Potential Wilderness Area Analysis Report: Draft Report

Melvin Butte Vegetation Management Project

Sisters Ranger District
Deschutes National Forest

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Background

This report describes the process and rationale used to inventory the areas meeting the potential wilderness area within the Melvin Butte Vegetation Management Project, Sisters Ranger District, Deschutes National Forest. The inventory is based on and is consistent with the criteria found at Forest Service Handbook (FSH) 1909.12 Chapter 71. Each step of the inventory process is visually documented as a map (see below). In addition to using the GIS modeling tool, professional judgment and local knowledge regarding unique site-specific conditions of each area being was considered for meeting the inventory criteria for potential wilderness.

Potential Wilderness Areas

Areas are identified using the inventory procedures found in Forest Service Handbook (FSH) 1909.12 Chapter 71. The inventory is conducted with the express purpose of identifying all lands that meet the inventory criteria. Potential wilderness areas are not a land designation decision. They do not imply or impart any particular level of management direction or protection; do not imply an evaluation of potential wilderness according to FSH1909.12, Chapter 72, and finally they are not preliminary administrative recommendations for wilderness designation (FSH 1909.12, Chapter 73).

The inventory of potential wilderness does not change the administrative boundary of any inventoried roadless areas (IRAs), any congressionally established wilderness, or any forest plan management areas. Typically, areas meeting the potential wilderness inventory criteria overlap and/or are contiguous with inventoried roadless areas. Areas meeting the potential wilderness criteria may also be contiguous with designated wilderness. Some newly inventoried areas meeting the potential wilderness criteria may be stand alone areas that were not identified as 'roadless areas' in Appendix C of the 1990 Deschutes National Forest Plan and 'inventoried roadless areas' as identified in a set of maps in the 2001 Roadless Area Conservation Rule (RACR). PWAs overlap inventoried roadless areas only where those acres of land are consistent with the inventory criteria found at FSH 1909.12 Chapter 71 and may extend beyond IRA and wilderness boundaries consistent with inventory criteria.

Management Direction

To comply with requirements established FSH 1909.12, Chapter 70, Wilderness Evaluation, the Forest Service is required to conduct an inventory to identify potential wilderness areas following the criteria found in Chapter 71.1. The inventory is conducted to assess whether project related actions have impacts on the ability of an undeveloped area to be considered in a future potential wilderness inventory. In an effort to streamline the inventory and analysis, a GIS model was built considering corporate data in FACTS and INFRA to draw information regarding past tree cutting activities and to identify roads, major elements to be considered while conducting an inventory. The process is composed of a GIS analysis with validation of the model utilizing satellite imagery, local knowledge, field reconnaissance, and or a combination of the above. The GIS model produces a preliminary layer of polygons without past tree cutting activities and outside of a road effect area. A road effect is defined as an area adjacent to the road where impacts from firewood cutting, danger tree removal, brushing and other road maintenance activities have most likely occurred considering topography, vegetative conditions,

and soil characteristics. Further site specific analysis is needed, polygon by polygon, to make a final determination if the polygon meets the criteria established in Chapter 71.1. The model also includes tables for data entry to capture the disposition of each polygon on whether it meets the criteria for inclusion in the potential wilderness inventory. It should be noted that wilderness evaluation is not to be conducted with this analysis, only the inventory.

Examples of typical situations that required applications of professional judgment included, but are not limited to:

1. placement of PWA boundaries along permanent natural or semi-permanent human-made features such as ridges, streams, topographic breaks, past harvest, or forest roads to facilitate easy on the ground identification;

2. whether to proceed through an isthmus (or pinch point) created between two roads or two harvest areas or place a PWA boundary across the isthmus;

3. whether to locate a PWA boundary around a peninsula or place the boundary through the peninsula. The scope of this potential wilderness inventory included all acres contained within the project planning area boundary and lands outside the boundary sufficient to consider contiguous inventoried roadless areas, adjacent federal lands, and acres immediately adjacent to the boundary that do not contain forest roads and substantially recognizable stumps.

Methodology

The following steps describe the methodology used to complete the potential wilderness inventory.

STEP 1 – DETERMINES FEDERAL OWNERSHIP WITHIN THE ANALYSIS AREA

Normally the model runs data on the project boundary with a 2 mile buffer. This allows larger polygons outside the project boundary to be analyzed. In addition, if the project boundary is adjacent to Inventoried Roadless Areas or other predominately undeveloped areas, the analysis area may need to be expanded to cover a 2 mile buffer around these areas to capture the entire polygon and potential adjacent undeveloped areas that could meet PWA criteria. Since the inventory should be conducted on all Federal lands, other federal land ownership adjacent to the PWA analysis area needs to be identified. It is imperative that the GIS analyst and project planner work together during this step.

This analysis was used to remove all private and other non-federal ownership from the PWA analysis.

STEP 2 – DETERMINES "STUMP PRODUCING ACTIVITIES"

The model utilizes data stored in the FACTS database and looks at FACTS codes that infer tree cutting activities have taken place in the past. Noted is that FACTS should be updated when NEPA is signed and identifies polygons authorized for treatment, but not all administrative units are adding polygon data until an activity is accomplished on the ground.

