Appendix III: Ecosystem Representation in the Cibola National Forest

These comments address the role of ecosystem representation in the Cibola National Forest's land management planning process – particularly its evaluation of areas that may be suitable for inclusion in the National Wilderness Preservation System (NWPS). As explained below and illustrated by the accompanying maps and data, the Cibola hosts numerous ecosystem types that are poorly-represented in the NWPS both regionally and nationally. Given the central importance of ecosystem diversity to conserving biological diversity and satisfying the requirements of the 2012 National Forest System Land Management Planning Rule, 36 C.F.R. part 219, the ongoing wilderness evaluation and planning process presents a crucial opportunity for the Cibola to increase the diversity of ecosystems that are protected as part of the NWPS or through other special designations.

I. Ecological Importance of Ecosystem Representation in Wilderness and Other Protected Areas

Wilderness and other protected conservation areas are the cornerstones of most regional, national, and international efforts to conserve biological diversity and ecological processes of natural ecosystems (Bertzky *et al*. 2012). Research has shown that protected areas reduce the loss, degradation, and fragmentation of natural habitats (Bruner *et al*. 2001; Naughton-Treves *et al*. 2005) and slow the rate of extinction of threatened species that occur therein (Butchart *et al*. 2012). Conversely, federal public lands in the United States that are managed for a variety of uses including mining, logging, and motorized recreation – and not primarily for conservation purposes – do not have the same benefits. Recognizing the central importance of protected areas in conserving biological diversity, the International Convention on Biological Diversity recommends that at least 17% of the world's terrestrial areas be conserved by 2020 (Woodley *et al*. 2012). To that end, the NWPS already serves as the world's largest national system of highly-protected conservation areas.[1]

Wilderness and other protected areas, however, can help achieve biodiversity targets only if they are located in the right places – that is, if they are ecologically representative of terrestrial ecosystems. This "representation" approach assumes that for protected areas to conserve genetic, species, and community diversity – as well as the composition, structure, function, and evolutionary potential of natural systems – they must encompass the full variety of ecosystems (Olson & Dinerstein 1998; Margules & Pressey 2000). In other words, protection of distinct ecological communities in turn

[1] The NWPS contains 21 million hectares in 690 units, covering nearly 1/5 of what the International Union for Conservation of Nature (IUCN) classifies as "category 1 areas," or the most natural and highly protected areas worldwide. By contrast, the IUCN classifies general Forest Service matrix lands as "GAP Status 3" – "Area having permanent protection from conversion of natural land cover for the majority of area. Subject to extractive uses of either broad, low-intensity type (eg. Logging) or localized intense type (eg. Mining)." – which is not considered a "protected" category for biodiversity purposes.

protects the species that rely on them and the natural ecological processes that are characteristic of those ecosystems (Rodrigues *et al*. 2004; Bunce *et al*. 2013). According to the Convention on Biological Diversity, the percentage of terrestrial ecosystems protected by 2020 (with a target of 17%) is one indicator of how well ecosystems are represented throughout the global network of protected conservation areas (Woodley *et al*. 2012).

Despite its importance, our analysis of ecosystem representation in the NWPS (Dietz *et al.* 2014 (*in revision*)) – which is described in detail below – shows that the NWPS suffers from a significant under-representation of many ecosystems. Over 20% (117) of the 553 types of unique ecosystems occurring on federal lands in the contiguous United States are not included in the NWPS. Even more concerning is that less than half of those 553 ecosystems are more than nominally represented: only 244 ecosystem types have at least 5% of their federal land area protected in the NWPS. And at a more reasonable 20% target for biodiversity conservation purposes, that number falls to only 113 ecosystems with at least 20% of their federal land area protected in the NWPS. 95% of that diversity was achieved by 1994, and wilderness designations over the past 15 years have added only 1 new ecosystem type above the 20% threshold. Moreover, there is not a clear correlation between how rare an ecosystem is on federal lands and how well it is represented in the NWPS. We found that there are many ecosystem types that are common on federal lands (covering over 100,000 hectares) but are poorly represented in the NWPS.

As we commemorate the 50th anniversary of the Wilderness Act (signed into law on September 3, 1964), it is important to begin to remedy this under-representation of ecosystems in the NWPS. Human population growth, climate change, and pressure for development and extraction of natural resources make wilderness and other protected areas increasingly vital to conserve biological diversity. Given those pressures and stressors, we must establish a network of connected wilderness and other protected areas that represent the full expression of ecosystem diversity.

II. Regulatory Requirements to Evaluate Ecosystem Representation

Given the regional, national, and global importance of ecosystem representation in the NWPS and other protected areas, the 2012 National Forest System Land Management Planning Rule requires the Forest Service to evaluate and incorporate ecosystem representation into its forest assessment and planning processes. Indeed, protecting ecosystem diversity is a central purpose of forest planning under the Rule:

> Plans will guide management of [National Forest System] land so that they are ecologically sustainable and contribute to social and economic sustainability; ***consist of ecosystems and watersheds with*** ecological integrity and ***diverse plant and animal communities***; and have the capacity to provide people and communities with ecosystem services and

> multiple uses that provide a range of social, economic, and ecological benefits for the present and into the future.

36 C.F.R. § 219.1(c) (emphasis added).

To satisfy the 2012 Planning Rule's ecosystem diversity mandate, forests are first required to identify and evaluate existing designated areas, including wilderness, and the potential need and opportunity for additional designated areas as part of the assessment phase. *Id.* § 219.6(b)(15). In doing so, the assessment should consider, among other things, whether there are "specific land types or ecosystems present in the plan area that are not currently represented or minimally represented within the wilderness system or system of research natural areas." Forest Service Handbook (FSH) 1909.12, ch. 10, § 14 (Feb. 14, 2013 draft).

Next, during the plan development or revision phase, the Forest Service is required to "[i]dentify and evaluate lands that may be suitable for inclusion in the [NWPS] and determine whether to recommend any such lands for wilderness designation." 36 C.F.R. § 219.7(c)(2)(v). In evaluating potential wilderness areas, the agency must, among other things, "[e]valuate the degree to which the area may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." FSH 1909.12, ch. 70, § 72.1(4); *see also* 16 U.S.C. § 1131(c)(4) (wilderness, as defined by the Wilderness Act of 1964, "may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value"). "Such features or values may include[r]are plant or animal communities or rare ecosystems," with rare being "determined locally, regionally, nationally, or within the system of protected designations." FSH 1909.12, ch. 70, § 72.1(4).

In addition to identifying and evaluating areas to recommend for wilderness designation, the 2012 Planning Rule also requires the agency to "[i]dentify existing designated areas other than [wilderness] and determine whether to recommend any additional areas for designation." 36 C.F.R. § 219.7(c)(2)(vii). Those special designations may include, for example, ecological areas, botanical areas, or Research Natural Areas (RNAs), which are designed to "[m]aintain a wide spectrum of high quality representative areas that represent the major forms of variability . . . that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity . . . [and s]erve as a baseline area for measuring long-term ecological changes." Forest Service Manual 4063.02; *see also* 36 C.F.R. § 219.19 (Forest Service may designate RNAs as part of planning process).

Complementing the requirement to consider ecosystem representation in determining suitability for wilderness and other special designations, the 2012 Planning Rule directs that plans generally provide for ecological sustainability and integrity and "the diversity of plant and animal communities and the persistence of native species." 36 C.F.R. §§ 219.8-219.9. The Forest Service cannot satisfy those substantive mandates without

adequately protecting ecosystem diversity in the plan area. For example, plans "must include plan components, including standards or guidelines, to maintain or restore the diversity of ecosystems and habitat types[, including r]are . . . plant and animal communities." *Id.* § 219.9(a)(2). With conflicting management and resource demands and human-caused stressors such as climate change that threaten ecosystem diversity and integrity, plans simply cannot restore or maintain the diversity of plant and animal communities absent a robust network of protected areas that adequately represent that diversity.

Collectively, these various procedural and substantive mandates commit the agency to a meaningful evaluation and consideration of under-represented and rare ecosystems, and to formulating and adopting plan components, recommendations, and designations that adequately protect and preserve the forest's diversity of plant and animal communities. In doing so, the agency is required to use "the best available scientific information." *Id.* § 219.3. As described in the methodology section below, we believe our analysis of ecosystem representation represents the best available scientific information, and we encourage the Forest Service to incorporate it into its wilderness evaluation and the broader planning process.

