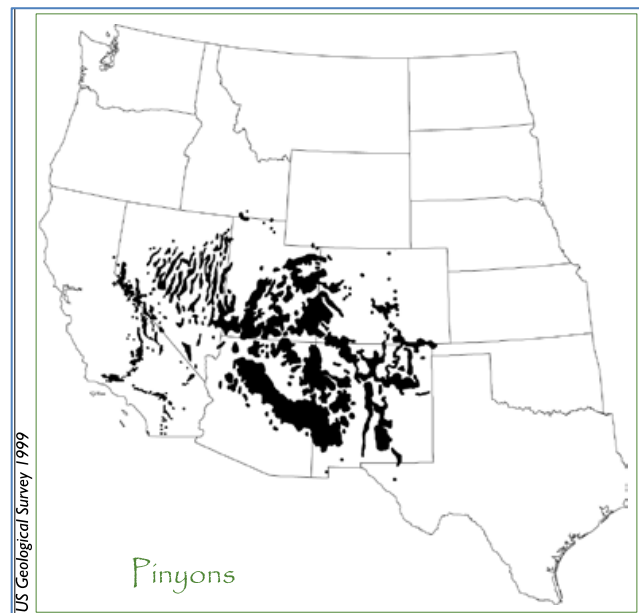
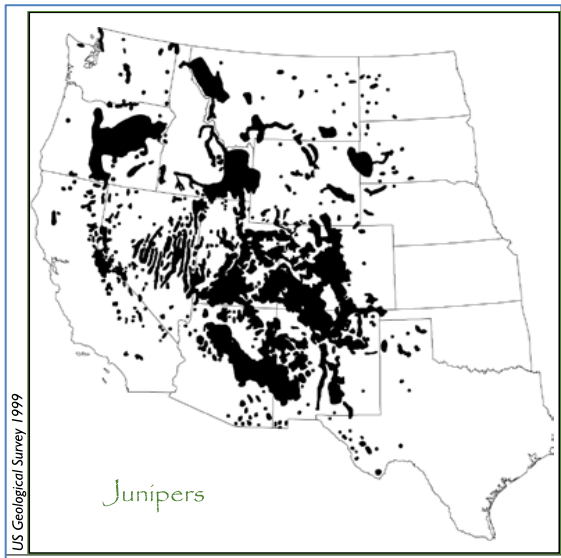
²⁴ USDI Bureau of Land Management, [O&C Lands](#) (web page).

²⁵ USDI Bureau of Land Management, [BLM Utah Forests and Woodlands](#) (web page).

²⁶ USDI Bureau of Land Management, [BLM Wyoming Forests and Woodlands](#) (web page).

Appendix B
The Bureau of Land Management’s Pinyon-Juniper Woodlands

The “[e]stimated area occupied by Utah and western junipers and singleleaf and twoneedle pinyon pines in the Intermountain West” is 48,209,619 acres in AZ, CA, CO, ID, NM, NV, OR, UT, and WY, according to Miller et al. 2019.²⁷ Compare this to the total (young, mature, and old-growth woodland of 32,142,628 acres for the pinyon/juniper group in USFS-BLM MOG Inventory, which is just on BLM and USFS lands. The USFS-BLM MOG Inventory is two-thirds of the extent of P-J woodlands identified in earlier analyses. As can be seen in the maps²⁸ below, P-J woodlands are found in more than the nine states noted in Miller, et al. 2019, in particular, WA, MT, ND, SD, NE, OK, and TX. Is the differences between the two inventories is that Miller et al. was inclusive of all ownerships, while the USFS-BLM MOG Inventory only includes BLM and USFS land?



²⁷ Miller, Richard F. et al. 2019. [The Ecology, History, Ecohydrology, and Management of Pinyon and Juniper Woodlands in the Great Basin and Northern Colorado Plateau of the Western United States](#). USDA Forest Service General Technical Report RMRS-GTR-403.

²⁸ Gillihan, S. W. 2006. [Sharing the land with pinyon-juniper birds](#). Partners in Flight Western Working Group. Salt Lake City, Utah