It was determined that the FACTS database was current and correctly displayed timber harvest activities in the PWA analysis area.

STEP 3 – DETERMINES "ROAD EFFECT AREA"

The model utilizes data stored in the INFRA database to identify all roads, including closed roads and decommissioned roads. On the Sisters Ranger District, it is estimated that because of previous danger tree removal, firewood cutting, and other roadside harvest activities, the area along the roads will not meet the criteria for inclusion in the wilderness inventory. Not all road sides have been impacted with activities but local knowledge of tree heights, past management activities, firewood cutting in the general area, and to facilitate easier analysis, it was estimated that within 300 feet each side of the road there are elements such as harvest that resulted in stumps visibly evident that would preclude inclusion in the potential wilderness inventory (most fire wood cutting occurs in the 300 foot zone). GIS model will look at data from INFRA and other data sources for system and non-system roads.

STEP 4 – DETERMINES THE PRELIMINARY POTENTIAL WILDERNESS AREAS

The GIS model incorporates results from the previous steps and identifies polygons with no past tree cutting and outside the road effect area. Each polygon is numbered to be able to track the polygon through its entire disposition. This is the preliminary step to identification of the areas potentially meeting the inventory criteria.

STEP 5 – FINAL POTENTIAL WILDERNESS AREA INVENTORY

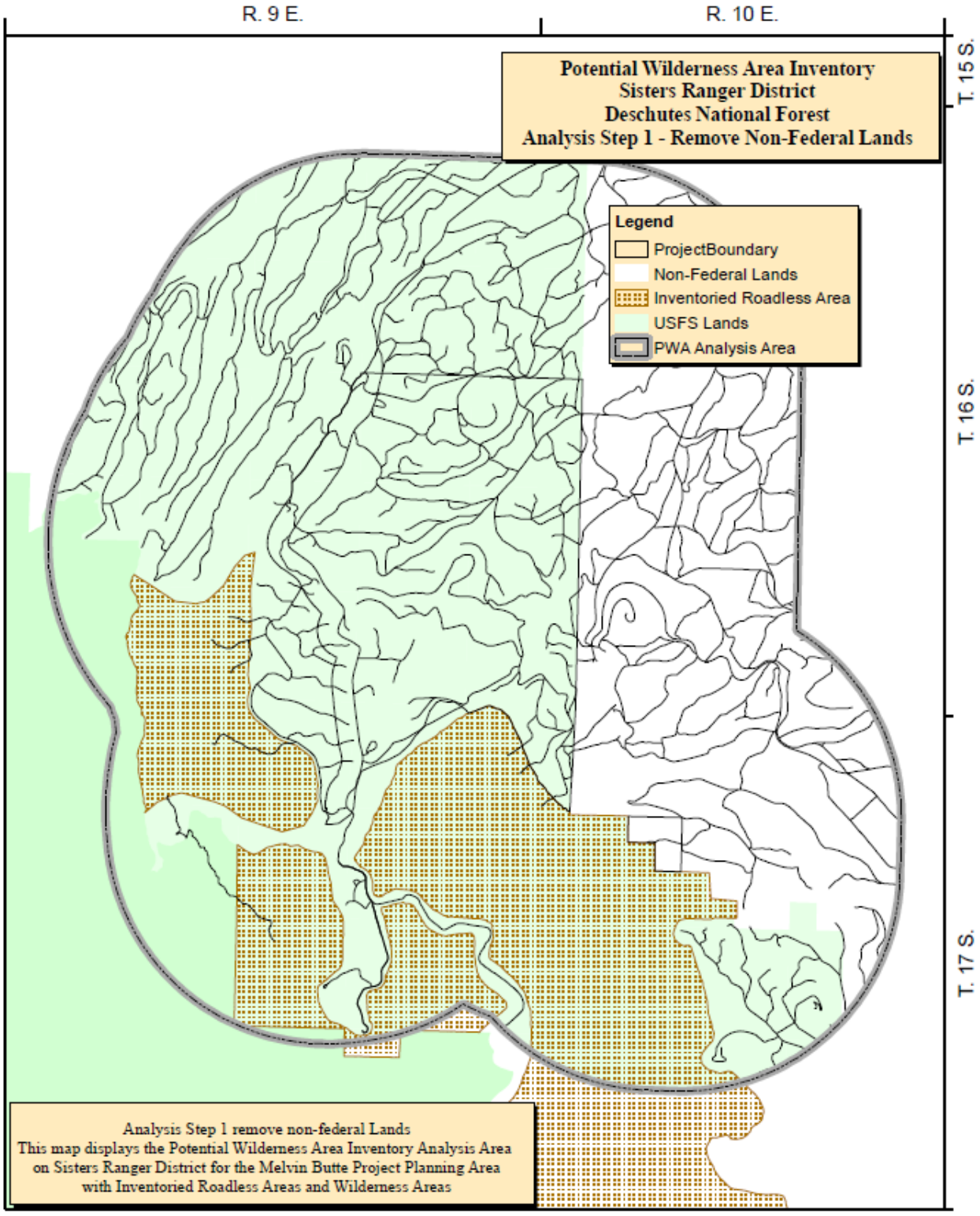
At this step, the IDT reviews the status of the polygons and validates the data depicted on the maps and tables generated by the GIS tool. It's important to utilize local knowledge to determine if the GIS model has captured all data needed to finalize the inventory. A final determination is made for each polygon based on the inventory criteria, to determine if the polygons meet the inventory or why they did not.