III. Methods and Analysis of Ecosystem Representation

Because the Cibola Forest Assessment did not address it, we conducted an analysis of ecosystem representation in wilderness at the national- and forest-level scales to provide the best available scientific information for the ongoing wilderness evaluation and forest planning processes.

According to the U.S. Geological Survey (USGS), the contiguous United States contains 565 terrestrial, non-developed ecosystems. In this study, we analyzed representation of those ecosystems by comparing their areas in the NWPS with their areas on federal land at both the national and forest levels in order to calculate a percent representation:

> Equation 1: *(area of ecosystem in the NWPS/area of ecosystem on federal land)*100*[2]
>
> Equation 2: *(area of ecosystem in the NWPS on the Cibola NF/area of ecosystem on the Cibola NF)*100*

We conducted these calculations at the finest scale for which consistent, spatially-explicit vegetative land-cover data is available: the 6th level of the National Vegetation

[2] We used federal land, as opposed to all land, within the contiguous United States to better assess where ecosystems are under-represented on lands potentially available for wilderness designation.

Classification System (NVCS 2008).[3] That data is from the USGS Gap Analysis Program (GAP) national land-cover data version 2 at 30-meter resolution (USGS 2011).

We obtained spatial data of the NWPS from the University of Montana College of Forestry and Conservation's Wilderness Institute at wilderness.net, which maintains the most up-to-date spatial data on wilderness areas. To map federal land area, we used the U.S. Protected Areas Database (PAD-US) version 1.3 (USGS 2012), which includes geographic boundaries, land ownership, land management, management designation, parcel name, area, and protection category.[4]

We overlaid the NWPS and all federal lands with land-cover data in a Geographic Information System (ArcGIS 10.2) to calculate and compare the total area of each ecosystem within the NWPS and federal land. We then calculated the percent of each ecosystem within the NWPS based on all area occurring on federal land (Equation 1, above).[5] This was part of a national assessment that we conducted (Dietz *et al.* 2014 (*in revision*)).

We did the same calculations at the forest level. We extracted land-cover data and clipped it to the forest boundary, and then calculated the percent of each ecosystem within the Cibola's four existing wilderness areas based on all federal land area occurring on the Forest (Equation 2, above).

Next we classified representation for each scale into four classes (<5%, 5-9.9%, 10-19.9%, ≥20%) and mapped them across the entire national forest. We considered ecosystems with <19.9% of their total area in the NWPS as inadequately represented.

We then brought the preliminary wilderness inventory data for the Cibola National Forest into Arc and created a new shapefile that included only the inventoried areas. This allowed us to focus our forest-specific analysis on the areas that are potentially suitable for wilderness designation by tabulating the area of each ecosystem occurring within each preliminary wilderness inventory area (see attached matrix, "Ecosystem Composition of Preliminary Wilderness Inventory Areas.xlsx"). Values within the matrix are the estimated acres of each ecosystem occurring within each preliminary wilderness inventory area.

[3] The NVCS classifications are as follows: 1) Class; 2) Subclass; 3) Formation; 4) Division; 5) Macrogroup; **6) Group (a.k.a. ecological system, to which we refer in this study as "ecosystem")**; 7) Alliance; and 8) Association.

[4] The PAD-US is a national inventory of terrestrial and marine protected areas that are managed to preserve biological diversity and other natural, recreation, and cultural uses.

[5] For example, when we say "boreal aspen-birch forest has 19% representation in NWPS," we mean that 19% of all federal land encompassing that ecosystem type is protected as wilderness in the NWPS.

We used these data to calculate the proportion (%) of each preliminary wilderness inventory area that is composed of ecosystems inadequately represented in the NWPS by each of the 3 lower representation classes (<5%, 5-9.9%, 10-19.9%) and for both scales of representation. For example, we calculated that 62% of Preliminary Inventory Unit D3ADJ2 is in under-represented ecosystem types.

IV. Results

Our analysis shows that the vast majority of preliminary wilderness inventory units contain high proportions of inadequately represented ecosystem types at both the forest-level and national scales (Tables 1 & 2; Maps 2 & 3). Over 80% of the lands in all 59 units contain inadequately represented ecosystem types at the national scale. The same is true for 52 of the 59 units at the forest level.

More broadly, our analysis found that only 11 of the 48 ecosystem types found on the Cibola are adequately represented at the forest level (Table 3, Tab 2). Under-represented ecosystem types comprise over 90% of the total forest area, with severely under-represented ecosystem types (<5%) covering over half of the entire forest area.

The story is similar at the national scale, with a total of 36 inadequately represented ecosystem types covering over 95% of the Cibola (Table 3, Tab 3; Map 2). Ecosystem types with less than 5% representation at the national scale cover just under half of the entire Cibola, while ecosystem types with less than 10% representation at that scale cover nearly 90% of the forest.

Notably, a handful of the most severely under-represented ecosystem types on the Cibola are also some of the most common ecosystem types, covering over 30% of the forest (Table 3, Tabs 2 & 3). For example, Colorado Plateau Pinyon-Juniper Woodland is the most prevalent ecosystem type on the forest – spanning over 600,000 acres – yet it falls into the lowest category of ecosystem representation (<5%). The second most prevalent ecosystem on the Cibola, the Southern Rocky Mountain Ponderosa Pine Woodland, covers over 500,000 acres of the Cibola, but less than 15% of its expanse is protected in the NWPS.

The attached maps and tables depict these results in detail, showing the following:

Map 1 “Preliminary Wilderness Inventory Units, Cibola National Forest”: Depicts each unit (polygon) in the preliminary wilderness inventory, outlined in black with hash marks, and with the forest boundary shaded gray.

Map 2 “Ecosystem Representation on the Federal Level“: Color depiction of the results of Equation 1 (above), showing the level of representation in the NWPS of each ecosystem type at the national scale. For example, areas shown in red depict

ecosystems that are represented in the NWPS at less than 5% of all available federal land. [inventory units outlined in black with cross-hatching]

Map 3 “Ecosystem Representation on the Forest Level”: Color depiction of the results of Equation 2 (above), showing the level of representation in the NWPS of each ecosystem type at the forest level. [inventory units outlined in black with cross-hatching]

Table 1 “Cibola Inventory Representation Table”: Proportion (%) of each wilderness inventory unit composed of under-represented ecosystem types on the Cibola National Forest based on national- or forest-level representation. Representation of each ecosystem type was quantified based on all available area on federal land and the individual forest. All ecosystems with <20% representation in the NWPS at each scale were broken into 3 levels of representation (<5%, 5-9.9%, and 10-19.9%). This table allows one to prioritize potential wilderness inventory units by proportion of land area that is composed of under-represented ecosystems, at three levels.

Table 2 “Ecosystem Composition of Preliminary Wilderness Inventory Areas”: Values within the matrix are the estimated acres of each ecosystem type occurring within each preliminary wilderness inventory unit. This table depicts the specific ecosystem composition of each inventory unit.

Table 3, Tabs 1-3 “Cibola National Forest Ecosystems Representation”: These tables depict which ecosystems are under-represented at the forest-level and national scales. Tab 1 shows a complete list of ecosystem types found on the Cibola National Forest, and the proportion of each type in the NWPS at the forest-level and national scales. Tabs 2 and 3 show representation breakdowns at the three levels (<5%, 5-9.9%, and 10-19.9%) at the forest-level and national scales.

V. Recommendations

Sufficient ecosystem representation in the NWPS and other protected areas is crucial to achieving ecological integrity of the diverse plant and animal communities found in the Cibola National Forest. As described above and depicted in the attached maps and tables, our analysis shows that under-representation of ecosystems in the NWPS is a significant problem on the Cibola. Our analysis also shows that the vast majority of lands in the preliminary wilderness inventory units contain under-represented ecosystem types. Thus, the ongoing wilderness evaluation and planning process presents the Forest Service with a critical opportunity to prioritize protection of ecosystem diversity and begin to remedy the under-representation of numerous ecosystem types in the NWPS.