Summary of Maps Used in the PWA Analysis Process

Map 1: Step 1

Map 1 displays project area nested within a 2-mile buffer. This allows larger polygons outside the project area to be analyzed. In addition, if the project boundary is adjacent to inventoried Roadless Areas or other predominately undeveloped areas, the analysis area may need to be expanded to cover a 2-mile buffer around these areas to capture the entire polygon and potential adjacent undeveloped areas that could meet PWA criteria; however this was not necessary for this exercise. Since the inventory is to be conducted solely on Federal lands, other Federal land ownerships adjacent to the PWA analysis area need to be identified. The map displays all Federal ownership within the PWA analysis area for the Melvin Butte Vegetation Management Project.

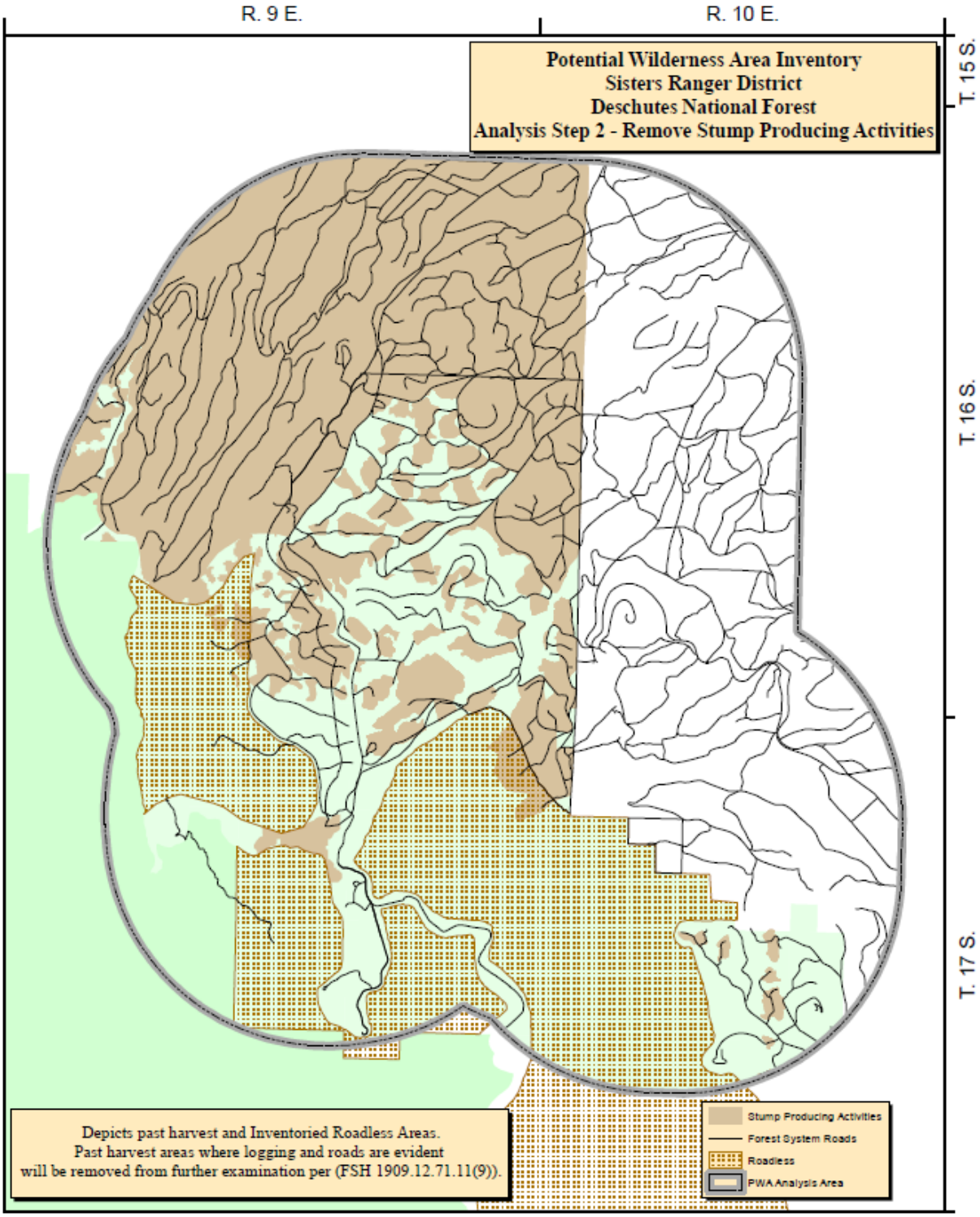
Map 1: Remove Non-federal lands.


R. 9 E.
R. 10 E.
T. 15 S.
T. 16 S.
T. 17 S.
Potential Wilderness Area Inventory
Sisters Ranger District
Deschutes National Forest
Analysis Step 1 - Remove Non-Federal Lands
Legend
ProjectBoundary
Non-Federal Lands
Inventoried Roadless Area
USFS Lands
PWA Analysis Area
Analysis Step 1 remove non-federal Lands
This map displays the Potential Wilderness Area Inventory Analysis Area
on Sisters Ranger District for the Melvin Butte Project Planning Area
with Inventoried Roadless Areas and Wilderness Areas

Map 2: Step 2

Map 2 displays data stored in the FACTS database for all polygons in the project area where tree cutting activity has occurred in the past. Past timber harvest activities include regeneration harvest (clear cutting, seed tree, and shelterwood) and improvement cuttings such as thinning. In these areas, past timber harvest activities resulted in features such as stumps, skid trails etc. which result in areas that do not meet the FSH 1909.12 Ch. 71.11(9) inventory criteria and are therefore removed from any further PWA analysis.

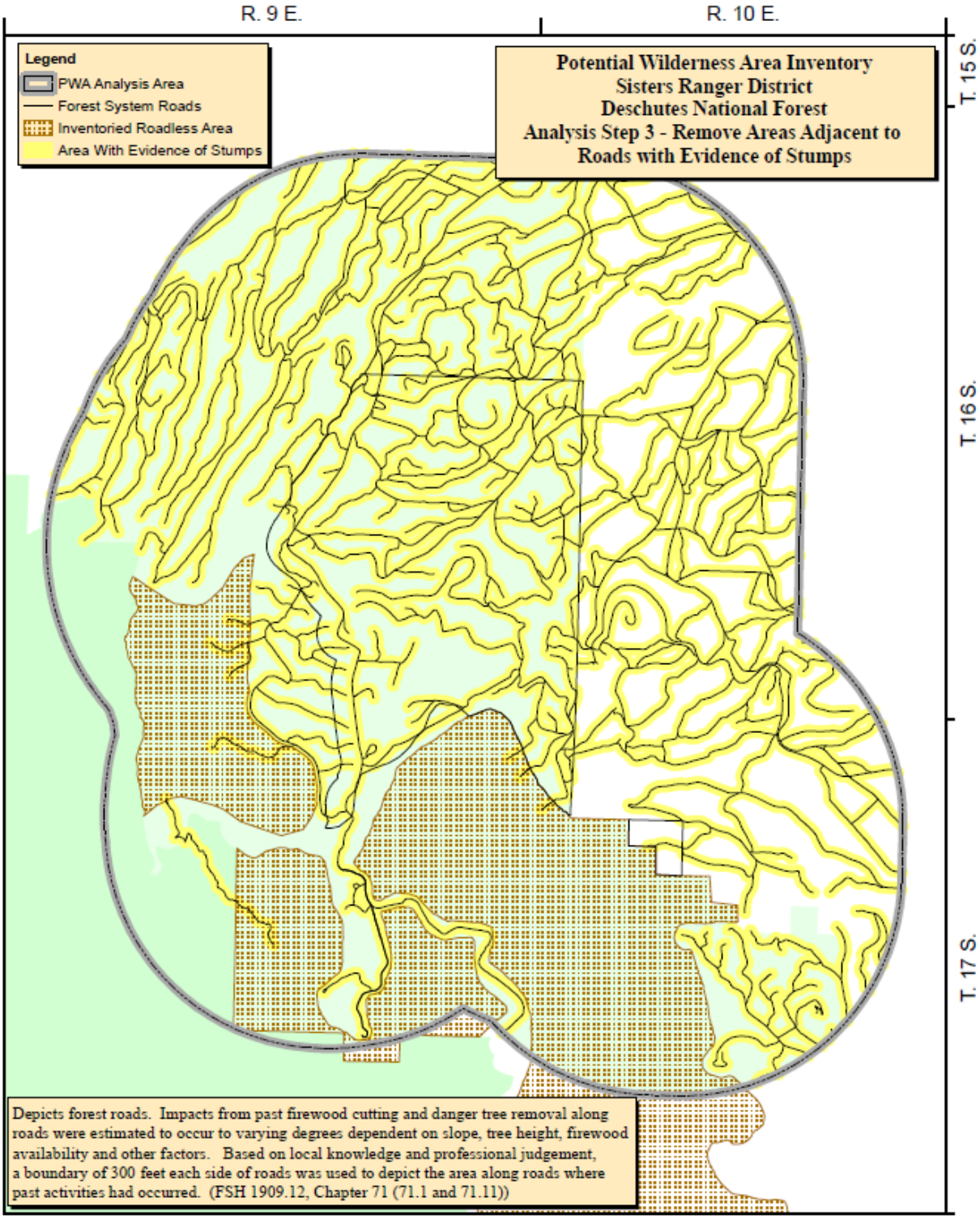
Map 2: Remove Stump Producing Activities