To that end, we urge the Cibola National Forest to use the representation information in the attached tables and maps and described above to evaluate the importance of each inventoried area in achieving diverse ecosystem representation in wilderness at the regional and national scales. In addition, the forest should use this information more

broadly in its planning process and determinations whether to designate or recommend for designation other areas such as RNAs, ecological or botanical areas, etc. As described above, we believe that this information is the best available science on ecosystem representation, which the agency is legally required to use in its planning process.

If you have any questions about the analysis or data, or would like to have the data in another format, please contact Matt Dietz (415.710.7064; matt_dietz@tws.org) or Phil Hartger (303.802.1402; phil_hartger@tws.org).

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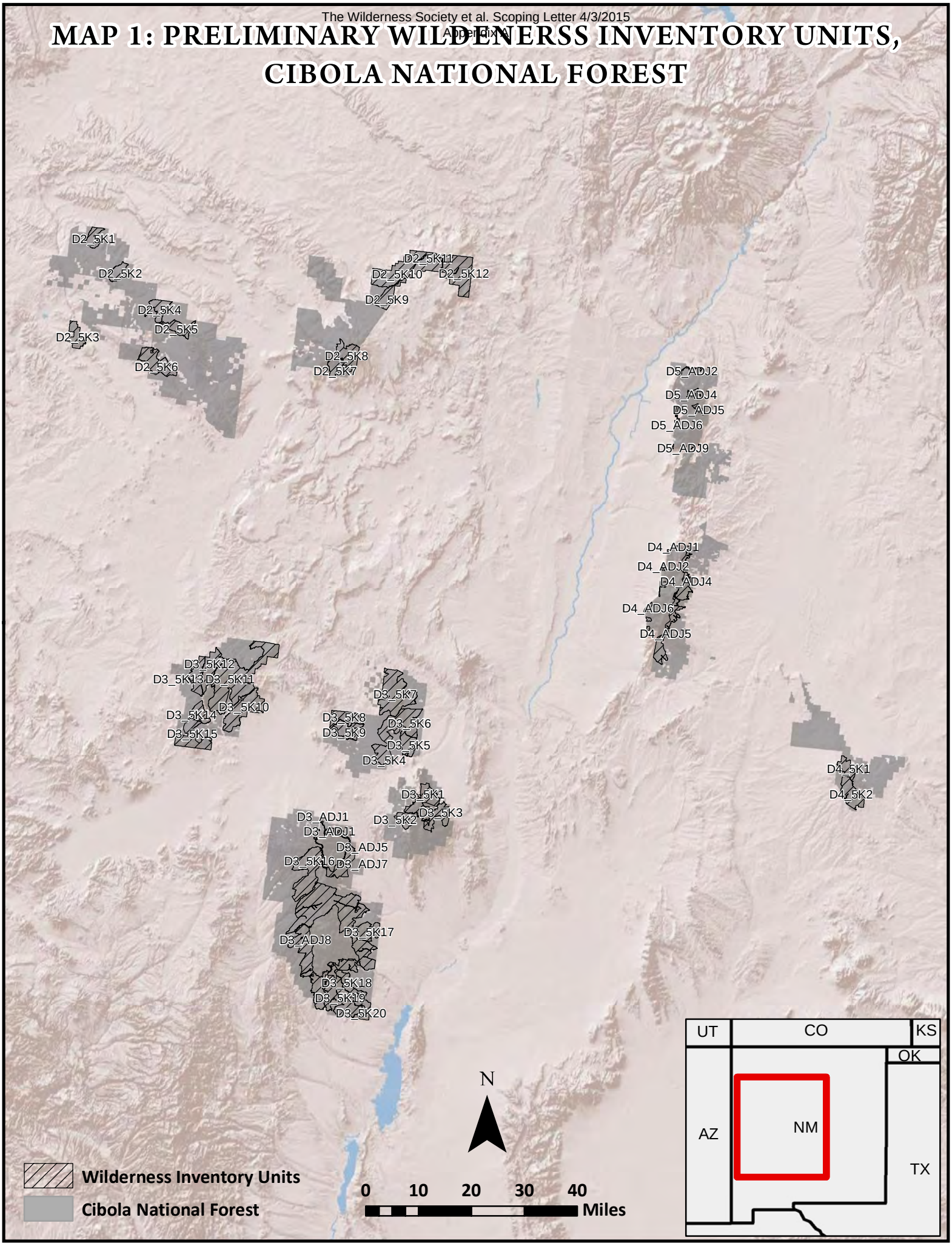
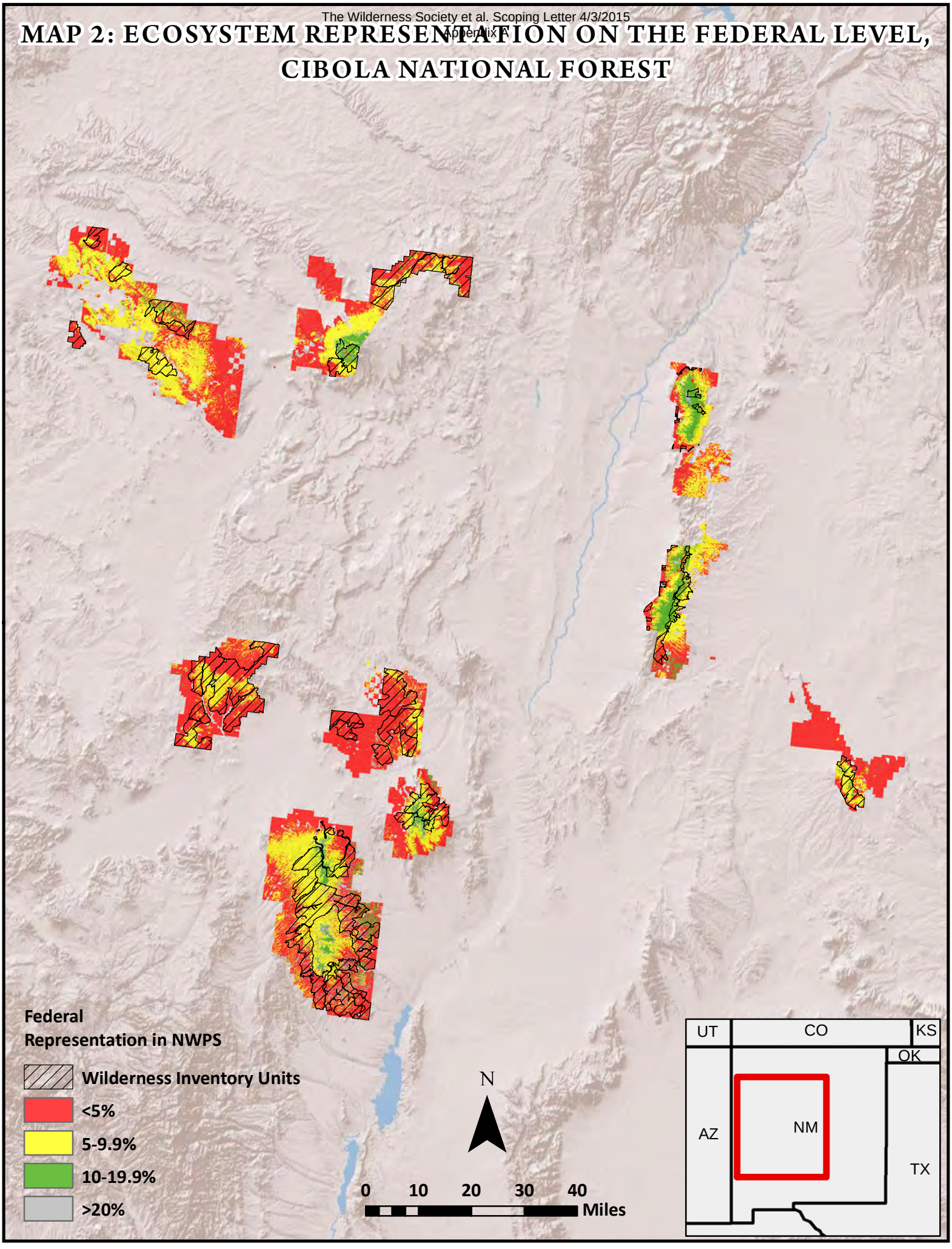
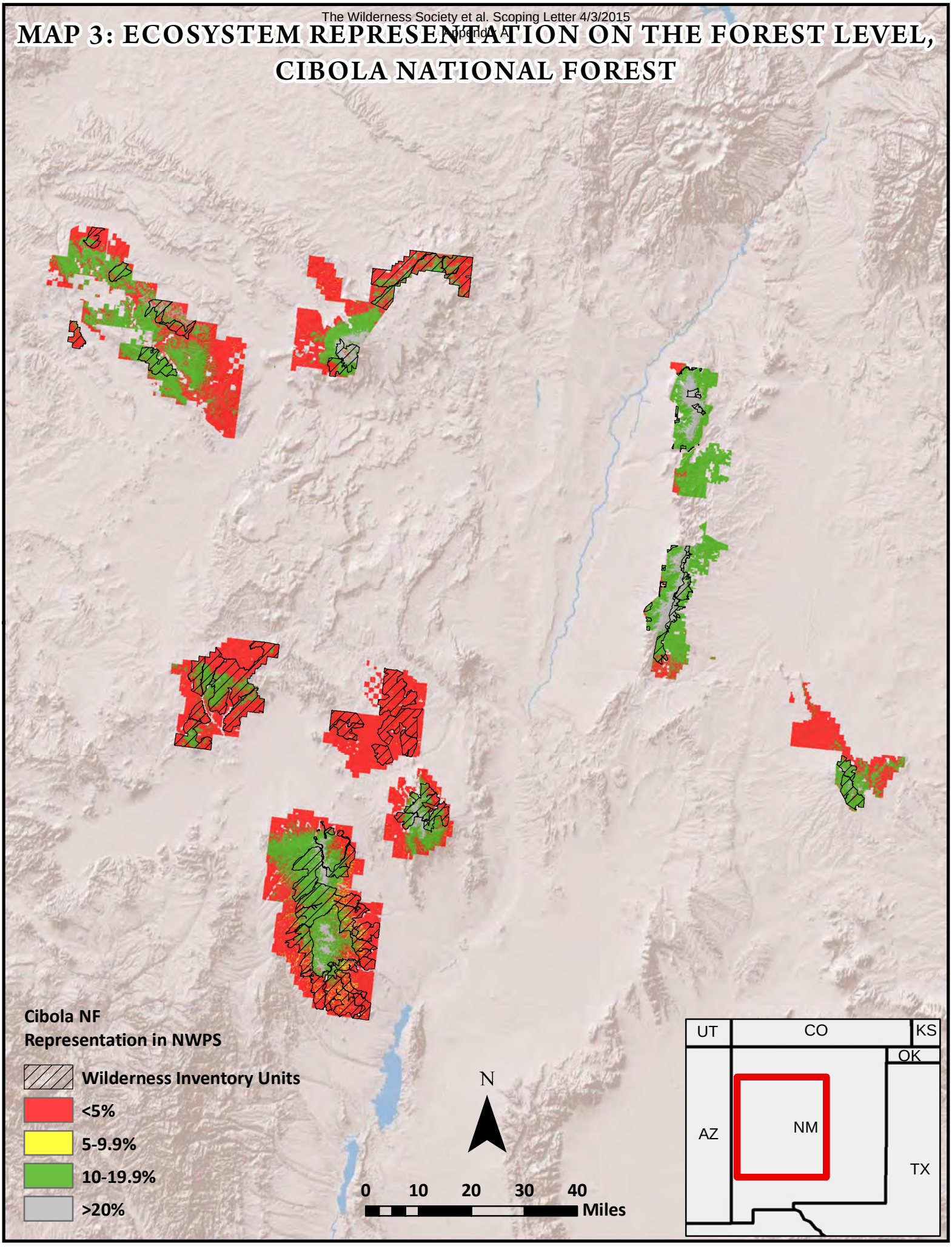
MAP 1: PRELIMINARY WILDENERSS INVENTORY UNITS, CIBOLA NATIONAL FOREST



MAP 2: ECOSYSTEM REPRESENTATION ON THE FEDERAL LEVEL, CIBOLA NATIONAL FOREST



MAP 3: ECOSYSTEM REPRESENTATION ON THE FOREST LEVEL, CIBOLA NATIONAL FOREST



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Appendix A Table 1

Cibola National Forest, Underrepresented Ecological Systems ("Ecosystems")

	Federal Representation				Forest Representation			
Wilderness Inventory Unit	*<5%*	*5-9.9%*	*10-19.9%*	*<20%*	*<5%*	*5-9.9%*	*10-19.9%*	*<20%*
D3_ADJ2	62.6	37.4	0.0	100.0	62.6	0.0	37.4	100.0
D4_ADJ8	95.4	3.8	0.0	99.2	0.0	0.0	100.0	100.0
D4_ADJ7	88.9	8.6	1.5	98.9	9.1	0.0	89.4	98.5
D4_ADJ6	94.7	2.0	1.8	98.5	24.1	0.0	74.1	98.2
D4_ADJ1	56.1	41.0	3.0	100.0	4.3	0.0	91.8	96.2
D5_ADJ9	98.3	1.2	0.0	99.5	1.0	0.0	99.0	100.0
D5_ADJ7	54.5	45.5	0.0	100.0	0.0	0.0	100.0	100.0
D5_ADJ6	99.8	0.2	0.0	100.0	2.2	5.4	92.5	100.0
D2_5K3	93.3	5.8	0.4	99.5	86.1	0.4	13.1	99.6
D5_ADJ3	96.8	2.0	1.2	100.0	0.0	0.0	98.8	98.8
D3_5K20	88.6	4.0	2.6	95.2	95.8	2.4	0.1	98.3
D3_ADJ3	0.0	31.5	47.3	78.8	0.0	0.0	31.5	31.5
D3_ADJ6	91.8	4.4	0.0	96.2	76.1	0.0	23.9	100.0
D3_ADJ1	46.7	53.1	0.2	100.0	46.7	0.0	53.1	99.8
D3_5K8	98.6	1.1	0.0	99.7	98.6	0.2	1.1	100.0
D4_5K2	26.1	67.4	6.5	100.0	3.3	0.0	89.5	92.8
D3_5K11	62.1	36.8	0.1	99.1	64.9	0.2	34.5	99.5
D4_ADJ5	37.9	30.6	31.2	99.8	8.5	0.0	62.5	71.0
D4_ADJ3	86.4	12.2	0.0	98.6	47.6	0.0	52.4	100.0
D4_ADJ2	89.9	9.8	0.0	99.7	3.0	0.0	97.0	100.0
D2_5K9	35.1	57.8	0.0	93.0	45.7	0.0	53.7	99.5
D2_5K12	74.8	21.3	1.4	97.5	73.0	1.0	24.6	98.6
D5_ADJ8	100.0	0.0	0.0	100.0	0.0	0.0	100.0	100.0
D2_5K5	70.5	24.9	4.3	99.8	70.5	0.1	25.1	95.6
D2_5K1	77.7	20.0	2.0	99.7	75.6	0.2	22.2	98.0
D3_5K19	67.0	15.9	1.6	84.6	78.1	13.0	7.6	98.7
D3_5K16	6.2	79.5	11.5	97.1	6.2	0.2	79.5	85.9
D3_ADJ7	42.3	43.5	7.7	93.4	39.9	3.8	47.7	91.5
D3_5K4	89.8	5.9	0.1	95.8	98.6	1.4	0.0	100.0
D3_5K9	97.9	2.0	0.0	99.9	98.0	0.1	2.0	100.0