Map 3: Step 3

Map 3 displays data stored in the INFRA database to identify all roads, including closed roads and decommissioned roads in the project analysis area. On the Deschutes National Forest, it is estimated that because of previous danger tree removal, firewood cutting, and other roadside harvest activities, the area along the roads will not meet the criteria for inclusion in the wilderness inventory. Not all road sides have been impacted with activities but local knowledge of tree heights and past management activities, firewood cutting activities and to facilitate easier analysis, it was estimated that within 300 feet each side of the road contained elements that would preclude inclusion in the potential wilderness inventory. GIS model will look at data from INFRA and other data sources for system and non-system roads.

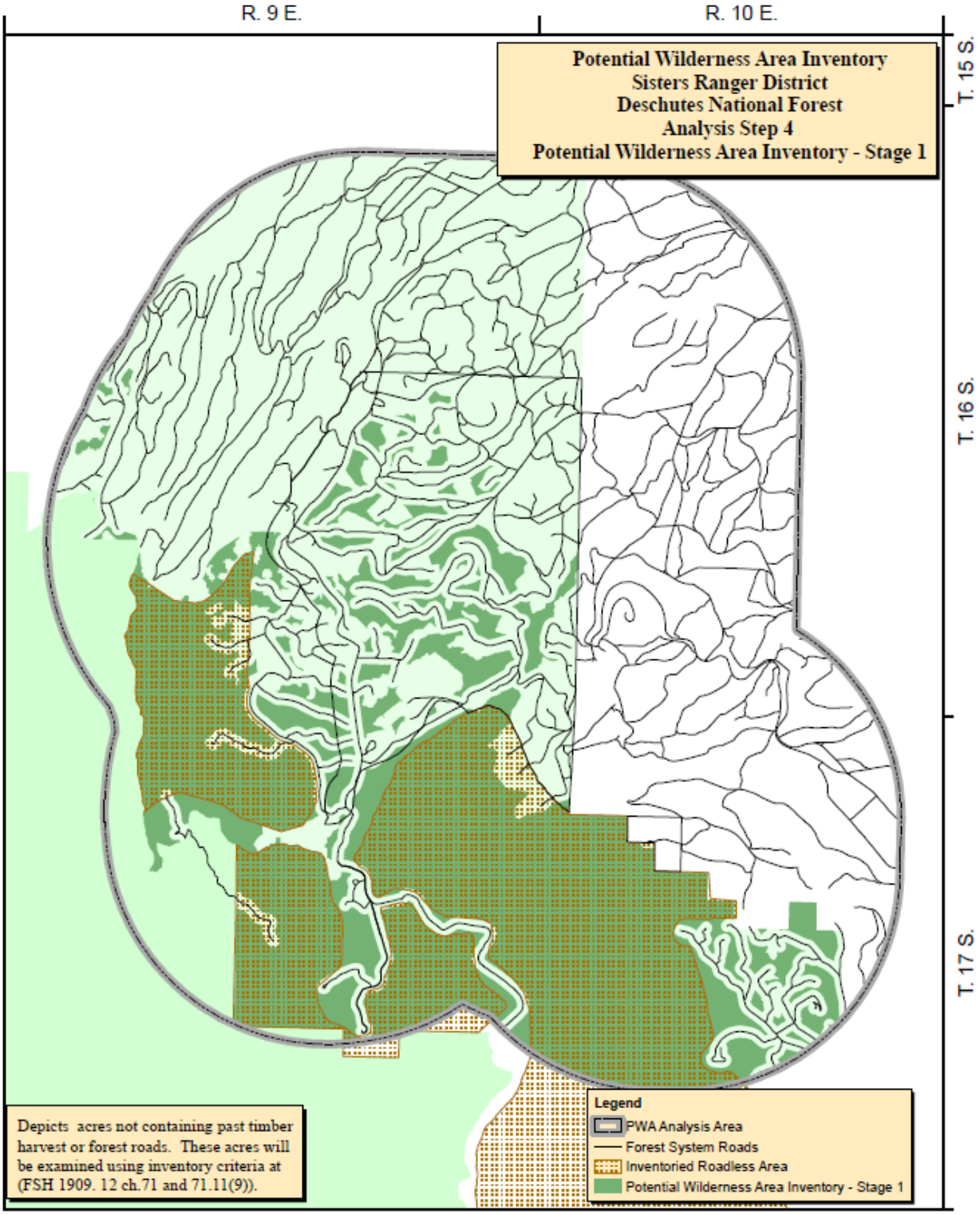
Map 3: Areas Adjacent to Roads with Evidence of Stumps



Map 4: Step 4

Map 4 incorporates results from the previous steps and identifies polygons with no past tree cutting and outside the road effect area. Each polygon is numbered to be able to track the polygon through its entire disposition (see table 2). This is the preliminary step to identification of polygons that contain no evidence of past timber harvest or other evidence of human activity.