D4_5K1	36.2	55.5	8.3	100.0	14.9	0.0	77.7	92.6
D3_5K5	70.8	27.7	1.4	99.9	99.8	0.2	0.0	100.0
D3_5K7	80.6	15.1	1.2	96.9	97.9	1.6	0.4	99.9
D3_5K10	82.7	15.6	0.0	98.3	83.1	0.4	15.8	99.3
D4_ADJ4	8.8	48.9	42.3	100.0	0.0	0.0	50.7	50.7
D2_5K6	5.8	93.0	0.8	99.6	5.8	0.0	93.0	98.8
D2_5K4	28.4	47.5	23.9	99.9	28.4	0.0	47.5	75.9
D2_5K2	18.4	78.1	3.3	99.8	17.2	0.0	79.3	96.5
D2_5K10	68.5	23.0	6.3	97.8	69.9	0.1	23.5	93.5
D2_5K11	53.5	40.6	2.9	97.0	53.5	0.0	43.5	97.0
D3_5K13	58.2	41.1	0.0	99.3	58.2	0.3	41.5	100.0
D3_ADJ4	92.7	0.8	0.0	93.5	93.6	5.7	0.7	100.0
D3_ADJ5	83.4	8.4	0.0	91.9	95.6	4.4	0.0	100.0
D3_5K18	65.1	12.5	6.5	84.1	72.8	13.5	12.0	98.3
D3_5K17	52.9	6.7	26.7	86.4	82.0	9.2	6.2	97.4
D5_ADJ4	2.6	6.4	86.3	95.3	0.0	0.0	7.2	7.2
D3_ADJ8	45.5	38.6	5.1	89.1	49.0	7.5	39.9	96.4
D3_5K2	34.6	49.4	12.0	96.0	34.5	0.1	49.5	84.0
D3_5K1	29.0	49.1	16.8	94.8	25.8	0.6	52.4	78.8
D3_5K6	75.5	22.4	0.1	98.0	99.0	0.9	0.2	100.0
D3_5K15	66.2	31.9	0.5	98.6	66.3	0.4	32.2	98.9
D3_5K14	89.8	10.2	0.0	100.0	89.8	0.0	10.2	100.0
D3_5K12	60.1	39.6	0.1	99.7	60.1	0.0	39.8	99.9
D2_5K7	46.3	52.5	0.4	99.2	46.3	0.1	52.6	99.0
D2_5K8	2.8	29.3	58.3	90.4	2.9	0.5	29.2	32.6
D5_ADJ1	98.6	1.4	0.0	100.0	56.3	0.0	43.7	100.0
D5_ADJ2	87.2	10.6	1.0	98.9	24.5	0.0	74.4	99.0
D5_ADJ5	3.3	23.5	73.2	99.9	0.0	0.0	23.7	23.7
D3_5K3	47.9	40.6	9.1	97.6	39.5	0.4	50.2	90.0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

	Wilderness Inventory Units				
Ecosystem	D3_ADJ2	D4_ADJ8	D4_ADJ7	D4_ADJ6	D4_ADJ1
Apacherian-Chihuahuan Mesquite Upland Scrub	0	0	0	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	23,818	0	0	0	0
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	0	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	0	0	0	0	0
Inter-Mountain Basins Greasewood Flat	0	0	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	0	7,005	0
Inter-Mountain Basins Mixed Salt Desert Scrub	0	0	0	0	0
Inter-Mountain Basins Montane Sagebrush Steppe	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	0	0	0	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0	0
Madrean Juniper Savanna	0	0	0	0	0
Madrean Pinyon-Juniper Woodland	0	0	0	0	0
Mogollon Chaparral	0	0	0	0	0
North American Arid West Emergent Marsh	0	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	0	0	0	0	0
North American Warm Desert Wash	0	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	0	0	0	0
Rocky Mountain Aspen Forest and Woodland	0	0	0	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	0	0	0	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	0	0	8,607	16,413	801
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0	0	0	0	2,402

Appendix A Table 2

Ecosystem	D3_ADJ2	D4_ADJ8	D4_ADJ7	D4_ADJ6	D4_ADJ1
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	0	1,801	3,403	10,808	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	0	0	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0	0	2,602	5,204	4,203
Southern Rocky Mountain Juniper Woodland and Savanna	14,211	8,607	27,621	7,005	115,089
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	27,822	159,123	10,208
Southern Rocky Mountain Montane-Subalpine Grassland	0	215,967	247,792	493,783	142,110
Southern Rocky Mountain Pinyon-Juniper Woodland	0	0	0	0	0
Southern Rocky Mountain Ponderosa Pine Woodland	0	0	2,202	7,806	4,203
Western Great Plains Cliff and Outcrop	0	0	1,601	5,804	2,002
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D5_ADJ9	D5_ADJ7	D5_ADJ6	D2_5K3	D5_ADJ3
Apacherian-Chihuahuan Mesquite Upland Scrub	0	0	0	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	0	0	0	4,771,897	0
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	0	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	0	0	0	0	0
Inter-Mountain Basins Greasewood Flat	0	0	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	0	0	0	801	0
Inter-Mountain Basins Montane Sagebrush Steppe	0	0	0	70,855	0
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	0	0	0	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0	0
Madrean Juniper Savanna	0	0	0	0	0
Madrean Pinyon-Juniper Woodland	0	0	0	0	0
Mogollon Chaparral	0	0	0	0	0
North American Arid West Emergent Marsh	0	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	0	0	0	23,618	0
North American Warm Desert Wash	0	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	0	0	0	0
Rocky Mountain Aspen Forest and Woodland	0	0	0	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	0	0	0	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	0	0	0	406,915	0
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0	0	0	0	0

Appendix A Table 2

Ecosystem	D5_ADJ9	D5_ADJ7	D5_ADJ6	D2_5K3	D5_ADJ3
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	0	0	0	4,203	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	1,401	0	0	0	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	0	0	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	2,802	1,001
Southern Rocky Mountain Juniper Woodland and Savanna	3,403	2,002	1,001	328,054	1,601
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	2,802	0	13,210	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	273,812	2,202	496,585	0	79,462
Southern Rocky Mountain Pinyon-Juniper Woodland	0	0	0	0	0
Southern Rocky Mountain Ponderosa Pine Woodland	0	0	0	17,213	0
Western Great Plains Cliff and Outcrop	0	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D3_5K20	D3_ADJ3	D3_ADJ6	D3_ADJ1	D3_5K8
Apacherian-Chihuahuan Mesquite Upland Scrub	3,860,390	0	0	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	66,051	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	200	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	535,415	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	314,444	0	75,659	588,456	6,568,688
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	0	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	55,843	0	0	0	1,601
Inter-Mountain Basins Greasewood Flat	0	0	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	147,314	0	0	0	1,401
Inter-Mountain Basins Montane Sagebrush Steppe	2,202	0	0	0	68,453
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	32,625	0	4,003	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0	0
Madrean Juniper Savanna	2,602	0	0	0	0
Madrean Pinyon-Juniper Woodland	59,046	0	0	0	801
Mogollon Chaparral	91,671	0	0	0	0
North American Arid West Emergent Marsh	0	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	131,102	0	0	0	15,812
North American Warm Desert Wash	80,262	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	1,801	0	0	0
Rocky Mountain Aspen Forest and Woodland	0	1,801	0	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	0	71,455	0	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	0	0	20,416	0	0
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0	0	0	0	0

Appendix A Table 2

Ecosystem	D3_5K20	D3_ADJ3	D3_ADJ6	D3_ADJ1	D3_5K8
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	3,803	0	0	0	3,002
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	124,496	0	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0	11,409	0	400	0
Southern Rocky Mountain Juniper Woodland and Savanna	0	111,486	4,604	669,318	73,857
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	0	0	0	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	0	0	0	0	0
Southern Rocky Mountain Ponderosa Pine Woodland	0	31,424	0	1,801	0
Western Great Plains Cliff and Outcrop	600	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D4_5K2	D3_5K11	D4_ADJ5	D4_ADJ3	D4_ADJ2
Apacherian-Chihuahuan Mesquite Upland Scrub	0	0	278,015	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	1,401	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	0	23,545,239	0	0	0
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	5,204	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	0	73,657	0	0	0
Inter-Mountain Basins Greasewood Flat	0	0	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	3,002	2,402	0
Inter-Mountain Basins Mixed Salt Desert Scrub	0	1,051,414	0	23,818	0
Inter-Mountain Basins Montane Sagebrush Steppe	0	358,678	0	0	0
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	0	11,409	0	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0	0
Madrean Juniper Savanna	26,020	0	3,403	0	0
Madrean Pinyon-Juniper Woodland	7,406	0	281,818	0	0
Mogollon Chaparral	0	0	2,002	0	0
North American Arid West Emergent Marsh	0	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	0	72,856	0	0	0
North American Warm Desert Wash	0	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	4,604	0	0	0
Rocky Mountain Aspen Forest and Woodland	0	10,608	7,206	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	0	105,282	0	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	17,013	0	39,831	3,202	0
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	73,257	0	76,459	0	0

Appendix A Table 2

Ecosystem	D4_5K2	D3_5K11	D4_ADJ5	D4_ADJ3	D4_ADJ2
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	0	23,618	0	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	0	110,886	12,410	5,804	801
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	10,408	0	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	234,382	21,617	972,754	0	0
Southern Rocky Mountain Juniper Woodland and Savanna	6,147,963	13,170,202	2,714,503	25,820	31,224
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	28,622	0	163,527	173,334	6,605
Southern Rocky Mountain Montane-Subalpine Grassland	1,995,746	0	2,782,756	187,946	276,414
Southern Rocky Mountain Pinyon-Juniper Woodland	0	5,404	0	0	0
Southern Rocky Mountain Ponderosa Pine Woodland	352,673	17,013	1,518,576	0	0
Western Great Plains Cliff and Outcrop	57,244	0	801	2,802	3,002
Western Great Plains Foothill and Piedmont Grassland	175,936	0	26,220	0	0
Western Great Plains Riparian Woodland and Shrubland	1,801	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D2_5K9	D2_5K12	D5_ADJ8	D2_5K5	D2_5K1
Apacherian-Chihuahuan Mesquite Upland Scrub	0	0	0	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	114,689	0	0	6,605
Colorado Plateau Pinyon-Juniper Woodland	451,149	11,893,213	0	3,821,160	3,294,552
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	34,227	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	0	7,005	0	0	0
Inter-Mountain Basins Greasewood Flat	0	108,884	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	700,943	68,053	0	0	1,201
Inter-Mountain Basins Montane Sagebrush Steppe	1,859,641	704,546	0	56,444	137,507
Inter-Mountain Basins Semi-Desert Grassland	0	12,810	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	0	1,401	0	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0	0
Madrean Juniper Savanna	0	0	0	0	0
Madrean Pinyon-Juniper Woodland	0	0	0	0	0
Mogollon Chaparral	18,014	0	0	0	0
North American Arid West Emergent Marsh	0	2,202	0	1,201	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	2,002	55,243	0	5,004	9,207
North American Warm Desert Wash	0	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	0	0	0	0
Rocky Mountain Aspen Forest and Woodland	0	0	0	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	15,012	0	0	3,002	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	0	262,203	0	4,203	96,475
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0	0	0	0	0

Appendix A Table 2

Ecosystem	D2_5K9	D2_5K12	D5_ADJ8	D2_5K5	D2_5K1
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	17,213	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	0	371,688	0	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	427,931	1,201	0	1,401	4,604
Rocky Mountain Subalpine-Montane Riparian Shrubland	1,401	0	0	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0	111,687	0	12,610	1,201
Southern Rocky Mountain Juniper Woodland and Savanna	3,107,007	3,667,841	0	1,371,863	907,703
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	0	15,812	13,210	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	0	3,002	0	1,201	0
Southern Rocky Mountain Ponderosa Pine Woodland	1,601	137,106	0	225,375	88,869
Western Great Plains Cliff and Outcrop	0	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D3_5K19	D3_5K16	D3_ADJ7	D3_5K4	D3_5K9
Apacherian-Chihuahuan Mesquite Upland Scrub	3,524,330	0	3,202	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	74,057	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	377,092	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	6,843,101	1,042,007	3,059,370	4,323,149	5,757,060
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	1,001	0	0	86,867	0
Inter-Mountain Basins Big Sagebrush Shrubland	172,333	0	0	515,199	0
Inter-Mountain Basins Greasewood Flat	2,802	0	0	77,060	0
Inter-Mountain Basins Juniper Savanna	0	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	1,567,414	0	112,087	336,861	801
Inter-Mountain Basins Montane Sagebrush Steppe	45,035	82,064	0	180,140	41,232
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	1,201	0	0	3,002	0
Inter-Mountain Basins Shale Badland	142,310	0	32,225	236,984	1,001
Inter-Mountain Basins Volcanic Rock and Cinder Land	4,403	600	0	0	0
Madrean Juniper Savanna	0	2,002	0	0	0
Madrean Pinyon-Juniper Woodland	157,922	12,009	24,619	7,806	0
Mogollon Chaparral	185,744	221,772	72,456	0	0
North American Arid West Emergent Marsh	0	2,002	0	0	0
North American Warm Desert Active and Stabilized Dune	27,221	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	5,204	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	2,159,873	32,825	310,841	4,403	5,604
North American Warm Desert Wash	55,443	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	62,448	4,003	0	0
Rocky Mountain Aspen Forest and Woodland	0	22,618	6,405	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	3,603	183,542	2,802	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	189,347	0	355,075	0	801
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	1,201	0	1,801	0	0

Appendix A Table 2

Ecosystem	D3_5K19	D3_5K16	D3_ADJ7	D3_5K4	D3_5K9
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	69,854	6,805	101,879	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	0	0	0	0	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	493,382	388,101	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	10,608	520,603	86,267	0	0
Southern Rocky Mountain Juniper Woodland and Savanna	1,010,983	14,485,821	3,405,438	0	114,689
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	0	0	0	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	0	1,801	0	0	0
Southern Rocky Mountain Ponderosa Pine Woodland	13,210	1,062,023	125,497	0	0
Western Great Plains Cliff and Outcrop	0	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D4_5K1	D3_5K5	D3_5K7	D3_5K10
Apacherian-Chihuahuan Mesquite Upland Scrub	3,202	42,233	837,849	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	7,806	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	0	3,564,962	14,620,326	12,620,777
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	4,804	13,811	0
Inter-Mountain Basins Big Sagebrush Shrubland	0	385,098	578,048	24,619
Inter-Mountain Basins Greasewood Flat	0	4,804	0	0
Inter-Mountain Basins Juniper Savanna	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	0	1,648,877	3,068,977	51,640
Inter-Mountain Basins Montane Sagebrush Steppe	9,007	221,572	622,682	266,607
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	801	46,836	0
Inter-Mountain Basins Shale Badland	0	0	211,164	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0
Madrean Juniper Savanna	56,043	0	17,614	34,627
Madrean Pinyon-Juniper Woodland	87,468	83,465	29,223	0
Mogollon Chaparral	0	0	11,809	0
North American Arid West Emergent Marsh	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	222,773	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	0	8,407	326,653	66,652
North American Warm Desert Wash	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	0	0	0
Rocky Mountain Aspen Forest and Woodland	0	0	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	0	0	5,404	112,487
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	0	0	2,402	0
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	45,635	0	0	0

Appendix A Table 2

Ecosystem	D4_5K1	D3_5K5	D3_5K7	D3_5K10
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	0	0	55,643	10,808
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	0	0	27,021	69,854
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	0	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	186,344	0	0	0
Southern Rocky Mountain Juniper Woodland and Savanna	2,523,355	0	5,804	2,384,447
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	301,434	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	1,012,985	0	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	0	0	1,401	4,203
Southern Rocky Mountain Ponderosa Pine Woodland	102,880	0	0	0
Western Great Plains Cliff and Outcrop	24,219	0	0	0
Western Great Plains Foothill and Piedmont Grassland	190,948	0	0	0
Western Great Plains Riparian Woodland and Shrubland	5,004	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D4_ADJ4	D2_5K6	D2_5K4	D2_5K2
Apacherian-Chihuahuan Mesquite Upland Scrub	0	0	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	1,001	0	0
Colorado Plateau Pinyon-Juniper Woodland	0	601,666	1,561,009	794,415
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	0	0	0	0
Inter-Mountain Basins Greasewood Flat	0	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	0	0	0	0
Inter-Mountain Basins Montane Sagebrush Steppe	0	25,820	84,866	52,841
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0
Inter-Mountain Basins Shale Badland	0	0	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0
Madrean Juniper Savanna	0	2,802	0	0
Madrean Pinyon-Juniper Woodland	0	0	0	0
Mogollon Chaparral	0	30,824	0	0
North American Arid West Emergent Marsh	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	0	0	0	0
North American Warm Desert Wash	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	0	0	0
Rocky Mountain Aspen Forest and Woodland	400	0	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	0	15,412	8,407	11,409
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	97,676	0	0	62,048
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	462,558	0	0	0