Map 4: Potential Wilderness Area Inventory: Stage 1



Maps 5: Step 5

Seventy three individual polygons were evaluated for the Melvin Butte Vegetation Management Project. All polygons regardless of size were evaluated to determine if they meet the inventory criteria. A review of the step 4 map by long standing district personnel directly involved in silvicultural operations indicated that many of the step 4 polygons had some sort of timber harvest, primarily sanitation-salvage cutting or firewood cutting, and were not recorded in the FACTS database. 66 polygons, totaling about 1,405 acres, were identified as **not** meet the inventory criteria at FSH 1909.12, 71.1.

The results of the step 5 analysis are given below.

Table 1: PWA Analysis by Individual Polygon

Step 4: Total No. of PWA polygons in the Analysis Area	Total No. of PWA Polygons that **mee**t FSH Inventory Criteria
73 polygons (about 8,800 acres)	7 polygons (about 7,395 acres)

Potential Wilderness Area Polygon	Final Analysis Acres
16	4,151
56	3,238
57	6
58	0.00002
59	0.0003
62	0.002
64	0.010
Total	**7,395 acres**

Map 5 displays the results of this analysis.

Map 5: Final Potential Wilderness Inventory

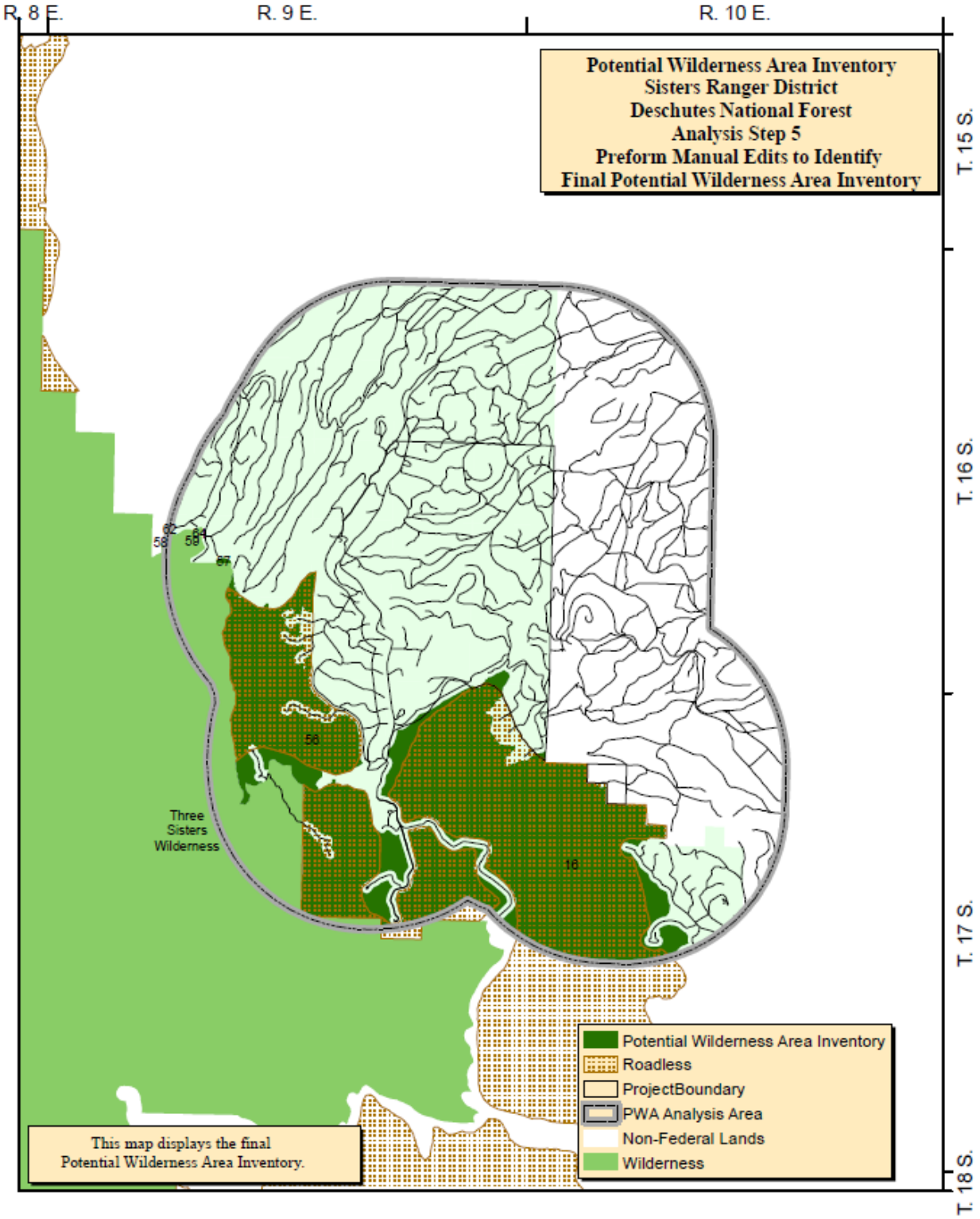


Table 4: Melvin Butte Vegetation Management Project Potential Wilderness Inventory

Table 4 for the Melvin Butte Vegetation Management Project planning area was created using the inventory criteria found in Forest Service Handbook (FSH) 1909.12 Chapter 71.1. Each polygon from Map 4 (described above) was examined against the following criteria from FSH 1909.12 Chapter 71.1:

(1) Area is more than 5,000 acres in size

(2) Area contains less than 5,000 acres, but can meet one or more of the following criteria:

2a. Area can be preserved due to physical terrain and natural conditions.