Appendix A Table 2

Ecosystem	D4_ADJ4	D2_5K6	D2_5K4	D2_5K2
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	1,801	0	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	0	0	0	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	49,038	5,004	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	780,405	43,634	90,470	12,810
Southern Rocky Mountain Juniper Woodland and Savanna	3,218,894	10,196,299	2,751,932	3,855,186
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	16,213	0	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	2,002	7,206	0	0
Southern Rocky Mountain Ponderosa Pine Woodland	1,948,710	28,422	1,296,805	150,116
Western Great Plains Cliff and Outcrop	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D2_5K10	D2_5K11	D3_5K13	D3_ADJ4	D3_ADJ5
Apacherian-Chihuahuan Mesquite Upland Scrub	0	0	0	0	2,602
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	20,416	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	10,810,174	3,219,094	4,395,205	643,699	106,482
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	3,002	0	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	139,908	0	200	0	801
Inter-Mountain Basins Greasewood Flat	1,401	0	0	0	801
Inter-Mountain Basins Juniper Savanna	0	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	322,450	4,203	0	3,603	11,409
Inter-Mountain Basins Montane Sagebrush Steppe	1,225,149	1,441,517	203,558	0	2,202
Inter-Mountain Basins Semi-Desert Grassland	3,403	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	3,403	0	4,003	5,204	5,804
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0	0
Madrean Juniper Savanna	0	0	0	0	0
Madrean Pinyon-Juniper Woodland	0	0	0	0	0
Mogollon Chaparral	0	801	0	0	0
North American Arid West Emergent Marsh	0	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	21,417	0	23,018	39,831	5,204
North American Warm Desert Wash	0	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	0	0	0	0
Rocky Mountain Aspen Forest and Woodland	0	0	0	0	0
Rocky Mountain Cliff, Canyon and Massive Bedrock	33,026	13,010	0	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	26,420	0	0	2,602	0
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0	0	0	0	0

Appendix A Table 2

Ecosystem	D2_5K10	D2_5K11	D3_5K13	D3_ADJ4	D3_ADJ5
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	12,410	0	0	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	322,650	251,595	26,821	0	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	0	0	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	210,363	19,615	0	0	0
Southern Rocky Mountain Juniper Woodland and Savanna	3,800,944	3,536,740	3,251,118	2,002	0
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	48,237	0	0	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	241,187	19,615	1,001	0	0
Southern Rocky Mountain Ponderosa Pine Woodland	679,126	211,564	0	0	0
Western Great Plains Cliff and Outcrop	0	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D3_5K18	D3_5K17	D5_ADJ4	D3_ADJ8	D3_5K2
Apacherian-Chihuahuan Mesquite Upland Scrub	980,960	1,633,065	0	3,901,222	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	32,825	38,430	0	78,060	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	40,231	17,013	0	57,044	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	13,410	0
Colorado Plateau Pinyon-Juniper Woodland	2,157,872	1,557,607	0	26,062,389	1,590,232
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	2,002	0	0	2,202	0
Inter-Mountain Basins Big Sagebrush Shrubland	5,404	0	0	10,608	0
Inter-Mountain Basins Greasewood Flat	1,201	5,004	0	85,066	0
Inter-Mountain Basins Juniper Savanna	0	0	0	801	0
Inter-Mountain Basins Mixed Salt Desert Scrub	271,010	252,796	0	2,587,404	0
Inter-Mountain Basins Montane Sagebrush Steppe	20,616	39,831	0	1,098,251	8,607
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	46,836	116,690	0	403,312	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	400	153,319	0
Madrean Juniper Savanna	400	137,707	0	147,114	0
Madrean Pinyon-Juniper Woodland	295,829	1,837,824	0	2,712,101	0
Mogollon Chaparral	81,863	171,333	0	1,420,100	0
North American Arid West Emergent Marsh	0	0	0	685,531	0
North American Warm Desert Active and Stabilized Dune	0	0	0	7,406	0
North American Warm Desert Bedrock Cliff and Outcrop	0	801	0	2,402	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	720,358	627,686	0	5,587,328	2,802
North American Warm Desert Wash	44,434	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	0	0	2,002	4,604	58,045
Rocky Mountain Aspen Forest and Woodland	0	0	67,853	0	4,003
Rocky Mountain Cliff, Canyon and Massive Bedrock	0	0	0	14,211	121,494
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	275,013	231,179	11,609	2,958,692	4,403
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	1,801	6,805	27,822	48,037	0

Appendix A Table 2

Ecosystem	D3_5K18	D3_5K17	D5_ADJ4	D3_ADJ8	D3_5K2
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	1,001	0	0	4,003	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	3,202	16,213	0	519,002	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	0	7,406	1,001	168,731	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	0	0	9,808	38,430	21,817
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	1,001	0	679,326	212,164	91,271
Southern Rocky Mountain Juniper Woodland and Savanna	364,082	173,334	97,075	25,851,226	2,289,373
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	0	0	0	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	0	0	6,805	34,627	0
Southern Rocky Mountain Ponderosa Pine Woodland	5,804	0	614,076	831,044	445,745
Western Great Plains Cliff and Outcrop	0	5,604	0	13,611	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	9,007	0	27,421	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D3_5K1	D3_5K6	D3_5K15	D3_5K14	D3_5K12
Apacherian-Chihuahuan Mesquite Upland Scrub	0	68,253	0	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	3,321,973	11,353,795	7,855,685	4,782,705	5,577,120
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	3,202	43,434	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	600	424,529	9,007	0	15,212
Inter-Mountain Basins Greasewood Flat	3,603	36,228	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	10,408	3,757,511	4,003	0	2,602
Inter-Mountain Basins Montane Sagebrush Steppe	7,005	769,996	31,024	20,816	136,105
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	801	0	0	0
Inter-Mountain Basins Shale Badland	1,601	202,757	2,202	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	2,802	0	0	0
Madrean Juniper Savanna	0	801	1,801	0	0
Madrean Pinyon-Juniper Woodland	0	17,013	0	0	0
Mogollon Chaparral	54,842	0	0	0	0
North American Arid West Emergent Marsh	0	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	3,403	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	71,455	111,887	47,837	0	801
North American Warm Desert Wash	0	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	161,325	0	2,002	0	1,601
Rocky Mountain Aspen Forest and Woodland	140,309	0	6,005	0	600
Rocky Mountain Cliff, Canyon and Massive Bedrock	217,368	0	70,054	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	419,125	0	0	0	0
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0	0	0	0	0

Appendix A Table 2

Ecosystem	D3_5K1	D3_5K6	D3_5K15	D3_5K14	D3_5K12
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	15,012	13,010	1,201	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	10,208	801	36,428	0	24,019
Rocky Mountain Subalpine-Montane Riparian Shrubland	348,070	0	6,005	0	0
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	861,267	0	22,017	0	801
Southern Rocky Mountain Juniper Woodland and Savanna	6,356,924	11,809	3,802,145	543,221	3,772,522
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	0	0	0	0	0
Southern Rocky Mountain Pinyon-Juniper Woodland	801	0	3,603	600	0
Southern Rocky Mountain Ponderosa Pine Woodland	964,947	0	26,220	0	4,604
Western Great Plains Cliff and Outcrop	0	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D2_5K7	D2_5K8	D5_ADJ1	D5_ADJ2	D5_ADJ5
Apacherian-Chihuahuan Mesquite Upland Scrub	0	0	0	0	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0	0	0	0	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	0	0	0	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0	0	0	0	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0	0	0	0	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0	0	0	0	0
Colorado Plateau Pinyon-Juniper Woodland	2,116,840	250,194	0	0	0
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0	0	0	0	0
Inter-Mountain Basins Big Sagebrush Shrubland	0	0	0	0	0
Inter-Mountain Basins Greasewood Flat	0	0	0	0	0
Inter-Mountain Basins Juniper Savanna	0	0	2,602	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	11,209	4,403	0	0	0
Inter-Mountain Basins Montane Sagebrush Steppe	4,604	1,601	0	0	0
Inter-Mountain Basins Semi-Desert Grassland	0	0	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0	0	0	0	0
Inter-Mountain Basins Shale Badland	0	0	0	0	0
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	0	0	0	0
Madrean Juniper Savanna	2,802	0	0	0	0
Madrean Pinyon-Juniper Woodland	0	0	0	0	0
Mogollon Chaparral	2,602	0	0	0	0
North American Arid West Emergent Marsh	0	0	0	0	0
North American Warm Desert Active and Stabilized Dune	0	0	0	0	0
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	5,204	43,434	0	0	0
North American Warm Desert Wash	0	0	0	0	0
Rocky Mountain Alpine-Montane Wet Meadow	15,812	100,878	0	0	0
Rocky Mountain Aspen Forest and Woodland	7,806	60,247	0	0	600
Rocky Mountain Cliff, Canyon and Massive Bedrock	1,201	647,502	0	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	10,808	0	0	2,002	2,202
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0	0	0	0	34,227