2b. Areas are self-contained ecosystems, such as an island, that can be effectively managed as a separate unit of the National Wilderness Preservation System.

2c. Areas are contiguous to existing wilderness, primitive areas, Administration-endorsed wilderness, or potential wilderness in other Federal ownership, regardless of their size. The Forest Service relied on local knowledge and judgment regarding unique, site specific conditions of each area being considered for placement on the inventory of potential wilderness. Delineation of areas for potential wilderness inventory; locate boundaries at prominent natural or semi-permanent human-made features to facilitate easy on-the-ground identification.

3. Areas do not contain forest roads (36 CFR 212.1) or other permanently authorized roads, except as permitted in areas east of the 100th meridian (sec.71.12).

Table *. Evaluation of Potential Wilderness Polygons Based on FSH 1909.12 Chapter 71 – Inventory Criteria										
PolyID	**ParentPolyID**	**Analysis_Acres**	**PWArea Analyzed**	**PWA**	**PWA Comment**	**Regulation1**	**Regulation2a**	**Regulation2b**	**Regulation 2c**	**Regulation 3**
1	1	10.2	Yes	No	Firewood Cutting	No	No	No	No	No
2	2	4.9	Yes	No	Firewood Cutting	No	No	No	No	No
3	3	4.1	Yes	No	Firewood Cutting	No	No	No	No	No
4	4	8.1	Yes	No	Firewood Cutting	No	No	No	No	No
5	5	70.1	Yes	No	Firewood Cutting	No	No	No	No	No
6	6	54.6	Yes	No	Firewood Cutting	No	No	No	No	No
7	7	1.3	Yes	No	Firewood Cutting	No	No	No	No	No
8	8	75.6	Yes	No	Firewood Cutting	No	No	No	No	No
9	9	9.2	Yes	No	Firewood Cutting	No	No	No	No	No
10	10	2.0	Yes	No	Firewood Cutting	No	No	No	No	No
11	11	38.0	Yes	No	Firewood Cutting	No	No	No	No	No
12	12	18.9	Yes	No	Firewood Cutting	No	No	No	No	No
13	13	4.6	Yes	No	Sanitation-Salvage	No	No	No	No	No
14	14	2.8	Yes	No	Sanitation-Salvage	No	No	No	No	No
15	15	71.9	Yes	No	Firewood Cutting	No	No	No	No	No
16	**16**	**4151.4**	**Yes**	**Yes**		**No**	**Yes**	**No**	**No**	**Yes**
17	17	42.4	Yes	No	Sanitation-Salvage	No	No	No	No	No
18	18	44.6	Yes	No	Firewood Cutting	No	No	No	No	No
19	19	3.7	Yes	No	Firewood Cutting	No	No	No	No	No
20	20	21.3	Yes	No	Firewood Cutting	No	No	No	No	No
21	21	1.2	Yes	No	Firewood Cutting	No	No	No	No	No
22	22	4.1	Yes	No	Firewood Cutting	No	No	No	No	No
23	23	7.9	Yes	No	Firewood Cutting	No	No	No	No	No
24	24	119.1	Yes	No	Sanitation-Salvage	No	No	No	No	No
25	25	3.6	Yes	No	Firewood Cutting	No	No	No	No	No
26	26	1.4	Yes	No	Sanitation-Salvage	No	No	No	No	No
27	27	8.6	Yes	No	Firewood Cutting	No	No	No	No	No

Table *. Evaluation of Potential Wilderness Polygons Based on FSH 1909.12 Chapter 71 – Inventory Criteria										
PolyID	ParentPolyID	Analysis_Acres	PWArea Analyzed	PWA	PWA Comment	Regulation1	Regulation2a	Regulation2b	Regulation 2c	Regulation 3
29	29	7.3	Yes	No	Sanitation-Salvage	No	No	No	No	No
30	30	2.1	Yes	No	Sanitation-Salvage	No	No	No	No	No
31	31	1.1	Yes	No	Sanitation-Salvage	No	No	No	No	No
32	32	1.8	Yes	No	Sanitation-Salvage	No	No	No	No	No
33	33	116.7	Yes	No	Sanitation-Salvage	No	No	No	No	No
34	34	81.5	Yes	No	Sanitation-Salvage	No	No	No	No	No
35	35	20.4	Yes	No	Sanitation-Salvage	No	No	No	No	No
36	36	8.0	Yes	No	Sanitation-Salvage	No	No	No	No	No
37	37	95.1	Yes	No	Sanitation-Salvage	No	No	No	No	No
39	39	48.1	Yes	No	Sanitation-Salvage	No	No	No	No	No
40	40	5.8	Yes	No	Sanitation-Salvage	No	No	No	No	No
41	41	1.2	Yes	No	Sanitation-Salvage	No	No	No	No	No
42	42	23.6	Yes	No	Sanitation-Salvage	No	No	No	No	No
43	43	13.3	Yes	No	Sanitation-Salvage	No	No	No	No	No
44	44	23.6	Yes	No	Sanitation-Salvage	No	No	No	No	No
45	45	3.2	Yes	No	Sanitation-Salvage	No	No	No	No	No
46	46	15.4	Yes	No	Sanitation-Salvage	No	No	No	No	No
47	47	2.2	Yes	No	Sanitation-Salvage	No	No	No	No	No
48	48	16.8	Yes	No	Sanitation-Salvage	No	No	No	No	No
49	49	2.1	Yes	No	Sanitation-Salvage	No	No	No	No	No
50	50	24.0	Yes	No	Sanitation-Salvage	No	No	No	No	No
51	51	3.3	Yes	No	Sanitation-Salvage	No	No	No	No	No
52	52	8.7	Yes	No	Sanitation-Salvage	No	No	No	No	No
53	53	7.6	Yes	No	Sanitation-Salvage	No	No	No	No	No
54	54	6.8	Yes	No	Sanitation-Salvage	No	No	No	No	No
55	28	61.6	Yes	No	Sanitation-Salvage	No	No	No	No	No

Table *. Evaluation of Potential Wilderness Polygons Based on FSH 1909.12 Chapter 71 – Inventory Criteria										
PolyID	**ParentPolyID**	**Analysis_Acres**	**PWArea Analyzed**	**PWA**	**PWA Comment**	**Regulation1**	**Regulation2a**	**Regulation2b**	**Regulation 2c**	**Regulation 3**
56	**38**	**3237.8**	**Yes**	**Yes**	**Adjacent to Wilderness**	**No**	**Yes**	**No**	**Yes**	**Yes**
57	**38**	**5.9**	**Yes**	**Yes**	**Adjacent to Wilderness**	**No**	**Yes**	**No**	**Yes**	**No**
58	**38**	**0.00002**	**Yes**	**Yes**	**Adjacent to Wilderness**	**No**	**Yes**	**No**	**Yes**	**No**
59	**38**	**0.00026**	**Yes**	**Yes**	**Adjacent to Wilderness**	**No**	**Yes**	**No**	**Yes**	**No**
60	38	0.00104	Yes	No	Sanitation-Salvage	No	No	No	No	No
61	38	0.00166	Yes	No	Sanitation-Salvage	No	No	No	No	No
62	**38**	**0.00163**	**Yes**	**Yes**	**Adjacent to Wilderness**	**No**	**Yes**	**No**	**Yes**	**No**
63	38	0.00603	Yes	No	Sanitation-Salvage	No	No	No	No	No
64	**38**	**0.00967**	**Yes**	**Yes**	**Adjacent to Wilderness**	**No**	**Yes**	**No**	**Yes**	**No**
65	16	35.2	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No
66	16	10.7	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No
67	16	1.4	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No
68	38	54.5	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No
69	38	5.5	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No
70	38	19.8	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No
71	38	38.5	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No

Table *. Evaluation of Potential Wilderness Polygons Based on FSH 1909.12 Chapter 71 – Inventory Criteria										
PolyID	**ParentPolyID**	**Analysis_Acres**	**PWArea Analyzed**	**PWA**	**PWA Comment**	**Regulation1**	**Regulation2a**	**Regulation2b**	**Regulation 2c**	**Regulation 3**
72	57	4.2	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No
73	56	21.6	Yes	No	Polygon Adjusted to Better Fit Landscape	No	No	No	No	No

Inventory Results

In summary, the following areas meet the inventory criteria as potential wilderness areas and are displayed in Map 5. Note that some polygons meet multiple categories.

Table 3: Inventory Results

Potential Wilderness Polygon Number and Acres	Inventory Criteria
	1. Areas is greater than 5,000 acres in size
	2. Areas contain less than 5,000 acres, but can meet one or more of the following criteria:
16, 56, 57, 58, 59, 62, and 64	2a. Areas can be preserved due to physical terrain and natural conditions.
	2b. Areas are self-contained ecosystems, such as an island, that can be effectively managed as a separate unit of the National Wilderness Preservation System.
56, 57, 58, 59, 62, and 64	2c. Areas are contiguous to existing wilderness, primitive areas, administrative areas, Administration-endorsed wilderness, or potential wilderness, or potential wilderness in other federal ownership, regardless of size
16 and 56	3. Areas do not contain forest roads (36 CFR 212.1) or other permanently authorized roads, except as permitted in areas east of the 100th meridian (sec. 71.12).