Appendix A Table 2

Ecosystem	D2_5K7	D2_5K8	D5_ADJ1	D5_ADJ2	D5_ADJ5
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0	0	0	0	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	2,802	0	0	0	0
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	1,801	1,201	0	2,802	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	9,607	1,804,998	0	0	8,006
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	2,002	746,178	0	1,801	171,533
Southern Rocky Mountain Juniper Woodland and Savanna	2,410,868	2,603,817	400	26,420	260,001
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0	0	114,689	61,247	0
Southern Rocky Mountain Montane-Subalpine Grassland	0	0	90,670	154,520	0
Southern Rocky Mountain Pinyon-Juniper Woodland	0	0	0	0	801
Southern Rocky Mountain Ponderosa Pine Woodland	7,406	2,643,848	0	801	630,488
Western Great Plains Cliff and Outcrop	0	0	0	0	0
Western Great Plains Foothill and Piedmont Grassland	0	0	0	0	0
Western Great Plains Riparian Woodland and Shrubland	0	0	0	0	0
Western Great Plains Shortgrass Prairie	0	0	0	0	0

Values are the estimated acres of each ecosystem occurring within each wilderness inventory area.

Ecosystem	D3_5K3
Apacherian-Chihuahuan Mesquite Upland Scrub	0
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	0
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0
Chihuahuan Sandy Plains Semi-Desert Grassland	0
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	0
Colorado Plateau Mixed Bedrock Canyon and Tableland	0
Colorado Plateau Pinyon-Juniper Woodland	2,355,425
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0
Inter-Mountain Basins Big Sagebrush Shrubland	97,275
Inter-Mountain Basins Greasewood Flat	0
Inter-Mountain Basins Juniper Savanna	0
Inter-Mountain Basins Mixed Salt Desert Scrub	22,818
Inter-Mountain Basins Montane Sagebrush Steppe	4,604
Inter-Mountain Basins Semi-Desert Grassland	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	0
Inter-Mountain Basins Shale Badland	3,803
Inter-Mountain Basins Volcanic Rock and Cinder Land	0
Madrean Juniper Savanna	0
Madrean Pinyon-Juniper Woodland	43,233
Mogollon Chaparral	2,202
North American Arid West Emergent Marsh	0
North American Warm Desert Active and Stabilized Dune	0
North American Warm Desert Bedrock Cliff and Outcrop	0
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	22,618
North American Warm Desert Wash	0
Rocky Mountain Alpine-Montane Wet Meadow	9,808
Rocky Mountain Aspen Forest and Woodland	24,619
Rocky Mountain Cliff, Canyon and Massive Bedrock	62,649
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	611,474
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0

Appendix A Table 2

Ecosystem	D3_5K3
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	25,620
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	0
Rocky Mountain Subalpine-Montane Riparian Shrubland	121,494
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	230,979
Southern Rocky Mountain Juniper Woodland and Savanna	2,580,599
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0
Southern Rocky Mountain Montane-Subalpine Grassland	0
Southern Rocky Mountain Pinyon-Juniper Woodland	0
Southern Rocky Mountain Ponderosa Pine Woodland	185,544
Western Great Plains Cliff and Outcrop	0
Western Great Plains Foothill and Piedmont Grassland	0
Western Great Plains Riparian Woodland and Shrubland	0
Western Great Plains Shortgrass Prairie	0

Ecological Group ("Ecosystem")	Wilderness	Non-Wilderness	All Cibola NF	% Cibola Wilderness	% Fed Wilderness
North American Warm Desert Bedrock Cliff and Outcrop	993	19,306	20,300	4.89	47.11
North American Warm Desert Volcanic Rockland	0	2	2	0.00	46.19
Rocky Mountain Subalpine-Montane Riparian Shrubland	436	2,483	2,918	14.93	38.72
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	417	1,968	2,385	17.47	32.92
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	836	2,189	3,025	27.65	31.71
Rocky Mountain Alpine-Montane Wet Meadow	0	44	44	0.00	30.53
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	2,779	6,700	9,479	29.32	30.25
North American Warm Desert Riparian Woodland and Shrubland	0	5	5	0.00	25.70
Rocky Mountain Cliff, Canyon and Massive Bedrock	545	3,827	4,372	12.46	23.40
Madrean Pine-Oak Forest and Woodland	122	566	689	17.76	23.10
Mogollon Chaparral	1,550	5,441	6,992	22.17	21.46
Inter-Mountain Basins Juniper Savanna	60	6,505	6,565	0.91	20.71
North American Warm Desert Active and Stabilized Dune	0	92	92	0.00	18.69
North American Warm Desert Wash	0	439	439	0.00	18.58
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	0	262	262	0.00	17.15
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	8,808	20,742	29,550	29.81	13.35
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	20,703	51,081	71,784	28.84	12.78
Southern Rocky Mountain Montane-Subalpine Grassland	331	1,618	1,949	16.99	12.24
Rocky Mountain Aspen Forest and Woodland	5,414	13,319	18,733	28.90	12.07
Madrean Pinyon-Juniper Woodland	65	19,104	19,169	0.34	10.26
Southern Rocky Mountain Ponderosa Pine Woodland	63,787	506,479	570,266	11.19	9.20
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	42	58	100	41.87	6.60
North American Arid West Emergent Marsh	188	1,082	1,270	14.79	6.56
Inter-Mountain Basins Montane Sagebrush Steppe	5	280	285	1.64	6.51
Inter-Mountain Basins Semi-Desert Grassland	99	54,502	54,601	0.18	6.29
Inter-Mountain Basins Volcanic Rock and Cinder Land	0	1,052	1,052	0.00	6.17
Apacherian-Chihuahuan Mesquite Upland Scrub	0	871	871	0.00	5.78
Southern Rocky Mountain Pinyon-Juniper Woodland	13,508	78,974	92,482	14.61	4.98
Colorado Plateau Mixed Bedrock Canyon and Tableland	4	636	640	0.66	4.91
Inter-Mountain Basins Shale Badland	4	56	60	7.41	4.48
Southern Rocky Mountain Juniper Woodland and Savanna	751	51,370	52,120	1.44	4.44
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	1,560	14,268	15,828	9.85	4.42
Colorado Plateau Pinyon-Juniper Woodland	12,144	642,155	654,299	1.86	3.96
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	1,197	3,492	4,689	25.52	3.68
Madrean Juniper Savanna	0	1,207	1,207	0.00	3.34
Inter-Mountain Basins Greasewood Flat	7	618	624	1.07	2.81
Inter-Mountain Basins Big Sagebrush Shrubland	50	706	756	6.62	2.62
Western Great Plains Cliff and Outcrop	0	20	20	0.00	2.47
Inter-Mountain Basins Semi-Desert Shrub Steppe	454	38,805	39,259	1.16	2.38
Chihuahuan Sandy Plains Semi-Desert Grassland	0	147	147	0.00	1.78
Inter-Mountain Basins Mixed Salt Desert Scrub	0	9,267	9,267	0.00	1.71
Western Great Plains Foothill and Piedmont Grassland	15	423	437	3.36	1.59
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	15	37,812	37,828	0.04	1.49
Rocky Mountain Lower Montane-Foothill Shrubland	0	28	28	0.00	1.41
Western Great Plains Riparian Woodland and Shrubland	0	134	134	0.00	1.18
Colorado Plateau Mixed Low Sagebrush Shrubland	0	33	33	0.00	0.86
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	0	1,686	1,686	0.00	0.71
Western Great Plains Shortgrass Prairie	0	13,708	13,708	0.00	0.52
All Cibola NF Lands	**136,888**	**1,615,563**	**1,752,451**	**7.81**	**10.49**